Curtailment of Diversions due to Insufficient Flow for Specific Fisheries Emergency Regulations Digest

May 13, 2014

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In Title 23, Division 3, Chapter 2, add Article 24, Sections 877 through 879.2 to read:

Article 24. Curtailment of Diversions Based on Insufficient Flow to Meet All Needs

§ 875 [reserved]

§ 876 [reserved]

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

The State Water Resources Control Board has determined that it is a waste and unreasonable use under Article X, section 2 of the California Constitution to continue diversions that would cause or threaten to cause flows to fall beneath the drought emergency minimum floors listed in subdivision (c), except as provided in section 878.1.

(a) For the protection of threatened and endangered fish, no water shall be diverted from the streams listed below during the effective period of a curtailment order under this article, except as provided under sections 878, 878.1 or 878.2.

(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). Curtailment orders shall be effective the day after issuance. Except as provided in sections 878, 878.1, and 878.2, where flows are sufficient to support some but not all diversions, curtailment orders shall be issued in order of priority.

In determining which diversions should be subject to curtailment, the Deputy Director shall take into account the need to provide reasonable assurance that the actual drought emergency minimum flows will be met.

If maintaining the flows described in subdivision (c) would require curtailment of uses described in section 878.1, then the Executive Director may decide whether or not those diversions should be allowed to continue based on the most current information available regarding fish populations, health and safety needs and the alternatives available to protect both public health and safety and threatened or endangered fish.

(c) The State Board has authority to ensure the protection and preservation of streams and to limit diversions to protect critical flows for species, including for state and federally threatened and endangered salmon and steelhead species. To prevent the waste and unreasonable use of

water, the Deputy Director may issue curtailment orders as described in subdivision (b). The flows described in this subdivision may be less than otherwise desirable minimum flows for fisheries protection, but have been developed to ensure a bare minimum instream flows for migratory passage during the drought emergency, given the unprecedented nature of the current drought and the drought impacts to these fisheries.

(1) Mill Creek. Mill Creek enters the Sacramento River at Army Corps of Engineers river mile 230 from the east near Los Molinos and approximately one mile north of the town of Tehama. All water right holders in the Mill Creek watershed are subject to curtailment pursuant to subdivision (b) and responsible to meet the drought emergency minimum flows identified in this subdivision. For purposes of this article, the following flows are the drought emergency minimum flows necessary for migratory passage of state and federally listed Central Valley spring-run Chinook salmon (CV SR Salmon) and federally listed California Central Valley steelhead (CCV Steelhead) through the Sacramento Valley floor stream reaches in Mill Creek:

(A) April 1 up to June 30 , if Adult CV SR Salmon are present -

(i) Base Flows – 50 cfs or full flow without diversions, whichever is less.

(ii) Pulse Flows – 100 cfs or full flow without diversions, whichever is less. Pulse flows may be required when Adult CV SR Salmon are observed between Ward dam and the Sacramento River. When required, pulse flows are in lieu of, not in addition to, base flow requirements. The pulse flow will last a minimum of 24 hours to a maximum of 72 hours, and will be determined based on the presence of fish observed and desired migration movements upstream. The duration will be determined by the Deputy Director in consultation with California Department of Fish and Wildlife or the National Marine Fisheries Service. The pulse flows may be required if either of the following conditions occurs prior to the end of the migration period:

A. The average daily full natural flow measured at United States Geological Survey Mill Creek Near Los Molinos CA gauge (MLM/#11381500) is 100 cfs or less for three consecutive days; or

B. California Department of Fish and Wildlife or the National Marine Fisheries Service submits a request to provide the pulse flow and it is approved by the Deputy Director.

(B) June 1 up to June 30 , if Juvenile CV SR Salmon or Juvenile CCV Steelhead are present -

(i) Pulse Flows – 100 cfs or full inflow without diversions, whichever is less. Pulse flows may be required when juvenile CV SR Salmon or CCV Steelhead are observed in the lower reaches of Mill Creek. When required, pulse flows are in lieu of, not in addition to, base flow requirements. The pulse flow will last a minimum of 24 hours to a

maximum of 48 hours, and will be determined by the presence of fish observed and desired migration movements downstream into the Sacramento River. The duration will be determined by the Deputy Director in consultation with California Department of Fish and Wildlife or the National Marine Fisheries Service and will apply if both of the following occur:

A. California Department of Fish and Wildlife or the National Marine Fisheries Service conducts field surveys and observes juvenile CV SR Salmon and CCV Steelhead in the lower reaches of Mill Creek in June; and

B. California Department of Fish and Wildlife or the National Marine Fisheries Service submits a request to provide the pulse flow and it is approved by the Deputy Director.

(C) October 1 - March 31, if Adult CCV Steelhead are present –

(i) Base Flows – 50 cfs or full flow without diversions, whichever is less.

(D) November 1 – June 30, if Juvenile CV SR Salmon or Juvenile CCV Steelhead are present and adult CV SR Salmon or Adult CCV Steelhead are not present –

(i) Base Flows – 20 cfs or full flow without diversions, whichever is less.

(E) The California Department of Fish and Wildlife or the National Marine Fisheries Service may conduct field surveys and notify the Deputy Director when the pertinent migration periods have ended. The Deputy Director may determine that the required base flows are no longer needed and suspend curtailment orders that are based on the need for a particular flow volume.

(F) The California Department of Fish and Wildlife or the National Marine Fisheries Service may conduct field surveys and notify the Deputy Director that the pertinent the migration periods have not yet begun. The Deputy Director may choose not to issue curtailment orders for purposes of meeting the drought emergency minimum flows identified in this subdivision if these agencies have not determined that fish are present and in need of the identified flows.

(2) Deer Creek. Deer Creek enters the Sacramento River at Army Corps of Engineers river mile 220 from the east approximately 1 mile west of the two of the town of Vina. All water right holders in the Deer Creek watershed are subject to curtailment pursuant to subdivision (b) and responsible to meet the drought emergency minimum flows identified in this subdivision. For purposes of this article, the following flows are the drought emergency minimum flows necessary for migratory passage of state and federally listed CV SR Salmon and federally listed CCV Steelhead through the Sacramento Valley floor stream reaches in Deer Creek:

(A) April 1 up to June 30 , if Adult CV SR Salmon are present -

(i) Base Flows – 50 cfs or full flow without diversions, whichever is less.

(ii) Pulse Flows – 100 cfs or full flow without diversions, whichever is less.

(iii) Pulse flows may be required when Adult CV SR Salmon are observed between Vina Dam and the Sacramento River. When required, pulse flows are in lieu of, not in addition to, base flow requirements. The pulse flow will last a minimum of 24 hours to a maximum of 72 hours, and will be determined by the presence of fish observed and desired migration movements upstream. The duration will be determined by the Deputy Director in consultation with California Department of Fish and Wildlife or the National Marine Fisheries Service. The pulse flow may be required if either of the following conditions occur prior to the end of the migration period:

A. The average daily flow measured at United States Geological Survey Deer Creek Near Vina CA gauge (#11383500) is 100 cfs or less for three consecutive days; or

B. California Department of Fish and Wildlife or the National Marine Fisheries Service submits a request to provide the pulse flow and it is approved by the Deputy Director.

(B) June 1 up to June 30 , if Juvenile CV SR Salmon or Juvenile CCV Steelhead are present -

(i) Pulse Flows – 100 cfs or full flow without diversions, whichever is less. Pulse flows may be required when juvenile CV SR Salmon or CCV Steelhead are observed in the lower reaches of Deer Creek. When required, pulse flows are in lieu of, not in addition to, base flow requirements. The pulse flow will last a minimum of 24 hours to a maximum of 48 hours, and will be determined by the presence of fish observed and desired migration movements downstream into the Sacramento River. The duration will be determined by the Deputy Director in consultation with California Department of Fish and Wildlife or the National Marine Fisheries Service. The pulse flow may be required if both of the following occur:

A. California Department of Fish and Wildlife or the National Marine Fisheries Service conducts field surveys and observes juvenile CV SR Salmon and CCV Steelhead in the lower reaches of Deer Creek in June; and

B. California Department of Fish and Wildlife or the National Marine Fisheries Service submits a request to provide the pulse flow and it is approved by the Deputy Director.

(C) October 1 - March 31, if Adult CCV Steelhead are present –

(i) Base Flows – 50 cfs or full flow without diversions, whichever is less.

(D) November 1 – June 30, if Juvenile CV SR Salmon or Juvenile CCV Steelhead are present and adult CV SR Salmon or Adult CCV Steelhead are not present –

(i) Base Flows – 20 cfs or full flow without diversions, whichever is less.

(E) The California Department of Fish and Wildlife and/or the National Marine Fisheries Service may conduct field surveys and notify the Deputy Director when the pertinent migration periods have ended. The Deputy Director may determine that the required base flows are no longer needed and suspend curtailment orders that are based on the need for a particular flow volume.

(F) The California Department of Fish and Wildlife and/or the National Marine Fisheries Service may conduct field surveys and notify the Deputy Director that the pertinent the migration periods have not yet begun. The Deputy Director may choose not to issue curtailment orders for purposes of meeting the drought emergency minimum flows identified in this subdivision if these agencies have not determined that fish are present and in need of the identified flows.

(3) Antelope Creek. Antelope Creek enters the Sacramento River at Army Corps of Engineers river mile 235 from the east approximately nine miles southeast of the town of Red Bluff. All water right holders in the Antelope Creek watershed are subject to curtailment pursuant to subdivision (b) and responsible to meet the drought emergency minimum flows identified in this subdivision. For purposes of this article, the following flows are the drought emergency minimum flows necessary for migratory passage of state and federally listed CV SR Salmon and federally listed CCV Steelhead through the Sacramento Valley floor stream reaches in Antelope Creek:

(A) April 1 up to June 30 , if Adult CV SR Salmon are present -

(i) Base Flows – 35 cfs or full flow without diversions, whichever is less.

(ii) Pulse Flows – 70 cfs or full flow without diversions, whichever is less.

(iii) Pulse flows may be required when Adult CV SR Salmon are observed between the Edwards/Los Molinos Mutual diversion dam and the Sacramento River. When required, pulse flows are in lieu of, not in addition to, base flow requirements. The pulse flow will last a minimum of 24 hours to a maximum of 72 hours, and will be determined by the presence of fish observed and desired migration movements upstream. The duration will be determined by the Deputy Director in consultation with California Department of Fish and Wildlife and/or the National Marine Fisheries Service. The pulse flows may be required if either of the following conditions occur prior to the end of the migration period:

A. The average daily full natural flow measured upstream of the Edwards/Los Molinos Mutual diversion dam is 70 cfs or less for three consecutive days; or
B. California Department of Fish and Wildlife or the National Marine Fisheries Service submits a request to provide the pulse flow and it is approved by the Deputy Director.

(B) June 1 up to June 30 , if Juvenile CV SR Salmon or Juvenile CCV Steelhead are present -

(i) Pulse Flows – 70 cfs or full flow without diversions, whichever is less. Pulse flows may be required when juvenile CV SR Salmon or CCV Steelhead are observed in the lower reaches of Antelope Creek. When required, pulse flows are in lieu of, not in addition to, base flow requirements. The pulse flow will last a minimum of 24 hours to a maximum of 48 hours, and will be determined by the presence of fish observed and desired migration movements downstream into the Sacramento River. The duration will be determined by the Deputy Director in consultation with California Department of Fish and Wildlife or the National Marine Fisheries Service. The pulse flows may be required if both of the following occur:

A. California Department of Fish and Wildlife or the National Marine Fisheries Service conducts field surveys and observes juvenile CV SR Salmon or CCV Steelhead in the lower reaches of Antelope Creek in June; and
B. California Department of Fish and Wildlife or the National Marine Fisheries Service submits a request to provide the pulse flow and it is approved by the Deputy Director.

(C) October 1 - March 31, if Adult CCV Steelhead are present –

(i) Base Flows – 35 cfs or full flow without diversions, whichever is less.

(D) November 1 – June 30, if Juvenile CV SR Salmon or Juvenile CCV Steelhead are present and Adult CV SR Salmon or Adult CCV Steelhead are not present –

(i) Base Flows – 20 cfs or full flow without diversions, whichever is less.

(E) The California Department of Fish and Wildlife or the National Marine Fisheries Service may conduct field surveys and notify the Deputy Director when the pertinent migration periods have ended. The Deputy Director may determine that the required base flows are no longer needed and suspend curtailment orders that are based on the need for a particular flow volume.

(F) The California Department of Fish and Wildlife or the National Marine Fisheries Service may conduct field surveys and notify the Deputy Director that the pertinent the migration periods have not yet begun. The Deputy Director may choose not to issue curtailment orders for purposes of meeting the drought emergency minimum flows identified in this subdivision if these agencies have not determined that fish are present and in need of the identified flows.

(4) The drought emergency minimum flows identified in subdivision (c)(1) through (c)(3) shall extend through the confluences with the Sacramento River. Compliance with the drought emergency minimum flows will be determined by the Deputy Director, measured at the most downstream gauge available. The Deputy Director may require additional compliance points as needed.

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

(2) Within 7 days of the effective date of this regulation, the State Board will establish an email distribution list that water right holders may join to receive drought notices and updates regarding curtailments. Notice provided by email or by posting on the State Board's drought web page shall be sufficient for all purposes related to drought notices and updates regarding curtailments. .

§ 878. Non-Consumptive Uses

Some water diversions will not be required to curtail in response to a curtailment order under this article because their use of water does not decrease downstream flows

(a) Direct diversions solely for hydropower.

(b) Other direct diversions solely for non-consumptive uses, if those diverters file with the Deputy Director a certification under penalty of perjury that the diversion is non-consumptive and does not decrease downstream flows. The certification must describe the non-consumptive use and explain, with supporting evidence, why the diversion and use do not decrease downstream flows. The Deputy Director may request additional information, or may 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 regarding that basis of right.

§ 878.1 Minimum Health and Safety Needs

(a) A diversion that would otherwise be subject to curtailment may be authorized if:

(1) The diversion is necessary for minimum health and safety needs; and therefore

(2) The diversion is necessary to further the constitutional policy that the water resources of the state be put to beneficial use to the full extent they are capable, and that waste and unreasonable use be prevented, notwithstanding the effect of the diversions on more senior water rights or instream beneficial uses.

(b) Given the essential nature of water in sustaining human life, use even under a more senior right for any other purpose when domestic and municipal supplies required for minimum health and safety needs cannot be met is a waste and unreasonable use under the California Constitution, Article X, § 2.

(1) Diversions for domestic and municipal use under any valid basis of right, of less than 50 gallons per person, per day, and not exceeding 10 acre-feet per year of storage or 4,500 gallons per day of direct diversion, may continue after issuance of a curtailment order without further approval from the Deputy Director, subject to the conditions set forth in this section. Any diverter wishing to continue diversion under this subdivision must submit to the Deputy Director certification, under penalty of perjury, of compliance with the requirements of subdivisions (b)(1)(A)-(G), below. The Deputy Director may request additional information or set additional requirements on continued diversion.

(A) Not more than 50 gallons per person per day will be diverted under all bases of right;

(B) The diversion is necessary to achieve the minimum amount of water necessary for health and safety, up to 50 gallons per person per day, after all other alternate sources of potable water have been used. To the extent other potable water is available, those sources will be used first and the total used will not exceed 50 gallons per person, per day;

(C) The diverter or all end users are operating under the strictest existing conservation regime for that place of use, if such a plan exists for the area or service provider, or shall be operating under such regime within 30 days. If additional approvals are required before implementation of the conservation regime, the diverter must certify that all possible steps will be taken immediately to ensure prompt approval;

(D) No potable water will be used for outdoor landscaping while this approval is in effect. Water service providers must implement this provision as rapidly as possible, up to a limit of 15 days. If additional approvals are required before implementation of the conservation regime, the diverter must certify that all possible steps will be taken to ensure prompt approval;

(E) If the diverter has the authority to set rates, that such rates are set to encourage conservation, or that changing the rates to encourage conservation shall be considered at the next opportunity, but no later than 30 days from certification. If additional approvals are required before implementation of such a rate structure, the diverter must

certify that all possible steps will be taken to ensure prompt approval. If the diverter does not implement rates to encourage conservation, it must submit to the Deputy Director with the next required reporting an explanation of why such rate setting is inappropriate despite the current drought;

(F) If the diverter is a public water supplier under Water Code section 350 et seq., that it has declared a water shortage emergency condition and adopted regulations and restrictions on the delivery of water or has noticed a meeting for adoption within the next 10 days, and shall adopt conservation and water delivery restrictions and regulations within the next 30 days. To the extent regulations and restrictions require additional approval, the diverter must certify that all possible steps will be taken to ensure prompt approval.

(G) The diverter has either pursued steps to acquire other sources of water, but has not yet been completely successful, as described in an attached report, or the diverter will pursue the steps in an attached plan to identify and secure additional water.

(2) To the extent that a diversion for domestic or municipal use requires more than 50 gallons per person, per day to meet minimum health and safety needs, or any diversion for up to 50 gallons per person, per day exceeding 10 acre-feet of storage or a total of 4,500 gallons per day, continuing diversion of water after issuance of a curtailment notice for the diversion requires approval by the Deputy Director. The Deputy Director may condition approval on implementation of additional conservation measures and reporting requirements. Any petition to continue diversion of more than 50 gallons per person, per day to meet minimum health and safety needs, or for up to 50 gallons per person, per day exceeding 10 acre-feet of storage or a total of 4,500 gallons per day, must:

(A) Describe the specific circumstances that make diversion of more than 50 gallons per person, per day necessary to meet minimum health and safety needs, if a larger amount is sought.

(B) Certify compliance and provide documentation of the actions described in subdivision (b)(1)(C) – (b)(1)(G).

(C) Describe any other additional steps the diverter will take to reduce diversions and consumption.

(D) Provide the timeframe in which the diverter expects to reduce usage to no more than 50 gallons per person, per day, or why minimum health and safety needs will continue to require more water.

(c) All other diversions for minimum health and safety needs, except for an imminent threat to life, require approval from the Deputy Director. The Deputy Director may approve a petition under this subdivision or subdivision (b)(2) upon a finding that the diversion is in furtherance

of the constitutional policy that the water resources of the state be put to beneficial use to the full extent they are capable, and that waste and unreasonable use be prevented, notwithstanding the effect of the diversion on senior water rights or instream beneficial uses, and may condition approval as appropriate to ensure that the diversion and use are reasonable and in the public interest.

(d) "Minimum health and safety needs," as used in this article, means the amount of water necessary for prevention of adverse impacts to human health and safety, for which there is no reasonable alternate supply. "Minimum health and safety needs" include:

(1) Domestic and municipal supplies as described in subdivision (b).

(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, and as authorized by the Deputy Director.

(3) Water supplies identified by the California Department of Forestry and Fire Protection, or another appropriate authority, as regionally necessary for fire preparedness, and as approved by the Deputy Director.

(4) 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 regionally necessary to address critical air quality impacts in order to protect public health, and as authorized by the Deputy Director.

(5) Water supplies necessary to address immediate public health or safety threats, as determined by a public agency with health or safety expertise, subject to approval of the Deputy Director. Such a petition should include a description of the public health need, a description of why the need is immediate, an estimate of the amount of water needed, and a certification that the supply will be used only for the stated need. If necessary to resolve immediate public health or safety threats, the diversion may continue while the petition is being prepared and is pending. The Deputy Director may require additional information to support the initial petition, as well as information on how long the diversion is expected to continue, and a description of other steps taken or planned to obtain alternative supplies.

(6) Other water needs not identified, 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, subject to Deputy Director approval. Petitioners wishing to continue diversions for these uses must identify the health and safety need, include approval from the appropriate public entity, 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.

(e) Notice of certification, petitions and decisions under this section and section 878 will be posted as soon as practicable on the State Board's drought webpage. The Deputy Director may issue a decision under this article prior to providing notice. Any interested person may file an objection to the certification, petition or decision. The objection shall indicate the manner of service upon the certifier or petitioner. The State Board will consider any objection, and may hold a hearing thereon, after notice to all interested persons.

§ 878.2. Local cooperative solutions

Local cooperative solutions may be proposed to the Deputy Director as an alternative means of reducing water use to preserve drought emergency minimum flows. Requests to implement voluntary agreements to coordinate diversions or share water in place of State Board-issued curtailment orders under this article may be submitted to the Deputy Director at any time. The Deputy Director may approve a request if the Deputy Director determines:

(a) the continued diversion is reasonable;

(b) that other users of water will not be injured; and

(c) that the relevant minimum flows identified in this article will be met.

If the National Marine Fisheries Service and the California Department of Fish and Wildlife conclude that the agreement provides watershed-wide protection for the fishery that is comparable to or greater than that provided by this regulation, the Deputy Director shall approve the request without the showing in subdivision (c).

The Deputy Director's approval may be subject to any conditions, including reporting requirements, that the Deputy Director determines to be appropriate.

If such a local solution is already in place at the time a curtailment order is issued, a diverter subject to a curtailment order must, within five days of issuance of the curtailment order, have submitted a petition to the Deputy Director and submit a certification under penalty of perjury that the diversion meets the conditions described in section 879, subdivision (a)(4). Diversions covered by an agreement approved by the Deputy Director to coordinate diversions or share water pursuant to this section are subject to this article and violations of an such 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 Board's drought webpage. The Deputy Director may issue a decision under this article prior to providing notice. Any interested person may file an objection to the certification, petition or decision. The objection shall indicate the manner of service upon the certifier or petitioner. The State Board will consider any objection, and may hold a hearing thereon, after notice to all interested persons.

§ 879. Reporting

(a) All water users or water right holders issued a curtailment order under this article are required within five days to submit under penalty of perjury a certification of the following actions taken in response to the curtailment order, certifying, as applicable, that:

(1) Diversion under the water right identified has been curtailed;

(2) 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 continue only to the extent that they are direct diversions for hydropower;

(4) A petition has been filed as authorized under section 878.1, that the diversion will be authorized if the petition is approved, that the subject water right authorizes the diversion in the absence of a curtailment order, and that diversion and use will comply with the conditions for approval of the petition, except that approval by other authorities may still be pending;

(5) A certification has been filed as authorized under section 878, subdivision (b) or section 878.1, subdivision (b)(1), that the subject water right authorizes the diversion in the absence of a curtailment order; or

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

(b) All water users or water right holders whose continued diversion out of order of water right seniority are authorized under section 878.1 are required to submit, under penalty of perjury, monthly reports during the effective period of the curtailment order. In addition to any reporting required as a condition of certification or of approving a petition, such reports should describe:

(1) how the diverter complies with any conditions of continued diversion, including the conditions of certification under section 878.1, subdivision (b)(1);

(2) any failures to comply with conditions, including the conditions of certification under section 878.1, subdivision (b)(1), and steps taken to prevent further violations;

(3) conservation and efficiency efforts planned, in the process of implementation, and implemented, as well as any information on the effectiveness of implementation;

(4) efforts to obtain alternate water sources;

(5) if the diversion is authorized under section 878.1, subdivision (b):

(i) progress towards implementing the measures described in section 878.1, subdivision (b)(1)(C)-(F), to the extent that implementation was incomplete at the time of certification or petition under section 878.1, subdivision (b) or the most recent report under this subdivision;

(ii) progress under any plan described in section 878.1, subdivision (b)(1)(G) or (b)(2)(C); and

(6) if the diversion is authorized under section 878.1, subdivision (d)(3):

(i) the rate of diversion if it is still ongoing;

(ii) whether the water has been used for any other purpose; (iii) the date diversion ceased, if applicable.

§ 879.1. Conditions of permits, licenses and registrations

Compliance with this article, including any conditions of approval of a petition under this article, shall constitute a condition of all water right permits, licenses, certificates and registrations.

§ 879.2 Compliance and Enforcement

Diversion or use in violation of this article constitutes an unauthorized diversion or use. A diverter must comply with a curtailment order issued under any section of this article, including any conditions of approval of a petition under this article and any water right condition under this article, notwithstanding receipt of more than one curtailment order based on more than one section or water right condition. To the extent of any conflict between the requirements of applicable orders or conditions of approval, the diverter must comply with the requirements that are most stringent. Violations of this article shall be subject to any applicable penalties pursuant to Water Code sections 1052, 1831, 1845 and 1846.

FINDING OF EMERGENCY

The State Water Resources Control Board (State Water Board) finds that an emergency exists due to severe drought conditions. Immediate action is needed to prevent the waste and unreasonable use of water in priority water bodies for threatened and endangered species in light of limited water availability during the drought. The State Water Board will need to curtail water diversions when natural flows decrease so that water is available for: (1) senior water right users; (2) public trust needs for minimum flows for migration of state and federally listed fish three Sacramento River tributaries, Mill Creek, Deer Creek and Antelope Creek; and (3) minimum health and safety needs.

On January 17, 2014, Governor Brown declared a drought state of emergency (January Drought Emergency Proclamation). On January 17, 2014, the State Water Board issued a Notice of Surface Water Shortage and Potential for Curtailment of Water Right Diversions. The notice advised that if dry weather conditions persist, the State Water Board will notify water right holders in critically dry watersheds of the requirement to limit or stop diversions of water under their water right, based on their priority. Due to the dry hydrologic conditions, the State Water Board is and is planning to issue Water Diversion Curtailment Notices to water right holders within the some critically dry watersheds.

Emergency Defined

"'Emergency' means a situation that calls for immediate action to avoid serious harm to the public peace, health, safety, or general welfare." (Gov. Code, § 11342.545.) If a state agency makes a finding that the adoption of a regulation is necessary to address an emergency, the regulation may be adopted as an emergency regulation. (Gov. Code, § 11346.1(b)(1).)

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

Emergency regulations adopted under Water Code section 1058.5 remain in effect for up to 270 days. The finding of emergency is not subject to review by the Office of Administrative Law.

In this document, the State Water Board is providing the necessary specific facts demonstrating: the existence of an emergency and the need for immediate action to prevent serious harm to the general welfare of the citizens of California, pursuant to Government Code section 11346.1, subdivision (b)(2); that the emergency regulation is being adopted to prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion, of water; and that the emergency regulation is being adopted in response to conditions which exist, or are threatened, during a period for which the Governor has issued a proclamation of a state of emergency under the California Emergency Services Act based on drought conditions.

Government Code section 11346.1, subdivision (a)(2) requires that, at least five working days prior to submission of the proposed emergency action to the Office of Administrative Law, 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 the Office of Administrative Law, the Office of Administrative Law shall 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 information necessary to support the State Water Board's emergency rulemaking under Water Code section 1058.5 and also meets the emergency regulation criteria of Government Code section 11346.1 and the applicable requirements of section 11346.5.

Evidence of Emergency

California is currently in the third year of a drought. Water year 2012 was categorized as below normal, calendar year 2013 was the driest year in recorded history for many parts of California, and water year 2014 began on a similar dry trend. Based on these dry conditions, in May 2013, Governor Edmund G. Brown, Jr. issued Executive Order B-21-13, which directed the State Water Board and DWR, among other things, to take immediate action to address dry conditions and water delivery limitations. In December 2013, the Governor also formed a Drought Task Force to review expected water allocations and the state's preparedness for a drought.

This year, Governor Brown's January Drought Emergency Proclamation that, among other things, recognized that changes to water supplies and diversions might be necessary to protect salmon and steelhead, to maintain water supplies, and protect water quality. The Proclamation ordered the State Water Board to "… put water right holders throughout the state on notice that they may be directed to cease or reduce water diversions based on water shortages," which the State Water Board did on January 17, 2014. On March 1, 2014, Governor Brown signed a drought relief package which, inter alia, provided funding to improve conservation and for emergency supplies; reduce fire risk and increase fire-fighting capabilities; and expanded the State Water Board's authority under Water Code §1058.5 and increased penalties for unauthorized diversion of water. (SB 104.)

From February through April a series of precipitation events occurred that somewhat mitigated the dry hydrology and water supply conditions. However, conditions remain dry. Based on the April 1 forecast, the Sacramento and San Joaquin Valley Water Year Types are still classified as critical. Preliminary estimates of the May 1st snowpack also remain extremely low, at 11 percent of the April 1st average for the entire state. Rainfall and snow water content for the Northern Sierra is 60 percent of average to date for the water year.

On April 25, 2014, Governor Brown issued a Proclamation of a Continued State of Emergency related to the drought. The Proclamation finds that California's water supplies continue to be severely depleted despite a limited amount of rain and snowfall since January, with very limited snowpack in the Sierra Nevada mountains, decreased water levels in California's reservoirs, and reduced flows in the state's rivers. The Proclamation orders that the provisions of the January 17, 2014 Proclamation remain in full force and also adds several new provisions. The

Proclamation directs: the State Water Board and DWR to expedite requests to move water to areas of need (including water transfers); calls on Californians to refrain from wasting water; directs various state agencies with funding authority to take actions to respond to the drought; requires DFW to conduct monitoring and work with agencies and landowners to implement actions to minimize impacts to ESA listed fish; requires DWR and DFW to implement habitat restoration projects; requires the State Water Board to take actions to facilitate the use of treated wastewater to reduce demands on potable water supplies; directs DWR to take actions to address groundwater overdraft issues; directs various state agencies to take actions to address water supply and drinking water shortages; directs actions to address increased risk from fires; modifies certain noticing and public bidding requirements to expedite responses to the drought; directs the State Water board to adopt and implement emergency regulations as appropriate to promote water recycling and curtail diversions when water is not available; suspends California Environmental Quality Act requirements for certain activities; and suspends certain Water Code requirements.

As recognized in Water Code section 106.3, access to water for human consumption, cooking and sanitation is a basic human right. Cities, counties and water districts across the state have enacted drought emergency measures to conserve supplies. As of DATE, the California Department of Public Health had identified seventeen communities at severe risk of running out of water. A combination of spring rains, intensive conservation and alternate supply projects has reduced this number to three as of May 12. These numbers track public water suppliers, and do not take other, private supplies into account.

Fire risk is also greatly increased throughout the state due to the drought, with a much larger number of fires already burning this year than is normally seen in the wet season. The dry season is anticipated to be extremely severe.

Need for the Regulation

Immediate action is needed to prevent the waste and unreasonable use of water in light of limited water availability during the drought. The State Water Board will need to curtail water diversions when natural flows decrease so that water is available for: (1) senior water right users; (2) minimum flows for migration of state and federally listed fish in priority water bodies; and (3) minimum health and safety needs.

Water Rights Framework

In order to best understand the need for the regulation and how it will be applied, a very generalized overview of water rights will be helpful.

Two main types of water rights constitute the vast majority of diversions in California: riparian rights and appropriative rights. A riparian water 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. On the other hand, an appropriative water right 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, or for non-riparian purposes. Water right permits and licenses issued by the State Water Board and its predecessors are appropriative water rights. 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.

A water right permit confers the State Water Board'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 a certificate issued to confer a vested water right under certain conditions and constitutes the confirmation by the State Water Board of the water right.

The water right priority system, based on the "priority date" of each water right, forms the basis for determining which users may divert, and how much, when there is insufficient water in the stream for all users. Older, more senior appropriative water rights have priority over more junior appropriative water rights. Senior water right holders know that they are more likely to receive water at times of shortage than more junior water right holders. However, once water is stored or imported, the entity that stored or imported the water has the only right to it, though others may acquire contingent junior rights to any return flows.

The SWRCB has continuing authority under Water Code sections 100 and 275 to enforce the requirements of the California Constitution, Article X, § 2 which directs that the water resources of the state be put to beneficial use to the fullest extent, and that water not be wasted or unreasonably used. It further provides that rights to the use of water are limited to such water as is reasonably required for the beneficial use served, and does not extend to the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of the water. Additionally, all water use in the state is subject to the public trust doctrine: all water users may only divert insofar as their use does not unreasonably harm fish and wildlife and other instream uses of water. Whether a use is reasonable under Article X, § 2 and the public trust depends heavily on the current situation and on competing demands for water.

The reasonable use doctrine applies to the diversion and use of both surface water and groundwater, and it applies irrespective of the type of water right held by the diverter or user. (*Peabody v. Vallejo* (1935) 2 Cal.2d 351, 366-367.) What constitutes an unreasonable use, method of use, or method of diversion depends on the facts and circumstances of each case. (*People ex rel. State Water Resources Control Board v. Forni* (1976) 54 Cal.App.3d 743, 750.) Under the reasonable use doctrine, water right holders may be required to endure some inconvenience or to incur reasonable expenses. (*Id*. at pp. 751-752.)

When the amount of water available in a surface water source is not sufficient to support the needs of existing water right holders and in-stream uses, junior appropriators must cease diversion in favor of higher-priority rights. However, it is not always clear to a junior diverter whether there is sufficient natural flow in the system to support their diversion and senior water uses and instream needs downstream. As part of administrating water rights, the State Water Board may issue notices of curtailment to water rights holders based on California's water rights priority system.

Diverting water when it is unavailable under your priority of right constitutes an unauthorized diversion and a trespass against the state. Violations could be subject to an Administrative Civil Liability (ACL) under the Water Code, or referred to the Attorney General. Administrative cease and desist orders and court injunctions may also be issued to require that diversions stop. An

ACL for an unauthorized diversion may impose liability up to $1,000 a day plus $2,500 per acre foot of water that is illegally diverted for violations during the current drought. For the State Water Board to take an enforcement action, each illegal diversion may be investigated and charged separately, and water right holders may request a full evidentiary hearing that is then subject to de novo review in the superior court system. As such, the current system is cumbersome. If the matter is referred to the Attorney General for enforcement, penalties may be imposed by the court, which could be substantially higher than ACL penalties in some circumstances.

Need for Emergency Protective Flows in Mill Creek, Deer Creek and Antelope Creek

In this particular case, application of the reasonable use and public trust doctrines requires particularized consideration of the benefits of diverting water for current uses from the identified water bodies and the potential for harm to the protected species from such diversions under the current drought conditions.

The purpose of the proposed regulation is to protect listed species in this extremely dry year in high-priority streams by maintaining minimum streamflow for adult salmonid passage at critical migration periods, providing pulses of flow at times to ensure successful migration, and maintaining minimum streamflow for out-migrating juvenile fish.

In a memorandum dated May 7, 2014, the National Marine Fisheries Service (NMFS) recommended that the State Water Board use regulatory authority to establish minimum instream flows in Mill, Deer, and Antelope Creeks to address drought impact on ESA-listed fish species in these creeks (Attachment 11). The memorandum supports minimum instream flows of 50 cfs in Mill Creek and Deer Creek and 35 cfs in Antelope Creek for the protection of adult Chinook salmon migration April 1 through June 30 and October 1 through November 30, and for the protection of steelhead migration October 1 through March 30. In addition, for Mill Creek, Deer Creek, and Antelope Creek, the memorandum provides evidence supporting 20 cfs for juvenile fish outmigration October 1 through June 30th, and pulse flows in addition to base flow of up to 50 cfs or full natural flow in Mill Creek and Deer Creek and pulse flow of up to 35 cfs or full natural flow in Antelope Creek for a minimum duration of 24 hours every 2 weeks from April 15 through June 30 (Attachment 12). This memorandum is in accord with other studies and information regarding fishery needs, as described below.

Status of Species

Since settlement of the Central Valley in the mid-1800s, populations of native Chinook salmon and steelhead have declined dramatically (Moyle 2002). California's salmon resources began to decline in the late 1800s, and continued to decline in the early 1900s, as reflected in the decline of commercial harvest. The total commercial catch of Chinook salmon in1880 was 11 million pounds, by 1922 it had dropped to 7 million pounds, and reached a low of less than 3 million pounds in 1939 (Lufkin 1996, as cited in NMFS 2009). 28 evolutionarily significant units (ESUs) and distinct population segments (DPSs) of salmonids have been listed under the Endangered Species List by the National Marine Fisheries Service (NMFS) on the West Coast of the United States since 1989(NMFS 2009).

The Central Valley is made up of four distinct geological zones which create different watershed systems, which in turn are the basis for diverse fisheries. These varying habitats supported different life history strategies leading to genetically distinct populations of salmon and steelhead. Central Valley salmon and steelhead developed different life history strategies by evolving with habitat factors that reflected differences in these watersheds such as: the availability of cold water, adequate substrate, cover, and flow. Fish ecologists believe that this variability in life history traits was caused by the limitations or availability of habitat features between watersheds, and geographic isolation of populations, which led to genetic separation and to independent salmonid populations within the Central Valley. Although spring-run Chinook salmon were probably the most abundant salmonid in the Central Valley under historical conditions, large dams eliminated access to almost all historical habitat, and spring-run Chinook salmon populations have suffered the most severe declines of any of the four Chinook salmon runs in the Sacramento River Basin (Fisher 1994 as cited in (NMFS 2009)).

Central Valley spring-run Chinook salmon (*O. tshawytscha*), hereinafter CV SRCS, currently listed as threatened, were proposed as endangered by NMFS on March 9, 1998. NMFS concluded that the CV SRCS ESU was in danger of extinction because native CV SRCS salmon have been extirpated from all tributaries in the San Joaquin River Basin, which represented a large portion of the historic range and abundance of the ESU as a whole (NMFS 1998). Moreover, the only streams considered to have wild CV SRCS at that time were Mill and Deer creeks, and possibly Butte Creek (tributaries to the Sacramento River). These populations were considered relatively small with sharply declining trends. Hence, demographic and genetic risks due to small population sizes were considered to be high. NMFS also determined that habitat problems were the most important source of ongoing risk to this ESU (NMFS 1998).

NMFS proposed to list the California Central Valley steelhead (*Oncorhychus mykiss*), hereinafter CCV steelhead which is currently listed as threatened, as endangered on August 9, 1996. NMFS (61 FR 41541 (August 1996)) concluded that the CCV steelhead ESU was in danger of extinction because of habitat degradation and destruction, blockage of freshwater habitats, water allocation problems, the pervasive opportunity for genetic introgression resulting from widespread production of hatchery steelhead and the potential ecological interaction between introduced stocks and native stocks. Moreover, NMFS (71 FR 834 (January 5, 2006)) proposed to list steelhead as endangered because steelhead had been extirpated from most of their historical range.

Extensive extirpation of historical populations has placed the Chinook salmon ESUs in threat of extinction. The proximate problem afflicting these ESUs and the CCV steelhead DPS is that their historical spawning and rearing areas are largely inaccessible(NMFS 2009). Threats to CCV steelhead are similar to those for Chinook salmon and fall into three broad categories: loss of historical spawning habitat; degradation of remaining habitat; and threats to the genetic integrity of the wild spawning populations from hatchery steelhead production programs in the Central Valley. As reported by Armentrout et al. (1998), Mill Creek (in addition to Antelope and Deer Creeks) still support the majority of their original native aquatic species assemblages.

The Deer Creek, Mill Creek and Antelope Creek watersheds have been identified as high-priority tributaries for the protection and recovery of wild populations of CV SRCS and CCV steelhead. The watersheds have been rated as having high "biotic integrity" defined as "the

ability to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitat of the region" (Moyle and Randall 1996 as cited in Armentrout et al. 1998). The anadromous fish habitat in Mill Creek (along with Deer, Antelope, Battle and Butte Creeks[1]) are the best remaining accessible habitat in the Central Valley for anadromous salmonids, and serve as important anchors for their recovery (NMFS 2009).

Watershed Descriptions

Mill Creek

The Mill Creek watershed is approximately 134 square miles, contains nearly 60 river miles, and ranges in elevation from 8,000 feet in Lassen National Park to 200 feet at the confluence with the Sacramento River. Mill Creek is one of three Sacramento River tributaries to support a self-sustaining wild population of CV SRCS; Mill Creek also supports populations of fall-run Chinook salmon, and all life history stages of steelhead. Mill Creek contains the highest elevation of CV SRCS spawning activity in California at approximately 5,300 feet, and is one of the few unregulated streams in California where fish still have access to the upper stream reaches. Current anadromous fish populations in the watershed are not influenced by the presence of Federal, state, or private fish hatcheries.

Mill Creek is vulnerable to inadequate instream flows, particularly during drought years such as 2014. Adequate streamflow during salmonid migration periods will support the survival of adult CV SRCS and CCV steelhead by increasing critical passage riffle depth and reducing water temperatures in Mill Creek.

Mill Creek is characterized as having a high potential to support a viable independent population of CV SRCS and a high potential to support recovery of a viable population of CCV steelhead(NMFS 2009). Mill Creek is recognized as supporting one of three remaining self-sustaining CV SRCS populations. Habitat used for holding and spawning is located at high elevations and is considered to be high quality (CDFG 1998). When considering watersheds in the Central Valley that contribute current viable populations for CV SRCS, Mill Creek is considered a conservation stronghold for the ESU. Lindley *et al.* (2007) classified the Mill Creek CV SRCS population as having a moderate risk of extinction (NMFS 2009). Over the past three years, the abundance of the Mill Creek population has been in steep decline, and the extinction risk may be trending toward moderate to high. The anadromous fish habitats in Mill Creek (along with Deer, Antelope, Battle and Butte Creeks) are probably the best remaining habitat above the Central valley for anadromous salmonids, and serve as important anchors for their recovery (NMFS 2009).

There are two pre-1914 appropriative, six licensed appropriative, and 12 riparian diversions within the Mill Creek watershed with a total of approximately 45,000 acre-feet per year diverted. The Superior Court of Tehama Co. adjudicated the water rights in Mill Creek in 1920. This decree apportions all flows in Mill Creek up to 203 cfs and appoints Los Molinos Mutual Water Co. as watermaster (Tehama Co. Superior Court Decree #3811, 1920). Flow records show that

[1] Information suggests that curtailments for fish passage are not necessary at this point to support listed salmonid populations in Butte and Battle Creeks.

diversions in lower Mill Creek have the potential to entirely eliminate natural streamflow in June-September of a normal water year, and at other times of year in drought conditions.

Deer Creek

Deer Creek also supports one of three remaining self-sustaining populations of threatened CV SRCS (Lindley et al, 2007). Deer Creek is also considered essential to the recovery and perpetuation of wild stocks of CCV steelhead in the Central Valley (Reynolds et al 1993; McEwan and Jackson 1996). Deer Creek originates near the summit of Butt Mountain (7,320 ft) and flows in a southwesterly direction for approximately 60 miles to the Sacramento River (180 ft) draining 134 square miles (NFMS, 2009;see Figure 1). Deer Creek contains approximately 42 miles of anadromous fish habitat with approximately 25 miles of adult spawning and holding habitat, most of which is located on public lands managed by Lassen National Forest. While no major water storage facilities exist on Deer Creek, three diversion dams and four diversion ditches along the lower 10 miles of the creek, as well as two natural falls, can be passage barriers to migrating fish depending on flows. The Upper Deer Creek Falls constitutes the limit of anatomy for CV SRCS, however Upper Falls fish ladder is operational during the time steelhead would be migrating upstream in normal years (NMFS, 2009; Amentrout et al, 1998).

CCV steelhead and CV SRCS face thermal barriers as well as inadequate flows over diversion dams and falls during migration. Adult CV SRCS migrate from March to early June (NMFS, 2009). In 2007, dry year, a total 644 CV SRCS were observed in Deer Creek with only 3% of the population held above the Lower Falls. Normally, up to 28% of the population holds between Upper Falls and Lower Falls. The low flows of the drought will likely intensify the conditions faced in 2007. In addition a total of 403 complete redds, 21 practice redds, 18 carcasses and 87 live fish on redds were observed. Attraction flows in the Lower Falls fish ladder have been declining in recent years and are expected to be less in 2014. From 1991 to 2007, Deer Creek CV SRCS counts in Deer Creek have ranged from 209 to 2,759. According to Cramer and Hammack (1952), from 1940-1948 the end of adult CV SRCS counts made in Deer Creek were always brought about by lack of sufficient water below irrigation diversions for salmon to ascend readily, in addition to the onset of lethal water temperatures (Armentrout et al, 1998). Adult CCV steelhead migration is believed to occur from late fall to winter. No direct studies have been conducted on CCV steelhead migration; however, incidental catch from Chinook salmon studies have occurred November through June, with the most seen from December to March (NMFS, 2009).

From 1994-2010, juvenile CCV steelhead and CV SRCS juvenile out-migrated from October to June. Low flows in expected in 2014 early summer and fall will likely create harsh conditions for outmigration of juvenile salmonids. Juvenile CCV steelhead and juvenile CV SRCS have peak migrations occurring in November and February through March. During the time period 89,526 juvenile CV SRCS, mostly ocean type life history, and 1,169 juvenile CCV steelhead were sampled (DCFW, 2010).

There are 36 riparian, 11 licensed appropriative, and three pre-1914 appropriative water rights in the Deer Creek watershed, totaling approximately 48,000 acre-feet per year cumulative diversions. The Tehama County Superior Court fully adjudicated water rights on Deer Creek in 1923 by dividing 100% of Deer Creek's natural flows 65% and 35% between SVRID and DCID, respectively (Tehama County Superior Court Decree No. 4189, 1923). One assessment of

diversions was made as follows: during the irrigation period, typically from May through October, DCID diverts an average of 29 cfs at the DCID Dam, and the remaining flow can be diverted by SVRIC at Cone-Kimball Dam (5 cfs average) and Stanford-Vina Dam (70 cfs average), reducing flow in the lower five miles of the river to less than 5 cfs at times of intensive irrigation (Tompkins and Kondolf, 2007). In critically dry years, these diversions and resulting low flows may occur earlier in the year, especially if the irrigation season starts earlier.

Antelope Creek

The Antelope Creek watershed encompasses approximately 196 square miles. Antelope Creek stretches approximately 38 miles and enters the Sacramento River at River Mile 235, nine miles south of Red Bluff. At least 47 springs feed Antelope Creek and help sustain its flow through the summer months. The main channels are bounded by canyon walls and the stream is actively eroding downward into the underlying geology. Much of the upper watershed is contained within public lands including both Tehama State Wildlife Area and Lassen National Forest. Antelope Creek flows into the Sacramento River through a series of braided channels in the Dairyville Area. An approximately six mile reach of the Sacramento River receives water from Antelope Creek through this series of channels which includes New Creek which flows into Salt Creek, Craig Creek, Butler Slough, and mainstem Antelope Creek (TCRCD A 2010).

Antelope Creek historically supported fall, late fall and spring run Chinook salmon as well as CCV steelhead. Within the upper watershed, CV SRCS and CCV steelhead trout use habitats within the North and South Forks of Antelope Creek. Both CV SRCS and CCV steelhead are federally-listed as threatened. Once a species or a distinct population segment has been formally listed as threatened or endangered, critical habitat areas are identified and designated by NMFS.

CV SRCS critical habitat was designated in 2005. Antelope Creek has approximately 15 miles of critical spawning and over-summer holding habitat for spring run adults. The few CV SRCS that enter Antelope Creek currently ascend the North Fork four miles upstream of the Middle, North Fork junction to where a natural bolder cascade is located. The CV SRCS are also able to ascend approximately seven miles upstream from the junction on the South Fork, to a series of bedrock chutes. It is thought that this is probably their historical upper limit, beyond which there is little suitable habitat. CV SRCS critical habitat within the lower limit of Antelope Creek include all segments of the braided channel as well as the full length of Butler Slough, Craig Creek, New Creek, and two irrigation canals (TCRCD A 2010; Yoshiyama et al 1996). CCV Steelhead trout critical habitats were also designated in 2005

Potential adverse conditions within Antelope Creek occur primarily in the low lying areas of the watershed, downstream of the mouth of the canyon, and chiefly related to low stream flows. Low streamflows are a result of seasonal agricultural diversions and the braided nature of the channel below the major diversion dam. These low flow conditions are exacerbated by the drought conditions of 2014. It is thought that low flows are a migration barrier to both adult and juvenile salmonids. In the upper watershed Federal land management practices are guided by a long-term anadromous fish conservation strategy. Private timberland management plans lack a comprehensive anadromous habitat protection strategy (TCRCD A 2010; NMFS 2009).

Maintenance of adequate streamflow will benefit adult CV SRCS and CCV steelhead by increasing the overall volume of flow in Antelope Creek, and reducing water temperatures. Increasing flows will make entry into Antelope Creek from the Sacramento River more attractive to adult fish and passage through critical barriers possible, especially during migratory periods. In addition, increased water volume and reduced water temperatures will benefit out migrating and rearing juvenile salmonids that may be present in lower Antelope Creek.

There are 53 riparian, two licensed appropriative, and two pre-1914 diversions in the Antelope Creek watershed, according to a search of the eWRIMS database, corresponding to reported use of approximately 13,000 acre-feet reported (2010 reports). Flow is diverted between April 1 and October 31. Flow records show that diversions in lower Antelope Creek have the potential to entirely eliminate natural streamflow during this summer irrigation season; usually dewatering the stream when both diversions operate (Armentrout et al 1998; TCRCD A 2010).

Similarity of Watersheds

Antelope Creek, Deer Creek and Mill Creek are eastside tributaries to the Sacramento River and drain approximately 123, 200, and 134 square miles, respectively (Mill and Ward, 1996; NMFS, 2009). The watersheds are contiguously located within the southernmost extension of the Cascade Range (Armentrout, 1998) and southwest of Lassen Peak. The Tuscan formation comprised primarily of mudflows with andesitic plugs dominates the geology of the watersheds (Guffanti et al, 1989). The Tuscan Formation is overlain by voluminous flows of rhyolite which form Mill Creek and Lost Creek Plateaus in the Mill Creek and Deer Creek watersheds. Marine sedimentary rocks have minor exposures in the watersheds, and at lower elevations the creeks cut through quaternary sediments from the Sacramento Valley. Soils generated in the watersheds are andesitic soils and rhyolitic soils. Antelope Creek has less rhyolitic soils than Deer Creek and Mill Creek and thus, has lower surface erosion rates and less mass wasting than these other watersheds (Armentrout, 1998).

While the Mill Creek watershed has higher elevations than the Deer Creek and Antelope Creek watersheds (8,200ft vs. 7,320ft and 6,800ft, respectively) all contain relatively undisturbed habitat in their upper reaches. Glacial processes have shaped some of the landforms at the higher elevations of the watersheds. The upper portion of Mill Creek is a glacial valley, and glacial deposits have been mapped at the headwaters of Deer Creek on Butt Mountain (Lydon, 1968 as cited in Armentrout, 1998). Wilson (1961) suggests that the headwaters of Antelope Creek around Turner Mountain have also been glaciated (cited in Armentrout, 1998). All three watersheds are relatively narrow and initially flow through meadows and dense forests before descending through steep rock canyons into the Sacramento Valley (NMFS, 2009; Armentrout, 1998). The geology and geomorphology of Antelope, Deer and Mill Creek upper watersheds produce exceptional fish habitat.

The lower reaches of all three watersheds are made up of alluvial fan deposits with evidence of stream meandering and multiple distributaries (TCRCD A 2010; Kondolf, 2001; CALFED 2000). The lower watersheds contain alternating pools and riffles of gravel sized sediment (TCRCD A 2010; Berens, 2002; Kondolf, 2001). Deer Creek and Mill Creek's upper alluvial reaches are able to meander but are bound by wide bluffs of older cemented river gravels, typically 800 ft for Mill Creek and 1,000-2,000ft for Deer Creek. Downstream of the bluffs evidence of the multiple channels characteristic of alluvial fans can be observed (Kondolf et al, 2001; CALFED, 2000).

The 25,000-ft alluvial reach of Mill Creek compares in sediment size and downstream change in sediment size with the upper 25,000 ft of Deer Creek, measured from where it leaves confined upper basin (Kondolf, 2001). Antelope Creek, unlike Mill and Deer Creek, is unconfined when it reaches the valley floor providing the stream the opportunity to meander as Deer and Mill did before incising into the older river sediments (TCRCD A 2010).

Antelope and Mill Creek still have active distributaries; however, the North Fork Mill Creek distributary is only active during high flows. Historical aerial photographs taken in 1939, show the lower portion of Deer Creek was sinuous, with small-scale bends, point bars, and alternating pools and riffles (CALFED 2000). However, 16km of levees were built along the lower Deer resulting in the straightening of channels, the abandoning of natural distributaries and increased gravel flushing (Berens,2002; MacWilliams et al, 2004). The similar sedimentary and geomorphic characteristics of the lower watersheds of Antelope Creek, Deer Creek and Mill Creek create comparable fish passage environments.

Runoff patterns for all three watersheds are similar (NMFS, 2009; Armentrout, 1998). The two watersheds have peak flows that are dominated by rain on snow events (December- February) with later snowmelt peaks (mid-March-May) and low flows during the summer. Mean June flows in the drought year of 1977 in Antelope, Deer and Mill Creek were 33cfs, 75cfs, and 99cfs respectively. Deer Creek and Mill Creek watersheds typically produce over 200,000 acre-feet of water per year. Antelope Creek produces much less water at 110,800 acre-feet of water per year (Armentrout,1998).

Mill Creek, Deer Creek, and Antelope Creek support multiple self-sustaining natural populations of anadromous salmonids, including ESA listed CV SRCS and CCV steelhead. In these tributary systems, adult CV SRCS migration typically occurs from March through July with a peak in migration during April through June, and CV SRCS juveniles are typically present from October through June, with a peak in out-migration in January and February (NMFS 2009). Adult CCV steelhead are typically present in these tributary systems during February through June and October through December, and juveniles can be present year-round (NMFS 2009).

Mill Creek, Deer Creek and Antelope Creek share much of the same geology and geomorphology in their upper watersheds, in addition to similar run off patterns. Their characteristics diverge in the lower watersheds, with Antelope Creek braiding and distributing into 3 channels. However, all three streams have characteristics of alluvial fans and similar sediment grain size. The typical nature of the region leads the State Water Board to conclude that studies and findings of flows and fish habitat characteristics in one of the watersheds may be applied to the others.

Informative Digest

Summary of Existing Laws and Regulations

A general description of existing law governing water rights; the water right priority system; and the constitutional prohibition against the waste, unreasonable diversion, unreasonable method or diversion, or unreasonable use of water is set forth above.

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 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.) Administrative cease and desist orders and court injunctions also may also be issued to require that diversions stop. (Wat. Code, § 1831.) An ACL order for an unauthorized diversion may impose liability up to $1,000 a day plus $2,500 per acre foot of water that is illegally diverted for violations during the current drought. The same enforcement mechanisms exist for violations of permit and license terms and conditions such as Term 91. For the State Water Board to take an enforcement action, each illegal diversion may be investigated and charged separately, and water right holders may request a full evidentiary hearing that is then subject to de novo review in the superior court system. As such, the current system is cumbersome. If the matter is referred to the Attorney General for enforcement, penalties may be imposed by the court, which could be substantially higher than ACL penalties in some circumstances.

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 Board lacks authority, however, to take direct enforcement action against the waste or unreasonable use of water. The Board must first determine whether a given diversion or use is unreasonable, either in a Board order or decision or in a regulation adopted under Water Code section 1058.5, and direct the diverter or user to cease the unreasonable diversion or use. In the event that the Board has issued an order or decision, the 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 Board may impose administrative civil liability. (Wat. Code, § 1845, subd. (b)(1).) In the event that the Board has adopted a regulation under section 1058.5, the Board may issue a cease and desist order and simultaneously impose administrative civil liability in response to violations of the regulation. (Wat. Code, §§ 1058.5, subd. (d), 1845, subd. (d)(4).)

Description and Effect of Proposed Regulation

The proposed emergency adoption of Article 24 will set drought emergency minimum flows necessary to maintain fish passage in three priority tributaries for protection of threatened CV SRCS and CCV Steelhead. Under the proposed regulations, 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 the needs of senior users. The requirement to curtail when water above drought emergency minimum flows is unavailable would constitute both a regulatory requirement and a condition of all permits and licenses in the affected watersheds. The proposed regulation also establishes procedures for important exceptions to priority-based curtailments in order to protect public health and safety.

Proposed Emergency Regulation Section 877

Proposed Section 877 would establish drought emergency minimum flow levels in Deer Creek, Mill Creek and Antelope Creek to allow for migratory passage of adult and juvenile CV SRCS and CCV Steelhead. The description and rationale for the flows is detailed below.

The State Water Board recognizes that the drought emergency minimum flows described below do not represent optimal passage conditions for Chinook salmon and steelhead under these drought conditions and these minimum passage flows will result in stressful passage conditions for salmonids. The State Water Board has identified the need for these drought emergency minimum flows during this drought period due to the lack of developed alternative water supplies to meet the emergency water supply conditions that exist during this drought period. All water users should take measures this year and in future years to develop alternative water supplies, since it is likely more protective and appropriate minimum flows for similar future drought conditions will be established in the future.

Emergency Minimum Instream Base Flows and Pulse Flows if Adult CV SRCS and Adult CCV Steelhead are Present During October 1 Through June 30

Adult Baseflows: The State Water Board has determined that the emergency minimum base flows recommended by NMFS of 50 cubic feet per second (cfs) or full inflow without diversions in Mill Creek and Deer Creek and 35 cfs or full inflow without diversions in Antelope Creek are necessary to provide adequate protection of adult CV SRCS under the existing drought conditions during October 1 through June 30. This determination is based on a review of the best available science and information discussed below.

Justification for Mill Creek Adult CV SRCS and Adult CCV Steelhead Baseflow

NMFS has recommended a baseflow of 50 cubic feet per second (cfs) during this drought emergency for the protection of adult salmonids during the October 1 through June 30 time period.

D.W. Alley & Associates' (1996) Instream Flow Incremental Methodology (IFIM) instream flow study concluded that a minimum flow of 74 cfs for adult spring-run and fall-run Chinook passage was necessary during critically dry years, and that these drought emergency minimum flows are representative of stressful passage conditions for adult Chinook salmon. Additionally, they recommend higher minimum instream flows when additional flows are available, recognizing that higher instream flows will provide more favorable passage conditions for adult Chinook salmon.

California Department of Fish and Wildlife (CDFW) (2009) summarized 2006-2008 adult CV SRCS migration data collected on Mill Creek, and concluded that CV SRCS migration ended with instream flows remaining above 70 cfs in all three years due to sustained minimum daily water temperatures above 67 degrees, which appears to serve as a temperature barrier to adult CV SRCS migration.

Observations made by J. Louden indicate that fall-run Chinook have reached Ward Dam after releases of 28-70 cfs, although a critical riffle in lower Mill Creek required modification prior to fish passage in one instance (J. Louden pers. Communication, as cited in D.W. Alley & Associates 1996).

During the 1928 to 2014 time period in which U.S. Geological Survey stream gauge number 11381500 (MILL C NR LOS MOLINOS CA) was in operation, average daily stream flows greater than 50 cfs were observed 100 percent of the time from October 1 to June 30. This flow gauge is located just upstream of significant water diversions on the valley floor. However,

further downstream below significant water diversions, at California Department of Water Resources gauge with Station ID MCH (Mill Creek Below HWY 99), stream flows were much lower during the 1998 through 2012 time period of available data, especially during October and June. During October in Mill Creek at the MCH gauge, daily average flows greater than 50 cfs were only observed 28 percent of the time, and during June, flows greater than 50 cfs were observed 82 percent of the time at this gauge. At this MCH gauge during November 1 through May 31, flows were greater than 85 cfs approximately 98 percent of the time. Therefore, there is a high probability that the 50 cfs minimum flow requirement will be met even with historic diversion patterns considered during November 1 through May 31. However, during June, flows greater than 50 cfs have been observed approximately 82 percent of the time under historic diversion patterns, which indicates that that meeting this flow requirement during this drought period is unlikely without reduced diversions. Additionally, during October flows greater than 50 cfs have been observed only 28 percent of the time at the MCH gage which indicated that meeting this flow during this drought period is unlikely without reduced diversions. During the months of June and October, the flow requirement of 50 cfs will be relaxed if adult salmonid are not present and in need of higher flows. However, if substantial numbers of adult salmonids are present indicating a need for higher flows, then this requirement will be implemented.

Justification for Deer Creek Adult CV SRCS and Adult CCV Steelhead Baseflow

NMFS has recommended a baseflow of 50 cubic feet per second (cfs) during this drought emergency for the protection of adult CV SRCS and steelhead during the October 1 through June 30 time period.

In 2007 as part of the Deer Creek Flow Enhancement Program, CDFW developed an adult upstream fish transportation flow objective of 50 cfs in Deer Creek. This minimum preliminary flow objective was derived from the comparable east-side streams in the Northern Sacramento Valley, such as Mill Creek (Deer Creek Flow Enhancement Program Memorandum of Agreement, 2007). Due to the similarities in the geology, geomorphology and hydrology of Deer Creek and Mill Creek, the State Water Board has concluded that comparison between these two watersheds is justified.

During the 1911 to 2014 time period in which U.S. Geological Survey stream gauge number 11383500 (DEER C NR VINA CA) was in operation, average daily stream flows greater than 50 cfs were observed approximately 100 percent of the time from October 1 to June 30. This gauge is located upstream of the significant diversions on the valley flow. However, further downstream below significant water diversions, at California Department of Water Resources gauge with Station ID DVD (DEER CREEK BELOW STANFORD VINA DAM), stream flows greater than 50 cfs were observed more than 96 percent of the time from November 1 to April 30. During May, flows greater than 50 cfs were observed 87 percent of the time, and in both June and October flow greater than 50 cfs were observed approximately 42 percent of the time. Therefore, there is a high probability that the 50 cfs minimum flow requirement will be met from November 1 to April 30, even with historic diversion patterns. During May of this drought, it is likely that reduced diversions will be necessary to meet the 50 cfs flow requirement. During June and October, flows greater than 50 cfs have been observed approximately 42 percent of the time under historic diversion patterns, which indicates that flows greater than 50 cfs are not likely to be met without reduced diversions during this drought. During the months of June and

October, the flow requirement of 50 cfs will be relaxed if adult CV SRCS and CCV steelhead are not present and in need of higher flows. However, if substantial numbers of adult salmonids are present indicating a need for higher flows, then this requirement will be implemented.

Justification for Antelope Creek Adult CV SRCS and Adult CCV Steelhead Baseflow

NMFS has recommended a baseflow of 35 cubic feet per second (cfs) during this drought emergency for the protection of adult CV SRCS and CCV steelhead during the October 1 through June 30 time period.

During the 1940 to 1982 time period in which U.S. Geological Survey stream gauge number 11379000 (ANTELOPE C NR RED BLUFF CA) was in operation, average daily stream flows greater than 35 cfs were observed 96 percent of the time from November 1 to June 30, and during October average daily stream flows greater than 35 cfs were observed 80 percent of the time. Therefore, 35 cfs represents a very extreme historical low flow condition that salmon and steelhead would have faced under pre-diversion conditions on Deer Creek. This flow gauge is located upstream of significant valley floor diversions, and instream flows below these diversion have likely been lower since the time the diversions were installed. There is not a flow gauge located below these diversions.

Recent adult salmon migration observations (CDFW 2014a unpublished data) suggest that salmon generally pass the Craig Creek and the Edwards Diversion Dam when instantaneous flows are greater than 30 cfs in Craig Creek. There is one observation of adult passage on record when flows in Craig Creek were 4 cfs, but this observation is thought to be an outlier.

Adult Pulse Flows: The State Water Board has determined that the pulse flows recommended by NMFS of 100 cfs or full inflow without diversions, whichever is less, in Mill Creek and Deer Creek and 70 cfs or full inflow without diversions, whichever is less, in Antelope Creek are necessary to provide adequate protection of Adult CV SRCS under the existing drought conditions during April 1 to June 30. Pulse flows may be required when Adult CV SRCS are observed in the lower reaches of Deer Creek, Mill Creek, or Antelope Creek. This requirement is for one pulse flow per creek of the magnitude and time period indicated above. When required, pulse flows are in lieu of and not in addition to baseflow requirements. The pulse flow duration will last a minimum of 24 hours to a maximum of 72 hours determined by the presence of fish observed and desired migration movements upstream. The duration will be determined by the Deputy Director in consultation with CDFW, NMFS, and/or USFWS. This determination is based on a review of the best available science and information discussed below.

A pulse flow is a substantial increase in river discharge over a period of days or weeks, which among other benefits, provides fishes with an opportunity and often the necessary cues to move to seasonal habitats. Pulse flows can help juvenile fish to swim towards the ocean, or help adult fish to swim towards spawning habitats. Additionally, pulse flow can result in water temperature reductions or provide fish access to floodplain habitats, which can both benefit native fishes. Historically in the Central Valley, relatively low-magnitude natural flow pulses occurred from late autumn until early spring in response to rainfall, followed by snow melt-driven pulses from spring through early summer (Zeug et al. 2014).

Justification for Mill Creek Adult CV SRCS Pulse Flow

NMFS has recommended a pulse flow of 50 cubic feet per second (cfs) over base flow or full natural flows once every two weeks during this drought emergency for the protection of adult salmonids during the April 15 to June 30 time period.

Observations of adult CV SRCS in lower Mill Creek demonstrate a strong correlation between pulse flow events and adult CV SRCS migration. From 2007-2013, CDFW has documented (2014b unpublished white paper) adult CV SRCS migration through lower Mill Creek, and the data show correlations between increased flows and increased numbers of adult CV SRCS observations. CDFW (2014b) documented the results of a May 24-27, 2013 lower Mill Creek pulse flow event due to a temporary cessation of water diversions at Ward Dam, observed 32 adult CV SRCS passing through a video monitoring station during this time. Flow data was recorded at DWR's MCH gauge, located below Ward Dam, and recorded a pre-pulse baseflow of 55 cfs and a maximum pulse flow of 94 cfs. Based on this information, the State Water Board has determined that a spring pulse flow of 100 cfs following a baseflow period of 50 cfs should be expected to facilitate adult CV SRCS migration.

Pulse flow events have demonstrated effectiveness in facilitating adult CV SRCS migration in other Bay-Delta tributaries. For example, the Clear Creek Technical Team (2013) reported increased observations of adult CV SRCS following a pulse flow event that occurred over several days in June 2013. The pulse flow event had a peak of 400 cfs that followed a baseflow period of 175 cfs. Snorkel surveys reported 400 adult CV SRCS before the pulse flow event, and 561 adult CV SRCS after the pulse flow event.

Justification for Deer Creek Adult CV SRCS Pulse Flow

NMFS has recommended a pulse flow of 50 cubic feet per second (cfs) over baseflow or full natural flows once every two weeks during this drought emergency for the protection of adult salmonids during the April 15 to June 30 time period.

In the 2007 Deer Creek Flow Enhancement Program Memorandum of Agreement, CDFW proposed one or two day pulse flows for the purpose of attracting salmon upstream of the Standford-Vina Irrigation District Dam. These pulse flows were proposed for periods of maximum daily water temperatures reaching 65° to 70°F as measured at DWR's Deer Vina Dam (DVD) gauge below the Standford-Vina Ranch Irrigation Company Dam and critical riffles reach their minimum critical passage depths.

See the Justification provided for Mill Creek above. Mill and Deer Creeks are similar watersheds and similar results are expected from a pulse flow which doubles base flows over a period of 24 to 72 hours.

Justification for Antelope Creek Adult CV SRCS Pulse Flow

NMFS has recommended a pulse flow of 40 cubic feet per second (cfs) over base flow or full natural flows once every two weeks during this drought emergency for the protection of adult salmonids during the April 15 to June 30 time period.

See the Justification provided for Mill Creek above. Mill Creek and Antelope Creek are similar watersheds and similar results are expected from a pulse flow which doubles base flows over a period of 24 to 72 hours.

Emergency Minimum Instream Baseflows and Pulse Flows for November 1 to June 30, if Juvenile CV SRCS or Juvenile CCV Steelhead are Present and Adult CV SRCS and/or Adult CCV Steelhead are not Present

Juvenile Baseflows: The State Water Board has determined that the emergency minimum baseflow recommended by NMFS of 20 cubic feet per second (cfs) or full inflow without diversions in Mill Creek, Deer Creek and Antelope Creek are necessary to provide adequate protection of juvenile CV SRCS salmon and CCV steelhead under the existing drought conditions during November 1 to June 30. This determination is based on a review of the best available science and information discussed below.

Justification for Mill Creek Juvenile CV SRCS and Juvenile CCV Steelhead Baseflow

NMFS has recommended a baseflow of 20 cubic feet per second (cfs) during this drought emergency for the protection of juvenile salmonids during the October 1 through June 30 time period.

A critical riffle assessment conducted in 1995 (Alley 1996) concluded that 27 cfs is expected to provide good juvenile passage conditions in the lower 5.25 miles of Mill Creek. Additionally, D.W. Alley & Associates (1996) assumed that steelhead and Chinook salmon juveniles would out-migrate at comparable sizes, and that 27 cfs is appropriate for both species.

CDFW (2012) collected daily rotary screw trap data on Mill Creek juvenile spring-run and fall-run Chinook out-migrants over the period of 1996-2009, and found that mean daily flows above 20 cfs were typical during juvenile outmigration.

During the 1928 to 2014 time period in which U.S. Geological Survey stream gauge number 11381500 (MILL C NR LOS MOLINOS CA) was in operation, average daily stream flows greater than 20 cfs were observed 100 percent of the time from November 1 to June 30. However, at DWR's MCH gauge which is below significant valley diversions, flows greater than 20 cfs were only observed 68 percent of the time during June, but from November 1 through May 31, flows at the MCH gauge were greater than 20 cfs more than 96 percent of the time for each month of this time period. Therefore a 20 cfs flow requirement from November 1 through May 31 has a high probability of being met under historical diversion patterns, but during June it is likely that diversion reductions or requirement relaxations will be necessary.

Justification for Deer Creek Juvenile CV SRCS and Juvenile CCV Steelhead Baseflow

During the 1911 to 2014 time period in which U.S. Geological Survey stream gauge number 11383500 (DEER C NR VINA CA) was in operation, average daily stream flows greater than 20 cfs were observed 100 percent of the time from November 1 to June 30. Further downstream below significant water diversions, at California Department of Water Resources gauge with Station ID DVD (DEER CREEK BELOW STANFORD VINA DAM 1998-2012), daily stream flows greater than 20 cfs were observed more than 96 percent of the time from November 1

through May 31. However, in June daily stream flows greater than 20 cfs occurred 68 percent of the time. Therefore a 20 cfs flow requirement from November 1 through May 31 has a high probability of being met under historical diversion patterns, but during June it is likely that diversion reductions or requirement relaxations will be necessary.

A Mill Creek critical riffle study found that 27 cfs is expected to provide good juvenile passage conditions in the lower 5.25 miles of Mill Creek (D.W. Alley & Associates 1996). Additionally, D.W. Alley & Associates (1996) assumed that steelhead and Chinook salmon juveniles would out-migrate at comparable sizes, and that 27 cfs is appropriate for both species. Mill Creek and Deer Creek are similar watersheds and similar levels of protectiveness are expected for juvenile baseflows.

Justification for Antelope Creek Juvenile CV SRCS and Juvenile CCV Steelhead Baseflow

During the 1940 to 1982 time period in which U.S. Geological Survey stream gauge number 11379000 (ANTELOPE C NR RED BLUFF CA) was in operation, daily stream flows never dropped below 20 cfs during the November 1 and June 30 time period. The lowest daily flow on record during this time period was 28 cfs which occurred during June. November and June typically had the lowest flows during this time period, and in both November and June daily flows greater than 36 cfs were observed 95 percent of the time. Additionally, daily flows in November greater than 49 cfs were observed 50 percent of the time, and daily flows in June greater than 63 cfs were observed 50 percent of the time. This gauge is located upstream of significant valley floor diversions, and stream flows below these diversions may have been much lower during this period of record as a result of diversions.

On Mill Creek, which is an adjacent watershed, a critical riffle study found that 27 cfs is expected to provide good juvenile passage conditions in the lower 5.25 miles of Mill Creek (D.W. Alley & Associates 1996). Additionally, D.W. Alley & Associates (1996) assumed that steelhead and Chinook salmon juveniles would out-migrate at comparable sizes, and that 27 cfs is appropriate for both species. Mill Creek and Antelope Creek are similar watersheds and similar levels of protectiveness are expected for juvenile baseflows.

Juvenile Pulse Flows: The State Water Board has determined that pulse flows of 100 cfs or full inflow without diversions, whichever is less, in Mill Creek and Deer Creek and 70 cfs or full inflow without diversions, whichever is less, in Antelope Creek are necessary to provide adequate protection of juvenile CV SRCS and juvenile CCV steelhead under the existing drought conditions during June 1 to June 30. Pulse flows may be required when juvenile CV SRCS or CCV steelhead are observed in the lower reaches of Deer Creek, Mill Creek, or Antelope Creek. When required, pulse flows are not in addition to base flow requirements. The pulse flow duration will last a minimum of 24 hours to a maximum of 48 hours determined by the presence of fish observed and desired migration movements downstream into the Sacramento River. This pulse flow is designed to push juvenile salmonids out of each tributary and into the Sacramento River before curtailments are ceased and low streamflow conditions occur and instream habitat connectivity with the Sacramento River is lost. The duration will be determined by the Deputy Director in consultation with CDFW, NMFS, or USFWS. This determination is based on a review of the best available science and information discussed below.

Justification for Mill Creek, Deer Creek, and Antelope Creek Juvenile CV SRCS and Juvenile CCV Steelhead Pulse Flows

Pulse flow events provide short-term benefits to juvenile Chinook out-migrants, and are hypothesized to synchronize downstream movement of juveniles (Jager and Rose 2003). Juvenile outmigration data from several Bay-Delta tributary watersheds indicates that pulse flow events tend to prompt juvenile Chinook outmigration. For example, Demko and Cramer (1995) collected rotary screw trap data in the Stanislaus River during a four-day pulse flow event in spring 1995, and found that the increase in flow was correlated with an abundance of out-migrants over the four-day period. This pulse flow event occurred from April 8-12 1995, with a pre-pulse baseflow of 320 cfs and a peak of 578 cfs. Montgomery et al. (2009) collected rotary screw trap data on the lower Merced River, and reported that peak daily catch coincided with a peak flow event that occurred from May 7-12, 2009. Similarly, a 2003 rotary screw trap study on the lower Tuolumne River concluded that juvenile Chinook catches appear to be correlated to changes in river flow, and that flow increases tend to initiate juvenile outmigration (CDFW 2004).

Proposed Emergency Regulation Section 878

This proposed section would clarify that non-consumptive uses, such as direct diversion for hydroelectric power generation, are not required to curtail under orders issued under section 875.

Proposed Emergency Regulation Section 878.1

This section would establish a methodology to allow limited diversions to meet minimum health and safety needs outside of the order of priority in furtherance of the constitutional prohibition against the unreasonable diversion or use of water. Based on the recommendation of the California Department of Public Health, the regulation uses 50 gallons per person per day as a benchmark for minimum health and safety diversions for municipal and domestic needs. Board regulations provide that between 55 and 75 gallons per person per day are reasonably necessary to supply the needs of fully plumbed homes. (Ca. Code Regs. tit. 23, § 697 (b).) In this drought emergency using a lower figure as a benchmark is reasonable.

The regulation also establishes a flexible process, as the evidence also indicates that lower or higher amounts of water could be necessary to meet minimum health and safety needs across California's varied communities and climates. To ensure that any diversions are truly required for health and safety needs, diverters must certify that they are not using the water for outdoor watering and that any applicable drought plan measures are in place, and must pursue alternative water sources. Diverters under the exception must continue to report progress towards conserving more water and seeking alternate sources, as described in Section 879.

Throughout the state, there are tens of thousands of diversions small enough to qualify for small domestic registrations: yet together, these constitute only a small portion of the water diverted. To prioritize State Water Board resources, these diversions of up to 4,500 gallons per day or 10 acre-feet per annum of storage may self-certify that their diversions of up to 50 gallons per person per day meet applicable requirements. For larger municipal or domestic diversions, and

for any diversion for health and safety needs of more than 50 gallons per person per day, Deputy Director approval is required.

Additionally, drought workshops and the Drought Task Force have identified potential health and safety effects from heightened fire risk, air quality problems and energy grid problems that are linked to the lack of available water. Section 878.1 describes a process for the Deputy Director to approve exceptions to the priority system based on public health and safety needs when the appropriate public agencies identify these more localized risks.

Proposed Emergency Regulation Section 878.2

The State Water Board recognizes that strict application of the priority system can have harsh consequences for many water users that depend on diversions for water uses that are important on a personal, local, regional and state-wide level, and that many water users are working together to find mutually acceptable solutions to the water shortage. Similarly, the State Water Board understands that fishery agencies are working closely with water users across the state to implement voluntary measures to meet fishery needs in this extreme drought. Section 878.w would establish a methodology for water users to propose alternatives to following curtailment orders based on priority as issued under section 877, and would allow the Deputy Director to approve such agreements, provided that diversions subject to the agreements are reasonable, do not injure other lawful users of water and provide the required flows or the same or greater level of protection to the fishery as the required flows, as affirmed by the National Marine Fisheries Service and the California Department of Fish and Wildlife.

Proposed Emergency Regulation Section 879

Section 879 would establish a requirement that all water users who receive a curtailment order respond with information regarding their compliance with the order and an explanation of any diversions under other rights, and any exceptions to curtailment. Such information will be critical to improving information concerning water depletions in this drought year.

This section would further establish reporting requirements for health and safety requirement exceptions to ensure that diversions out of priority remain minimal and are truly necessary.

Proposed Emergency Regulation Section 879.1

This section would make compliance with proposed article 24 a condition of all water right permits, licenses, certificates and registrations.

Proposed Emergency Regulation Section 879.2

This section would confirm that diversion or use of water in violation of proposed article 24 is unauthorized and subject to enforcement, and would clarify that when a diverter is subject to multiple requirements, the most stringent applies.

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Authority and Reference Citations

For Section 877

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.

For Section 878

Authority: Sections 1058, 1058.5, Water Code

Reference: Cal. Const., Art., X § 2; Section 100, Water Code

For 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.

For Section 878.2

Authority: Sections 1058, 1058.5 Water Code

Reference: Sections 109, 1010, 1011, 1011.5, 1051.5, Water Code; *City of Barstow v. Mojave Water Agency* (2000) 23 Cal.4th 1224.

For Section 879

Authority: Sections 1058, 1058.5, Water Code

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

For Section 879.1

Authority: Sections 1058, 1058.5, Water Code

Reference: Sections 275, 1253, 1058.5, Water Code

For Section 879.2 – Compliance and Enforcement

Authority: Sections 1058, 1058.5, Water Code

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

Mandate on Local Agencies or School Districts

The State Water Board has determined that proposed Article 24 does not impose a new mandate on local agencies or school districts. The regulation is generally applicable law.

Suspension of California Environmental Quality Act

On April 24, 2014, Governor Edmund G. Brown Jr. issued a second Executive Order addressing the drought emergency, which, inter alia, suspended the California Environmental Quality Act (CEQA) as applied to the State Water Board's adoption of emergency regulations to "prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water, to promote water recycling or water conservation, and to require curtailment of diversions when water is not available under the diverter's priority of right."

Cost Estimate

Based on information prepared by economists at the University of California, Davis, and using assumptions that show a higher projection of the potential range of costs, the State Water Board estimates that the cost to local agencies and governments will be approximately $1.02 million, including lost revenue in water sales, replacement water costs, and projected tax losses. The proposed regulations are not anticipated to have a financial impact on state agencies or school districts or to result in costs or savings in federal funding to the State. Attachment 1 provides more background information on the proposed estimate.

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

Attachment 1. Fiscal Impact Statement

Fiscal Impact Statement

B. Fiscal Effect on Local and State Government

Assumptions

Cost assumptions and replacement percentages were taken from the "Estimating Fiscal Impacts of Implanting Water Diversion Curtailments in the Sacramento-San Joaquin Delta Watershed" report prepared for the State Water Resources Control Board by Josué Medellín-Azuara, Richard E. Howitt, and Jay R. Lund of the University of California, Davis (UCD). Specific assumptions and percentages are detailed below. Sources for costs include peer reviewed models for agricultural production and water use such as Statewide Agricultural Production Model (SWAP) V6 (http://sawp.ucdavis.edu), mainstream impact analysis software such as Impact Analysis for Planning (IMPLAN) Model 2002 (http://www.implan.com) and secondary sources in the public domain that provide information required to undertake this fiscal impact analysis. The 60% agricultural groundwater replacement with 20% from district wells and 40% from private wells was based on expert judgment by UCD. Reduction in water use was estimated at 35% for agricultural use, based on expert judgment by UCD. An average groundwater replacement cost of $83.65 per acre-foot from the SWAP model was used to calculate water replacement costs from groundwater pumping. The maximum water sales values as well as maximum costs of conservation and enforcement for both urban and agriculture were used to conservatively estimate the fiscal impact to state and local government. Agricultural water sales value of $100 per acre-foot was determined by an informal review of publicly available information by UCD and was used to calculate lost water sales revenue. Conservation and enforcement costs were assumed to be $350 per acre-foot (urban) and $100 per acre-foot (agriculture), based on expert judgment by UCD. State and local tax revenue from agriculture is assumed to be 10% of revenue from the IMPLAN Model.

Fiscal impact scenarios for the affected government entities were based on State Water Board projected curtailment actions. This year it is projected that natural inflows will be inadequate to support many water diversions, including all post-1914 appropriative water right holders. In April the State Water Board posted information on projected water supply, demand and availability for the Stanislaus, Tuolumne, Upper San Joaquin, Merced, Yuba, Kern, Kings, Kaweah and Tule rivers and the Sacramento-San Joaquin Delta indicating that curtailments are expected in these watersheds in the near future. For the Sacramento-San Joaquin Delta and its tributaries, the projection is that water will not be available as early as May 15 for all post-1914 water right holders, as soon as June 1 for all junior pre-1914 water right holders, and after June 16 for additional pre-1914 water rights with any remaining supply to be shared on a correlative basis among riparian users. A 90% exceedance scenario was used to conservatively estimate the fiscal impact to state and local governments. That State Water Board calculated the exceedance using USGS and DWR gauges in the affected watersheds.

Lassen Mutual Water Company

Lassen Mutual Water Company (LMWC) holds a post -1914 appropriative water right (Application Number: A014396) and serves 500 individuals (as stated on http://www.lassenpineswater.com/). LMWC as a post-1914 appropriative water rights holder will be among the first to be curtailed and would incur no costs ($0) due to the proposed emergency regulations.

Deer Creek Irrigation District

The Deer Creek Irrigation District (DCID) holds an adjudicated water right (Statement Number: S000731) for 35% of Deer Creek's flow (Tehama County Superior Court Decree No. 4189). In 2010, DCID reported an annual total of 20,400 acre-feet directly diverted and beneficially used. The water was beneficially used to irrigate 1900 acres. Under the water right associated with Statement S000731, DCID may divert water for domestic uses. No domestic use as reported in 2010 and domestic use not analyzed in this fiscal impact report. The June 2010 reported diversion values were used to estimate the fiscal impact of the proposed emergency regulations.

The proposed emergency regulation would be in effect for 270 days. DCID would sustain an overall impact of 2020 acre-feet in June due to the emergency regulation, and no impacts due to the emergency regulations in October and November when curtailments are enacted. It is assumed that 20% of this water would be replaced by district groundwater pumping and no water purchases would be available. The remaining water loss (80%) would lead to lost revenue from water sales for DCID. The maximum agricultural water sales price ($100 per acre-foot) was used to conservatively estimate the fiscal impact to DCID. In addition, it is assumed that DCID will reduce their demand by 35%. The enforcement and conservations cost associated with this effort would be $100 per acre-foot. The total water replacement potentially due to the emergency regulations is 2020 acre-feet, for a total cost of $365,923.00 to DCID (Table 1).

Month	June
Reported amount used	2020
Projected Supply	3000.00
Emergency Regulation Flow Requirements	3172.80
Supply available	0.00
DCID Replacement	2020.00
DCID Replacement due to Emergency Regulation Flow Requirements	2020.00
20% Groundwater replacement	404.00
Cost of Ground Water Replacement	$168,973.00
80% Water Sales Loss	1616.00
Lost Water Sales Revenue	$ 161,600.00
35% Reduced Applied Water	707.00
Conservation and Enforcement Costs	$ 35,350.00
Total Cost to DCID	**$ 365,923.00**

Table 1. Cost estimate for groundwater replacement, conservation and enforcement, and water sales loses for DCID for June in a 90% exceedance scenario. Volumes in acre-feet.

Tehama County

The Tehama County 2012 Crop Report states that in 2012 the total revenue from agriculture was $246,059,600 (http://co.tehama.ca.us/images/stories/agriculture/cropreport.pdf) generating an estimated $24,605,960 in state and local tax revenue (10%). In Tehama Country, three watersheds will be affected by the emergency regulation Antelope, Mill and Deer Creeks. Within the watersheds 15,276 acres are reported as irrigated lands. Based on 2010 reporting, 99% of the water used in the watersheds is used for irrigation, therefore the State Water Board assumed all proposed water reductions would affect irrigated lands. For purposes of this fiscal impacts analysis, the State Water Board conservatively assumed walnut (high value) crop water use (3 acre-feet).

The proposed emergency regulation would be in effect for 270 days. The State Water Board calculated total supply 90% exceedance scenario in each watershed was calculated. The costs to Tehama County were calculated based on curtailments effecting only post-1914 water rights holders in June and both pre-1914 and post-1914 water users in October and November. Thus the proposed emergency regulations would affect riparian and pre-1914 users in June and only riparian users in October and November.

The total emergency regulation requirement was subtracted from this leaving the total supply to water users. Demand was subtracted from the supply to water users giving the total water reduction under the proposed regulation. It was assumed that 60% of the water reduction would be replaced by groundwater (20% district and 40% private wells) and 40% of the water reduction would not be replaced. The affected acreage was based on un-replaced water and an assumed of 3 acre-foot per acre need(Table 3).

	Affected Acreage		
	Deer	Mill	Antelope
Total Projected Supply	7600.00	7600.00	7600.00
Total Emergency Regulation Requirements	9220.95	9220.95	9220.95
Total Supply to Water Users	0.00	0.00	0.00
Total Demand	5685.42	8277.11	3006.65
Total Water Replacement due to Emergency Regulation Flow Requirements	5685.42	8274.34	3006.65
Total Groundwater Replacement	3411.25	4964.61	1803.99
Total Water Lost	2274.17	3309.74	1202.66
Affected Acreage	758.06	1103.25	400.89

Table 2. Affected acreage for Deer, Mill and Antelope Creek. Minimum scenario: Pre-1914 and Riparian users affected by the proposed emergency regulation in June and only Riparian users affected by the proposed affect in October and November. Maximum scenario: All water rights affected June, October and November by the proposed emergency regulation. Volumes in acre-foo

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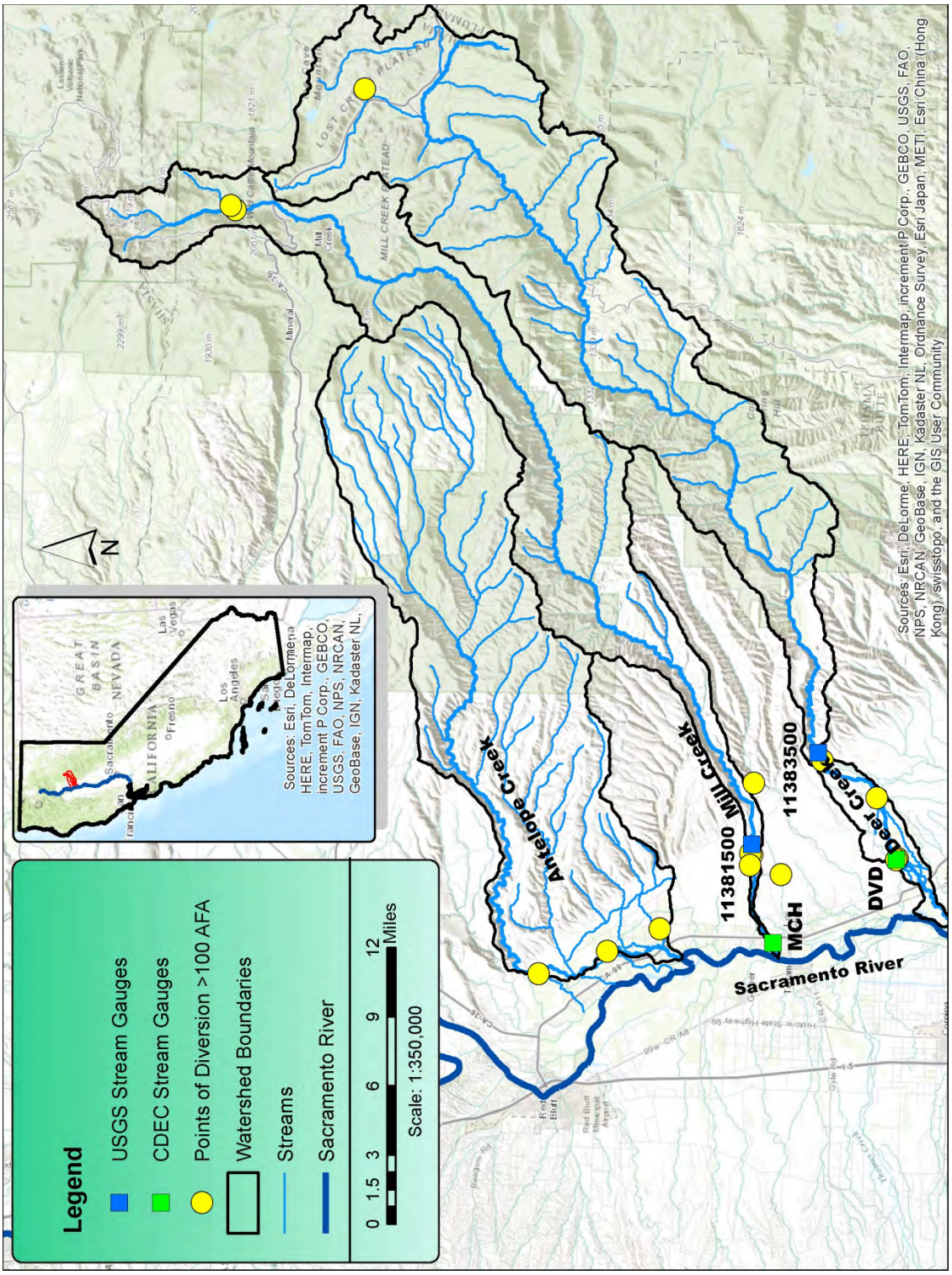
Potential Tehama County tax loses were based on the affected acreage calculated above, total revenue of crops in 2012, total irrigated acres in Tehama County and the assumption of a 10% tax on agriculture (Table 3). Total tax dollars potentially lost due to the emergency regulation is calculated by multiplying tax dollars generated per acre in 2012 by the affected acreage. This analysis resulted in an estimated $651,391.24 lost tax revenue due to the emergency regulations (Table 3).

Tehama County Tax loses	
Irrigated acres in Tehama County	85453
Fruit and Nut Crops	$206,903,200.00
Nursery Crops	$10,539,900.00
Vegetable crops	$3,500.00
Pasture & Range	$14,283,700.00
Seed Crops	$284,700.00
Field Crops	$14,044,600.00
Total Revenue in 2012	$246,059,600.00
Total Tax Revenue (10%) in 2012	$24,605,960.00
Dollars generated per acre in 2012	$287.95
Deer Affected Acreage	758.06
Mill Affected Acreage	1103.25
Antelope Affected Acreage	400.89

Total Acres Affected	2262.19
% Acres Affected	2.65
Agricultural Tax Revenue lost due to Emergency Regulations	**$ 651,391.24**

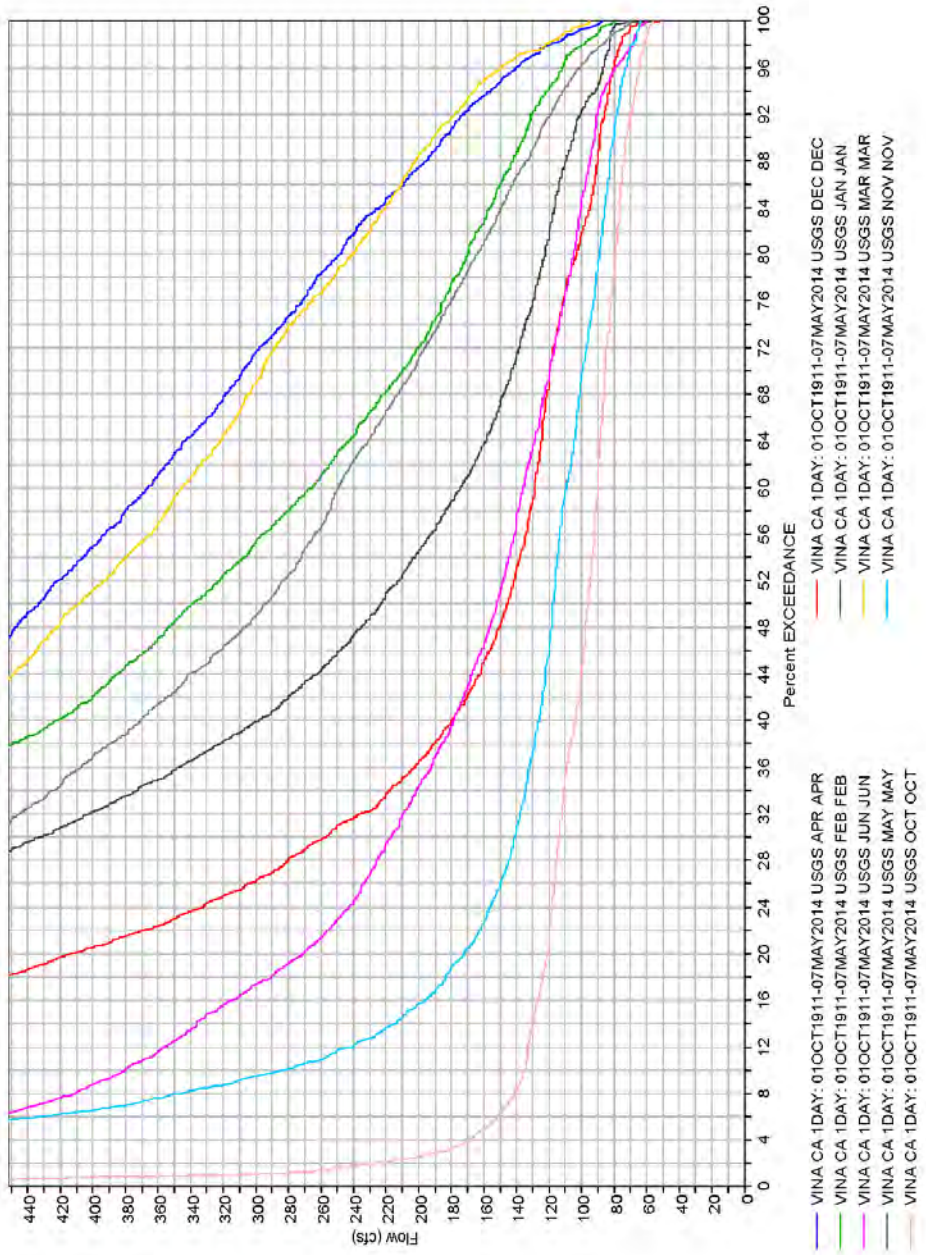
Table 3. Tehama County Tax loses. Minimum scenario: Pre-1914 and Riparian users affected by the proposed emergency regulation in June and only Riparian users affected by the proposed affect in October and November. Maximum scenario: All water rights affected June, October and November by the proposed emergency regulation.

Attachment 2
Map of Mill Creek, Deer Creek, and Antelope Creek Watersheds*

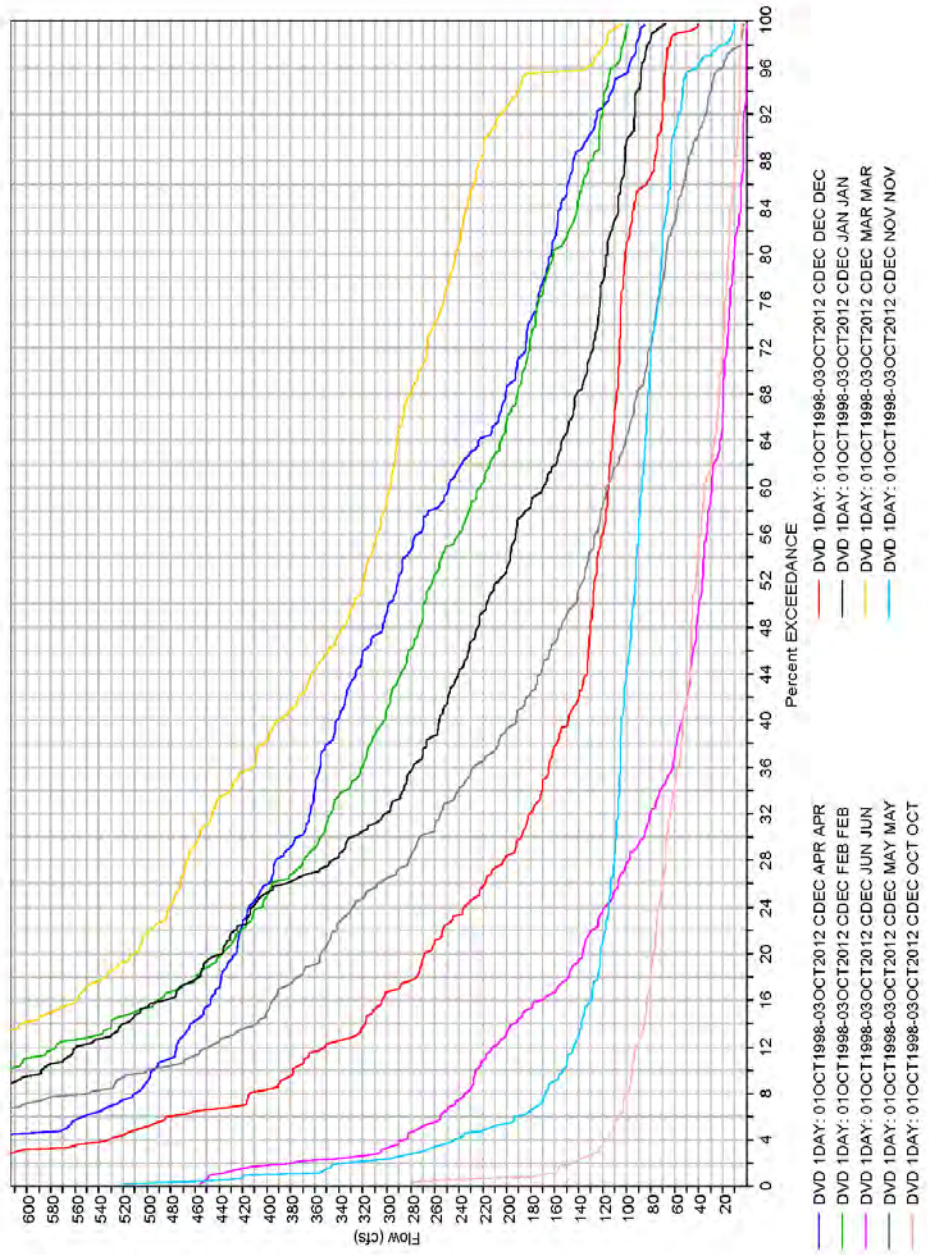


*Map not to scale

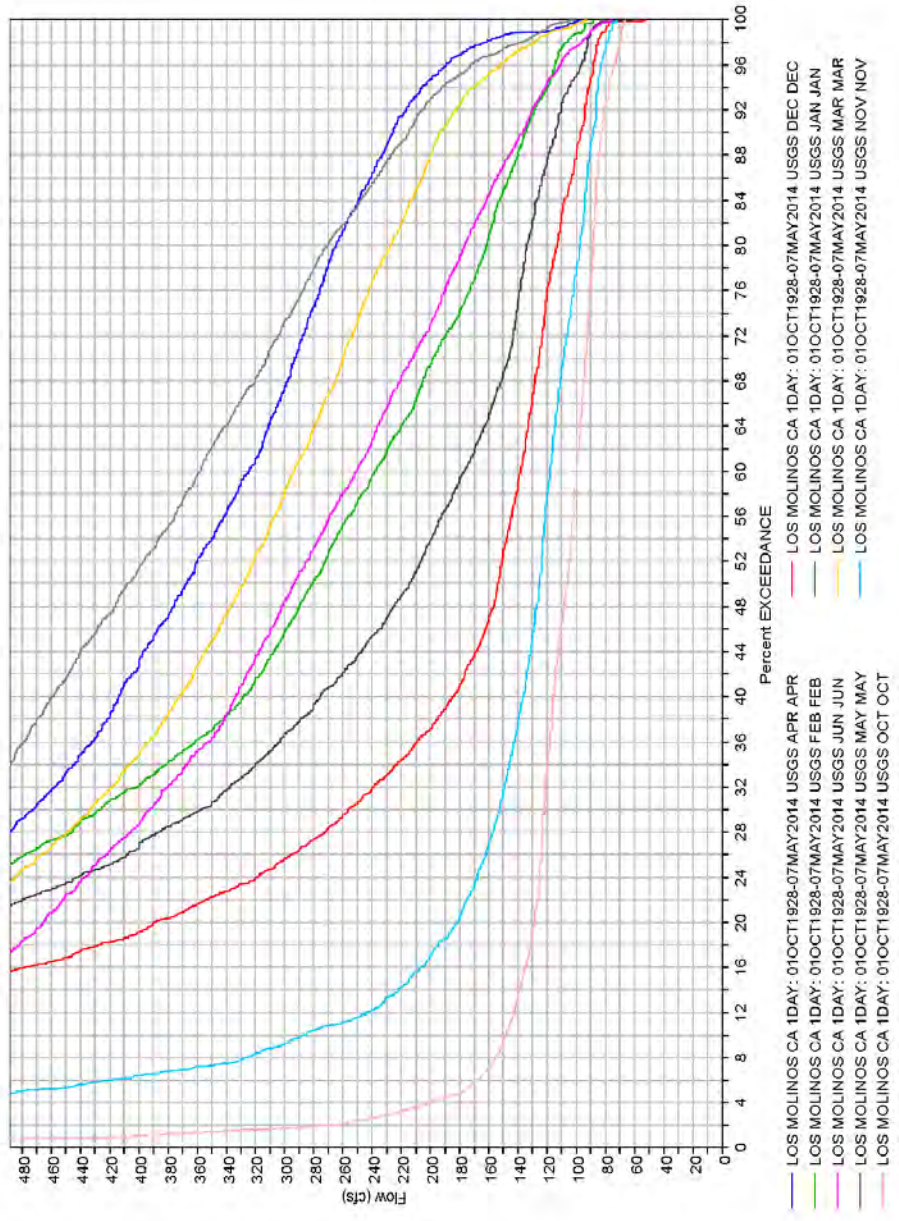
Attachment 3
Deer Creek Exceedance Plot
United States Geological Survey Deer Creek Near Vina CA Gauge (#11383500)



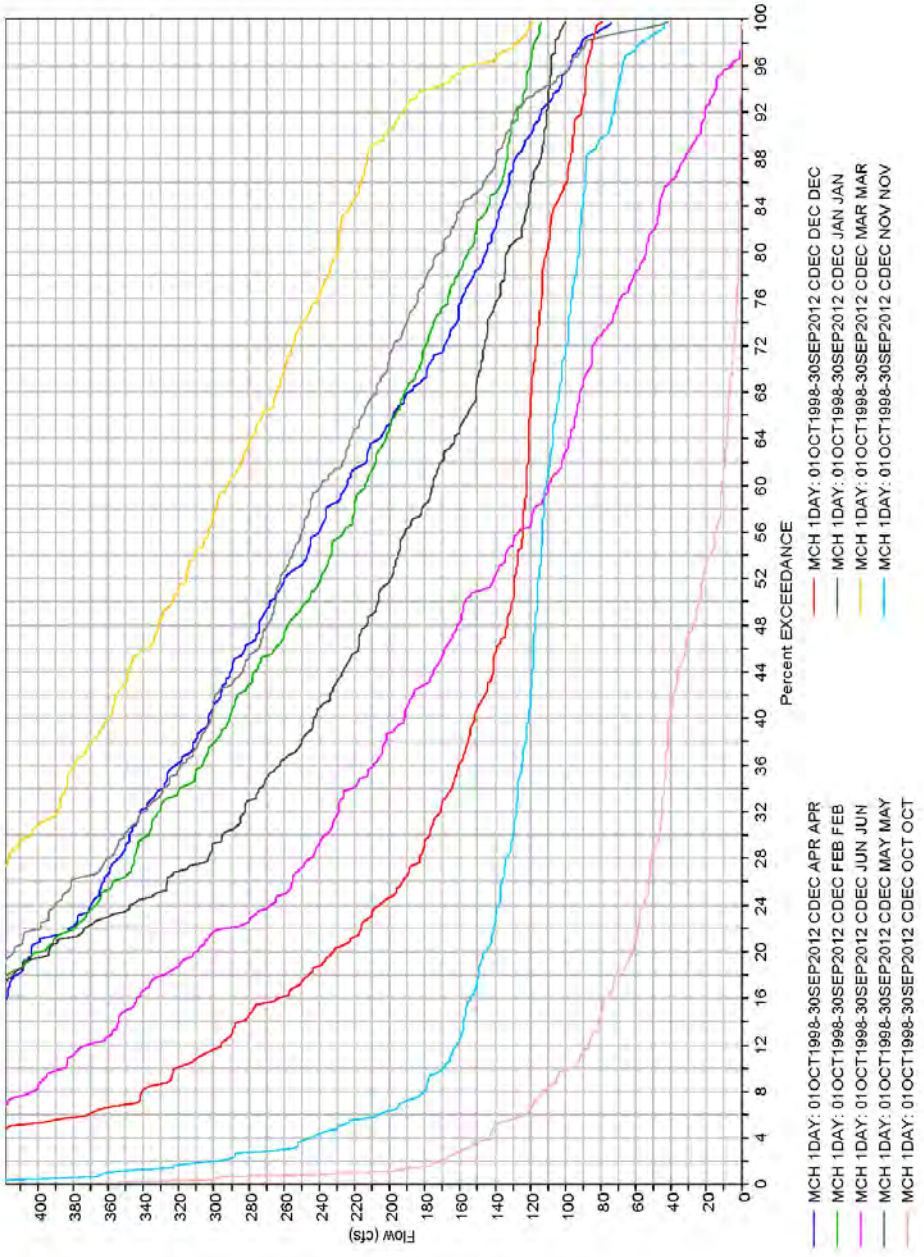
Attachment 4
Deer Creek Exceedance Plot
Department of Water Resources Deer Creek Below Stanford Vina Dam Gauge (DVD)



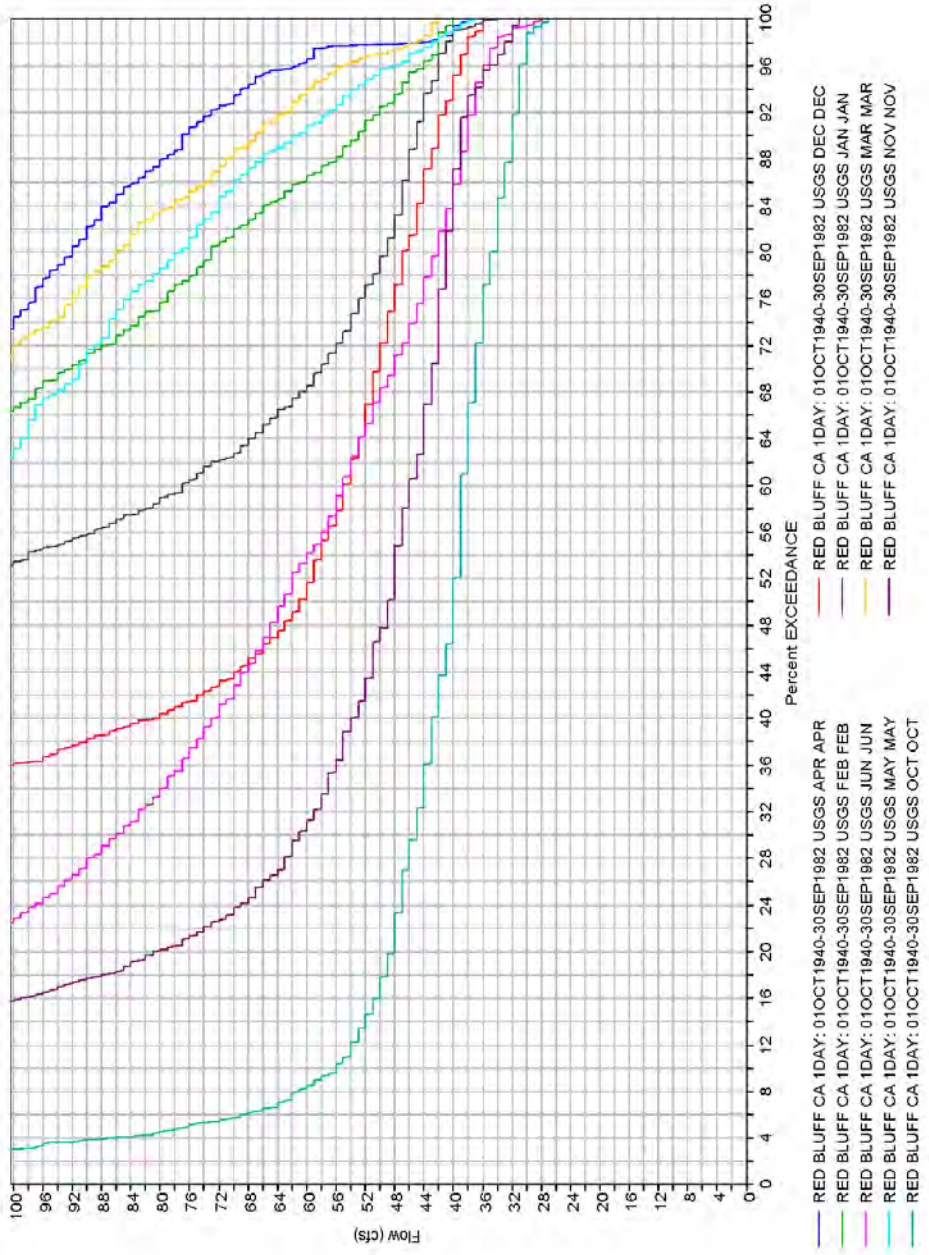
Attachment 5
Mill Creek Exceedance Plot
United States Geological Survey Mill Creek Near Los Molinos CA Gauge
(MLM/#11381500)



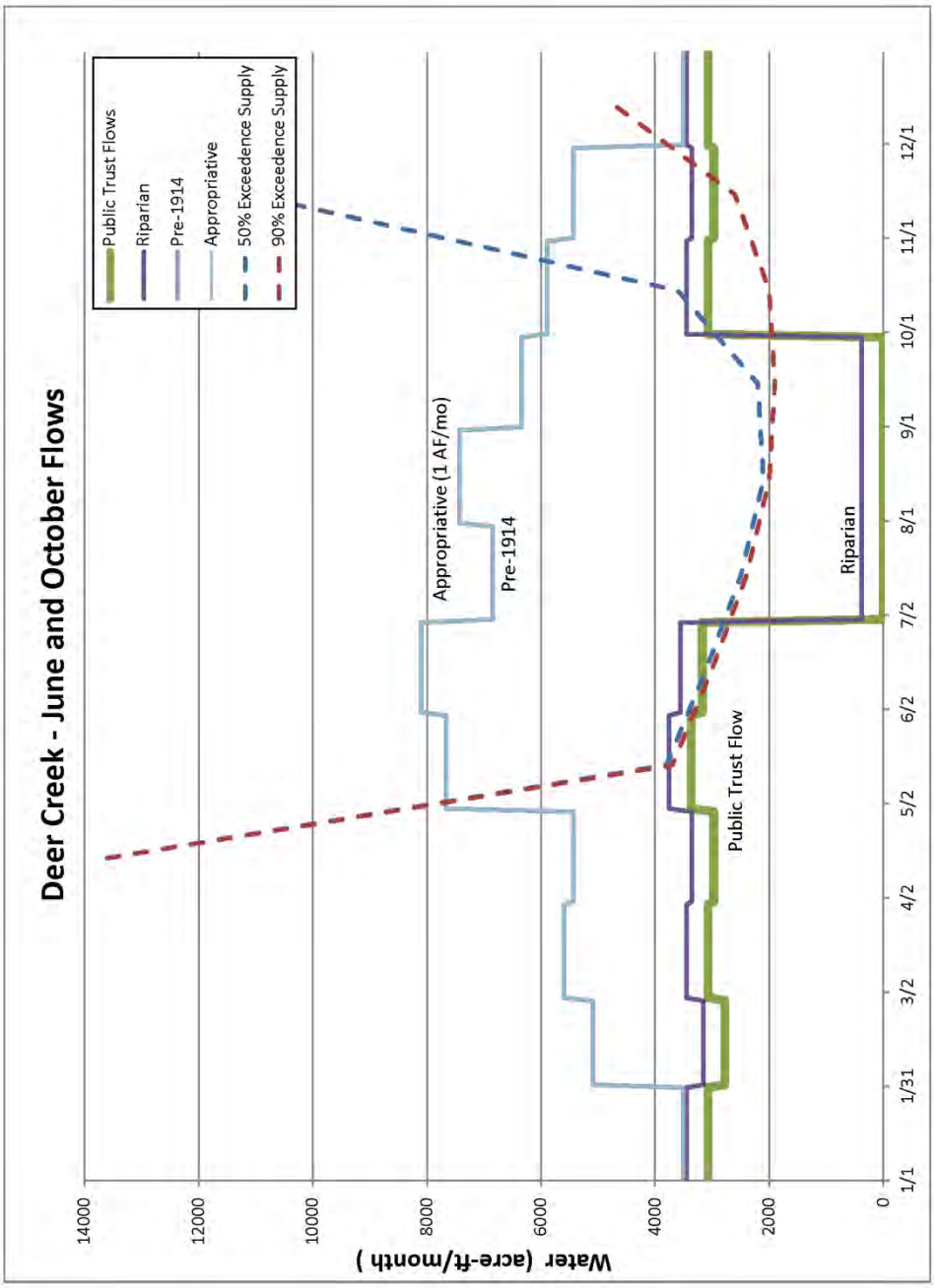
Attachment 6
Mill Creek Exceedance Plot
Department of Water Resources Mill Creek Below Highway 99 Gauge (MCH)



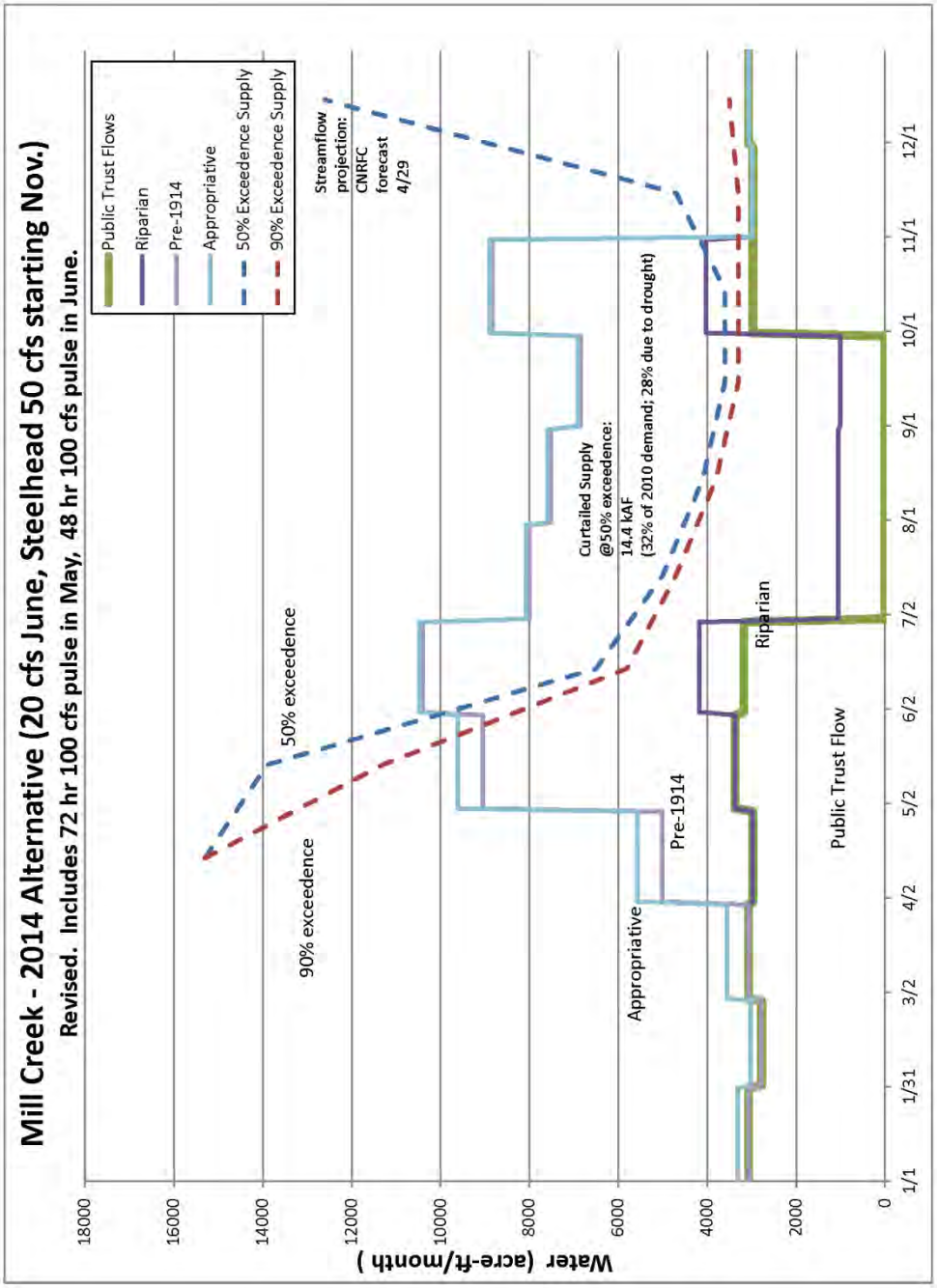
Attachment 7
Antelope Creek Exceedance Plot
United States Geologic Service Antelope Creek Near Red Bluff CA Gauge (#11379000)



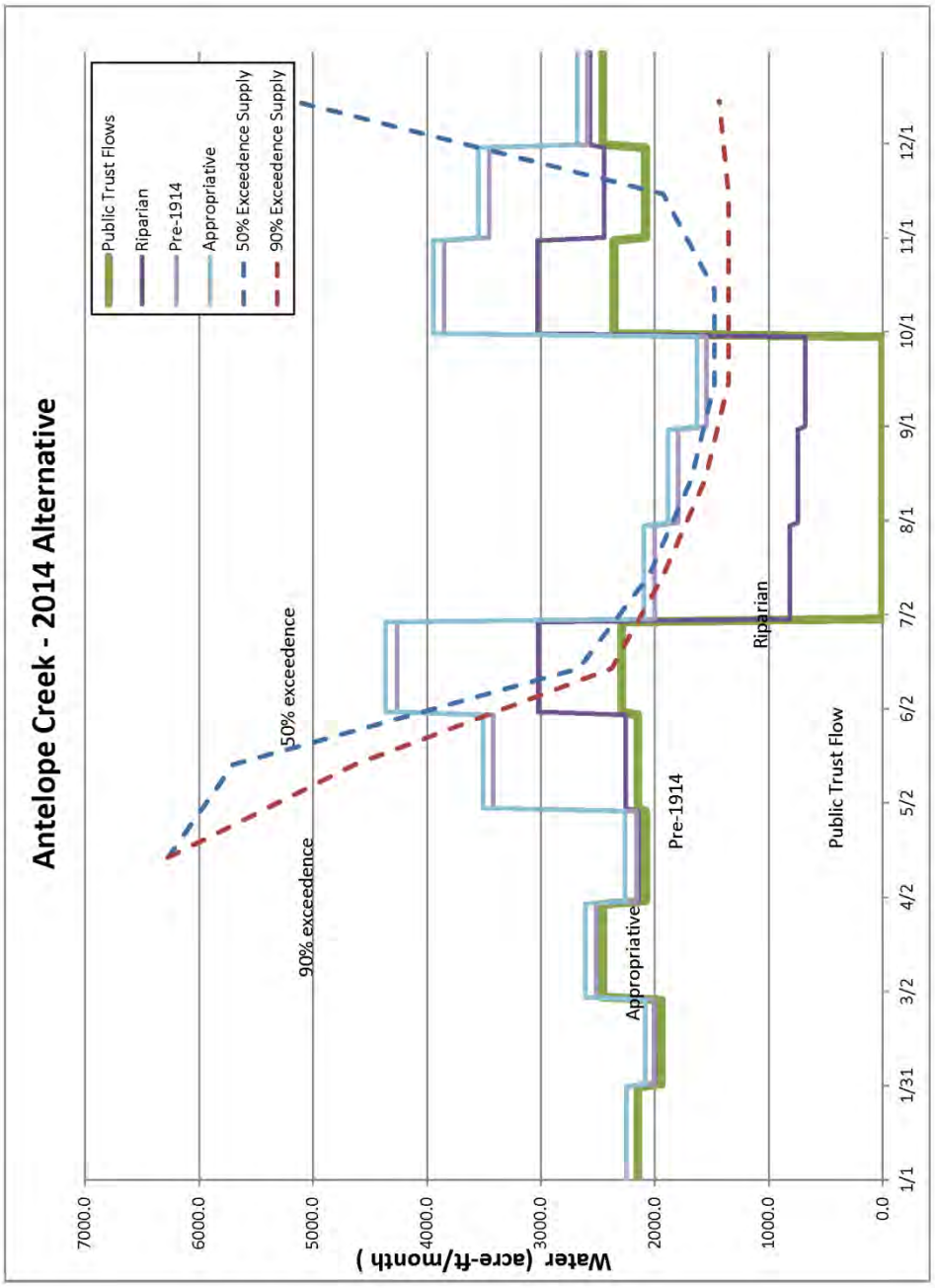
Attachment 8
Deer Creek Curtailment Plot



Attachment 9
Mill Creek Curtailment Plot



Attachment 10
Antelope Creek Curtailment Plot



Attachment 11
National Marine Fisheries Service Memorandum

MEMO: Minimum Protection Flows for Listed Salmonids during the 2014 California Drought for Mill, Deer and Antelope creeks in the California Central Valley

TO: California State Water Resources Control Board

FROM: Gretchen Umlauf, Fisheries Biologist
NOAA's National Marine Fisheries Service, Central Valley Office

THROUGH: Howard Brown, Sacramento River Basin Branch Chief
NOAA's National Marine Fisheries Service, Central Valley Office

DATE: May 7, 2014

NOAA's National Marine Fisheries Service (NMFS) has been working collaboratively with the State Water Resources Control Board (SWRCB) and the California Department of Fish and Wildlife (CDFW), to address the 2014 California Drought and its impact on listed fish species in Mill, Deer and Antelope creeks, all tributaries of the Sacramento River. These streams contain migration, spawning, and rearing habitat for some of the last remaining naturally-produced populations of Federally threatened Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*) and threatened California Central Valley steelhead (*O. mykiss*).

NMFS and CDFW have provided minimum flow recommendations to the SWRCB on Mill, Deer and Antelope creeks, along with the supplemental references in an email to your office on May 7, 2014. These flow recommendations were provided for developing emergency regulations. The range of in-stream flows that are proposed are considered by NMFS and CDFW to be the minimal flows that are necessary to allow for adult and juvenile fish migration on lower Mill, Deer and Antelope creeks. The range of flows in this Agreement (which encompass base flows and pulse flows) incorporate, to the best of our knowledge, the uncertainty associated with a variety of fish passage considerations in these streams, including passage past critical riffles, fish ladders and other obstacles. The range also incorporates consideration for the variable run timing of target fish species. These are not optimal flows, but the minimum, reasonable targets that will minimize the effect of the 2014 drought while balancing fish and agricultural interests. Flows below those provided to the SWRCB, would be expected to cause significant harm to the target species.

If you have any questions or comments about the contents of this memo, please call: Howard Brown at: 916-930-3608.

Attachment 12
National Marine Fisheries Service Minimum Flow Recommendations

Flow targets pulled from the draft NMFS agreement for the Volunteer Drought Agreement document for 2014 -

Deer Creek Flow Targets

Potential Fish Passage issues for Deer Creek:

Three areas along Deer Creek could be considered possible fish passage barriers:

1. Stanford Vina Ranch Irrigation Company Diversion Dam (SVRIC Dam) including Cone-Kimball diversion.
2. Deer Creek Irrigation District Diversion Dam (DCID Dam).
3. Shallow, "critical passage" riffles located in the 5 miles of stream between SVRIC Dam and the confluence of Deer Creek and the Sacramento River.

Minimum Base Flow Recommendation:

Adult fish – 50 cubic feet per second (cfs) generally has been found to allow fish passage through the 5 miles of stream between the confluence with the Sacramento River and past the SVRIC Diversion Dam.

Adult Chinook salmon critical passage periods – April 1 through June 30 and October 1 through November 30.
Adult steelhead critical passage period – October 1 through March 30

Juvenile fish – 20 cfs is the minimum flow needed for outmigration of juvenile Chinook salmon and steelhead through lower Deer Creek. The juvenile Chinook salmon and steelhead critical passage period is October 1 through June 30. This would be the minimum flow needed after the adult migration has concluded.

Pulse flows:

Time period of pulse flows: April 15 through June 30, at a minimum of once every two weeks.

Magnitude of pulse flows: Pulse flows should be a minimum of 50 cfs over base flow or full natural flows as recorded at the U.S. Geological Survey (USGS) Stream Gage at the mouth of the canyon above DCID Dam.

Duration of pulse flows: Minimum of 24 hours

Deer Creek gages that are used to measure flow changes are:

USGS gage location – the mouth of the canyon above DCID Dam

Department of Water Resources (DWR) gage location – immediately downstream of SVRIC Diversion Dam

Mill Creek flow targets

Potential Fish Passage issues for Mill Creek:

Three areas along Mill Creek channel could be considered possible fish passage barriers:

1. Critical riffle areas between river mile (RM) 0 and RM 2.8
2. Ward/Runyan Dam
3. Upper Mill Diversion Dam

Base flows:

Adult fish – 50 cfs generally has been found to allow fish passage through the 2.8 miles of stream between the confluence with the Sacramento River and Ward Dam (including past critical riffle areas).

Adult Chinook salmon critical passage periods – April 1 through June 30 and October 1 through November 30.
Adult steelhead critical passage period – October 1 through March 30

Juvenile fish – 20 cfs is the minimum flow needed for outmigration of juvenile Chinook salmon and steelhead through lower Mill Creek.

The juvenile Chinook salmon and steelhead critical passage period is October 1 through June 30. 20 cfs would be the minimum needed after the adult migration has concluded.

Pulse flows:

Time period of pulse flows: April 15 through June 30, at a minimum of once every two weeks.

Magnitude of pulse flows: Pulse flows should be a minimum of 50 cfs over base flow or full natural flows as recorded at the USGS gage station above Upper Dam.

Duration of pulse flows: Minimum of 24 hours

Gage stations where stream flow data is collected

USGS gage located above Upper Dam at the Mouth of the canyon
DWR gage (MCH) downstream of Ward dam (Los Molinos)

Antelope Creek flow targets

Adult fish –35cfs for upstream migration and fish passage through critical riffles areas located between the confluence of Craig Creek and the Sacramento River, and the Edwards Diversion Dam.

Juvenile fish – 20 cfs is the minimum flow needed in Craig Creek for outmigration of both juvenile Chinook salmon and steelhead between Edwards Dam and the Sacramento River.

Juvenile Chinook salmon and steelhead critical passage period: October 1 through June 30. 20 cfs would be the minimum needed after the adult migration has concluded.

Pulse flows:

Time period of pulse flows: April 15 through June 30, at a minimum of once every two weeks.

Magnitude of pulse flows: Pulse flows should be 35 cfs over minimum base flow or full natural flows.

Duration of pulse flows: Minimum of 24 hours

Gage stations where stream flow data is collected

There are no existing gages in place at this time.