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July 10, 2017

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State Water Resources Control Board
P.O. Box 100, Sacramento, CA 95812-2000

VIA ELECTRONIC MAIL: WQAssessment@waterboards.ca.gov

Re: Comment Letter—303(d) List Portion of the 2014 and 2016 California Integrated Report

Dear Chair Marcus and Board Members:

On behalf of Earth Law Center (ELC), which works for waterways' rights to flow, we welcome the opportunity to submit this formal request for the inclusion of hydrologically-impaired (*i.e.*, flow-impaired) waterways in the 2014 and 2016 California Integrated Report. At minimum, ELC requests the following waterways be listed as hydrologically-impaired, whether under Category 4C or Category 5:

2014 Integrated Report Regions

- Central Coast Region (Region 3): Salinas River, Carmel River, San Clemente Creek, Big Sur River, and Santa Maria River
- Central Valley Region (Region 5): San Joaquin River, inflow to the Delta; and the San Francisco Bay-Delta, outflow to Suisun Bay and San Francisco Bay
- San Diego Region (Region 9): Those 30 waterways already properly identified as hydrologically-impaired in Region 9's approved Integrated Report

2016 Integrated Report Regions

- San Francisco Region (Region 2): Napa River (non-tidal)
- Los Angeles Region (Region 4): The Ventura River (Reaches 3 and 4) and the Santa Clara River
- Santa Ana Region (Region 8): Santa Ana River (Reaches 3 and 4)

ELC submitted comment letters to each of the above Regions requesting that these waterways be listed as hydrologically impaired in each region's respective Integrated Report. Additionally, after approval of the regional 2014 or 2016 Integrated Reports (with the exception being the Los Angeles Region, which has not approved its Integrated Report), ELC requested in a May 5, 2017 letter that the State Water Board review the above listings for hydrologically-impaired waterways that had not been made.

ELC reiterates its request that the State Water Board list hydrologically impaired waterways within the Integrated Report, whether Category 4C or 5 – and in particular those waterways that are impaired due to low flows. As described below, this request is supported by the Clean Water Act and the implementing guidance from the U.S. Environmental Protection Agency (U.S. EPA), and is supported by compelling public policy considerations and precedent in other states as well as the State Board’s own documents as attached hereto (*see* Attachment C; available online at: <http://bit.ly/2u0cQFG>). Therefore, we ask that you revise the draft Staff Report to include, at minimum, the above-listed waterways as hydrologically-impaired under Categories 4C or 5.

1. Full Compliance with Clean Water Act Sections 305(b) and 303(d) Requires Identification of Hydrologically Impaired Waterways

Clean Water Act (CWA) Section 303(d)(1)(A) requires California to “identify those waters within its boundaries for which the effluent limitations ... are not stringent enough to implement any water quality standard applicable to such waters.” This must be a robust listing, with sufficient details about the waterways (including flow) to allow the state to “establish a priority ranking” for the waterways, also required by Section 303(d)(1)(A). In other words, California’s 303(d) list must provide a comprehensive list of all impairments. The state’s Listing Policy provides some mixed direction, stating on the one hand that the 303(d) list only covers impairments by “pollutants” (rather than also by “pollution,” such as flow),¹ but on the other hand stating that Regional Water Board Fact Sheets supporting Section 303(d) listings “shall contain . . . Pollutant *or type of pollution* that appears to be responsible for standards exceedance.”² The latter path is the appropriate course.

No objection, further, can be made to including flow-impaired waterways on the Section 303(d) list on the basis that the state is not required to prepare TMDLs to address “pollution.” First, Section 303(d)(1)(A) makes no mention of limiting the 303(d) list to those waterways requiring Total Maximum Daily Loads (TMDLs). In fact, no mention of TMDLs is made until Section 303(d)(1)(C), which sets requirements on how to manage impaired waterways. Moreover, the state itself does not take this position for waterways impaired by pollutants. Instead, the state lists in Category 5 (what it deems its Section 303(d) list) pollutant-impaired waterways that do, and do not, require TMDLs by state evaluation.³ Accordingly, the state must include hydrologically impaired waterways, including those impaired by altered flow, on its 303(d) list.

¹ SWRCB, “Water Quality Control Policy for Developing California’s Clean Water Act Section 303(d) List,” p. 3; at: http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2015/020315_8_amendment_clean_version.pdf (Listing Policy).

² *Id.* at p. 18 (emphasis added).

³ Even the state does not take that position, choosing instead to include in the Section 303(d) list Category 5 waters that do, and do not, require TMDLs. Listing Policy, *supra*, at Section 2.2, p. 3; *see also* San Francisco Bay Regional Water Quality Control Board Clean Water Act Sections 305(b) and 303(d) 2016 Integrated Report for the San Francisco Bay Region: Staff Report (2017) (“staff report”), p. 6 (stating that “...waterbodies remain in Category 5 until all 303(d)-listed pollutants are addressed by USEPA-approved TMDLs *or by another regulatory program that is expected to result in the reasonable attainment of the water quality standards....*”) (emphasis added).

The state must also include hydrologically impaired waters in its broader, CWA Section 305(b) report. Section 305(b) requires states to submit biennial⁴ reports that “shall” describe the “water quality of all navigable waters,” including an analysis of the extent to which the waters protect fish and wildlife, for compilation and submission to Congress.⁵ Federal regulations describe this requirement and its purpose, stating that **the Section 305(b) report “serves as the primary assessment of State water quality” and the basis of states’ water quality management plan elements, which “help direct all subsequent control activities.”**⁶ States must use the Section 305(b) report to develop their annual work program under Sections 106 and 205(j).⁷ And must review the 305(b) report in developing the 303(d) list.⁸ California’s Integrated Report accordingly must include an adequate Section 305(b) report if the state is to develop meaningful 303(d) list and water quality plans that appropriately direct staff and resources to the most important control activities.

The Section 305(b) report must particularly include information regarding waterway flows to ensure that the fundamental purpose of Section 305(b) in guiding workplanning is met. The provision of information regarding waterway flow is also called for by CWA Section 101, which sets the **national objective of restoring and maintaining the “chemical, physical, and biological integrity of the Nation’s waters.”** (Emphasis added.) The U.S. Supreme Court itself explicitly affirmed the importance of addressing physical elements of waterway health such as flow, stating that **the distinction between water quality and quantity under the CWA is “artificial.”**⁹

⁴ We note for the record that the state’s Section 303(d) and 305(b) reports are extremely overdue. The 2014 regions (Central Coast, Central Valley, and San Diego Regions) are now almost three years overdue, while the 2016 regions (Los Angeles, Santa Ana, and San Francisco Bay Regions) are now almost one year overdue, contrary to the clear language of the CWA (*see* 33 U.S.C. § 1313(d), 1315(b); 40 C.F.R. § 130.7(d)(1)). *We object strongly to this continued, illegal, statewide delay in compliance with CWA Sections 303(d) and 305(b).*

⁵ 33 U.S.C. § 1315(b)(1); *see also* 40 CFR § 130.8. Section 305(b)(1) states that the biennial report “shall include”:

“(A) a description of the water quality of all navigable waters in such State during the preceding year, with appropriate supplemental descriptions as shall be required to take into account seasonal, tidal, and other variations, correlated with the quality of water required....;

(B) an analysis of the extent to which all navigable waters of such State provide for the protection and propagation of a balanced population of shellfish, fish, and wildlife, and allow recreational activities in and on the water; ...

(E) a description of the nature and extent of nonpoint sources of pollutants, and recommendations as to the programs which must be undertaken to control each category of such sources, including an estimate of the costs of implementing such programs.” As to this last point, the SWRCB itself has recognized flow alterations as a form of nonpoint source pollution, reinforcing the need to properly account for it in the Section 305(b) report. *See, e.g., “Hydromodification, Wetlands and Riparian Areas Technical Advisory Committee: Recommendations to the SWRCB”* (Dec. 6, 1994), at:

http://www.waterboards.ca.gov/water_issues/programs/nps/tacrpts.shtml.

⁶ 40 CFR § 130.8(a) (emphasis added).

⁷ *Id.*

⁸ 40 C.F.R. § 130.7(b)(5)(i) (“At a minimum ‘all existing and readily available water quality-related data and information’ includes but is not limited to all of the existing and readily available data and information about the following categories of waters: ...Waters identified by the State in its most recent section 305(b) report as ‘partially meeting’ or ‘not meeting’ designated uses or as ‘threatened’.”).

⁹ *PUD No. 1 of Jefferson County v. Washington Department of Ecology*, 511 U.S. 700 (1994).

By contrast with this direction, the draft Staff Report runs afoul of the CWA by ignoring Category 4C entirely for inclusion in either its 303(d) list or its 305(b) report, incredibly reporting that **zero** water bodies amongst the 2014 and 2016 regions are impaired due to altered hydrology, with only three water bodies listed under Category 4C at all.¹⁰ The State Water Board appears to rely on the Listing Policy for this decision, which states that the 303(d) list only includes those water segments that require the development of a TMDL.¹¹ Here, again, the draft Staff Report assumes an illegally narrow definition of its requirements under the CWA. The Integrated Report is supposed to include *both* a robust and legally adequate 303(d) list *as well as* a robust and legally adequate 305(b) report. These requirements are combined; they are not the same (*see also* sec. 8). If the State Water Board takes the position that pollution-impaired waterways (including flow-impaired waters) cannot be included in the Section 303(d) list, then the Listing Policy – which by definition applies *only* to the Section 303(d) list – is irrelevant. It cannot be used as an excuse to ignore flow impairments entirely. In that case, the State Board must then turn to its requirements under Section 305(b), which broadly require it to report on water quality, including as impacted by altered flow.

Indeed, the draft Staff Report recognizes that it must consider flow-impaired waterways in its assessment, describing Category 4C as being applicable if “[t]he non-attainment of any applicable water quality standard for the waterbody segment is the result of pollution and is not caused by a pollutant.”¹² No legitimate reason is given for entirely failing to comply with this requirement, however. A legally adequate Section 305(b) report must include waterways impaired by pollution, including hydrologically impaired waterways, whether or not the waterways are also impaired by a pollutant. This information is also critical for the state to set waterway protection priorities properly.

Proper identification of hydrologically impaired waterways is also important if the state is to fully comply not only with Section 305(b), but with CWA Section 303(d) as well. This section not only calls for identification of impaired and threatened waterways, but also requires the state to prepare a “*priority ranking*” of such waters, “taking into account the severity of the pollution” and waterway uses.¹³ Flow and other hydrologic alteration data and information, which must be included in the 305(b) report and considered as part of the 303(d) list development, are critical to proper prioritization of impaired waters for further staff and resource attention.

Finally, we reiterate that because Section 303(d)(1)(A) broadly requires identification of impairments *regardless* of whether TMDLs are needed, the state’s Section 303(d) list should include a robust Category 4C set of listings. State law cannot weaken the requirements of the CWA by artificially limiting the scope of this list.

¹⁰ Matilija Creek Reach 1, Matilija Creek Reach 2, and the Matilija Reservoir – all due to fish barriers. *See* Staff Report, Appendix D (“2014 California Water Impacted by Pollution, Category 4C”).

¹¹ *See* Listing Policy, p. 3.

¹² *See* Draft Staff Report, p. v.

¹³ 33 U.S. Code § 1313(d)(1)(A) (emphasis added).

2. U.S. EPA Guidance and Reports, and the State Water Board Itself, Have Called for Identification of Hydrologically Impaired Waterways in Category 4C of the Integrated Report

U.S. EPA issued formal Integrated Report Guidance (*i.e.*, for the combined Sections 303(d) and 305(b) reports) to states and territories in August 2015; in it, EPA specifically addresses the topic of hydrological impairment.¹⁴ The U.S. EPA Guidance clearly states that

If States have data and/or information that a water is impaired due to pollution not caused by a pollutant (e.g., aquatic life¹⁵ use is not supported due to hydrologic alteration or habitat alteration), those causes should be identified and that water should be assigned to Category 4C.¹⁶

The Guidance specifically references hydrologic alteration as an example of a Category 4C listing.¹⁷ It further references EPA Guidance going back at least to 2006, which similarly said that flow-impaired waters should be identified in the Integrated Report under Category 4C (the 2010 CCKA *et al.* Letter references this 2006 Guidance in support of flow listings; *see* attachment 4).

U.S. EPA and USGS reinforced this mandate in a joint report in February 2016 on flow, stating in part that “EPA recommends reporting impairments due to hydrologic alteration in Category 4c, which are those impairments due to pollution not requiring a TMDL.”¹⁸

Even more specifically, U.S. EPA Region 9 has *directly* told the State Water Board that the Board is “well aware of [EPA’s] interest toward listing selected streams for ‘flow impairments’ (at least under 305(b)) where lines of evidence are strong.”¹⁹

Further, the State Water Board Executive Director himself decided that the state should identify flow-impaired waters in its Integrated Reports, stating that California “would now list for flow alterations” and that “[l]istings would be made under category 4C for impaired [sic] by pollution not a pollutant, and be based on staff’s professional judgment as well as the evidence submitted by the data.”²⁰ Again, no reason is given in the Staff Report for

¹⁴ 2015 EPA Listing Guidance, *supra*, pp. 13-16.

¹⁵ Note here that U.S. EPA specifically calls out protection of aquatic life as a reason to identify flow-impaired waters. The Staff Report similarly calls out aquatic life for specific protection (p. ii), but then ignores the next step of identifying flow impairments that injure aquatic life.

¹⁶ *Id.* at p. 15.

¹⁷ *Id.*

¹⁸ U.S. EPA and USGS, “Draft EPA-USGS Technical Report: Protecting Aquatic Life from Effects of Hydrologic Alteration,” Chapter 5 (Feb. 2016); at: <https://www.epa.gov/sites/production/files/2016-03/documents/aquatic-life-hydrologic-alteration-report.pdf> (U.S. EPA/USGS Report).

¹⁹ Email from Tim Vendlinski, U.S. EPA Region 9 to Diane Riddle, SWRCB (Jan. 7, 2015); available upon request.

²⁰ Email from Nicholas Martorano, SWRCB to SWRCB/RWQCB staff (July 22, 2013) (referencing decision by Thomas Howard, SWRCB); available upon request. Note that such Category 4C listings can and should be made for waterways that are also listed for other categories, including Category 5 (*see* Sec. 8).

ignoring the clear flow impairments throughout the region in light of the CWA, guidance, and state direction.

Nor is the State Board's conclusion that Category 4C and Category 5 listings are mutually exclusive legally justified.²¹ The Clean Water Act makes clear and the EPA Guidance accordingly instructs that these categories overlap.²² The State Board's interpretation is overly narrow and is entirely inconsistent with the EPA Guidance and the Clean Water Act.

3. The San Diego RWQCB Properly Adopted Numerous Listings for Hydrologic Impairment for Its Integrated Report, which the State Water Board Disregarded without Adequate Explanation

The San Diego Regional Water Quality Control Board (SD RWQCB) adopted an Integrated Report and Staff Report²³ that **identified 30 waterway segments for listing in Category 4C, either with a Category 5 pollutant listing or alone.**²⁴ Consistent with U.S. EPA Guidance, the SD RWQCB recognized that identifying *all* pollutant and pollution impairments provides a far more accurate picture of the challenges before the state than ignoring key impairments. For example, the Staff Report found that "over 96 percent of streams that exhibited biological degradation had both an associated pollutant(s) and supporting information showing pollution from in-stream habitat/hydrologic alteration and/or watershed hydrologic alteration (hydromodification, Table 3)." If the Regional Board had ignored such pollution impairments, then virtually all of the impaired streams in the San Diego Region would have been under-assessed, likely resulting in misallocation of limited resources and attention. ELC commented to the San Diego Board in support of these listings; these comments are attached.²⁵

Rather than integrating San Diego's approved list of impaired water segments into the statewide 2014 and 2016 Integrated Report, the State Water Board failed to list *any* of the 30 water segments that had been listed under Category 4C. Inexplicably and illegally, State Water Board staff failed to even offer a rationale for this omission.²⁶ While State Water

²¹ Based on publicly available documents obtained by ELC via a Public Records Act request, correspondence from the State Board to EPA it is clear that the State Board is well aware that its refusal to list impairments based on both pollutants and pollution is contrary to EPA guidance. See Attachment C (email from Nicholas Martorano, SWRCB to SWRCB/EPA staff dated July 27, 2015 stating: "The 2016 guidance does state that an individual waterbody could be placed into both Category 5 and 4c but that is no the way the State Water Board interprets the statute and definitions.").

²² See 33 U.S.C. §§ 1313(d), 1315(b); see also 2015 EPA Listing Guidance, *supra*, p. 15.

²³ See Draft adopted Oct. 12, 2016 at:

http://www.waterboards.ca.gov/sandiego/water_issues/programs/303d_list/.

²⁴

http://www.waterboards.ca.gov/sandiego/water_issues/programs/303d_list/docs/IR_RB_StaffReport_R9_07-11-16_Clean.pdf, Table 3.

²⁵ Also found at: <http://bit.ly/SDRWQCB> (note attachments to this letter as well for further supporting information).

²⁶ In developing the 303(d) list, the State Board is required to explain why existing, readily available data, including SD RWQCB's Category 4C listings, was not used. See 40 C.F.R. § 130.7(b)(6) ("Each State shall provide documentation to the Regional Administrator to support the State's determination to list or not to list its waters... and shall include at a minimum: ...A description of the data and information used to identify

Board staff may have relied upon its belief that water segments can be placed into only “one of five non-overlapping categories based on the overall beneficial use support of the water segment,”²⁷ this justification is misguided, as described above and further in Section 8. And at minimum, State Water Board staff could have noted the Category 4C listings within the list of Category 5 waterways. This is the very approach that was taken for the Ventura River Reach 4, for which the Category 5 list notes that “pumping” and “water diversion” are in fact Category 4C listings (impairment due to pollution that do not require a TMDL).²⁸ However, as written, the public is left to guess whether those 30 waterways identified by the SD RWQCB are in fact impaired due to hydromodification according to the draft Staff Report – and if not, for what reason. The State Board’s elimination of SD RWQCB’s Category 4C listings is illegal, and cannot be justified even if the State Board offered an explanation—which it has not.

4. California Has Identified Hydrologically Impaired Waterways in the Past

In California, “Pumping” and “Water Diversion” have been listed as the *sole* causes of impairment for Ventura River Reach 4, in the Los Angeles Region. Also in the Los Angeles Region, Ventura River Reach 3 has been listed for “Pumping” and “Water Diversion,” and Ballona Creek Wetlands has been listed as impaired by “Hydromodification,” among other impairments. All three water body segments have been listed for these specific flow-related impairments in Category 5.²⁹ California’s history of identifying flow-related impairments under Section 303(d) is consistent with the Clean Water Act, and should be considered precedential.

5. Numerous Other States Have Identified Hydrologically Impaired Waterways in Categories 4C and 5

Many states around the country have followed U.S. EPA Guidance and the CWA by properly identifying flow-impaired waterways in their Integrated Reports. These include, but are not limited to, Western states such as Idaho, Montana, Wyoming, Washington and New Mexico.³⁰ One listing methodology that may be of particular interest to the San Francisco Bay Region is that used by Ohio, which identifies waters impaired by flow alteration by linking biological community degradation with upstream dams. Notably, a number of these states regularly include flow-impaired waterways on their 303(d) list as well as their 305(b) Report. ELC has collected a significant amount of information on other states’

waters, including a description of the data and information used by the State as required by § 130.7(b)(5).”). The State Board has failed to include any such explanation in the draft Integrated Report.

²⁷ Draft Staff Report, p. 18

²⁸ Appendix A: Category 5 List, 2014 California 303(d) List of Water Quality Limited Segments, at: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016/category5_report.shtml. ELC notes that Santa Barbara Channelkeeper has submitted separate comments related to inconsistencies with the listings for Reaches 3 and 4 of the Ventura River. ELC fully supports Channelkeeper’s comments, and incorporates them herein.

²⁹

[http://www.swrcb.ca.gov/losangeles/water_issues/programs/303d/2008/Final%20303\(d\)/Appendix_E_08_Aug09.pdf](http://www.swrcb.ca.gov/losangeles/water_issues/programs/303d/2008/Final%20303(d)/Appendix_E_08_Aug09.pdf).

³⁰ See detailed memorandum on this topic prepared by ELC for the SWRCB at: <http://bit.ly/303d305b>.

hydrologic impairment listings and processes (and provided this to the State Water Board); this can be made readily available to the San Francisco Bay RWQCB if desired.

6. Flow Standards Are Not Required to Identify Hydrologically Impaired Waterways in Category 4C

Most, if not all, of the states that identify hydrologic (including flow) impairments make those listing decisions based on best professional judgment and the information before them. Flow standards are not required to be developed first. Even the State Water Board has stated that flow listings could be done “based on staff’s professional judgment as well as the evidence submitted by the data,” and that they “would likely be mostly narrative . . . unless there are specific numeric targets for flow in place.”³¹ In other words, the state itself has recognized that flow criteria are not necessary for flow impairment listings.³² ELC has compiled significant information collected on various states’ hydrologic impairment listing strategies, which are attached hereto (*see* Attachment D).

U.S. EPA addresses the process of identifying hydrologically impaired waters in its 2015 EPA Listing Guidance, stating that:

if States have data and/or information that a water is impaired due to pollution not caused by a pollutant (e.g., aquatic life use is not supported due to hydrologic alteration or habitat alteration), those causes should be identified and that water should be assigned to Category 4C. Examples of hydrologic alteration include: a perennial water is dry; no longer has flow; has low flow; has stand-alone pools; has extreme high flows; or has other significant alteration of the frequency, magnitude, duration or rate-of-change of natural flows in a water; or a water is characterized by entrenchment, bank destabilization, or channelization. Where circumstances such as unnatural low flow, no flow or stand-alone pools prevent sampling, it may be appropriate to place that water in Category 4C for impairment due to pollution not caused by a pollutant. In order to simplify and clarify the identification of waters impaired by pollution not caused by a pollutant, States may create further sub-categories to distinguish such waters.³³

Note that this description of the process for identifying flow impairments does *not* require adoption of flow standards as a prerequisite for listing.

The SD RWQCB Staff Report also addressed this topic in their Staff Report and Integrated Report, similarly stating that:

³¹ Email from Nicholas Martorano, SWRCB to SWRCB/RWQCB staff (July 22, 2013); *see* Attachment C.

³² Instead, State Board staff seem to be avoiding Category 4C listings due to concerns not legally or factual relevant to the quality of California’s waterways. *See* Attachment C (email from Nicholas Martorano, SWRCB to RWQCB/EPA staff (October 16, 2015)).

³³ 2015 EPA Listing Guidance, *supra*, p. 15.

where a water segment exhibited significant degradation in biological populations and/or communities as compared to reference site(s) the San Diego Water Board assessed the segment for inclusion in Category 4c using data and information as prescribed in USEPA's 2015 Guidance . . . Where in-stream data was lacking, stream segments were evaluated using desktop aerial reconnaissance for potential in-stream habitat and hydrologic alteration associated with channel modifications, stream diversion or augmentation, and to evaluate the level of associated development and use of best management practices to mitigate hydromodification.³⁴

But, as detailed above, the State Board has impermissibly ignored this portion of the SD RWQCB Staff Report.

7. Sound Public Policy Dictates that Flow-Impaired Waterways Must Be Identified

States, including California, have identified and are identifying flow-impaired waterways in their Integrated Reports not only because the Clean Water Act calls for it and U.S. EPA Guidance reinforces it. They also do so because it makes smart policy sense. Why would a state limit the amount of information it releases, information that could help it make better decisions about how to prioritize its resources? If the main problem with a waterway is not temperature or dissolved oxygen but flow, for example, then that information should be available so the best permitting and resource allocation decisions can be made to protect affected waterways.

Identification of flow-impaired waterways is also important because those listings help the public exercise their own responsibility to help improve waterway health. U.S. EPA agreed in its Guidance, stating that “a variety of watershed restoration tools and approaches to address the source(s) of the impairment” exist even in the absence of TMDLs, increasing the importance of full and complete identification for impaired waterways.³⁵

Hydrologic impairment listings also can and should be used in CEQA analyses of proposed projects that could further impact the flow of identified waterways, thus preventing additional damage to already-impacted waterways and fish. ELC has prepared and submitted extensive comments to the state on the numerous policy benefits of properly identifying flow-impaired waterways.³⁶

³⁴ SD RWQCB, “Clean Water Act Sections 305(b) And 303(d) Integrated Report for The San Diego Region (July 2016); at: http://www.waterboards.ca.gov/sandiego/water_issues/programs/303d_list/docs/IR_RB_StaffReport_R9_07-11-16_Clean.pdf, pp. 13-14.

³⁵ For an analysis of water governance tools that could effectively restore flows to California waterways, see Linda Sheehan *et al.*, “California Water Governance for the 21st Century” (2017), available at: <http://bit.ly/CAwatergovernance>.

³⁶ Letter from ELC, CCKA to SWRCB, “Inclusion of Impairments Due to Low Flow in the California 2012 Section 303(d) List” (May 15, 2013); at: <http://bit.ly/SWB303d>.

8. Water Bodies Can and Should Be Placed in All Relevant Categories of Identification

The draft Staff Report states that “[t]o meet CWA section 305(b) requirements of reporting on water quality conditions, the Integrated Report places each assessed waterbody into one of five *non-overlapping* categories based on the overall beneficial use support of the waterbody.”³⁷ This statement appears to limit the State Water Board to placing water bodies in only one category, an interpretation presumably reflected in the recommendation to include zero flow-impairment listings in Category 4C.

This approach is simply illegal and incorrect. Consistent with the requirements of sections 303(d) and 305(b) of the Clean Water Act, the U.S. EPA has been quite clear that water bodies can be placed into multiple categories, and in fact should be in order to provide the best available information to U.S. EPA and Congress. As explained by the SD RWQCB in its Staff Report:

It is important to note that USEPA recommended in its 2015 guidance that “States assign all of their surface water segments to **one or more of five reporting categories**”³⁸

U.S. EPA reiterated this point in its joint report with USGS, stating that “EPA’s guidance has noted that **assessment categories are not mutually exclusive, and waters may be placed in more than one category (for example, categories 4C and 5)**.”³⁹ Accordingly, flow impairments should be reflected in Category 4C *whether or not* there is a pollutant present, the approach taken recently by the SD RWQCB. Otherwise, the state is conflating the Section 303(d) and 305(b) reports rather than combining them, ignoring its Section 305(b) responsibilities in the process.⁴⁰ Because the state must comply with *both* Sections 305(b) and 303(d), it must provide information relevant to all categories applicable to a single water body.⁴¹ The Integrated Report does not meet these mandates.

Like the SD RWQCB, other states demonstrate the correct understanding in accordance with U.S. EPA Guidance by placing water bodies (with U.S. EPA approval) in Category 4C for pollution, even when other impairing pollutants are identified for the same segment. For example, Tennessee lists Egypt Hollow Creek as impaired due to flow alterations under Category 4C and impaired due to low dissolved oxygen and manganese under Category 5. Further, Tennessee places *both* impairments on their 303(d) List (*see* Figure 2 below).

³⁷ Draft Staff Report, *supra*, p. 18 (emphasis added).

³⁸ SD RWQCB, *supra*, p. 14 (emphasis added).

³⁹ U.S. EPA/USGS Report, *supra*, Ch. 5 (emphasis added).

⁴⁰ 33 U.S.C. §§ 1315(b), 1313(d); 40 C.F.R. §§ 130.7, 130.8.

⁴¹ This is consistent with the statutory intent of the CWA, which distinguishes the related Section 305(b) reports and Section 303(d) lists. In 2002, the EPA for the first time released guidance calling for a single “Integrated Report” merging Section 305(b) water quality reports and Section 303(d) lists. *See* U.S. EPA, 2002 Integrated Water Quality Monitoring and Assessment Report Guidance.

Final Version 2012 303(d) LIST (Duck River Watershed cont.)

Waterbody ID	Impacted Waterbody	County	Miles/Acres Impaired	CAUSE / TMDL Priority	Pollutant Source	COMMENTS
TN06040003 041 – 1100	DOG BRANCH	Hickman Maury	13.8	Escherichia coli NA	Pasture Grazing	Category 4a. EPA approved a pathogen TMDL that addresses the known pollutant.
TN06040003 050 - 0620	GRAB CREEK	Dickson	3.94	Escherichia coli H	Pasture Grazing Discharges from MS4 area	Stream is Category 5. One or more uses are impaired.
TN06040003 060 – 0700	EGYPT HOLLOW CREEK	Humphreys	4.68	Flow Alterations Low dissolved oxygen Manganese NA L H	Upstream Impoundment	Category 5. Flow is Category 4C, impacts not due to a pollutant.
TN06040003 062 – 3000	BLUE CREEK	Humphreys	5.1	Nitrate+Nitrite Total Phosphorus Low dissolved oxygen Solids Escherichia coli M M L L NA	Municipal Point Source	McEwen STP. Category 5. EPA approved a pathogen TMDL that addresses some of the known pollutants.

Figure 2: Tennessee 303(d) List with Both Category 4c and 5 Impairments for a Single Waterbody Segment
(Source: Tennessee Department of Environmental and Conservation, “Year 2012 303(d) List” (Jan. 2014)).

Idaho similarly lists waterway segments as impaired under both Category 4C and Category 5. Appendix I of the latest Idaho Integrated Report contains 36 pages (7,342 river/stream miles) of Category 4C impairments, including numerous waterways listed as impaired for “low flow alterations”; many of these are also dual-listed for pollutant impairments.⁴²

In another example, Montana classifies waterways under Category 4C when there is *only* a pollution impairment. If there is a pollution *and* a pollutant impairment, then Montana lists the waterway under Category 5, and compiles all of the impairment causes in Appendix A (“Impaired Waters”) (see Figure 3). This is consistent with the “single-category” approach described in the 2006 U.S. EPA Guidance. Montana develops TMDLs only for the pollutant impairments, but develops the full Impaired Waters list under Category 5 to provide the public and decisionmakers with a clear picture of the state of the health of its waterways – precisely what sections 303(d) and 305(b) require.

⁴² See <https://www.deq.idaho.gov/media/1117323/integrated-report-2012-final-entire.pdf>. Appendix J consists of Category 5 waterways, which can be cross-referenced to easily see the dual listings. *Id.*

Appendix A: Impaired Waters

HUC 10020007		Madison		Watershed		Upper Missouri Tribs.								
TMDL Planning Area	ID305B	Waterbody Name/Location	Category	Size	Units	Use Class	AQL	AG	DW	Rec	Cause Name	Source Name		
Madison	MT41F004_020	O'DELL SPRING CREEK, headwaters to mouth (Madison River)	5	13.194	MILES	B-1	N	F	N	F	High Flow Regime	Grazing in Riparian or Shoreline Zones		
											Other anthropogenic substrate alterations	Habitat Modification - other than Hydromodification		
											Physical substrate habitat alterations	Impacts from Hydrostructure Flow Regulation/modification Irrigated Crop Production		
												Source Unknown		
Madison	MT41F004_040	INDIAN CREEK, Lee Metcalf Wilderness boundary to mouth (Madison River)	4C	6.34	MILES	B-1	N	F	F	N	Low flow alterations	Impacts from Hydrostructure Flow Regulation/modification Irrigated Crop Production		
Madison	MT41F004_050	JACK CREEK, headwaters to mouth (Madison River, TSS R1W S23)	5	15.18	MILES	B-1	N	F	F	N	Alteration in stream-side or littoral vegetative covers	Grazing in Riparian or Shoreline Zones		
											Low flow alterations	Irrigated Crop Production		
											Physical substrate habitat alterations	Natural Sources		
											Sedimentation/Siltation	Streambank Modifications/destabilization		
Madison	MT41F004_060	NORTH MEADOW CREEK, headwaters to mouth (Eris Lake)	5	18.53	MILES	B-1	F	F	F	N	Low flow alterations	Channelization		
											Phosphorus (Total)	Irrigated Crop Production		
											Physical substrate habitat alterations	Natural Sources		
											Sedimentation/Siltation	Streambank Modifications/destabilization		

Figure 3: Montana listing of both pollutant- and pollution-impaired waterways on a single list of Impaired Waters. (Source: Montana DEQ, "Appendix A: Impaired Waters").

Even within California, as described above, there is precedent of dual listings under Category 4C and Category 5. First, the SD RWQCB listed waterways as impaired due to hydromodification and habitat alteration in Category 4C, whether with a Category 5 listing or alone. Explaining its decision, the SD RWQCB's Staff Report echoes the EPA's finding, stating that Category 4C listed waters "may be a priority for restoration by a Regional Water Board." Further, the 2014 and 2016 California Integrated Report itself notes the dual Category 5 and Category 4C listing for the Ventura River Reach 4. California's 303(d) list (or, alternatively, the 305(b) Report) in full similarly should accurately reflect *all* sources of impairment, regardless of dual pollutant/pollution listings.

9. Reasonably Available Data Exist and Have Been Provided in Support of the Listing of Waterways as Hydrologically Impaired

As detailed in Attachment A, and as evident based on significant, readily available information, the lines of evidence for hydrologic impairment are strong for numerous California waterway segments, including but not limited to the Salinas River, Carmel River, San Clemente Creek, Big Sur River, and Santa Maria River (Region 3); the San Joaquin River, inflow to the Delta, and the San Francisco Bay-Delta, outflow to Suisun Bay and San Francisco Bay (Region 5); those 30 waterways already properly identified as hydrologically-impaired in Region 9's approved Integrated Report (Region 9); the Napa River (non-tidal) (Region 2); the Ventura River (Reaches 3 and 4) and the Santa Clara River (Region 4); and the Santa Ana River (Reaches 3 and 4) (Region 4).

Federal regulations state that states must evaluate “all existing and readily available information” in developing their 303(d) lists and prioritizations.⁴³ Readily available data includes the 305(b) report.⁴⁴ The SWRCB’s Executive Director reinforced the breadth of this requirement in a memorandum on the scope of listing regulations at 40 CFR § 130.7(b)(5).⁴⁵ This information must include flow, a position recently reinforced by U.S. EPA, who stated that the integrated reporting format is key to “acknowledge the important role of flow in contributing to water-body impairments.”⁴⁶

Attachment A provides summaries of such information, including in regards to the severe dewatering of waterways across California. The State Water Board has more than enough data needed to list waterways, at a minimum those listed above, which it may not ignore in its development of the Integrated Report.⁴⁷ Proper, timely identification under the Clean Water Act of all hydrologically impaired waterways in California Integrated Report is required and critical to setting appropriate plans and priorities that will help reverse significant declines in aquatic species.

⁴³ 40 CFR § 130.7(b)(5).

⁴⁴ See *Thomas v. Jackson*, 581 F.3d 658, 661 (citing 40 C.F.R. § 130.7(b)(5)(i)).

⁴⁵ At:

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/clarification_30jan07.pdf (placing “no limits” on the data that can be provided to the RWQCBs for development of the Integrated Report’s 303(d) and 305(b) lists).

⁴⁶ U.S. EPA/USGS Report, *supra*, Ch. 5.

⁴⁷ In the draft Integrated Report the State Board takes the position that it need not approve the 305(b) reports submitted by the various regional boards, and it is unclear whether the State Board has reviewed those reports. See Draft Staff Report, pp. 1-2. The regulations implementing section 303(d) require the State Board to review the 305(b) reports when developing the 303(d) list. *Thomas v. Jackson*, 581 F.3d 658, 661 (citing 40 C.F.R. § 130.7(b)(5)(i)). Unless the State Board takes the current 305(b) reports into consideration in issuing the final Integrated Report, the 303(d) list will violate the Clean Water Act. In addition, the State Board must consider information submitted by the public. 40 C.F.R. § 130.7(b)(5)(iii) (“At a minimum “all existing and readily available water quality-related data and information” includes but is not limited to all of the existing and readily available data and information about the following categories of waters: Waters for which water quality problems have been reported by local, state, or federal agencies; members of the public; or academic institutions.”). The State Board may not legally impose date restrictions on what data is available.

In sum, we once again urge the State Water Board to follow the lead of the SD RWQCB, as well as U.S. EPA and numerous other states, in identifying flow- and otherwise hydrologically-impaired waters in the region's Integrated Report. Otherwise, California will not only fall behind as an environmental leader, but failing to comply with the Clean Water Act as detailed above will impede the state's ability to protect nature's right to thrive and adequately prepare for the next drought.

Thank you for the opportunity to submit these comments. If you have any questions or would like additional information, please do not hesitate to contact us.

Sincerely,



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- Attachment A: Data Supporting Listings for Hydrological Impairment
- Attachment B: Comment Letter from ELC to San Diego RWQCB, "Comment – CWA Section 305(b)/303(d) Integrated Report" (Aug. 8, 2016)
- Attachment C: Public Documents Re: 303(d)/305(b) Listings Due to Altered Flows and Supporting Scientific Evidence (also at: <http://bit.ly/2u0cQFG>)
- Attachment D: Ten Sample States Listing Waterways as Impaired Due to Causes Related to Altered Flows

ATTACHMENT A

Data Supporting Listings for Hydrological Impairment

2014 and 2016 California Integrated Report

Region 3 - Central Coast

ATTACHMENT 1:

Fish Declines Associated with Hydrologic Impairments in Select Waters

Salinas River	<p>Around the beginning of the 20th century, the Salinas River and tributaries supported a large population of steelhead trout. In the early 1960s, the average Salinas steelhead run was estimated to consist of about 500 individuals.¹ Today, only small populations of steelhead remain in a handful of the Upper Salinas tributaries.²</p> <p>There is some suitable habitat for steelhead in the Upper Salinas Basin and possibly remnant steelhead populations. However, habitat in the Upper Salinas is of lower quality and is less extensive than that in the Arroyo Seco and its tributaries...The Upper Salinas is also less accessible for steelhead than the Arroyo Seco (EDAW 2001).³</p> <p><u>Causes of Decline</u></p> <p>Large-scale water storage projects on the upper mainstem Salinas River and the Nacimiento and San Antonio rivers preclude steelhead access to the majority of historical spawning and rearing habitat, and are the primary cause of the steelhead population's decline in the watershed. Although some suitable habitat remains downstream of the Nacimiento and San Antonio dams and in several tributaries to the upper Salinas River, spawning steelhead can rarely access this habitat due insufficient migration flows (Smith 1994; NMFS 2001; NMFS 2007). In addition to the impacts to adult upstream migration, the Nacimiento and San Antonio dams have reduced significantly springflows⁴ such that smolts cannot migrate from upstream rearing habitat to the ocean (NMFS 2005).⁴</p> <p>In the early 1940's, the Salinas River was dammed near the town of Santa Margarita to provide water for the community of San Luis Obispo...The dam[s] are believed to be a major reason for the decline in steelhead in the Upper Salinas River.⁵</p> <p>According to Casagrande et al. (2003), the Salinas River Basin historically supported runs of steelhead and possibly Chinook salmon but now supports only "a small, probably declining run of steelhead." Concerns regarding the decline of the Salinas River Basin steelhead population include flow-related passage barriers, low summer base flows, and loss of habitat.⁶</p>
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¹ Becker, G.S., K.M. Smetak, and D.A. Asbury. 2010. Southern Steelhead Resources Evaluation: Identifying Promising Locations for Steelhead Restoration in Watersheds South of the Golden Gate. Cartography by D.A. Asbury. Center for Ecosystem Management and Restoration. Oakland, CA. Pg. 70; at: http://www.opc.ca.gov/webmaster/ftp/project_pages/salmon_and_steelhead/CEMAR/Southern_Steelhead_Resources_Evaluation.pdf.

² Upper Salinas - Las Tablas Resource Conservation District. Watershed Fisheries Report and Early Actions: A Study of the Upper Salinas River and Tributaries. March 2002. Pg. 2; at: http://www.us-ltrcd.org/wp-content/uploads/2012/04/Watershed_Fisheries_Report.pdf.

³ Becker, *supra*, at 71.

⁴ *Id.*

⁵ Upper Salinas - Las Tablas Resource Conservation District, *supra* at 2.

⁶ Monterey County Water Resources Agency. Salinas Valley Water Project Annual Fisheries Report for 2010. April 2011. Pg. 1; at:

<p>Santa Clara River</p>	<p>The Santa Clara River appears to have supported a large steelhead population historically. A 1946 issue of the DFG journal relays, “The Division of Fish and Game reports large and consistent [steelhead] runs into Ventura and Santa Clara rivers...” (DFG 1946b). Based on run size estimates for Matilija Creek and comparison of habitat information between Matilija Creek and the Santa Clara River watershed, one researcher projected a run of about 9,000 individuals (Moore 1980b). The assessment report characterized the estimate as “reasonable” and “conservative.” By 1974 the run had declined sufficiently for DFG staff to state, “...there is no fishery to speak of in the [Santa Clara] river now” although it notes that “...there are some [steelhead] now that come up during large flows” (DFG 1974). A 1982-1984 study similarly indicated that a small number of adult steelhead spawned in the Santa Clara system and that the watershed supported smolt production (DFG 1985). A 1998 report summarizing the results of five years of fish passage monitoring at the Vern Freeman Diversion noted that the 414 smolts captured in 1997 likely comprised “nearly all of the outmigrant steelhead” (Entrix 1998). According to NMFS, less than ten adult steelhead were observed during the period from 1994 to 2000 (NMFS 2000).⁷</p> <p><u>Causes of Decline</u></p> <p>Water diversions appear to have been impacting Santa Clara River steelhead populations for many decades. Notes from 1947 state, “Below the intake the stream goes dry as all of the water is diverted... There are many small sand diversion dams across the stream and when the steelhead start running there is sufficient flow to wash out these diversions. It is difficult for the young steelhead returning” (DFG 1951b). A report from 1951 states, “The lower reaches of the Ventura and Santa Clara Rivers are of secondary importance as a means of access by which steelhead trout migrate upstream from the ocean to headwaters tributaries. With increased water development and reduced runoff to the oceans, these runs will unfortunately continue to diminish in size and importance” (DFG 1951b). The Santa Clara River system includes an important water supply feature, the Vern Freeman Diversion Dam, which was constructed in 1991 at about stream mile ten. A fishway was provided at the facility that became operational in 1991. The 2005 Santa Clara River assessment states, “While conditions are poor for spawning and sub-optimal for rearing in most reaches, the mainstem [Santa Clara] is a critical corridor for upstream and downstream steelhead movement” (Stoecker and Kelley 2005). Specifically, bypass flows at the diversion dam can affect migration opportunities.⁸</p>
<p>Carmel River</p>	<p>In a 1983 DFG letter, the average historical steelhead run (prior to dam construction) in the Carmel River was estimated to comprise 8,000 adults annually (DFG 1983a). A draft consultants’ report from 1982 offered the following summary of Carmel River steelhead: “The Carmel River supports an annual run of steelhead that the Department of Fish and Game estimates averages about 2000 adults per year. Adults...spawn in the lower Carmel between Shulte Road and the San Clemente Dam. Some climb the ladder at San Clemente, spawn in the river between the two dams or in the tributaries of that reach, and some are passed over Los Padres to spawn in the upper Carmel and its tributaries” (Kelley 1983).⁹</p>

http://www.mcwra.co.monterey.ca.us/fish_monitoring/documents/2010%20Salinas%20Basin%20Rotary%20Screw%20Trap.pdf.

⁷ Becker, *supra* at 159.

⁸ *Id.* at 160.

⁹ *Id.* at 74.

	<p><u>Causes of Decline</u></p> <p>Water supply has long been recognized as a primary factor limiting the Carmel River’s potential steelhead production. Water demand in the Carmel River watershed far exceeds supply, which has reduced spawning and rearing habitat, particularly in the lower ten miles of stream, and has limited upstream migration of adults and downstream emigration of juveniles. The mechanism is described below: “Carmel River flows decrease in early summer, due to reduced runoff and water diversions... These diversions significantly alter the stream flows in the lower portions of the Carmel River to the extent that several miles of river are dewatered each summer and fall and a sand bar is formed at the mouth of the river. The dewatering of the stream channel significantly reduces rearing habitat below San Clemente Dam and strands early migrating juvenile trout in isolated pools in the lower river. Fish rescue operations are conducted by the Monterey Peninsula Water Management District in an effort to mitigate for water diversions. Fish rescued are transported and released into upstream reaches of perennial stream flow...[The] sand bar is artificially breached each winter in order to allow the upstream migration of steelhead from the ocean...” (DFG 1995).</p> <p>A watershed plan prepared for the Carmel River in 2004 lists additional factors that have been identified as limiting to the Carmel River steelhead population, including lack of spawning gravels in the reaches downstream of the San Clemente and Los Padres dams; lack of riparian vegetation; excess sediment deposits due to bank erosion, cattle grazing activities, and development; passage barriers; and lack of large woody debris. The report emphasizes the need to couple projects that address these problems with restoration of instream flows, stating, “Dealing with dams, erosion/sedimentation, water quality for aquatic life...[and] riparian habitat restoration...are irrelevant if the lack of surface flow continues to be a problem” (CRWC 2004, p. 8).¹⁰</p> <p>Water development, particularly illegal underflow pumping in the lower reach of the Carmel River by the California American Water Company (CAL-AM), has caused dewatering, a broadening of the channel, and loss of riparian habitat. As a result of over appropriation of water and the effects of the recent drought, the Carmel River did not flow to the ocean for a four-year period from 1987 to 1991.¹¹</p> <p>The Carmel River “did not flow to the ocean for four years during the recent drought because of surface diversions and excessive groundwater pumping, and its native steelhead population is at a critically low level.”¹²</p>
San Clemente Creek	Erected at the confluence of the Carmel River and San Clemente Creek, the [San Clemente] dam essentially blocked 25 miles of prime spawning and rearing habitat for anadromous fish, including South-Central California Coast steelhead listed as threatened under the Endangered Species Act. It also damaged wildlife habitat by

¹⁰ *Id.* at 75-76.

¹¹ Department of Fish and Game. Steelhead Restoration and Management Plan for California. February 1996. Pg. 186.

¹² *Id.* at 9.

	<p>starving the downstream river of valuable sediment necessary for fish to lay their eggs in nests or redds.¹³</p> <p>A concrete ford on upper San Clemente Creek (Barrier 585-03) may present a partial barrier to migrating steelhead and should be assessed and modified if necessary in accordance with other barrier modification priorities... Seasonal recreational dams on San Clemente and Black Rock creeks have been observed to create passage problems (MPWMD 2004; M. Stoecker pers. comm.).¹⁴</p>
Big Sur River	<p><u>Causes of Decline</u></p> <p>A 2003 steelhead enhancement plan for the Big Sur River identified the “volume and intensity of visitor use” within Pfeiffer Big Sur and Andrew Molera State parks as a key limiting factor to the steelhead population in the watershed. The report states, “Where visitor use is concentrated, the visible impacts to salmonid habitat occur through trail erosion, trampling of riparian and instream habitat, and construction of rock dams and channel modifications. These instream activities may result in the degradation of spawning areas in late winter through spring and obstruction of juvenile passage throughout low flow periods.”¹⁵</p> <p>The importance of lagoons to rearing steelhead is dependent in part on the lagoon’s habitat characteristics, including its persistence, area and volume, water chemistry, invertebrate prey abundance, and instream cover (Smith 1987, Zedonis et al. 2007, Hayes et al. 2008). These habitat characteristics are in turn affected by streamflow, particularly high flow events with associated recruitment of sediments, woody debris, and fish.¹⁶</p> <p>High volume groundwater extraction in the lower portion of the Big Sur “impacts streamflows and essential habitat for juvenile steelhead.”¹⁷</p>
Santa Maria River	<p>Steelhead use of the Santa Maria River has been consistently documented since the late 1800s, although data on historical run size estimates is lacking. A citation in a 2003 report states, “The last sizeable run of steelhead was in 1941 with a few adults reported in 1942-1943” (Titus et al. 2000, as cited in Stoecker 2003). Reports on the watershed indicate that the Santa Maria River is now dry a significant portion of the year and therefore does not offer substantial rearing habitat, except for the estuary, which may serve a critical function for steelhead rearing and is currently being studied as part of a larger instream flow.¹⁸</p> <p><u>Causes of Decline</u></p> <p>The Bureau of Reclamation’s Twitchell Reservoir operations (on the Cuyama River) substantially affect the hydrology of the Santa Maria River, which serves as the</p>

¹³ NOAA Fisheries. A River Runs around it. Summer 2015; at: http://www.westcoast.fisheries.noaa.gov/stories/2015/08262015_san_clemente_dam.html.

¹⁴ Becker, *supra* at 79.

¹⁵ *Id.* at 82.

¹⁶ Normandeau Associates, Inc. Fisheries and Habitat Assessment of the Big Sur River Lagoon, California. January 2012. Pg. 1; at: <http://www.opc.ca.gov/webmaster/ftp/pdf/docs/Big%20Sur%20Lagoon%20Study%20Report%20Final%2001-13-12.pdf>.

¹⁷ Kurt Zimmerman, Tim Frahm and Sam Davidson. Recovering California Steelhead South of Santa Cruz. The Osprey: 75. May 2013. Pg. 17; at: <http://caltrout.org/wp-content/uploads/2013/06/Recovering-California-Steelhead-South-of-Santa-Cruz.pdf>.

¹⁸ Becker, *supra* at 126.

	<p>critical migration corridor for steelhead trout accessing habitat in the upper basin. Currently, water releases are made primarily on the basis of water supply considerations rather than habitat, and the Santa Maria River is consequently “dry most of the year in most years” (NMFS 2009). Groundwater withdrawals in the vicinity of the Santa Maria River also have been noted to reduce streamflow (Stoecker 2005).¹⁹</p> <p>Twitchell Dam, which impounds Twitchell Reservoir, was built in 1959 and first began operation in 1962.²⁰ Flow releases from Twitchell Reservoir have reduced the number of successful opportunities for both upstream and downstream steelhead migration along the Santa Maria River.²¹</p> <p>Low flows may limit successful passage of steelhead trout through the Santa Maria to spawning reaches.²²</p> <p>The range of the Southern California Coastal distinct population segment (DPS) “extends from the Santa Maria River in the north to the Tijuana River in the south. NMFS estimates that historic steelhead numbers in this DPS over 45,000 fish, and anglers were still catching stringer-full of steelhead in the 1940s. Human development, in particular the construction and operation of dams and other water dicersions of dams and other water diversions, has caused this steelhead population to decline nearly 99%. Today only about 500 adult fish survive in the DPS.”²³</p>
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¹⁹ *Id.* at 127.

²⁰ Stillwater Sciences and Kear Groundwater. 2012. Santa Maria River Instream Flow Study: flow recommendations for steelhead passage. Prepared by Stillwater Sciences and Kear Groundwater, Santa Barbara, California for California Ocean Protection Council, Oakland, California and California Department of Fish and Game, Sacramento, California. Pg. ES-4; at: http://www.stillwatersci.com/resources/2012SMR_Rec_Report_Final.pdf.

²¹ *Id.* at ES-4.

²² Grantham, T. E. and P. B. Moyle. 2014. Assessing flows for fish below dams: a systematic approach to evaluate compliance of California’s dams with Fish and Game Code Section 5937. Center for Watershed Sciences Technical Report (CWS-2014-01), University of California, Davis. P: 74; at: https://watershed.ucdavis.edu/files/content/news/REPORT_5937_final_oct2014.pdf.

²³ Zimmerman, *supra*, at 17.

Region 5 - Central Valley

ATTACHMENT 1:

Declines in Fish and other Aquatic Species Associated with Hydrologic Impairments in the Delta and other Central Valley Waters

“There is wide consensus among aquatic ecologists that alteration of natural flow regimes often results in negative effects on native biota... In addition, it has been well established that degradation of river ecosystems can have negative effects on the ecosystem services that humans expect to derive from rivers, including commercial, recreational and subsistence fisheries, water purification, flood storage, recreation and aesthetic values.”¹

Central Valley waters, particularly the Delta, have experienced significant flow impairments due to water diversions and projects. Provided below are samples of studies and data specific to the Central Valley region and readily available to the state before August 31, 2010.² This data supports identification of Central Valley waters under CWA Section 305(b) (and potentially 303(d)) as hydrologically impaired. In particular, this information indicates that: fish abundance is correlated with flow; diversions and modifications have decreased flow and altered necessary aquatic habitat in Central Valley waterways; populations of fish and other aquatic species have plummeted as a result; and so these waterways must be identified in the Integrated Report as hydrologically impaired, including flow impairments. As noted by the State Water Board itself, “current flows are insufficient to protect public trust resources.”³

A. Studies find fish abundance is correlated with flow

Alteration of flow regimes affects aquatic biodiversity and the structure and function of aquatic ecosystems.⁴ The following readily-available studies and data from August 2010 and earlier, among others, support this finding:

- Both abundance and population growth in native fish species like longfin smelt and Chinook salmon are linked to freshwater inflows in the Bay-Delta Estuary.⁵
- Statistically significant relationships between annual abundance and freshwater outflow have been demonstrated for a diverse assemblage of species within the Estuary.⁶
- The magnitude, duration, timing, and source of Sacramento River inflows are important to all runs of Chinook salmon.⁷

¹ Larry Brown and Marissa Bauer, “Effects of Hydrologic Infrastructure on Flow Regimes of California’s Central Valley Rivers: Implications for Fish Populations,” *River. Res. Applic.* (2009), p. 1; at:

<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.364.7763&rep=rep1&type=pdf>.

² Also provided to the state was an Appendix of data attached to joint comments submitted on August 30, 2010 by Linda Sheehan, CCKA *et al.*, to Jeffrey Shu, SWRCB (CCKA *et al.* Letter); at:

http://www.waterboards.ca.gov/water_issues/programs/tmdl/records/state_board/2010/ref4125.pdf.

The Appendix of Central Valley data submitted with the CCKA *et al.* Letter can be accessed here: <http://bit.ly/2elymea>.

³ SWRCB, “Final Report on Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem” (Aug. 3, 2010) (Delta Flow Report), p. 2; at:

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/final_rpt.shtml.

⁴ *Id.* at p. 100.

⁵ Stevens, D.E. & L.W. Miller, “Effects of river flow on abundance of young Chinook salmon, American shad, longfin smelt, and delta smelt in the Sacramento-San Joaquin River system,” *North American Journal of Fisheries Management* (1983), 3:425-437.

⁶ Delta Flow Report, *supra*, at p. 100.

⁷ *Id.*

- The survival of fall-run Chinook salmon smolts through the Delta between Sacramento and Suisun Bay is positively correlated to flow and negatively correlated to water temperature, which increases as flow is reduced. Smolt survival increased with increasing Sacramento River flow at Rio Vista, with maximum survival observed at or above about 20,000 and 30,000 cfs from April through June.⁸
- Decreases in flow through the Estuary, increased temperatures, and the proportion of flow diverted through the Delta Cross Channel and Georgiana Slough on the Sacramento River are associated with lower survival in the Delta of marked juvenile fall-run Sacramento River salmon.⁹
- [T]he catch of Chinook salmon smolts at Chipps Island between April and June of 1978 to 2005 was positively correlated with mean daily Sacramento River flow at Rio Vista between April and June.¹⁰
- Increased reverse flows at Jersey Point reduce survival of salmon smolts migrating through the lower San Joaquin River.¹¹
- A 2002 study found “strong, significant” correlations over “decades of monitoring” to have provided “powerful evidence” of the relationships between the abundance of numerous Bay-Delta aquatic species and flow:

WHAT DO THESE SPECIES HAVE IN COMMON?					
SPECIES	NATIVE?	LIFE SPAN (YEARS)	RESIDENT/ MIGRATORY/ NURSERY REARING	REPRODUCES WHERE?	ABUNDANCE CORRELATED WITH FLOW?
Chinook Salmon	Yes	3-5	Anadromous	River	YES
Striped Bass	No	4-10	Anadromous	River	YES
Green Sturgeon	Yes	Decades	Anadromous	River	YES
Delta Smelt	Yes	1	Resident	Delta	YES
Longfin Smelt	Yes	1-3	Resident/ Migratory	Delta/ Suisun	YES
Starry Flounder	Yes	7-8	Nursery Rearing	Ocean	YES
Sacramento Splittail	Yes	5-7	Resident	Shallow Freshwater	YES
American Shad	No	5-7	Migratory	River	YES
Staghorn Sculpin	Yes	1-3	Resident	Ocean/ Estuary	YES
Leopard Shark	Yes	Decades	Nursery Rearing	Ocean/ Bay/ Estuary	YES
Bay Shrimp	Yes	1.5-2.5	Nursery Rearing	Ocean	YES

Figure 9: The relationships between freshwater flow and species abundance are widespread. The specific mechanisms by which flow affects abundance, and the relative importance of mechanisms are likely to vary for different species (Kimmerer 2002b); however, the strong, significant correlations that persist across decades of monitoring provide powerful evidence of the benefits of freshwater flow to San Francisco Bay's fish and wildlife populations.

Figure 1: The abundance of Chinook Salmon, Striped Bass, Green Sturgeon, Delta Smelt, Longfin Smelt, Sacramento Spittail and American Shad are all correlated with flow. Kimmerer, W.J. 2002b. “Physical, biological, and management responses to variable freshwater flow into the San Francisco Estuary,” *Estuaries* 25:1275–1290.

⁸ CCKA *et al.* Letter, Appendix, *supra*, pp. 36, 53.

⁹ *Id.* at p. 53.

¹⁰ *Id.* at pp. 41–46, 54.

¹¹ Delta Flow Report, *supra*, p. 124.

B. Over-diversion and hydromodification have reduced flow and altered necessary habitat

Diversions and modifications to Central Valley waterways have resulted in altered habitats and reduced flows that have impaired life support for fish and other aquatic species. The following readily-available studies from August 2010 and earlier, among others, support this finding:

- The Central Valley is comprised of “an extensive system of hydrologic infrastructure, including dams, reservoirs, diversions and aqueducts.”¹²
- The alteration of flows below dams is generally considered to be the “most serious threat to ecological sustainability of rivers.”¹³
- Dams strongly impact the growth rate of Chinook salmon populations downstream and increase the probability of future extirpations.¹⁴
- Rivers in the Sacramento River drainage are characterized as having “reduced winter-spring discharges and augmented discharges in other months,” and waterways of the San Joaquin River drainage area have “reduced discharges in all months but particularly in winter and spring.”¹⁵
- Net OMR [Old and Middle Rivers] reverse flows have increased in both magnitude and frequency with the development of the California water projects and are detrimentally affecting biotic resources in the Delta.¹⁶
- The construction of large dams and water conveyance structures has reduced stream-flows in the Sacramento and San Joaquin rivers to the detriment of wetland areas in the Central Valley and in the Delta.¹⁷
- The San Joaquin River has lost most of its natural summer flows because the majority of the water is exported via the Friant project or diverted from the major tributaries for use within the basin.¹⁸
- The State Water Project (SWP) began pumping additional water from the south Delta to the California Aqueduct in 1968. Annual SWP Delta diversions have increased steadily, reaching a peak in 1989 of more than 3 maf.¹⁹
- In addition to Delta Exports, the volume of the Estuary’s freshwater supply has been depleted by upstream diversions and in-Delta use, with total diversion growing from about 1.5 maf to nearly 16 maf. As a result, diversions have reduced annual Delta outflow by more than one-half on several occasions during the late 1970s through the late 1990s.²⁰

¹² Brown and Bauer, *supra*, p. 3.

¹³ Grantham, T. E. and P. B. Moyle, “Assessing flows for fish below dams: a systematic approach to evaluate compliance of California’s dams with Fish and Game Code Section 5937,” Center for Watershed Sciences Technical Report (CWS-2014-01), University of California, Davis (2014), p. 5; at:

https://watershed.ucdavis.edu/files/content/news/REPORT_5937_final_oct2014.pdf, citing data within the scope of this listing process, including: Bunn, S. E. & A. H. Arthington, “Basic principles and ecological consequences of altered flow regimes for aquatic biodiversity,” *Environmental Management* 30(4):492-507 (2002); Nilsson, C. *et al.*, “Fragmentation and flow regulation of the world’s large river systems,” *Science* 308(5720):405-408 (2005); Dudgeon, D. *et al.*, “Freshwater biodiversity: Importance, threats, status and conservation challenges,” *Biological Reviews* 81(2):163-182 (2006).

¹⁴ Hoekstra J.M., Bartz K.K., Ruckelshaus M.A., Moslemi J.M. & Harms T.K., “Quantitative threat analysis for management of an imperiled species: Chinook salmon (*Oncorhynchus tshawytscha*),” *Ecological Applications* (2007), 17:2061–2073; McClure M.M., Holmes E.E., Sanderson B.L. & Jordan C.E., “A large-scale, multispecies assessment: anadromous salmonids in the Columbia River basin,” *Ecological Applications* (2003), 13:964–989.

¹⁵ Brown and Bauer, *supra*.

¹⁶ Delta Flow Report, *supra*, p. 123.

¹⁷ The LTMS Agencies, “Long-Term Management Strategy (LTMS) for the Placement of Dredged Material in the San Francisco Bay Region,” Final Report (October 1998), Vol. 1, pp. 4-8; at: <http://bit.ly/2enhBmd> (LTMS Report).

¹⁸ Delta Flow Report, *supra*, p. 33.

¹⁹ LTMS Report, *supra*.

²⁰ *Id.*

- The combined effects of water exports and upstream diversions reduced average annual net outflow (difference between the sum of freshwater inflows to the Delta and the sum of exports and net in-Delta consumptive uses) from the Delta from unimpaired conditions by 33% and 48% during the 1948-1968 and 1986-2005 periods, respectively.²¹
- In wet years, diversions reduce outflow by 10 to 30 percent. In dry years, diversions reduce outflow by more than 50 percent. During recent drought years, diversions reduced annual Delta outflow by more than 70 percent. Outflow reductions have primarily occurred during winter and spring, when freshwater flows are particularly important for many estuarine species.²²

C. Fish and other aquatic species populations have plummeted as a result

If there are insufficient flows and inadequate aquatic habitat, fish and other aquatic species will not succeed. Indeed, populations of these species have demonstrably plummeted in recent years, to the point where a number are now listed as threatened or endangered. The following readily-available studies from August 2010 and earlier, among others, support this finding.

- Multiple studies based on readily available data (*e.g.*, from CDFW) demonstrate that salmon abundance drops when Delta pumping increases. Compiled information includes the following:

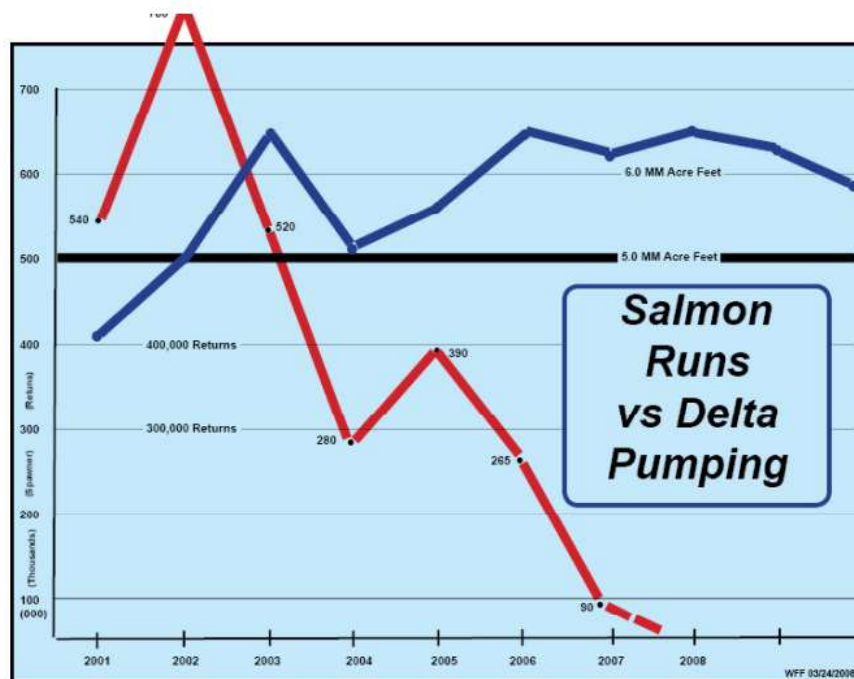


Figure 2. Chinook Salmon Sacramento fall-run dropped 97% from a 2002 return and harvest count of 1,1488,000 to 39,500 in 2009. Export pumping from the Delta was found to be the number one reason for the salmon declines. Water4Fish (2009); at: <http://water4fish.org/>.

²¹ Delta Flow Report, *supra*, p. 28.

²² LTMS Report, *supra*.

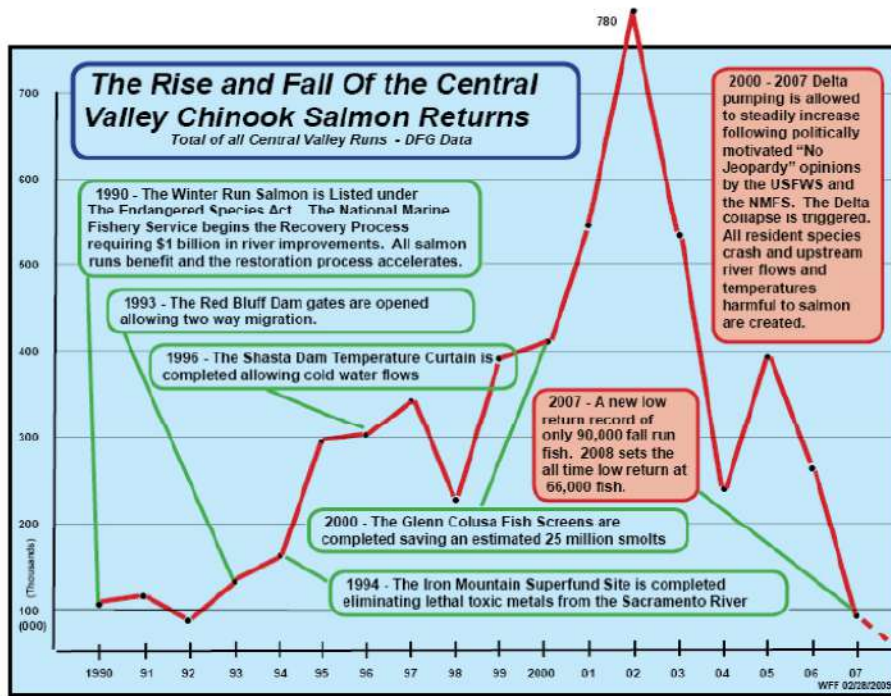


Figure 3. Total of all Central Valley Chinook Salmon Runs. Lowest return on record was in 2008, tied to increased Delta pumping. Water4Fish (2009); at: <http://water4fish.org/>.

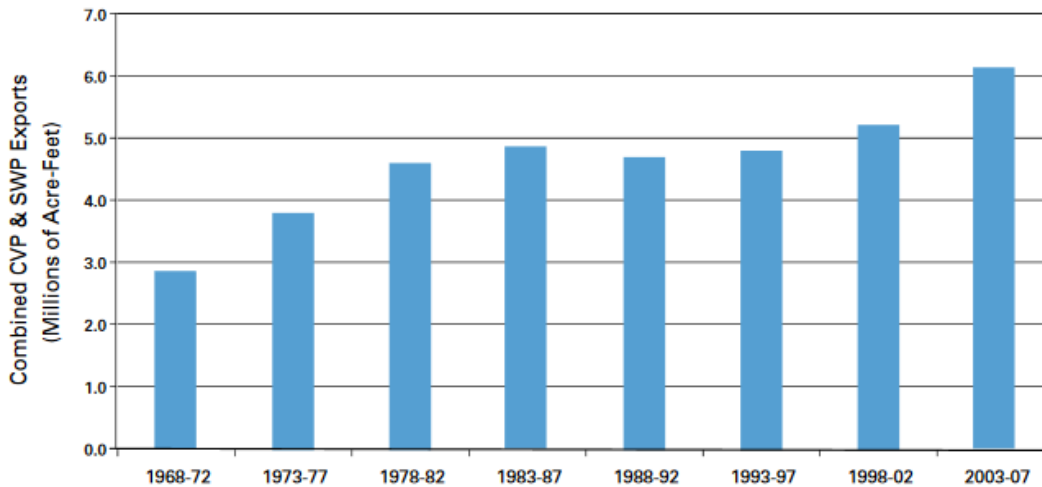


Figure 4. Five Year Averages of Combined Central Valley and State Water Projects Delta Exports. NRDC, “How Water Management in the Bay-Delta Threatens the Future of California’s Salmon Fishery” (July 2008); at: <https://www.nrdc.org/sites/default/files/salmon.pdf>.

- Delta smelt require brackish habitat that forms when fresh water reaches the upper estuary in September and October for spawning.²³ Due to increased water exports, reduced freshwater flows and therefore habitat has contributed to the decline of smelt to near extinction.²⁴
- Adult Chinook salmon rely on fall freshwater inflows to provide adequate water quality conditions for their return migration²⁵ and help orient them towards their native spawning grounds.²⁶
 - Runs of adult salmon were once 300,000-500,000 or more per year in the San Joaquin River drainage area. In 1990-91, less than 1,000 adult salmon were present in the San Joaquin River drainage.²⁷
 - From the 1980s to the 2000s, San Joaquin basin fall-run Chinook salmon escapement numbers have declined by half, from approximately 26,000 fish to 13,000 fish, in large part due to lack of flow.²⁸
 - The decline in escapement on the Tuolumne River from 130,000 salmon in the 1940s to less than 500 in recent years is primarily due to inadequate minimum instream flow releases from La Grange Dam in late winter and spring during non-flood years.²⁹
 - Viable populations of spring-run salmon are now rare. Populations in Mill, Deer, and Butte creeks are small and isolated.³⁰ Shortly after construction of Friant Dam, spring-run were extirpated on the San Joaquin River. Since 1970, estimates of spring-run populations in the Sacramento River have been as low as 3,000 fish.³¹
- Sacramento winter-run Chinook salmon (*Oncorhynchus tshawytscha*) is listed as endangered pursuant to the CESA and ESA. Central Valley spring-run Chinook salmon (*O. tshawytscha*) is listed as threatened pursuant to both the CESA and ESA. Central Valley fall/late fall-run Chinook salmon (*O. tshawytscha*) are classified as species of special concern by the National Marine Fisheries Service (NMFS). Central Valley steelhead (*O. mykiss*) is listed as threatened under the ESA Southern Distinct Population Segment of North American green sturgeon (*Acipenser medirostris*) is listed as threatened under the ESA.³²

²³ Feyrer, F., K. Newman, M. Nobriga, and T. Sommer, "Modeling the Effects of Future Outflow on the Abiotic Habitat of an Imperiled Estuarine Fish," *Estuaries and Coasts* (2010), 34:120-128; Moyle, P.B., *Inland Fishes of California* (Univ. of California Press, Berkeley 2002).

²⁴ Delta Flow Report, *supra*, pp. 108-09; Moyle, P.B., *Inland Fishes of California, supra*.

²⁵ Jassby, A. D. and E. E. Van Nieuwenhuysse, "Low dissolved oxygen in an estuarine channel (San Joaquin River, California): Mechanisms and models based on long-term time series," *San Francisco Estuary and Watershed Science* (2005), 2:1-33.

²⁶ Healy, M.C., *Life history of Chinook salmon (Oncorhynchus tshawytscha)*, in *Pacific salmon life histories*, (Univ. of British Columbia Press 1991), pp. 311-393; Quinn, T.P., *The behavior and ecology of Pacific salmon and trout*, (Univ. Washington Press, Seattle 2005).

²⁷ Brown, L.R. and Moyle P.B., "Distribution, Ecology, and Status of the Fishes of the San Joaquin River Drainage," *Calif. Fish and Game* (1993), 9(3)96-114, p. 111; at: http://www.waterboards.ca.gov/water_issues/programs/tmdl/records/region_5/2006/ref381.pdf.

²⁸ CCKA *et al.* Letter, Appendix, *supra*, p. 55.

²⁹ *Id.*

³⁰ *Id.* at p. 51.

³¹ *Id.*

³² Delta Flow report, *supra*, p. 20.

D. The Delta and other Central Valley waterways must be identified as hydrologically impaired, including flow impairments

*Federal biologists and hydrologists concluded that current water pumping operations in the Federal Central Valley Project and the California State Water Project should be changed to ensure survival of winter and spring-run Chinook salmon, Central Valley steelhead, the southern population of North American green sturgeon and Southern Resident killer whales, which rely on Chinook salmon runs for food.*³³

The data provided in the sections above shows how abundance of fish and other aquatic species in the Central Valley has declined due to hydrological impairments, including from over-diverted flows. The State Water Board has confirmed their knowledge of the links between flow and impairment in their 2010 Delta Flow report, stating among other things that “[T]he provision of sufficient flows....is intended to promote increased abundance and improved productivity for longfin smelt and other desirable estuarine species.”³⁴ In addition, the State Water Board recommended in its report that Delta outflow criteria be determined to “halt the population decline and increase populations of native species as well as species of commercial and recreational importance.”³⁵

Not only has the Board acknowledged that species have declined due to hydrological impairments, but they have also recognized that “flow-related factors affect public trust resources,” noting that “[f]low affects water quality, food resources, physical habitat, and biotic interactions”³⁶ and that “flow modification is one of the few immediate actions available to improve conditions to benefit native species.”³⁷

Clearly, the State Water Board recognizes that altered hydrology, including low flows, have decimated fish populations by impairing waterways as necessary habitat. The State Water Board also expressed the state needs to identify the “magnitude, duration, timing, and quality of Delta outflows necessary to support viable populations of these species.”³⁸ Proper identification under the Clean Water Act of all hydrologically impaired waterways in the Central Valley Water Board’s Integrated Report is critical to the development of such a body of information and to guide sound policy decisions.

³³ National Oceanic and Atmospheric Administration (NOAA), “NOAA Biological Opinion Finds California Water Projects Jeopardize Listed Species; Recommend Alternatives,” (June 4, 2009); at: http://www.noaa.gov/stories/2009/20090604_biological.html

³⁴ Delta Flow report, *supra*, p. 98.

³⁵ *Id.*

³⁶ *Id.* at p. 39.

³⁷ *Id.* at p. 40.

³⁸ *Id.*

Region 2 - San Francisco

FLOW-RELATED DECLINE OF THE NAPA RIVER (NON-TIDAL)

Pollution: Altered Flow

Beneficial Uses Being Impaired: Cold Freshwater Habitat, Warm Freshwater Habitat, Fish Migration, Preservation of Rare and Endangered Species, Fish Spawning, Wildlife Habitat, Commercial and Sport Fishing, Contact and Non-Contact Water Recreation.

Description: The Napa River (non-tidal) suffers from reduced flows due to human activities. Causes include groundwater pumping and direct surface water diversions within the Napa River watershed,¹ as exacerbated by periods of low rainfall. In regards to the former, excessive pumping of groundwater that is hydrologically connected to surface water has severely reduced Napa River instream flows. As a result, the Napa River (non-tidal) regularly becomes nearly or completely dry, clearly impairing beneficial uses.

The dewatering of the Napa River (non-tidal) negatively impacts numerous aquatic species, including populations of steelhead trout (listed as “threatened” under the federal Endangered Species Act²). These steelhead trout are part of the Central California Coast Steelhead Distinct Population Segment (DPS).³ They have been suffering from a general population decline in the Napa River watershed ever since the 1940s,⁴ including due to reduced flows. Reduced Napa River flows can strand steelhead trout in isolated pools and impede their ability both to reach tributaries to spawn⁵ and outmigrate in the spring.⁶ The dewatering of the Napa River also impedes juvenile growth, increases predation, and limits food and rearing habitat availability for steelhead trout, amongst other impacts.⁷ Steelhead runs in the Napa River – once comprising 6,000 to 8,000 fish – are now estimated only to range from the hundreds up to 1,000.⁸

¹ See e.g. Napa River Flow Enhancement Study, "Center for Ecosystem Management and Restoration" (2013), at

² See Federal Register, Vol. 71, No. 3, Final Rule, "Endangered and Threatened Species: Final Listing Determinations for 10 Distinct Population Segments of West Coast Steelhead" (Jan. 5, 2006).

³ Federal Register, Vol. 71, No. 3, Final Rule, "Endangered and Threatened Species: Final Listing Determinations for 10 Distinct Population Segments of West Coast Steelhead" (Jan. 5, 2006).

⁴ See Napa County Resource Conservation District, "Napa River Steelhead and Salmon Smolt Monitoring Program: Annual Report - Year 2," p. 4 (Aug. 2010) at: <http://naparcd.org/wp-content/uploads/2014/10/NapaRiverSmoltMonitoringFinalReport2010.pdf> (citing U.S. Fish and Wildlife Service, "Analysis of Fish Habitat of the Napa River and Tributaries, Napa County, California, with Emphasis Given to Steelhead Trout Production" (1968); K. R. Anderson, "Steelhead Resource, Napa River Drainage, Napa County," California Department of Fish and Game (1969); R.A. Leidy, G.S. Becker & B.N. Harvey, "Historical Distribution and Current Status of Steelhead/Rainbow Trout (*Oncorhynchus Mykiss*) in Streams of the San Francisco Estuary, California," Center for Ecosystem Management and Restoration (2005)).

⁵ Napa River Watershed Steelhead and Salmon Monitoring Program, Napa County Resource Conservation District, at: <http://naparcd.org/wp-content/uploads/2016/09/Fish-monitoring-fact-sheet-2016.pdf>.

⁶ "Milliken Creek - Steelhead Habitat Modeling and Instream Flow Study," prepared by Napa County Resource Conservation District, p. 2 (Dec. 2010), at: http://naparcd.org/wp-content/uploads/2014/10/Milliken_Flow_Study_Final_Report_Dec_2010.pdf.

⁷ Stillwater Sciences and W.E. Dietrich, "Napa River Basin Limiting Factors Analysis: Technical Report," Prepared for the San Francisco Regional Water Quality Control Board and California State Coastal Conservancy, p. 49 (2002), at:

http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/napasediment/lfa_tech_report.pdf.

⁸ Napa River Watershed Steelhead and Salmon Monitoring Program, Napa County Resource Conservation District, at: <http://naparcd.org/wp-content/uploads/2016/09/Fish-monitoring-fact-sheet-2016.pdf>.

A multitude of other species benefit from adequate Napa River flows, as well, including fall-run Chinook salmon and California freshwater shrimp (listed as “endangered” under the federal Endangered Species Act⁹). While many of Napa River’s fall-run Chinook salmon may be “strays” from other basins,¹⁰ they appear to be recolonizing their former habitat in the Napa River basin and require adequate flows to survive.¹¹ As for Coho salmon, they once numbered in the thousands but were extirpated entirely from the Napa River in the late-1960s.¹² The severe dewatering of the Napa River threatens other aquatic species with the same fate.

There is readily available information demonstrating the historic decline of Napa River (non-tidal) flows. For example, analyzing data from the Napa River at St. Helena stream gauge, fisheries biologist Patrick Higgins found “statistically significant declining trends in minimum 30-day average [], minimum 7-day average [], mean August, and mean September stream flow ... for both the 1930-2013 and 1960-2013 time periods...”¹³ Additionally, looking at the Napa River at Napa stream gauge, Higgins found “declining trends for 1960-2013 [...] in minimum 30-day average [] and mean monthly stream flows for September-November [].” Although the minimum 7-day average streamflows recorded at this stream gauge did not present a statistical trend, Higgins found that “7-day average flows have fallen to zero in 12 of 14 years since 2000....”¹⁴

The National Marine Fisheries Service (NMFS) made similar conclusions to Higgins and specifically highlighted the impacts of groundwater pumping in its comments on the 2016 Napa Valley Basin Analysis Report (“Napa Valley Basin Report”). The NMFS found that Napa River at St. Helena flow data “shows a general increase in zero-flow days over time” (*see* Figure 4-28 from the Napa Valley Basin Report, below).¹⁵ Addressing the Napa River at Napa flow data,

⁹ Napa County Resource Conservation District, "Northern Napa Watershed Plan" (Report prepared for the California Department of Fish and Game) (Apr. 2002), at: <http://naparcd.org/wp-content/uploads/2014/10/NorthernNapaRiverWatershedProjectFinalReport2002.pdf>.

¹⁰ Jonathan Koehler & Paul Blank, "Napa River Steelhead and Salmon Monitoring Program - 2015-16," Napa County Resource Conservation District, p. 8 (Sept. 2016), at: <http://naparcd.org/wp-content/uploads/2016/09/2016-Napa-River-Fish-Monitoring-Report-and-Attachments.pdf>.

¹¹ Stillwater Sciences and W.E. Dietrich, “Napa River Basin Limiting Factors Analysis. Technical Report,” Prepared for the San Francisco Regional Water Quality Control Board and California State Coastal Conservancy (2002), at: http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/napasediment/lfa_tech_report.pdf; *see also* Napa County RCD, "Napa River Watershed Steelhead and Salmon Monitoring Program," at: <http://naparcd.org/wp-content/uploads/2016/09/Fish-monitoring-fact-sheet-2016.pdf>.

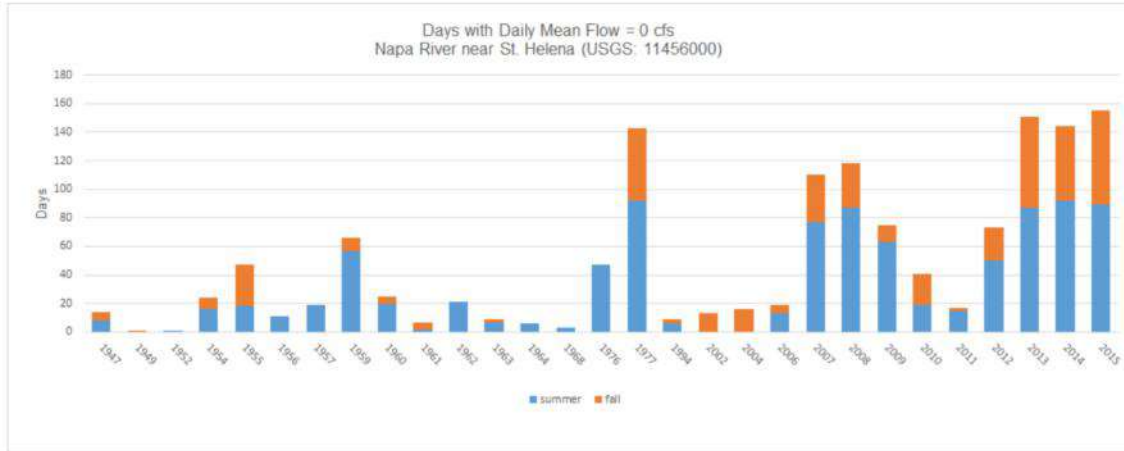
¹² Watershed Information & Conservation Council, "Native Fish," at: www.napawatersheds.org/app_pages/view/126.

¹³ As noted by fisheries biologist Patrick Higgins, “Anderson (1969) chronicled problems with insufficient tailwater flows to support steelhead trout below [Napa Valley] dams, a condition that persists to this day.” *See* letter from Patrick Higgins to San Francisco Bay Regional Water Quality Control Board, "Re: Proposal to Remove the Napa River and Sonoma Creek from the California Impaired Water Bodies (303d) List for Nutrient Pollution" (Jan. 10, 2014), at: www.waterboards.ca.gov/sanfranciscobay/board_info/agendas/2014/February/6C.pdf.

¹⁴ *Id.*

¹⁵ NMFS notes that “[s]ome of the increase may be due to the St. Helena gauge being relocated in 2005.” *See* Letter from National Marine Fisheries Service (NMFS) to the California Department of Water Resources (DWR), Re: “Napa County’s December 26, 2016 submission of an Alternative Groundwater Sustainability Plan (Napa Alternative Plan) to the DWR pursuant to the Sustainable Groundwater Management Act (SGMA) of 2014 and Subsequent Emergency Regulations,” p. 3 (Feb. 15, 2017).

NMFS observed that “during the three decades before 1996, the Napa River at Napa rarely dried during the summer” despite this being a relatively dry period. Yet “since 2001, twelve of fifteen summers have experienced periods when the Napa River at Napa has dewatered, despite well above average precipitation trends during that period.”¹⁶ NMFS concluded that “[t]his information suggests worsening streamflow depletion over time that is, in part, related to groundwater extraction.”¹⁷



Period of Record: 10/01/1929 to 10/29/2015. Summer is July through September. Fall is October through December.



Figure 4-28a
Historical Annual Number of Days With Stream Flow Less Than 0.1 CFS
USGS Napa River Near St. Helena

Napa Valley Groundwater Sustainability
A Basin Analysis Report for the Napa Valley Subbasin

Source: Luhdorff & Scalmanini, "Napa Valley Groundwater Sustainability: A Basin Analysis Report for the Napa Valley Subbasin," Figure 4-28a (Dec. 13, 2016).

Finally, photographic evidence underscores the clear impairment due to altered flows occurring regularly on the Napa River (non-tidal). Where a waterway – specifically, one that serves as crucial fish habitat for a federally-listed species such as steelhead trout – is completely dewatered due to human activities (particularly excessive groundwater pumping), a beneficial use impairment due to altered flows is beyond doubt.

¹⁶ *Id.*

¹⁷ *Id.*



Dry Napa River at Pope Street Bridge (2013), Napa County, California
Photo (unedited) by Mark Yashinsky (available at: <http://bit.ly/2mBRET9>)



Disconnected pools on the Napa River (2005)
Photo by Chris Malan



Dead Chinook salmon found in the Napa River near the Pope Street Bridge (2005)
Photo by Chris Malan

Conclusion: Available data demonstrates that flow alterations are impairing beneficial uses in the Napa River (non-tidal), particularly those beneficial uses related to aquatic life and habitat. This long history of flow impacts is well-documented by the USGS, U.S. Fish & Wildlife Service, Stillwater Sciences, and other government agency-conducted and -recognized studies. In accordance with Section 3.11 of the Listing Policy, when information indicates non-attainment of standards by a water body, the appropriate methodology for evaluation is weight of evidence to determine listing under Section 303(d).

This recommendation is consistent as well with Section 3.9 of the Listing Policy, which supports listing if the water body exhibits degradation in biological populations and pollutants sufficient to impair, or threaten impairment of, beneficial uses. The Napa River (non-tidal) has exhibited degradation in populations of fish (including federally-listed steelhead trout) that rely upon adequate flows for survival. Based on the readily available data and information, the evidence is sufficient to support the listing of the Napa River (non-tidal) on the 303(d) list for impairment caused by altered flow. This evidence also supports including the Napa River (non-tidal) in the 305(b) report.

DATA REFERENCES

- Jonathan Koehler & Paul Blank, "Napa River Steelhead and Salmon Monitoring Program - 2015-16," Napa County Resource Conservation District, p. 8 (Sept. 2016), at: <http://naparc.org/wp-content/uploads/2016/09/2016-Napa-River-Fish-Monitoring-Report-and-Attachments.pdf>.
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- Letter from National Marine Fisheries Service (NMFS) to the California Department of Water Resources (DWR), Re: "Napa County's December 26, 2016 Submission of an Alternative Groundwater Sustainability Plan (Napa Alternative Plan) to the DWR Pursuant to the Sustainable Groundwater Management Act (SGMA) of 2014 and Subsequent Emergency Regulations," p. 3 (Feb. 15, 2017).
- Letter from Patrick Higgins, Consulting Fisheries Biologist to Thomas Lippe, Living Rivers Council, "Sufficiency of SFBRWQCB Staff *Napa River Sediment TMDL Appendix D: Responses to Comments*" (Aug. 17, 2010).
- Letter from Patrick Higgins to San Francisco Bay Regional Water Quality Control Board, "Re: Proposal to Remove the Napa River and Sonoma Creek from the California Impaired Water Bodies (303d) List for Nutrient Pollution" (Jan. 10, 2014), at: www.waterboards.ca.gov/sanfranciscobay/board_info/agendas/2014/February/6C.pdf.
- Luhdorff & Scalmanini, "Napa Valley Groundwater Sustainability: A Basin Analysis Report for the Napa Valley Subbasin" (Dec. 13, 2016).

- Napa County Resource Conservation District, "Northern Napa Watershed Plan" (Report prepared for the California Department of Fish and Game) (Apr. 2002), at: <http://naparcd.org/wp-content/uploads/2014/10/NorthernNapaRiverWatershedProjectFinalReport2002.pdf>.
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- R.A. Leidy, G.S. Becker & B.N. Harvey, "Historical Distribution and Current Status of Steelhead/Rainbow Trout (*Oncorhynchus Mykiss*) in Streams of the San Francisco Estuary, California," Center for Ecosystem Management and Restoration (2005).
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- U.S. Fish and Wildlife Service, "Analysis of Fish Habitat of the Napa River and Tributaries, Napa County, California, with Emphasis Given to Steelhead Trout Production" (1968).
- USGS Stream Gauge No. 11456000, NAPA R NR ST HELENA CA, available at: https://waterdata.usgs.gov/nwis/uv?site_no=11456000.
- USGS Stream Gauge No. 11458000 NAPA R NR NAPA CA, available at: https://waterdata.usgs.gov/nwis/uv?site_no=11458000.

Region 4 - Los Angeles

9. Readily Available Data Exist and Have Been Provided in Support of the Listing of Waterways as Hydrologically Impaired

As evident based on substantial, readily available information, the lines of evidence for hydrologic impairment are strong for numerous Los Angeles Region waterway segments, including but not limited to Reach 3 of the Ventura River (specifically for “pumping,” as currently listed) as well as the Santa Clara River (particularly Reaches 1 and 2).³⁹ Federal regulations state that states must evaluate “all existing and readily available information” in developing their 303(d) lists and prioritizations.⁴⁰ The SWRCB’s Executive Director reinforced the breadth of this requirement in a memorandum on the scope of listing regulations at 40 CFR § 130.7(b)(5).⁴¹ This information must include flow, a position recently reinforced by U.S. EPA, who stated that the integrated reporting format is key to “acknowledge the important role of flow in contributing to water-body impairments.”⁴²

Data Supporting Listing of the Ventura River (Reaches 3 and 4)

Excessive pumping contributes to the severe dewatering of the Ventura River (Reach 3), imperiling endangered steelhead trout and other aquatic species. Therefore, the Los Angeles RWQCB must not delist this waterway for “pumping” as is currently proposed.

As support, ELC incorporates by reference those comments prepared by Santa Barbara Channelkeeper on the Los Angeles Region’s 2012 Integrated Report⁴³ and 2016 Integrated Report,⁴⁴ both of which summarize the extensive body of evidence establishing the link between pumping on Reach 3 (as well as Reach 4) of the Ventura River and resulting negative biological impacts, including to steelhead trout. ELC also incorporates by reference numerous additional documents that highlight the negative effects of excessive pumping on Reach 3 (as well as Reach 4) of the Ventura River, including from U.S. EPA Region 9 (finding in its Draft TMDL for Reaches 3 and 4 of the Ventura River that “low flows due to pumping and diversion activities likely exacerbate the flow and water quality conditions in Reaches 3 and 4”),⁴⁵ the National Marine Fisheries Service (NMFS) (finding in a 2007 Draft Biological Opinion that “[w]ater withdrawals from surface diversions and subsurface pumping have affected the timing and magnitude of the Ventura River flows ... and has decreased the quantity and quality of critical habitat for steelhead”)⁴⁶, and the Los

³⁹ See Attachment 1 for detailed information drawn from such sources.

⁴⁰ 40 CFR § 130.7(b)(5).

⁴¹ At: http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/clarification_30jan07.pdf (placing “no limits” on the data that can be provided to the RWQCBs for development of the Integrated Report’s 303(d) and 305(b) lists).

⁴² U.S. EPA/USGS Report, *supra*, Ch. 5.

⁴³ See Santa Barbara Channelkeeper, “Comment Letter—303(d) List portion of the 2012 California Integrated Report” (Feb. 5, 2015), available at: <http://bit.ly/2o8pL5P>.

⁴⁴ See letter from Santa Barbara Channelkeeper to the LA RWQCB on 2016 Revisions to the Los Angeles Region 303(d) List (Mar. 2017; available upon request).

⁴⁵ U.S. EPA Region 9, Ventura River Reaches 3 and 4 - Total Maximum Daily Loads For Pumping & Water Diversion-Related Water Quality Impairments (Draft Dec. 2012), at: https://www3.epa.gov/region9/water/tmdl/pdf/ventura-river-reaches3-4_tmdl.pdf.

⁴⁶ National Marine Fisheries Service, 2007 Draft Biological Opinion for the Army Corps of Engineers’ permitting of the City of Ventura’s proposed Foster Park Well Facility (“FPWF”) repairs.

Padres National Forest Ojai Ranger District (describing the historic impacts low flows have upon steelhead trout populations in the Ventura River watershed in a report on steelhead restoration).⁴⁷

Together, this data demonstrates that pumping impairs beneficial uses in Reach 3 of the Ventura River, particularly those beneficial uses related to aquatic life and habitat. In accordance with Section 3.11 of the Listing Policy, when information indicates non-attainment of standards by a water body, the appropriate methodology for evaluation is weight of evidence to determine listing under Section 303(d).

This recommendation is consistent as well with Section 3.9 of the Listing Policy, which supports listing if the water body exhibits degradation in biological populations and pollutants sufficient to impair, or threaten impairment of, beneficial uses. Reach 3 of the Ventura River has exhibited degradation in populations of fish (including steelhead trout) that rely upon adequate flows for survival.

Based on the readily available data and information, the evidence is sufficient to support the continued listing of Reach 3 of the Ventura River on the 303(d) list due to “pumping.” Thus, the proposed delisting of the “pumping” impairment on Reach 3 must not proceed. The Los Angeles RWQCB staff has not provided sufficient information to justify this delisting, nor have they addressed the above evidence that clearly validates the “pumping” listing as it originally occurred. Similarly, this evidence supports the continued listing (as currently proposed) of Reach 3 as impaired due to “water diversion,” and of Reach 4 as impaired due to both “water diversion” and “pumping.”

Data Supporting Listing of the Santa Clara River

Since at least 2013, ELC and partners have submitted detailed information establishing a clear impairment due to altered flows on the Santa Clara River (in particular Reaches 1 and 2, located downstream of the Vern Freeman Diversion Dam). In May 2013, we submitted a “shortlist” of ten California waterways being drained dry for inclusion on the 303(d) list, along with supporting evidence (*see* Attachment 2). The Santa Clara River was one of those waterways. As described in the submitted evidence:

The Santa Clara River is Southern California’s last major free flowing waterway and is home to 17 species listed as threatened or endangered under the state and federal Endangered Species Acts. At River mile 10.5, United Water Conservation District (United) diverts almost all of the River’s flows outside of large storm events. United, USGS, and local agency data show that water diverted at the Vern Freeman Diversion Dam for agricultural usage, groundwater recharge, and other uses, deprive migrating steelhead of sufficient flows and juvenile steelhead of healthy estuary rearing grounds.⁴⁸ In addition to impacting beneficial uses associated with the provision of adequate steelhead habitat, surface water withdrawals also destroy downstream native riparian and endangered bird

⁴⁷ Ventura Watershed Analysis - Focused for Steelhead Restoration, Los Padres National Forest Ojai Ranger District, Prepared by Sara Chubb (Forest Fishery Biologist) (1997), available at: <http://friendsofventurariver.org/wp-content/themes/client-sites/venturariver/docs/ventura-river-watershed-steelhead-restoration-los-padres.pdf>.

⁴⁸ Letter from Jason Weiner (Ventura Coastkeeper) to Jeffrey Shu (SWRCB), Public Solicitation of Water Quality Data and Information for 2012 Integrated Report (Aug. 30, 2010).

habitat, degrade the ecological integrity of the River's estuary, and impair a plethora of cultural and recreational beneficial uses downstream.⁴⁹

Additional readily available information further supports the imperative to list the Santa Clara River as impaired due to altered flows. This includes documents published by NMFS (describing in a Final Biological Opinion the negative biological impacts of the Vern Freeman Diversion Dam, which can deplete the Santa Clara River of all its flows and jeopardizes the existence of endangered Southern California steelhead trout),⁵⁰ the Santa Clara River Trustee Council and The Nature Conservancy (describing Santa Clara River flow reductions caused by water diversions and groundwater pumping and the resulting impact on steelhead trout),⁵¹ the Los Angeles RWQCB (describing the historic decline of steelhead trout in the Santa Clara River, as well as flow impacts from water diversions and hydromodification in its "State of the Watershed" report),⁵² and others.



Severely reduced flows below the Vern Freeman Diversion Dam
Photo courtesy of Wishtoyo Chumash Foundation

Together, this data demonstrates that reduced flows impair beneficial uses in the Santa Clara River, particularly those beneficial uses related to aquatic life and habitat. This is most clearly true in Reaches 1 and 2 of the Santa Clara River, where over-diversion and other flow impacts (due in large part to the Vern Freeman Diversion Dam) can cause the waterway to go completely dry. In accordance with Section 3.11 of the Listing Policy, when information indicates non-attainment of standards by a water body, the appropriate methodology for evaluation is weight of evidence to determine listing under Section 303(d).

⁴⁹ "Ten California Waterways Being Drained Dry - Using the Clean Water Act to Resuscitate Disappearing Waterways" (May 2013).

⁵⁰ National Marine Fisheries Service, Final Biological Opinion to Reclamation Re: Approve United Water Conservation District's Proposal to Operate the Vern Freeman Diversion and Fish Passage Facility (Jul. 23, 2008), at: http://www.westcoast.fisheries.noaa.gov/publications/recovery_planning/salmon_steelhead/domains/south_central_south_hern_california/nmfs_bo_vern_freeman_fish_passage_facility_7-23-08.pdf.

⁵¹ Matt Stoecker and Elise Kelley, "Santa Clara River Steelhead Trout: Assessment and Recovery Opportunities" prepared for the Santa Clara River Trustee Council and The Nature Conservancy (Dec. 2005), at: <http://www.stoeckerecological.com/reports/SantaClaraReport.pdf>.

⁵² Los Angeles Regional Water Quality Control Board, State of the Watershed - Report on Surface Water Quality: The Santa Clara River Watershed, p. 13 (Nov. 2006) at: www.waterboards.ca.gov/rwqcb4/water_issues/programs/stormwater/municipal/AdminRecordOrderNoR4_2012_0175/Section%2010_References-Part%20I_COMPLETED.pdf.

Region 8 - Santa Ana

FLOW-RELATED DECLINE OF THE SANTA ANA RIVER REACHES 3 & 4

Pollution: Altered Flow

Beneficial Uses Being Impaired: Warm Freshwater Habitat; Wildlife Habitat; Rare, Threatened or Endangered Species; Spawning, Reproduction, and Development; Contact and Non-Contact Water Recreation.

Description: Reaches of the Santa Ana River suffer from reduced flows due to human activities, negatively impacting a myriad of aquatic species. This includes populations of adult, juvenile, and larval Santa Ana sucker,¹ which are listed as “threatened” under the U.S. Endangered Species Act.²

One particular concern is that the frequent shutdown of the Rapid Infiltration and Extraction (RIX) wastewater treatment facility in Colton (“RIX facility”)³ causes severe dewatering of the Santa Ana River, including Reaches 3 and 4.⁴ The Santa Ana sucker and other fish species rely upon treated wastewater discharges from the RIX facility and numerous smaller publically owned treatment works for their survival.⁵ Treated wastewater provides nearly *all* of the water for the Santa Ana sucker in these reaches during dry summer months, and a substantial amount during other parts of the years.⁶ Unfortunately, the wastewater flows provide nearly all of the Santa Ana River’s flow due to long-term over-diversion and excessive groundwater pumping.

RIX facility shutdowns occur either as planned maintenance or for unplanned emergencies. During planned shut downs the beneficial uses are clearly impaired, as large numbers of Santa Ana suckers are netted and placed into buckets until flows return. However, the majority of RIX facility shutdowns occur on an emergency basis, largely due to emergency maintenance of water-purifying ultraviolet lights. While there are only two or so planned shutdowns per year, emergency shutdowns occur about twice per *month* – some of them lasting as long as three

¹ San Bernardino Valley Municipal Water District, Board of Directors' Workshop, Re: "Funding to Equip Three Existing Wells for Use a Backup Water Supply for Santa Ana Sucker During RIX Shutdowns" (May 10, 2016), at: <http://laserfiche.sbvmd.com/weblink/0/edoc/322256/SBVMWD%20Board%20of%20Directors%20Workshop%20051016.pdf>.

² See "Santa Ana Sucker (*Catostomus Santaanae*)," U.S. Fish & Wildlife Service, at: <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E07W>.

³ The RIX facility is a publicly owned treatment works operated by the City of San Bernardino Municipal Water Department.

⁴ The RIX facility discharges wastewater into Reach 4 of the Santa Ana River, which then flows into Reach 3. Reach 4 spans from Bunker Hill Dike to the Mission Boulevard Bridge in Riverside, while Reach 3 spans from Mission Boulevard Bridge to the Prado Dam. See Upper Santa Ana River Watershed Integrated Regional Water Management Plan, p. 2-25 (2015), at: <http://www.sbvwd.org/docman-projects/upper-santa-ana-integrated-regional-water-management-plan/3802-usarw-irwmp-2015-ch1-9-final/file.html>.

⁵ As stated in a report by the U.S. Fish & Wildlife Service, the “Santa Ana sucker is dependent on discharges from the RIX facility to maintain suitable habitat for spawning and foraging.” See “Santa Ana Sucker: 5 Year Review - Summary and Evaluation,” U.S. Fish and Wildlife Service, p. 23 (March 10, 2011), at: https://www.fws.gov/carlsbad/SpeciesStatusList/5YR/20110310_5YR_SASU.pdf.

⁶ *Id.* (citing California Regional Water Quality Control Board, Water Quality Control Plan, Santa Ana River Basin (8) (2008), p. 1-11; "Susceptibility of the Santa Ana Sucker (*Catostomus Santaanae*) to Endocrine Disrupting Compounds, Wastewater Compounds, and Other Contaminants," U.S. Fish and Wildlife Service, pp. 2-3 (2008)).

hours, and with no advance notice.⁷ Emergency shutdowns of more than an hour can cause the Santa Ana River to dry up completely, and no buckets are provided given that the emergency shutdowns occur without notice.

Flow disruptions caused by the RIX facility have a significantly negative impact on the Santa Ana sucker and other fish species. A September 2015 USGS Native Fish Survey found that about 90 percent of the Santa Ana sucker population inhabits the reach that goes dry when the RIX facility shuts down – an “unsustainable situation that is negatively affecting the stability, resiliency, and abundance of the sucker population in the Santa Ana River,” according to a memorandum written by San Bernardino Valley Municipal Water District staff.⁸ These shutdowns have already killed hundreds of Santa Ana sucker.⁹ During one such shutdown in 2014, a USGS member reported a “a pulse of dead fish floating down river.”¹⁰ These impacts have been exacerbated by the ongoing drought, which has reduced groundwater supplies that feed the Santa Ana River.¹¹

Additional data demonstrates altered flow impacts on Reaches 3 and 4 of the Santa Ana River beyond RIX facility impacts. As stated by the U.S. Fish & Wildlife Service, “[t]he primary threat to Santa Ana sucker is ongoing, rangewide hydrological modifications which lead to degradation and loss of habitat.”¹² Such hydromodification may include “flood control dams, drop structures, recreational dams, road crossings (for example, culverts) and levees,” which together have been found to limit Santa Ana sucker dispersal and connectivity.¹³ In regards to diversions in the Santa Ana River watershed, the U.S. Fish & Wildlife Service also found that the “magnitude of usage in all of the watersheds is high” and “[t]he removal of water from the system inevitably limits the quantity of habitat that is accessible and suitable for Santa Ana suckers.”¹⁴

⁷ See memorandum from Heather Dyer, Water Resources Project Manager at the San Bernardino Valley Municipal Water District, to the Board of Directors, “Funding to Equip Three Existing Wells for Use a Backup Water Supply for Santa Ana Sucker During RIX Shutdowns” (May 10, 2016), available at: <http://laserfiche.sbvmd.com/weblink/0/edoc/322256/SBVMWD%20Board%20of%20Directors%20Workshop%20051016.pdf>.

⁸ *Id.* (citing September 2015 USGS Native Fish Survey).

⁹ See e.g., Jim Steinburg, "Drought, Water Department Delays Threaten Endangered Santa Ana Sucker Fish," THE SUN (May 10, 2016), at: <http://www.sbsun.com/environment-and-nature/20160516/drought-water-department-delays-threaten-endangered-santa-ana-sucker-fish>. A lawsuit filed by three conservation groups cites over 100 deaths of Santa Ana sucker since 2014 arising from only three instances where the RIX facility was shut down and the river went dry. See Center for Biological Diversity, Press Release, "Lawsuit Launched Over California Cities' Killing of Threatened Santa Ana Suckers: Colton, San Bernardino Halted Water Releases Imperiling Rare Fish" (Aug. 22, 2016), at: https://www.biologicaldiversity.org/news/press_releases/2016/santa-ana-sucker-08-22-2016.html.

¹⁰ *Id.*

¹¹ See e.g., Jim Steinburg, "Drought, Water Department Delays Threaten Endangered Santa Ana Sucker Fish," THE SUN (May 10, 2016), at: <http://www.sbsun.com/environment-and-nature/20160516/drought-water-department-delays-threaten-endangered-santa-ana-sucker-fish>; see also Santa Ana Regional Water Quality Control Board, Re: "Colton/San Bernardino Regional Tertiary Treatment Rapid Infiltration and Extraction Facility: Update on Operational Impacts to Santa Ana Sucker," (Dec. 16, 2016), at: www.waterboards.ca.gov/santaana/board_info/agendas/2016/12_16/Item_11.pdf.

¹² *Id.* at p. iii (2014).

¹³ U.S. Fish & Wildlife Service (Region 8), "Draft Recovery Plan for the Santa Ana Sucker," p. I-11 (2014).

¹⁴ "Santa Ana Sucker: 5 Year Review - Summary and Evaluation," U.S. Fish and Wildlife Service (March 10, 2011), at: https://www.fws.gov/carlsbad/SpeciesStatusList/5YR/20110310_5YR_SASU.pdf.

USGS data also highlights altered flows in the Santa Ana River. For example, the USGS "Water-Data Report" for 2013 for the Santa Ana River below Prado Dam, CA (Site #11074000; located just beyond Reach 3 of the Santa Ana River) states that "[n]atural streamflow [is] affected by extensive ground-water withdrawals, diversion for irrigation, discharges of treated effluent, and return flow from irrigated areas."¹⁵ The report finds that for the water year 2013 (the most recent year for which this report is available), the annual mean discharge was 138 cubic feet per second (cfs), as compared to an average of 224 cfs for water years 1941-2013.¹⁶ Since then, the annual mean discharge has remained low – 119.5 cfs for water year 2014, 148.6 cfs for water year 2015, and 158.4 cfs for water year 2016.¹⁷ Additional data on flows is readily available through the USGS Water-Data Reports and online flow gauge data.¹⁸

Finally, photographic evidence underscores the clear impairment due to altered flows occurring regularly on the Santa Ana River. Where a waterway – specifically, one that serves as crucial fish habitat for a federally-listed species such as the Santa Ana sucker – is completely dewatered due to human activities (the management of a wastewater facility in addition to over-diversion and other activities), a beneficial use impairment due to altered flows is beyond doubt.



Dewatered Santa Ana River

Photo by Heather Dyer, San Bernardino Valley Municipal Water District

¹⁵ Water-Data Report 2013, "11074000 Santa Ana River Below Prado Dam, CA," Santa Ana River Basin, USGS, at: <https://wdr.water.usgs.gov/wy2013/pdfs/11074000.2013.pdf>.

¹⁶ *Id.*

¹⁷ "USGS Surface-Water Annual Statistics for the Nation," USGS 11078000 SANTA ANA R A SANTA ANA CA, at: https://waterdata.usgs.gov/nwis/annual?referred_module=sw&site_no=11078000&por_11078000_8225=2207798,00060,8225,1923,2017&year_type=W&format=html_table&date_format=YYYY-MM-DD&rdb_compression=file&submitted_form=parameter_selection_list.

¹⁸ See e.g., Water-Data Report 2013, "11059300 Santa Ana River at E Street, near San Bernardino, CA," Santa Ana River Basin, USGS, at: <https://wdr.water.usgs.gov/wy2013/pdfs/11059300.2013.pdf>; Water-Data Report 2013, "11066460 Santa Ana River at Metropolitan Water District Crossing, near Arlington, CA," Santa Ana River Basin, USGS, at: <https://wdr.water.usgs.gov/wy2013/pdfs/11066460.2013.pdf>; Water-Data Report 2013, "11078000 Santa Ana River at Santa Ana, CA," Santa Ana River Basin, USGS, at: <https://wdr.water.usgs.gov/wy2013/pdfs/11078000.2013.pdf>.

Conclusion: Available data demonstrates that flow alterations are impairing the beneficial uses of Reaches 3 and 4 of the Santa Ana River, particularly those beneficial uses related to aquatic life and habitat. This long history of flow impacts is well-documented by the USGS, U.S. Fish & Wildlife Service, San Bernardino Valley Municipal Water District, and other government agency-conducted and -recognized studies. In accordance with Section 3.11 of the Listing Policy, when information indicates non-attainment of standards by a water body, the appropriate methodology for evaluation is weight of evidence to determine listing under Section 303(d).

This recommendation is consistent as well with Section 3.9 of the Listing Policy, which supports listing if the water body exhibits degradation in biological populations and pollutants sufficient to impair, or threaten impairment of, beneficial uses. Reaches 3 and 4 of the Santa Ana River have exhibited degradation in populations of fish (including the threatened Santa Ana sucker) that rely upon adequate flows for survival. Based on the readily available data and information, the evidence is sufficient to support the listing of Reaches 3 and 4 of the Santa Ana River on the 303(d) list for impairment caused by altered flow. This evidence also supports including Reaches 3 and 4 of the Santa Ana River on the 305(b) report.

DATA REFERENCES

- Upper Santa Ana River Watershed Integrated Regional Water Management Plan (2015), at: www.sbvmd.com/Home/ShowDocument?id=1468.
- “Draft Recovery Plan for the Santa Ana Sucker,” U.S. Fish & Wildlife Service (2014), at: https://www.fws.gov/carlsbad/SpeciesStatusList/RP/201411xx_Draft%20RP_SASU.pdf.
- “Habitat Variability and Distribution of the Santa Ana Sucker, *Catostomus Santaanae*, in the Santa Ana River from the Confluence of the Rialto Channel to the Prado Basin,” Santa Ana Watershed Project Authority (on behalf of Santa Ana Sucker Conservation Team) (Sept. 16, 2014), at: www.sawpa.org/wp-content/uploads/2012/05/SASucker-Survey_9-16-14.pdf.
- “Santa Ana Sucker: 5 Year Review - Summary and Evaluation,” U.S. Fish and Wildlife Service, Carlsbad Fish & Wildlife Office (March 10, 2011), at: https://www.fws.gov/carlsbad/SpeciesStatusList/5YR/20110310_5YR_SASU.pdf.
- "Habitat Variability and Distribution of the Santa Ana Sucker, *Catostomus Santaanae*, in the Santa Ana River from the Confluence of the Rialto Channel to the Prado Basin," Santa Ana Sucker Conservation Team (Sept. 16, 2014), at: http://www.sawpa.org/wp-content/uploads/2012/05/SASucker-Survey_9-16-14.pdf.
- Sediment Dynamics Affecting the Threatened Santa Ana Sucker in the Highly-Modified Santa Ana River and Inset Channel, Southern California, USA," by J.T. Minear; S.A. Wright (USGS Central Region Office & U.S. Geological Survey) (2015), at: www.adsabs.harvard.edu/abs/2015AGUFMEP33A1050M.

- Santa Ana River Watermaster Annual Reports, available at: www.wmwd.com/292/Santa-Ana-Watermaster-Reports.
- Western-San Bernardino Watermaster Annual Reports, available at: www.wmwd.com/294/Western-San-Bernardino-Annual-Reports
- USGS Water-Data Reports
 - Water-Data Report 2013, "11059300 Santa Ana River at E Street, near San Bernardino, CA," Santa Ana River Basin, USGS, at: <https://wdr.water.usgs.gov/wy2013/pdfs/11059300.2013.pdf>.
 - Water-Data Report 2013, "11066460 Santa Ana River at Metropolitan Water District Crossing, near Arlington, CA," Santa Ana River Basin, USGS, at: <https://wdr.water.usgs.gov/wy2013/pdfs/11066460.2013.pdf>.
 - Water-Data Report 2013, " 11074000 Santa Ana River below Prado Dam, CA," Santa Ana River Basin, USGS, at: <https://wdr.water.usgs.gov/wy2013/pdfs/11074000.2013.pdf>.
 - Water-Data Report 2013, "11078000 Santa Ana River at Santa Ana, CA," Santa Ana River Basin, USGS, at: <https://wdr.water.usgs.gov/wy2013/pdfs/11078000.2013.pdf>.
- "USGS Surface-Water Data for the Nation," USGS, available at: <https://waterdata.usgs.gov/nwis/sw>.

ATTACHMENT B

**Comment Letter from ELC to San Diego
RWQCB, “Comment – CWA Section
305(b)/303(d) Integrated Report” (Aug. 8,
2016)**



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August 8, 2016

Henry Abarbanel, Chair and Board Members
San Diego Regional Water Quality Control Board
2375 Northside Drive, Suite 100
San Diego, California 92108

VIA ELECTRONIC SUBMITTAL: sandiego@waterboards.ca.gov

Re: Comment – CWA Section 305(b)/303(d) Integrated Report, Attn: Xueyuan Yu

Dear Chair Abarbanel and Board Members:

On behalf of Earth Law Center (ELC), I welcome the opportunity to submit these comments on the above-referenced CWA Section 305(b)/303(d) Integrated Report (Report). ELC has been working at the state and national levels for a number of years to ensure that waterbodies impaired by “pollution,” particularly altered flow and hydrology, are represented in either Category 5 or Category 4C of the 305(b)/303(d) Integrated Report. Our recent comment letter to U.S. EPA and USGS in support of such listings is attached.

We write today in support of your proposal to list waterways as impaired due to hydromodification and habitat alteration in Category 4C, as discussed in the July 2016 Draft Staff Report¹ at pages 12-17. As noted in the Staff Report, on August 13, 2015 U.S. EPA released guidance on Integrated Reporting and Listing Decisions that reaffirmed the duty to list in Category 4C those waters impaired by “pollution.”² In this guidance, U.S. EPA notes that “[w]hile TMDLs are not required for waterbody impairments assigned to Category 4C, States can employ a variety of watershed restoration tools and approaches to address the source(s) of the impairment,” raising the importance of full and complete listing identification for these impaired waterways. The Staff Report echoes EPA’s finding, stating that Category 4C listed waters “may be a priority for restoration by a Regional Water Board.”

We further support your staff’s work, consistent with U.S. EPA guidance and regulations, to identify flow-impaired stream segments where in-stream data was lacking, using such tools as

¹ At: http://www.waterboards.ca.gov/sandiego/water_issues/programs/303d_list/docs/IR_RB_StaffReport_R9_07-11-16_Clean.pdf.

² Memorandum from U.S. EPA, Office of Wetlands, Oceans, and Watersheds Information to Water Division Directors, Regions 1 – 10, Concerning 2016 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions (August 13, 2015), at: https://www.epa.gov/sites/production/files/2015-10/documents/2016-ir-memo-and-cover-memo-8_13_2015.pdf. See also U.S. EPA, “Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act,” p. 56 (July 29, 2005), at: <http://bit.ly/2aIVP8h>.

“desktop aerial reconnaissance for potential in-stream habitat and hydrologic alteration associated with channel modifications, stream diversion or augmentation.”

Finally, we support staff’s assertion that it is “important to note that USEPA recommended in its 2015 guidance that ‘States assign all of their surface water segments to *one or more* of five reporting categories’.” (Emphasis added.) In other words, a stream segment can be listed for *both* impaired hydrology and pollutant contamination, rather than one or the other.

Specific listing of all waters impaired by “pollution” gives a far more accurate picture of the challenges facing state agencies and Californians than ignoring pollution impairments. For example, the Staff Report states that “over 96 percent of streams that exhibited biological degradation had both an associated pollutant(s) and supporting information showing pollution from in-stream habitat/hydrologic alteration and/or watershed hydrologic alteration (hydromodification, Table 3).” If pollution impairments were ignored, then virtually all of the impaired streams in the San Diego Region would be under-assessed, likely resulting in misallocation of limited resources and attention.

The Clean Water Act calls on the nation to protect the chemical, biological *and physical* integrity of our waters. The full and proper identification of all impaired waterways, including for altered flow and hydrology, is an important step in meeting this mandate. We urge the San Diego Regional Water Quality Control Board to adopt the proposed listings for habitat alteration/hydromodification, as described in Table 3 of the Draft Staff Report and elsewhere. Thank you for the opportunity to submit these comments.

Sincerely,



Linda Sheehan
Executive Director
lsheehan@earthlaw.org

attachments



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June 14, 2016

Diana Eignor
Health and Ecological Criteria Division
Office of Water (Mail Code 4304T)
Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, DC 20460

VIA ELECTRONIC SUBMITTAL: Federal eRulemaking Portal: <http://www.regulations.gov>

Re: Draft EPA-USGS Technical Report: Protecting Aquatic Life from Effects of Hydrologic Alteration; 81 FR 21863; Docket ID No. EPA-HQ-OW-2015-0335

Dear Ms. Eignor:

On behalf of Earth Law Center (ELC), I welcome the opportunity to submit these comments on the above-referenced Report. We thank U.S. EPA and USGS for taking up the critical task of protecting aquatic life from the increasing pressures of over-extraction of our waterways. In California, several aquatic species, including the Delta smelt and winter-run Chinook salmon, are at risk of imminent extinction due to unwise water use and planning. Reports such as this one are essential to better prepare for the challenges we face now and those to be expected in the future, particularly due to climate change.

We agree with the comments of the Natural Resources Defense Council that: (a) the Report is scientifically sound and provides a clear framework by which decisionmakers can effectively employ flow regime management strategies to protect aquatic ecosystems and species, and (b) U.S. EPA and USGS should finalize the Report this year and conduct immediate outreach to ensure swift implementation.

Further, we particularly support the discussion in Chapter 5 with regard to state and federal actions in law and policy to protect instream flows. We agree with the finding by U.S. EPA Region 4 (see attached letter, pages 9-13) that instream flow criteria adopted into water quality standards “would be in use for all purposes under the CWA...such as Section 401, Section 404, etc.” Accordingly, we support the following areas of discussion and recommendation in Chapter 5 the Report, as well as the associated Appendix B:

- Section 5.1, calling for adoption of flow criteria in Water Quality Standards. The attached U.S. EPA Region 4 letter describes the numerous benefits of such CWA-compliant “instream flow water quality standards” in more detail. We request that U.S. EPA take a leadership role in engaging states to adopt and implement such standards.

- Section 5.2, concluding that water bodies impaired by altered flow must be identified as impaired under Category 4C of the 303(d)/305(b) Integrated Report. Earth Law Center has done extensive analysis into the fact that such flow listings are requirement rather than a suggestion, and are essential for both state and local planning purposes. We are happy to provide these analyses on request. We strongly urge U.S. EPA to reject any 303(d)/305(b) reporting that does not include appropriate Category 4C listings for impairments associated with altered flow.
- Section 5.4, requiring consideration of flow in Section 401 certifications. For example, California is facing a Section 401 certification process with regard to the development of its “Twin Tunnels” project, which would reduce the amount of flow to the already-struggling Delta. It is unclear at this point whether the state will appropriately consider flow in this process. Clear instruction from U.S. EPA with regard to the applicability of flow to Section 401 certifications is essential if we are to invest in infrastructure that will serve people and environment well in the long term.
- Other applications of the CWA and related processes to flow, as discussed elsewhere in Chapter 5. These applications include, but are not limited to, Section 402 and 404 permits. Such recommendations are echoed and expanded upon in a letter by U.S. EPA Region 1 (attached), which was issued shortly after the landmark U.S. Supreme Court decision *PUD v. Washington Dep’t of Ecology*. This decision, of course, found the distinction between water quality and flows to be an “artificial” one.

The Clean Water Act calls on the nation to protect the chemical, biological and physical integrity of our waters. The Report is an essential step in fulfilling all three elements of this mandate. We urge U.S. EPA to swiftly adopt the Report and begin work with the states to implement its recommendations, particularly those in Chapter 5.

Thank you for the opportunity to submit these comments.

Sincerely,



Linda Sheehan
Executive Director
lsheehan@earthlaw.org

attachments

Additional Attachments Omitted

Attachment C

Public Documents Re: 303(d)/305(b) Listings Due to Altered Flows and Supporting Scientific Evidence

***Attached as separate file
*See email attachment***

**High resolution version available at:
<http://bit.ly/2u0cQFG>**

ATTACHMENT D

Ten Sample States Listing Waterways as Impaired Due to Causes Related to Altered Flows

Clean Water Act Section 303(d) and 305(b) Listings of Impaired Waters: Ten Examples

SUMMARY

This document provides excerpts from Clean Water Act Section 303(d) and 305(b) reports for ten sample states listing waterways as impaired due to causes related to altered flows.¹ These states, and others that identify waterways as impaired by flow-related alterations, recognize the importance of accurately reflecting waterway health status as required by Section 303(d)(1)(A).²

A summary of the attached excerpts is provided below, with “prior appropriation” water law states in **bold**. Note that “Category 4C” (also “4c”) refers to a US EPA-created category of water segments impaired by “pollution” (e.g., flows) as opposed to “pollutants” (e.g., chemical constituents). “Category 5,” which refers to impairments due to “pollutants” that need TMDLs, is typically, though not always, used synonymously with the Section 303(d) list. As addressed below and illustrated in the pages to follow, state approaches to listing flow alterations as a “cause” (rather than merely a “source”) of impairment can vary as follows:

- Flow on 303(d) list on its own merit: list flow impairments as part of the state’s Section 303(d) list solely on the merit of a waterway’s 4C identification as a cause of impairment; that is, whether alone or in combination with a pollutant impairment (Tennessee)³;
- Flow on 303(d) list if there is also an impairing pollutant present: list flow impairments as a cause of impairment on the “303(d) list” (Ohio) or on the “Category 5/303(d)” list (New

¹ Other states with flow-related listings include but are not necessarily limited to: Maryland, Nebraska, New York and Washington D.C. (D.C. lists flow impairments on its 303(d) list of impaired waters rather than the 305(b) list).

² Section 303(d)(1)(A): “Each state shall identify those waters within its boundaries for which the effluent limitations ... are not stringent enough to implement any water quality standard applicable to such waters. The State shall establish a priority ranking for such waters, taking into account the severity of the *pollution* and the uses to be made of such waters.” (Emphasis added.) Note that Section 303(d)(1)(A) refers to “pollution,” calling into question the assumption that the list excludes impairments due to flow, also labeled “pollution.” By contrast, Section 303(d)(1)(C) focuses on determining whether or not TMDLs are required to address pollutant-related impairments (“Each State shall establish for the waters identified in paragraph [303(d)](1)(A)] of this subsection, and in accordance with the priority ranking, the total maximum daily load, for those pollutants which the Administrator identifies ... as suitable for such calculation....). Accordingly, the states identified in this document at a minimum recognize that they must identify *all* impaired water bodies comprehensively, and that the identification of impairments for TMDL purposes is a separate task. Tennessee (and Washington D.C.) also appropriately recognize that flow impairments should be on the “Section 303(d)” list, as per Section 303(d)(1)(A). For more information on the requirements under federal Clean Water Act Section 303(d) to list impaired waters and the utility of such required listings, see, e.g., Comment Letter from Earth Law Center *et al.* to North Coast RWQCB, “2012 Integrated Report for the Clean Water Act Section 305(b) Surface Water Quality Assessment and the 303(d) List of Impaired Waters: (Aug. 8, 2014) (ELC *et al.* Letter); at: http://earthlawcenter.org/static/uploads/documents/303d_Ltr_NorCal_Flows_Res_and_Staff_Rpt.pdf.

³ As noted above, Washington D.C. also lists flow-impaired waters on its Section 303(d) list.

Mexico, Michigan) *if* there is also a pollutant impairing the waterway in addition to the flow impairments;

- Flow on 305(b) list: list flow impairments as a cause of impairment, but on the 305(b) rather than the 303(d) list; that is, characterizing both Category 4C and 5 waters as causing beneficial use impairment but distinguishing the 303(d) list for purposes of drafting TMDLs, rather than distinguishing impairment (Idaho, Montana, Vermont, Washington, Wyoming).

Note again that, unlike California (the Los Angeles Region listings excepted), each of these states (including “prior appropriation” water law states) clearly list flow-related alterations as a cause of impairment. The permutations arise from the fact that the states (except Tennessee) reconcile in different ways the language of Section 303(d)(1)(A) versus US EPA guidance setting out categories for the listing process.

As illustrated below, states are using this flow impairment information already, including with respect to setting state priorities for action. For example, Montana and Ohio use their 4C flow impairment data in compiling statistics on statewide sources of impairment, which provides more accurate information on threats to waterway health than in states that fail to include this important information. Vermont compiles the flow impairment information with the status of efforts to address it, as well as a “Projected WQS Compliance Year” for the affected waterways.

Further summary information is provided below, with excerpts from states’ reports following. We urge California to follow the lead of these states and identify flow impairments on its Section 303(d) list of impaired waterways. Taking action now on those waters most clearly flow impaired is essential, especially given the fact that we are witnessing biennial reports every six years now instead of every two.

- I. **California** – The 2006 California 303(d) list includes Category 5 listings for “water diversion” and “hydromodification” in the Los Angeles region.⁴
- II. **Idaho** – Appendix I of the latest Idaho Integrated Report states that “[i]mpaired water bodies are placed in Category 4c if the impairment is not caused by a *pollutant* but rather caused by *pollution*,” and contains 36 pages (7,342 river/stream miles) of Category 4c-impaired waters, including numerous waterways listed as impaired due to the cause of “low flow alterations.”⁵ Appendix J consists of Category 5 waterways, interpreted as a “streamlined”⁶ 303(d) list that focuses on the need for TMDLs rather than overall impairments.
- III. **Michigan** – Appendix B, the “Comprehensive List of Assessment Unit Designated Use Support,” contains all information on assessment units and is split (for size reasons) into

⁴ http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/r4_06_303d_reqtmlds.pdf.

⁵ <https://www.deq.idaho.gov/media/1117323/integrated-report-2012-final-entire.pdf>.

⁶ *Id.*, p. 35.

Appendices B1 and B2.⁷ “Other flow regime alteration” is listed as a cause of impairment for both Category 4c- and Category 5-identified assessment units in Appendix B. Category 4c is defined as water bodies impaired only by pollution, such as low flows. Appendix C, which Michigan interprets to be its 303(d) list, consists of Category 5 assessment units, but does include assessment units that list “other flow regime alterations” as a cause of impairment, where the flow alteration is an impairment cause along with a pollutant cause (e.g., sedimentation/siltation).⁸

- IV. **Montana** – Appendix A (“Impaired Waters”) of the Integrated Report lists *all* impaired waters in the state, including Category 4c (“waterbodies impaired only by non-pollutant causes”) and Category 5 waters; it specifically includes “low flow alterations” and “other flow regime alterations” as causes (not sources) of impairment.⁹ Appendix B lists “Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule”; this includes only pollutants, as the focus of the table is on TMDLs.¹⁰ Montana also uses flow impairment data elsewhere; for example, “Low flow alterations” is listed as third in the “Top 10 Causes of Impairment” for all assessment units (AUs) in Montana, with 237 AUs impaired for low flow alteration.¹¹ This statistic illustrates the utility of collecting flow impairment data in identifying the correct priorities for state action to improve waterway health.
- V. **New Mexico** – The “List of Assessed Surface Waters” (Appendix A) identifies impaired waters for every assessment unit as organized by watershed, which includes Category 4c and Category 5 listings. Both Categories include “low flow alterations” as an impairment cause. Flow impairments are included in Category 5 listings as well, and thus on the 303(d) list (e.g., Rito Leche, Rio Bonito), but only where a pollutant is also identified as a cause.¹²
- VI. **Ohio** – Combines Category 4C-listed waters (including those impaired due to “other flow regime alterations”) with Category 5 and other categories in single charts, though the text identifies Category 5 as the 303(d) list.¹³ Like Montana, Ohio also provides statewide summaries of impairments by cause; for example, “hydromodification” is identified as one of the “top five causes of impairment” for 36% of monitored assessment units with aquatic life impairment (nutrients is first for watershed assessment units).¹⁴ Again, this illustrates

⁷ http://www.michigan.gov/documents/deq/wrd-sw-as-2012IR-appB1_370329_7.pdf (Appendix B1).

http://www.michigan.gov/documents/deq/wrd-sw-as-2012IR-appB2_370330_7.pdf (Appendix B2).

⁸ http://www.michigan.gov/documents/deq/wrd-sw-as-2012IR-appCdetail_370331_7.pdf (“Appendix C - Assessment units not supporting designated uses (i.e. assessment units placed in Category 5”).

⁹ http://deq.mt.gov/WQInfo/CWAIC/Reports/IRs/2012/Appendix_A.pdf (2012);

http://deq.mt.gov/WQInfo/CWAIC/Reports/IRs/2014/Appendix_A.pdf (draft 2014).

¹⁰ http://deq.mt.gov/WQInfo/CWAIC/Reports/IRs/2012/Appendix_B.pdf.

¹¹ <http://deq.mt.gov/WQInfo/CWAIC/Reports/IRs/2012/Final2012IR.pdf> (Table 4-6).

¹² <http://www.nmenv.state.nm.us/swqb/303d-305b/2012-2014/AppendixA-USEPA-Approved303dList.pdf>.

¹³ <http://www.epa.ohio.gov/portals/35/tmdl/2012IntReport/IR12SectionL4final.pdf>; *see also*

<http://wwwapp.epa.ohio.gov/gis/mapportal/IR2012.html> (the 2014 Integrated Report Map Portal that lists details on the source of 4C impairments, which includes “other flow regime alterations”) and

www.epa.ohio.gov/portals/35/tmdl/2012IntReport/IR12SectionAfinal.pdf (providing details on flow alteration as a major cause and source of water quality problems).

¹⁴ <http://www.epa.ohio.gov/portals/35/tmdl/2012IntReport/IR12SectionGfinal.pdf>.

the utility and importance of identifying impairment causes properly, rather than neglecting to list entire categories of impairment causes and potentially identifying state priorities based on inaccurate data.

- VII. **Tennessee** – Definitively and deliberately includes numerous flow-impaired waterways on its 303(d) (*i.e.*, not 305(b)) list), regardless of whether an impairing “pollutant” is also present.¹⁵ Greg Denton at the Division of Water Resources (Gregory.Denton@tn.gov, 615-532-0699) says the state includes flow impairments on the 303(d) list because “[t]he list is supposed to be inclusive of everything we have data to justify.” He adds that the public uses the 303(d) list a “quick reference guide as to what is impaired and what is not,” which also calls for full listings of all impairment causes. Category 5 identification can still clearly indicate the need for TMDLs, but having all impaired waters in one 303(d) list serves the public interest and the Clean Water Act.
- VIII. **Vermont** – Lists “Impaired Surface Waters in need of TMDL” in Part A, which they identify as their Section 303(d) list.¹⁶ For its Category 4c listings, Vermont lists “Surface Waters Altered by Flow Regulation” in Part F, which includes nine pages of waterways with aquatic habitat or other designated uses for which “one or more designated uses are not supported” due to flow alteration.¹⁷ Vermont identifies the Part F waters as “priority waters for management action,” lists management actions to be taken for each where available, and also identifies the “Projected WQS Compliance Year” for each of these flow-impaired waterways.
- IX. **Washington** – Lists numerous waterways as impaired due to altered flow under Category 4C¹⁸ in the “303(d)/305(b) Integrated Report” (*e.g.*, there are 55 results when searching within “2012 Category: 4C” for “instream flow”).¹⁹ Washington currently recognizes Category 5 as comprising the 303(d) List, with no flow listings in Category 5/303(d). However, the Report notes in the Section 4C portion of the Integrated Report that flow listings had been on the state’s earlier Section 303(d) lists (*e.g.*, on the 1998 List) but were moved off the 303(d) list to 305(b) specifically as a result of new US EPA Guidance.²⁰ In other words, the movement from the 303(d) list was based on a new reporting convention rather than a state legal or factual finding under the Clean Water Act. A quick search of all

¹⁵ <http://www.tn.gov/environment/water/docs/wpc/2012-final-303d-list.pdf>.

¹⁶ http://www.vtwaterquality.org/mapp/docs/mp_2012_303d_Final.pdf.

¹⁷ http://www.watershedmanagement.vt.gov/mapp/docs/mp_2012_priority_waters_lists.pdf (2012); http://www.watershedmanagement.vt.gov/mapp/docs/mapp_Part_F_2014_draft_complete.pdf (draft 2014).

¹⁸ See <http://www.ecy.wa.gov/programs/wq/303d/WQAssessmentCats.html>.

¹⁹ <http://www.ecy.wa.gov/programs/wq/303d/currentassessmt.html>. See, *e.g.*, one such listing at: http://apps.ecy.wa.gov/wats/ViewListing.aspx?LISTING_ID=6212.

²⁰ See, *e.g.*, http://apps.ecy.wa.gov/wats/ViewListing.aspx?LISTING_ID=6212 (“This listing was on the 1998 303(d) list, but has been moved to the new Category 4C (impaired by a non-pollutant) based on EPA Guidance for preparing the 2004 Integrated Report”).

flow listings that had been so moved from the 1998 303(d) list to the current 305(b) list shows 48 separate listings for flow impairments.²¹

- X. **Wyoming** – Section 9 of the state’s 303(d)/305(b) report, “Surface Water Assessment Results,” includes in Section 9.4 “Category 4 Surface Waters”; this section includes listings for “flow alterations” as a cause of impairment.²² Section 9.5 is the “Category 5 Surface Waters (2012 303(d) List),” which does not include flow because of the state’s interpretation of the 303(d) list as the repository for those waterways in need of TMDLs.²³

²¹ This list can be viewed at: http://earthlawcenter.org/static/uploads/documents/WA_1998_Flow_Listings_9-15-2014.pdf. The movement of impaired waters off the impaired waters list raises a question as to the use and application of US EPA guidance. In particular, US EPA regulations or policy cannot contravene the Clean Water Act, as (among other reasons) the Administrative Procedure Act makes clear that rules “found to be . . . in excess of statutory jurisdiction” shall be both held unlawful and “set aside.” 5 U.S.C. § 706(2)(C); see also *Nat’l Mining Ass’n v. United States Army Corps of Engrs*, 145 F.3d 1399, 1409 (D.C. Cir. 1998), and *Oregon v. Ashcroft*, 368 F.3d 1118, 1129 (9th Cir. 2004) (quoting *NLRB v. Brown*, 380 U.S. 278, 291-92 (1965)). Arguments as to the reasons that flow impaired waters must be included on states’ Section 303(d) lists have been offered at length before the California State Water Resources Control Board and North Coast Regional Water Quality Control Board. See, e.g., ELC *et al.* Letter, *supra* n. 1.

²² <http://deg.state.wy.us/wqd/watershed/Program%20Documents/5.%20Water%20Quality%20Assessments%20&%20Integrated%20Report/Guidance/WY2012IR.pdf>.

²³ *Id.*

I. California

2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS REQUIRING TMDLS

LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD

USEPA APPROVAL DATE: JUNE 28, 2007

REGION TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION		
4	C	Ventura Marina Jetties	4031000	DDT		0.69 Miles	2019	
					Source Unknown			
				PCBs (Polychlorinated biphenyls)		0.69 Miles	2019	
				Source Unknown				
4	R	Ventura River Estuary	40210011	Algae	Nonpoint/Point Source	0.2 Miles	2019	
				Eutrophic	Nonpoint/Point Source	0.2 Miles	2019	
				Total Coliform	Nonpoint/Point Source	0.2 Miles	2019	
				<i>Stables and horse property may be the sources.</i>				
				Trash	Nonpoint Source	0.2 Miles	2019	
				Nonpoint/Point Source				
4	R	Ventura River Reach 1 and 2 (Estuary to Weldon Canyon)	40210011	Algae		4.5 Miles	2019	
						Nonpoint/Point Source		
4	R	Ventura River Reach 3 (Weldon Canyon to Confl. w/ Coyote Cr)	40210011	Pumping		2.8 Miles	2019	
				Water Diversion		2.8 Miles	2019	
						Nonpoint Source		
4	R	Ventura River Reach 4 (Coyote Creek to Camino Cleo Rd)	40220021	Pumping		19 Miles	2019	
				Water Diversion		19 Miles	2019	
						Nonpoint Source		

2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS REQUIRING TMDLS

LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD

USEPA APPROVAL DATE: JUNE 28, 2007

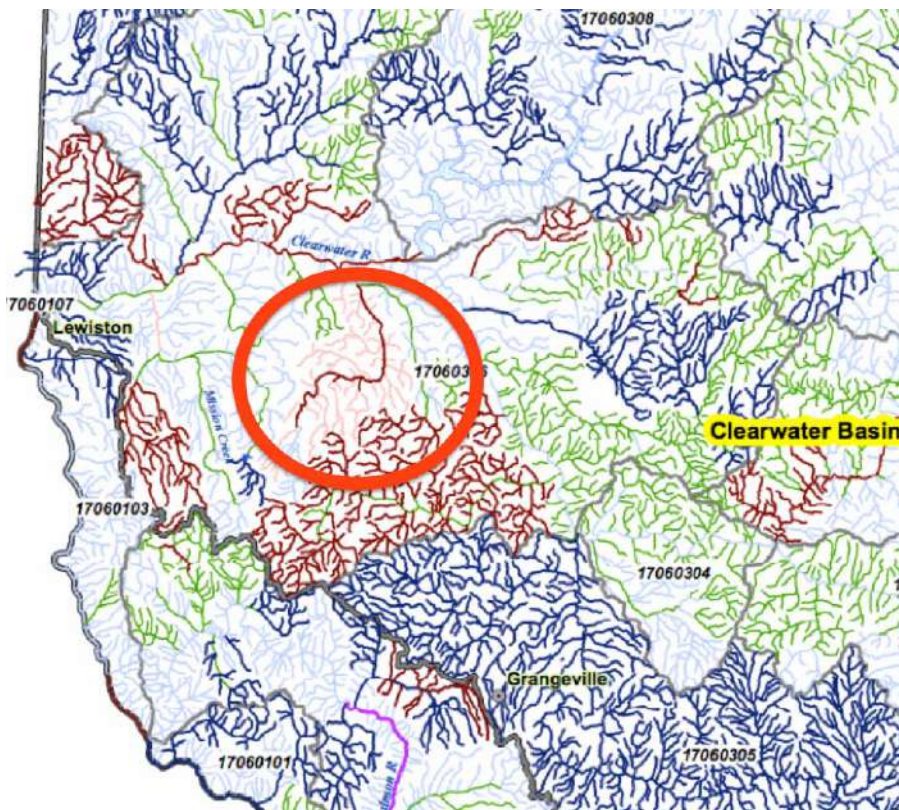
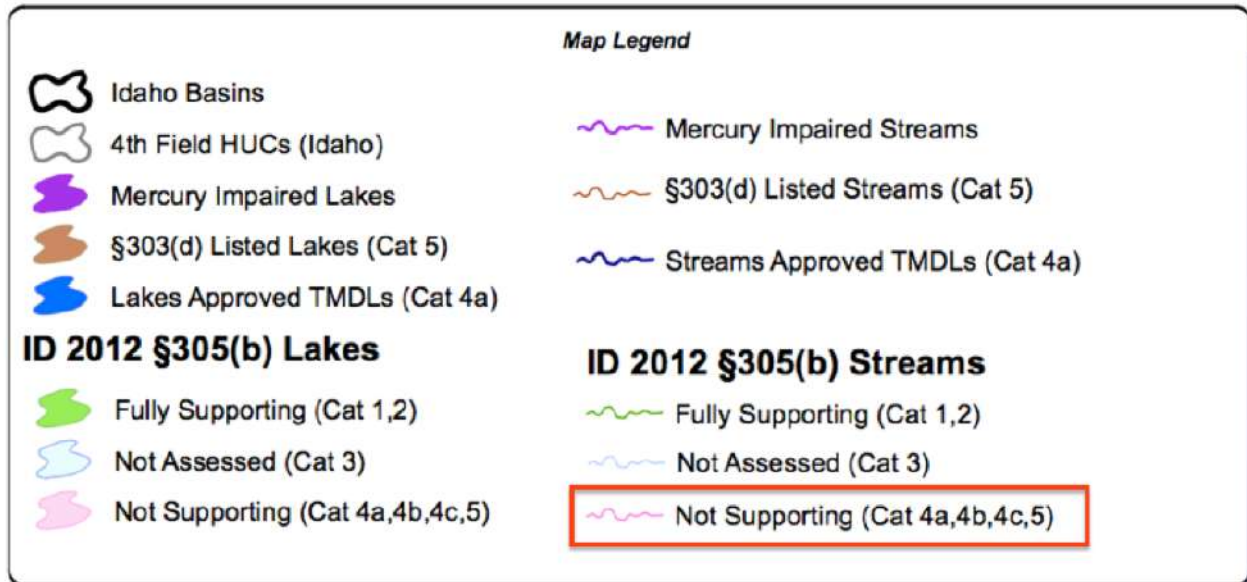
REGION TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION		
4	R	Arroyo Seco Reach 2 (Figueroa St. to Riverside Dr.)	40515010	Coliform Bacteria		4.4 Miles	2009	
					Nonpoint Source			
				Trash		4.4 Miles	2007	
						Nonpoint Source		
4	C	Avalon Beach	4051000	Indicator bacteria		0.67 Miles	2019	
				<i>Area affected is between Pier and BB restaurant (2/3), between Pier and BB restaurant (1/3), between storm drain and Pier (1/3), and between BB restaurant and the Tuna Club.</i>				
						Nonpoint/Point Source		
4	R	Ballona Creek	40513000	Cadmium (sediment)	Nonpoint/Point Source	6.5 Miles	2005	
				Cyanide		6.5 Miles	2019	
				Silver (sediment)	Source Unknown	6.5 Miles	2005	
					Nonpoint Source			
4	R	Ballona Creek Estuary	40513000	Shellfish Harvesting Advisory		2.3 Miles	2006	
						Nonpoint/Point Source		
4	T	Ballona Creek Wetlands	40517000	Exotic Vegetation		289 Acres	2019	
					Nonpoint Source			
				Habitat alterations		289 Acres	2019	
					Nonpoint Source			
				Hydromodification		289 Acres	2019	
						Nonpoint Source		

Page 2 of 50

Source: SWRCB, "2006 CWA Section 303(d) List of Water Quality Impairment"; at: http://waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/r4_06_303d_reqtmdls.pdf.

II. Idaho

Integrated Map (Non-Interactive)



Source: Idaho Department of Environmental Quality, "2012 Integrated Report Map," at: <https://www.deq.idaho.gov/media/1117324/2012-integrated-report-map.pdf>.

Integrated Map (Interactive), Idaho (cont'd)

IDAHO SUBBASIN

17060306 - Clearwater

Final Assessment Unit Status Report 2012

Assessment Unit ID: ID17060306CL003_02
 Assessment Unit Name: Lindsay Creek - source to mouth
 Assessment Unit Type: RIVER
 Assessment Unit Size: 23.35 MILES
 Assessment Date: 09/17/2007

This Assessment Unit is in Multiple Categories: 4A, 4C

Beneficial Uses	Support Status
Cold Water Aquatic Life	Not Supporting
Secondary Contact Recreation	Not Supporting
Wildlife Habitat	Not Assessed

Cause(s)

- Escherichia coli
- Low flow alterations
- Nutrient/Eutrophication Biological Indicators
- Physical substrate habitat alterations
- Sedimentation/Siltation

Monitoring Methods

PATHOGEN MONITORING

Beneficial Use Comments

None Listed

Monitoring History (1993 - Present)

BURPID	STREAM	ELEV(m)	LATITUDE	LONGITUDE	SMRScore	SFIScore	SfIScore	AVGScore
1706030602	Lindsay Creek 1794	4638.89	-110.90704	0	1	1	1	1.00

EPA TMDL ID	EPA APPROVED TMDL	TMDL CAUSE
22412	LINDSAY CREEK WATERSHED TMDL	Escherichia coli
22412	LINDSAY CREEK WATERSHED TMDL	Nutrient/Eutrophication Biological Indicators
22412	LINDSAY CREEK WATERSHED TMDL	Sedimentation/Siltation

List §305(b) Streams by Subbasin:

Subbasin by Name:

Layers Available at the Scale Increases

- ID305B
- (Cloud Datasets)
- o-Towns
- h-Boundaries
- h-UCS (paths)
- h-Impaired (2012)
- h-Lakes (Final)
- h-Limited LAKES
- h-Lakes (Final)
- hmg(CAT_1)
- hmg(CAT_3)
- hmg(CAT_4a,4b,4c,5)
- h-Mercury Impaired (2012)
- h305(b) Limited Streams
- h-Limited Streams
- h-Streams (Final)
- hmg(CAT_1,3)
- hmg(CAT_3)
- hmg(4a,4b,4c,5)
- hmg
- h-Areas
- h-V
- h(LM)
- h
- h4b5

ID	Stream Name	Type	Support Status	Score
ID17060306CL003_07	Clearwater River	Stream	Fully Supporting	10.08
ID17060306CL003_02	Unnamed NHD Waterbody	Stream	Not Supporting	18.80
ID17060306CL003_02	Lindsay Creek	Stream	Not Supporting	8.55
ID17060306CL003_02a	Unnamed NHD Waterbody	Stream	Not Assessed	0.44

Source: Idaho Department of Environmental Quality, Final 2012 §305(b) Integrated Report (Interactive Map), at: <http://mapcase.deq.idaho.gov/wq2012>.

Integrated Report, Idaho (cont'd)

2012 Integrated Report: Category 4c: Waters Impaired by Pollution, Not a Pollutant

2012 Integrated Report: Category 4c: Waters Impaired by Pollution

Bear River

16010102 Central Bear

ID16010102BR001_05	Bear River - Idaho/Wyoming border to railroad bridge	30.88	MILES
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Low flow alterations

In 2006 EPA approved nutrient and sediment TMDLs. No TMDL written for flow alteration per EPA policy that "flow alteration is not a pollutant".

ID16010102BR002_03	Pegram Creek - source to mouth	6.27	MILES
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Physical substrate habitat alterations

ID16010102BR006_02	Preuss Creek - USFS boundary to Geneva ditch	6.03	MILES
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Physical substrate habitat alterations

16010201 Bear Lake

ID16010201BR002_05	Bear River-railroad bridge (T14N, R45E, Sec. 21) to Ovid Cr.	55.45	MILES
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Low flow alterations

ID16010201BR006_03	Lower Stauffer Creek - Spring Creek to Bear River	4.14	MILES
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Low flow alterations

Physical substrate habitat alterations

ID16010201BR018_0La	Indian Creek	5.77	MILES
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Low flow alterations

Physical substrate habitat alterations

ID16010201BR022_03a	Lower Georgetown Creek - left hand fork to mouth	3.91	MILES
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Physical substrate habitat alterations

16010202 Middle Bear

ID16010202BR002_04	Cub River - Maple Creek to Border	3.94	MILES
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Low flow alterations

Other flow regime alterations

ID16010202BR003_03	Cub River - Sugar Creek to Maple Creek	5.28	MILES
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Other flow regime alterations

ID16010202BR006_06	Bear River-Oneida Narrows Reservoir Dam to Idaho/Utah border	36.08	MILES
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Low flow alterations

ID16010202BR007_02a	Strawberry Creek	10.37	MILES
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Low flow alterations

Physical substrate habitat alterations

ID16010202BR009_06	Bear River - Alexander Reservoir Dam to Densmore Creek	15.56	MILES
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Other flow regime alterations

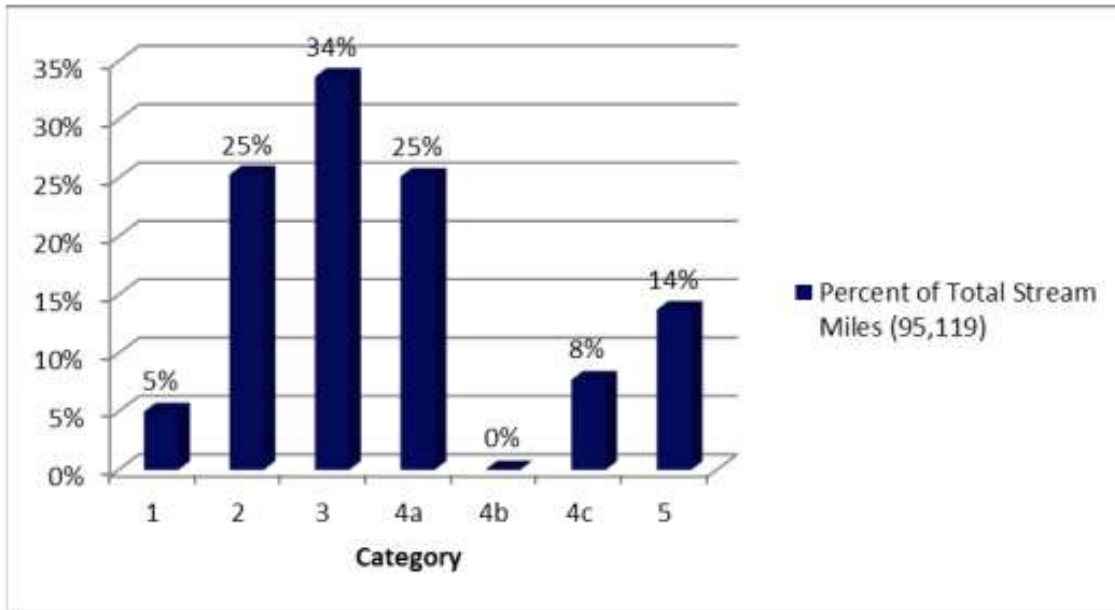
Source: Idaho Department of Environmental Quality, "2012 Integrated Report," at: <https://www.deq.idaho.gov/media/1117323/integrated-report-2012-final-entire.pdf>. (Note: There are 36 pages of Category 4c listings in the Integrated Report.)

Integrated Report, Idaho (cont'd)

Table A. Category summary for streams and rivers.

Category	Miles	Number of Assessments Units
Category 1	4,751	370
Category 2	23,888	1,241
Category 3	32,034	1,567
Category 4a	23,894	2,324 ^a
Category 4b	51	4 ^a
Category 4c	7,342	547 ^a
Category 5	13,237	977 ^a

^a AU-cause combinations



Source: Idaho Department of Environmental Quality, "2012 Integrated Report," at: <https://www.deq.idaho.gov/media/1117323/integrated-report-2012-final-entire.pdf>.

III. Michigan

Appendix B - Comprehensive list of assessment unit designated use support. This list is organized by 8, 10, and 12 digit HUCs. Additional information is provided for assessment units not supporting designated uses. For Category 4a the TMDL completion date is provided. For Category 4b the expected to attain by date is provided. For Category 4c the 'Pollutant?' field is blank. For Category 5 the TMDL schedule is provided.

8 Digit HUC: 04050001 St. Joseph

AUID: 040500010105-04 Rivers/Streams in HUC 040500010105 RIVER 17.798556 MILES
Includes: Fisher Creek from Marble Lake confluence upstream to headwaters.

Designated Use	Use Support	Cause	Pollutant?	TMDL Schedule	TMDL Completion	Expected to Attain
Total Body Contact Recreation	Not Assessed					
Partial Body Contact Recreation	Not Assessed					
Navigation	Fully Supporting					
Industrial Water Supply	Fully Supporting					
Agriculture	Fully Supporting					
Warm Water Fishery	Not Supporting	Other anthropogenic substrate alterations				
Warm Water Fishery	Not Supporting	Other flow regime alterations				(This is Category 4c)
Other Indigenous Aquatic Life and Wildlife	Fully Supporting					
Cold Water Fishery	Not Assessed					
Fish Consumption	Not Supporting	PCB in Fish Tissue	Y	2013		
Fish Consumption	Not Supporting	PCB in Water Column	Y	2013		

AUID: 040500010105-05 FIRST LAKE QUINCY PARK BEACH AND LAKE SHORELINE 0.2 MILES
First Lake, 301 Lake Blvd., Coldwater, Michigan

Designated Use	Use Support	Cause	Pollutant?	TMDL Schedule	TMDL Completion	Expected to Attain
Total Body Contact Recreation	Insufficient information					
Partial Body Contact Recreation	Fully Supporting					
Navigation	Fully Supporting					
Industrial Water Supply	Fully Supporting					
Agriculture	Fully Supporting					
Warm Water Fishery	Not Assessed					
Other Indigenous Aquatic Life and Wildlife	Not Assessed					
Cold Water Fishery	Not Assessed					
Fish Consumption	Not Assessed					

AUID: 040500010105-NAL Unassessed Lakes in HUC 040500010105 FRESHWATER LAKE 91.181523 ACRES
Lakes only 'assessed' for Navigation, Agriculture, and Industrial Water Supply

Designated Use	Use Support	Cause	Pollutant?	TMDL Schedule	TMDL Completion	Expected to Attain
Total Body Contact Recreation	Not Assessed					
Partial Body Contact Recreation	Not Assessed					
Navigation	Fully Supporting					
Industrial Water Supply	Fully Supporting					
Agriculture	Fully Supporting					
Warm Water Fishery	Not Assessed					
Other Indigenous Aquatic Life and Wildlife	Not Assessed					
Cold Water Fishery	Not Assessed					
Fish Consumption	Not Assessed					

04050001 St. Joseph

B - 604

Source: Michigan DEQ, "Appendix B - Comprehensive List of Assessment Unit Designated Use Support," at: http://www.michigan.gov/documents/deq/wrd-swas-20121R-appB1_370329_7.pdf. (Note: There are many more examples of 4c listings in the "Comprehensive List of Assessment Unit Designated Use Support.")

Michigan (cont'd)

8 Digit HUC: 04060105 Boardman-Charlevoix

12 Digit HUC: 040601050507 Broadman River

AUID: 040601050507-01 Rivers/Streams in HUC 040601050507
Includes: Kids Creek

RIVER 4.140817 MILES

Designated Use	Use Support	Cause	Pollutant?	TMDL Schedule	TMDL Completion	Expected to Attain
Other Indigenous Aquatic Life and Wildlife	Not Supporting	Other anthropogenic substrate alterations	Y	2013		
Other Indigenous Aquatic Life and Wildlife	Not Supporting	Other flow regime alterations	Y	2013		
Other Indigenous Aquatic Life and Wildlife	Not Supporting	PCB in Water Column	Y	2013		
Other Indigenous Aquatic Life and Wildlife	Not Supporting	Sedimentation/Siltation	Y	2013		
Fish Consumption	Not Supporting	PCB in Water Column	Y	2013		

AUID: 040601050507-03 Rivers/Streams in HUC 040601050507
Includes: Kids Creek

RIVER 6.977377 MILES

Designated Use	Use Support	Cause	Pollutant?	TMDL Schedule	TMDL Completion	Expected to Attain
Other Indigenous Aquatic Life and Wildlife	Not Supporting	PCB in Water Column	Y	2013		
Fish Consumption	Not Supporting	PCB in Water Column	Y	2013		

AUID: 040601050507-04 Rivers/Streams in HUC 040601050507
Includes: MILLER CREEK

RIVER 4.230916 MILES

Designated Use	Use Support	Cause	Pollutant?	TMDL Schedule	TMDL Completion	Expected to Attain
Other Indigenous Aquatic Life and Wildlife	Not Supporting	PCB in Water Column	Y	2013		
Fish Consumption	Not Supporting	PCB in Water Column	Y	2013		

AUID: 040601050507-05 BASS LAKE
SW of Traverse City.

FRESHWATER LAKE 273.7868 ACRES

Designated Use	Use Support	Cause	Pollutant?	TMDL Schedule	TMDL Completion	Expected to Attain
Fish Consumption	Not Supporting	Mercury in Fish Tissue	Y	2013		

AUID: 040601050507-06 Rivers/Streams in HUC 040601050507
Includes: Boardman River, Beltner Creek and Jack's Creek

RIVER 29.631949 MILES

Designated Use	Use Support	Cause	Pollutant?	TMDL Schedule	TMDL Completion	Expected to Attain
Other Indigenous Aquatic Life and Wildlife	Not Supporting	PCB in Water Column	Y	2013		
Fish Consumption	Not Supporting	PCB in Water Column	Y	2013		

AUID: 040601050507-07 SILVER LAKE
6 miles SW of Traverse City.

FRESHWATER LAKE 569.3184 ACRES

Designated Use	Use Support	Cause	Pollutant?	TMDL Schedule	TMDL Completion	Expected to Attain
Fish Consumption	Not Supporting	Mercury in Fish Tissue	Y	2013		

AUID: 040601050507-08 Rivers/Streams in HUC 040601050507
Includes: Boardman River

RIVER 3.518203 MILES

Designated Use	Use Support	Cause	Pollutant?	TMDL Schedule	TMDL Completion	Expected to Attain
Other Indigenous Aquatic Life and Wildlife	Not Supporting	PCB in Water Column	Y	2013		
Fish Consumption	Not Supporting	PCB in Water Column	Y	2013		

04060105 Boardman-Charlevoix

Source: Michigan DEQ, "Appendix C - Assessment Units Not Supporting Designated Uses (i.e. assessment units placed in Category 5)" [303(d) List], at: http://www.michigan.gov/documents/deq/wrd-swas-2012IR-appCdetail_370331_7.pdf. (*Note:* There are many more examples of flow alteration listings in this 303(d) List.)

IV. Montana

Appendix A: Impaired Waters

HUC	10020007	Madison	Watershed		Upper Missouri Tribs.									
TMDL Planning Area	ID005B	Waterbody Name/Location	Category	Size	Units	Use Class	AqL	AG	DW	Rec	Cause Name	Source Name		
Madison	MT41F004_020	O'DELL SPRING CREEK, headwaters to mouth (Madison River)	5	13.03	MILES	B-1	P	F	N	F	High Flow Regime Other anthropogenic substrate alterations Physical substrate habitat alterations	Grazing in Riparian or Shoreline Zones Habitat Modification - other than Hydromodification Impacts from Hydrostructure Flow Regulation/modification Irrigated Crop Production Source Unknown		
Madison	MT41F004_040	INDIAN CREEK, Leo Metcalf Wilderness boundary to mouth (Madison River)	4C	6.34	MILES	B-1	P	F	F	P	Low flow alterations	Impacts from Hydrostructure Flow Regulation/modification Irrigated Crop Production		
Madison	MT41F004_050	JACK CREEK, headwaters to mouth (Madison River)	5	15.18	MILES	B-1	P	F	F	P	Alteration in stream-side or littoral vegetative covers Low flow alterations Physical substrate habitat alterations Sedimentation/Siltation	Grazing in Riparian or Shoreline Zones Irrigated Crop Production Natural Sources Streambank Modifications/destabilization		
Madison	MT41F004_030	NORTH MEADOW CREEK, headwaters to mouth (Enns Lake)	5	16.53	MILES	B-1	F	F	F	P	Low flow alterations Phosphorus (Total) Physical substrate habitat alterations Sedimentation/Siltation	Channelization Irrigated Crop Production Natural Sources Streambank Modifications/destabilization		
Madison	MT41F004_070	SOUTH MEADOW CREEK, headwaters to mouth (Enns Lake)	5	12.98	MILES	B-1	N	F	F	P	Aquatic Plants - Native Chlorophyll-a Lead Physical substrate habitat alterations	Agriculture Impacts from Abandoned Mine Lands (Inactive) Irrigated Crop Production		
Madison	MT41F004_080	RUBY CREEK, headwaters to mouth (Madison River)	4C	15.91	MILES	B-1	N	F	F	P	Low flow alterations	Impacts from Hydrostructure Flow Regulation/modification Irrigated Crop Production		
Madison	MT41F004_100	WEST FORK MADISON RIVER, headwaters to mouth (Madison River)	5	39.41	MILES	B-1	N	F	N	P	Alteration in stream-side or littoral vegetative covers Arsenic Cadmium Lead Low flow alterations	Agriculture Flow Alterations from Water Diversions Forest Roads (Road Construction and Use) Impacts from Hydrostructure Flow Regulation/modification Irrigated Crop Production		

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

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Source: Montana Department of Environmental Quality, "Draft 2014 Water Quality Integrated Report," App. A - Impaired Waters, at: http://deq.mt.gov/WQInfo/CWAIC/Reports/IRs/2012/Appendix_A.pdf.
(*Note:* There are many more examples of both 4c and 5 listings with the cause of low flow alterations in this Impaired Waters list.)

Table 4-3. Top 10 Causes of Impairment – All Assessment Units

Cause Name	# of AUs
Sedimentation/Siltation	457
Alteration in streamside or littoral vegetative covers ¹	411
Low flow alterations ¹	237
Phosphorus (Total)	235
Nitrogen (Total)	207
Lead	178
Physical substrate habitat alterations ¹	159
Copper	150
Arsenic	127
Cadmium	119

¹ These causes are pollution, or non-pollutants, and thus TMDLs cannot be developed.

Source: Montana Department of Environmental Quality, "Draft 2014 Water Quality Integrated Report," Table 4-3, at: <http://deq.mt.gov/WQInfo/CWAIC/Reports/IRs/2012/Final2012IR.pdf>.

V. New Mexico

Integrated List

Three Rivers (Perennial prt HWY 54 to USFS exc Mescalero) Tularosa Valley					
Assessment Unit ID:	Size (mi or ac):	WQS reference:	Monitoring Schedule:	Cycle Last Assessed:	IR Category:
NM-2802_00	14.68	20.6.4.802	2012	2006	4C

Use Information:

Designated Use (s):	Attainment:
Domestic Water Supply	Not Assessed
High Quality Coldwater Aquatic Life	Not Supporting
Irrigation	Not Assessed
Livestock Watering	Not Assessed
Primary Contact	Not Assessed
Wildlife Habitat	Not Assessed

Assessment Information:

Probable Causes of Impairment:	TMDL Schedule:
Low flow alterations	

Assessment Unit Comments: There is extensive irrigation in the reach from surface water diversion as well as ground water pumping in the lower portion of the assessment unit. Therefore, this AU is listed under Category 4C with an impairment of Low Flow Alteration diversion (flow modification) "pollution" is de-watering this reach.

Three Rivers (USFS bnd to headwaters) Tularosa Valley					
Assessment Unit ID:	Size (mi or ac):	WQS reference:	Monitoring Schedule:	Cycle Last Assessed:	IR Category:
NM-2802_01	4.16	20.6.4.802	2012	2006	5/5A

Use Information:

Designated Use (s):	Attainment:
Domestic Water Supply	Fully Supporting
High Quality Coldwater Aquatic Life	Fully Supporting
Irrigation	Fully Supporting
Livestock Watering	Fully Supporting
Primary Contact	Not Supporting
Wildlife Habitat	Fully Supporting

Assessment Information:

Probable Causes of Impairment:	TMDL Schedule:
E. coli	2010

Probable Sources of Impairment:

Other Recreational Pollution Sources

Assessment Unit Comments: Per USFS personnel (2/4/09), livestock grazing is not allowed along this stream reach. It is a popular horseback riding trail with several crossings.

Source: New Mexico Environment Department Surface Water Quality Bureau, "2012 – 2014 State of New Mexico Clean Water Act §303(d)/§305(b) Integrated Report, App. A, List of Assessed Surface Waters, US EPA—Approved (May 8, 2012)," at: <http://www.nmenv.state.nm.us/swqb/303d-305b/2012-2014/AppendixA-USEPA-Approved303dList.pdf>. (*Note:* Here, there is both an "Integrated List" and a 303(d) List for Category 5. There are many more examples of 4c listings in this Integrated List.)

VI. Ohio

Section L4. Section 303(d) List of Prioritized Impaired Waters									
Assessment Unit	Assessment Unit Name	Sq. Mi. in Ohio	Human Health	Recreation	Aquatic Life	PDW Supply	Priority Points	Next Field Monitoring	Projected TMDL
05080001 03 05	Bokongghalas Creek	27.74	5h	5	5	0	8	2023	2026
05080001 03 06	Brandywine Creek-Great Miami River	33.30	5h	5	5	0	8	2023	2026
05080002 01 04	Holes Creek	27.13	5h	5	5	0	8	2025	2028
05080002 90 01	Great Miami River Mainstem (Mad River to Four Mile Creek)	3298	5	5	5	0	8	2025	2014
05090103 02 03	Little Pine Creek	29.52	5h	5	5	0	8	2025	2028
05090202 10 05	West Fork East Fork Little Miami River	28.88	1h	3	5hx	5	8	2012	2015
24001 001	Lake Erie Western Basin Shoreline (including Maumee Bay and Sandusky Bay)	N/A	5	5	5	1	8	2013	2016
04100006 02 02	Deer Creek-Bean Creek	31.73	3	5	5hx	0	7	2013	2016
04100007 04 03	Honey Run	13.27	5h	5	5	3i	7	2025	2028
04100010 02 02	East Branch Portage River	36.15	5	4A	5	3i	7	2023	2026
04100011 10 01	East Branch East Branch Wolf Creek	21.90	3	5	5	0	7	2024	2027
04100011 10 02	Town of New Riegel-East Branch Wolf Creek	33.40	3	5	5	0	7	2024	2027
04100011 12 03	Green Creek	30.78	1	5	5	3i	7	2024	2027
04110004 01 04	Center Creek-Grand River	31.43	5h	5	5	0	7	2019	2022
04110004 02 02	Middle Rock Creek	21.37	1	5	5	0	7	2019	2022
04110004 03 05	Plumb Creek-Grand River	19.24	5	5	1	0	7	2019	2022
05030101 06 10	Bieler Run-Little Beaver Creek	16.69	5	5	1ht	0	7	2018	2021
05030102 01 04	Frontal Pymatuning Reservoir	42.67	5h	5	5	0	7	2023	2026
05030102 03 04	Booth Run-Pymatuning Creek	59.75	1	5	4C	0	7	2023	2026
05030102 06 01	Yankee Run	44.81	3	5	5	0	7	2023	2026
05030103 06 03	City of Warren-Mahoning River	40.38	5	5h	3x	0	7	2013	2016
05030103 90 01	Mahoning River Mainstem (Eagle Creek to Pennsylvania Border)	1075	5	3i	5	0	7	2013	2016
05030106 03 04	Flat Run-Wheeling Creek	23.29	5h	5	5	0	7	2025	2028
05030106 12 04	Glenns Run-Ohio River	31.29	5h	5	5	0	7	2025	2028
05040001 04 06	Headwaters Sandy Creek	32.13	5	5	5	0	7	2025	2028
05040001 06 05	Armstrong Run-Sandy Creek	32.20	5	5	1	0	7	2025	2028
05040002 01 01	Marsh Run	20.84	3	5	5	3i	7	2023	2026
05040002 01 05	Shipp Creek-Black Fork Mohican River	61.62	3	5	5	0	7	2023	2026
05040002 06 05	Jerome Fork-Mohican River	35.55	3i	5	5	0	7	2023	2026
05040003 01 01	Headwaters North Branch Kokosing River	45.29	1	5	5	0	7	2022	2025
05040003 02 01	Headwaters Kokosing River	36.42	3	5	5	0	7	2022	2025
05040003 02 02	Mile Run-Kokosing River	36.60	3	5	5	0	7	2022	2025

Section L4. Section 303(d) List of Prioritized Impaired Waters									
Assessment Unit	Assessment Unit Name	Sq. Mi. in Ohio	Human Health	Recreation	Aquatic Life	PDW Supply	Priority Points	Next Field Monitoring	Projected TMDL
05060002 16 05	Carroll Run-Scioto River	16.05	5h	3	5hx	0	4	2011	2014
05060002 90 01	Scioto River Mainstem (Big Darby Creek to Paint Creek)	3866	5	3	5	0	4	2011	2014
05060002 90 02	Scioto River Mainstem (Paint Creek to Sunfish Creek)	5936	5	3i	5	0	4	2011	2014
05060003 04 01	South Fork Lees Creek	19.97	3	5	5	0	4	2022	2025
05060003 04 07	Big Branch-Rattlesnake Creek	20.48	3	5	1	0	4	2022	2025
05060003 07 03	Lower Twin Creek	16.60	3	5	3i	0	4	2022	2025
05060003 08 04	Mills Branch-Compton Creek	28.79	3	5	1	0	4	2022	2025
05060003 09 04	Biers Run-North Fork Paint Creek	31.32	3i	5	1	0	4	2022	2025
05080001 02 04	Calico Creek-Muchnippi Creek	18.21	3	1	5	0	4	2023	2026
05080001 05 02	Mile Creek	62.72	3	5	5	0	4	2023	2026
05080001 06 01	Nine Mile Creek	26.14	3	5	1	0	4	2023	2026
05080001 06 03	Turtle Creek	35.84	3	1	5	0	4	2023	2026
05080001 07 01	Leatherwood Creek	16.94	3	5	1	0	4	2024	2027
05080001 07 02	Mosquito Creek	38.30	1h	5	4C	3i	4	2024	2027
05080001 07 03	Brush Creek-Great Miami River	30.19	3	5	3i	0	4	2024	2027
05080001 08 02	Headwaters Lost Creek	14.10	3	5	1	0	4	2024	2027
05080001 20 01	East Fork Honey Creek	13.00	3	5	1	0	4	2024	2027
05080001 20 02	West Fork Honey Creek	20.91	3	5	1	0	4	2024	2027
05080001 20 03	Indian Creek	25.85	3	5	1	0	4	2024	2027
05080002 01 02	Headwaters Wolf Creek	23.05	5h	5	5	0	4	2025	2028
05080002 01 06	Opossum Creek-Great Miami River	19.01	5	5	1	0	4	2025	2028
05080002 03 05	Little Twin Creek	22.71	5h	5h	4n	0	4	2019	2022
05080002 04 03	Clear Creek	53.01	3	5	1	0	4	2025	2028
05080002 08 03	Beals Run-Indian Creek	73.96	5	5h	4n	0	4	2019	2022
05090103 01 01	Solida Creek-Ohio River	34.25	3	5	5	0	4	2025	2028
05090103 01 04	Storms Creek	37.20	1	1	5	0	4	2025	2028
05090103 01 06	Ginat Creek	13.57	3	5	5	0	4	2025	2028
05090103 01 07	Grays Branch-Ohio River	33.89	3	5	3i	0	4	2025	2028
05090103 02 04	Howard Run-Pine Creek	38.70	1	5	1	0	4	2025	2028
05090103 06 01	Headwaters Rocky Fork	26.24	3	5	4n	0	4	2025	2028
05090201 02 01	Headwaters Turkey Creek	16.31	3	3	5hx	0	4	2016	2019
05090201 02 02	Odell Creek-Turkey Creek	30.95	3	3	5hx	0	4	2016	2019
05090201 02 03	Pond Run	12.18	3	3	5hx	0	4	2016	2019
05090201 02 04	Briery Branch-Ohio River	35.94	3	3	5hx	0	4	2016	2019

Source: Ohio Environmental Protection Agency, Ohio Integrated Water Quality Monitoring and Assessment Report, "L4: Section 303(d) List of Prioritized Impaired Waters (Category 5)," at: <http://www.epa.ohio.gov/portals/35/tmdl/2012IntReport/IR12SectionL4final.pdf> and <http://www.epa.ohio.gov/dsw/tmdl/OhioIntegratedReport.aspx#123199061-report> (for all integrated report documents).

(*Note:* There are many more examples of 4c listings in this 303(d) List.)

Table G-3. Prevalence of the top five causes of aquatic life impairment in watershed and large river assessment units based on biological and water quality survey data collected from 2001-2010.

Assessment Unit (AU)	#	Number & Percentage of Monitored AUs with Impaired Aquatic Life Use Listed with a Top Five Cause of Impairment ¹				
		Siltation/ Sedimentation	Nutrients	Habitat Modification	Hydromodification	Organic Enrichment/ Dissolved Oxygen
Watershed	1,538					
Monitored 2001-2010	908					
Impaired aquatic life use	628	373 (58%)	377 (60%)	280 (45%)	226 (36%)	324 (52%)
No impairment	280					
Large River	38					
Monitored 2001-2010	31					
Impaired aquatic life use	19	4 (21%)	7 (37%)	10 (53%)	4 (21%)	13 (68%)
No impairment	12					

¹ Listed as an aquatic life use impairment cause for at least one stream within the watershed AU or one reach within the large river AU.

Source: Ohio 2012 Integrated Report, "Evaluating Beneficial Use: Aquatic Life;" at: <http://www.epa.ohio.gov/portals/35/tmdl/2012IntReport/IR12SectionGfinal.pdf> (can actually track impairment causes accurately if list for them – example for aquatic life impairments)

"Water Quality Assessment Units - 2014 Integrated Report (Map Portal)," Ohio (Cont'd)

Watershed assessment units

Assessment_Unit_ID	Assessment_Unit_Name	ACRES	SQ_MILES	Aquatic Life Use Category	Comments	Cause1	Cause2	Cause3	Source1	Source2	year_sampled
04110001 03 03	Coon Creek-East Branch Black River	24615.34	38.31	4C	TMDLs for pollutants impairing designated or recommended aquatic life uses in the Black River basin were approved by the U.S. EPA on August 20, 2008. Monitoring in support of the TMDL report was conducted in 1996, 1997, 2000, and 2001. The monitoring report for data collected in 1997 is available at: http://www.epa.ohio.gov/dsw/document/index/bsclndk.aspx (See Index Number MAS/1998-11-4). Follow-up biological, physical habitat, and chemical water quality monitoring was conducted in 2012. Detected aquatic life use impairment was attributed to natural low summer flow conditions and the attendant effects on physical habitat quality and biotas. The original TMDL report and status of follow-up reports and analyses based on 2012 monitoring and assessment are available via the Black River tab at http://epa.ohio.gov/dsw/tmdl/BlackRivers.aspx .	sedimentation/siltation			dam or impoundment		2012
04110001 04 04	Jackson Ditch-East Branch Black River	21524.91	33.83	4C	TMDLs for pollutants impairing designated or recommended aquatic life uses in the Black River basin were approved by the U.S. EPA on August 20, 2008. Monitoring in support of the TMDL report was conducted in 1996, 1997, 2000, and 2001. The monitoring report for data collected in 1997 is available at: http://www.epa.ohio.gov/dsw/document/index/bsclndk.aspx (See Index Number MAS/1998-11-4). Follow-up biological, physical habitat, and chemical water quality monitoring was conducted in 2012. As aquatic life use impairment was detected in the assessment unit, TMDLs will be reviewed and revised accordingly. The original TMDL report and status of follow-up reports and analyses based on 2012 monitoring and assessment are available via the Black River tab at http://epa.ohio.gov/dsw/tmdl/BlackRivers.aspx .	sedimentation/siltation	natural conditions (flow or habitat)		dam or impoundment	natural sources	2012
04110001 07 02	Mouth Beaver Creek	18280.71	26.44	4C	Assessment based on study at 4 sampling locations (RWIs 9-1-7.0 in the vicinity of South Amherst) conducted by Environment, Inc. in 2008 using QDC Level 3 fish and macroinvertebrate practitioners; 2 sites (>20 sq. mi. and < 50 sq. mi.) were in full attainment, 1 site (< 20 sq. mi.) in partial attainment, and 1 site (< 20 sq. mi.) in non-attainment of the designated WWH aquatic life use.	direct habitat alterations	sedimentation/siltation		dam or impoundment	upstream impoundment	2008
05030102 03 04	Booth Run-Pymatuning Creek	38241.48	58.75	4C	Extensive biological, physical habitat, and chemical water quality monitoring was conducted in several Ohio tributaries to the Shenango River in 2009. A report on the findings of the basin survey is available at: http://www.epa.ohio.gov/dsw/document/index/bsclndk.aspx (See Index Number SAS/2011-1-2). Development of TMDLs for pollutants impairing designated or recommended aquatic life uses is underway. Status of reports and analyses are available at: http://epa.ohio.gov/dsw/tmdl/OhioTributariesShenangoRivers.aspx .	natural conditions (flow or habitat)	oxygen, dissolved	other flow regime alterations	natural sources	dam or impoundment	2008
05040002 05 01	Upper Muddy Fork Mohican River	18298.08	28.59	4C	Extensive biological, physical habitat, and chemical water quality monitoring was conducted in the Mohican River basin in 2007. A report on the findings of the basin survey is available at: http://www.epa.ohio.gov/dsw/document/index/bsclndk.aspx (See Index Number SAS/2009-4-4). Development of TMDLs for pollutants impairing designated or recommended aquatic life uses is underway. Status of reports and analyses are available via the Mohican River tab at http://epa.ohio.gov/dsw/tmdl/UpperMuddyRiver.aspx .	other flow regime alterations			dam or impoundment		2007
05040004 04 07	Painter Creek-Jonathon Creek	38789.71	60.81	4C	TMDLs for pollutants impairing designated or recommended aquatic life uses in the Moxhala Creek watershed were approved by U.S. EPA on July 10, 2013. The TMDL report is available via the Moxhala Creek tab at: http://epa.ohio.gov/dsw/tmdl/MoxhalaCreek.aspx . Monitoring in support of the TMDL report was conducted in 2008. A report on the findings of the watershed survey is available at: http://www.epa.ohio.gov/dsw/document/index/bsclndk.aspx (See Index Number SAS/2009-4-2).	direct habitat alterations			dam or impoundment		2008
05050001 10 05	Brandige Run-Olentangy River	15064.81	29.79	4C	TMDLs for pollutants impairing designated or recommended aquatic life uses in the Olentangy River basin were approved by U.S. EPA on September 13, 2007. The TMDL report is available via the Olentangy River tab at: http://epa.ohio.gov/dsw/tmdl/SciotoRiver.aspx . Monitoring in support of the TMDL report was conducted in 2003. The monitoring report is available at: http://www.epa.ohio.gov/dsw/document/index/bsclndk.aspx (See Index Number SAS/2005-12-6). Most of this assessment unit consists of Delaware Lake and includes no large streams not significantly inundated by the lake. Much of the reach identified as the Olentangy River in the assessment unit is impounded by the base elevation of the Delaware Lake pool.	other flow regime alterations	sedimentation/siltation		dam or impoundment		2003

Source: Table provided via electronic mail by Tinka J. Mount (trinka.mount@epa.ohio.gov), Ohio EPA, Division of Surface Water, Re: Ohio 2014 Integrated Report (Sept. 9, 2014), data available at: <http://wwwapp.epa.ohio.gov/gis/mapportal/IR2014.html>.

VII. Tennessee

Section 303(d) List, pp. 17, 92, 127

Final Version 2012 303(d) LIST (Collins River Basin cont.)

Waterbody ID	Impacted Waterbody	County	Miles/Acres Impaired	CAUSE / TMDL Priority	Pollutant Source	COMMENTS
TN05130107 012 – 0100	LOCKE BRANCH	Warren	4.56	Alteration in stream-side or littoral vegetative cover Loss of biological integrity due to siltation L L	Pasture Grazing	Category 5. TMDLs needed.
TN05130107 012 – 0200	FULTZ CREEK	Warren	14.4	Alteration in stream-side or littoral vegetative cover Loss of biological integrity due to siltation L L	Silviculture	Category 5. TMDLs needed.
TN05130107 012 – 0400	WEST FORK HICKORY CREEK	Coffee	64.54	Escherichia coli H	Pasture Grazing	Category 5. (One or more uses impaired.)
TN05130107 012 – 0410	MEADOW BRANCH	Coffee	7.89	Escherichia coli H	Pasture Grazing	Category 5. (One or more uses impaired.)
TN05130107 016 – 0150	SAVAGE CREEK	Grundy Sequatchie	22.1	Flow Alteration NA	Upstream Impoundment	Category 4c. (Impacts not caused by pollutant.)
TN05130107 016 – 0740	LAUREL CREEK	Grundy	3.93	Loss of biological integrity due to siltation L	Specialty Crop Production	Category 5. TMDL needed.
TN05130107 016 – 2000	COLLINS RIVER	Grundy	5.8	Iron Manganese pH M M M	Abandoned Mining	Stream is Category 5. (One or more uses impaired.)
TN05130107 023 – 0200	DRY CREEK	Warren Sequatchie	31.25	Aluminum Sulfates pH Manganese Iron M M M M	Abandoned Mining	Stream is Category 5. (One or more uses impaired.)
TN05130107 023 – 0230	HE CREEK	Sequatchie	1.45	pH Manganese Iron M M M	Coal Mining Permitted Discharge Abandoned Mining	Stream is Category 5. (One or more uses impaired.)
TN05130107 023 – 0231	LITTLE HE CREEK	Sequatchie	1.98	pH Manganese Iron M M M	Coal Mining Permitted Discharge Abandoned Mining	Stream is Category 5. (One or more uses impaired.)
TN05130107 023 – 0232	BIG HE CREEK	Sequatchie	2.95	pH Manganese Iron M M M	Coal Mining Permitted Discharge Abandoned Mining	Stream is Category 5. (One or more uses impaired.)

Final Version 2012 303(d) LIST (Emory River Watershed cont.)

Waterbody ID	Impacted Waterbody	County	Miles/Acres Impaired	CAUSE / TMDL Priority	Pollutant Source	COMMENTS
TN06010208 015 – 0810	ONE MILE CREEK	Cumberland	8.5	Loss of biological integrity due to siltation NA	Land Development	Category 4a. EPA approved a siltation TMDL that addresses the known pollutant.
TN06010208 015 – 0911	BAGWELL CREEK	Cumberland	3.32	Flow Alteration NA	Upstream Impoundment	Category 4c. Impacts not from a pollutant.
TN06010208 015 – 0950	NORTH CREEK	Cumberland	1.63	Flow Alteration NA	Upstream Impoundment	Category 4c. Impacts not from a pollutant.
TN06010208 015 – 1310	BLACK GUM BRANCH	Cumberland	1.41	Flow Alteration NA	Upstream Impoundment	Category 4c. Impacts not from a pollutant.
TN06010208 020 – 0100	SMITH BRANCH	Morgan	5.4	pH NA	Abandoned Mines	Category 4a. EPA approved a pH TMDL that addresses the known pollutant.
TN06010208 020 – 0400	GOLLIHER CREEK	Morgan	5.6	Manganese Iron pH H H NA	Abandoned Mines	Category 5. EPA approved pH TMDL that addresses some of the known pollutants.
TN06010208 020 – 0500	FAGON MILL CREEK	Morgan	2.6	Manganese pH H NA	Abandoned Mines	Category 5. EPA approved pH TMDL that addresses some of the known pollutants.
TN06010208 020 – 0600	LITTLE LAUREL CREEK	Morgan	1.32	pH NA	Abandoned Mines	Category 4a. EPA approved a pH TMDL that addresses the known pollutant.
TN06010208 020 – 0700	LAUREL CREEK	Morgan	3.7	pH NA	Abandoned Mines	Category 4a. EPA approved a pH TMDL that addresses the known pollutant.
TN06010208 020 – 3000	CRAB ORCHARD CREEK	Morgan	7.9	Manganese pH H NA	Abandoned Mines	Category 5. EPA approved pH TMDL that addresses some of the known pollutants.

Final Version 2012 303(d) LIST (Duck River Watershed cont.)

Waterbody ID	Impacted Waterbody	County	Miles/Acres Impaired	CAUSE / TMDL Priority	Pollutant Source	COMMENTS
TN06040003 041 – 1100	DOG BRANCH	Hickman Maury	13.8	Escherichia coli NA	Pasture Grazing	Category 4a. EPA approved a pathogen TMDL that addresses the known pollutant.
TN06040003 050 – 0620	GRAB CREEK	Dickson	3.94	Escherichia coli H	Pasture Grazing Discharges from MS4 area	Stream is Category 5. One or more uses are impaired.
TN06040003 060 – 0700	EGYPT HOLLOW CREEK	Humphreys	4.66	Flow Alterations Low dissolved oxygen Manganese NA L H	Upstream Impoundment	Category 5. Flow is Category 4c, impacts not due to a pollutant.
TN06040003 062 – 3000	BLUE CREEK	Humphreys	5.1	Nitrate+Nitrite Total Phosphorus Low dissolved oxygen Solids Escherichia coli M M L L NA	Municipal Point Source	McEwen STP. Category 5. EPA approved a pathogen TMDL that addresses some of the known pollutants.

Source: Tennessee Department of Environmental and Conservation, "Year 2012 303(d) List" (Jan. 2014), at: www.tn.gov/environment/water/docs/wpc/2012-final-303d-list.pdf (numerous other examples exist).

VIII. Vermont

2014 Priority Waters List	
Impaired by pollutant	Altered by non-pollutant
<p>Part A – 303(d) List of Impaired Waters, including waters proposed for de-listing (submitted to EPA for approval 6-20-14, pdf, 296 KB)</p> <p>These waters are assessed as impaired due to one or more pollutants for which a TMDL is required to be developed. This list is developed in even-numbered years and submitted to EPA for approval according federal Clean Water Act regulations.</p>	<p>Part E – Waters altered by aquatic invasive species (pdf, 120KB)</p> <p>These waters are assessed as altered where aquatic habitat and/or other designated uses are not supported due to the extent of invasive aquatic species.</p>
<p>Part B – Impaired waters for which a TMDL is not required (pdf, 199KB)</p> <p>These waters are assessed as impaired by a pollutant but because other pollution control mechanisms are in place, no TMDL is required to be developed</p>	<p>Part F – Waters altered by flow regulation (pdf, 132KB)</p> <p>These waters are assessed as altered due to hydrologic factors. These often include a lack of flow, water level or flow fluctuations or some other modified hydrologic condition.</p>
<p>Part D – Impaired waters with an approved TMDL (pdf, 142KB)</p> <p>These waters are assessed as impaired by a pollutant and have a completed TMDL that has been approved by EPA.</p>	

Source: “Condition of Vermont Waters - 2014 Priority Waters List [Draft]” at: www.vtwaterquality.org/mapp/htm/mp_assessment.htm#mapp303d.

(*Note:* In addition to the “Integrated List,” the 2014 Priority Waters List also includes separate sections for categories of impairment.)

Part F. Waters appearing below are altered by flow regulation. These are priority waters for management action.

Waterbody ID	Segment Name/Description	Use(s) Impacted	Surface Water Quality Problem	Current Status/Management or Control Activity	Projected WQS Compliance Year
VT01-03	BASIN BROOK	ALS	POSSIBLE LACK OF MINIMUM FLOW BELOW WATER SUPPLY WITHDRAWAL POINT (THREAT)	WSID #5017 - NORTH BENNINGTON WATER DEPT; SERVES AS BACK UP SUPPLY SOURCE TO GRAVEL WELL FIELD	
	BOLLES BROOK/ROARING BRANCH, INTAKE TO CITY STREAM CONFLUENCE	ALS	POSSIBLE LACK OF MINIMUM FLOW BELOW WATER SUPPLY WITHDRAWAL POINT (THREAT)	WSID #5016 - BENNINGTON WATER DEPT; ASSESSMENT OF WATER WITHDRAWAL IMPACT DIFFICULT GIVEN LOW PRODUCTIVITY & LOW pH EFFECT	
VT03-04	LEICESTER RIVER, FROM DAM ON LAKE DUNMORE TO 1.0 MILE DOWNSTREAM	ALL USES	ARTIFICIAL FLOW REGULATION & CONDITION BY HYDRO	UNLICENSED FACILITY	2017
	LEICESTER RIVER, FROM SALISBURY DAM TO 5 MILES DOWNSTREAM	ALL USES	ARTIFICIAL FLOW REGULATION & CONDITION BY HYDRO	UNLICENSED FACILITY	2017
		ALS	POSSIBLE DOWNSTREAM FISH PASSAGE PROBLEM AT DAM (THREAT)	UNLICENSED FACILITY	2017
VT03-04L05	LAKE DUNMORE (Salisbury)	ALS	WATER LEVEL MGMT BY HYDRO ALTERS AQUATIC BIOTA	LAKE ASSOC. HAS WATER LEVEL AGREEMENT W/CVPS	2017
VT03-05	OTTER CREEK, 0.1 MILES BELOW PROCTOR DAM	AES	ARTIFICIAL DEWATERING OF LARGE WATERFALL BY HYDRO	FERC LICENSE EXPIRES IN 2012	2012
VT03-06	FURNACE BROOK		LACK OF MINIMUM FLOW BELOW WATER SUPPLY WITHDRAWAL POINT	BACKUP WATER SUPPLY FOR PROCTOR	
	KILN BROOK	ALS	LACK OF MINIMUM FLOW BELOW WATER SUPPLY WITHDRAWAL POINT (THREAT)	WSID #5228 - PROCTOR WATER DEPT; MUNICIPALITY STARTED MONITORING STREAMFLOWS IN 2007 IN COOP WITH ANR	
VT03-12	SOUTH BRANCH, MIDDLEBURY RIVER (1.4 MILES)	ALS	ARTIFICIAL FLOW CONDITION, INSUFFICIENT FLOW BELOW SNOW BOWL SNOWMAKING WATER WITHDRAWAL	PARTIAL SUPPORT 1.4 MI (6.0 MI TOTAL LENGTH)	

Source: Vermont Department of Environmental Conservation - Watershed Management Division, “State of Vermont 2012 List of Priority Surface Waters,” at: http://www.watershedmanagement.vt.gov/mapp/docs/mp_2012_priority_waters_lists.pdf.

IX. Washington

DEPARTMENT OF **ECOLOGY**
State of Washington

Water Quality Assessment for Washington

303(d)/305(b) Integrated Report Viewer

Welcome to Ecology's 303(d)/305(b) Integrated Report viewer. This tool displays 2012 EPA-approved, watershed assessment listings as filtered by the search form below. For more help using this tool, please click the Help button directly to the left, or [contact us](#). To browse the 303(d) list specifically, [click here](#).

Listing ID:

Waterbody Name: ALL

Waterbody Type: ALL

Parameter: Instream Flow

Medium:

- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAH)
- Indeno(1,2,3-cd)pyrene
- Instream Flow**
- Invasive Exotic Species
- Isophorone
- Large Woody Debris
- Lead
- Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAH)
- Malathion
- Mercury
- Methyl bromide
- Methylene Chloride

County: ALL

WRIA: ALL

PSAA: ALL

LLID:

2012 Category: 4C

2008 Category: ALL

2004 Category: ALL

On 1998 303(d) List?: ALL

On 1996 303(d) List?: ALL

EIM Study:

EIM Location:

Remarks:

[Ecology Home](#) | [WQA Home](#) | [Contact Us](#) | [Data Disclaimer](#) | [Privacy Policy](#)

DEPARTMENT OF **ECOLOGY**
State of Washington

Water Quality Assessment for Washington

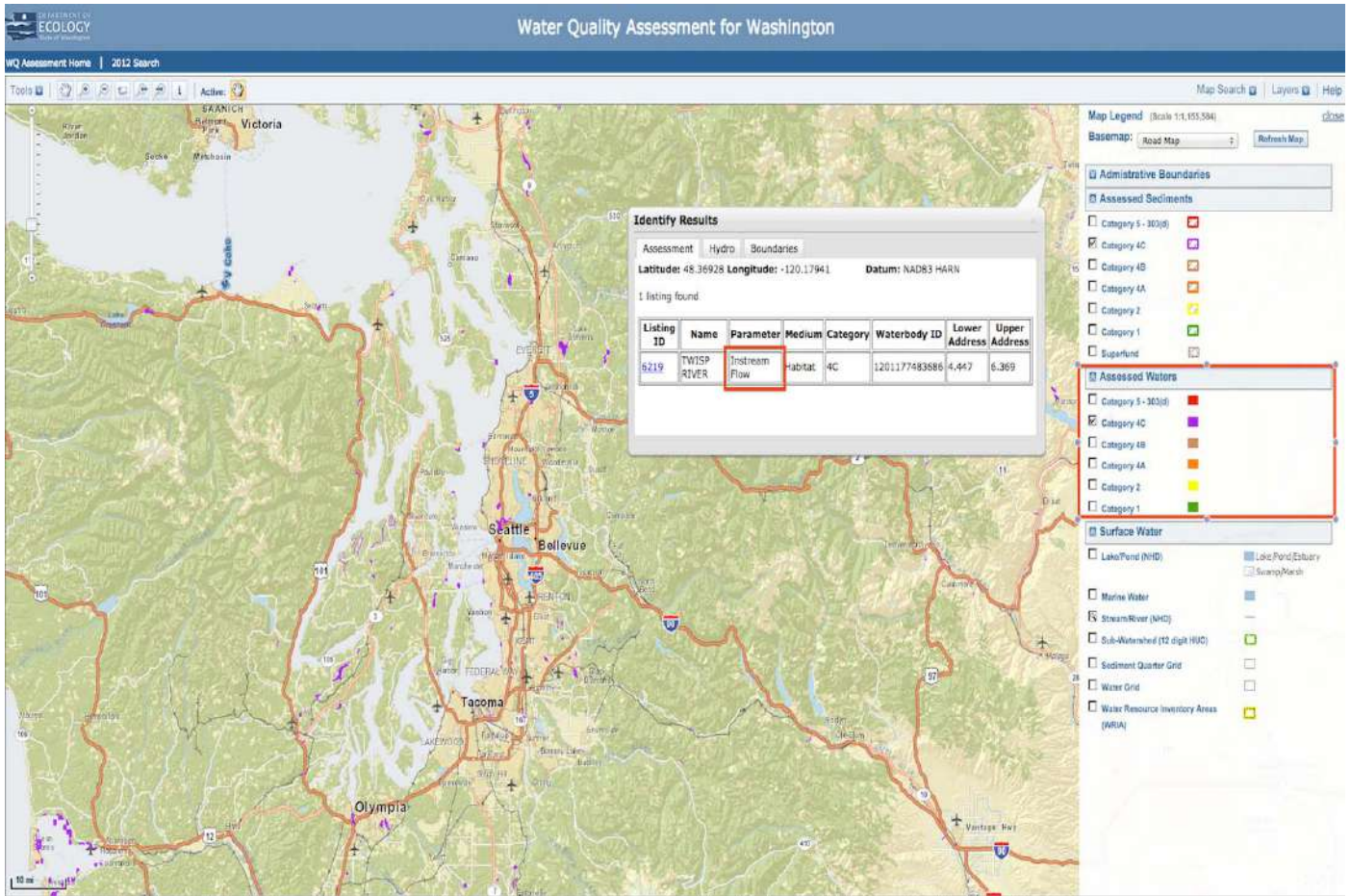
Search Results

Search Results: 55 Matches

View Listing	Category	WRIA	Waterbody Name	Parameter	Medium	Map Link
6212	4C	48 - Methow	BEAVER CREEK	Instream Flow	Habitat	6212
6183	4C	1 - Nooksack	BERTRAND CREEK	Instream Flow	Habitat	6183
5783	4C	39 - Upper Yakima	BIG CREEK	Instream Flow	Habitat	5783
6198	4C	17 - Quilcene-Snow	BIG QUILCENE RIVER	Instream Flow	Habitat	6198
6199	4C	30 - Klickitat	BLOCKHOUSE CREEK	Instream Flow	Habitat	6199
6201	4C	30 - Klickitat	BOWMAN CREEK	Instream Flow	Habitat	6201
6213	4C	48 - Methow	CHEWUCH RIVER	Instream Flow	Habitat	6213
5789	4C	45 - Wenatchee	CHUMSTICK CREEK	Instream Flow	Habitat	5789
5782	4C	38 - Naches	COWICHE CREEK	Instream Flow	Habitat	5782
6194	4C	13 - Deschutes	DESCHUTES RIVER	Instream Flow	Habitat	6194
6195	4C	13 - Deschutes	DESCHUTES RIVER	Instream Flow	Habitat	6195
6181	4C	18 - Elwha-Dungeness	DUNGENESS RIVER	Instream Flow	Habitat	6181
6182	4C	18 - Elwha-Dungeness	DUNGENESS RIVER	Instream Flow	Habitat	6182
6214	4C	48 - Methow	EARLY WINTERS CREEK	Instream Flow	Habitat	6214
6211	4C	46 - Entiat	ENTIAT RIVER	Instream Flow	Habitat	6211

1 2 3 4

Source: Washington State Department of Ecology, "Water Quality Assessment for Washington - 303(d)/305(b) Integrated Report Viewer," at: apps.ecy.wa.gov/wats/Default.aspx.



Source: Washington State Department of Ecology, "Water Quality Assessment for Washington," at: <https://fortress.wa.gov/ecy/wqamapviewer/default.aspx?res=1920x1200>.

X. Wyoming

Table 9.1.2. Ranked summary statistics for the causes and sources of impairment for Wyoming's streams, including both Category 4 and Category 5 (2012 303(d) List) waters.

Causes and Sources of Wyoming's Impaired Streams			
Causes	Miles	Sources	Miles
<i>E. Coli</i> /Fecal Coliform	950	Unknown	1,166
Selenium	358	Natural Sources	477
Sediment	270	Livestock Grazing	389
Habitat Modification	176	Wildlife Grazing	18
Arsenic	120	Irrigated Crop Production	306
Chloride	99	Petroleum Production	170
Temperature	89	Municipal Stormwater	45
Manganese	64	Habitat Modification	54
Oil and Grease	47	Hardrock Mining	17
Flow Alterations	46	Municipal WWTPs	10
Ammonia	17	Hardrock Mining in MT	7
Copper	17		
Cadmium	12		
Silver	12		
pH	10		

2012 WY Integrated Report

9.4 Category 4 Surface Waters

Table 9.4. Table of Wyoming's surface waters which are impaired or threatened for a designated use and either a TMDL has been completed and approved by USEPA (4A); other pollution control measures are expected to address the impairment (4B); or pollution, not a pollutant is the source of impairment (4C). All category 4A waterbodies are hyperlinked to their respective TMDLs.

Bighorn River Basin					
Waterbody	305(b) Identifier	Location	Class/Category	Miles/Acres	Cause(s) of Impairment
Ocean Lake	WYBH100800050202_01	Within the Ocean Lake Wildlife Management Area	2ABww/4A	6075.8 ac.	Sediment
Grass Creek	WYBH100800070608_01	From an irrigation withdrawal in NENE S23 T46N R99W to a point 14.1 miles upstream	2AB/4C	14.1 mi.	Flow Alterations
Crooked Creek	WYBH100800100500_01	From the confluence with Bighorn Lake to a point 7.9 miles upstream	2AB/4C	7.9 mi.	Flow Alterations
North Platte River Basin					
Waterbody	305(b) Identifier	Location	Class/Category	Miles/Acres	Cause(s) of Impairment
Horseshoe Creek	WYNP101800080905_03	From the confluence with Spring Creek to a point 7.3 miles downstream	2AB/4C	7.3 mi.	Flow Alterations
Little Snake River Basin					
Waterbody	305(b) Identifier	Location	Class/Category	Miles/Acres	Cause(s) of Impairment
Haggarty Creek	WYLS140500030109_01	From the Ferris-Haggarty Mine downstream to the confluence with West Fork Battle Creek	2AB	5.6 mi.	Cadmium

Document #12-0203

Page 112

Source: Wyoming Department of Environmental Quality, "2012 Integrated 305(b) and 303(d) Report," at: <http://deq.state.wy.us/wqd/watershed/Program%20Documents/5.%20Water%20Quality%20Assessments%20&%20Integrated%20Report/Guidance/WY2012IR.pdf>. (Note: There are more examples of 4c listings for flow alterations in the 2012 Integrated Reports' list of Category 4 Surface Waters.)

ATTACHMENT C

**Public Documents Re:
303(d)/305(b) Listings Due to
Altered Flows and Supporting
Scientific Evidence**

Attachment C.1

State Water Board Staff Correspondence Related to Category 4C Listings

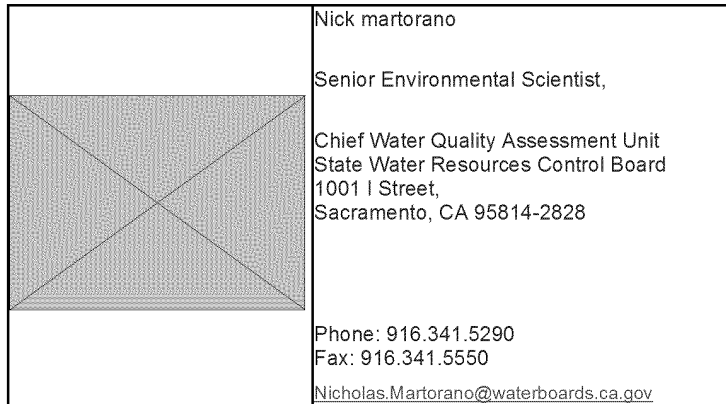
Attachment C.1.a

To: Hamilton, Mary@Waterboards[Mary.Hamilton@waterboards.ca.gov]; Fleming, Terrence[Fleming.Terrence@epa.gov]
Cc: Gillespie, Stacy@Waterboards[Stacy.Gillespie@waterboards.ca.gov]
From: Martorano, Nicholas@Waterboards
Sent: Fri 10/16/2015 5:20:58 PM
Subject: RE: Region 3 2012 303(d) update
[removed.txt](#)

Sure thing, just send me the meeting request. I knew she would reference this wonderful document from EPA. While the "clarification" reiterates that flow alterations are considered pollution and not a pollutant and should be placed in category 4C not 5, it doesn't speak to how we can determine that the impairment is due to man-made actions. If they could show that there was say an illegal dam or diversion in place, that could provide some evidence but is that the total cause? How much of the cause needs to be shown to be induced by man-made actions to be considered a pollution impairment? Is there a bank of data showing what the waterbody in question should look like with no human impacts? Is there historical flow data showing that the waterbody is perennial and not seasonal?

The bottom-line is if we want to be consistent and give a 4C determination any value, we would need a solid methodology for determining pollution impairments. That being said if we get directed by the Board to make these decisions based on BPJ or photos of dry riverbeds we can do that, but if the decisions get challenged we would have a weak defense. Even though 4C is outside the scope of 303(d) and is purely informational, the NGOs have said they want to use it as a tool to impact planning and other decisions which will invariably lead to push back from landowners and local officials. In my mind it would behoove us to proceed cautiously. The NGOs could also use 4C determinations to try to politically force water rights actions creating potentially expensive lawsuits and other general grief that costs money and staff time.

Lastly we still interpret the definition of 4C as if a pollutant impairment is in place you should not categorize the waterbody in 4C, a waterbody would only be classified as a Category 4C waterbody if no pollutant impairments exist. Even if we made a 4C determination and the waterbody was listed for a pollutant like temperature, the 4c decision would be overridden by the Category 5 listing and the 4C decisions would be basically hidden.



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From: Hamilton, Mary@Waterboards
Sent: Friday, October 16, 2015 9:21 AM
To: Fleming, Terry@epamail.epa.gov; Martorano, Nicholas@Waterboards
Subject: FW: Region 3 2012 303(d) update

Hi guys,

I'd like to talk with you both about your interpretation of the recent EPA guidance based on the information Linda Sheehan provided below.

Next Tuesday (10/20) at 10 or next Friday (10/23) at 11 look open for Nick and I, Terry?

Mary :)

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Mary S. Hamilton

Environmental Scientist
Central Coast Regional Water Quality Control Board

895 Aerovista Place, Suite 101

San Luis Obispo, CA 93401

805-542-4768

Mary.Hamilton@waterboards.ca.gov

From: lsheehan@earthlaw.org [mailto:lsheehan@earthlaw.org]
Sent: Thursday, October 15, 2015 10:05 PM
To: Hamilton, Mary@Waterboards
Subject: RE: Region 3 2012 303(d) update

Hi Mary-

Thanks again for your quick response. You probably have seen this, but US EPA just recently released new guidance on listings generally and flows in particular; see: http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/2016-IR-Memo-and-Cover-Memo-8_13_2015.pdf. In particular, see Part 5, "Clarification on the assessment and assignment of waters to Category 4C." See especially pps 14-15. For example:

--page 14: "data or information based on visual observations of no water in a perennial stream would be information on the physical condition of the stream, and would demonstrate the aquatic life or recreational use is most likely not being attained and a State may conclude that the designated use is impaired."

--page 15: "If States have data and/or information that a water is impaired due to pollution not caused by a pollutant (e.g., aquatic life use is not supported due to hydrologic alteration or habitat alteration), those causes should be identified and that water should be assigned to Category 4C. Examples of hydrologic alteration include: a perennial water is dry; no longer has flow; has low flow; has stand-alone pools; has extreme high flows; or has other significant alteration of the frequency, magnitude,

duration or rate-of-change of natural flows in a water; or a water is characterized by entrenchment, bank destabilization, or channelization."

Is this new EPA guidance something that you are applying as you prepare your list?

Thanks,

Linda

-----Original Message-----
From: "Hamilton, Mary@Waterboards" <Mary.Hamilton@waterboards.ca.gov>
Sent: Thursday, October 15, 2015 1:55pm
To: "Isheehan@earthlaw.org" <Isheehan@earthlaw.org>
Subject: RE: Region 3 2012 303(d) update

Hi Linda,

Unfortunately, Region 3 is not planning to make recommendations related to the flow data in this cycle. There are a several reasons for this but most importantly, there is not a methodology for us to use to assess the data and prove that the low flow is caused by anthropogenic overdraft and we do not have the staff resources to develop a methodology.

You are much more informed on the flow issue than I am. Are you aware of any efforts to develop a data assessment methodology at EPA or elsewhere?

I know this is a very important issue so if you know something I don't, please do educate me. Thanks!

Mary :)

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Mary S. Hamilton

Environmental Scientist
Central Coast Regional Water Quality Control Board

895 Aerovista Place, Suite 101

San Luis Obispo, CA 93401

805-542-4768

Mary.Hamilton@waterboards.ca.gov

From: lsheehan@earthlaw.org [<mailto:lsheehan@earthlaw.org>]
Sent: Thursday, October 15, 2015 11:28 AM
To: Hamilton, Mary@Waterboards
Subject: RE: Region 3 2012 303(d) update

Thanks very much for your quick response! Do you know if the Board will be considering any waterways as impaired for low flow?

Cheers,

Linda

-----Original Message-----

From: "Hamilton, Mary@Waterboards" <Mary.Hamilton@waterboards.ca.gov>
Sent: Thursday, October 15, 2015 11:07am
To: "lsheehan@earthlaw.org" <lsheehan@earthlaw.org>
Subject: RE: Region 3 2012 303(d) update

Hi Linda,

Always nice to hear from you. We are finally working on the decisions (fact sheets) for our Region. We expect to be releasing our recommendations for public comment in April.

I am your contact for all things 303(d) her at the Central Coast Water Board so feel free to contact me anytime.

Take good care,

Mary :)

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Mary S. Hamilton

Environmental Scientist
Central Coast Regional Water Quality Control Board

895 Aerovista Place, Suite 101

San Luis Obispo, CA 93401

805-542-4768

Mary.Hamilton@waterboards.ca.gov

From: lsheehan@earthlaw.org [<mailto:lsheehan@earthlaw.org>]
Sent: Thursday, October 15, 2015 8:18 AM
To: Hamilton, Mary@Waterboards
Subject: Region 3 2012 303(d) update

Dear Mary-

You and I conversed briefly a few months ago regarding scheduling for Region 3's update of their 303(d) list for 2012. Do you have a sense of what the schedule might be for that update? Thanks very much.

Best regards,

Linda

Linda Sheehan
Earth Law Center
510-219-7730 (cell)
Note new address and phone
P.O. Box 610044
Redwood City, CA 94061
(650) 877-2710 (o)
lsheehan@earthlaw.org
www.earthlawcenter.org

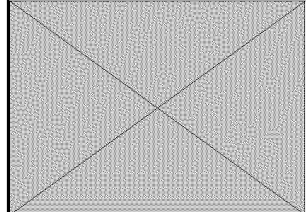
Attachment C.1.b

To: Fleming, Terrence[Fleming.Terrence@epa.gov]
From: Martorano, Nicholas@Waterboards
Sent: Fri 7/31/2015 11:48:22 PM
Subject: RE: Follow-up re flow impairment listings
[removed.txt](#)

When in doubt pass the buck! Has EPA released a 2016 IR guidance document? All I see online is the 2014 info. This is a topic at the upcoming IR Roundtable on the afternoon of the 11th

Thanks

Nick

	<p>Nick martorano</p> <p>Senior Environmental Scientist,</p> <p>Chief Water Quality Assessment Unit State Water Resources Control Board 1001 I Street, Sacramento, CA 95814-2828</p> <p>Phone: 916.341.5290 Fax: 916.341.5550</p> <p>Nicholas.Martorano@waterboards.ca.gov</p>
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From: Fleming, Terrence [mailto:Fleming.Terrence@epa.gov]
Sent: Friday, July 31, 2015 10:14 AM
To: Martorano, Nicholas@Waterboards
Subject: FW: Follow-up re flow impairment listings

Hi Nick, the first attachment is the incoming letter from Linda and the coalition. The second is our response.

From: Linda Sheehan [<mailto:lsheehan@earthlaw.org>]
Sent: Monday, June 01, 2015 2:04 PM
To: Fleming, Terrence
Cc: Hashimoto, Janet
Subject: RE: Follow-up re flow impairment listings

Dear Terry-

As mentioned, please find attached comments by a Coalition of environmental, tribal and fishing groups on California's recent 303(d) list approval for the North Coast Region. Please let me know if there is a good time to discuss these with you, and whether you have any immediate questions. Thank you very much.

Best regards,

Linda

Linda Sheehan
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Fremont, CA 94539
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510-219-7730 (cell)
lsheehan@earthlaw.org
www.earthlawcenter.org

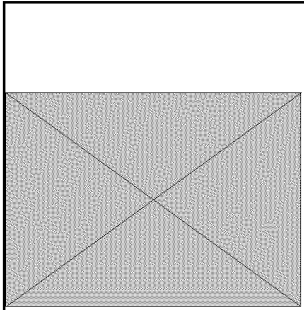
Attachment C.1.c

To: Carter, Katharine@Waterboards[Katharine.Carter@waterboards.ca.gov]
Cc: Fitzgerald, Rebecca@Waterboards[Rebecca.Fitzgerald@waterboards.ca.gov]; Bingen, Evan@Waterboards[Evan.Bingen@waterboards.ca.gov]; Rasmussen, Rik@Waterboards[Rik.Rasmussen@waterboards.ca.gov]; Fleming, Terrence[Fleming.Terrence@epa.gov]
From: Martorano, Nicholas@Waterboards
Sent: Mon 7/27/2015 8:13:03 PM
Subject: RE: IR Agenda item
[removed.txt](#)

I will defer to Rik to answer to Paragraph 2, Rik will be at the next roundtable so hopefully he can quickly respond to those questions. It seems from past discussions that those prioritizations will occur outside of the Integrated Report process and that EPA staff are working with Regional TMDL staff. As far as 4c stakeholders had already seen the 2016 guidance and commented accordingly and we responded in kind for this last approval process. Hopefully the State Water Board response to comments can be a good resource to everyone.

Evan can you add an Item to discuss some topics related to the 2016 EPA Integrate Report guidance/Vision document and link to it on the epa website please?

Thanks!

	<p>Nick martorano Senior Environmental Scientist, Chief Water Quality Assessment Unit State Water Resources Control Board 1001 I Street, Sacramento, CA 95814-2828 Phone: 916.341.5290 Fax: 916.341.5550 Nicholas.Martorano@waterboards.ca.gov</p>
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From: Carter, Katharine@Waterboards
Sent: Monday, July 27, 2015 12:58 PM
To: Martorano, Nicholas@Waterboards
Cc: Fitzgerald, Rebecca@Waterboards; Bingen, Evan@Waterboards; Rasmussen, Rik@Waterboards; Flemming, Terrence@EPA
Subject: RE: IR Agenda item

Hi Nick,

Its good to know that a discussion of the long term vision for 303(d) from the draft IR guidance is on the TMDL Roundtable agenda. I will try to listen in and hear what Dave and others have to share. Is the short-term (2 year) planning also being discussed? Does this mean there will be no change to the current scope of the Integrated Report and our duties?

In terms of an IR roundtable item...it would be nice to get clarification about whether the items I mention in my e-mail will continue to be done through the TMDL roundtable and reported by them or included in our Integrated Reports as the draft guidance states. What is the State Board's direction on this? Perhaps some level of check-in with the IR roundtable on this would be helpful (I know it would be for our region). I am also curious what comments the State Board and other Regions had on the draft guidance. Thus, if you or Rik could give an update and share what comments were given that would be great.

Your points on the 4C item make sense to me and were made clear at the State Board Hearing for the 2012 IR. I just thought it was interesting that the USEPA explicitly clarified the intent of Category 4C and gave examples of how to use it. I suspect that if members of the public see the final memo they will bring this to our attention. Thus your responses below will be helpful to respond to any public inquiries we may get.

Thanks,
Katharine

From: Martorano, Nicholas@Waterboards
Sent: Monday, July 27, 2015 12:37 PM
To: Carter, Katharine@Waterboards

Cc: Fitzgerald, Rebecca@Waterboards; Bingen, Evan@Waterboards; Rasmussen, Rik@Waterboards; Flemming, Terrence@EPA
Subject: RE: IR Agenda item

We can try to do that. Is this something you would want Terry to lead or something you would like to lead?

1. I'm almost 100% positive that the TMDL prioritization and alternatives requirements are outside the scope of the assessment work. Rik has had this as a working project with the TMDL roundtable for the last several months. You can see it is Item #2 for the Wednesday TMDL roundtable agenda.
2. The 2016 guidance does state that an individual waterbody could be placed into both Category 5 and 4c but that is not the way the State Water Board interprets the statute and definitions. We have always stated that the EPA guidance is just that a guidance that the States can utilize but are not required to follow to the letter.
3. The State Water Board stands behind the interpretation presented at the last approval hearing. Category 4c should be used for identification man-made pollution impairments when no other pollutant impairment exists. Our response to comments iterate our position, a good summary is response to comment 1.1.
http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/2012_integrated_rpt_fnl.pdf

	Nick martorano
	Senior Environmental Scientist, Chief Water Quality Assessment Unit State Water Resources Control Board 1001 I Street, Sacramento, CA 95814-2828 Phone: 916.341.5290 Fax: 916.341.5550 Nicholas.Martorano@waterboards.ca.gov

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From: Carter, Katharine@Waterboards
Sent: Monday, July 27, 2015 12:10 PM
To: Martorano, Nicholas@Waterboards
Cc: Fitzgerald, Rebecca@Waterboards
Subject: IR Agenda item

Hi Nick,

Would it be possible to add a discussion on the draft 2016 Integrated Report guidance from USEPA to our August agenda?

It seems that there is some work being added to the Integrated Report (long term TMDL priority justification, two year timeline priorities, and alternative restoration approach [5a] descriptions) which has traditionally been done outside the Integrated Reporting process.

Also I thought it was interesting that the memo provided guidance/clarification on the use of Category 4C and also seemed to state that a water body can be put in Category 5 AND 4C. This would be interesting to hear more about, and hear others thoughts.

I'm wondering what comments that State Board and other regions have, and what insight is available from Terry.

Thanks,

Katharine

Attachment C.1.d

From: [Martorano, Nicholas@Waterboards](mailto:Martorano.Nicholas@Waterboards)
To: Abriol, Kevin@Waterboards; Agulto, Eudeline@Waterboards; Bingen, Evan@Waterboards; Booth, Richard@Waterboards; Bucknam, Stephanie@Waterboards; Carter, Katharine@Waterboards; Costa, Francisco@Waterboards; Cox, Joanne@Waterboards; Davis, Gene@Waterboards; Feger, Naomi@Waterboards; Fiore-Wagner, Mary@Waterboards; Fitzgerald, Rebecca@Waterboards; Flemming, Terrence@EPA; Gillespie, Stacy@Waterboards; Gorham, Cynthia@Waterboards; Guiliano, Dave@EPA; Hamilton, Mary@Waterboards; Holmes, Lisa@Waterboards; Honma, Lisa@Waterboards; Lichten, Keith@Waterboards; Lim, Jeong-Hee@Waterboards; Lindsey, Otome@Waterboards; Loflen, Chad@Waterboards; Looker, Richard@Waterboards; Maxfield, Jessie@Waterboards; McConnell, Sue@Waterboards; Moskal, Phil@Waterboards; Nagoda, Carey@Waterboards; Nilson, Carly@Waterboards; Nye, LB@Waterboards; Pulver, Barry@Waterboards; [Rasmussen, Rik@Waterboards](mailto>Rasmussen, Rik@Waterboards); Raub, Logan@Waterboards; Rice, William@Waterboards; Rose, Chris@Waterboards; Saiz, Steve@Waterboards; Simi, Jay@Waterboards; Smythe, Hope@Waterboards; Sussman, Daniel@Waterboards; Vasquez, Martice@Waterboards; Voong, Man@Waterboards; Wang, Kangshi@Waterboards; Yu, Helen@Waterboards; Zhu, Jun@Waterboards; Pimental, Jaclyn@Waterboards
Subject: Flow Clarification
Date: Monday, July 22, 2013 11:22:41 AM
Attachments: [Critically Impaired Waterways Proposed 2012 303\(d\) Listings.pdf](#)

Hi All,

As I discussed at the Roundtable, Tom Howard did in fact reverse his decision and decided that the State would now list for flow alterations for those waterbodies identified by Earth Law Center (see attached). LOE development will need to be done at the Regional Board level, we at the State Board don't know enough about the waterbodies to make an LOE for flow alterations and feel that this is best done by the Regions. This falls in line with the overall policy that State Board will only be assessing SWAMP data that can be ran through eLEP.

LOEs would likely be mostly narrative and have no samples and no exceedances unless there are specific numeric targets for flow in place. You will likely use your Basin Plan as the criteria/objective and assess for Aquatic Life Beneficial uses like COLD or WARM or RARE or SPAWN. And then add a narrative about the data submitted in the Data Used to Assess Water Quality field.

Listings would be made under category 4C for impaired by pollution not a pollutant, and be based on staff's professional judgment as well as the evidence submitted by the data.

Hope this helps.

Nick Martorano
Senior Environmental Scientist, Unit Chief
Surface Water Quality Assessment Unit,
State Water Resources Control Board
nmartorano@waterboards.ca.gov
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Fax - 916-341-5550

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of the original message.”

From: Martorano, Nicholas@Waterboards

Sent: Monday, July 22, 2013 9:18 AM

To: Abriol, Kevin@Waterboards; Agulto, Eudeline@Waterboards; Bingen, Evan@Waterboards; Booth, Richard@Waterboards; Bucknam, Stephanie@Waterboards; Carter, Katharine@Waterboards; Costa, Francisco@Waterboards; Cox, Joanne@Waterboards; Davis, Gene@Waterboards; Feger, Naomi@Waterboards; Fiore-Wagner, Mary@Waterboards; Fitzgerald, Rebecca@Waterboards; Flemming, Terrence@EPA; Gillespie, Stacy@Waterboards; Gorham, Cynthia@Waterboards; Guiliano, Dave@EPA; Hamilton, Mary@Waterboards; Holmes, Lisa@Waterboards; Honma, Lisa@Waterboards; Lichten, Keith@Waterboards; Lim, Jeong-Hee@Waterboards; Lindsey, Otome@Waterboards; Loflen, Chad@Waterboards; Looker, Richard@Waterboards; Maxfield, Jessie@Waterboards; McConnell, Sue@Waterboards; Moskal, Phil@Waterboards; Nagoda, Carey@Waterboards; Nilson, Carly@Waterboards; Nye, LB@Waterboards; Pulver, Barry@Waterboards; Rasmussen, Rik@Waterboards; Raub, Logan@Waterboards; Rice, William@Waterboards; Rose, Chris@Waterboards; Saiz, Steve@Waterboards; Simi, Jay@Waterboards; Smythe, Hope@Waterboards; Sussman, Daniel@Waterboards; Vasquez, Martice@Waterboards; Voong, Man@Waterboards; Wang, Kangshi@Waterboards; Yu, Helen@Waterboards; Zhu, Jun@Waterboards; Pimental, Jaclyn@Waterboards

Subject: Flow LOE example

Importance: High

Hello Again,

Attached is an example LOE/decision document that was developed by Earth Law Center to serve as an example when making flow decisions. While it doesn't fit our current format per se it does offer good information for use in the "Data Used to Assess Water Quality" section of the LOE as well as narratives to add to the "Decisions Relationships" section of the decision fact sheets. There will be another example which I will send out when I receive it.

Nick Martorano

Senior Environmental Scientist, Unit Chief

Surface Water Quality Assessment Unit,

State Water Resources Control Board

nmartorano@waterboards.ca.gov

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Attachment C.1.e

From: [Riddle, Diane@Waterboards](mailto:Riddle,Diane@Waterboards)
To: vendlinski.tim@epa.gov
Cc: [Kemmerer, John](mailto:Kemmerer,John); [Grober, Les@Waterboards](mailto:Grober,Les@Waterboards)
Subject: RE: Agenda for Friday's SWRCB-EPA Coordination Meeting
Date: Wednesday, January 07, 2015 4:00:52 PM

Hi Tim,

Happy New Year to you as well. I will not be at the EPA meeting on Friday because I have a BDCP meeting at the same time. Les will be attending the meeting instead so I'm ccing him.

Regarding the X2 trigger, the board is not independently considering any changes at this time. The drought contingency plan due on Jan 15 may propose changes and we may get a petition to follow, but we'll have to see what we get and the justification before determining what we may want to do. You can share any initial concerns you have with Les and Tom now though. Les is the State Board rep on the Real Time Drought Ops Team so is probably the best contact on that issue anyway.

Regarding the 303(d) policy changes, I don't initially seen anything in the summary (I didn't review the actual changes) that would affect our process. Is there something in particular you have in mind that we should think about?

Regarding the BDCP issues, I think they are fine to discuss at the meeting if you would like. Les and Tom are aware of the issues and can comment as appropriate.

Thanks for the heads up on the issues.

Diane

From: Vendlinski, Tim [mailto:vendlinski.tim@epa.gov]
Sent: Wednesday, January 07, 2015 2:50 PM
To: Riddle, Diane@Waterboards
Cc: Kemmerer, John
Subject: FW: Agenda for Friday's SWRCB-EPA Coordination Meeting

Hi Diane:

Happy New Year!

We look forward to seeing you Friday.

I'm just writing to coordinate our conversation during the "Bay Delta Update".

You always provide such a nice overview of the Bay Delta WQCP process, so we look forward to your first overview of 2015.

We'd also like your perspective on "drought operations planning" and how it might affect the State's handling of the FEB 1st trigger for the X2 salinity/flow objectives.

Finally, if you think the proposed revisions to the 303(d) policy that will be heard by the Board on FEB 3rd will have any relevance to the Bay Delta proceedings, we'd appreciate your insights.

http://www.waterboards.ca.gov/board_info/calendar/index.shtml#jan15

I think you're well aware of our interest toward listing selected streams for "flow impairments" (at least under 305(b)) where lines of evidence are strong.

For my part, I'd like to flag for the whole group the same observations I shared with you about BDCP when we saw each other at the IEP meeting last December. Specifically, our intensive technical meetings with DWR and ICF (along with other agencies and consultants) have left us with the impression that BDCP will deliver to DWR and USBR (and the water contractors) substantially increased security for water diversion and conveyance infrastructure, but will only maintain water quality at current conditions (impaired) and slow the rate of decline for resident and migratory fishes (rather than contributing to their recovery). Strictly speaking, this may well be a permissible project under CWA and ESA, but it seems to be a far cry from the "co-equal goals" and the "Conservation Strategy"¹ that were promised earlier.

DWR (Cassandra) has been adamant that it's not their (DWR and USBR) responsibility to improve water quality in the Delta nor reduce selenium inputs from the SJR basin. We don't agree because we think the largest public/private investment in Delta history should "move the needle" toward improved WQ conditions. Furthermore, the selenium inputs into the SJR and South Delta have been brought to us by DWR and USBR because they provided the irrigation water to open the westside of the SJV to large-scale agriculture.

With DWR and USBR side-stepping their role in, and responsibility for, WQ impairments, they effectively isolate the State Water Board as a regulatory agency without interagency without allies and partners.

That will only make the already troublesome Bay Delta WQCP proceedings that much more difficult. Maybe all the State agencies and the Governor's Office favors this approach, but I do think its high time that the stakeholders are above board and transparent about the direction we're all going.

Please let me know if you're O.K. with proceeding with these talking points, or whether you have alternate preferences.

Best Regards, Tim

¹ <http://deltacouncil.ca.gov/>

"'Coequal goals' means the two goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem..."

<http://www.yolowra.org/library/WRA%20Presentation%204-13-09%20-%20Karla%20Nemeth%20BDCP.pdf>

"Identifies specific actions...including species recovery ..."

><(((°>~...><(((°>~...><(((°>

Tim Vendlinski

Senior Policy Advisor;

[Bay Delta](#) Program Manager

EPA Region 9

75 Hawthorne Street (WTR-1)

San Francisco, CA 94105-3901

(415) 972-3469 desk

><(((°>~...><(((°>~...><(((°>

From: Kemmerer, John
Sent: Monday, January 05, 2015 4:41 PM
To: Whitney, Vicky@Waterboards; thoward@waterboards.ca.gov; jsbishop@waterboards.ca.gov; bevoy@waterboards.ca.gov; 'dpolhemus@waterboards.ca.gov'; Crader, Phillip@Waterboards; 'naquino@waterboards.ca.gov'; 'SFredericksen@waterboards.ca.gov'; 'Diane Riddle'; james.maughan@waterboards.ca.gov; 'Caren Trgovcich'; john.russell@waterboards.ca.gov; liz.haven@waterboards.ca.gov; cindy.forbes@waterboards.ca.gov; Borowiec, Elizabeth; Diamond, Jane; Smith, DavidW; Hashimoto, Janet; Brush, Jason; Ziegler, Sam; Yin, Christina; Eberhardt, Doug; Fleming, Terrence; Guiliano, Dave; Mitchell, Matthew; Licata, Juanita; Greenberg, Ken; Wampler, David; Vendlinski, Tim; Li, Corine; Woo, Nancy; Sablad, Elizabeth; Keydel, Susan; Montgomery, Michael; Chew, Sandra; Albright, David; Sablad, Elizabeth; Marr, Suzanne; AMARIS, JOSH; Gombert, Max@Waterboards; Byous, Eric; Ely, Charlotte; TROMBADORE, CLAIRE; Rodriguez, Roberto; Chen, Christopher; Garcia-Bakarich, Luis; Johnson, Kathleen
Subject: Agenda for Friday's SWRCB-EPA Coordination Meeting

Hi Everyone – Here's the agenda for Friday's meeting in Sacramento.

SWRCB-EPA Coordination Meeting
Friday, January 9, 2015
930 – Noon

SWRCB, 1001 I Street, Sacramento
Room 2510

Telephone Conference line:
Dial-In Number: (866) 299-3188
Conference Code: 4159725623

AGENDA

- | | |
|-------------|---|
| 930 – 950 | Bay Delta Update |
| 950 – 1000 | 106 Grant Update, including status of new in-kind service contracts |
| 1000 – 1010 | ULO Update (see attachment) |
| 1010 – 1025 | Non Point Source Management Plan |
| 1025 – 1040 | State Policies/Permits |
| 1040 – 1050 | Proposed Revised Listing Policy |

1050- 1100	Plans for EPA's February Stormwater Financing Workshops
1100 – 1110	Workshop on use of AWWA Water Loss Control Software
1110– 1120	Prop 1 Update (including integration w/ SRF)
1120 – 1135 supply	Otay County Water District's international desalinated water
1135 – 1150 compliance	Coordination on small drinking water system arsenic
1150 – Noon	Wrap-up

John Kemmerer, Associate Director
Water Division
U.S. EPA Region 9
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Los Angeles, CA 90017
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Attachment C.2

State Review of EPA's Integrated Report Guidance

Attachment C.2.a

INFORMATION CONCERNING 2016 CLEAN WATER ACT SECTIONS 303(d), 305(b), AND 314 INTEGRATED REPORTING AND LISTING DECISIONS

The information provided in this document is intended to assist States and Regions as they prepare and review the 2016 Integrated Reports (IR), in accordance with Clean Water Act (CWA) Sections 303(d), 305(b), and 314. This memorandum focuses on the following topics: 1) implementation of the CWA 303(d) Program Vision; 2) revisiting potential approaches for the identification of nutrient-impaired waters based on narrative nutrient water quality criteria and direct evidence of failure to support designated uses; 3) implementing the Water Quality Framework, including the Assessment and Total Maximum Daily Load (TMDL) Tracking and Implementation System (ATTAINS) redesign and reporting of statewide statistical survey data; 4) providing information about the update to the data in the variable portion of the Fiscal Year 2017 Clean Water Act Section 106 grant allocation formula; and 5) clarifying how to assess and assign waters to Category 4C.

1. Implementation of the Clean Water Act 303(d) Program Vision

In December 2013, EPA announced a new framework for implementing the CWA Section 303(d) Program—*A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program*.¹ Sharing a belief that the time was ripe to improve implementation of the CWA 303(d) Program, State and EPA program managers began a collaborative process in August 2011 to develop a new framework for managing program responsibilities, which is now articulated in the Vision and supported by the Association of Clean Water Administrators.

The Vision, as supplemented by today’s additional information, is not a rule or regulation. It does not impose any binding legal requirements on EPA, the States, or other stakeholders, and it does not alter CWA 303(d) regulatory obligations to identify impaired or threatened waters and develop TMDLs for such waters. The Vision does, however, encourage States to develop tailored strategies to implement their CWA 303(d) Program responsibilities in the context of their overall water quality goals and individual State priorities.

Recognizing each State is unique, EPA expects that States will vary in the extent to which and how they implement the goals of the Vision, depending on particular circumstances and water quality goals of the State. To support State and EPA discussions on re-orienting CWA 303(d) Program responsibilities consistent with the Vision, EPA is providing additional information for States to consider when implementing the Prioritization, Engagement, and Alternative Goals. EPA and States jointly identified these topics as warranting further clarification to promote timely implementation of the Vision and submittal and review of States’ 2016 Integrated Reports. EPA anticipates working closely with the States on these issues as States move forward with developing their Integrated Reports.

¹ http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/vision_303d_program_dec_2013.pdf. See also <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/memo.pdf>, and “Question and Answers” at http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/acwa_qa.pdf.

Prioritization Goal

Long-term Prioritization from 2016 to 2022

Consistent with the Vision, EPA expects each State to identify by 2016 their long-term CWA 303(d) Program priorities through Fiscal Year (FY) 2022 in the context of the State's broader overall water quality goals. The Vision contemplates that this long-term prioritization process will be focused on identifying watersheds or individual waters for priority restoration and protection activities, taking into consideration how CWA 303(d)-related activities could collectively help achieve a State's broader overall water quality goals. The State CWA 303(d) prioritization provides a framework to focus the location and timing of the development of TMDLs, and alternative restoration and protection plans, in relation to other planning and implementation activities that may already exist in the priority watersheds or waters. As such, the State prioritization is a foundation to guide how the State implements CWA 303(d) program responsibilities and requirements, which remain unchanged. States have flexibility in how they define their priorities and may use a variety of ways to describe these priorities, which include:

- by geographic units: assessment units, watersheds, ecoregions, or basins;
- by pollutants; or,
- by designated uses.

Regardless of the way a State defines its priorities, the priorities should be articulated in a manner that allows them to be linked to specific assessment units.

Setting long-term CWA 303(d) priorities from FY 2016 to FY 2022 will afford States an opportunity to strategically focus their efforts and demonstrate progress over time in achieving environmental results. As such, the long-term priorities are not expected to substantially change from FY 2016 to FY 2022. However, EPA recognizes that some adjustments may need to be made due to unforeseen circumstances or planning processes.² In addition, although the new Vision calls for States to identify their priorities through FY 2022, some States may choose to establish a framework that allows them to identify priorities beyond FY 2022.

Additionally, CWA 303(d) prioritization affords the State an opportunity to integrate CWA 303(d) Program priorities with other water quality programs to achieve its overall water quality

² As part of reporting progress in implementing the CWA 303(d) Program Vision, EPA and States developed new performance measures WQ-27 and WQ-28. See WQ-27 and WQ-28 (available at http://water.epa.gov/resource_performance/planning/FY-2015-National-Water-Program-Guidance.cfm). The associated computational guidance documents (currently in draft) for these measures reflect how to incorporate changes in State priorities between 2016 and 2022. In 2015 or 2016, States are expected to identify their priority areas, for which a baseline and 2022 target for TMDLs or alternative restoration approaches for impaired waters, or protection approaches for unimpaired waters, will be established for the purposes of the WQ-27 program measure. States are encouraged to keep changes to their priority areas to a minimum to track progress toward the 2022 target. However, if a State changes its priority areas before 2022, the measure WQ-27's baseline and 2022 targets would need to be updated to reflect these changes. Before changing their priority areas, States are encouraged to instead first consider reporting activities outside of priority areas in the complementary metric of WQ-28.

goals. These include State water quality standards (WQS), monitoring, CWA 319, NPDES, source water protection and conservation programs, among others. As noted in the Vision:

The CWA 303(d) Program provides an integrating function because it translates state water quality standards into pollution reduction targets for the point source permitting and nonpoint sources management programs as well as other programs outside the CWA. Linking the CWA 303(d) Program priorities with those of other programs can aid in strategically focusing limited State resources to address priority waters through water quality assessments, TMDL or alternative approaches, water quality protection strategies, implementation actions and follow-up monitoring. Establishing CWA 303(d) Program priorities will lead to more efficient and effective program management, yielding faster progress toward water quality improvement and protection.

Having CWA 303(d) Program priorities informed by data and information from other relevant programs would help achieve and demonstrate environmental results over time. For example, integration with water quality monitoring programs could lay the groundwork for gathering the needed data to assess baseline conditions in priority waters, to develop TMDLs or other restoration/protection plans, or to determine progress in restoring or protecting priority waters. Integration with other programs could also inform the selection of the approaches that afford the best opportunity to restore or protect water quality, as well as facilitate the implementation of the pollutant reduction or protection goals of the selected approaches.

Appendix A provides some factors States are encouraged to consider when setting long-term priorities under the CWA 303(d) Program. Recognizing that there is flexibility in how CWA 303(d) Program responsibilities are implemented consistent with existing statutory and regulatory authorities, EPA will work closely with States as they identify their long-term priorities that reflect a meaningful plan or roadmap on how best to meet their on-going CWA 303(d) Program requirements.

Consistent with the new Vision, the Integrated Report submitted by States for the 2016 Integrated Reporting cycle should include, or reference, the State's long-term priorities for the CWA 303(d) program from FY 2016 to FY 2022 and the associated rationale used to set these long-term priorities. The rationale should explain how the State arrived at the long-term priorities; and, to the extent feasible, it should discuss where the State plans to develop future TMDLs, alternative restoration approaches, or protection plans and the extent to which they already exist in priority watersheds or waters. States with priorities extending beyond FY 2022 are encouraged to also include, or reference, such information.

Although State's long-term priorities should be included, or referenced, in the 2016 Integrated Report, EPA's decision on the State's CWA 303(d) list will not include action on the State's long-term priorities identified under the Vision.

Importance of Engaging the Public in the State's Long-term Prioritization Process

Consistent with the Vision's Engagement Goal, States are encouraged to engage their general public and stakeholders in the establishment of CWA 303(d)-related priorities. EPA also

encourages States to articulate as part of its rationale supporting the prioritization, how input from the public was considered and addressed.

EPA recognizes that States have used, and will continue to use, different methods to engage the public. For example, depending on the timing of a State's process for developing its 2016 Integrated Report, some States may choose to use the Integrated Report public notice process as a means to engage the public on establishing CWA 303(d) priorities. Other States may choose to engage the public on their CWA 303(d) priorities through a process separate from the Integrated Report. Whichever process to engage the public is used, EPA encourages States to conduct it in a manner such that States are prepared to report on EPA's CWA 303(d) program measure in FY 2016 and to include or reference CWA 303(d) priorities and associated rationale in the 2016 Integrated Report due on April 1, 2016.

Distinction between the Vision Long-term Priorities and the Required Priority Ranking of Listed Waters

As noted above, EPA expects that the long-term priorities for the CWA 303(d) Program for FY 2016 to FY 2022 and associated rationale would be included in the Integrated Report starting in 2016. Thus, EPA expects States to include the following elements in the 2016 Integrated Reports:

- the long-term priorities from FY 2016 to FY 2022 and the associated prioritization rationale (or references to such priorities and associated rationale);
- priority ranking for all listed waters still requiring TMDLs (i.e., all waterbody/pollutant combinations on the CWA 303(d) list), taking into account the severity of the pollution and the uses to be made of such waters and including the identification of waters targeted for TMDL development within the next two years of the CWA 303(d) list (as required by 40 CFR §130.7(b)(4)).

As illustrated below, EPA expects that the required priority ranking, including the two-year TMDL development schedule, is related to and likely to be consistent with the Vision long-term priorities from FY 2016 to FY 2022. For example, CWA 303(d) listed waters assigned a high priority ranking for TMDL development are likely to be included in the Vision long-term priorities. Additionally, where alternative restoration approaches are likely to be pursued for some CWA 303(d) listed waters identified as a long-term priority, those waters might be assigned a lower priority ranking for TMDL development in the near-term.

Long-term Priorities Consistent with the Vision

- Will not likely include all listed waters
- Includes high priorities for TMDL development; and, may also include alternative restoration or protection approaches
- Would likely be a subset of the required priority ranking for TMDL development, if state priorities only focus on TMDL development
- Not required, but the basis for program measure

Required Priority Ranking in CWA 303(d)

- Ranking of all listed waters (e.g., high, medium, low priorities) based on severity and use
- Only focuses on ranking of waters for TMDL development, including a two-year TMDL development schedule
- Waters ranked high for TMDL development are likely to be part of Vision priorities
- Some waters ranked low for TMDL development may still be part of the Vision priorities for alternative restoration approaches
- Required by regulation biennially - 40 CFR 130.7(b)(4)

Alternatives Goal

As emphasized in the Vision, the statutory and regulatory obligations to develop TMDLs for waters identified on States' CWA 303(d) lists remain unchanged, and TMDLs will remain the most dominant program analytic and informational tool for addressing such waters. However, EPA recognizes that under certain circumstances there are alternative restoration approaches that may be more immediately beneficial or practicable to achieve water quality standards than pursuing the TMDL approach in the near future. An alternative restoration approach is a plan, or description of actions, with a schedule and milestones, pursued in the near-term that in their totality are expected to achieve water quality standards more rapidly.

With the exception of impaired waters assigned to Category 4b³ and Category 4c,⁴ impaired waters for which a State pursues an alternative restoration approach to achieve WQS shall

³ For more information on Category 4b, see "Information Concerning 2008 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions," available at http://www.epa.gov/owow/tmdl/2008_ir_memorandum.html.

remain on the CWA 303(d) list (i.e., Category 5) and still require TMDLs until water quality standards are attained. Taking into account the severity of the pollution and the uses of waters on the CWA 303(d) list, such waters might be assigned lower priority for TMDL development as alternatives expected to achieve water quality standards are pursued in the near term.

Recognizing that the statutory and regulatory obligation to develop TMDLs remain for waters on the CWA 303(d) list, EPA expects that States will only pursue alternative restoration approaches expected to achieve WQS more rapidly than pursuing a TMDL approach in the near term. Therefore, States should consider how long waters have been on the CWA 303(d) list. In addition, States should periodically evaluate alternative restoration approaches to determine if such approaches are still expected to achieve WQS more rapidly than pursuing a TMDL approach.⁵ If not, States should re-evaluate whether a higher priority for TMDL development should be assigned.

Description of an alternative restoration approach pursued for CWA 303(d) listed waters

EPA and States will work together to determine which is the most effective tool to achieve water quality standards more rapidly—be it TMDL development or pursuing an alternative restoration approach in the near term⁶—for waters that remain on the CWA 303(d) list. EPA expects States to demonstrate how an alternative restoration approach is expected to achieve water quality standards more rapidly than pursuing a TMDL approach in the near term (and thereby, warranting lower priority for TMDL development for the listed water). To assist States in determining whether an alternative restoration approach is appropriate for a particular water, EPA recommends that States consider the following circumstances associated with the listed water:

- 1) There are unique local circumstances (e.g., the type of pollutant or source or the nature of the receiving waterbody; presence of watershed groups or other parties interested in implementing the alternative restoration approach; available funding opportunities for the alternative restoration approach) that provide an opportunity to achieve water quality standards more rapidly.
- 2) Initial review of the pollutant or cause of impairment shows that particular point or non-point sources are responsible for the impairment with clear mechanisms to address all sources (both point and nonpoint), as appropriate (e.g., CWA 319 nine-

⁴ For more information on appropriate placement of waters impaired by pollution under Category 4c, see “Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act,” available at <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/2006irg-report.pdf>. For waters placed in category 4c, an appropriate plan to address the pollution impairment is needed for such waters to be counted under program measure WQ-27. See also Section 5 of this document, “Clarification on the assessment and assignment of waters to Category 4C.”

⁵ As part of reporting progress under the CWA 303d Program performance measures WQ-27 and WQ-28, for EPA to continue reporting an alternative restoration approach under the measures, a State should demonstrate by 2022 that such an approach is on track to achieving WQS more rapidly than pursuing a TMDL approach in the near-term, by showing steady and continuing improvements in water quality or adequate progress in implementing the plan.

⁶ Throughout this document, alternative restoration approach or alternative approach means a plan, or description, of actions pursued in the near-term that in their totality are expected to attain water quality standards more rapidly than pursuing the TMDL approach in the near term.

- element watershed-based plans or other restoration plans; source water protection plans; setting new limits when permit is re-issued, which alone or in combination with other actions, is expected to achieve WQS in the listed water, among others).
- 3) Presence of stakeholder and public support for the alternative restoration approach, which is important for achieving timely progress in implementing the alternative, and thus achieving WQS more rapidly than pursuing a TMDL approach in the near term.

When a State decides to pursue an alternative restoration approach for impaired waters, EPA requests that the State provide, or reference, in its Integrated Report a description⁷ of the approach to show how the alternative approach is expected to meet water quality standards and how it is more immediately beneficial or practicable than pursuing a TMDL approach in the near term, in achieving WQS. Such description will help facilitate stakeholder engagement and support. It will also provide transparency to the public on why the State believes that the alternative restoration approach is expected to achieve WQS more rapidly than pursuing a TMDL approach, and why the affected listed water may warrant lower priority for TMDL development in the near term. In addition, the description will help facilitate State and EPA discussions on whether EPA will report the alternative restoration approach under the EPA CWA 303(d) program measures.⁸

To assist the States in demonstrating that the alternative approach is expected to meet water quality standards more rapidly than pursuing a TMDL approach in the near term, EPA offers some elements for a State to consider, as appropriate:

- Identification of specific impaired water segments or waters addressed by the alternative restoration approach, and identification of all sources contributing to the impairment.
- Analysis to support why the state believes that the implementation of the alternative restoration approach is expected to achieve water quality standards.
- An Action Plan or Implementation Plan to document: a) the actions to address all sources—both point and nonpoint sources, as appropriate—necessary to achieve WQS (this may include e.g., commitments to adjust permit limits when permits are re-issued or a list of nonpoint source conservation practices or BMPs to be implemented, as part of the alternative restoration approach); and, b) a schedule of actions designed to meet water quality standards with clear milestones and dates, which includes interim milestones and target dates with clear deliverables.⁹

⁷ A State may not need to develop a separate description of the alternative restoration approach for purposes of the CWA 303(d) program, if there is existing documentation that adequately describes such approach. A State may use such existing description, along with any supplemental information, to show how the alternative approach is expected to meet water quality standards, how it is more immediately beneficial or practicable in achieving WQS, than pursuing a TMDL approach in the near term, and to which waters the alternative restoration approach applies.

⁸ See WQ-27 and WQ-28 at http://water.epa.gov/resource_performance/planning/FY-2015-National-Water-Program-Guidance.cfm

⁹ As part of the adaptive management approach to addressing the impairment, EPA expects specific dates may be modified during implementation. The schedule will demonstrate how the planned actions will reduce the loadings from sources to achieve water quality standards. For instance, if BMPs are known, please include them in the description of the alternative restoration approach.

- Available funding opportunities to implement the alternative restoration plan.
- Identification of all parties committed, and/or additional parties needed, to take actions that are expected to meet WQS.
- An estimate or projection of the time when WQS will be met.¹⁰
- Plans for effectiveness monitoring to: a) demonstrate progress made toward achieving water quality standards following implementation; b) identify needed improvement for adaptive management as the project progresses, and, c) evaluate the success of actions and outcome.
- Commitment to periodically evaluate the alternative restoration approach to determine if it is on track to achieve WQS more rapidly than pursuing a TMDL approach, and if the impaired water should be assigned a higher priority for TMDL development.

The State's description of its alternative restoration approach is likely to be case-specific. The degree to which the above elements are addressed in the description is likely to depend on State consideration of numerous circumstances, which include among others:

- a) severity of the pollution;
- b) uses of the impaired water;
- c) nature of the receiving waterbody;
- d) type of pollutants causing the impairment;
- e) relative mix of nonpoint and point source loadings; and/or
- f) nature of the sources of those loadings.

In addition, the description of the alternative restoration approach and the waters to which it applies should be included during public review of the draft CWA 303(d) list or Integrated Report,¹¹ so that the public has an opportunity to view the State's alternative restoration approaches and the assigned priority ranking for TMDL development for such waters. Additionally, because the Integrated Report and its public comment process occur every two years, States are encouraged to engage the public on the use of specific alternative restoration approaches and their descriptions, as they are developed.

Creation of a subcategory in Category 5 (i.e., 5-alternative) to report on alternative restoration approaches for CWA 303(d) listed waters

As noted above, impaired waters for which a State develops and pursues an alternative restoration approach that is expected to address the impairment more rapidly than pursuing a TMDL approach in the near term, shall remain on the CWA 303(d) list (i.e., Category 5) and still

¹⁰ The estimate or projection may be modified due to new information or experience learned from initial actions.

¹¹ When a state develops an alternative restoration approach for a water identified as impaired after a 303(d) list has been approved, it is expected that the state will place this water on the next Integrated Reporting cycle 303(d) list .

require TMDLs until water quality standards are achieved. EPA is creating a subcategory under Category 5—namely subcategory 5-alternative—as an organizing tool to clearly articulate which listed waters have such alternative approaches. Creating subcategory 5-alternative provides transparency to allow the public to understand where and why a State is pursuing alternative restoration approaches. In addition, this subcategory will facilitate tracking alternative restoration approaches in these CWA 303(d) listed waters in priority areas. However, placing waters for which a State is pursuing an alternative restoration approach in subcategory 5-alternative is optional for States.

Because waters for which alternative restoration approaches are pursued still remain on the CWA 303(d) list, EPA will not take action to approve or disapprove a State’s alternative restoration approach under CWA 303(d). Therefore, as long as such waters with alternative restoration plans remain on the CWA 303(d) list, EPA’s review of the list would not be affected or delayed by whether development of a TMDL or an alternative restoration plan is pursued.

EPA encourages States to work closely with EPA Regions when States decide to pursue and develop alternative restoration approaches. EPA will take into account a State’s description of its alternative restoration approach to determine whether EPA believes it is appropriate for such waters to be in subcategory 5-alternative and whether to report such approaches under the EPA CWA 303(d) program measures. EPA does not expect that all of the activities or controls to carry out an alternative restoration approach must be fully implemented, or that water quality standards must have been achieved, before the alternative restoration approach can be reported as a plan under the CWA 303(d) program Measures. The restoration approach does need to clearly demonstrate how WQS will be achieved for EPA to report it under EPA CWA 303(d) program measures.

Distinction between Subcategory 5-alternative and Category 4b

Sub-category 5-alternative

- 1) This includes impaired waters on the CWA 303(d) list (i.e., Category 5 waters) for which a State has developed an alternative restoration approach to meet water quality standards.
- 2) These impaired waters shall remain on the CWA 303(d) list until water quality standards are achieved or a TMDL is developed. (See Figure 1.) Taking into account the severity of the pollution and uses, such waters might be assigned lower priority for TMDL development as alternative restoration approaches expected to meet water quality standards are pursued in the near term.
- 3) For these impaired waters, the State has decided not to pursue a demonstration that “other pollution control requirements” required are stringent enough to implement any water quality standard consistent with 40 CFR 130.7(b)(1)(iii).
- 4) As long as such waters remain on the CWA 303(d) list, EPA’s review of the list would not be affected or delayed by whether a TMDL or an alternative restoration plan is pursued.
- 5) EPA will consider the adequacy of the State’s description of the alternative restoration approach in determining whether to report such an approach under the EPA CWA 303(d) program measures.

Category 4b

- 1) As noted in the “Information Concerning 2008 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions,”¹² Category 4b includes impaired waters for which a State has provided sufficient demonstration that there are other pollution control requirements sufficiently stringent to achieve applicable water quality standards within a reasonable period of time.
- 2) These impaired waters are not included in the State’s CWA 303(d) list consistent with 130.7(b)(1)(iii) (Category 5). (See Figure 1)
- 3) EPA reviews and approves the exclusion of such waters from Category 5 consistent with CWA requirements.

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¹² For more information on Category 4b, see “Information Concerning 2008 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions,” available at http://www.epa.gov/owow/tmdl/2008_ir_memorandum.html.

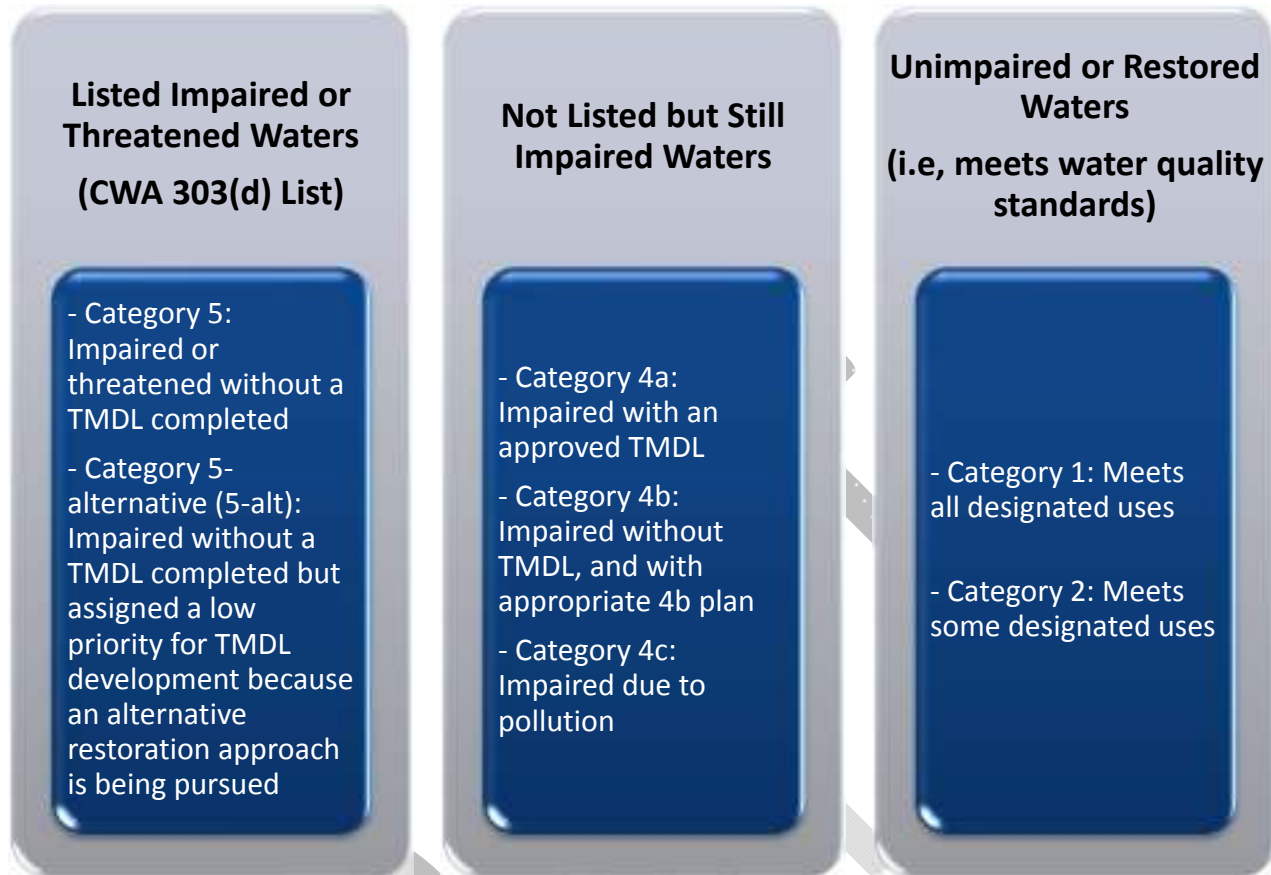


Figure 1: This figure identifies the category in which an impaired water will be placed when: 1) a TMDL is still needed; 2) a TMDL or Category 4b demonstration has been developed, or the impairment is due to pollution and not a pollutant; or, 3) it is now attaining water quality standards for assessed designated uses.

2. Continue identifying waters impacted by nutrients for the Section 303(d) list for States without numeric nutrient water quality criteria

Addressing nutrient pollution in our nation's waters continues to be one of EPA's top priorities. In a March 2011 memorandum to the states, tribes and territories, EPA articulated the need for action by stating, "States, EPA and stakeholders, working in partnership, must make greater progress in accelerating the reduction of nitrogen and phosphorus loadings to our nation's waters." EPA commends the progress made since 2011; however, additional actions are needed nationwide, including efforts to identify nutrient-impaired waters in the absence of numeric nutrient criteria.

Identifying nutrient-impaired waters is an important step in a State's process to prioritize and accelerate nutrient reduction efforts. The CWA and EPA's implementing regulations require States to identify water-quality limited segments still requiring TMDLs where pollution controls are not stringent enough to meet any applicable water quality standard. Applicable water quality standards include designated use, water quality criteria (numeric and narrative), and antidegradation requirements.

To assist States with identifying nutrient-impaired waters, in the 2014 Integrated Reporting Guidance (IRG),¹³ EPA provided a number of examples of approaches that can be used for assessing whether waters are attaining nutrient-related narrative criteria and/or supporting designated uses. Collectively, the examples address a number of different designated uses, are based on causal and nutrient response parameters, and rely on various types of assessment information such as the evaluation of water column data against nutrient targets, and visual observations, field surveys, stressor identification analysis, biological information, and public feedback and comments. The 2014 IRG also provided recommendations to facilitate stakeholder input and EPA review of States' Section 303(d) lists, such as States describing in their assessment methods applicable data quantity, quality, and representativeness expectations for making water quality attainment determinations.

EPA continues to expect States to evaluate the status of their waters with respect to nutrient-related impairments and to add to their Section 303(d) list waters failing to meet any applicable water quality standard. For those States that have developed nutrient-related assessment methodologies, EPA encourages States to continually refine their nutrient-related assessment methodologies and to share them with neighboring States to collaboratively bolster nutrient assessment programs, as needed. For States without nutrient-related assessment methodologies, there is still a requirement to assemble and evaluate all existing and readily available water quality-related data and information against all applicable WQS to develop the Section 303(d) list. The examples in the 2014 IRG illustrate the flexibility States have to develop nutrient-related assessment methodologies for applicable water quality standards even before the adoption of numeric nutrient criteria.

3. Implementation of the Water Quality Framework: Assessment and Total Maximum Daily Load (TMDL) Tracking and Implementation System (ATTAINS)

A. Water Quality Framework

In 2014, EPA introduced the Water Quality Framework, which is a new way of integrating EPA's data and information systems (e.g., STORET/WQX, ATTAINS, NHDPlus, GRTS)¹⁴ to more fully support water quality managers. The Framework will streamline water quality assessment and reporting while providing a more complete picture of the nation's water quality. Benefits of this approach include:

- Reduces State burden by streamlining the Clean Water Act assessment and reporting process;
- Provides the means to tell the 'whole' story from monitoring to assessment to restoration;
- Links the broader context of national and statewide statistical surveys to the localized assessment decisions;

¹³ *Information Concerning 2014 Clean Water Act Sections 303(d), 305(b) and 314 Integrated Reporting and Listing Decisions* available at <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/2014-memo.cfm>.

¹⁴ STorage and RETrieval Data Warehouse (STORET)/Water Quality Exchange (WQX); Assessment TMDL Tracking and Implementation System (ATTAINS); National Hydrography Dataset *Plus* (NHDPlus), Grants Reporting and Tracking System (GRTS)

- Provides better measurement and reporting of water quality improvement;
- Provides more transparency in reporting water quality actions and supporting water quality decision making;
- Allows for tools that can be used to identify relevant monitoring data for water quality assessments;
- Supports State development of tools to automate the screening of monitoring data against water quality standards; and
- Connects data, decisions, and actions geospatially.

As discussed in the 2012 IR Memo,¹⁵ IR data include State water quality assessment decisions, attribute data, and the geospatial data representing the geographic locations of those assessed waters, as well as the results of statewide statistical surveys. This information is needed in order for EPA and the public to better understand the status of the nation's waters. EPA's ATTAINS database¹⁶ is the repository for State IR attribute data, and the Reach Address Database¹⁷ contains State IR geospatial data. EPA compiles State-submitted IR data to develop and publish the National Water Quality Inventory Report to Congress (CWA Section 305(b) Report), determine States' variable portion of the Section 106 grant allocation formula, inform water quality decisions, and to conduct national analyses with various stakeholders to help restore the nation's waters.

B. Water Quality Framework: ATTAINS Redesign

As discussed in the 2012 IR Memo,¹⁸ IR data include State water quality assessment decisions, attribute data, and the geospatial data representing the geographic locations of those assessed waters. This information is needed in order for EPA and the public to better understand the status of the nation's waters. EPA's ATTAINS database¹⁹ is the repository for State IR attribute data, and the Reach Address Database²⁰ contains State IR geospatial data. EPA compiles State-submitted IR data to develop and publish the National Water Quality Inventory Report to Congress (CWA Section 305(b) Report), determine States' variable portion of the Section 106 grant allocation formula, inform water quality decisions, and to conduct national analyses with various stakeholders to help restore the nation's waters.

Under the Water Quality Framework, ATTAINS will be the first system to undergo changes. One of the overarching goals of this effort is for States and EPA to improve the timeliness of the Integrated Report submittals, as well as improve the timeliness for the review and approval or disapproval of the 303(d) list included in the Integrated Report. EPA recognizes that State

¹⁵ *Information Concerning 2012 Clean Water Act Sections 303(d), 305(b) and 314 Integrated Reporting and Listing Decisions* available at http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/ir_memo_2012.cfm

¹⁶ Assessment and Total Maximum Daily Load (TMDL) Tracking and Implementation System (ATTAINS) available at <http://www.epa.gov/waters/ir>

¹⁷ Geospatial Data Downloads available at <http://www.epa.gov/waters/data/downloads.html>

¹⁸ *Information Concerning 2012 Clean Water Act Sections 303(d), 305(b) and 314 Integrated Reporting and Listing Decisions* available at http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/ir_memo_2012.cfm

¹⁹ Assessment and Total Maximum Daily Load (TMDL) Tracking and Implementation System (ATTAINS) available at <http://www.epa.gov/waters/ir>

²⁰ Geospatial Data Downloads available at <http://www.epa.gov/waters/data/downloads.html>

resources to complete these actions are limited. Hence, both States and EPA need to continue to identify and apply best practices to provide timely information on the status of the nation's waters, including the State identification of waters under Section 303(d)(1)(A) of the CWA.

In 2013, EPA completed a retrospective review of the IR process and identified several opportunities for improvements. In particular, although the 2001 guidance encouraged electronic reporting, there continues to be a significant amount of paper reporting, which has resulted in a disconnect between the 'official' paper reports and the corresponding electronic data. In 2014, as part of the Water Quality Framework, a number of changes were identified to improve the IR process, with a specific focus on moving paper processes to electronic processes, where appropriate. This effort will also seek to enable the ATTAINS system to be a more valuable tool throughout the IR process, thereby reducing the time and costs for States and EPA in their respective roles in the water quality monitoring and assessment process through the use of automated processes, electronic reporting and review capabilities, and validation checks.

For ATTAINS, the Framework has scheduled activities to occur in two Phases:

- **Phase 1:** The 2016 IR cycle will serve as a pilot phase. Because the development for the system will not be completed until the spring of 2016, it is not expected that States will use the new system for their official 2016 IR submission to EPA, but may pilot the system, after their official submission, using their 2016 IR information to identify where additional improvements should be made in advance of the 2018 IR cycle. During the 2016 IR cycle, EPA will continue to support the data systems for tracking assessment decisions outlined in the 2014 IR memo.²¹
- **Phase 2:** The 2018 IR cycle²² will serve as the transition to the new ATTAINS for all States.

Please note, those data systems outlined in the 2014 IRG will no longer be supported beginning the summer of 2017. In addition, the EPA encourages States to utilize resources available to States under the Exchange Network.²³

C. Statewide Statistical Survey Data in ATTAINS

EPA continues to support both statewide statistical surveys and site-specific targeted monitoring to cost-effectively track water quality conditions in State waters and promotes use of both to meet the reporting requirements under CWA Sections 303(d) and 305(b). For the 2016 IR cycle, EPA will again seek to incorporate statewide statistical survey findings reported to EPA into the state-level water quality summaries displayed on the ATTAINS website and to use both survey and site-specific results in its national water quality summary. To assist States with reporting

²¹ *Information Concerning 2014 Clean Water Act Sections 303(d), 305(b) and 314 Integrated Reporting and Listing Decisions* available at <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/2014-memo.cfm>

²² For the 2018 IR cycle, the new ATTAINS system will replace the existing NTTS and ADB systems, OWIR-ATT data flow that exists within the Exchange Network, as well as incorporate the ATTAINS Web Express system that is used for submitting data to EPA and entering state statistical survey summary information. This new system will provide one interface and data model for all of the integrated reporting and TMDL information.

²³ For additional information about the Exchange Network, visit <http://www.exchangenetwork.net/>

statewide statistical survey data results to EPA, the statewide statistical survey web data entry tool is available at: <https://attainsweb.epa.gov>.

4. *Use of Water Quality Impairment Data to Update the Variable Portion of the Fiscal Year 2017 Clean Water Act Section 106 Grant Allocation Formula*

The CWA Section 106 regulations (40 CFR Part 35.162) set out the allocation formula for grants to States and interstate compact commissions. The CWA requires EPA to allocate funds to States “on the basis of the extent of the pollution problem in the respective states.” The formula includes a base and six variable components. The variable components of the CWA Section 106 grant allocation formula currently include: surface water area, ground water use, point sources, nonpoint sources, water quality impairment, and population of urban areas. Water quality impairment accounts for 35% of the variable portion.

The data in the CWA Section 106 grant allocation formula will be updated in calendar year 2016 for use in the Fiscal Year 2017 Section 106 grant allocation. The water quality impairment variable component of the CWA Section 106 grant allocation formula will be included in this update. The water quality impairment data includes: river and stream miles; lake, pond, and reservoir acres; estuary square miles; ocean shoreline miles; wetland acres; and Great Lake shoreline miles (40 CFR Part 35.162 Table 1). To support the formula data update, EPA will use the most current and complete assessment results from States available to the public in ATTAINS. For each of the 6 waterbody types designated as the water quality impairment component of the Section 106 grant allocation formula, EPA will use the data source that represents the most comprehensive designation of impaired waters including Integrated Report categories 4a, 4b, 4c, 5, 5-alt, and 5m; separate 305(b) report categories “not supporting” or “impaired;” or statewide statistical survey result categories included in the State’s definition of “not supporting” or “impaired.” For State water quality impairment data to be used in the CWA Section 106 grant allocation formula, the data needs to be available to the public in ATTAINS by September 1, 2016.

5. *Clarification on the assessment and assignment of waters to Category 4C*

As the nation’s waters face an increasing degree of stress from anthropogenic influences, as well as unpredictable stress from the effects of climate change and extreme weather events, it will become important to more fully understand the impacts and causes of all types of pollution on our nation’s waters. While the focus of previous IR Guidance has predominantly been on the assessment and listing of impairments caused by pollutants and waters assigned to Category 5 (i.e., a State’s Section 303(d) list of impaired and threatened waters needing a TMDL), the assessment and categorization of impairments caused by pollution²⁴ not caused by a pollutant have not been covered as extensively. However, the effects of such pollution can be significant, including the effects of hydrologic alteration²⁵ or habitat alteration. A 2010 study by the U.S.

²⁴ Defined under the CWA as “the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water” (Section 502(19))

²⁵ In discussing causes that contribute to the actual or threatened impairment of a designated use in a waterbody, EPA defines “flow alteration” as “frequent changes in flow or chronic reductions in flow that impact aquatic life”

Geological Survey²⁶ found that anthropogenic hydrologic alteration is extensive in the U.S. and may be the primary cause of ecological impairment in river and stream ecosystems. Examples of such alteration could include water withdrawals, impoundments, or extreme high flows that scour out stream beds, destabilize stream banks and cause a loss of habitat. Climate change is expected to only exacerbate these effects. Recognizing the interdependency and interrelatedness between pollutants and pollution, EPA encourages States to more fully monitor, assess, and report the impacts of all types of pollution, thereby improving the opportunities for increasing resilience and restoration of these waters. To assist States with this effort, EPA is clarifying previous guidance about the assessment and categorization of waters into Category 4C when a State demonstrates that the failure to meet an applicable water quality standard is not caused by a pollutant, but instead is caused by other types of pollution.²⁷

Assessment of waters impaired by pollution not caused by a pollutant

It is important to recognize that a water body segment is considered impaired when the applicable water quality standards²⁸ are not met or not expected to be met (i.e., threatened). States typically focus assessments on determining whether narrative or numeric water quality criteria are met. When assessing for impacts caused by hydrologic or habitat alteration, States can assess whether the narrative criteria are met, for example, by using a biological narrative²⁹ or evaluating numeric criteria using flow numeric criteria.³⁰ However, EPA recognizes that it is possible to have an impaired or threatened designated use that may not be determined through the assessment of available numeric and narrative criteria alone.³¹ For example, if a perennial stream is dry or has no flow and field staff are not able to collect a sample to measure physical, chemical, or biological parameters, then assessment of the designated use based solely on the sample results of an evaluation of narrative or numeric criteria may not be possible. However,

U.S. EPA, *Guidelines for Preparation of the Comprehensive State Water Quality Assessments (305(b) Reports) and Electronic Updates*, EPA Doc. No. 841-B-97-002A, 4-14 (1997). Hydrologic alteration is the current term in the state of the science for flow alteration, which also now includes impacts to aquatic life as well as recreation, drinking water, etc.

²⁶ Carlisle, Wolock and Meador, “Alteration of stream flow magnitudes and potential ecological consequences: a multiregional assessment,” *Front Ecol Environ* 2010; doi:10.1890/100053.

²⁷ See U.S. EPA, *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act*, available at

http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/2006IRG_index.cfm

²⁸ EPA’s 303(d) listing regulations at 40 CFR § 130.7(b)(3) define a “water quality standard applicable to such waters” and “applicable water quality standards” as “those water quality standards established under section 303 of the Act, including numeric criteria, narrative criteria, waterbody uses and antidegradation requirements.” Also see, *Information Concerning 2014 Clean Water Act Sections 303(d), 305(b) and 314 Integrated Reporting and Listing Decisions* available at <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/2014-memo.cfm>

²⁹ For instance, several states have biological narratives that require an aquatic ecosystem to support and maintain a balanced and indigenous community of organisms, having species composition, diversity, population densities and functional organization similar to that of reference conditions. Such narratives can evaluate whether the hydrology or habitat needed to support those requirements is present.

³⁰ As of 2014, ten states and six tribes with Treatment as a State status have adopted flow criteria.

³¹ See Wilcher, LaJuana, EPA to Cashell, Lois, FERC. (January 18, 1991), for EPA’s interpretation of protecting water quality beyond only criteria; Also see, *Information Concerning 2014 Clean Water Act Sections 303(d), 305(b) and 314 Integrated Reporting and Listing Decisions* available at

<http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/2014-memo.cfm>

data or information based on visual observations of no water in a perennial stream would be information on the physical condition of the stream, and would demonstrate the aquatic life or recreational use is most likely not being attained and a State may conclude that the designated use is impaired. Therefore, in some situations, States may be able to ascertain if a designated use is impaired, or even eliminated, in the absence of physical, chemical, or biological samples that are taken in the field.

As stated in the cover memorandum of the 2006 IR Guidance, “Each IR will report on the water quality standards attainment status of all waters, document the availability of data *and information* for each water, identify certain trends in water quality conditions and provide information to managers in setting priorities for future actions to protect and restore the health of our nation’s aquatic resources.” (Emphasis added). While States often rely on monitoring data, it is also important to note that EPA encourages States to evaluate all existing and readily available data *and information* when determining the attainment status of a water in order to determine if there is an impairment of a designated use due to pollution not caused by a pollutant. Data *or information* documenting significant hydrologic or habitat alteration could be used to make a use attainment decision for an impairment due to pollution not caused by a pollutant and should be collected, evaluated, and reported as appropriate.

There are many types of information that could be readily relied upon to identify threatened or impaired waters. This could include basic visual assessments of habitat alteration or flow alteration by field personnel. For instance, some States already report on “flow severity,” an observation on the presence of no flows, low flows, stand-alone pools, or extreme high flows. In addition to field information, States may already have access to, and rely on, other readily available information, such as USGS StreamStats, gage data, remote sensing, dam inventories or land use analysis.³² Even when this information may indicate a potential impairment of the designated use, States may not be using this information for use attainment decisions. The use of these data sources to document changes to the flow regime over time could independently indicate designated use impairment by pollution not caused by a pollutant. In fact, States may already be using some of this information but not reporting it. In some cases, remote observations of gage data may have led States to not travel to a site when there were extreme conditions or, alternatively, to travel to a site, but not collect any data or information. Where States did not travel to a site, no data *or information* would have been captured to document the stream condition. Where States did travel to a site but could not sample, States may have simply recorded “no data” or “more information needed” in site visit records because they could not obtain physical, chemical or biological sampling data. Therefore, the EPA recommends that, when possible, States collect and report information relevant to whether the designated use is impaired or threatened even when chemical, physical, or biological field samples cannot be

³² See U.S. EPA, *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act*, available at http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/2006IRG_index.cfm for a further discussion with additional information types to be considered. Appendix L of the 1997 305(b) Guidelines includes example types of information for source categories specifically for hydromodification, modeling analysis using PHABSIM or other instream flow models to document adverse impacts. U.S. EPA, *Guidelines for Preparation of the Comprehensive State Water Quality Assessments (305(b) Reports) and Electronic Updates*, EPA Doc. No. 841-B-97-002A. (1997).

obtained. This will allow managers to be more fully informed for setting priorities and developing plans for restoration of these waters.

Categorization of waters impaired by pollution

EPA continues to recommend that States assign all of their surface water segments to one or more of five reporting categories.³³ Regarding waters impaired by pollution not caused by pollutants, EPA encourages States to use data and information to assign waters consistent with the category descriptions below. If pollution impairment is identified, EPA continues to expect regular monitoring to occur when samples can be collected and continued identification of potential pollutant impairments for listing in Category 5.

Category 3 Assessment units should be reported here when there are not enough data and information to determine if water quality standards are impaired. This category should not be used when data or information is available about impairments due to pollution not caused by a pollutant, including for instance, where hydrologic alteration or impacts from habitat alteration impairs a designated use but no narrative or numeric water quality criteria can be assessed; such waters should be placed in Category 4C.

Category 4C If the States have data and/or information that a water is impaired due to pollution not caused by a pollutant (e.g., aquatic life use is not supported due to hydrologic alteration or habitat alteration), those causes should be identified as such and that water should be assigned to Category 4C. Examples of hydrologic alteration may include the following: a perennial water is dry, no longer has flow, has low flow, has stand-alone pools, or extreme high flows or there is any other type of alteration of the frequency, magnitude, duration or rate-of-change of natural flows in a water; or a water is characterized by entrenchment, bank destabilization, or channelization. EPA recommends that, where circumstances such as unnatural low flow, no flow or stand-alone pools prevent sampling, it would most likely be appropriate to place that water in Category 4C for impairment due to pollution not caused by a pollutant. In order to simplify and clarify the identification of waters impaired by pollution not caused by a pollutant, States may create sub-categories in Category 4C to distinguish such waters. While TMDLs are not required for waterbody impairments assigned to Category 4C, States can employ a variety of watershed restoration tools and approaches to address the source(s) of the impairment.

Category 5 If the States have data and/or information that a water is impaired due to a pollutant, it should be reported in Category 5. This is true even if this segment is also in Category 4C for an impairment due to pollution not caused by a pollutant. In that case, the State should list that water in Category 5 and identify the pollutant causing the impairment (e.g., nutrients) and should also indicate the nature of the pollution (e.g., hydrologic alteration) as a cause of impairment under Category 4C. If the water is later delisted for the pollutant (e.g., nutrients), but pollution (e.g., hydrologic alteration) is still impairing the water's use, then the water should remain in Category 4C. Consistent with previous IR Guidance, if a waterbody is impaired or threatened, and the State does not have data or information on whether a pollutant is causing the impairment,

³³ See U.S. EPA, *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act*, available at http://water.epa.gov/lawsregs/lawguidance/cwa/tmdl/2006IRG_index.cfm

States should assign such waters to Category 5.³⁴ If assessment of new data and information subsequently demonstrates that the impairment is not associated with a pollutant and is due to pollution not caused by a pollutant, the waterbody-pollutant combination would no longer need to be assigned to Category 5 and may be placed into Category 4C.

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³⁴ Ibid.

Appendix A – Considerations for setting State long-term priorities from 2016 to 2022

Consistent with the CWA 303(d) Program Vision, EPA expects each State to establish long-term CWA 303(d) priorities from 2016 to 2022 in the context of its broader, overall water quality goals. The CWA 303(d) Program is able to integrate other programs because it translates State water quality standards into pollution reduction targets for the point source permitting and nonpoint sources management programs as well as other programs outside the CWA. Linking the CWA 303(d) Program priorities with those of other programs could aid in strategically focusing limited State resources to address priority waters through water quality assessments, TMDL or alternative restoration approaches, water quality protection strategies, implementation actions and/or follow-up monitoring.

EPA expects that a State will consider various factors—ranging from public interest, environmental considerations as well as resource implications, in addition to the statutory factors of severity of the pollution and uses of impaired waters—to inform its priority setting consistent with the Vision. These factors may include, among others:

- number, extent and age of listing of segments on a State CWA 303(d) list;
- number of waters affected by a particular pollutant or impairment on a State CWA 303(d) list;
- proximity of listed waters to each other within a watershed;
- relative significance of the environmental harm, public health risk, or threat of the impaired waters based on severity of the impairment, results of state-wide probabilistic surveys, National Aquatic Resource Surveys, vulnerability of the aquatic resource, or other appropriate information;
- specific regional and national priorities;
- degree to which CWA 303(d) Program could be integrated with other programs such as water quality standards, nonpoint source management, monitoring, NPDES (including programmatic needs for wasteload allocations for permits that are coming up for revisions or for new or expanding discharges) and source water protection programs, to achieve those environmental results;
- particular pollutants, waters or designated uses of primary interest to the public;
- likelihood of success in restoring impaired waters;
- technical and data considerations such as availability of monitoring data or models; number and relative complexity of the TMDLs; or,
- number and extent of healthy waters identified for planning and protection.

Each State has the flexibility in considering these and other appropriate factors in its prioritization. The consideration of these factors will be state-specific, and are likely to be shaped by what is important to its public and what resources and information are available to the State. As such, EPA anticipates that the extent to which these and other appropriate factors are addressed in the rationale submitted with the CWA 303(d) priorities in the Integrated Report, will be unique to each State. As noted earlier, in addition to explaining how the State arrived at the long-term priorities, the rationale for the CWA 303(d) priorities should also articulate the State plans to develop future TMDLs, alternative restoration approaches or protection plans and the extent to which they already exist in priority watersheds or water segments.

Notwithstanding this flexibility, EPA expects that States will identify priorities that reflect a meaningful plan (roadmap) on how best to meet their on-going CWA 303(d) Program requirements to address impaired waters over time. EPA plans to continue to work with States as they develop their CWA 303(d) Program priorities.

Additionally, recognizing there are different approaches to prioritizing waters, EPA offers several tools to assist States on prioritization. For example, EPA’s Recovery Potential Screening Tool, available at www.epa.gov/recoverypotential, is useful for comparing restorability of impaired waters across various watersheds. Another tool from EPA is Waterscape, a GIS-based framework for identifying priority watersheds, wherein States choose the parameters and weigh the importance of each, and may compare various alternative prioritization scenarios. Also, the Nitrogen and Phosphorus Pollution Data Access Tool (NPDAT), at epa.gov/nutrientpollution/npdat, is a GIS-based tool designed to assist in identifying priority watersheds to address nutrient pollution.

DRAFT

Attachment C.2.b

I. ISSUE TOPIC

Insofar as a flow related impairment is "pollution" suitable for assessment in the Integrated Report, clearer guidance on the methodology to assess flow impairments, particularly in the absence of adopted flow criteria and consistent historical flow data – in addition a discussion of the scientific and technical rationale to justify placement of a flow-impaired water into Category 4c.

II. ISSUE STATEMENT

The existing guidance from the 2006 memo is unclear on the correct application of Category 4c. The memo defines Category 4c as a use being impaired, but the impairment is not caused by a pollutant. The memo further states, "Segments should be placed in Category 4c when the states demonstrates that the failure to meet an applicable water quality standard is not caused by a pollutant, but instead is caused by other types of pollution. Examples of circumstances when an impaired segment may be placed in Category 4c include segments impaired **solely** due to lack of adequate flow or to stream channelization." This could be interpreted to mean that waterbody segments **ONLY** affected by pollution should be included under Category 4c. There is also a significant lack of guidance on how to approach potential flow related impairments within the 303(d)/305(b) framework and if it is in fact appropriate to do so with a lack of adequate criteria and consistent historical flow data.

III. EXISTING GUIDANCE

- i) Guidance for 2006 Assessment.
- ii) The existing guidance, at Section V.G.3 (p. 56) states:

"Which segments should states include in Category 4c?"

Segments should be placed in Category 4c when the states demonstrates that the failure to meet an applicable water quality standard is not caused by a pollutant, but instead is caused by other types of pollution. Segments placed in Category 4c do not require the development of a TMDL. Pollution, as defined by the CWA is "the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water" (section 502(19)). In some cases, the pollution is caused by the presence of a pollutant and a TMDL is required. In other cases, pollution does not result from a pollutant and a TMDL is not required. States should schedule these segments for monitoring to confirm that there continues to be no pollutant associated with the failure to meet the water quality standard and to support water quality management actions necessary to address the cause(s) of the impairment. Examples of circumstances where an impaired segment may be placed in Category 4c include segments impaired solely due to lack of adequate flow or to stream channelization. EPA encourages the state to collect or assemble additional data and/or information to verify the initial placement of the segment, and to re-categorize the segment based on the assessment of the additional data and/or information where appropriate."

The existing guidance, at Section V.G (p. 57) states:

"A segment that is included in Category 5 may also be included in other categories where appropriate."

IV. PROPOSED RECOMMENDATION

- i) Clarify EPA's expectation of states to list for flow impairment when the source of the impairment is not caused by a pollutant.
- ii) Explain the function of placement in Category 4c (i.e., is it similar to placement in Categories 4a and 4b in that placement in Category 4c identifies a continued impairment that does not require the development of a TMDL?).
- iii) Provide guidance on whether placement in Category 4c is exclusive. In specific cases where adequate flows may be lacking, actual pollutants like water temperature and sedimentation are almost always also causing the impairment of COLD and WILD beneficial uses and the impairment is placed in Category 5. In these cases, provide guidance and rationale as to whether placement in Category 4c and 5 is appropriate.
- iv) Provide a discussion of the scientific and technical rationale to justify placement of a flow-impaired water in Category 4c. Placement in Category 4c pertains to standards not being met due to pollution. That is, states should evaluate whether designated uses are supported and criteria are being met. Describe the analytical approach that would justify placement in 4c where the designated use is not impaired by a pollutant but likely flow, but no flow criterion (narrative or numeric) exists for the waterbody.

V. IMPLICATIONS

Clarify the appropriate method to address impaired flows via the 303(d)/305(b) process. This is an extremely important topic in California garnering significant traction that is being exacerbated due to drought conditions and declining native salmonid stocks. How have other states dealt with this issue and what benefits/costs, if any, have come from including altered flows as part of the Integrated Report? Should flow instead be incorporated as a contributing factor to the actual pollutant listings (temperature, sediment etc.) under Category 5? Should flow alterations be addressed by the Integrated Report at all since it is a clear Water Rights issue?

VI. SUBMITTER INFORMATION

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Attachment C.2.c

Comment Summary and Responses

Proposed Clean Water Act Section 303(d) List of Water Quality Limited Segments (303(d) List)

Portion of the 2012 California Integrated Report

Comment Deadline: 12pm on February 5, 2015

No.	Commenter
1.	American Rivers
2.	California Association of Sanitation Agencies
3.	California Coastkeeper Alliance Klamath Riverkeeper Humboldt Baykeeper Russian Riverkeeper Los Angeles Waterkeeper Monterey Coastkeeper San Luis Obispo Coastkeeper Ventura Coastkeeper San Diego Coastkeeper San Francisco Baykeeper Orange County Coastkeeper Inland Empire Waterkeeper
4.	California Trout Trout Unlimited
5.	Center for Biological Diversity
6.	Earth Law Center California Sportfishing Protection Alliance Living Rivers Council Coast Action Group Karuk Tribe Pacific Coast Federation of Fisherman's Associations

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	Environmental Law Foundation Klamath Riverkeeper Friends of the Eel River Russian Riverkeeper
7.	General Public
8.	North Coast Stream Flow Coalition
9.	Planetary Solutionaries
10.	Quartz Valley Indian Reservation
11.	Riverside County Flood Control and Water Conservation District on behalf of the MS4 Permittees in the Whitewater River Region
12.	Santa Barbara Channelkeeper
13.	United States Environmental Protection Agency, Region IX

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No.	Author	Comment	Response
1.0	American Rivers	<p>Sufficient flow is a parameter that is essential to protecting the physical, chemical, and biological quality as well as many of the designated uses of the water bodies and has been recognized by the U.S. Environmental Protection Agency (EPA) as a non-pollutant cause of impairment. Flow alteration plays a significant role in the degradation of water quality conditions and failure to support designated beneficial uses such as cold freshwater habitat in water bodies throughout California, thus warranting inclusion of the formal identification of flow alteration as a cause of impairment under Category 4c in the Integrated Report.</p>	<p>Sufficient flow is necessary to protect water quality and beneficial uses of water. "Pollution," such as lack of adequate flow, may cause impairments to water quality standards. Specifically, reduced flows can cause or contribute to impaired water quality conditions, such as elevated water temperatures, increased pollutant concentrations, degraded recreational opportunities, and reduced habitat area and/or volumes.</p> <p>State law recognizes the connection between flow and water quality. The Legislature specifically identified its intention to "combine the water rights and water pollution and water quality functions of state government to provide for consideration of water pollution and water quality, and availability of unappropriated water whenever applications for appropriation of water are granted or waste discharge requirements or water quality objectives are established" when it created the State Water Resources Control Board. (Wat. Code, § 174.)</p> <p>The State Water Board has broad authority to</p>

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			<p>consider water quality and pollution when it makes water allocation determinations. (Wat. Code, §1258.) The State Water Board has significant experience both setting and implementing flow criteria through water right actions, including its Bay-Delta Program and its Policy for Maintaining Instream Flows in Northern California Coastal Streams. The State Water Board also has experience setting flow requirements as part of its responsibility to certify that the operation of hydropower facilities subject to Federal Power Act licensing meet water quality standards. Those actions are always controversial and frequently involve differences of opinion among scientists, who testify under oath, as to appropriate flow criteria in those proceedings.</p> <p>The State Water Board has previously recognized that its major rivers are over-allocated and adversely impacted by flow alterations (see for instance Strategic Plan Update 2008-2012, State Water Resources Control Board, September 2, 2008, p.10). However, the extent of the impact on instream beneficial uses of a stream depends on the unique circumstances of each situation and</p>

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			<p>requires knowledge of other factors impacting the physical and biological integrity of the watercourse, including physical impediments to fish passage and sediment recruitment (dams and culverts, in addition to natural impediments such as waterfalls and landslides), the source of the water accreting to the stream (is it cool groundwater or is it warm runoff from open lands), the location and physical effect of diversions relative to habitat, and other factors that affect pollution.</p> <p>Pursuant to the above-cited state law, the State Water Board is expressly required to consider water quality and pollution when making water rights determinations. The converse is not true, however, with regard to the federal law directly applicable to developing the Integrated Report. The federal statutory directives pursuant to CWA 303(d) and 305(b) require states to report on the water quality necessary to provide for fish, wildlife, and recreational opportunities and other beneficial uses. In fulfilling its reporting obligations pursuant to CWA 303(d) and 305(b), the federal statutes do not expressly require the</p>

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No.	Author	Comment	Response
			<p>states to consider flow, pollution, or allocation of water rights, when reporting on standards attainment. Clean Water Act (CWA) section 305(b), combined with the section 303(d) reporting requirements, comprises the California Integrated Report (Integrated Report). Those reporting requirements establish a process for states to use to develop information on the quality of their state's waters.</p> <p>CWA section 305(b) is the principle means by which U.S. EPA and the public assess whether waters meet water quality standards. The report is used by U.S. EPA to inform Congress on the quality of navigable waters and their tributaries nationwide.</p> <p>CWA section 305b requires states to report on:</p> <p>“[A] description of the water quality of all navigable waters in such State during the preceding year, with appropriate supplemental descriptions as shall be required to take into account seasonal, tidal, and other variations, correlated with the quality of water [...].”</p>

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			<p>“[A]n analysis of the extent to which all navigable waters of such State provide for the protection and propagation of a balanced population of shellfish, fish, and wildlife, and allow recreational activities in and on the water.”</p> <p>“[A]n analysis of the extent to which the elimination of the discharge of pollutants and a level of water quality which provides for the protection and propagation of a balanced population of shellfish, fish, and wildlife and allows recreations activities in and on the water, have been or will be achieved by the requirements of this chapter, together with recommendations as to additional action necessary to achieve such objectives and for what waters such additional action is necessary.”</p> <p>(CWA § 305(b)(1)(A)-(C); see id. at § 305(b)(1)(D) & (E) (describing economic and environmental reporting requirements).)</p>

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			<p>U.S. EPA describes the section 305(b) reporting goals at:</p> <p>http://water.epa.gov/type/watersheds/monitoring/upload/2003_07_24_monitoring_305bguide_v1ch1.pdf ,</p> <p>and provides 2006 Integrated Report Guidance here:</p> <p>http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/2006IRG_index.cfm.</p> <p>As provided in the above U.S. EPA reference material, the primary purpose of the 305(b) and 303(d) reporting requirements is to determine the extent waters are attaining standards, identify waters that are impaired and need to be added to the 303(d) list and placed in Category 5 for the development of a total maximum daily load (TMDL), and identify waters that can be removed from the list when standards are attained.</p> <p>The guidance U.S. EPA developed for states to implement the Integrated Report consistently</p>

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			<p>provides that segments should be placed in Category 4c when “the [S]tates demonstrate[] that the failure to meet an applicable water quality standard is not caused by a pollutant, but instead is caused by other types of pollution” such as lack of adequate flow. (See Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Section 303(d), 305(b) and 314 of the Clean Water Act (July 29, 2005).</p> <p>In making decisions concerning standards assessment, it is imperative that the State Water Board undertakes a structured framework regarding its assessment and listing methodology and also provides information on the content of such methodologies.</p> <p>It may be appropriate to assess flow alteration pursuant to section 305(b) to the extent it could be used to support water quality decision-making. However, without a defined methodology for assessing non-pollutant related pollution, Water Board staff does not have a consistent and transparent approach to analyzing the extent to which flow-related alterations cause or impact</p>

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No.	Author	Comment	Response
			<p>water quality standards. The decisions made by the State and Regional Water Boards must be based on a methodology that provides all stakeholders with the opportunity to understand exactly how assessment decisions are made. The State Water Board's listing determinations must be supported by documentation that explains the analytical approaches used to infer true segment conditions. (See U.S. EPA's 2006 Guidance for Assessment and Listing, p. 29 (explaining what constitutes an assessment methodology and U.S. EPA's review of a state's methodology for consistency with the CWA and a state's water quality standards).) In addition to recognizing U.S. EPA's recommendation that segments be placed in Category 4c when the cause is solely due to pollution, and given the uncertainties associated with determining appropriate flow criteria to be used as a threshold for determining impairment, the State Water Board does not believe that placing segments in Category 4c of the Integrated Report results is warranted. Neither is such a reporting format an appropriate use of its limited resources, particularly considering the State Water Board's broad authority to address</p>

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No.	Author	Comment	Response
1.1	American Rivers	<p>American Rivers respectfully disagrees with the SWRCB's interpretation of the EPA's 2006 Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act (EPA Guidance) specific to the categorization of waters in multiple categories for the same waterbody segment. The SWRCB misinterprets EPA Guidance by asserting that the example provided by the EPA is the only situation in which an impaired segment may be placed in Category 4c. In this portion of the EPA Guidance, the EPA is merely providing an example and is not implying that segments that are impaired solely due to lack of adequate flow or to stream channelization are the only conditions in which an impaired segment may be placed in Category 4c. EPA Guidance clearly states that waterbody segments not only can, but should, be included in more than one reporting category.....For</p>	<p>Flow issues through its other legal authorities, which unlike information provided in the Integrated Report, have the potential to result in flow improvements through voluntary or regulatory action.</p> <p>The State Water Board has not indicated that it is bound to U.S. EPA's guidance. Additionally, the State Water Board disagrees with the commenter's interpretation of U.S. EPA's Guidance for 2006 Assessment, Listing, and Reporting Requirements Pursuant to Sections 303(d), 305(b), and 314 of the Clean Water Act, which is excerpted in the Staff Report at page 10. U.S. EPA's guidance at section V.G.3 (pg. 56) states:</p> <p>Segments should be placed in Category 4c when the [S]tates demonstrate[] that the failure to meet an applicable water quality standard is not caused by a pollutant, but instead is caused by other types of pollution. Segments placed in Category 4c do not require the development of a TMDL. Pollution, as defined by the CWA is 'the man-made or man-induced alteration of the chemical, physical, biological, and</p>

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No.	Author	Comment	Response
		<p>example, if a water body is impaired by a pollutant (e.g., temperature) and pollution (e.g., flow alteration), then the water body would be listed in Category 5 for temperature and Category 4c for flow alteration.</p>	<p>radiological integrity of water' (section 502(19)). In some cases, the pollution is caused by the presence of a pollutant and a TMDL is required. In other cases, pollution does not result from a pollutant and a TMDL is not required. States should schedule these segments for monitoring to confirm that there continues to be no pollutant associated with the failure to meet the water quality standard and to support water quality management actions necessary to address the cause(s) of the impairment. Examples of circumstances where an impaired segment may be placed in Category 4c include segments impaired solely due to lack of adequate flow or to stream channelization.</p> <p>(Page 56, emphasis added.) In California waterbody-pollutant combinations are assessed consistent with the Water Quality Control Policy for developing the California's Clean Water Act Section 303(d) List (Listing Policy) to determine the overall use support rating. That overall use support rating is used by the California Water Quality Assessment Database (CalWQA) to</p>

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			<p>determine the overall Integrated Report Category for the waterbody as a whole.</p> <p>The State Water Board interprets the U.S.EPA guidance to indicate that a waterbody should not be placed into Category 4c if there is a pollutant based impairment identified to be impairing water quality that requires a TMDL. The waters for which flow information has been submitted for inclusion into Category 4c are all identified in the Integrated Report as impaired due to pollutants under Category 5, 4a, or 4b. Waterbodies impaired by pollutants, such as temperature, and also by flow modifications will be addressed by TMDLs for the pollutant. To the extent that the pollutant is affected by flow, the Regional Water Boards will work with the State Water Board through its Division of Water Rights to determine the extent to which a water right action can improve the pollution impairment and the appropriate implementation action.</p> <p>Additionally, U.S. EPA submitted a comment letter regarding the State Water Board's consideration of the CWA 303(d) List stating:</p>

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1.2	American Rivers	There are multiple circumstances in which waterbodies can, and should, be identified as impaired by flow alteration immediately utilizing existing information to develop site-specific criteria. These circumstances include specific waterbody segments that already have the necessary information available to make a clear	See Responses to Comments 1.0 and 1.1. The development of site-specific criteria related to flow is encouraged and would facilitate assessment of flow related impairments. However, the development of such site-specific criteria related to flow is outside the scope of the

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		determination that flow alterations are a causal factor of a pollutant impairment or are the source of non-pollutant impairment of a designated beneficial use.	development of the Integrated Report. State Water Board staff and Regional Water Board staff (collectively the Water Boards) did not find that there was a clear determination that flow alterations are the sole cause of impairment to beneficial uses.
1.3	American Rivers	Flow conditions which have been identified as a causative factor to pollutant impairments listed in Category 5, should be acknowledged within Category 4c. This approach is important for information purposes and is directed by the EPA in their Guidance.	See Responses to Comments 1.0 and 1.1.
1.4	American Rivers	While the SWRCB currently does not have a standard methodology for making this determination, there are waterbody segments where beneficial uses for aquatic species are clearly not being met due to complete elimination of stream flow or stream flow that is so limited as to make a segment of the waterbody unusable to salmonids or other species. These waterbody segments should be acknowledged in Category 4c immediately.	The State Water Board and North Coast Regional Water Board (North Coast Water Board) staff could not clearly determine if the beneficial uses of a water quality segment were impaired solely due to stream flow or lack thereof. In many water segments, flow is seasonal resulting in dry periods during the summer months. If interpretive guidance or a clear methodology was developed to examine flow and other forms on non-pollutant related pollution, Water Board staff would have a transparent and consistent way to characterize

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No.	Author	Comment	Response
1.5	American Rivers	<p>We appreciate the variety of realms in which the SWRCB currently acknowledges flows and would like to point out that the actions listed by the SWRCB in pages 11 through 13 of the Integrated Report are specifically connected to surface water rights. While these efforts play an integral role in the maintenance and management of flows and should be continued, they are geographically specific and have limited recognition of the impact of flow alteration on water quality conditions. The acknowledgement of flow alterations within the context of the CWA mandated Integrated Report provides the SWRCB with a unique opportunity and responsibility to acknowledge the status of flow conditions in the context of water quality. Utilization of category 4c to identify impairments caused by flow alteration will provide information that is useful for both local and national prioritization assessment that informs funding allocations and policy recommendations. Additionally, the identification of flow impairment through category 4c listing provides an important tool that can be utilized for</p>	<p>See Responses to Comments 1.0, 1.1, and 1.4.</p> <p>The State Water Board acknowledges that flow alterations can and do affect water quality and impair beneficial uses in California. In some cases, augmentation of flow in stream from upstream reservoirs improves water quality by intentionally or incidentally providing dilution or hydrostatic barriers to seawater intrusion that would impair instream and other beneficial uses, particularly during dry seasons or years. In other cases too much or too little flow as a result of water supply alterations and operations causes water quality impairments.</p> <p>The waters proposed for inclusion into Category 4c are all identified as impaired due to pollutants under Category 5, 4a, or 4b. If a waterbody is currently on the 303(d) List, stakeholders should be able to utilize that information to influence planning, policy, and permitting decisions. Additionally, the data and information pertaining to flow within the possession of the commenter</p>

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		<p>local land use planning decision making and permitting via a nexus with CEQA that is not currently available via approaches to flows that are specific to the SWRCB's own efforts to allocate and enforce surface water rights.</p> <p>The ability of local entities to utilize information provided by the SWRCB through the Integrated Report to make informed planning and policy decisions will become increasingly important over time as the State's water resources are further strained by demand and climate conditions. Additionally, it is anticipated that there will be an increasing local interest in water supply conditions as implementation of the Sustainable Groundwater Management Act places local entities in an ever increasing position of responsibility to effectively manage groundwater resources while recognizing surface and groundwater connections.</p>	<p>may be directed to the appropriate public agency to be utilized for local land use planning and decisions that are subject to CEQA.</p> <p>Commenter's acknowledgement and explanation about the value of the State Water Board's Integrated Report, while arguably distinct and separate from the actual purposes of the development of the report, underscores the importance that placement of waters in Category 4c is done in accordance with developed, sound, and scientifically defensible methods.</p>
2.0	CASA	<p>The State Water Board notes that future metals assessment will be made for the dissolved fraction using the California Toxics Rule (CTR) conversion equations. CASA agrees that regardless of the end data result, the dissolved</p>	<p>Comment noted.</p>

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2.1	CASA	<p>fraction or total, the metals data must be considered as one line of evidence (LOE) to make listing and de-listing recommendations. CASA also agrees that the dissolved fraction is the most appropriate form of the metals to use for listing decisions.</p> <p>The Clean Water Act Section 303(d) portion of the California Integrated Report addresses impairments by pollutants. As the Staff Report acknowledges, it is inappropriate to include surface flows in the 303(d) portion of the report because flow is not a pollutant. CASA supports the State Water Board staff's recommendation to not treat lack of flow as a pollutant and to delist any flow related listings in the applicable future listing cycles. Further, CASA also agrees with the State Water Board staff's recommendation to not address flow related impairments with the Clean Water Act Section 305(b) portion of the California Integrated Report at this time since further research and inter-agency coordination is required.</p>	<p>Comment noted.</p>
2.2	CASA	<p>The Colorado River Region's Basin Plan does not contain pyrethroid objectives; however, the proposed 2012 303(d) List contains</p>	<p>Based on the administrative record pertaining to the adoption of the CWA section 303(d) List by the Colorado River Basin Regional Water Quality</p>

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		<p>recommendations to list malathion, bifenthrin, and cypermethrin. These listing recommendations are based upon criteria developed by UC Davis. CASA would like to note that there are a number of technical shortcomings in the UC Davis criteria. First, the chronic toxicity criteria are not based on actual data; instead, a default acute to chronic ratio was applied. Second, it is well documented that pyrethroid sensitivity has a significant inverse temperature relationship, but this relationship was not accounted for in the criteria derivation. Lastly, the criteria were developed assuming that all of the pyrethroids would be in the dissolved fraction, which is a poor assumption for pyrethroids since they have low solubility and tend to strongly associate with solids. In short, all of these technical shortcomings combined result in unnecessarily overly stringent criteria. Further, the Staff Report notes that since conversion of a whole water concentration to a dissolved concentration is not possible due to lack of information, the whole water concentrations were used for assessment, adding yet another margin of safety.</p>	<p>Control Board for waters within its region, CASA did not submit any written comment, evidence, or testimony prior to such adoption.</p> <p>The version of the Listing Policy then applicable (adopted 2004) provides (at section 6.1.3) that the Regional Water Board may assess and determine the appropriate evaluation guidelines to use to assess narrative water quality objectives, which it did here and for which the State Water Board finds to be consistent with the Listing Policy. The time at which commenter should submit argument and evidence in support of the Regional Board utilizing a different evaluation guideline would most appropriately be during public participation process and hearing of the Regional Board. Additionally, the Listing Policy also provides, “Requests for review of specific listing decisions must be submitted to the SWRCB within 30 days of the RWQCB’s decision.” (See Section 6.3.) Adhering to that process requirement, which was not done in this case, is the appropriate manner to appeal a listing decision made by the Regional Board. Nevertheless, the State Water Board provides the following response:</p>

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		<p>Instead of using the UC Davis criteria, CASA recommends using the criteria developed by the US Environmental Protection Agency (USEPA) Office of Pesticide Programs (OPP). OPP develops criteria, called aquatic life benchmarks, which are based on peer-reviewed studies required under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). These benchmarks represent allowable environmental levels of various pyrethroids that, in turn, the California Department of Pesticide Regulation (CDPR) utilize to evaluate environmental risk during registration and re-registration in California. In the end, CASA strongly urges the State Water Board and Regional Water Boards to work with CDPR (as specified in the Management Agency Agreement Between the State Water Board and CDPR) and USEPA to address pesticide water quality issues since they are ultimately responsible for ensuring that water quality is not adversely impacted by pesticide use.</p>	<p>The Basin Plan for the Colorado River Basin (at p.3-2) contains a narrative water quality objective for toxicity that states “All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in human, plant, animal, or indigenous aquatic life.”</p> <p>State and Regional Water Board staff utilizes the most up to date and protective evaluation guidelines to evaluate narrative water quality objectives consistent with Section 6.1.3 of the Listing Policy.</p> <p>The Staff Report provides that the evaluation guidelines used for assessments include the UC Davis Aquatic Life Water Quality Criteria and the U.S. EPA Office of Pesticide Programs Pesticide Ecotoxicity Database. The UC Davis water quality criteria are a peer reviewed and published criteria document that meets the requirements of Section 6.1.3 of the Listing Policy. Furthermore, the UC Davis criteria have been used in the U.S. EPA promulgated TMDL for Pesticides, PCBs,</p>

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			<p>In the UC Davis method, the use of default acute to chronic ratios was determined to be the best available approximation of chronic criteria in the absence of larger chronic data sets. The use of default acute to chronic ratios was peer reviewed and is based on guidance in the U.S. EPA Great Lakes methodology.</p> <p>While it is not possible to quantify the effects of all variables that can affect toxicity in developing criteria, such as temperature these factors are accounted for through the application of safety factors, as in the UC Davis criteria development. The UC Davis criteria documents acknowledge that the freely dissolved concentrations of pyrethroids are the most bioavailable, but that this information is not always available so environmental managers may choose to use total concentrations as a conservative assumption.</p> <p>All of the aspects of the UC Davis criteria discussed above in this response were included in the peer reviewed criteria, which staff have</p>

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			<p>determined to be appropriate to use as evaluation guidelines under Section 6.1.3 of the Listing Policy.</p> <p>The U.S. EPA Office of Pesticide Programs' benchmarks are based on the most sensitive toxicity value for each benchmark category, and typically examine smaller data sets for a limited number of species. The benchmarks provide a less robust guideline for assessing attainment of the narrative objective when compared to aquatic life criteria that have been developed using a full species sensitivity distribution, such as the UC Davis criteria. The U.S. EPA Office of Pesticide Programs benchmarks do not account for temperature effects or binding to solids.</p> <p>State and Regional Water Board staff will continue to seek and utilize the most robust and up-to-date science to assess and protect beneficial uses in future listing cycles. Further, Water Boards staff agrees that there is a need for continued work with CDPR and U.S. EPA, and staff will continue to work with CDPR and U.S. EPA on issues of joint interest.</p>

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2.3	CASA	It would be premature to list according to 2012 USEPA recommended bacteria criteria for REC-1 until the criteria are adopted into the Water Quality Control Plan for Ocean Waters of California and the Regional Water Quality Control Plans for Inland Waters. Additionally, the USEPA 2012 water quality criteria for REC-1 bacteria are recommended criteria and may not necessarily be adopted; therefore, any listing or delisting recommendations should be assessed according to water quality criteria specified in the current water quality control plans.	See Response to Comment 2.2. As stated on Page 7 of the draft Staff Report. The U.S. EPA 2012 Criteria for Recreational Water Quality was not used in the development of the 303(d) List portion of the 2012 California Integrated Report.
2.4	CASA	The Staff Report introduces a new concept for determining if a beneficial use is “supported.” Specifically, the State Water Board staff encouraged Regional Water Boards to employ an extra condition in the 2012 Listing Cycle that requires a monitoring data set to consist of at least 26 samples for conventional pollutants and at least 16 samples for toxic pollutants in order for a use to be considered “supported.” Since the process for determining individual and overall beneficial use support ratings affects how listings are made for various water segments, CASA believes it would be more appropriate to address this	State Water Board staff did not suggest the Regional Water Boards employ an “extra condition” but correctly directed the Regional Boards to apply the directives set forth in the Listing Policy. The procedure described by this comment is consistent with Tables 3.1 and 3.2 of the Listing Policy. Table 3.1 of the Listing Policy is used to determine the minimum number of measured exceedances needed to place a water segment on the section 303(d) List for toxicants. Table 3.1 states “Application of the binomial test requires a

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		<p>procedure in the Listing Policy.</p>	<p>minimum sample size of 16. The number of exceedances required using the binomial test at a sample size of 16 is extended to smaller sample sizes.”</p> <p>An identical statement exists for Table 3.2 (used to determine exceedances for conventional or other pollutants) with a minimum sample size of 26 required.</p> <p>The statements indicate that at least 16 or 26 samples, respectively, are necessary to determine if beneficial uses are supported. Furthermore, the tables were extended to smaller sample sizes (2 and 5 respectively) which can be used to determine if beneficial uses are not supported.</p>
3.0	<p>California Coastkeeper Alliance</p>	<p>Despite years of advocacy and work to assemble relevant science, law and policy information, the Integrated Report fails to list any waterways in the North Coast as impaired due to altered flows. This is at odds with extensive evidence put before the State Water Resources Control Board and the North Coast Regional Water Quality Control Board regarding the dire state of these waterways with regard to flow. As described in our myriad</p>	<p>See Responses to Comments 1.0 through 1.2 and 1.4.</p> <p>State Water Board staff disagrees with the commenters’ assertion that the decision to not include altered flows as part of the California Integrated Report is at odds with extensive evidence put before the Water Boards. The information submitted by the California</p>

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		<p>comments and data submissions, listing for flows triggers numerous important benefits for local waters, including, but not limited to:</p> <ul style="list-style-type: none"> • Higher prioritization of identified, impaired waterways on lists of bond and other funds earmarked for restoration of impaired waters. • Reduce the burden of proof in state regulatory processes that can address flow needs, such as waste and unreasonable use hearings and public trust doctrine applications. • Better support local land use and planning decisions by requiring decision makers to consider flow impacts in CEQA assessments. • Allow the state to better track and highlight the primary causes of waterway impairment. <p>Listing for flows under the 303(d) List would align official state acknowledgement of waterways impaired by a lack of flows with actual, documented conditions, as robustly supported by the scientific evidence mentioned above. Further flow impairment listings provide a long list of benefits, not just to river ecosystems and the protection of beneficial uses, but also to regional decision makers, state and local agencies,</p>	<p>Coastkeeper Alliance was reviewed by the North Coast Water Board staff and the State Water Board staff and it was determined that the data and information submitted was not of sufficient quality and/or quantity to make an adequate assessment. The application of the Listing Policy to pollution based impairments, like flow alterations, is inappropriate and outside the scope of the methodology used to develop the Listing Policy. The Listing Policy is solely applicable to the development of the 303(d) List (Categories 5, 4a and 4b) and is therefore pollutant focused. (See Listing Policy, Section 2.1 (concerning Category 5): “Waters shall be placed in this category of the section 303(d) list if it is determined, in accordance with the California Listing Factors, that the water quality standards are not attained; the standards nonattainment is due to toxicity, a pollutant, or pollutants; and the remediation of the standards attainment problem requires one of more TMDLs.” The use of the Listing Policy requires a pollutant based water quality objective and an associated numeric to interpret that objective and determine impairment of beneficial uses. Even with regard to evaluating</p>

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		<p>and the State Board itself. Given the escalating threats facing the region's waterways and salmonids and the length of time between listing cycles, we urge the State Water Board to take immediate action to incorporate flow listings into the 2012 303(d) List.</p>	<p>narrative water quality objectives for pollutants, the Listing Policy (at section 6.1.3) requires that evaluation guidelines be: applicable to the beneficial use, protective of the beneficial use, linked to the pollutant under consideration, scientifically based and peer reviewed, well described, and identify a range above which impacts occur and below which no or few impacts are predicted. Furthermore, such guidelines must be responsive to principles of public participation and transparency.</p> <p>While the placement of a segment impaired by altered flows due to anthropogenic causes may be appropriate under Category 4c of the Integrated Report, without a methodology or interpretive guidance in place to make that determination, any recommendations would be made in a non-transparent and potentially inconsistent manner. The commenter's assertions of benefits are assumptions that may or may not be realized if flow alterations were included in Category 4c of the Integrated Report. Segments that are appropriately placed in Category 4c for impairments caused solely due to pollution from</p>

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3.1	California Coastkeeper Alliance	<p>California Coastkeeper Alliance was required to bring suit in 2007 to compel the Department of Fish and Wildlife and State Water Board to work together to implement mandates to set minimum flows and reflect those numbers in the approval of water rights permits. The actions subsequent to the conclusion of this matter have been hampered by lack of sufficient funding, communication and other impediments, with the result that water diversions continue – and in many places are escalating – despite the needs of waterways and fish. Immediate action is needed to – <i>at a minimum</i> – formally recognize that “no water” is a problem the state will acknowledge and act on.</p>	<p>anthropogenic actions compel no subsequent regulatory action.</p> <p>Lastly the commenter is confusing the terms “list” and “2012 303(d) List” in relation to identifying altered flows. Altered flow is defined as pollution and is not considered to be applicable under CWA section 303(d). It may be applicable under CWA section 305(b) as part of Category 4c of the California Integrated Report.</p> <p>See Responses to Comments 1.0-1.2, 1.4, and 3.0.</p> <p>State Water Board staff assumes the commenter is referring to obligations under Public Resources Code 10,000 et seq. Those requirements do not apply to implementation of the Clean Water Act, and the use of the CWA section 305(b) portion of the California Integrated Report would not be the appropriate avenue to achieve or compel such State Water Board or Department of Fish and Wildlife (DFW) action. The State Water Board does consider streamflow recommendations when it processes water right applications. It also exercises its continuing authority over water right permits and licenses as appropriate given</p>

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3.2	California Coastkeeper Alliance	<p>The State Water Board's failure to include any flow listings is at odds with clear law and science. The Clean Water Act, its implementing regulations and U.S. EPA Guidance, provide the overarching legal and regulatory direction for state action. Even assuming that further guidance and process on flows listings would be beneficial in close cases, the waterways that our groups identified on a priority shortlist (see list attached to comment letter) were selected because they are the most egregiously impaired due to altered flows – in some cases having no flow at all for months of the year when flows historically were regularly present.</p> <p>Continued refusal by the state to take even the most straightforward steps – such as recognizing that a dry waterbody is impaired because it cannot support fish – raises serious public trust concerns. The State Water Board is entrusted to protect public trust resources, which includes ensuring waterways continue to flow. The California</p>	<p>resources available, quality of data available, legal requirements, and the due process rights of diverters.</p> <p>See Responses to Comments 1.4 and 3.0.</p> <p>State Water Board staff looked in great detail at the priority list identified by the commenter. Staff looked beyond the submitted information and could not find an adequate amount of information to support a recommendation for inclusion into Category 4c. However, if a transparent and consistent methodology for assessing pollution related impairments were in place it could facilitate future categorizations of these waters within the California Integrated Report framework. The State Water Board is working with the DFW to develop an appropriate methodology.</p> <p>Issues revolving flow are extremely complicated especially those in the North Coast area. Lack of flow can be attributed to non-anthropogenic sources such as drought or seasonal variation. A dry waterbed itself is not sufficient evidence to show impairment. Segments are appropriately</p>

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		<p>public trust doctrine protects navigable streams and their tributaries for a variety of uses including fishing and habitat for fish. The doctrine requires states to manage lands underlying navigable waters in trust for the benefit of the public. It creates a duty for states to protect waterways for preservation and public use.</p>	<p>placed in Category 4c for impairments caused solely due to pollution from anthropogenic actions yet require no subsequent regulatory action.</p>
3.3	California Coastkeeper Alliance	<p>The State Water Board has an affirmative duty to ensure navigable waterways – remain navigable – and preserve a waterways natural habitat. As the Supreme Court held in <i>Audubon Society</i>, and as recently reaffirmed in <i>Light v. State Water Board</i>, “no party can acquire a vested right to appropriate water in a manner harmful to public trust interests and the state has ‘an affirmative duty’ to take the public trust into account in regulating water use by protecting public trust uses whenever feasible.” Therefore, the State Water Board not only has the authority to prevent waterways to become impaired by low flows, but it has an affirmative duty to protect public trust resources to ensure navigable waterways do not become impaired from low flows. Additionally, the State Water Board’s Public Trust Enforcement Unit should take immediate action to direct water</p>	<p>This comment extends beyond the scope of the State Water Board’s consideration of the Integrated Report.</p> <p>Nonetheless, the State Water Board has and continues to take actions related to instream flow petitions, as well as to evaluate and develop minimum flow requirements for appropriate water rights.</p>

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3.4	California Coastkeeper Alliance	<p>users and water masters to stop dewatering streams and rivers where clear violations of the public trust doctrine have occurred.</p> <p>The statement that the four listings on the existing 303(d) list due to flow related alterations in the Ballona Creek and Ventura River watersheds “will likely be proposed for delisting as part of the next Listing Cycle” is extremely concerning. As discussed at length in Santa Barbara Channelkeeper’s comments, the flow listings of Reaches 3 and 4 of the Ventura River for pumping and diversion accurately reflect the current diminished flows and resulting impairments to designated beneficial uses in those Reaches. The listings are legally valid, and consistent with the State Water Board’s Listing Policy. In contrast, delisting Reaches 3 and 4 from the 303(d) list as impaired for flows due to excessive pumping and diversion is inconsistent with the Listing Policy, the Clean Water Act, and facts on the ground. We urge the State Water Board to consider the substantial and significant evidence Channelkeeper references to support the existing impairment listings in its decision.</p>	<p>In terms of process, the 4 listings are not being considered by the State Water Board during this listing cycle, which involves only decisions by the Regional Water Quality Control Boards for the North Coast, Lahontan, and Colorado River regions. The 4 listings at issue in this comment involve listing decisions from the Los Angeles region.</p> <p>Additionally, the commenter’s concern regarding the 4 listings pertains to the Staff Report’s effort to inventory the Water Boards’ actions concerning the 303(d) List and flow-related alterations. The Staff Report (at p. 9-10) states that the Water Boards have not considered the direct assessment of flow data since the adoption of the Listing Policy in 2004. The Staff Report acknowledges, however, that there were 4 listings on the existing 303(d) List related to flow-related alterations in the Ballona Creek and Ventura River watersheds (Region 4) but that those decisions were made prior to the adoption of the Listing Policy.</p>

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			<p>The Listing Policy provides listing factors based solely on pollutant impairments. As a result, any section 303(d) listings related to flow alterations are contrary to the Listing Policy and U.S. EPA guidance and would be appropriate for reconsideration. Because the 4 segments were included on the 303(d) list due to pollution-related impairments, and not a pollutant, the Staff Report explains that the 4 listings for flow will likely be proposed for delisting in the next listing cycle.</p> <p>However, it is important to note that the 4 segments were also listed on the 303(d) List for pollutant impairments for which TMDLs have been developed: Ventura River Reaches 3 and 4 – are identified as impaired due to pumping and water Diversion. The Regional Water Board and U.S. EPA have found that those flow related impairments were addressed via the Ventura River Algae TMDL. Regarding the listings for Ballona Creek Wetlands, identified as impaired due to hydromodification and reduced tidal flushing, the Regional Water Board and U.S. EPA have found that the Ballona Creek Sediment and Exotic Vegetation TMDL are addressing the stressors</p>

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3.5	California Coastkeeper Alliance	The Staff Report lists State and Regional Water Board work underway to address flow through other programs. While we recognize these efforts and their possible precedent-setting utility to inform future efforts, it is important to note that	<p>The proposed CWA 303(d) list for the State Water Board's current consideration does not include listing decisions from Region 4. Any such proposed delisting in Region 4 would occur in a future listing cycle at which time the commenter may participate in that decision-making process. State Water Board staff will discuss with U.S. EPA to determine the best way to move forward.</p> <p>See Responses to Comments 1.0 and 3.0.</p> <p>The commenter points out that the many board actions currently underway do not address other or all impaired waterways where readily available</p>

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		<p>they cannot replace water quality related flow listings for the reasons described herein and in numerous comment letters and memos to date. The Bay-Delta Flow Criteria is specific to the Delta, and does not address other impaired waterways where readily available data exists that they are impaired due to flows. Curtailments of the Miller/Deer/Antelope creeks using the public trust doctrine were temporary drought actions that have been lifted and were region specific to the Central Valley, and does not address North Coast impaired waterways. The frost protection regulations in the Russian River and North Coast Instream Flow Policy serve to protect instream flows through restrictions on surface water rights conditions that are subject to Reasonable Use and public trust doctrines and need to be expanded into other regions where data shows waterways are impaired due to low flows. We encourage the Board to use all of the many tools at its disposal to address the pervasive flow issues that impact the rivers and streams in the priority shortlist and many others throughout the North Coast, particularly as we confront the real possibility that this drought could become the new normal.</p>	<p>data exists indicating impairment due to flow. State Water Board staff has determined that the readily available data submitted is not sufficient to indicate impairment solely due to flow. The one action to fit all impairments does not work well in situations that are as complicated and site specific as those related to non-pollutant water quality impairments caused by flow. Consequently, if it is the State Water Board's desire to include non-pollutant related flow impairments under Category 4c of the California Integrated Report, a consistent and transparent methodology must be put into place. Moving forward with categorization of flow impairment-based data and information that is not defensible would defeat the purpose of any efforts to achieve the commenter's desired potential results.</p> <p>The Draft Staff Report details how the State Water Board is using the tools available to best address identified flow issues and any associated impacts to beneficial uses.</p>

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3.6	California Coastkeeper Alliance	<p>CCKA encourages the Board to use all of the many tools at its disposal to address the pervasive flow issues that impact the rivers and streams, the urgency with which conditions of dewatered waterbodies must be addressed demands direct acknowledgment by the Board how and why a lack of flows is impairing waterbodies.</p> <p>We urge the Board to list waters impaired by flow and to proactively apply the public trust and reasonable use doctrines to address the pervasive flow issues the North Coast, and state. For example, the State Water Board should apply the Reasonable Use Doctrine to agricultural water use. The Reasonable Use Doctrine is the “cornerstone of California’s complex water rights laws.” All water use must be reasonable and beneficial regardless of the type of underlying water right. The State Water Board has already determined that “more efficient and reasonable agriculture practices have the potential to <i>enhance flows</i>, reduce contaminants, and <i>minimize fish losses</i>. The Reasonable Use Doctrine can be used to promote such practices. Regardless of whether the State Water Board lists waterways for flow impairments; the Board should use its broad</p>	<p>See Responses to Comments 1.0 through 1.2.</p> <p>Additionally, this comment extends beyond the scope of the CWA section 303(d) List portion of the 2012 California Integrated Report. However, the State Water Board will continue to explore avenues to provide adequate flows for the protection of both human and aquatic life. The use of the Reasonable Use Doctrine as the commenter points out is a key water rights mechanism and is utilized by the Division of Water Rights staff. The State Water Board will continue to promote strategies to prevent the waste and unreasonable use of the State’s water.</p> <p>The example presented by the commenter is the type of strategy that will be explored through the interagency and stakeholder meetings regarding</p>

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		<p>authority under the Reasonable Use Doctrine to prevent the waste and unreasonable use from inefficient agricultural and other practices to protect instream flows.</p> <p>For example, public resources are expended to conduct stream-by-stream studies to determine how much water fish need. However, these studies are costly and time consuming; they provide agencies an excuse to maintain the status quo of no water for fish; and even when the studies are completed, the recommended instream flows are not enforced. For example, current instream flow studies on the Scott River are designed to meet requirements of Public Resources Code 10000-10005, but not the aforementioned Reasonable Use or Public Trust doctrines. This approach allows the State Water Board to not wait for the Department of Fish and Wildlife to present their studies before taking action to get water back into streams. Instead of continuing to conduct stream-by-stream studies, the State Water Board should redesign current and future instream flow studies so they quantify instream flows necessary to meet California's</p>	<p>Flows and the best avenues for maintaining adequate flows.</p>

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3.7	California Coastkeeper Alliance	<p>The State Water Board should produce a legal memo or fact sheet describing the limitations of water rights. Guidance on the Reasonable Use and Public Trust doctrines.</p> <p>The State Water Board should produce a legal memo or fact sheet describing the limitations of water rights. Guidance on the Reasonable Use and Public Trust doctrines limit water rights would empower NGO advocates and water users to advance collaborative solutions. Without State Water Board guidance on the matter, local water users are unwilling to make compromises on their wasteful and unreasonable water use.</p>	<p>Comment noted. The application of waste and unreasonable use provisions is situational. The State Water Board will continue to enhance the information and resources it provides on its website related to waste and unreasonable use and public trust, including references or actions taken by the Board that may provide context for stakeholders.</p>
3.8	California Coastkeeper Alliance	<p>The State Water Board can restore instream flows by taking the following actions:</p> <p>(1) Develop Water Bond guidance with grant-scoring criteria that prioritizes projects that permanently dedicate water for instream use;</p> <p>(2) Require that water conserved with public funds be permanently dedicated to meet instream flow needs via CA Water Code Section 1707;</p> <p>(3) Recognize tribal cultural and subsistence use of water as “beneficial.”</p> <p>(4) Require applicants for new water rights to demonstrate that water is available for appropriation in excess of water necessary to meet</p>	<p>The commenter provides several valid avenues that may be utilized by the State Water Board. The Division of Water Quality staff will ensure that staff in the Division of Financial Assistance is aware of this suggestion. Further, staff encourages the commenter to participate in the interagency flow meetings and to continue to coordinate with the State Water Board’s Division of Water Rights.</p>

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3.9	California Coastkeeper Alliance	<p>We strongly support the designation of Little River, Widow White Creek, Martin Slough, lower Elk River, Jolly Giant Creek, and Campbell Creek to the Federal Clean Water Act's list of impaired waters as impaired by high concentrations of fecal coliform bacteria, such as E. coli. Humboldt Baykeeper has monitored, collected and submitted data to support these listings back in 2010. These areas are frequently used for swimming and other recreation, domestic water supplies, commercial oyster farms, and recreational/subsistence shellfish harvest.</p>	<p>Comment noted.</p>
4.0	California Trout	<p>Our Coalition is aware of State Water Board and Regional Water Board deliberations regarding the Listing of water bodies on the CWA Section 303d list (Category 4c) for flow impairment. While we do not directly dispute evidence used by Regional Board staff to omit listing of waterbodies due to flow impairments, we agree with the Integrated Report's acknowledgement that "there is no Regional or State water quality objective,</p>	<p>Comment noted. To clarify, Water Board staff engaged in discussions, as did board members, but there were no deliberations or decision making which would require public notice or meeting in accordance with the Bagley-Keene Open Meeting Act.</p>

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4.1	California Trout	<p>narrative or numeric, related to flow, and that lack of such a methodology for assessing flow impairments makes appropriate listing determinations difficult.</p> <p>The State Water Board should support the Regional Water Board's upcoming March 11, 2015 workshop to consider a regional approach to evaluate flow alteration impairment through the Integrated Report process and support the Regional Boards efforts to conduct in stream flow studies and develop flow objectives.</p>	<p>The State Water Board fully supported and participated in the workshop at the North Coast Water Board on March 11, 2015. State Water Board Member Steve Moore is the State Water Board liaison to Region 1 and participated in the meeting. State Water Board staff from the Division of Water Rights, Division of Water Quality, and Office of Chief Counsel also presented information at that workshop.</p>
4.2	California Trout	<p>Support efforts to identify funding sources to support expanded flow measurement efforts throughout coastal water sheds (for example, through appropriate use of Proposition 1 funds).</p>	<p>The goal of this workshop was to present water quality regulatory approaches to address low flows, with particular focus on the development and implementation of flow objectives. The workshop was not intended to address the development of a statewide approach to evaluating flow impairment.</p> <p>The State Water Board is committed to exploring potential funding sources to help support efforts related to flow issues.</p>

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4.3	California Trout	State Board should consider approaches that can be effectively applied across the diverse and complex hydrology of the coastal California watersheds without undue expenditure of limited resources. An approach relying only on site-specific flow studies would be exceedingly challenging, exhaust available funding resources and require many years of studies.	Comment noted. The North Coast Water Board workshop on March 11, 2015 prompted discussion of regulatory approaches for addressing the diverse and complex hydrological factors associated with flow. The meeting had a particular focus on regional flow objective development that could be used to focus limited resources.
4.4	California Trout	We encourage State Board to adopt a regionalized approach similar to the North Coast Instream Flow Policy immediately on an interim basis followed by a thorough review and validation. We seek to work with Regional and State Water Board staffs to consider our approach.	A regionalized approach to addressing flow criteria was discussed at the March 11, 2015 North Coast Water Board workshop. The State Water Board will draw on what has been learned through implementation of the North Coast Instream Flow Policy in considering future actions that may apply to other areas of the state. Further, the Division of Water Rights continues to investigate and develop regional methods to determine appropriate streamflows, which could be used to adopt principles and guidelines for maintaining instream flows in areas of the state other than those covered by its instream flow policy, as authorized by Wat. Code section 1259.4, subd. (a)(2).

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4.5	California Trout	<p>In closing, we welcome the opportunity to work with State and Regional Water Board staff to participate in a working group with inter-agency coordination from CDFW, the Division of Water Rights, the Division of Water Quality, and other stakeholders to develop a strategy to help protect the State’s public trust resources now being threatened by depleted low flows.</p>	<p>Comment noted.</p>
5.0	Center for Biological Diversity	<p>The State Board has failed to consider ocean acidification in its water quality assessment, counter to EPA’s recommendations and the requirements of the Clean Water Act. The Board must solicit and evaluate data on ocean acidification and identify water segments that are violating water quality standards.</p>	<p>The Listing Policy in effect for this listing cycle (adopted 2004) provides, “Requests for review of specific listing decisions must be submitted to the SWRCB within 30 days of the RWQCB’s decision.” (See Section 6.3.) Adhering to that process requirement, which was not done in this case, is the appropriate manner to appeal a listing decision made by the Regional Board. Nevertheless, the State Water Board provides the following responses:</p> <p>When Water Board staff conduct an assessment of water quality for the California 305(b) reporting and 303(d) listing, Water Board staff reviews the data and information collected from monitoring locations around the state that meet the assessment methodology described in the Water</p>

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			<p>Quality Control Policy for Developing California Clean Water Act Section 303 (d) List (Listing Policy) (http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/ffed_303d_listingpolicy093004.pdf). If data show that water quality does not meet the applicable water quality standard for a pollutant, the water body segment is listed on the 303(d) list, which requires a TMDL (Total Maximum Daily Load).</p> <p>The Center for Biological Diversity (Center) provided scientific papers on research showing that carbon dioxide levels are expected to rise, which will in turn cause changes in the ocean chemistry. Staff reviewed the scientific papers provided by the Center; specifically, the research conducted in Central California near Monterey Bay. The research was based on carbon dioxide experiments. As discussed in “Utility of deep sea CO2 release experiments in understanding the biology of high CO2 ocean: Effects of hypercapnia on deep sea meiofauna” Section 4, Discussion, pages 12 through 15, variation in pH observed in the carbon dioxide release</p>

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			<p>experiments did not allow the researchers to examine the biological impact caused by increases in carbon dioxide. It appeared that during the carbon dioxide experiments, a pH reduction of 0.6 pH units comparing to the control areas was observed, and the accuracy of the sensors was suspected. During the experiments carbon dioxide concentrations (measured as pH) varied throughout all experiments. This high variability in carbon dioxide and pH made it impossible to interpret the dose tolerance response of animals to hypercapnia that could trigger physiological stress or death for any of the animals studied. The author stated on page 15 that “understanding of the biological and ecological consequences of increased hypercapnia over shallow and deep waters of the world ocean will require knowledge of the physiological responses of organisms as a function of the severity and duration of hypercapnia.”</p> <p>The California Listing Policy requires that we consider only data and information that meet the minimum quality assurance requirements as it outlined in “Data Quality Assessment Process”,</p>

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			<p>Section 6.1.4 of the Listing Policy: “Even though all data and information must be used, the quality of the data used in the development of the section 303(d) list shall be of sufficient high quality to make determinations of water quality standards attainment.” The variable pH data do not meet the data quality requirements described in the Listing Policy. Therefore, the research results cannot be used for 303(d) listing.</p> <p>If data for pH specific to California’s marine waters are available for assessment during the next listing cycle, that data will be evaluated under the provisions of the Listing Policy using a weight-of-evidence approach to evaluate the lines of evidence based on the applicable water quality standard. The State Water Resources Control Board and the Regional Water Quality Control Boards solicit all readily available data and information prior to the evaluation process. We encourage you to submit your data specific to California’s marine waters when solicitation for data is announced, and it will be evaluated for the next 303(d) listing cycle decisions.</p>

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5.1	Center for Biological Diversity	Data submitted by the Center was not evaluated by the State Board. The Center has previously provided supporting materials on the impacts of ocean acidification and submitted scientific information supporting the inclusion of ocean waters on the 303(d) list. Ocean acidification imposes a serious threat on marine life. California should list ocean waters as impaired.	See Response to Comment 5.0.
5.2	Center for Biological Diversity	California has an independent duty to evaluate ocean acidification during its water quality assessment (Environmental Protection Agency 2010). Specifically, EPA directed states to evaluate ocean acidification data for their 2012 integrated reports (Environmental Protection Agency 2010). The Clean Water Act provides that states must “evaluate all existing and readily available water quality-related data and information to develop the list.” 40 C.F.R. § 130.7(b)(5); see also <i>Sierra Club v. Leavitt</i> , 488 F.3d 904 (11 th Cir. 2007). Beyond reviewing the information submitted by the Center, California must also evaluate pH, biological information, and other monitoring data that is available to it and seek out ocean acidification data from state, federal, and academic research institutions. EPA’s	See Response to Comment 5.0. The State Water Board’s proposed 303(d) List portion of the Integrated Report only pertains to waters within the jurisdiction of the Regional Water Quality Control Boards for the North Coast, Lahontan, and Colorado River regions. Pursuant to section 6.1.2.1 of the Listing Policy, the Water Boards have an obligation to seek all readily available data and information through their solicitation process, but to undertake an independent evaluation of ocean acidification beyond the data and information submitted to it. The Listing Policy was developed to establish a standardized approach for developing the CWA 303(d) List to achieve the overall goal of

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		<p>2010 memo and Integrated Report Guidance discussed several sources, including the National Oceanic and Atmospheric Administration data (EPA 2010: 7-9; EPA Guidance 30-31). There are now several sources for high resolution ocean acidification data.</p> <p>California has failed to meet the Clean Water Act's requirements to evaluate all readily accessible data and information on ocean acidification. To correct its integrated report and 303(d) list, the Board needs to obtain and evaluate all relevant parameters of ocean acidification data available from these sources that serve as clearinghouses for ocean acidification data, especially those that are specific to California's waters.</p>	<p>achieving water quality standards for California's surface waters.</p> <p>The Pacific Ocean overlaps jurisdictional boundaries for multiple Regional Water Boards. Since this is a national and global issue, the regions are not addressing this issue individually as it is more appropriately addressed by the U.S. EPA. To this point, the U.S. EPA recently released a document titled "Strategic Plan for Federal Research and Monitoring of Ocean Acidification" (Ocean Acidification Research Plan) which will guide research and monitoring that will improve our understanding of ocean acidification, its potential impacts on marine species and ecosystems, and adaptation and mitigation strategies.</p> <p>The State Water Board adopted an amendment to the Listing Policy, which defines (at section 6.1.1) all readily available data and information for the development of the CWA section 303(d) List as that data and information that can be submitted to the California Environmental Data Exchange Network (CEDEN). The State Water Board</p>

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5.3	Center for Biological Diversity	<p>The State Water Board must evaluate whether any of California's ocean waters must be included on the 303(d) list because current measures are not stringent enough to prevent ocean acidification and achieve water quality standards. 33 U.S.C. § 1313(d).</p> <p>California Ocean Plan at 3 (2012). These beneficial uses are not being attained by ocean waters off California due to ocean acidification.</p> <p>California must consider ocean acidification data in light of designated uses and applicable standards. The standards for chemical and biological characteristics require that:</p> <ul style="list-style-type: none"> •The pH shall not be changed at any time more than 0.2 units from that which occurs naturally. •Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded. •The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered. 	<p>See Responses to Comments 5.0 and 5.2. encourages the commenter to submit California specific data into CEDEN.</p> <p>Evaluating current preventative measures is beyond the scope of listing for the purposes of CWA section 303(d).</p> <p>When applicable data is submitted into CEDEN it will be evaluated and assessed consistent with the Listing Policy and applicable water quality standards.</p>

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5.4	Center for Biological Diversity	<p>•The concentration of organic materials in fish, shellfish or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.</p> <p>Ocean plan at 6 & 10. Finally, California's antidegradation policy requires the maintenance of existing high quality. Resolution 68-16. Ocean acidification is causing violations of these standards in certain waters of California.</p>	<p>See Responses to Comments 5.0 and 5.2.</p> <p>The new information submitted by the commenter is outside of the solicitation for the 2012 California Integrated Report. State Water Board staff encourages the commenter to submit all applicable California data and information related to the water quality of the State's oceans into CEDEN for future assessments.</p>
		<p>While the state has failed to evaluate ocean acidification data, the Center's prior submissions indicate water quality problems and violations of the above standards that warrant listing. Without repeating former comments, I will urge the state to evaluate the Center's submissions as well as publicly available monitoring data on ocean acidification. Moreover, this comment focuses on new scientific data that underscores the fact that these standards are already not being attained.</p> <p>Shellfish in the California Current large marine ecosystem have experienced massive mortality during this water quality assessment period. Hatcheries and natural shellfish have experienced</p>	

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		<p>reproduction failures from California to Washington (Feely et al. 2012). A new study by Waldbusser et al. identified aragonite saturation as the factor causing limited growth and mortality for shellfish (Waldbusser & Hales 2014). Pacific oyster larvae in hatcheries in the Pacific Northwest experienced massive mortality due to ocean acidification (Barton et al. 2012). The Waldbusser follow-up study identifies saturation state as the principal cause of the adverse biological impacts (Waldbusser & Hales 2014). Notably, California already experiences levels of aragonite undersaturation that have been linked to harmful effects in shellfish (Feely et al. 2008; Gruber et al. 2012; Hauriet al. 2013). Such conditions in experiments caused a forty percent increase in deformities and death of rare northern abalone (Crim et al. 2011). Another study of Olympia oysters, a foundation species along the coast, showed that ocean acidification stunted their growth (Hettinger et al. 2012). California mussels also grew thinner and weaker shells that are more vulnerable to mortality, predation, and desiccation (Gaylord et al. 2011).</p>	

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		<p>Off of California's coast, scientists have documented harmful biological consequences in marine communities of plankton. In a recent study of pteropods in the California Current (Bednaršek et al. 2014), scientists found 53% of onshore individuals and 24% of offshore individuals to have severe dissolution damage that was correlated positively with the percentage of undersaturated water with respect to aragonite (id.). Further, scientists estimate that shell damage due to ocean acidification has doubled in near shore habitats since pre-industrial conditions and will triple by 2050 (id.). Because pteropods form the base of the foodweb, providing food for many species of fish, a decline in pteropods could have far-reaching ecosystem impacts.</p> <p>Additionally, ocean acidification has likely increased the toxicity of harmful algal blooms in Southern California that have both caused objectionable aquatic growth and concentrated toxins in seafood that are harmful to human health. The toxicity of harmful algal blooms increases with ocean acidification. Ocean acidification conditions can increase toxins as</p>	

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		<p>much as five-fold in harmful algae that can poison marine mammals and even cause paralytic shellfish poisoning in people (Fu et al. 2012; Avery O Tatters et al. 2013; Tatters et al. 2012; Avery O. Tatters et al. 2013). The neurotoxin domoic acid in diatom Pseudo-nitzschia increased with acidification as did the toxicity of Alexandrium catenella (Id.). A -0.5pH change caused toxin production in the diatoms to increase 4.2-fold and a -0.3pH unit change increased the toxicity 2.5-fold (Tatters et al. 2012). The experiments done in these studies were at levels of CO2 that are already occurring in California, and the increase in the toxicity of harmful algal blooms in Southern California may be consistent with ocean acidification (Id.) Already, these harmful algal blooms have been related to mass mortalities of fish and marine mammals and these studies suggest that the damage will become much worse.</p>	<p>While these are a few new studies highlighted, the body of science previously submitted plus the data sets recommended herein provide ample information on ocean acidification for California</p>

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6.0	Earth Law Center	<p>The State Water Board should recognize on the 303(d) list the waterways on the Coalition's May 15, 2013 shortlist (attached) impaired for low or no flow.</p>	<p>See Responses to Comments 1.0 through 1.2, 1.4, and 3.0</p> <p>For the current listing cycle pertaining to the State Water Board's consideration of approving the 2012 Integrated Report, the notice of solicitation was transmitted on January 14, 2010. The deadline for the submission of data and information was August 30, 2010. State Water Board staff examined and reviewed all data that was timely submitted. Data and information submitted subsequent to the deadline is not considered for purposes of the 2012 Integrated Report for this listing cycle.</p>
6.1	Earth Law Center	<p>At minimum, list the Scott River and Shasta River, which North Coast staff found to have sufficient information and data submitted to meet all criteria of staff suggested methodology for</p>	<p>The data submitted in response to the 2010 Notice of Solicitation had identified more waters than the commenter references on its "top ten" shortlist.</p> <p>See Responses to Comments 1.0 through 1.2, 1.4, and 3.0.</p> <p>The North Coast Water Board staff found that the</p>

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		<p>characterization as impaired.</p>	<p>only two waters with the minimum information (four criteria identified by the Regional staff) necessary to characterize a potential impairment under Category 4c of the Integrated Report, are the Scott and Shasta Rivers. However, the North Coast Water Board further concluded:</p> <p>The Scott and Shasta rivers are both listed as impaired for temperature, the TMDLs document altered flow conditions as one of many factors contributing to the temperature impairment, and the Regional Water Board is addressing altered flow concerns in these rivers in the context of the temperature impairments. A protocol is needed for distinguishing between a water body that is impaired by a pollutant and exacerbated by altered flow conditions, versus a water body that is primarily impaired because of flow conditions....the methodology has not been vetted state-wide and has not been determined to be appropriate for assessing flow impairments through the Integrated Report process. An appropriate methodology should be developed in consultation with the</p>

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			<p>State Water Board, the Division of Water Rights, other regional water boards, and stakeholders. Before Regional Water Board staff can make a decision whether or not to place a water body in Category 4c for altered flows, a methodology should be in place that is scientifically defensible and repeatable so that it can be consistently applied in the Integrated Report process state-wide to determine if altered flow is causing the non-attainment of water quality standards now and in the future to any stream in the state (page 67 of the Regional Staff Report).</p> <p>State Water Board staff also evaluated these water bodies and came to similar conclusions. State Water Board staff attempted to utilize the existing methodology available in the Listing Policy using not only information that was submitted but also other information from internal and external sources. While there was sufficient information identified for these two waters, the applicability of utilizing the Integrated Report process for addressing waters with flow impairments that are already impaired by pollutants has still not been</p>

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6.2	Earth Law Center	In the alternative these (ten) “shortlist” water bodies should be listed as impaired due to altered flow on the 305(b) Report per the Clean Water Act and EPA guidance, and are an important precursor to further action under local, state and federal laws and policies to prevent further degradation and ensure the long-term health of the state’s waterways. Many other states already list waterways as impaired due to altered flow. California should catch up rather than continuing to delay proper identification of all impairments in order to keep and return needed flow in our rivers and streams.	See Responses to Comments 1.0 through 1.2, 1.4, 3.0, and 6.1.
6.3	Earth Law Center	The CWA calls for stakeholder involvement in the 303(d)/305(b) process through the submission of citizen data and comments. The Coalition and other members of the public have responded over the last four and a half years with data, lines of evidence, legal analysis, and repeated accounts of the necessity of, and practical benefits associated with, the requested flow impairment listings. Yet, virtually none of the public’s input is reflected in the Draft Staff Report on the 2012 California	State and Regional Water Board staff participated in several meetings with stakeholders as indicated by the commenter, and the State Water Board agrees that stakeholder participation is a vital element to informed decision making. State Water Board staff did take into account the many conversations and information provided by the stakeholders while compiling the Draft Staff Report. The public participation and discussion regarding flow impairment and the Integrated

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		<p>Integrated Report [Clean Water Act Sections 303(d) and 305(b)] (Draft Staff Report). This raises serious questions as to the effectiveness and future viability of state-citizen partnerships, which are essential to ensuring the good health of the state's waterways. This is not a one-way process; the public must be involved in both the provision of relevant local data, and in the application of impairment listings to protect local waterways.</p>	<p>Report was highly valued by staff, and staff plans to continue the coordination as it moves forward examining flow impairments.</p>
6.4	Earth Law Center	<p>The CWA calls for 303(d) listings where beneficial uses are impaired – whether by pollution or pollutants. California can and should choose to include flow impairments under Category 4c of its Section 303(d) list, or, at minimum, must identify flow-impaired waterways as such in the state's overall Integrated Report.</p>	<p>See Responses to Comments 1.0 through 1.2, and 3.0.</p> <p>The CWA section 303(d) requires the identification of impairments of water quality standards and the development of TMDLs to address those impairments within a reasonable time frame. Category 4c of the Integrated Report is not considered to be part of the 303(d) List of impaired waterbodies by either the State Water Board or U.S. EPA. The State Water Board considers waters in Category 4a (a TMDL has been developed), 4b (other regulatory controls obviate the need for TMDL development), and 5 (TMDL needed) to be those on the statewide</p>

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6.5	Earth Law Center	<p>A flow objective is not necessary to make a listing for flow impairment. Water quality standards encompass both the designated uses of a water body and the water quality criteria established to protect those uses, as well as antidegradation requirements. As long as an impairment of a beneficial use can be shown, the waterway is impaired regardless of the existence of adopted criteria. Available data shows clear beneficial use impairments due to low flow for “shortlist” waterways, particularly the Scott and Shasta Rivers. These waterways should accurately be listed as impaired due to altered flow.</p>	<p>See Responses to Comments 1.0, 1.1, and 1.4.</p> <p>The State Water Board agrees that beneficial use impairment is sufficient (with or without a flow objective) but determining the beneficial use impairment is extremely difficult for staff without a methodology in place, especially for something as complex as flow. The State Water Board and North Coast Water Board staff could not clearly determine if the beneficial uses of a water quality segment were impaired solely due to stream flow or lack thereof. In many water segments, flow is seasonal resulting in dry periods during the summer months. If a clear standard or methodology was developed to examine flow and other forms on non-pollutant related pollution, Water Board staff would have a transparent and consistent way to characterize beneficial use impairments caused by such pollution.</p> <p>The Water Boards have assessed applicable water quality standards for the Scott and Shasta Rivers</p>

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6.6	Earth Law Center	Similarly, a state-adopted methodology is not necessary to list “shortlist” flow-impaired waterways—especially the Scott and Shasta Rivers.	<p>and the impairments are identified on the 303(d) List as follows: Klamath River HU, Shasta River HA is listed for: Aluminum (Municipal supply beneficial use), Low Dissolved Oxygen (Cold freshwater habitat beneficial use), and Temperature (Cold freshwater habitat beneficial use). The Dissolved oxygen and Temperature listings are being address by a TMDL that was approved in 2007.</p> <p>Klamath River HU, Scott River HA is listed for: Aluminum (Municipal supply beneficial use), Biostimulatory Conditions (Cold freshwater habitat beneficial use)*, Dissolved Oxygen (Cold freshwater habitat beneficial use)*, pH (Cold freshwater habitat beneficial use)*, Sedimentation (Cold freshwater habitat beneficial use), and Temperature (Cold freshwater habitat beneficial use). The Sedimentation and Temperature listings are being address by a TMDL that was approved in 2006. The listings with an asterisk are new listings proposed for this cycle.</p> <p>See Responses to Comments 1.0, 1.1, 3.0, and 6.5.</p> <p>The Weight of Evidence approach referenced by</p>

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		<p>Numerous other states successfully list for flow impairment without a standardized methodology. Even if the State Water Board insists on utilizing a methodology, the Listing Policy’s “weight of evidence” can be used to support flow listings.</p>	<p>the commenter is more accurately referred to as the Situation-Specific Weight of Evidence Approach within the Listing Policy (at section 3.11) which may be utilized to assess standards impaired by pollutants but not pollution. The Listing Policy was designed for use with pollutant based impairments. Given the State Water Board’s broad authorities over flow, the federal government’s limited authority over flow, there is little demonstrated benefit to Category 4c impairment identification.</p>
6.7	Earth Law Center	<p>Sufficient data are available on multiple North Coast waterways (especially the Scott and Shasta Rivers) to find that flow alterations are causing impairment. The Draft Staff Report fails to even acknowledge the North Coast staff’s recognition of strong flow impairment data submitted on the Scott and Shasta Rivers, which met all the criteria of the North Coast staff’s suggested methodology for flow listings. The Draft Staff Report must be revised to recommend flow listings for at least the Scott and Shasta Rivers and to describe in detail the procedure and other justifications for the rejection of listings for other “shortlist” waterways.</p>	<p>See Responses to Comments 1.0, 1.1, 3.0, and 6.1. State Water Board staff determined that assessment for flow based impairment could not be adequately performed utilizing existing guidance and methods.</p>

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6.8	Earth Law Center	The Draft Staff Report incorrectly concludes that water segments cannot be listed as flow-impaired under Category 4c when the same water segment is listed as impaired by a pollutant. To the contrary, U.S. EPA's 2006 Guidance specifically demonstrates that states using a "multi-category" reporting framework can list a waterway in both Category 4c and 5. States using a "single category" reporting framework can list a waterbody with both Category 4c and 5 impairments. For example, numerous states (such as Idaho, Ohio and Tennessee) list waterways in Category 4c for pollution even when pollutant impairments are identified for the same segment, with EPA approval.	See Response to Comments 1.0 and 1.1.
6.9	Earth Law Center	Pollutant listings do not effectively address flow, since only pollution listings properly and directly address flow impairment. This is why EPA's 2006 Guidance distinguishes "lack of adequate flow" as a cause of impairment, rather than solely as a source of impairment.	See Responses to Comments 1.0 and 1.1.
6.10	Earth Law Center	Those waterways already listed as impaired due to altered flow in Region 4 should not be delisted during the next Listing Cycle. Delisting these waterways is neither required by law nor	See Response to Comment 3.4.

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		warranted by the data that correctly justified the initial listings.	
6.11	Earth Law Center	California should choose to list waterways as impaired due to altered flow on its 303(d) list rather than the 305(b) Report. Other states take this approach, such as Tennessee (which places all impaired waterways on its 303(d) list, including those in Category 4c) and Ohio (which lists flow as a cause of impairment on its 303(d) list if there is also a pollutant impairing the waterway). If the State Water Board chooses not to take this approach, they should at least list flow-impaired waterways on the 305(b) Report.	See Responses to Comments 1.0, 1.1, and 3.0. It is State Water Board staff's interpretation that waterbodies currently listed for pollutant based impairments should not be included for pollution based impairments as well. The pollution based impairments should be addressed via the TMDL or other regulatory process. If all pollutant based impairments are eventually addressed and the pollution impairments still exist, then placement into Category 4c could be appropriate.
6.12	Earth Law Center	While the flow programs listed in the Draft Staff Report are important, they are simply insufficient to both keep water in threatened and impaired waterways and ensure that additional water is put back in those waterways. The state must allow local citizens to utilize the tools they need to protect waterways – these tools include formal flow impairment identification where appropriate.	It is unclear what can be gained from a waterbody being placed onto Category 4c for pollution impairment when that same water is already on the 303(d) List for pollutant impairment. Citizens are able to utilize the fact that these waters area already impaired due to pollutants, some of which have identified flow as a contributing factor to those impairments, as a tool to affect local projects, policy, and obtain funding for restoration.
6.13	Earth Law Center	In addition to ensuring the proper identification of the state's impaired waterways, there are	See Responses to Comments 1.5, 6.6, and 6.12.

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		<p>numerous practical benefits of flow listings that expand upon and complement other identified, existing programs to restore flow. These include: supporting better local land use and planning decisions that keep flow in impaired waterways, ensuring greater prioritization for restoration funding, easing of the burden of proof in state regulatory processes that can address flow needs, and allowing for the state to better track and highlight waterway impairment causes (thereby prioritizing resources to address those waterways more efficiently).</p>	
6.14	Earth Law Center	<p>A May 15, 2013 letter to the State Water Board from ELC and California Coastkeeper Alliance (CCKA) (attached for reference) further described in detail the benefits of flow listings and attached a “shortlist” of waterways believed by Coalition members and others to be “clearly and incontrovertibly impaired.” After a meeting with Chair Marcus and upper management in Summer 2013, ELC provided as requested further details on the listing processes other states use to identify flow impairment. Again at the request of the State Water Board, in September 2014 ELC researched and provided details on the exact categorization</p>	<p>Comment noted. The State Water Board greatly appreciates the coordinated efforts between its staff and Earth Law Center staff to determine if and how flow impairments could be included within the CWA sections 303(d) and 305(b). Ultimately, staff concluded that the lack of a consistent methodology for assessing non-pollutant related pollution within the California Integrated Report process did not allow for an affirmative determination of beneficial use impairment. This conclusion should not diminish the discussion and collaboration between Earth Law Center and the State Water Board.</p>

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6.15	Earth Law Center	<p>of the flow impairment listings in ten states around the country (i.e., Category 4c versus 5, 303(d) versus 305(b), etc.).</p> <p>Despite years of increasingly detailed legal and factual support, however, the North Coast staff listed no waterways as flow-impaired on either the 303(d) list or the 305(b) Report. The primary cited reason in its Public Review Draft Staff Report for the 2012 Integrated Report (Public Review Draft Staff Report) was that the “Listing Policy does not provide guidance for evaluation of water quality impairments related to reduced flow.” However, as the Coalition explained in its joint April 1, 2014 comment letter to the State Water Board and at subsequent North Coast workshops in both Santa Rosa and Redding, this reasoning is flawed. The CWA, implementing regulations and U.S. EPA guidance do allow for flow listings; a specific methodology for such is unnecessary in cases where there are clear beneficial use impairments; and listings can move forward where the data support such listings. Thus the Coalition found in its letter to the State Water Board the “failure to include any flow listings to</p>	<p>See Responses to Comments 1.0, 1.1, 1.4, 3.0 and 6.3.</p>

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6.16	Earth Law Center	<p>After the North Coast’s revised Staff Report for the 2012 Integrated Report (North Coast Staff Report) was released on July 30, 2014, the Coalition submitted additional comments (attached for reference) and testified with numerous other supporters of the flow listings at the August 14, 2014 North Coast Board meeting. (Notably, no one spoke in opposition to the listings.) The Coalition supported the North Coast staff’s assessment of strong flow impairment evidence for the Scott and Shasta Rivers, but opposed the decision not to list these waterways in light of this data showing impairment. While the North Coast Board ultimately approved the 303(d) list without flow impairment listings, the Resolution’s subsection on flow (as described further below) specifically “reserves its right to modify the 303(d) List in accordance with applicable rules and regulations...” The hearing following up on this direction is set for March 11, 2015. Considering the significant, regular public involvement that has occurred for four and a half years, the Coalition is surprised that the Draft</p>	<p>See Responses to Comments 4.1, 6.1, and 6.3.</p> <p>The State Water Board will consider adopting the statewide list at its April 8, 2015 meeting. The North Coast Water Board may modify decisions of its 303(d) list or 305(b) report during the next listing cycle.</p> <p>The data submitted as part of the 2012 Notice of Solicitation is available for review online at http://www.waterboards.ca.gov/water_issues/programs/tmdl/ref_menu.shtml. Further the North Coast Water Board staff report and supporting information for its Regional Integrated Report is incorporated by reference in Appendix K of the Draft Staff Report (See Staff Report, p. 25, which states:</p> <p>“The administrative record contains all records used to develop the 2012 California Integrated Report. Records are any documents produced, received, owned, or used by the State Water Board</p>

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		<p>Staff Report not only recommended no flow impairment listings, but also failed to recognize the extensive arguments and information provided by the Coalition and its members, often at the State Water Board's own request. Indeed, the Draft Staff Report actually takes a step backwards from the North Coast Staff Report by failing to specifically address the strong flow impairment data available for the Scott and Shasta Rivers, data recognized by the North Coast staff. Based on the extensive information provided by the public, as well as other readily available information (which the State Water Board is required to consider), the Coalition asks that the Draft Staff Report be revised to list those North Coast waterways on the "shortlist" as flow-impaired.</p>	<p>and Regional Water Boards regardless of media, physical form, or characteristics. An index of the references for data and information in the administrative record used for development of the 2012 California Integrated Report is presented in Appendix K of this report."</p>
6.17	Earth Law Center	<p>Effective state-citizen partnerships are essential for ensuring the good health of California's waterways. Failing to recognize any waterways as flow-impaired or meaningfully respond to the specific points the Coalition and other stakeholders have raised for years questions the future effectiveness and viability of public-state partnerships in the context of the 303(d)/305(b)</p>	<p>See Responses to Comments 4.1 and 6.3.</p> <p>The State Water Board agrees that state-citizen partnerships are essential for ensuring the health of California waters and to develop current and future strategies to protect and enhance those waters. The Draft Staff Report was written in response to the stakeholder input on the topic of</p>

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		<p>process and its implementation. The Coalition asks that the Draft Staff Report be revised to reflect the significant stakeholder involvement in the 303(d)/305(b) process, particularly by listing “shortlist” waterways as flow-impaired pursuant to Section 303(d) – especially, the Scott and Shasta Rivers – and responding to other points raised by the Coalition in these comments and previous comments.</p>	<p>Flow and to provide a cohesive description of the issues faced by Water Board staff with examining flow related issues within the Integrated Report framework. Water Board staff has actively participated in and encouraged communication with the stakeholders on this issue. State Water Board staff participated during the March 11, 2015 workshop and will promote the continued dialogue with stakeholders and other agencies moving forward.</p>
6.18	Earth Law Center	<p>CWA Section 303(d)(1)(A) establishes the requirements for the 303(d) list as follows: Each state shall identify those waters within its boundaries for which the effluent limitations required by section 301(b)(1)(A) and section 301(b)(1)(B) are not stringent enough to implement any water quality standard applicable to such waters. The State shall establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters.</p> <p>In other words, if (after the identified Section 301 controls are put in place) a water body’s water quality standards are not being met, then “those</p>	<p>See Responses to Comments 1.0, 1.1 and 6.11.</p> <p>The State Water Board disagrees with the commenter’s interpretation that pollution-caused impairments are appropriately identified on the CWA section 303(d) List. That assertion is also contrary to U.S. EPA’s guidance on developing the 303(d) list.</p> <p>Commenter’s reliance for such interpretation on CWA section 303(d)(1)(A) containing the term “pollution” is misplaced. In context, the phrase “taking into account the severity of the pollution” pertains to a state’s obligation to establish a priority ranking for such waters. CWA section</p>

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		<p>waters” “shall” be identified under Section 303(d) –regardless of whether due to pollutant or pollution. Indeed, Section 303(d)(1)(A), which mandates such identification of impaired waters, includes only the word “pollution.” The word “pollutant” does not become relevant until Section 303(d)(1)(C), which addresses total maximum daily loads (TMDLs). Identifying a waterway as flow-impaired under Category 4c is thus consistent with inclusion on the 303(d) list, which by the CWA’s own language encompasses “pollution.” The identification of flow-impaired waterways under Section 303(d)(1)(A) is a separate and distinct task from determining whether or not TMDLs are required to address those impairments. This latter task is described in CWA Section 303(d)(1)(C). Unlike Section 303(d)(1)(A), Section 303(d)(1)(C) does specifically reference “pollutants,” but in the context of developing a TMDL only. In other words, Section 303(d) of the CWA supports the listing of all impaired waterways – whether impaired by pollution or pollutants – and then the development of TMDLs for the pollutant impairments on the list.</p>	<p>303(d)(1)(A) does not obligate states to identify flow impaired waterways as commenter asserts. Pollution, as defined by the CWA is “the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water” (section 502(19)). In order to determine if actions are resulting in the attainment of applicable water quality standards, you must first identify an applicable water quality standard and a method for assessing attainment. In the case of pollution you must also show that it is the result of made-made alterations and that no other pollutant is causing water quality impairment.</p>

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6.19	Earth Law Center	<p>The above argument was supported by North Coast Board Chair John Corbett, who stated at the August 14, 2014 North Coast Board meeting that “there is merit to the argument [under] 303(d)(1)(a) that you can list a water as being impaired as separate from particular pollutants.” Chair Corbett also stated that he thinks the reasoning presented by ELC for flow impairment listings “is right.” Chair Corbett accordingly asked that the final Resolution approving the 2012 303(d) list be amended to “add the phrase ‘and reserving the right to add to the 303(d) list. Based on the CWA, as well as the statements offered by the Chair of the North Coast Board, the Draft Staff Report should be revised to properly include “shortlist” waterways – especially the\ Scott and Shasta Rivers – as flow impaired, preferably on the 303(d) list but if not, in the 305(b) Report.</p>	<p>See Response to Comment 6.18.</p> <p>The California Integrated Report is updated on an ongoing basis. The decision to not include flow at this time does not preclude the addition of flow as part of a future Listing Cycle. Yet it is the State Water Board’s view that such characterization would occur pursuant to its CWA section 305(b) reporting obligation.</p> <p>Resolve #15 of the North Coast Board Resolution R1-2014-0043 reads, “The Regional Water Board reserves the right to modify the 303(d) List in accordance with applicable rules and regulations, including the Listing Policy.” As previously stated, it is the State Water Board’s interpretation of the Clean Water Act that pollution based impairments are not part of the section 303(d) List. The Regional Water Board can modify its 303(d) List as part of future listing cycles, but adding flow to the 303(d) List would not be in accordance with the Listing Policy or other applicable rules and regulations.</p>

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6.20	Earth Law Center	<p>A flow objective is not necessary to make a listing for flow impairment. As long as an impairment of a beneficial use can be shown, the waterway is impaired and available data show clear BU impairment. The Draft Staff Report States that “without a numeric or narrative objective to apply as an evaluation guideline, the use of current assessment methods is not appropriate” (p. 11). This is incorrect. Water quality standards encompass both the designated uses of a water body and the water quality criteria established to protect those uses, as well as antidegradation requirements. Where low flows in rivers, creeks and stream have impaired a beneficial use, the water quality standards have been violated, and the water body segment must be listed under Section 303(d).</p>	<p>Water Board staff will continue to coordinate with stakeholders and other agencies to better characterize flow impairments and to determine whether and, if so, how they should be incorporated into the Integrated Report process.</p> <p>See Responses to Comments 1.0, 1.1, 1.4, 6.5, and 6.18.</p>
6.21	Earth Law Center	<p>Moreover, from a practical perspective, waiting the numerous years likely needed to adopt flow</p>	<p>See Response to Comment 3.0.</p>

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		<p>objectives would cause corresponding years worth of harm to affected waterways, harm that could be prevented with timely identification of flow impairments. The next integrated report cycle for the North Coast is 2018, and a flow objective may well not be adopted by that date. Both the Draft Staff Report and recent North Coast Board Triennial Review actions support this concern; these demonstrate that no one has committed to the development of a flow objective, despite the insistence that one is needed.</p>	<p>Moreover, it is unclear how characterization of pollution related impairments would prevent harm to affected waterways.</p> <p>The North Coast Water Board can incorporate off-cycle decisions recommendations consistent with the recently amended Listing Policy. The Draft Staff Report outlines the many other actions the State Water Board is undertaking to address flow related issues and the commitment to participate in the upcoming flow related meetings. The March 11, 2015 workshop focused on regulatory approaches to address low flows with a particular focus on the development and implementation of flow objectives.</p>
6.22	Earth Law Center	<p>Other states have avoided this logjam and moved forward with CWA-compliant, narrative flow objectives that allow them to readily identify flow-impaired waterways and take other protective actions under the CWA. However, California does not appear to be on this path. Considering the low likelihood of a North Coast flow objective being completed by any state entity in the next several years, the State Water Board should act <i>now</i> to list clearly flow impaired</p>	<p>See Response to Comment 6.11.</p>

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6.23	Earth Law Center	<p>The Draft Staff Report calls for a “consistent methodology for addressing pollution [...] prior to including assessments of flow-related information” (p. 11). But as multiple letters from Coalition members to the North Coast Board and the State Water Board indicate, it is the CWA, its implementing regulations and U.S. EPA Guidance that constitute the overarching legal basis for state action – not a state-adopted methodology. If State Water Board staff insists on using an adopted methodology, the Listing Policy can serve this purpose. The Listing Policy states that where the “weight of evidence indicates non-attainment, the water segment shall be placed on the Section 303(d) list,” even when all other Listing Factors do not result in a listing. Coalition members including ELC staff participated extensively in the drafting of the Listing Policy through the AB 982 PAG, and can attest that the weight of evidence approach was developed for such purposes. As the provided and readily available data show, the “weight of evidence” for “shortlist” waterways indicates impairments due to altered flow, and</p>	<p>See Responses to Comments 1.0, 1.1 and 6.6. Section 1, subsection 3, of the Listing Policy states in express terms the intent for the application of the weight of evidence listing factor: “3. Data Assessment: An assessment in favor of or against a list action for a waterbody-pollutant combination shall be presented in fact sheets. The assessment shall identify and discuss relationships between all available lines of evidence for water bodies and pollutants. This assessment shall be made on a pollutant-by-pollutant (including toxicity) basis. (Emphasis added.)”</p>

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6.24	Earth Law Center	<p>such waterways should be listed for flow impairments.</p> <p>A statewide policy for identifying flow impairments for the 303(d) list and/or 305(b) Report, if developed by the State Water Board for close cases (<i>ie.</i>, cases unlike the Scott and Shasta Rivers), must comply with the letter and intent of CWA Section 303(d) to serve as a backstop to protect waterways where pollution controls fail to protect beneficial uses.</p> <p>Particularly in light of the state’s significant deviation from the federally mandated, biennial 303(d)/305(b) Report schedule, any decision making structure to identify flow-impaired waterways must err on the side of recognizing and listing threatened and impaired waterways, rather than erecting further roadblocks to restoring essential flows. Delays for the development of a “flows listing policy” would interfere with the need to immediately identify the most egregious cases of water bodies impaired due to altered flow, including the Scott and Shasta Rivers.</p>	<p>See Responses to Comments 1.0, 1.1, and 3.0.</p> <p>Water Board staff would like to determine the best regulatory approaches for addressing low flows and flow alterations. The Integrated Report process may or may not be the appropriate solution. The workshop on March 11, 2015 at the North Coast Water Board was intended to inform this determination.</p> <p>It is not the State Water Board’s intention to create roadblocks to restoring the State’s water quality but rather to scientifically and transparently protect, restore and enhance the State’s water quality.</p>
6.25	Earth Law Center	<p>Sufficient data are available on the Scott and Shasta Rivers for a flow-impairment listing. After reviewing data on North Coast flow, State</p>	<p>See Responses to Comments 1.0, 1.4, 6.1, 6.3, 6.5, 6.7, and 6.16.</p>

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		<p>Water Board staff concluded that “a consistent source of high quality flow data across watersheds is lacking” (p. 11). This statement is incorrect. As North Coast staff pointed out in their Staff Report, there is sufficient data for at least the Scott and Shasta Rivers to make a finding of impairment due to altered flow. After suggesting a methodology with specific criteria that could be used to evaluate flow impairment, North Coast staff found that “[s]ubmitted information for the Scott River and Shasta River indicate that all criteria are met, if this methodology were to be used.”</p> <p>By contrast, the State Water Board’s Draft Staff Report fails to even acknowledge the North Coast staff’s suggested methodology and recognition of the strong flow impairment data available for the Scott and Shasta Rivers. No reason was given for the state’s rejection of this conclusion by the North Coast staff. The State Water Board further ignores information provided (as requested) by ELC on other states’ listing methodologies, which demonstrate a wide range of acceptable and straightforward processes for identifying flow-impaired waterways.</p>	

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6.26	Earth Law Center	We ask that the Draft Staff Report be revised to at least recommend listing of the Scott and Shasta Rivers for flow, as identified in the North Coast Staff Report, and to also describe in detail the assessment procedure taken for “shortlist” waterways that were rejected for listing. If the State Water Board chooses to ignore the North Coast staff’s findings with regard to date for the Scott and Shasta, we ask that the reasons for that rejection be provided in detail, particularly in light of the extensive work to date by the public and North Coast staff regarding consideration of flow impairments in these waterways.	See Responses to Comments 1.0, 1.2, 1.4, 1.5, and 6.11. The State Water Board staff recommendations and findings are detailed in the current Draft Staff Report.
6.27	Earth Law Center	The draft staff report incorrectly concludes that waterways cannot be listed as flow impaired when already listed as impaired by a pollutant. U.S. EPA’s 2006 Guidance specifically demonstrates that states using a “multi-category” reporting framework can list a waterway in both categories 4c and 5. Based on their own interpretation of the EPA’s 2006 Guidance, State Water Board staff chose “not to place water in Category 4c for pollution when other impairments by pollutants are identified for the same water body segment” (p. 10).	See Responses to Comments 1.0, 1.1, 1.2, 1.4 and 1.5. The statement contained in the Staff Report to which commenter refers does not make an incorrect conclusion or interpretation by applying U.S. EPA’s 2006 guidance. U.S. EPA’s 2006 Guidance states (at section V.G.3, pg. 56): “Segments should be placed in Category 4c when the [S]tates demonstrate[] that the failure to meet an applicable water quality

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6.28	Earth Law Center	<p>This is contrary to the interpretations by other states and U.S.EPA. Contrary to the Draft Staff Report’s interpretation, the plain meaning of this language is Category 4c is reserved for impairments caused by pollution rather than pollutants. It says nothing about the case in which impairments are caused by <i>both</i> pollutants and pollution, focusing only on the categorization of pollutants versus pollution under the Guidance system.</p> <p>EPA’s 2006 Guidance does not state that waterways cannot be listed for both pollutant and pollution impairments. To the contrary, the EPA’s 2006 Guidance demonstrates that if a state uses a “multi-category” reporting framework (as the EPA’s 2006 Guidance suggests³⁰), then a waterway can be placed in both Category 4c and 5. The Guidance specifically demonstrates this point with “Segment J” in its “Segment Categorization Guide” (see Figure 1, below). If a state chooses to use a “single-category” approach (<i>i.e.</i>, where “Category 5 takes precedence over all other categories”), then a water body that has both a Category 4c and 5 impairment can be classified</p>	<p>standard is not caused by a pollutant (emphasis added), but instead is caused by other types of pollution. Segments placed in Category 4c do not require the development of a TMDL.”</p> <p>See Responses to Comments 1.0, 1.1, 1.2, 1.4 1.5, and 6.27</p>

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6.29	Earth Law Center	<p>Flow is not effectively addressed through pollution impairment.</p> <p>Flow is not effectively addressed through pollutant listings.</p> <p>After choosing not to list <i>any</i> waterways as impaired due to altered flow, the Draft Staff Report explains that the “[t]he current strategy relies on the TMDL process or other regulatory alternatives to identify causative factors and linkage analyses to control the pollution associated with pollutant impairments” (p. 10).</p> <p>The Draft Staff Report continues that the “lack of flow has been identified as a causal factor” in TMDLs developed to increase water temperature and sedimentation, such as in the Shasta River Watershed Temperature and Dissolved Oxygen TMDL action plan (p. 10). However, addressing flow through pollutant listings is not as effective as addressing flow through flow impairment listings, since only the latter properly and directly addresses the impairment.</p>	<p>See Response to Comments 1.0, 1.1, and 1.4.</p> <p>The Draft Staff Report describes the many other programs it utilizes to address low flows and flow alterations. The TMDL is one regulatory process where flow alterations are addressed and has been utilized in several areas including those initiated by U.S. EPA including the Ballona Creek Wetlands Sediment and Invasive Exotic Vegetation TMDLs and several Eel River TMDLs for Sediment and Temperature. The meeting on March 11, 2015 focused on identifying other regulatory mechanisms to address low flows.</p>
6.30	Earth Law Center	<p>Existing waterways listed under category 5 should not be delisted.</p> <p>The Draft Staff Report states that the four current listings for flow-related alterations (all in Region</p>	<p>See Response to Comment 3.4.</p> <p>The State Water Board’s approval of the statewide CWA section 303(d) list must be in accordance</p>

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6.31	Earth Law Center	<p>4, which is not part of this listing cycle) “will likely be proposed for delisting as part of the next Listing Cycle” (p. 10). The reason cited is that the listings were made “prior to adoption of the Listing Policy and before guidance was developed on the method to inventory waters impaired by pollution, and not pollutants” (pp. 10-11). However, as described above, the Draft Staff Report’s reliance on the Listing Policy is misplaced, since the CWA and its implementing regulations provides the overarching legal and regulatory direction for state action, not the Listing Policy. The CWA calls for listings to reflect beneficial use impairments. State listing policies cannot be less stringent than the CWA. Delisting existing flow-impaired waterways simply based on the existence or not of state guidance is neither required by the CWA nor warranted by the data, which correctly justify the EPA-approved listings.</p>	<p>with the CWA, it’s implementing regulations, and the Listing Policy. State Water Board staff’s recommendations concerning the segments commenters assert have flow impairments are in accordance with all three.</p>
		<p>California should list for flow impairment in the 303(d) list rather than the 305(b) report. The Draft Staff Report assumes that the Coalition advocated for Category 4c flow listings under the 305(b) Report generally rather than on the 303(d)</p>	<p>See Responses to Comments 1.0, 1.1, 6.11, and 6.18.</p>

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6.32	Earth Law Center	<p>Existing efforts to restore flow described in the draft staff report are inadequate to protect north coast rivers and streams. The flow programs in the draft staff report are insufficient to keep water in impaired water bodies and ensure additional water is put back in those water bodies. After rejecting flow impairment listings with little explanation the Draft Staff Report discusses in far more significant detail the state's other efforts to protect flow, expressing that "it is important to acknowledge that the State and Regional Water Boards address flow through various other programs" (<i>see</i> p. 11-13). The Coalition commends the State and North</p>	<p>See Responses to Comments 3.0 and 6.12. The State Water Board Policy for Maintaining Instream Flows in Northern California Coastal Stream (effective February 4, 2014), is directly applicable to the North Coast waters highlighted by the comments. The March 11, 2015 workshop in coordination with the North Coast Water Board focused on determining additional regulatory approaches for addressing low flows and flow alterations in the North Coast and statewide.</p>

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6.33	Earth Law Center	<p>Coast Boards on these efforts. However, most of them address flow <i>outside</i> of the North Coast, proving of little near- or medium-term value to the waterways at issue. Moreover, there is no information that they will provide the short-term relief that flow listings could provide, as described extensively by the Coalition and other commenters in prior letters.</p>	<p>Comment noted. See Response to Comment 3.1.</p>
		<p>With respect to the Draft Staff Report’s discussion of the public trust doctrine, the Coalition commends the State Water Board’s recognition of its responsibilities to protect flows under the doctrine. However, the legal landscape regarding the public trust doctrine is in flux. The California Supreme Court is currently considering whether to grant review of the recent ruling that protecting the public trust could require regulating withdrawals of interconnected groundwater. And acting alone, the State Water Board’s efforts to enforce the public trust doctrine have not been sufficient to protect flows in the vulnerable rivers of the North Coast. For example, some North Coast advocates report that they received no substantive State Water Board response to public trust and other complaints</p>	<p>Public trust complaints can be brought before the State Water Board anytime, independent of the California Integrated Report process. It is not clear that incorporating flow alterations into the Integrated Report would enhance the State Water Board’s functions related to the Public Trust Authority.</p>

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6.34	Earth Law Center	<p>concerning Scott River flows, which are so low that salmon either have no or delayed access to some spawning grounds even during normal precipitation years, while irrigators continue to over-divert and inadequately report on such diversions. Listing rivers for flow impairment could bolster the Board's public trust authority by reinforcing the need for responsive actions, including but not limited to curtailment letters.</p> <p>Another example referenced in the Draft Staff Report is the Policy for Maintaining Instream Flows in Northern California Coastal Streams (AB 2121 Policy). The Coalition appreciates key elements of the AB 2121 Policy, such as the establishment of regionally protective criteria that include a limited season of diversion, minimum bypass flow, and maximum cumulative diversion rate. However, the AB 2121 Policy has significant shortcomings.</p> <p>For example, the geographic scope of the AB 2121 Policy is limited, leaving out the entire Klamath River system. (Similarly, the Russian River Frost Protection regulations provide a useful tool to address flow, but are geographically limited to the Russian River stream system.)</p>	<p>This comment is beyond the scope of the proposed 303(d) List portion of the 2012 California Integrated Report.</p>

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6.35	Earth Law Center	<p>Further, while development of site-specific criteria under the AB 2121 Policy could prove beneficial, implementation has been limited.</p> <p>The AB 2121 Policy fails to adequately address historic over diversion in the North Coast. Flow impairment listings would supplement the AB 2121 Policy by offering practical benefits to <i>all</i> applicable waterways – regardless of geographic location within the North Coast and other gaps associated with the AB 2121 Policy.</p>	<p>This comment is beyond the scope of the proposed 303(d) List portion of the 2012 California Integrated Report.</p>
6.36	Earth Law Center	<p>Two final examples referenced in the Draft Staff Report are the State Water Board’s “prioritization report” mandated by Delta Reform Act of 2009 and the California Department of Fish and Wildlife’s instream flow studies under Public Resources Code sections 10000-10005. In both cases, while the data from the associated instream flow studies will be useful, there have been significant delays in completing these studies. Rather than postponing action while waiting for studies that take years to complete, we should take immediate steps, such as by making flow impairment listings, to protect the most severely dewatered rivers and streams.</p>	<p>See Responses to Comments 1.0, 1.1, and 3.2.</p> <p>The site specific nature of flow makes it a difficult parameter to address. While site-specific studies are time consuming they are necessary to adequately characterize the specific flow needs for sustained aquatic life.</p>

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6.37	Earth Law Center	<p>There are many practical benefits of flow impairment listing that would help restore flow to impaired waterways.</p> <p>The Draft Staff Report also barely mentions in just one short sentence – the benefits of flow impairment listing. ELC and partners have repeatedly informed the State Water Board over the last several years of the many benefits of flow impairment listings, which go far beyond what the Draft Staff Report described. These are benefits already being enjoyed in other states around the country, including Western states. First, Section 303(d) listings for flow could provide support in local land use and planning decisions by requiring decision makers to consider flow impacts in development and redevelopment projects under CEQA and other local land use requirements, potentially mitigating the flow impacts of such projects.</p>	<p>See Responses to Comments 1.0, 1.4, 3.0, and 6.12.</p> <p>As provided in the U.S. EPA reference material noted in Response to Comment 1.0, the primary purpose of the 305(b) and 303(d) reporting requirements is to determine the extent waters are attaining standards, identify waters that are impaired and need to be added to the 303(d) list and placed in Category 5 for the development of a total maximum daily load (TMDL), and identify waters that can be removed from the list when standards are attained.</p> <p>While State Water Board staff acknowledges the potential benefit of better informed planning decisions, the suggested benefits can already be realized with the current section 303(d) listings.</p>
6.38	Earth Law Center	<p>Second, flow listings can significantly increase the chances of receiving government (particularly bond) funds for flow restoration by highlighting those waterways most in need; they can also help stakeholders meet public and private grant requirements for projects that can result in</p>	<p>See Responses to Comments 1.0, 1.4, 3.0, 6.12 and 6.37.</p>

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6.39	Earth Law Center	Third, watershed-based organizations and local governments can use flow impairment listings to help guide their watershed management plans and prioritize activities in their watershed or jurisdiction	See Responses to Comments 1.0, 1.4, 3.0, 6.12 and 6.37.
6.40	Earth Law Center	Fourth, such listings would lower the burden of proof at State Water Board hearings related to water rights and flow, such as waste and unreasonable use hearings, ⁴¹ public trust doctrine applications, FERC relicensing, ⁴¹ dam removals, new water diversion applications, ⁴³ reopening of existing water rights permits, environmental review of water transfers, and other flow-related actions.	See Responses to Comments 1.0, 1.4, 3.0, 6.12 and 6.37.
6.41	Earth Law Center	Fifth, flow impairment listings can guide implementation of the new groundwater legislation by ensuring that new management plans and groundwater controls properly address the impacts of groundwater extraction on stream flows, which are widespread in the North Coast region.	See Responses to Comments 1.0, 1.4, 3.0, 6.12 and 6.37.
6.42	Earth Law Center	Finally, 303(d) listings for flow would advance the development of a statewide database of	See Responses to Comments 1.0, 1.4, 3.0, 6.12 and 6.37.

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7.0	General Public	<p>waterways with reduced flow, which currently does not exist and is much needed to ensure that the state is properly identifying and prioritizing its efforts to address the health of the waters of the state. These practical benefits (discussed in more detail in the Coalition’s May 15, 2013 comment letter and elsewhere) are the reasons that the Coalition and others have been working for almost the last five years to ensure that the most severely dewatered rivers and streams are identified as flow-impaired.</p>	<p>The State Water Board staff finds that the North Coast Water Board’s staff recommendation is valid and consistent with the Listing Policy. The recommendation referred to by the commenter is identified as Decision Number 25533. The decision language states “29 of 103 fecal coliform samples from the mainstem Russian R. from Fife Ck. to Dutch Bill Ck. exceed the objective and this exceeds the allowable frequency from Table 4.2 of the Listing Policy.” This assessment is consistent with the Listing Policy and warrants a Do Not Delist from the 303(d) list decision recommendation.</p>

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8.0	North Coast Stream Flow Coalition	Failure of the State Board to list streams proposed by Earth Law Center and Coalition members which are obviously flow impaired is detrimental to public health, contrary to law and will delay actions to restore beneficial uses which rely on adequate stream flow. (note: Commenter refers to input and testimony submitted to Regional Boards and the State Board by the Earth Law Center to support this comment)	See Responses to Comments 1.0, 1.1, 1.2, 1.4, 1.5, 3.0, 3.1, and 6.1.
8.1	North Coast Stream Flow Coalition	There is new information on flow impairments for North Coast and Klamath River Basin streams prepared by Riverbend Sciences for National Marine Fisheries Service which was used in the recovery plan for Coho salmon. (note: a web link to this new information is provided in the comment letter)	The current proposed 303(d) List portion of the 2012 California Integrated Report is based on data and information submitted by August 30, 2010. The new information should be submitted into CEDEN and will be evaluated in accordance with the procedures of the Listing Policy in future listing cycles.
8.2	North Coast Stream Flow Coalition	The Shasta and Scott River Basins are identified by DWR as “medium” priority for groundwater extraction impacts which requires sustainable groundwater management plans and groundwater extraction regulation. These plans and regulations may, but are not required to, address the impacts of groundwater extraction on stream flows. A flow impaired listing would confirm groundwater	See Responses to Comments 1.0, 1.1, 1.5, 3.0, 6.5, and 6.12.

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		<p>extraction may be a factor in causing the flow impairment but because SWRCB didn't list the water body as flow impaired, that constitutes a finding that no impairment exists.</p> <p>In the Scott and Shasta River Basins cold water fisheries, including Coho and Chinook salmon and Steelhead trout, are flow dependent. So too in many, cases, are riparian and appropriative surface water rights. Therefore, the State Board's failure to list these streams as flow impaired may well frustrate, efforts to remediate flows that are inadequate to support Public Trust resources and surface water rights. In the worst case scenario, the State Board's failure to list the Shasta and Scott as flow-impaired could be used to justify new groundwater extraction to further damage flow-dependent beneficial uses of surface water.</p> <p>The State Board should not make the efforts of those who are working to protect and restore beneficial uses of surface water more difficult by failing to list as flow-impaired those watersheds in which there is substantial and persuasive evidence that beneficial uses have been damaged or</p>	

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		destroyed as a result of dewatering.	
8.3	North Coast Stream Flow Coalition	Similar situations obtained on significant portions of several other North Coast streams which have been proposed for listing as flow impaired including the Eel River, Mattole River, Napa River and Mark West Creek. Failure to list these streams as flow impaired will make it much more difficult for our member organizations to convince local and regional groundwater management entities that they should assess and address the impact of groundwater extraction on those beneficial uses dependent on adequate stream flows.	See Responses to Comments 1.0, 1.1, 1.5, 3.0, 6.5, 6.12, and 8.2.
8.4	North Coast Stream Flow Coalition	A decision by the State Board to list streams proposed for listing as flow impaired would assist those working to secure and restore stream flows. We would not, for example, have to work to convince groundwater management entities that a stream is flow impaired, we could rely on the State Board's listing. Similarly a state board listing will assist our members in preventing new developments which would further dewater our streams and rivers or in securing modifications of those new developments to reduce impacts to	See Responses to Comments 1.0, 1.1, 1.5, 3.0, 6.5, and 6.12.

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8.5	North Coast Stream Flow Coalition	A watershed's inclusion on the 303d impaired waterbodies list would mean that CEQA reviews for new and expanding developments with potential to negatively impact streamflows in a flow-impaired watershed would be required to analyze and disclose potential impacts to stream flows. If there would likely be impacts, new and expanding developments would be required to explore options to avoid those impacts. In this manner, some part of the regulatory responsibility for preventing damage to beneficial uses of surface water is shifted from the SWRCB and regional boards to the planning entities responsible for environmental review of new or expanding developments.	See Responses to Comments 1.0, 1.1, 1.5, 3.0, 6.5, and 6.12.
8.6	North Coast Stream Flow Coalition	The State Board should not make the efforts of those who are working to protect and restore beneficial uses of surface water more difficult by failing to list as flow-impaired those watersheds in which there is substantial and persuasive evidence that beneficial uses have been damaged or destroyed as a result of dewatering. Rather the Board should consider those doing this work as	See Responses to Comments 1.0, 1.1, 1.5, 3.0, 6.5, and 8.2.

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8.7	North Coast Stream Flow Coalition	<p>The Water Boards should be resolved to appropriately list waterbodies as flow impaired to afford all resources the State can muster to restore stream flows since it is in the best interest of the State to have healthy stream flows.</p>	<p>See Response to Comments 1.0, 1.1, and 3.0.</p>
8.8	North Coast Stream Flow Coalition	<p>The Coalition disagrees with the Re-segmentation and subsequent failure to list the Upper and Lower Scott River as impaired by aluminum and bio stimulatory substances. Re-segmentation was based on one comment letter and allowed State board to only list the new middle segment of the Scott River as impaired.</p>	<p>The State Water Board staff finds that the North Coast Water Board's staff recommendation to re-segment the Scott River is valid and consistent with the Listing Policy. The Listing Policy allows for streams to be segmented according to similar hydrology and land use (Section 6.1.5). The North Coast Water Board's Staff Report outlines the rationale for the re-segmentation and State Water Board staff concurs that the re-segmentation and associated delisting of the Upper and Lower Scott River for aluminum impairment is appropriate.</p> <p>Additionally, North Coast Water Board staff has been encouraged by State Water Board and USEPA staff to re-segment the North Coast Regional Basin's water bodies in an effort to more accurately reflect the true extent of impairment as</p>

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8.9	North Coast Stream Flow Coalition	The new segmentation ignores stream habitat types. The upper segment of the alluvial Scott Valley is dominated by agriculture, the middle segment is agricultural and forested river canyon and the lower section is forested canyon.	See Response to Comment 8.8. reflected by the data. The Basins of the other Regional Water Boards in the state generally contain more discretely defined water bodies consisting of streams and/or stream-segments.
8.10	North Coast Stream Flow Coalition	The decision to re-segment makes it more difficult to obtain a listing or a delisting because more samples will have to be obtained for a smaller section of stream.	See Response to Comment 8.8. The Listing Policy application of the number of samples required to list and delist has not changed. It is only appropriate to list the area where data reflect impairment. This allows for a better determination of sources after impairment is identified. Furthermore, if a TMDL source analysis determines other segments are also impaired by the pollutant, they will be appropriately included on the 303(d) List.
8.11	North Coast Stream Flow Coalition	The decision to re-segment was made without public input or tribal consultation and imposes costs on the Quartz Valley Indian Reservation. It is an environmental injustice which the State Board should reject. Difficulties in achieving	See Response to Comment 8.8. The North Coast Regional Water Board provided fair and meaningful involvement for all interested persons regarding its consideration of its proposed

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		<p>listings causes disadvantaged communities to suffer harm when water bodies of their lands are polluted and depleted due to lack of flow.</p>	<p>2012 Integrated Report for waters within its region. In accordance with the Listing Policy (at sections 6.1.1 and 6.1.2) the Regional Water Board actively solicited and considered data and information from all sources and any interested person. Pursuant to the Listing Policy (at section 6.2), the Regional Water Board reached its decision at the conclusion of a public hearing, upon consideration of all evidence and testimony of all interested persons, which occurred after advance notice to the public was given and an opportunity for the public to comment on its draft Staff Report for its Integrated Report, and subsequent to holding a public workshop.</p> <p>The Quartz Valley Indian Reservation, which also has submitted a comment letter addressing the segmentation of the Scott River, is on the Iyris list for all notices and announcements concerning the North Coast Regional Water Board's development and adoption of the 2012 Integrated Report. North Coast Regional Water Board staff reports that representatives of the Quartz Valley Tribe were present at its public workshops and/or adoption hearing. Additionally, the North Coast</p>

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			<p>Regional Water Board's staff report (Section 3.6.5, pp.28-29) explains:</p> <p>“3.6.5 Assessment of Data From Streams and Stream Segments Within Native American Reservations: The Regional and State Water Boards do not have the authority to list or delist water bodies within the boundaries of Native American Reservations, as only the federal government through the USEPA has jurisdiction to list and delist water bodies on Tribal land. However, the Regional Water Board’s Basin Plan applies to streams and stream segments within Native American Reservations when the Tribe does not have a USEPA approved Basin Plan of their own. Only the Hoopa Valley Tribe has a USEPA-approved Basin Plan in the North Coast Region.”</p> <p>State Water Board staff created lines of evidence for data collected both within and outside Native American Reservation boundaries. The objectives</p>

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8.12	North Coast Stream Flow Coalition	The segmentation of the Scott River opens the door to further arbitrary re-segmentation of water bodies, making it appear that fewer miles of stream are impaired or that progress towards removing impairments has been made when it hasn't.	See Responses to Comments 8.8 and 8.11. All lines of evidence were associated with decisions for those water bodies, although the lines of evidence containing data collected on Tribal land were not utilized by Regional Water Board staff to make a final listing or delisting determination. Instead, staff summarized the data from Tribal land and made a recommendation to U.S. EPA to either list or delist the stream(s) or streams segment(s) where the data were collected on Tribal Land.
8.13	North Coast Stream Flow Coalition	The Coalition asks the State Board to develop and adopt guidance for when and how a regional board can re-segment a single water body. The	See Response to Comment 8.8.

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		Coalition believes that decisions to re-segment should be made as Basin Plan amendments to insure public participation and utilize the best available science.	
8.14	North Coast Stream Flow Coalition	A decision by the State Board to list streams as flow impaired would provide Coalition members and other citizens with an effective tool to forestall further dewatering of streams.	See Responses to Comments 1.0, 3.0, and 6.12.
9.0	Planetary Solutionaries	The comment submitted is a website maintained by the commenter regarding the overall failure of California's water quality regulatory programs.	This comment does not appear to pertain to the scope of the proposed 303(d) List portion of the 2012 California Integrated Report.
9.1	Planetary Solutionaries	The commenter references the State's map of impaired waters and comments that there has been a "170% increase in toxicity listings from 2006 to 2010. All assessed waters in the 2010 Report are a compilation of the latest approved data. The data indicate an increase in toxicity and listing of water impaired bodies will continue to rise. Unfortunately, the public may not know just how bad things are statewide until 2017 or beyond, as government regulators failed to provide an updated assessment listing the status of the State's waters. Even then, critics point out that water quality monitoring, and the related data, are conducted almost extensively by the polluters".	This comment is beyond the scope of the proposed 303(d) List portion of the 2012 California Integrated Report.

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9.2	Planetary Solutionaries	This document recommends the basic elements of a State water monitoring program and serves as a tool to help EPA and the States to determine whether a monitoring program meets the prerequisites of CWA Section 105(e)(1).	This comment is beyond the scope of the proposed 303(d) List portion of the 2012 California Integrated Report.
9.3	Planetary Solutionaries	Navigating the State Water Boards' websites to ascertain the total number of impaired water bodies was difficult, even with the assistance of Board personnel.	This comment is beyond the scope of the proposed 303(d) List portion of the 2012 California Integrated Report. However, the State Water Board is currently exploring the creation of a more user-friendly website interface relating to water quality programs. In the meantime, staff contacts have been provided on the existing website to direct visitors to a knowledgeable staff person to aid in accessing public information.
9.4	Planetary Solutionaries	State Water Board Did Not Adopt CWA Section 303(D) List Until 2004	This comment is beyond the scope of the State Water Board's consideration of the 303(d) List portion of the 2012 California Integrated Report. However, the State Water Board has submitted a 303(d) List to EPA since 1976. The State Water Board developed and adopted the Listing Policy in 2004.
9.5	Planetary Solutionaries	The Performance report indicate that California officials have a lack-luster track-record in productivity for its expenditure of CWA and SDWA funds, failure to provide required updated	This comment is beyond the scope of the proposed 303(d) List portion of the 2012 California Integrated Report. However, the State Water Board recently approved on February 5,

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10.0	Quartz Valley Indian Reservation	<p>Proposed De-Listing of Klamath National Forest (KNF) Reference Streams for Temperature and Sediment. The Staff Report concurs with the NCRWQCB's recommendation to de-list streams within KNF for sediment and temperature that KNF has identified as "reference streams." We agree that it is appropriate that reference streams include natural disturbances; however, we strongly disagree with the assumption that the large high-severity fires that have burned in recent decades in riparian zones on KNF lands are "natural". While it is natural for fires to burn with a mosaic of severity which would include patches of stand-replacing crown fires, a century of fire suppression has dramatically altered forest stand structure and fuel continuity. As a result, when fires now occur and escape containment, the percent area burned with high severity has likely increased, causing deleterious effects on aquatic ecosystems such as increased sediment, reduced stream shade, and increased water temperature.</p>	<p>2015, amendments to the Listing Policy designed to allow for a more efficiently produced and more timely submitted, 303(d) List and 305(b) Report.</p> <p>This comment is beyond the scope of the proposed 303(d) List portion of the 2012 California Integrated Report. Determination of reference streams is outside the scope of the Integrated Report process.</p> <p>State Water Board staff concurs with the North Coast Water Board's staff determination that an updated guidance developed by the U.S. Forest Service is consistent with SWAMP protocols and is the most appropriate evaluation guideline to interpret the Basin Plan's narrative water quality objective for Suspended and Setttable Material. State Water Board staff also concurs with the North Coast Water Board staff's analysis of temperature based reference streams and the recommended delistings associated with those delistings.</p>

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10.1	Quartz Valley Indian Reservation	Prior to fire suppression, the size of individual fires was limited by features such as streams, riparian zones, and ridgetops which stopped fires from spreading long distances (Taylor and Skinner 2003) (figure1). Mean fire size has increased dramatically in northwestern California since the fire suppression began in the early 20th century (Miller et al. 2012).	See Response to Comment 10.0. This comment is beyond the scope of the proposed 303(d) List portion of the 2012 California Integrated Report.
10.2	Quartz Valley Indian Reservation	Commenter recommends that reference sites be revisited to explicitly identify streams where riparian zones have been impacted by high-severity fire, and that those impacted streams not be delisted for temperature and sediment.	See Response to Comment 10.0. The reference streams will continue to be monitored and examined for impairments consistent with the Listing Policy and future Listing Cycle.
10.3	Quartz Valley Indian Reservation	We are disappointed with the decision to not list the Scott River as impaired for lack of flow, which had been requested by QVIR as well as a coalition of 26 other conservation and fishing advocacy groups. Lack of a flow impairment may affect other processes, such as the implementation of recent Statewide groundwater legislation and applications for new appropriate water rights.	See Responses to Comments 1.0, 1.4, 3.0, and 6.12.
10.4	Quartz Valley Indian Reservation	Commenter supports the listing of a portion of the mainstem Scott River for high pH, low DO, and bio stimulatory conditions as well as the proposed listing of Shackleford Creek above Campbell	Comment noted. See Responses to Comments 8.8 and 8.10.

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11.0	Riverside County Flood Control and Water Conservation District on behalf of the MS4 Permittees in the Whitewater River Region	<p>The Permittees request this comment letter be added to the record for the 303(d) List portion of the 2012 California Integrated Report. The permittees provide lines of evidence herein which more specifically characterize flow in the Coachella Valley Stormwater Channel (CVSC) and identify that MS4 discharges are not a source for the new listings toxicity and total ammonia.</p>	<p>Comment noted. To clarify, Water Board staff does not accept lines of evidence. Rather, staff examines the readily and available data submitted consistent with the Listing Policy and Notice of Solicitation and creates the lines of evidence based on that data and information.</p> <p>The proposed 303(d) List portion of the 2012 California Integrated Report was developed based all readily available data and information that was</p>
		<p>Lake for low pH. However the commenter is concerned with the NCRWQCB's segmentation of the Scott River. The segmenting of the river seems to be driven by the availability of data. Other segments may be impaired but there is no data available showing this in part because of a lack of landowner cooperation in these segments. Segmenting a water body to not list poorly sampled segments acts as a reward to landowners who don't allow monitoring. If allowed to stand, the NRWQCB's decision would set an unfortunate precedent. The commenter requests that the SWRCB reverse the NRWQCB's decision and list the entire Scott River for aluminum, DO, biostimulatory conditions, and pH.</p>	

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11.1	Riverside County Flood Control and Water Conservation District on behalf of the MS4 Permittees in the Whitewater River Region	The Permittees request that the State modify the assessment methodology for the proposed toxicity listing in the CVSC to be consistent with the State's 303(d) Listing Policy.	<p>This comment is beyond the scope of the proposed 303(d) List portion of the 2012 California Integrated Report.</p> <p>The Listing Policy and its assessment methodology is not being proposed for amendment at this time.</p>
11.2	Riverside County Flood Control and Water Conservation District on behalf of the MS4 Permittees in the Whitewater River Region	The Permittees wish to ensure that a 303(d) listing, not caused by MS4 discharges, does not trigger unnecessary actions by the Permittees under the current or future MS4 Permit.	<p>This comment is beyond the scope of the proposed 303(d) List portion of the 2012 California Integrated Report.</p> <p>The source determination and regulatory actions associated with 303(d) Listings are actions taken after an impairment is identified and is not part of the Integrated Report process. TMDL and permitting staff will determine the sources and appropriate regulatory actions to ensure the impairment is properly addressed.</p>
11.3	Riverside County Flood Control and Water Conservation	Page 14 of the draft staff report states that potential sources for listings will only be identified by the Water Boards, "when a specific	<p>State Water Board staff interprets the provisions of Section 6.1.2.2 subpart K of the Listing Policy regarding potential sources of pollutants to mean</p>

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	District on behalf of the MS4 Permittees in the Whitewater River Region	source analysis has been performed as part of a TMDL or other regulatory process. " The Permittees are unclear on why a specific source analysis would need to be conducted if readily available data exists now, during the listing process, which can assist with more accurate characterization of potential sources for the proposed listing. Additionally, Section 6.1.2.2 of the State's 303(d) Listing Policy requires regional Boards to identify potential pollutant sources "as specifically as possible" when creating the waterbody fact sheets used to describe the basis for proposed listings.	sources that have been clearly identified as part of a specific sources analysis as part of a TMDL or other regulatory process. This approach and allows for a transparent and consistent source characterization for impairments.
11.4	Riverside County Flood Control and Water Conservation District on behalf of the MS4 Permittees in the Whitewater River Region	Dry weather MS4 discharges are not a source of flow in the CVSC, and therefore, are not contributing to impairment. There are several lines of evidence which demonstrate that dry weather MS4 discharges are not a source of flow in the CVSC.	See Response to Comment 11.2.
11.5	Riverside County Flood Control and Water Conservation District on behalf of the MS4 Permittees	First line of evidence which demonstrates dry weather MS4 discharges are not a source of flow in the Coachella Valley Stormwater Channel (CVSC). The CVSC is the only perennially flowing receiving water in the Whitewater River	Comment noted. See Response to Comment 11.2. If it has been determined that the Whitewater River MS4 permittees are not contributing to dry weather flows as part of an established and

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11.6	Riverside County Flood Control and Water Conservation District on behalf of the MS4 Permittees in the Whitewater River Region	<p>MS4 permit area; however, as noted in the current Whitewater River Region MS4 Permit, MS4 discharges do not constitute a significant source of the flows (emphasis added.): "The CVSC is the 25 mile long, constructed downstream extension of the Whitewater River channel, beginning west of Washington Street in La Quinta and ending on the north shore of the Salton Sea. The lower 17-mile reach of the CVSC is the only surface waterbody in the Whitewater River Region that features perennial flow; <i>these flows are dominated by effluent from the NPDES permitted POTW discharges, rising groundwater, and agricultural return flows.</i>"</p> <p>Second line of evidence which demonstrates dry weather MS4 discharges are not a source of flow in the Coachella Valley Stormwater Channel (CVSC). Regional soil type. Whitewater River Region soil types limit the ability for dry weather MS4 flows to reach the CVSC, as noted in the current MS4 Permit (emphasis added): "The predominant soil types within the Whitewater River Region are classified as Carsitas and Myoma. <i>These sands are extremely pervious and promote rapid infiltration of runoff.</i>" Due to the</p>	<p>approved regulatory program, then it is unlikely the MS4 permittees will be associated with any applicable dry weather regulatory actions resulting for the Coachella Valley Stormwater Channel.</p> <p>The fact sheets do not have a section where non-potential sources can be identified.</p> <p>See Responses to Comments 11.2 and 11.5.</p>

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11.7	Riverside County Flood Control and Water Conservation District on behalf of the MS4 Permittees in the Whitewater River Region	<p>small percentage of the Whitewater River Watershed and the Whitewater River Region in urban land uses. Permittee requirements for New Developments to retain Urban Runoff, and natural soil conditions, <i>Urban Runoff constitutes a minor percentage of the total flow</i> in the Whitewater River during storm conditions. During non-storm conditions, Urban Runoff discharges to Receiving Waters in the Whitewater River Region are also relatively minor based on flow volume. "</p>	See Responses to Comments 11.2 and 11.5.
		<p>Third line of evidence which demonstrates dry weather MS4 discharges are not a source of flow in the Coachella Valley Stormwater Channel (CVSC). Diversion of all MS4 outfalls to CVSC to drywells. There are only three MS4 outfalls which outlet to the proposed listed reach of the CVSC. As of 2011, all three of these outfalls have been diverted to dry wells, thereby ensuring that no discharges occur from the City of Coachella's MS4 to the CVSC during dry weather. During a site walk with City of Coachella staff on March 14, 2013, Region 7 staff confirmed the presence and functionality of dry well diversions. The current MS4 permit features language which reflects implementation of these BMPs: "The</p>	

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Comment Deadline: 12pm on February 5, 2015

No.	Author	Comment	Response
11.8	Riverside County Flood Control and Water Conservation District on behalf of the MS4 Permittees in the Whiewater River Region	<p>City of Coachella has proactively implemented structural Best Management practices (MPs) to effectively infiltrate all Dry Weather Urban Runoff prior to reaching MS4 Outfalls regulated by the CVSC Bacterial Indicators TMDL. These structural BMPs were completed in 2011 with additional modifications planned to improve the effectiveness of the Avenue 52 outfall controls. These BMPs ensure that there are no discharges from the City's MS4 during Dry Weather. "</p> <p>Additionally, as required by Phase 1 of the Bacterial Indicator TMDL at CVSC, the City of Coachella submitted and received Region 7 approval for its Quality Assurance Project Plan (QAPP) in May of 2013. One of the objectives of the City's QAPP is to conduct monthly monitoring to assess whether flows from the City's three MS4 outfalls have surface connectivity with flows in the CVSC. In accordance with Phase 1 implementation of the TMDL, this monitoring data is submitted to Region 7 staff on a quarterly basis, and it provides evidence that as of May 2013, discharges from MS4 outfalls to the CVSC have not occurred. The Permittees request that State Board staff review this data, as it can</p>	See Responses to Comments 11.2 and 11.5.

Comment Summary and Responses

Proposed Clean Water Act Section 303(d) List of Water Quality Limited Segments (303(d) List) Portion of the 2012 California Integrated Report

Comment Deadline: 12pm on February 5, 2015

No.	Author	Comment	Response
11.9	Riverside County Flood Control and Water Conservation District on behalf of the MS4 Permittees in the Whitewater River Region	Wet Weather MS4 discharges did not cause the exceedances on which the proposed 303(d) listings are based. The basis for the proposed listings is data collected through the Surface Water Ambient Monitoring Program (SWAMP) on the following dates: October 26, 2005; May 2, 2006; May 8, 2007; October 22, 2007; April 22, 2008; and October 29, 2008. According to rainfall records for these years (see Attachment A, Table A-5 – Table A-10), no wet weather discharges occurred on the day of, or 72 hours prior to these sample dates. Therefore, MS4 wet weather discharges did not cause the exceedances on which the proposed listings are based.	See Responses to Comments 11.2 and 11.5.
11.10	Riverside County Flood Control and Water Conservation District on behalf of the MS4 Permittees in the Whitewater River Region	Modify the assessment for the toxicity and total ammonia listings to be consistent with the State's 303(d) listing policy. The supporting documentation for the proposed toxicity listing in the CVSC identifies two of seven samples as exceeding the objective; these two exceedances were collected in 2005 and 2006. Since that time, all dry weather MS4 discharges have been diverted (see comment #1); existence of these	See Response to Comment 11.0. If the environment has changed as a result of an approved BMP program then previous data may be disregarded in future assessments consistent with Section 6.1.5.3 of the Listing Policy. The collaboration the commenter has had with Colorado River Water Board Staff will result in these listings being prioritized for reassessment

Comment Summary and Responses

Proposed Clean Water Act Section 303(d) List of Water Quality Limited Segments (303(d) List) Portion of the 2012 California Integrated Report

Comment Deadline: 12pm on February 5, 2015

No.	Author	Comment	Response
11.11	Riverside County Flood Control and Water Conservation District on behalf of the MS4 Permittees in the Whiewater River Region	The Permittees request that (1) the lines of evidence provided herein be placed on the record for the 303(d) list portion of the 2012 California Integrated Report; these lines of evidence more specifically characterize flows in the CVSC, and identify that MS4 discharges are not a source for the proposed new listings for toxicity and total ammonia, and (2) the assessment for the toxicity and total ammonia listings be revised, consistent with the State's 303(d) Listing Policy.	See Responses to Comments 11.0 and 11.10.
12.0	Santa Barbara Channelkeeper	Reaches 3 and 4 of the Ventura River may not be delisted from the 303(d) list as impaired for flow by pumping and diversion. The existing listings for Reaches 3 and 4 of the Ventura River accurately reflect the current diminished flows and resulting impairments to designated beneficial uses in those Reaches. There are two major dams which affect surface flows in reaches 3 and 4,	See Responses to Comments 1.0, 1.1, 3.0, 3.4, 6.11, and 6.30.

Comment Summary and Responses

Proposed Clean Water Act Section 303(d) List of Water Quality Limited Segments (303(d) List) Portion of the 2012 California Integrated Report

Comment Deadline: 12pm on February 5, 2015

No.	Author	Comment	Response
12.1	Santa Barbara Channelkeeper	<p>Matilija and Casitas. More recently, studies and reports continue to acknowledge the strong connection between groundwater pumping and diversions and the resulting loss of flows in the River. Reduced Surface Flows Impair the Beneficial Uses of Reaches 3 and 4, Including Endangered Species Habitat. When flows decrease below the threshold, the steelhead habitat suitability declines significantly. (note: a draft line of evidence to support this comment has been submitted with the comment letter).</p>	<p>See Responses to Comments 1.0, 3.0, 1.1, 3.4, 6.11, and 6.30.</p> <p>U.S. EPA abandoned the effort related to the TMDL referenced by the commenter because a TMDL cannot be written for pollution. Instead U.S. EPA found that the appropriate avenue for addressing the flow alterations was to identify them as a causative factor in the Ventura River Algae TMDL.</p>

Comment Summary and Responses

Proposed Clean Water Act Section 303(d) List of Water Quality Limited Segments (303(d) List) Portion of the 2012 California Integrated Report

Comment Deadline: 12pm on February 5, 2015

No.	Author	Comment	Response
12.2	Santa Barbara Channelkeeper	<p>Water Diversion- Related Water Quality Impairments (“EPA Draft TMDL”).</p> <p>In 1998, the U.S. EPA approved California’s list of impaired water bodies identified pursuant to Clean Water Act section 303(d) (33 U.S.C. § 1313(d)), which first listed Reaches 3 and 4 as impaired for pumping and diversion. According to Los Angeles Regional Water Quality Control Board (“Regional Board”) staff, the original listing referenced a 1996 Steelhead Restoration and Management Plan for California (“Steelhead Restoration Plan”) as one basis for the listing decision. The plan states, “The major obstacle to steelhead restoration in this system is blocked access to headwaters and excessive water diversion.” Steelhead Restoration Plan, p. 201.</p> <p>The plan describes several large-scale water diversions in the river including Foster Park and the City of Ventura’s wells in the lower River, which, “halve] resulted in dewatering portions of the lower river during summer and fall.” Steelhead Restoration Plan, p. 203.</p> <p>Most recently, on August 4, 2010, the State Water Resources Control Board (“State Water Board”)</p>	<p>See Responses to Comments 1.0, 1.1, 3.0, 3.4, 6.11, and 6.30.</p> <p>Prior approval of these listings being carried over since 1998 does not preclude the Water Boards from recommending removal based on the state’s Listing Policy and U.S. EPA guidance.</p>

Comment Summary and Responses

Proposed Clean Water Act Section 303(d) List of Water Quality Limited Segments (303(d) List) Portion of the 2012 California Integrated Report

Comment Deadline: 12pm on February 5, 2015

No.	Author	Comment	Response
		<p>approved California's 2010 303(d) list. Channelkeeper notes that the supporting fact sheets for these listings state that both the Regional Board and State Water Board staff reviewed the existing Ventura River watershed listings for pumping, water diversions, and fish barriers and decided to make no modifications to the list. On October 11, 2011, the U.S. EPA approved the State Water Board's triennial review and update to the 303(d) list, which maintained the pumping and diversion impairments for Reaches 3 and 4 of the Ventura River.</p>	
12.3	Santa Barbara Channelkeeper	<p>The commenter presents several recent studies the provide data and information related to the groundwater to surface water interaction. They also provide hydrology studies that recommend various flow thresholds for Foster park reach of the Ventura River necessary to support aquatic life beneficial uses.</p> <p>Commenter has included temperature and Dissolved Oxygen data showing exceedances of the Basin Plan Objectives for these parameters stating that the exceedances shown in this data are related to low flow conditions which further</p>	<p>See Responses to Comments 1.0, 1.1, 3.0, 3.4, 6.11, 6.30, 11.10, and 12.3.</p> <p>The data and information presented for waters in Region 4 (Los Angeles) is beyond the scope of the 303(d) List portion of the 2012 California Integrated Report, which assessed information submitted for Regions 1 (North Coast), 6 (Lahontan) and 7 (Colorado River).</p> <p>The proposed 303(d) List portion of the 2012 California Integrated Report was developed based all readily available data and information that was</p>

Comment Summary and Responses

Proposed Clean Water Act Section 303(d) List of Water Quality Limited Segments (303(d) List) Portion of the 2012 California Integrated Report

Comment Deadline: 12pm on February 5, 2015

No.	Author	Comment	Response
12.4	Santa Barbara Channelkeeper	<p>The Clean Water Act and U.S. EPA Guidance Provide for Flow-Impairment Listings. Under the Clean Water Act, when effluent limitations are insufficient to ensure compliance with water quality objectives and a water body can no longer be put to its designated beneficial uses (collectively “water quality standards”), that water body’s water quality standards have not been attained and its beneficial uses are impaired. The State must identify that water body on the list of impaired waters. 33 U.S.C. § 1313(d)(1). An impairment listing is required whether the impairment is caused by “pollutants” or “pollution.” See 33 U.S.C. § 1313(d)(1)(A); see also <i>Pronsolino v. Nastri</i>, 291 F.3d 1123, 1137-38 (9th Cir. 2002), cert. denied, 123 S. Ct. 2573</p>	<p>submitted as part of the notice of solicitation, which had a deadline of August 30, 2010.</p> <p>In the meantime, State Water Board staff encourages the commenters to submit data and information to CEDEN so it is available for future assessment.</p> <p>See Responses to Comments 1.0, 1.1, 6.11, and 6.18.</p>

Comment Summary and Responses

Proposed Clean Water Act Section 303(d) List of Water Quality Limited Segments (303(d) List) Portion of the 2012 California Integrated Report

Comment Deadline: 12pm on February 5, 2015

No.	Author	Comment	Response
12.5	Santa Barbara Channelkeeper	As discussed in Section II.A. above, the Clean Water Act requires that the State Water Board include all impaired water segments on the 303(d) list. The requirement to identify impaired waters on the 303(d) list is not conditioned on the existence of a formal listing policy. As with the Listing Policy, formal guidance from U.S. EPA is not a prerequisite to impairment listings and listings issued and approved predating the 2006 Guidance are entirely valid.	See Responses to Comments 1.0, 1.1, 6.11, and 6.18.
12.6	Santa Barbara Channelkeeper	Consistent with the language and the purpose of Clean Water Act section 303(d), the U.S. EPA has found that “pollution” must result in a 303(d) listing if it results in impairment. See U.S. EPA, “Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act,” p. 56 (“2006 Guidance”). In describing	See Responses to Comments 1.0, 1.1, 6.11, and 6.18.

Comment Summary and Responses

Proposed Clean Water Act Section 303(d) List of Water Quality Limited Segments (303(d) List) Portion of the 2012 California Integrated Report

Comment Deadline: 12pm on February 5, 2015

No.	Author	Comment	Response
12.7	Santa Barbara Channelkeeper	<p>categories of impairment listings, EPA specifically uses “lack of adequate flow” as an example of a cause an impairment to a water segment. Accordingly, a water body that cannot support its designated beneficial uses due to altered flow must be included on the State Water Board’s 303(d) list as impaired. Altered flows in Reaches 3 and 4 of the Ventura River caused by pumping and diversions impair those Reaches’ beneficial uses. Thus, as provided by the Clean Water Act, in 1998 the State Water Board included Reaches 3 and 4 on the 303(d) list as impaired by pumping and diversion. Not only are these listings valid under the Clean Water Act, they are in line with relevant U.S. EPA Guidance.</p>	<p>See Response to Comment 12.3 explaining that such comment is beyond the scope of the proposed 303(d) List portion of the 2012 California Integrated Report.</p> <p>State Water Board agrees that Reaches 3 and 4 of the Ventura River may meet other listing factors related to pollutant impairments consistent with</p>

Comment Summary and Responses

Proposed Clean Water Act Section 303(d) List of Water Quality Limited Segments (303(d) List) Portion of the 2012 California Integrated Report

Comment Deadline: 12pm on February 5, 2015

No.	Author	Comment	Response
		<p>Given the biological populations and communities of steelhead in Reaches 3 and 4 of the Ventura River, this listing factor is met. Specifically, the Ventura River watershed is home to at least 11 endangered or threatened species, including steelhead trout. See U.S. Fish & Wildlife Service, Listing and Occurrence for California 2 Reaches 3 and 4 of the Ventura River are occupied by steelhead and are rated as having high conservation value. (supporting documentation included in the comment letter).</p>	<p>Sections 3.2, 3.9 and 3.11 of the Listing Policy.</p>
12.8	<p>Santa Barbara Channelkeeper</p>	<p>The situation-specific weight of evidence listing factor provides that when information indicates non-attainment of applicable water quality standards that water segment is to be evaluated to determine whether the situation-specific weight of the evidence demonstrates that the water quality standard is not attained. Reaches 3 and 4 each meet the situation-specific weight of evidence listing factor. Current conditions show that Reaches 3 and 4 are impaired for flow, and that the impairment is caused by pumping and diversions. (see comment letter and attachments for proposed justification details). The available information and data supporting impairment</p>	<p>See Responses to Comments 1.0, 1.1, and 6.11.</p> <p>Water Board staff agrees that the situation-specific weight of evidence approach could be used to determine impairments by pollutants. However, State Water Board staff disagrees that the Listing Policy applies to pollution. Section 1, subsection 3, of the Listing Policy states in express terms the intent for the application of the weight of evidence listing factor:</p> <p>3. Data Assessment: An assessment in favor of or against a list action for a waterbody-pollutant combination shall be presented in fact sheets. The assessment shall identify</p>

Comment Summary and Responses

Proposed Clean Water Act Section 303(d) List of Water Quality Limited Segments (303(d) List) Portion of the 2012 California Integrated Report

Comment Deadline: 12pm on February 5, 2015

No.	Author	Comment	Response
12.9	Santa Barbara Channelkeeper	<p>listing is scientifically defensible and reproducible. Further, in approving the State Water Board's TMDL for the Ventura River, U.S. EPA recognized need for further action to address flow impairment.</p> <p>If the Listing Policy applies, then it applies equally for listing and delisting. See Listing Policy, Section 4, pp. 11-13. In addition to satisfying the delisting factors, which it cannot, to remove Reaches 3 and 4 from the 303(d) list the responsible Regional Water Quality Control Board (here Region 4) must document the list change in a fact sheet and hold a public hearing to approve the change, respond in writing to all public comments, approve a resolution in support of the decision, and submit supporting fact sheets, responses to comments, documentation of the hearing process, and a copy of all data and information considered to the State Water Board. The State Water Board must also assemble supporting fact sheets and provide advance notice and opportunity for public comment on the listing decision. See Listing Policy, Section 6.3, p. 26. The 2012 Integrated Report makes no reference to the delisting factor, and Channelkeeper is unaware</p>	<p>and discuss relationships between all available lines of evidence for water bodies and pollutants. This assessment shall be made on a pollutant-by-pollutant (including toxicity) basis. (Emphasis added.)</p> <p>See Responses to Comments 3.4 and 12.8.</p> <p>State Water Board staff disagrees that the Listing Policy, specifically its listing and delisting factors, applies to pollution—yet changes to the 303(d) List would afford the public participation processes as outlined therein.</p> <p>The original listings were made prior to the development of the Listing Policy. The waters should be re-evaluated using the current Policy and determine if the listings are appropriate. Region 4 waters are not being recommended for change for this Listing Cycle.</p>

Comment Summary and Responses

Proposed Clean Water Act Section 303(d) List of Water Quality Limited Segments (303(d) List) Portion of the 2012 California Integrated Report

Comment Deadline: 12pm on February 5, 2015

No.	Author	Comment	Response
12.10	Santa Barbara Channelkeeper	<p>of any efforts by Region 4 or the State Water Board to comply with these delisting requirements. Accordingly, unless the delisting factors and additional requirements are met, Reaches 3 and 4 must remain listed as flow-impaired due to pumping and diversions. Because the existing pumping and diversion impairment listings for Reaches 3 and 4 are entirely consistent with the Clean Water Act, U.S. EPA Guidance, and the State Water Board's Listing Policy, that the impairments were identified on California's 303(d) list before the State Water Board adopted the Listing Policy or U.S. EPA adopted the 2006 Guidance in no way invalidates those listings.</p>	<p>See Response to Comment 3.4.</p> <p>State Water Board staff is not recommending changes be made to any Region 4 waters for this Listing Cycle.</p>
13.0	United States Environmental	<p>We recommend all the water body-pollutant-combinations proposed for Category 4b by</p>	<p>Comment noted. State Water Board staff will revise the draft staff report and the proposed</p>

Comment Summary and Responses

Proposed Clean Water Act Section 303(d) List of Water Quality Limited Segments (303(d) List) Portion of the 2012 California Integrated Report

Comment Deadline: 12pm on February 5, 2015

No.	Author	Comment	Response
	Protection Agency, Region IX	Regional Board 7 be placed into Category 5 list. After reviewing the data and the justifications for 4b, we find the justifications do not adequately describe how the pollution controls identified will achieve water quality standards. We acknowledge that the programs that they have in place may partially address the impairments and would not object to these having a lower priority for TMDL development.	303(d) List portion of the 2012 California Integrated Report accordingly.
13.1	United States Environmental Protection Agency, Region IX	The State Board should change the Regional Board 6 categorization for Carson River East Fork for the elements boron, phosphorus, and sulfate from 4b to 5. While the Regional Board has issued a Waste Discharger Requirement requiring BMPs to control these pollutants, the controls are insufficient to meet water quality standards in the Basin Plan high influent concentrations associated with Grover Hot Springs. The State Board could address this program by implementing a natural source exclusion in the Inland Surface Waters, Bays and Estuaries Policy.	Comment noted. State Water Board staff will revise the draft staff report and the proposed 303(d) List portion of the 2012 California Integrated Report accordingly.
13.2	United States Environmental Protection Agency, Region IX	Topaz Lake should be added to the list. State Board staff assessed trout data from Topaz Lake and concluded that mercury concentrations were below the evaluation guidelines. EPA added	The proposed 303(d) List portion of the 2012 California Integrated Report was developed based all readily available data and information that was submitted as part of the notice of solicitation,

Comment Summary and Responses

Proposed Clean Water Act Section 303(d) List of Water Quality Limited Segments (303(d) List) Portion of the 2012 California Integrated Report

Comment Deadline: 12pm on February 5, 2015

No.	Author	Comment	Response
13.3	United States Environmental Protection Agency, Region IX	<p>We encourage State Board to consider and incorporate off-cycle decisions for future 303(d) listing decisions due to at least one Regional Board approving off cycle listings/delisting mercury.</p>	<p>which had a deadline of August 30, 2010. The data provided by Nevada is outside the solicitation period and therefore will not be addressed until a future Listing Cycle.</p> <p>Comment noted. This is consistent with the recently amended Listing Policy, see specifically section 6.1.2.</p>

Attachment C.3

State Water Board Staff Correspondence with California Department of Fish and Game Staff Related to Impaired Beneficial Uses Due to Low Flows

Attachment C.3.a

Subject: 1/19/16 BOARD MEETING, ITEM 6

Date: Thursday, January 14, 2016 at 7:59:26 PM Central European Standard Time

From: Murray, Nancee@Wildlife, NANCEE@WILDC805F95F-5155-4F8D-B9FC-4848E2AA444E2BC>

To: commentletters

To the Clerk of the Board:

Attached please find the Powerpoint presentation of the CDFW relating to Item 6 of the SWRCB Meeting on January 19, 2016.

I believe that this submission is timely, and I appreciate your help in loading the Powerpoint for the January 19, 2016 meeting. If you have any questions or difficulties with the attachment, please contact me.

Thank you.

Nancee Murray

Senior Staff Counsel

California Department of Fish and Wildlife

nancee.murray@wildlife.ca.gov

**Fisheries Update and Request to
Re-Adopt Emergency
Regulations on Deer, Mill, and
Antelope Creeks**

Curtis Milliron, Jason Roberts, and

Matt Johnson – CDFW

Howard Brown – NMFS

SWRCB Meeting – January 19th, 2016

2016 Flow Recommendation

Mill and Deer creeks

- Adult Base Flow: 50 cfs October 15 -June 15
- Juvenile Base Flow: 20 cfs October 15 - June 30
- Pulse Flows: 100 cfs April 1 through June 15, up to once every two weeks

Antelope Creek

- Adult Base Flow: 35 cfs November 1 – May 15
- Juvenile Base Flow: 15 cfs November 1 – May 30
- Pulse Flows: 70 April 1 – May 15, up to once every two weeks

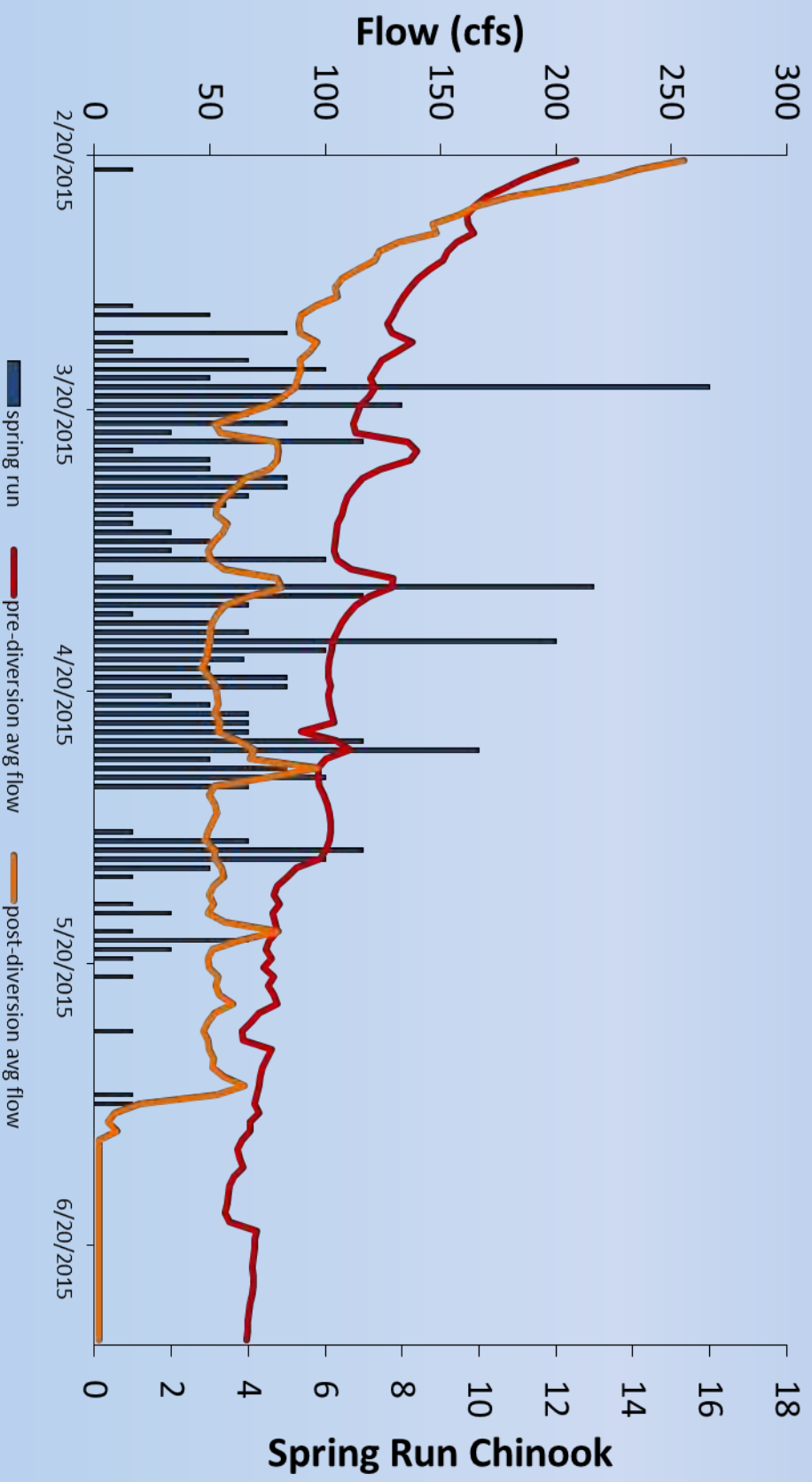
2014-2015 Adult Spring Run Chinook Population Estimates

Year	Deer	Mill	Antelope
2014	830	679	7
2015	268	127	5

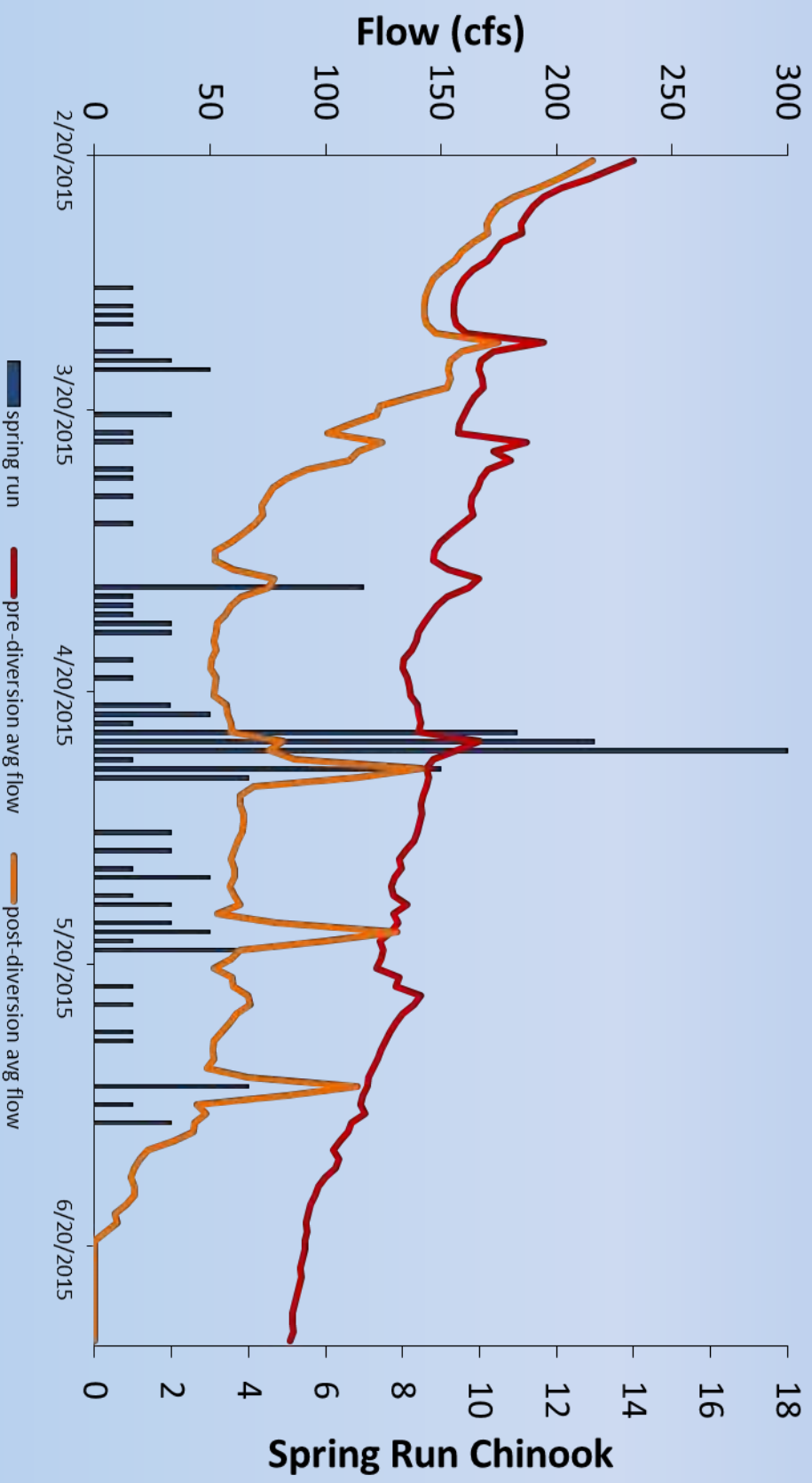
2014-2015 Adult Fall-Entry Steelhead Population Estimates

Year	Deer	Mill	Antelope
2014	77	202	17
2015	3	54	3

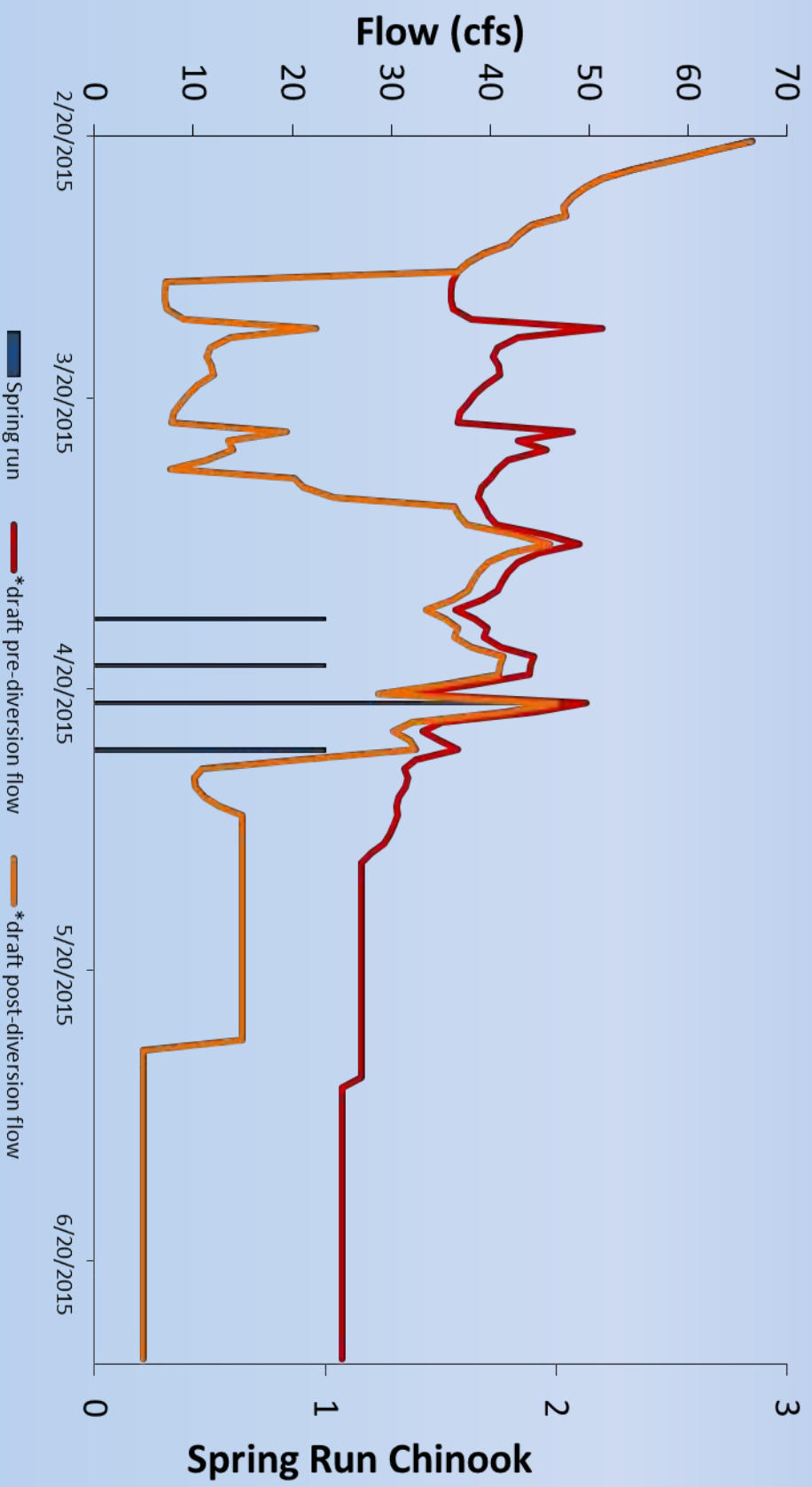
Deer Creek 2015 Spring Run Chinook Passage and Flows



Mill Creek 2015 Spring Run Chinook Passage and Flows



Antelope Creek 2015 Spring Run Chinook Passage and Flows



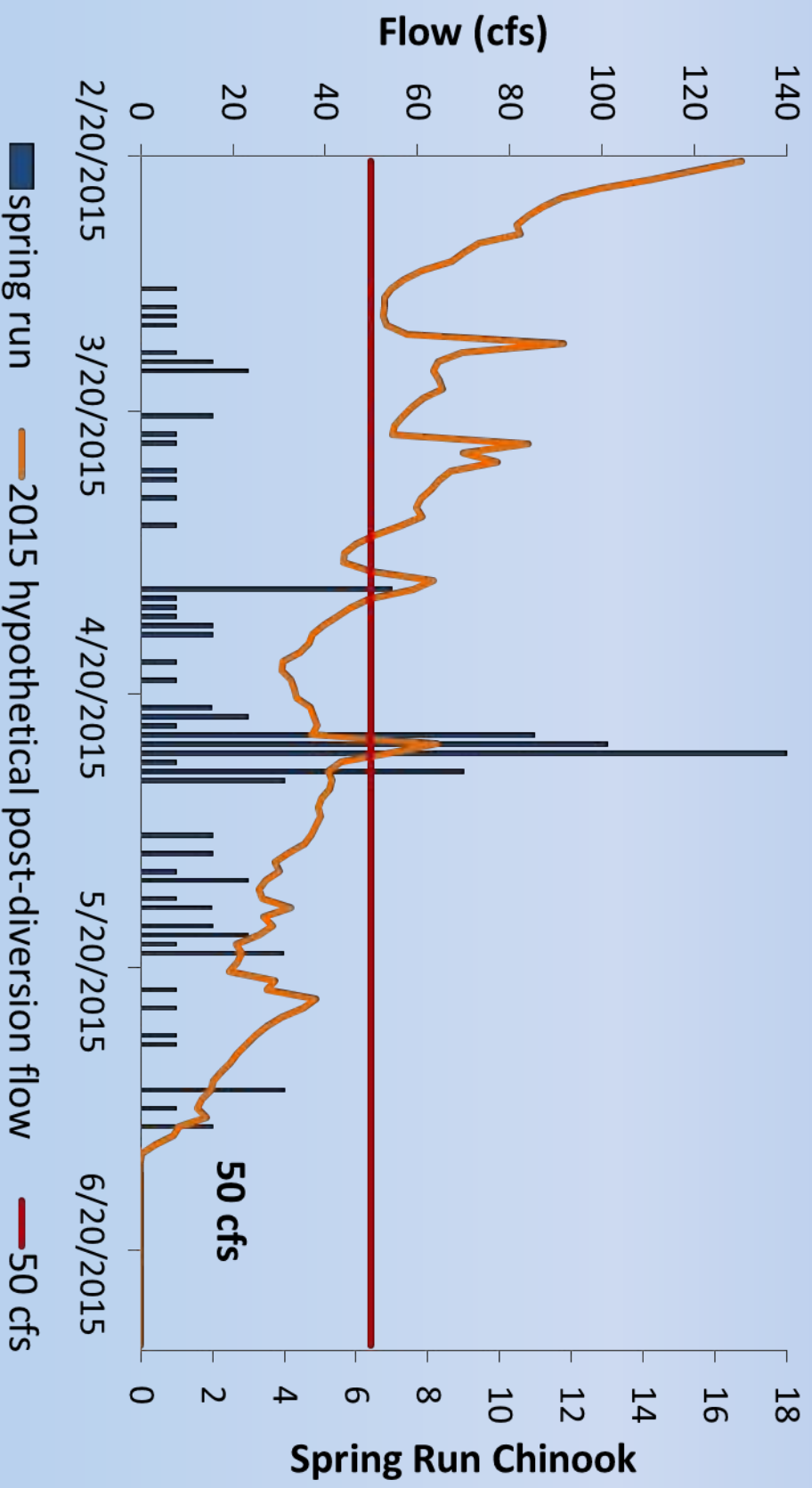
Data Used for Minimum Base Flow Determination

- Mill Creek
 - Harvey-Arrison (2009) 44-67 cfs provided upstream passage for fall run Chinook salmon
 - Alley (1995) recommended 74 cfs in critically dry years to provide passage over critical riffles without physical modification in lower Mill Creek
- Deer Creek
 - In 2014 and 2015 flows of 50 cfs in lower Deer Creek provided passage for adult salmon and steelhead (CDFW)
- Antelope Creek
 - In 2014, flows of 30 to 35 cfs in lower Antelope Creek provided passage for adult salmon and steelhead (CDFW)
- CDFW Position
 - 50 cfs is a minimum flow necessary to maintain anadromous salmonid attraction and provide fish passage while allowing historic agricultural stream diversions to continue under unprecedented drought conditions
 - At 50 cfs, fish passage may still be impeded at critical riffles or diversion structures that do not meet CDFW and NMFS criteria

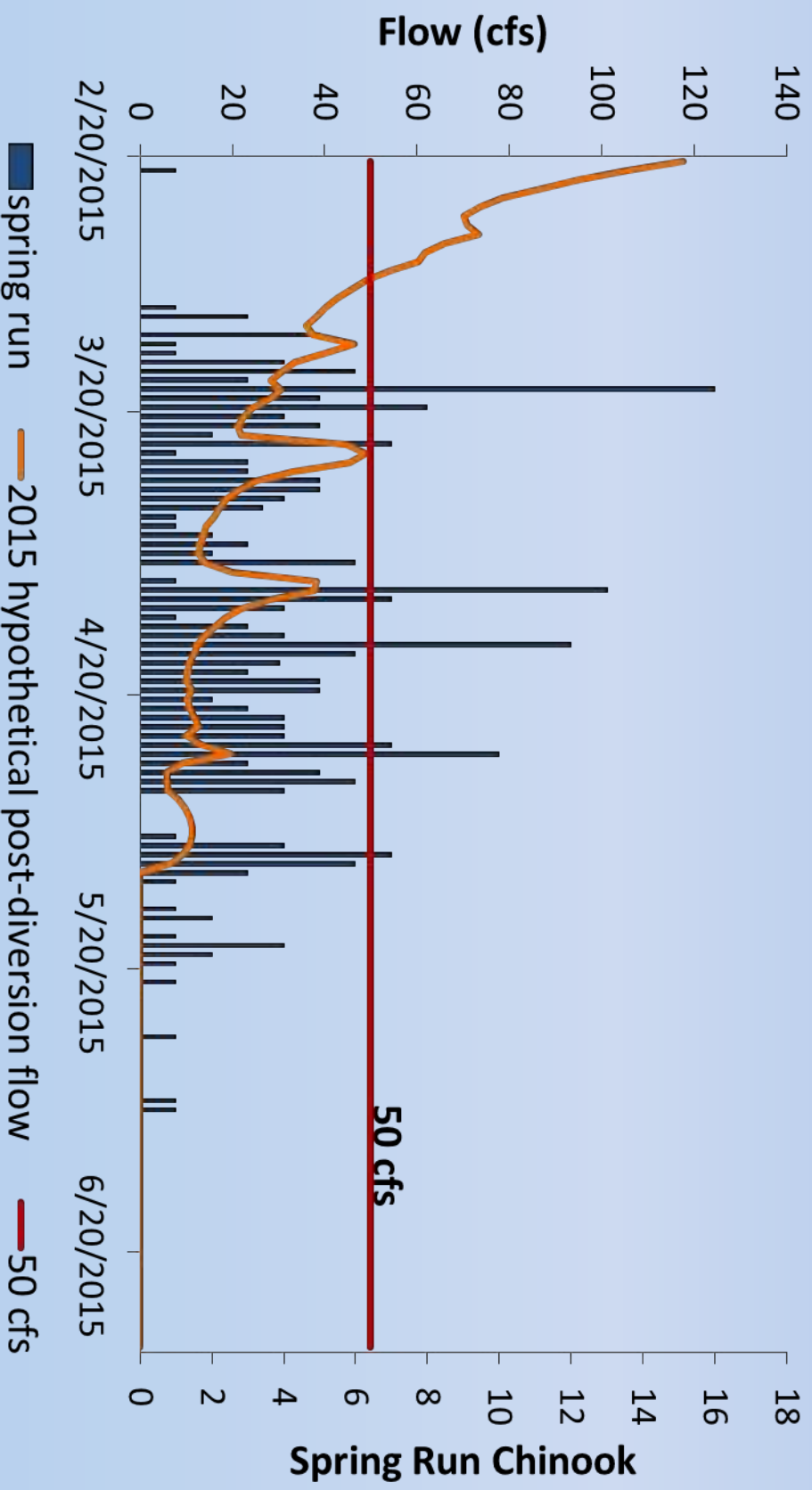
Need for Protective Minimum Flows During Drought

- Mill Creek water rights total 203 cfs
- Deer Creek water rights are for the entire inflow
- Antelope Creek water rights total 130 cfs
- A mechanism is needed to protect listed fish because water rights exceed available water during drought

Mill Creek Without Flow Regulations – Spring 2015



Deer Creek Without Flow Regulations – Spring 2015

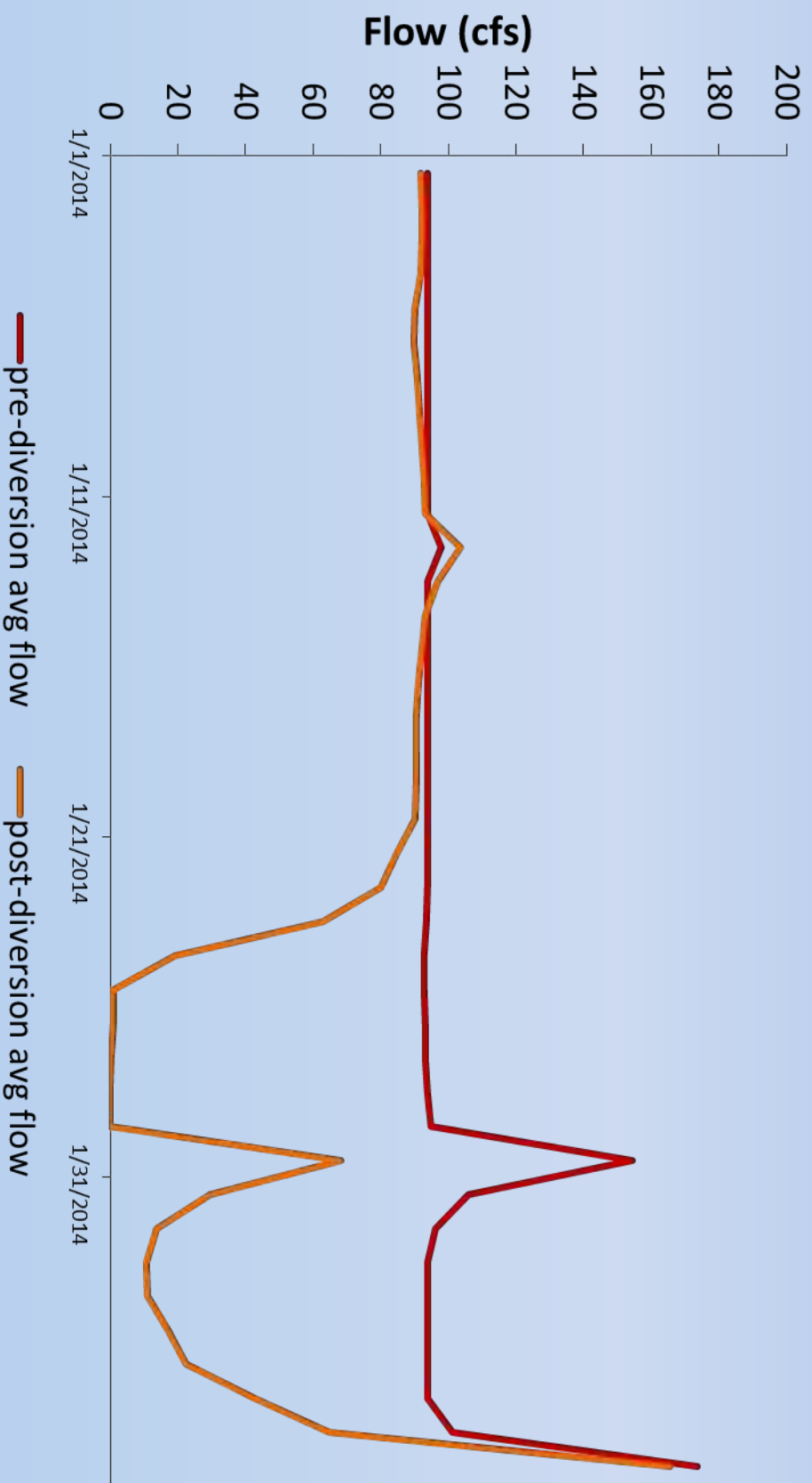


Exceptional Diversion Example

Mill Creek – January 27, 2014



Post vs Pre Diversion Mill Creek Flows – January 2014



Juvenile Chinook Mortalities

Documented January 27, 2014



Water Temperatures and Adaptive Management

- CDFW relies on empirical data to adaptively manage flow requirements based on real-time conditions
 - Adult fish passage at video stations is reviewed as quickly as possible
 - Weekly snorkel surveys are conducted to determine presence of juvenile salmonids
 - Water temperature readings at video stations and at CDEC gages are monitored daily
- Adaptive Management examples
 - 50 cfs adult base flow ended on June 8, 2015, seven days early based on water temperature
 - 20 cfs juvenile base flow were not requested; 22 days of water savings for agriculture based on water temperatures

Mill Creek Spring Run Chinook Passage & Water Temperature

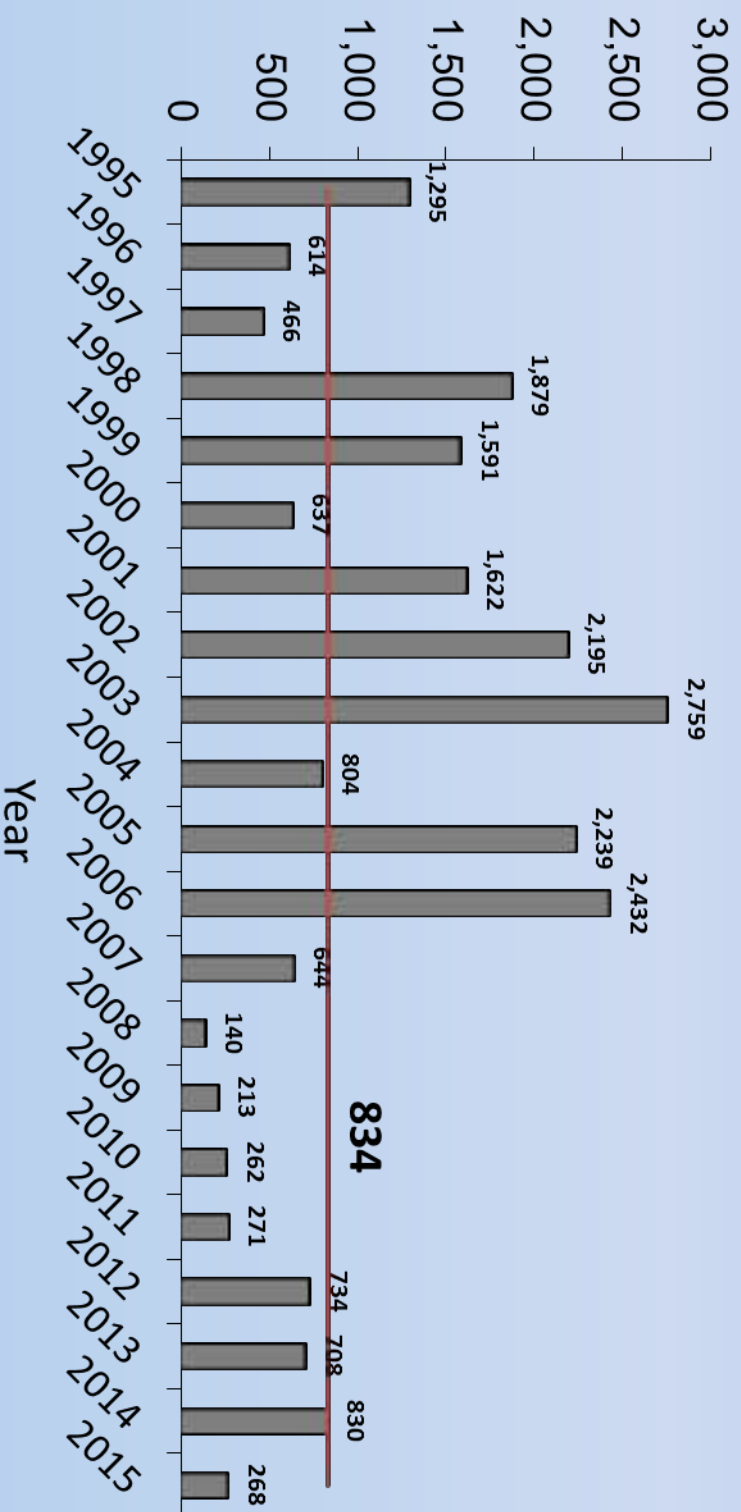
Data

Date	Time	Salmon Up	Instantaneous Temp	MCH Daily Min Temp	MCH Daily Max Temp
17-May	6:00 AM	1	60	59.8	70.1
18-May	3:00 AM	1	62.5	60.7	72.9
18-May	3:30 AM	1	62.4	60.7	72.9
18-May	4:00 AM	1	62.2	60.7	72.9
18-May	11:00 PM	1	64.5	60.7	72.9
22-May	6:00 AM	1	62.1	62.1	74.9
24-May	4:30 AM	1	64.3	63.4	77.6
27-May	2:30 PM	1	76.1	65.5	79.4
28-May	10:00 AM	1	68.4	66.6	80.2
2-Jun	5:00 AM	1	66.3	65.3	77
2-Jun	6:30 AM	1	65.6	65.3	77
2-Jun	2:00 PM	3	74.5	65.3	77
2-Jun	9:30 PM	1	71.6	65.3	77
2-Jun	11:00 PM	1	70.5	65.3	77
4-Jun	11:30 PM	1	70.7	66.9	77.5
6-Jun	11:00 AM	2	70.4	67.2	82.3

Managing to Prevent Extinction in a Historic Drought

- A census population of 2,500 adult spring run Chinook is required for each Deer and Mill Creek stock (Lindley et al. 2007)
 - Census population size is the average number of the three most recent generations multiplied by the average generation time (Lindley et al. 2007)
 - Average annual escapement over the last three generations (2007-2015) should be at least 834
- 2007-2015 Deer Creek spring run Chinook populations averaged 452, with a low of 140 and high of 830
- 2007-2015 Mill Creek spring run Chinook populations average 507, with a low of 127 and high of 768

Deer Creek Spring Run Chinook Population Estimates, 1992-2015



Mill Creek Spring Run Chinook Population Estimates, 1992-2015



2015 CESA MOU Participation

Mill Creek (expired)

- LMMWC
- TNC
- Nobmann Cattle Co.
- OCID

Deer Creek

- DCID (expires May 31, 2016)
- ## Antelope Creek (expired)
- LMMWC

CDFW Negotiations and Outreach with Water Users

- Started negotiations in December, 2014
- SWRCB Meeting on March 17, 2015
- LMMWC (Mill Creek) signed voluntary agreement on March 17, 2015
- Similar to previous years, no voluntary agreements signed until SWRCB passed emergency regulations
- Emergency regulations established minimum flows and encouraged voluntary agreements
- Voluntary agreements provide great benefits
 - CESA take coverage
 - Flow exchange credits
- CDFW continues coordinating with local stakeholders about short and long term goals

CDFW Coordination, Flexibility and Adaptive Management

- 50 cfs adult base flow ended on June 8th, 2015; 7 days early
- 20 cfs spring juvenile base flow were not requested; 22 days of water savings
- Spring pulse flows were requested based on predicted weather
 - Contacted local diverters in advance
 - Provided flexibility to choose dates
- Fall base flows were delayed in 2015
 - Allow final irrigation rotations
 - Complete fish passage project

Flow Exchange Opportunity

- Entities participating in voluntary and flow exchange agreements were compensated via pumping credits
- All entities on Deer and Mill creeks have been offered flow exchange agreements
- CDFW calls on water through exchange agreements
 - Diversers utilize ground pumps
 - DWR pays for pump operations via Delta Fish Agreement

Ongoing CDFW Outreach and Participation in These Watersheds

- Participation on various groups
- Mill Creek
 - Upper Dam
 - Ward Dam
 - Mill Creek Management Committee
- Deer Creek
 - DCID
 - SVRIC
- Antelope Creek
 - Edwards Dam

Attachment C.3.b

Subject: CDFW Presentation Final

Date: Friday, October 30, 2015 at 8:44:38 PM Central European Standard Time

From: Gray, Corinne@Wildlife, CORINNE@WILDLEF762853-3D49-4C1A-AFCE-23279210EA8DD68>

To: Schultz, Daniel@Waterboards, DANIEL@WAT741CC8D3-E434-4A20-905F-BDEBAC8F434FB82>, Ragazzi, Erin@Waterboards, ERIN@WATER0C3CA974-28ED-4FEF-BA90-4B156E175625E6A>

CC: Seymour, Gail@Wildlife, GAIL@WILD6999C982-2A60-4F00-958E-4EC4579C44FA705>

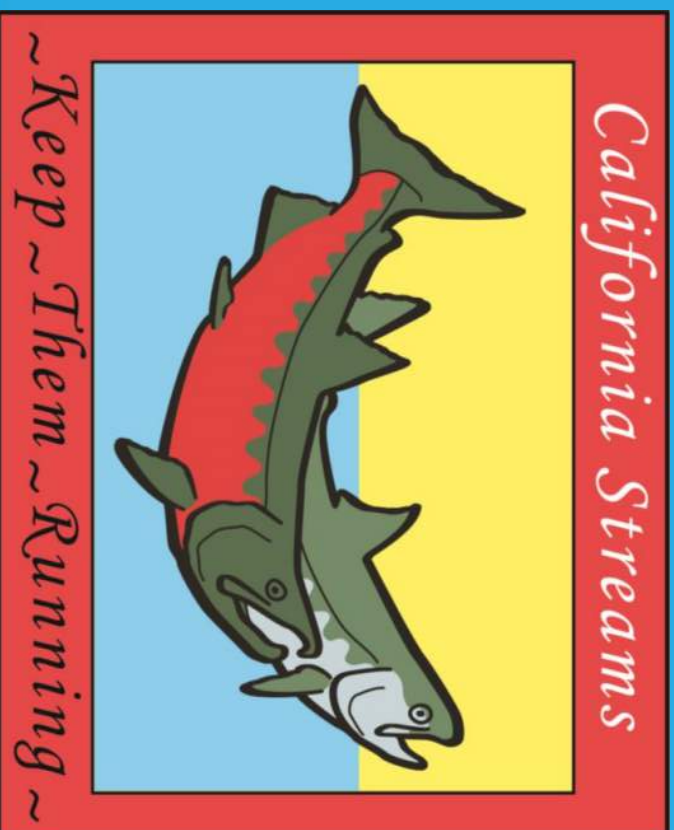
Hi!

Here is the Final. Please disregard the previous version.

Thanks!

Cori

Status of Coho Salmon in the Priority Russian River Tributaries 2015 Drought Update



Corinne Gray, Senior Environmental Scientist (Specialist)
Gail Seymour, Senior Environmental Scientist (Supervisor)
California Department of Fish and Wildlife
Bay Delta Region



Voluntary Drought Agreements in the 4 Tributaries

We have received:

- 35 Residential Conservation VDI's
- 7 Winery/ Vineyard Conservation VDI's



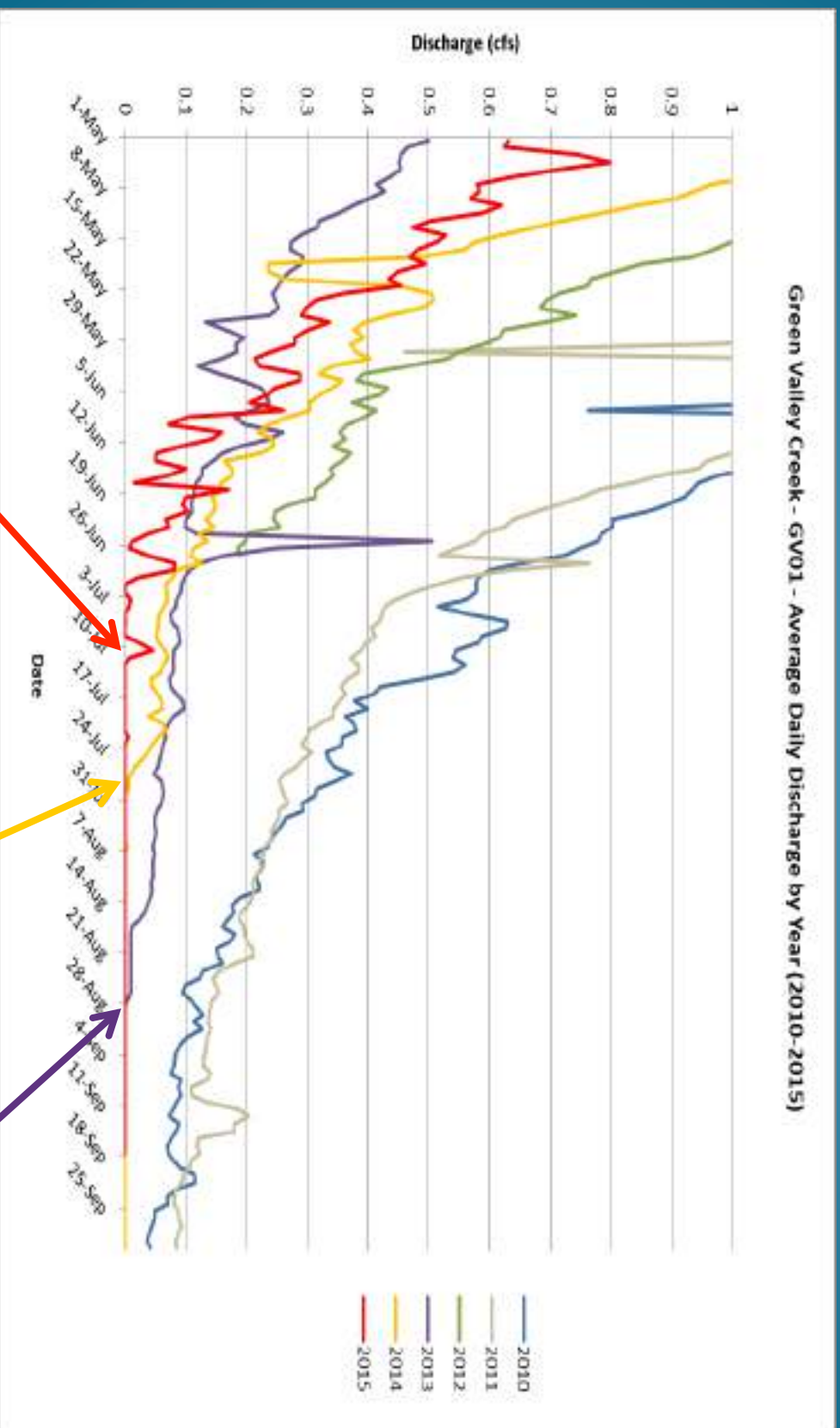
We have also signed:

- 3 Flow Enhancement VDI's for Green Valley Creek
- 2 Flow Enhancement VDI's for Dutch Bill

In addition, 71 winegrape growers representing 1,900 acres of vineyard pledged to reduce water demand by 25 percent.

Green Valley Creek Flow (2010-2015)

Green Valley Creek - GV01 - Average Daily Discharge by Year (2010-2015)



July 2015

August 2014

September 2013

Green Valley Creek Flow Enhancement Projects

- 3 Flow Enhancement VDI's were signed in Green Valley Creek
 - Jackson Family Wines
 - Chris Panyym/ Michael Paine
 - Bob and Dianne Gianni
- All three committed to releasing water into Green Valley Creek **through November** or until flows are restored from rainfall events

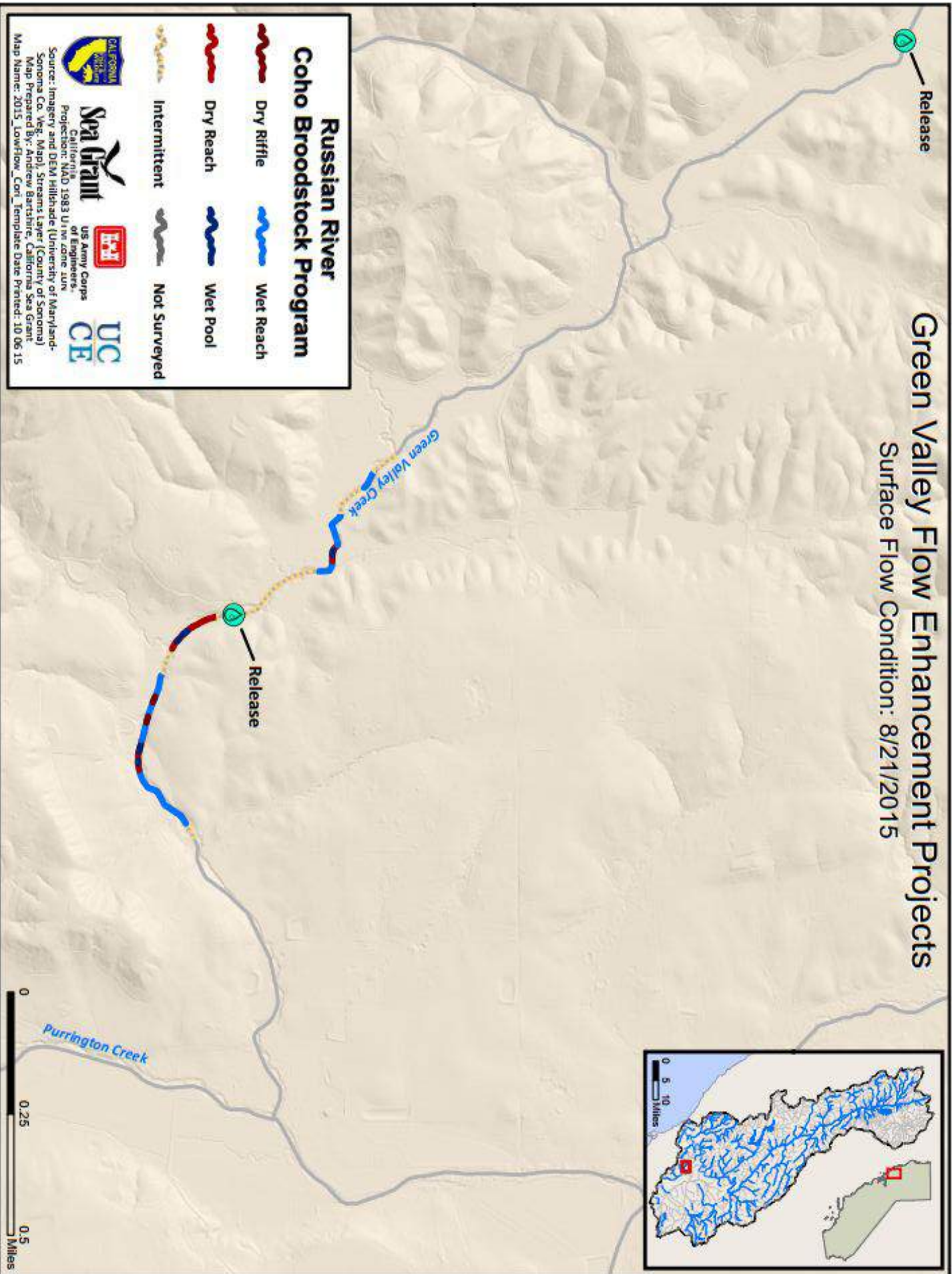


Bones Lane release Site







- **Partners** included: Jackson Family Wines, Chris Panyym, Michael Paine, Bob and Dianne Gianni, ARCG, the Gold Ridge Resource Conservation District, Trout Unlimited, the Occidental Arts and Ecology Center, the Russian River Coho Salmon Captive Broodstock Program, the State Water Resources Control Board, the North Coast Regional Water Quality Control Board, CDFW and NMFS

Green Valley Flow Enhancement Projects

Surface Flow Condition: 8/21/2015



Russian River Coho Broodstock Program

-  Dry Riffle
-  Dry Reach
-  Intermittent
-  Wet Reach
-  Wet Pool
-  Not Surveyed

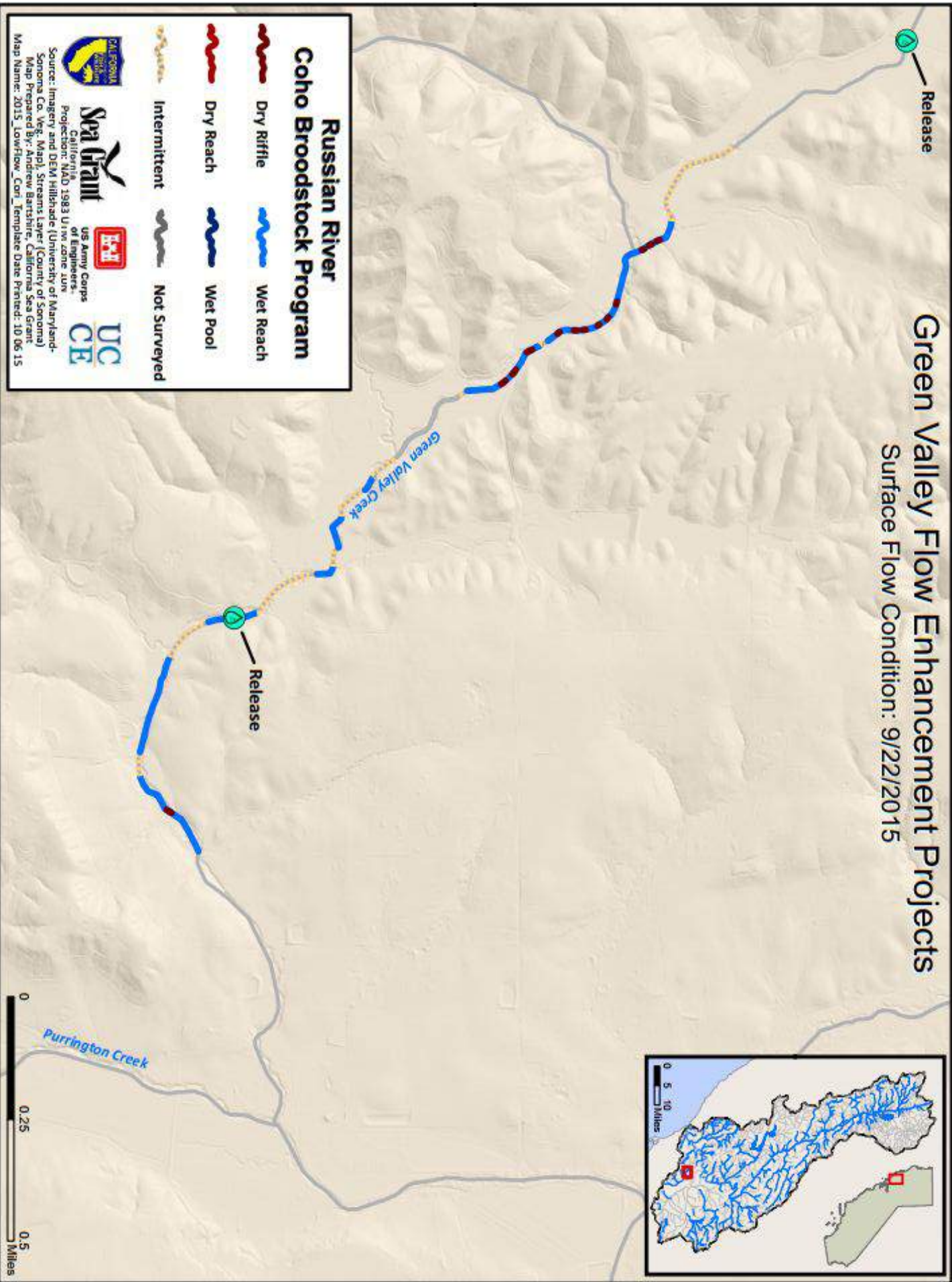


California
US Army Corps
of Engineers
Projection: NAD 1983 UTM zone 10N
Source: Imagery and DEM Hillshade (University of Maryland-Sonoma Co. Veg. Map), Streams Layer (County of Sonoma)
Map Prepared By: Andrew Barshire, California Sea Grant
Map Name: 2015_Lowflow_Corr_Template Date Printed: 10/06/15













Green Valley Flow Enhancement Projects

Surface Flow Condition: 9/22/2015

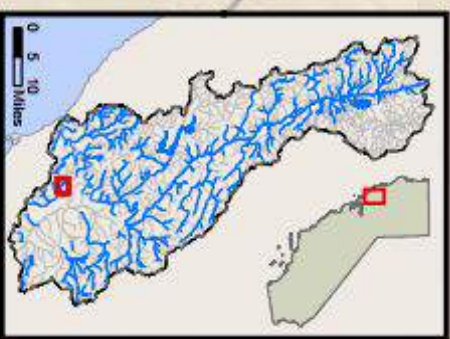


Russian River Coho Broodstock Program

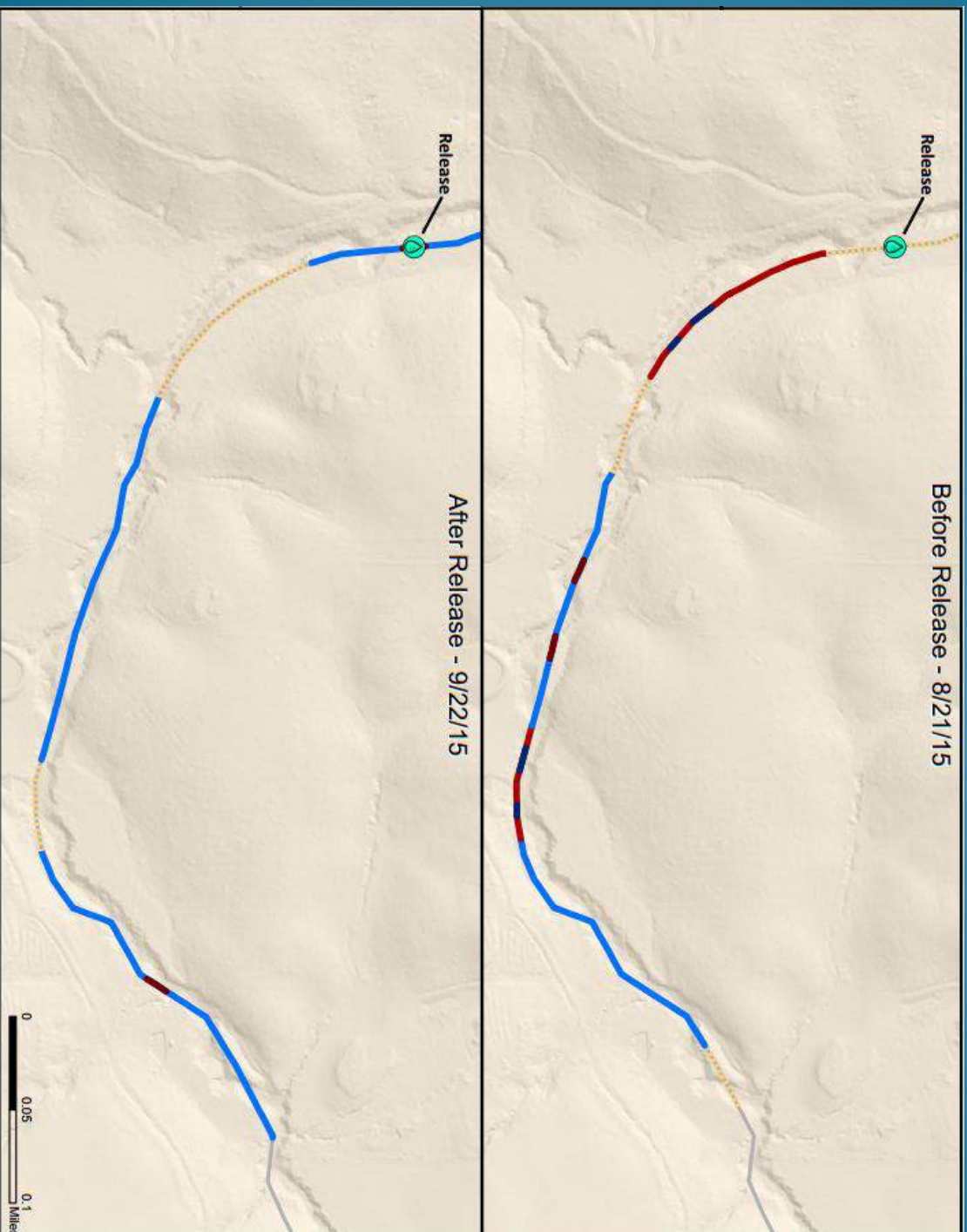
-  Wet Reach
-  Dry Reach
-  Dry Riffle
-  Intermittent
-  Not Surveyed
-  Wet Pool
-  Wet Reach
-  Wet Reach
-  Wet Reach
-  Wet Reach



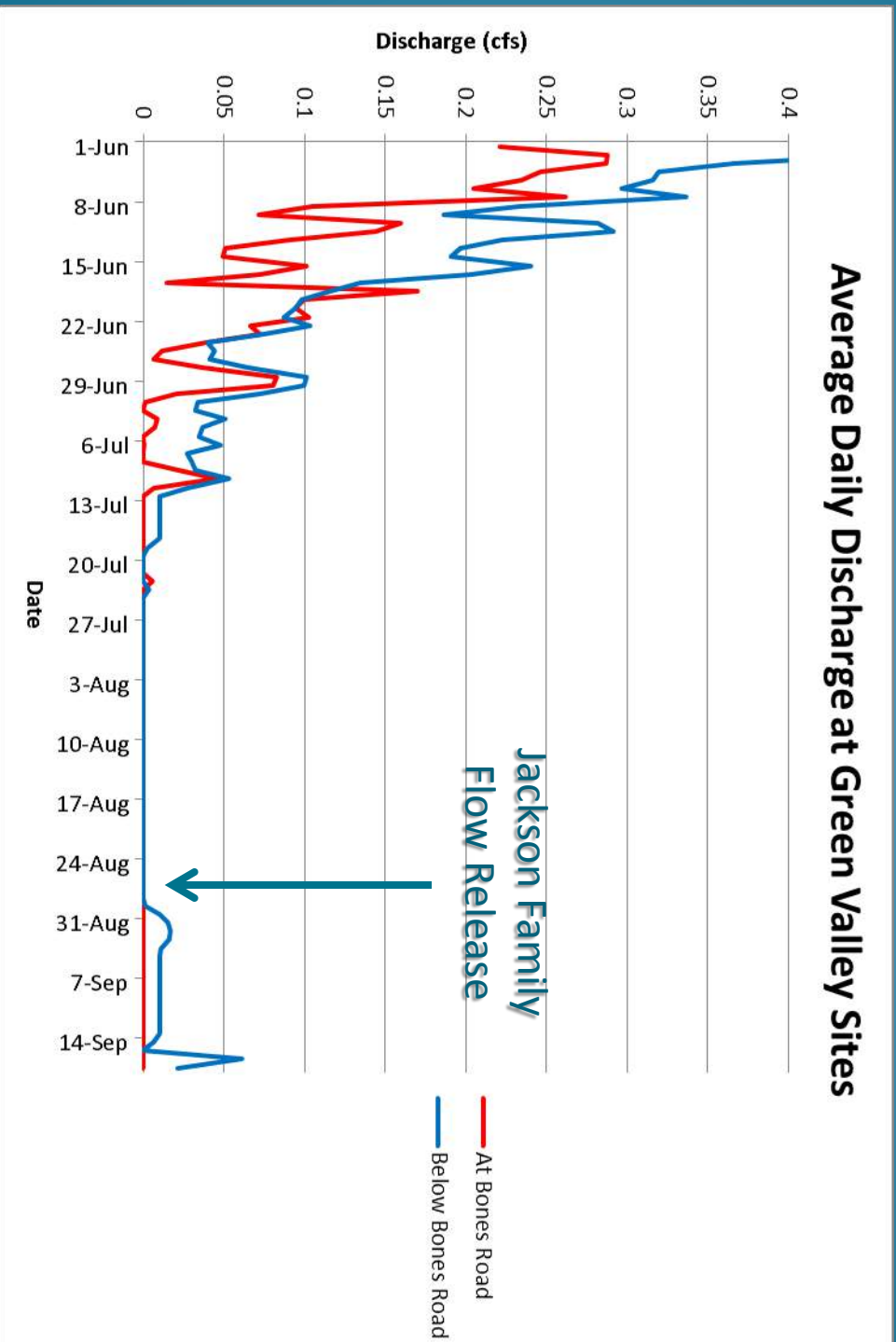
California
US Army Corps
of Engineers
Projection: NAD 1983 UTM zone 10N
Source: Imagery and DEM Hillshade (University of Maryland-
Sonoma Co. Veg. Map), Streams Layer (County of Sonoma)
Map Prepared By: Andrew Bartshire, California Sea Grant
Map Name: 2015_Lowflow_Corr_Template Date Printed: 10/06/15



Bones Lane Release Before and After



Bones Lane Hydrograph above and below Jackson release point



Bones Lane – Downstream Reach

Before



After

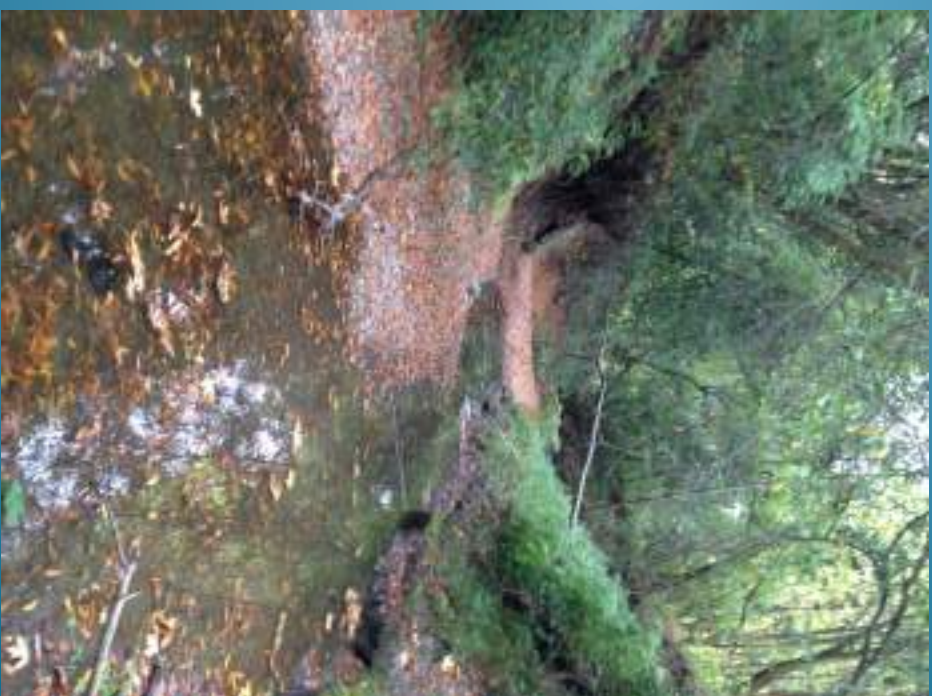


Bones Lane – Upstream Reach

Before

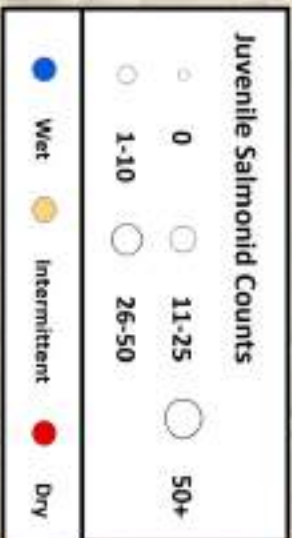
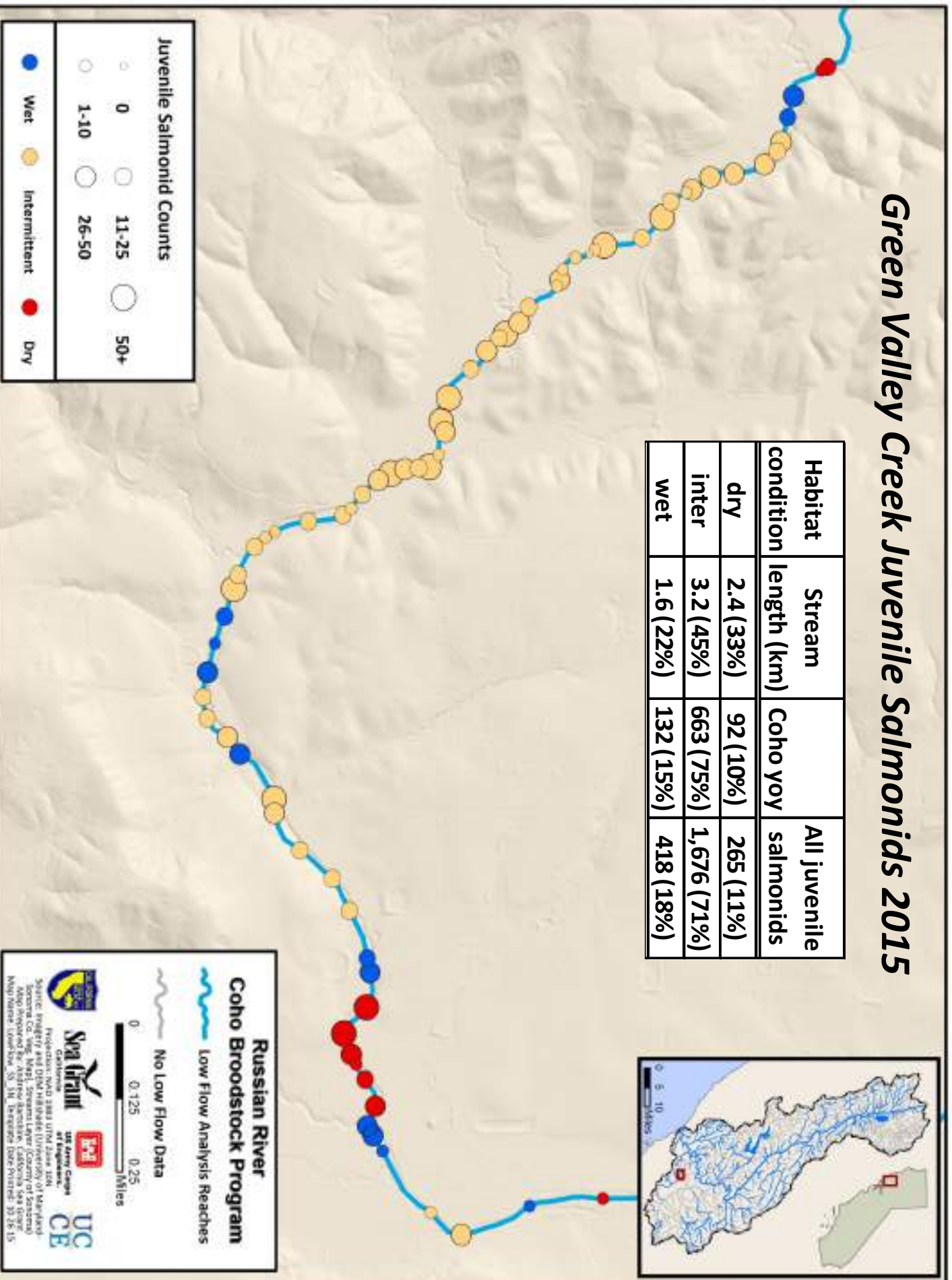


After



Green Valley Creek Juvenile Salmonids 2015

Habitat condition	Stream length (km)	Coho yoy	All juvenile salmonids
dry	2.4 (33%)	92 (10%)	265 (11%)
inter	3.2 (45%)	663 (75%)	1,676 (71%)
wet	1.6 (22%)	132 (15%)	418 (18%)



Russian River Coho Broodstock Program

Low Flow Analysis Reaches

No Low Flow Data

0 0.125 0.25 Miles

Program supported by NOAA under Award Number NA15OAR0127
 Sopa Grant
 UC Davis
 UC CE

Scientific Integrity and Data Accessibility (University of Maryland System)
 Adopted by the National Science Foundation (NSF) in 2003
 Adopted by the National Science Foundation (NSF) in 2003
 Adopted by the National Science Foundation (NSF) in 2003
 Adopted by the National Science Foundation (NSF) in 2003

Dutch Bill Creek Flow Enhancement Projects

- Camp Meeker Recreation and Parks District (CMRPD) volunteered to enhance critically low summer flows in Dutch Bill Creek to protect coho salmon by releasing raw water from its water supply pipeline **continuously through November** or until flows are restored from rainfall events.
 - Approximately 3,400 juvenile coho salmon and steelhead were likely to perish
 - Flow augmentation was initiated on August 25 at a rate of 45 gallons per minute (gpm)
- St Dorothy’s Rest also signed a VDI to release water from an existing reservoir in Upper Dutch Bill Creek

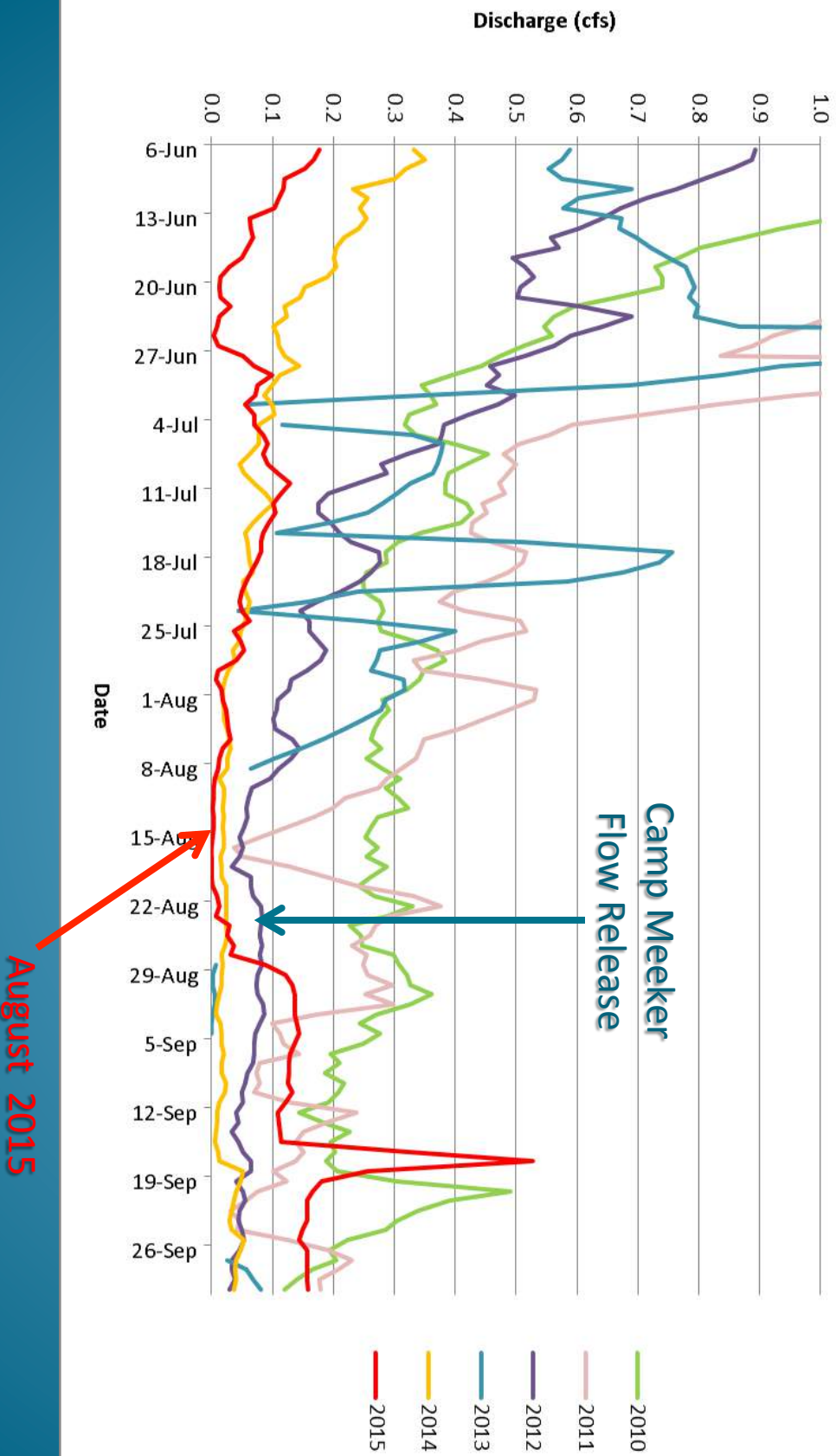


Brock Dolman, from the Occidental Arts and Ecology Center, displays the release of water into Dutch Bill Creek

- **Partners** include: CMRPD, St. Dorothy’s Rest, ARCG, the Gold Ridge Resource Conservation District, Trout Unlimited, the Occidental Arts and Ecology Center, the Russian River Coho Salmon Captive Broodstock Program, the State Water Resources Control Board, the North Coast Regional Water Quality Control Board, CDFW and NMFS

Dutch Bill Creek Flow (2010-2015)

Dutch Bill Creek - DB02 - Average Daily Discharge by Year (2010-2015)



Camp Meeker

Before



After

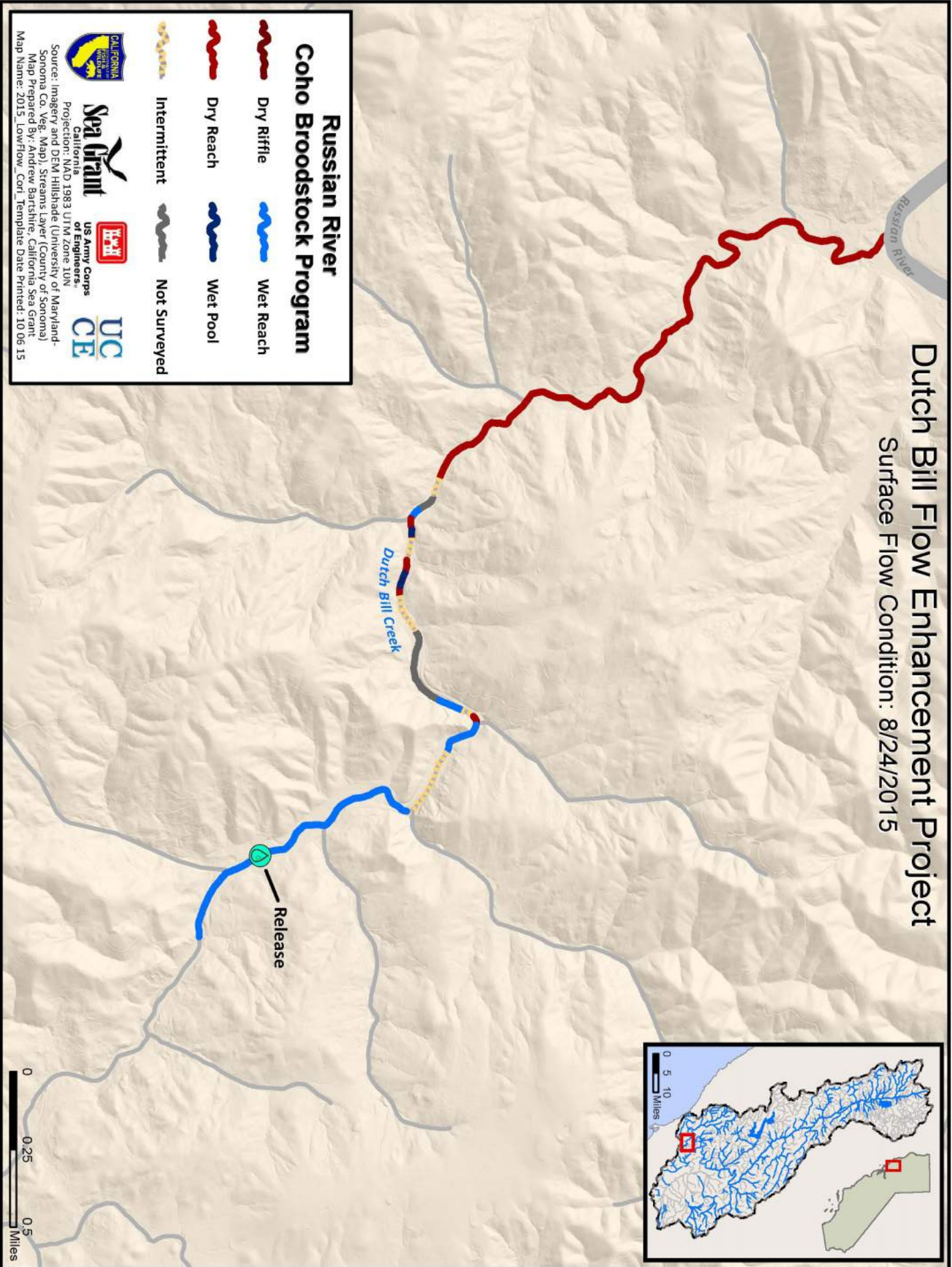


Point of Flow Input



Dutch Bill Flow Enhancement Project

Surface Flow Condition: 8/24/2015



California Department of Fish and Wildlife

Sea Grant

US Army Corps of Engineers

UC CCE

Projection: NAD 1983 UTM Zone 10N

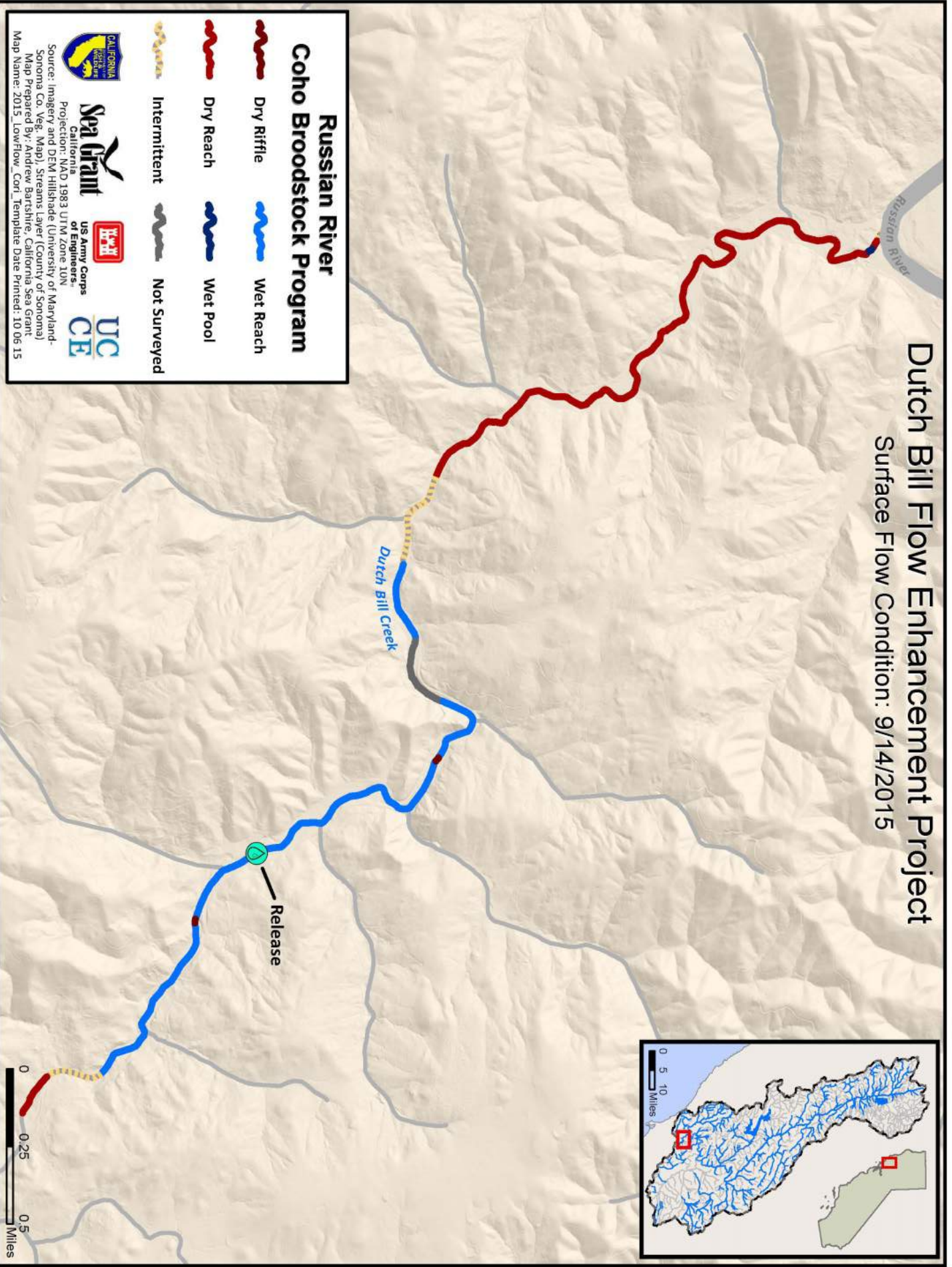
Source: Imagery and DEM Hillshade (University of Maryland-Sonoma Co. Veg. Map), Streams Layer (County of Sonoma)

Map Prepared By: Andrew Barshire, California Sea Grant







Map Name: 2015_LowFlow_Corr_Template Date Printed: 10/06/15

Dutch Bill Flow Enhancement Project

Surface Flow Condition: 9/14/2015



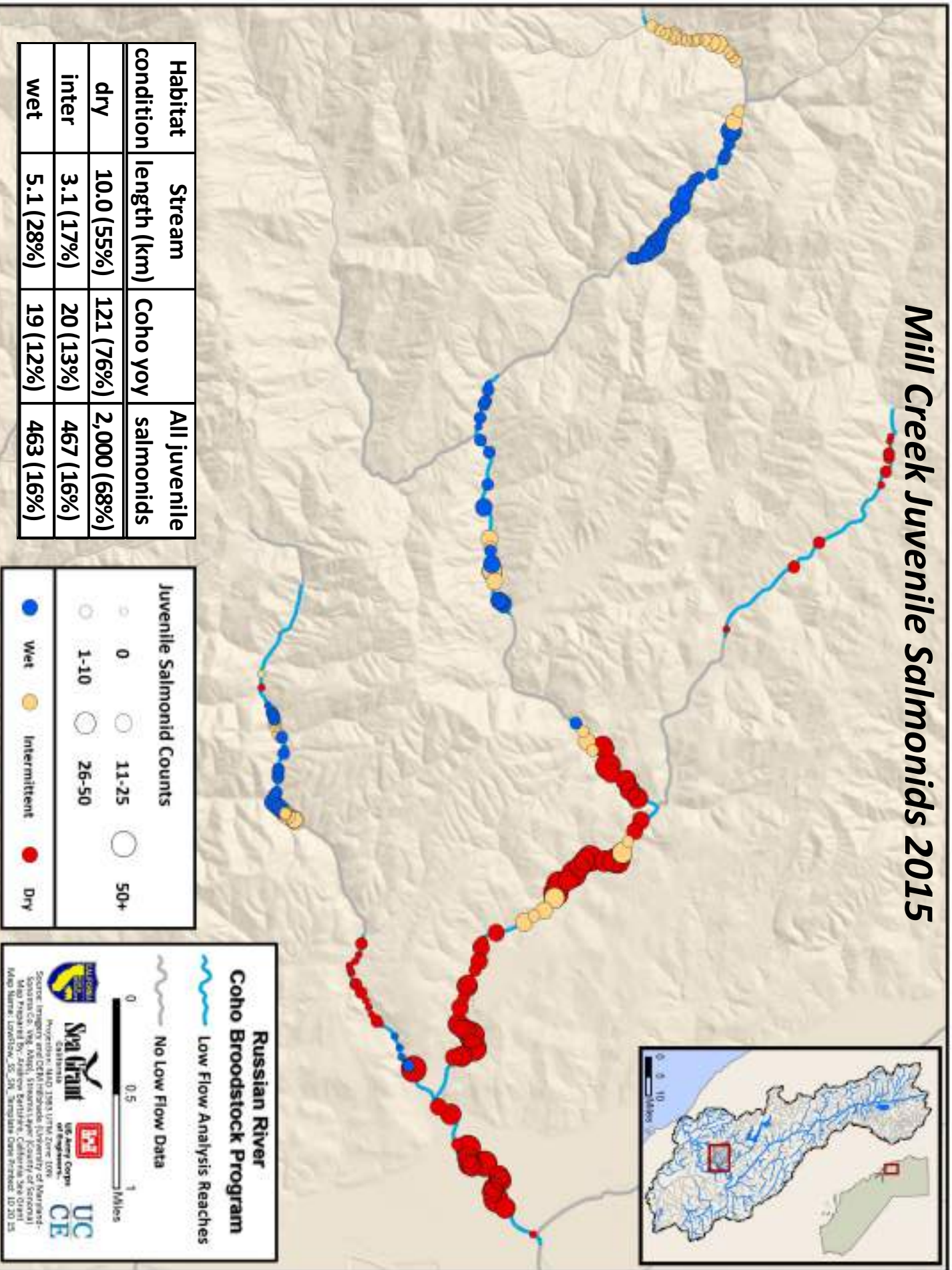
Russian River Coho Broodstock Program

-  Dry Riffle
-  Wet Reach
-  Dry Reach
-  Wet Pool
-  Intermittent
-  Not Surveyed

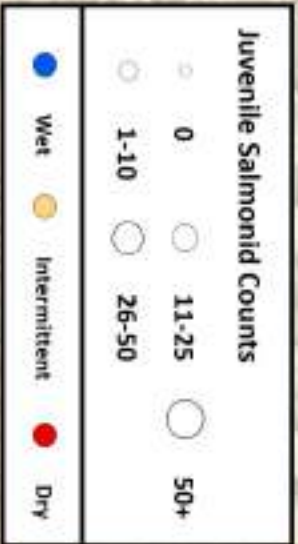


California Department of Fish and Wildlife
 Sea Grant
 US Army Corps of Engineers
 UC CCE
 Projection: NAD 1983 UTM Zone 10N
 Source: Imagery and DEM Hillshade (University of Maryland-Sonoma Co. Veg. Map), Streams Layer (County of Sonoma)
 Map Prepared By: Andrew Bartshire, California Sea Grant
 Map Name: 2015_LowFlow_Corr_Template Date Printed: 10/06/15

Mill Creek Juvenile Salmonids 2015



Habitat condition	Stream length (km)	Coho yoy	All juvenile salmonids
dry	10.0 (55%)	121 (76%)	2,000 (68%)
inter	3.1 (17%)	20 (13%)	467 (16%)
wet	5.1 (28%)	19 (12%)	463 (16%)



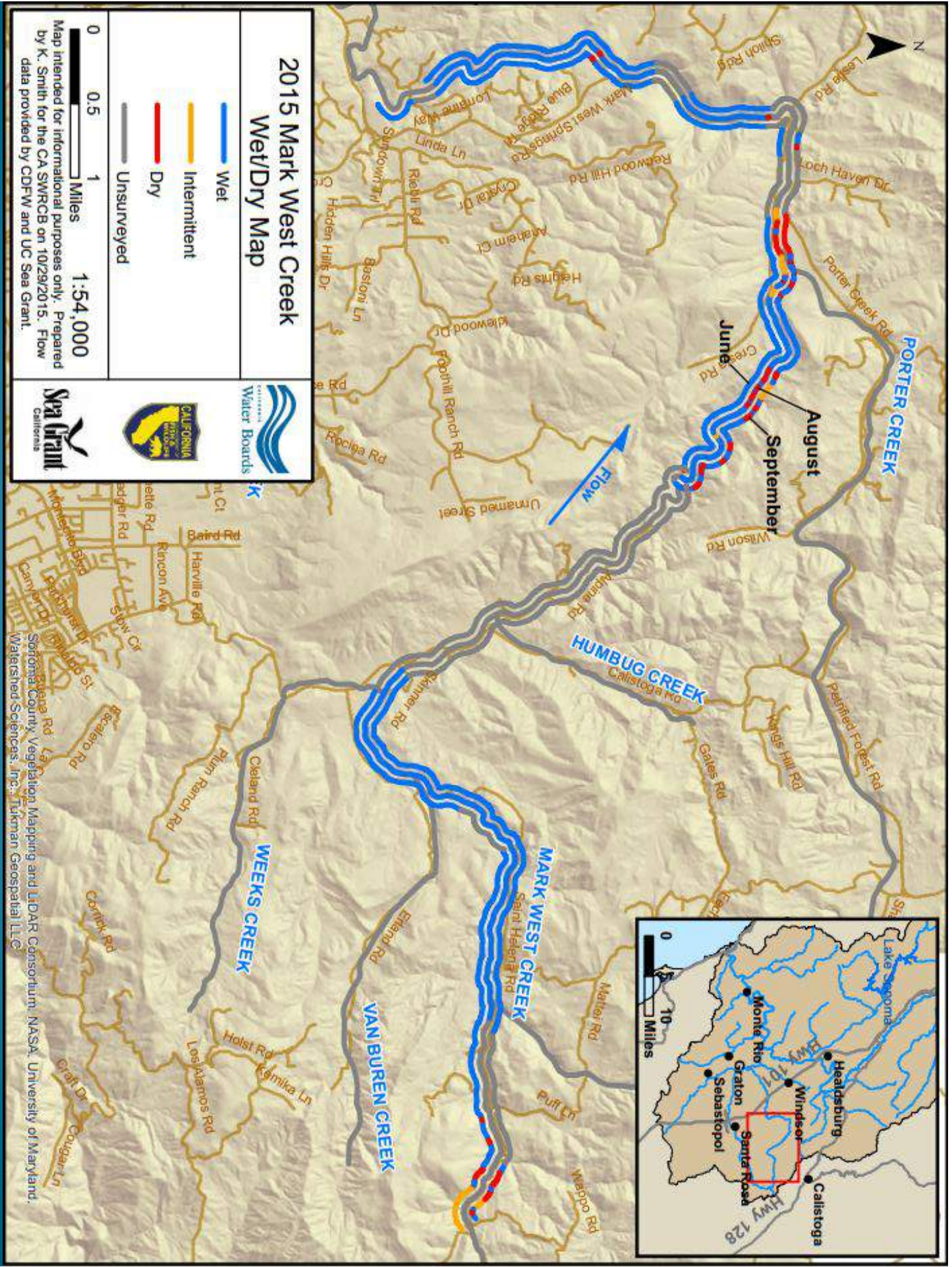
Russian River Coho Broodstock Program

Low Flow Analysis Reaches

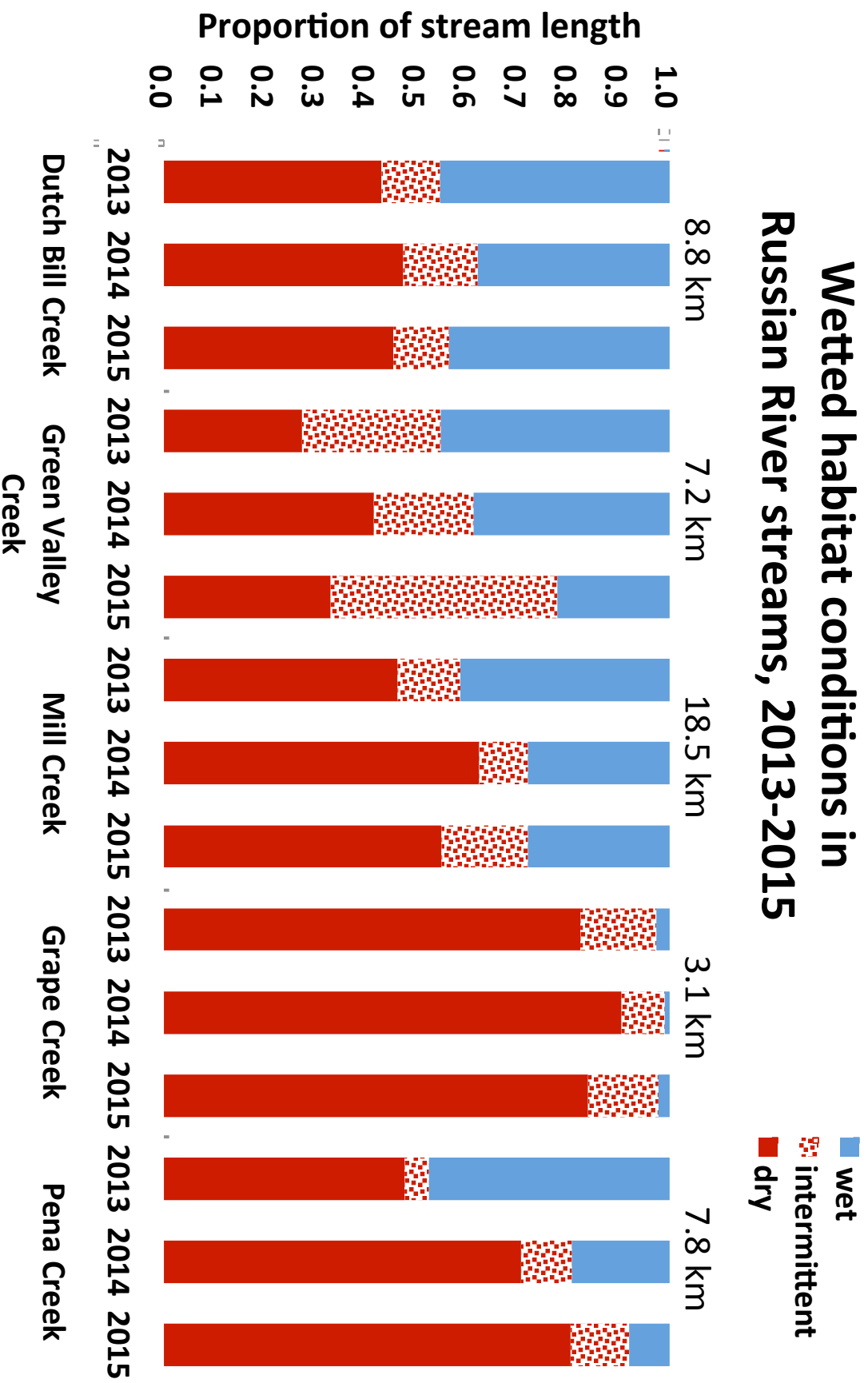
No Low Flow Data

0 0.5 1 Miles

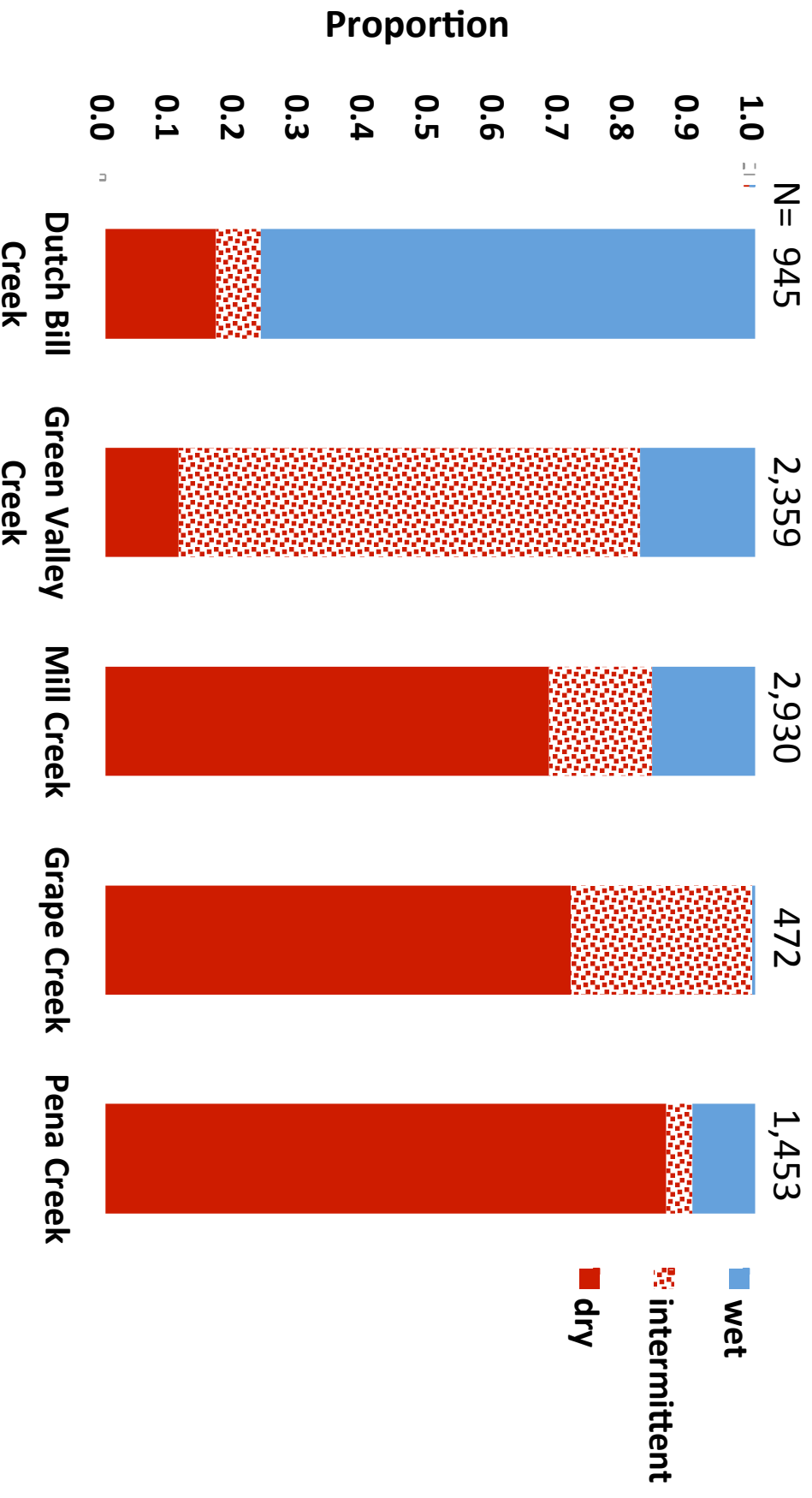
Map Prepared by: Andrew Bartholomew, California Sea Grant
 Map Name: LOWFLOW_05_28_Salmonids Data Project: 10 20 15



Wetted habitat conditions in Russian River streams, 2013-2015



Proportion of summer juvenile salmonid observations in relation to wetted habitat condition in early September



Conclusions

- Conservation Measures can make a difference and the addition of flow enhancement projects from a few exceptional volunteers can make a **big** difference
 - Only a small amount of water can be the difference between life and death for coho salmon
 - 45 gpm = 0.1 cfs, 3 month total = 18 acre-feet
- But, the restoration and **conservation of functional ecosystems** is a more effective and reliable long term solution
 - Springs and seeps are the natural source of summer flows
 - Summer flows are a critical lifeline for the salmonid life-cycle
- VDI's have been a tremendous complement to the Emergency Regulations
 - But they are not likely to replace the need for **comprehensive regulation** of water uses

STILL Seeking Flow Enhancement Projects! (for next year)

3 acre feet
*is enough to
keep a Creek
wetted for
almost one
whole month.*



Please come talk to me if you are interested in
releasing your stored water for flow
enhancement!

“Flow for Fish” Rebate Program

Without the “Fish for Flow” program, none of the Flow Enhancement Projects could have been implemented this summer.

Thank you Jackson Family Winery for your original \$20,000 donation and for an additional \$20,000 for 2015!!!



It's not over yet!!



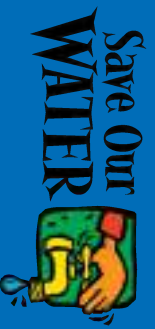
- Please contact Mary Ann King if you'd like to donate equipment or time, and/or provide financial support
mking@tu.org or (510) 649-9987



Corinne Gray, Senior Environmental Scientist

CDFW Bay Delta Region

707-944-5526 corinne.gray@wildlife.ca.gov



Attachment C.3.c

Subject: FW: Draft SWRCB Presentation - CONFIDENTIAL

Date: Friday, March 13, 2015 at 11:51:51 PM Central European Standard Time

From: Roberts, Jason@Wildlife, JASON@WILD6CAEDF58-FB81-4D68-B36F-A964A6745F3DC97>

To: Ragazzi, Erin@Waterboards, ERIN@WATER0C3CA974-28ED-4FEF-BA90-4B156E175625E6A>, Schultz, Daniel@Waterboards, DANIEL@WAT741CC8D3-E434-4A20-905F-BDEBAC8F434FB82>

Priority: High

From: Johnson, Matt@Wildlife

Sent: Friday, March 13, 2015 2:41 PM

To: Murray, Nancee@Wildlife

Cc: Roberts, Jason@Wildlife

Subject: RE: Draft SWRCB Presentation - CONFIDENTIAL

Importance: High

Sensitivity: Confidential

There is a typo slide #11 on the presentation. I incorrectly stated that "An estimated total of 203 fall-entry steelhead entered Mill Creek between November 1 and December 10, 2014. It should read "between October 18 and December 10, 2014 ". Very sorry about that. I attached a correct copy. Matt

From: Murray, Nancee@Wildlife

Sent: Wednesday, March 11, 2015 5:07 PM

To: Johnson, Matt@Wildlife

Cc: Roberts, Jason@Wildlife

Subject: RE: Draft SWRCB Presentation - CONFIDENTIAL

Sensitivity: Confidential

Sounds good. Sorry for the delay.

Nancee Murray

Senior Staff Counsel

California Department of Fish and Wildlife

(916) 654-3818

nancee.murray@wildlife.ca.gov

From: Johnson, Matt@Wildlife
Sent: Wednesday, March 11, 2015 5:06 PM
To: Murray, Nancee@Wildlife
Subject: RE: Draft SWRCB Presentation - CONFIDENTIAL
Sensitivity: Confidential

Thanks to you and Shannon for the edits Nancee. I am out of time today but will make those changes and give you and Jason one more look at the presentation by 10:00 am tomorrow morning. matt

From: Murray, Nancee@Wildlife
Sent: Wednesday, March 11, 2015 4:37 PM
To: Johnson, Matt@Wildlife
Subject: FW: Draft SWRCB Presentation - CONFIDENTIAL
Sensitivity: Confidential

Matt:

I think we have caught the typos, but the order of Slide 6 and 7 may be something to look at.

Nancee Murray

Senior Staff Counsel

California Department of Fish and Wildlife

(916) 654-3818

nancee.murray@wildlife.ca.gov

From: Little, Shannon@Wildlife
Sent: Wednesday, March 11, 2015 4:17 PM
To: Murray, Nancee@Wildlife
Subject: RE: Draft SWRCB Presentation - CONFIDENTIAL
Sensitivity: Confidential

Hi Nancee,

I think these look good. I noticed that slide 6 has a conclusion about temperatures, but that comes before slide 7, which illustrates temperature. Perhaps those could be switched? I also wonder whether, assuming Slide 6 is based on Slide 5 and 7, it would be more accurate on Slide 6 to say that temperatures were too high because of low flows, which resulted from excessive diversions – just to connect all of the dots very cleanly and not leap from temperature to diversions. Does that make sense?

I also noticed the following typos:

Slide 6:

- CDFW concludes that water temperatures were to o warm in lower Deer Creek in June for spring run because of excessive diversions

Slide 10

- A total of **52** late-migrating spring run entered Mill Creek during June in 2014. Only **2** late-migrating spring run entered Deer Creek in June, 2014. These 2 fish migrated under exceptional low flow and ~~ward~~warm water conditions

Slide 13

- An estimated total of **88** fall-entry steelhead entered ~~Mill~~Deer Creek between October 25 and December 8, 2014.

If you're okay with these, please feel free to forward to Matt, or I can if you like.

Thanks!

Shannon

From: Murray, Nancee@Wildlife
Sent: Wednesday, March 11, 2015 12:22 PM
To: Little, Shannon@Wildlife
Subject: FW: Draft SWRCB Presentation - CONFIDENTIAL
Importance: High
Sensitivity: Confidential

Shannon:

Your thoughts are welcome. I have not yet reviewed this draft – hugely busy with other things today.

I can tell you the strategy thought behind it.

Nancee Murray

Senior Staff Counsel

California Department of Fish and Wildlife

(916) 654-3818

nancee.murray@wildlife.ca.gov

From: Johnson, Matt@Wildlife
Sent: Wednesday, March 11, 2015 12:03 PM
To: Murray, Nancee@Wildlife; Roberts, Jason@Wildlife
Subject: RE: Draft SWRCB Presentation - CONFIDENTIAL
Importance: High
Sensitivity: Confidential

Nancee and Jason,

Here is my latest draft —I changed the headers on the text slides to reflect more of a “This is what CDFW recommended, and this is what we got from the diverters and the fish ” tone. I also added some language concluding why CDFW thinks things did not work for spring run on Deer. I also changed the placement of the slides some and whittled the slides down some. I also added slides detailing final steelhead data for fall 2014.

I hope this is pretty close to final. I think it is coming together as a pretty decent product but I am still very open for any final suggestions and I should have time to make those happen before noon tomorrow. Thanks,
Matt

From: Murray, Nancee@Wildlife
Sent: Tuesday, March 10, 2015 12:41 PM
To: Johnson, Matt@Wildlife; Roberts, Jason@Wildlife
Subject: RE: Draft SWRCB Presentation - CONFIDENTIAL
Sensitivity: Confidential

Matt:

Have you talked to Dan to better figure out what Curtis 's cryptic description below means?

I do think we also need to say something about the Fall period. The SWRCB did order curtailment in the fall of 2014. Do we have data to share regarding fish numbers for the fall? One or two slides about the fall period?

Question on the use of the word average in your slides. Daily average? Weekly? Monthly? Who calculates that?

For Antelope Creek, I see the slide showing SR passage and average post diversion flow. There is a break in the line. Do we not have gauge data for the time period? No gauge data for June?

Jason – would like your thoughts on the conclusion portion of the slide that discusses June pulse flow events. I don 't think "habitat conditions had severely degraded prior to event " is clear enough. It sounds like it was something out of diverter control. I think it is more like, water levels had been so low prior to the pulse flow that water temperature in Deer Creek had increased and fish were not attracted/present/???

Gotta run. Will give it more thought tomorrow.

Nancee Murray

Senior Staff Counsel

California Department of Fish and Wildlife

(916) 654-3818

nancee.murray@wildlife.ca.gov

From: Johnson, Matt@Wildlife
Sent: Tuesday, March 10, 2015 12:19 PM
To: Murray, Nancee@Wildlife; Roberts, Jason@Wildlife
Subject: RE: Draft SWRCB Presentation - CONFIDENTIAL
Sensitivity: Confidential

Here is a second draft of the presentation with attempt to incorporate suggestions —Still considering value of the June pulse flow comparison (Deer vs Mill two versions of presenting this data included in draft) and what to report in the presentation about Antelope. I also added to slides for Curtis to speak from -- CESA MOU participation in 2014. I have plenty of time to work on this between now and Thursday noon if you have any ideas/suggestions. Matt

From: Murray, Nancee@Wildlife
Sent: Friday, March 06, 2015 2:25 PM
To: Johnson, Matt@Wildlife; Roberts, Jason@Wildlife
Subject: RE: Draft SWRCB Presentation - CONFIDENTIAL
Sensitivity: Confidential

CONFIDENTIAL

Matt and Jason:

On slide 8, it would be more clear to me if you showed the Mill and Deer difference in temperature and the volume of flow. That is the relationship you are trying to show – flow and temperature. That slide has temperature and fish passage. Can you do a flow and temperature slide?

I am still trying to figure out if slides 10 and 11 are value added. What do you think, Jason?

I think we need to say something about Antelope. Do we not have much data on Antelope in 2014? If we don't have much data, we need to say that and why we didn't have the data in 2014 and what we will do differently in 2015 to get the data. Part of the 2015 solution is to get the Emergency Regulation implemented earlier, correct?

Curtis 's Feb. 27 email said that the SWRCB wanted information on

“Changes in flow duration – shortened run were adopted, decrease flow, need for pulse flow”. I don 't understand what he is getting at. Do you? Do you feel like you have covered it?

We need a few slides to walk the SWRCB BRIEFLY what we are recommending for 2015. Those should be the end. Essentially, based on what we learned in 2014, for 2015, CDFW and NMFS are recommending

A GREAT START!

Nancee Murray

Senior Staff Counsel

California Department of Fish and Wildlife

(916) 654-3818

nancee.murray@wildlife.ca.gov

From: Johnson, Matt@Wildlife
Sent: Friday, March 06, 2015 12:06 PM
To: Murray, Nancee@Wildlife; Roberts, Jason@Wildlife
Subject: Draft SWRCB Presentation - CONFIDENTIAL
Sensitivity: Confidential

Nancee, Here is a first draft of the presentation.

Here is an overview of the concept behind each slide --

1st slide: Overview of the three watersheds with short discussion on closeness of watersheds in the ESU and therefore “relatedness ” in terms of similar history needs (flow, temp, run-timing)

2nd and 3rd slides: Overall run-timing and stream flow in 2014. Emphasize need for protection of late-season run-component here.

4th and 5th slides: Text emphasizing flow conditions in June (curtailment period). Text emphasizing greater fish passage in June on Mill vs Deer resulting from higher flows in Mill

6th slide: Graphic illustrating text/discussion of 4th and 5th slides

7th slide: Text illustrating Mill water temp cooler than Deer in June (curtailment period). Discussion on why this was so —larger volume of water in Mill at that time

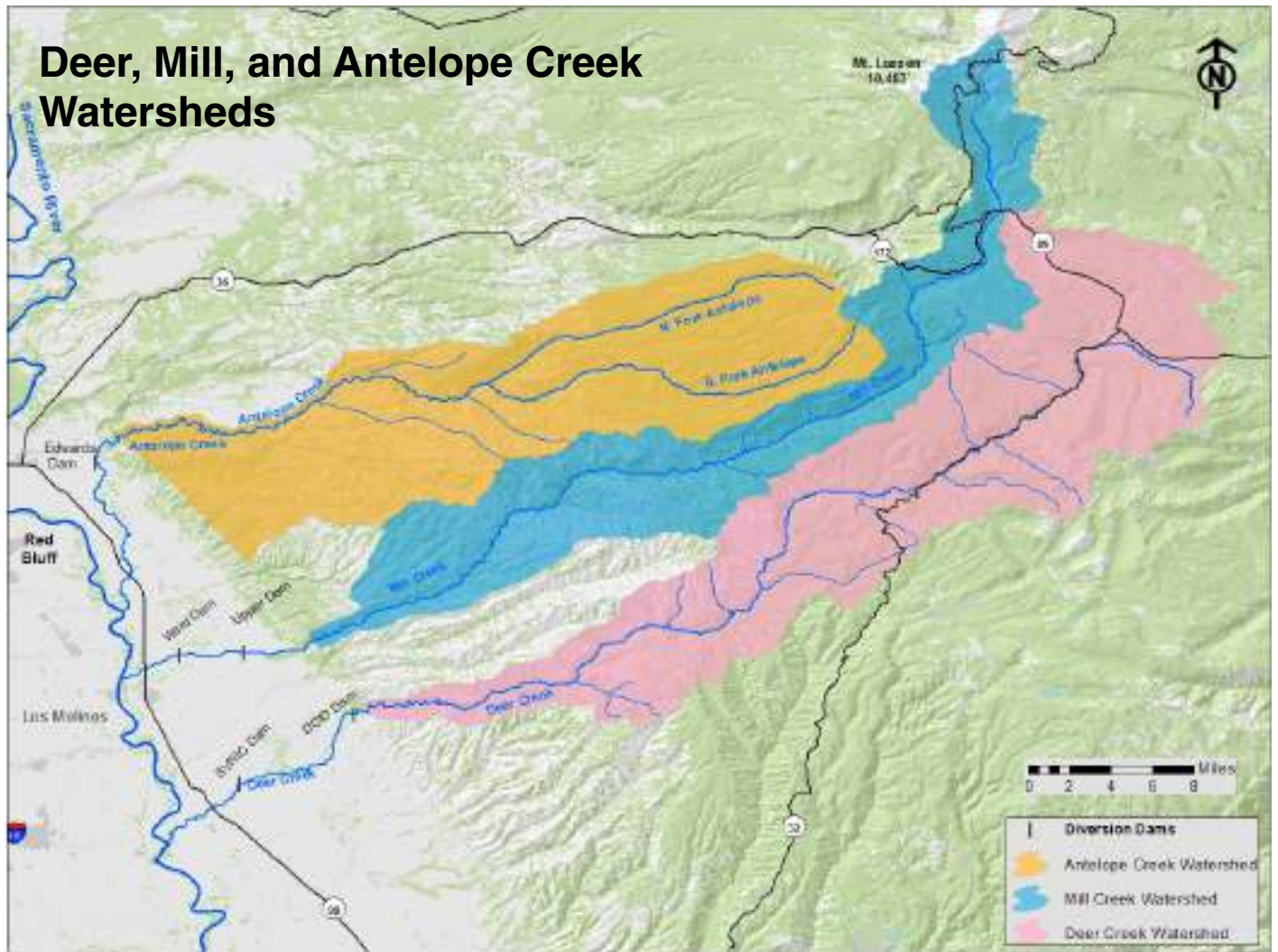
8th slide: Graphic illustrating text in slide 7

9th slide: Text on June pulse flow results and discussion

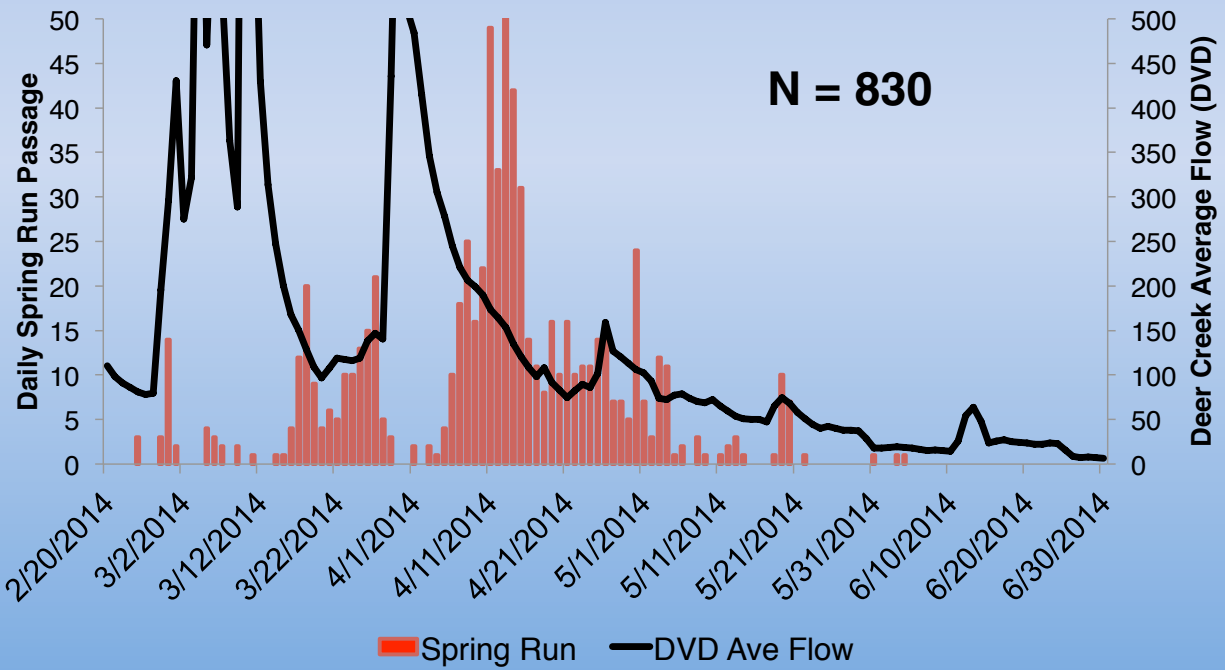
10th and 11th slides: Graphics of June pulse flow results on Deer and Mill

Finally, I am not sure what to do about Antelope. At this point Antelope has no slide. Matt

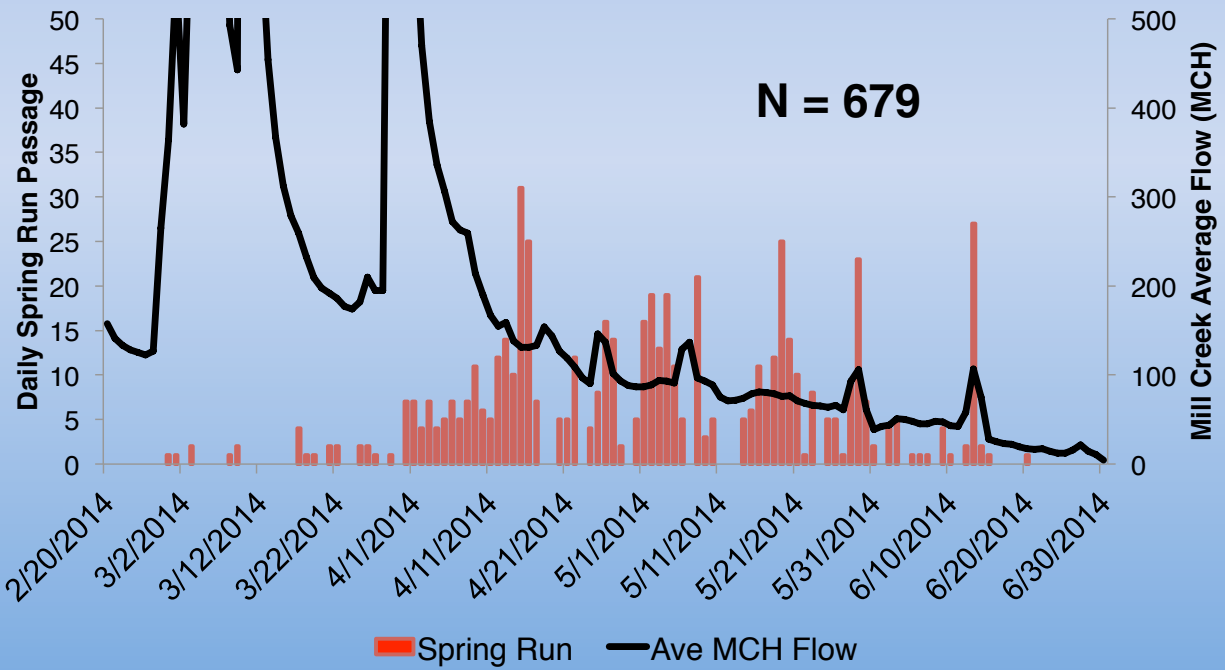
Deer, Mill, and Antelope Creek Watersheds



2014 Deer Creek Spring Run Total Passage



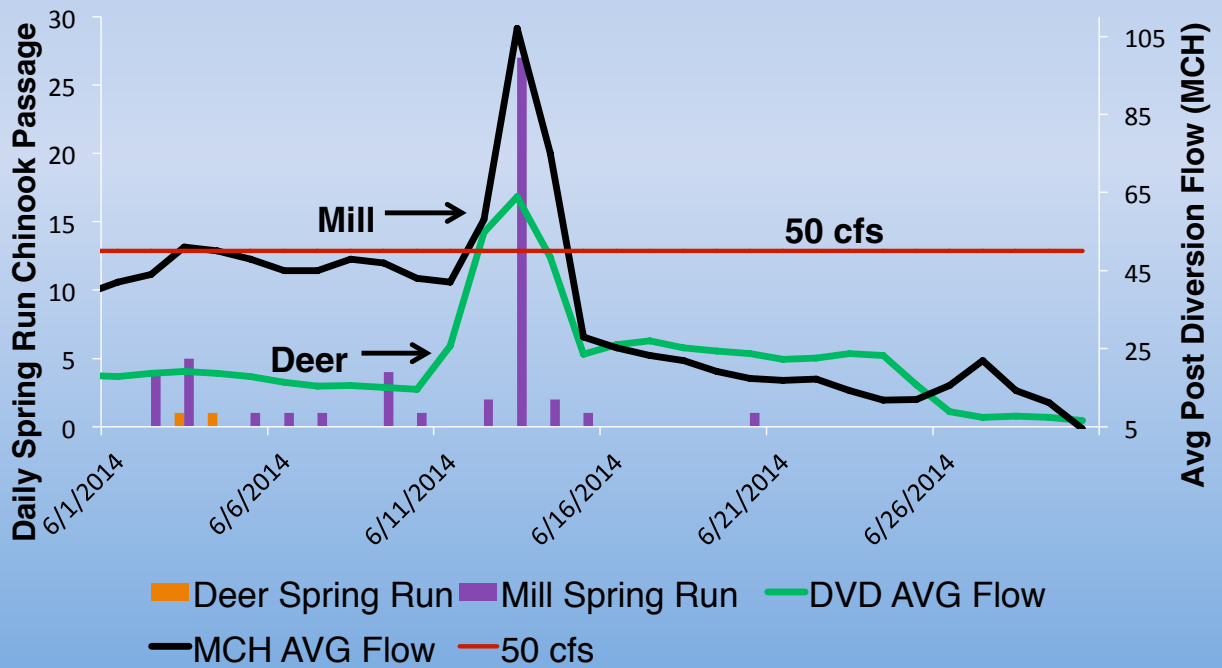
2014 Mill Creek Spring Run Total Passage



In 2014 CDFW Recommended a Minimum 50cfs Base Flow in Deer and Mill Creek Through June 15 to Pass Late-Migrating Spring Run

- Average daily post-diversion Deer Creek stream flow recorded by CDEC June 1-June 11 in 2014: **18cfs**
- Average daily post-diversion Mill Creek stream flow recorded by CDEC June 1-June 11 in 2014: **46cfs**

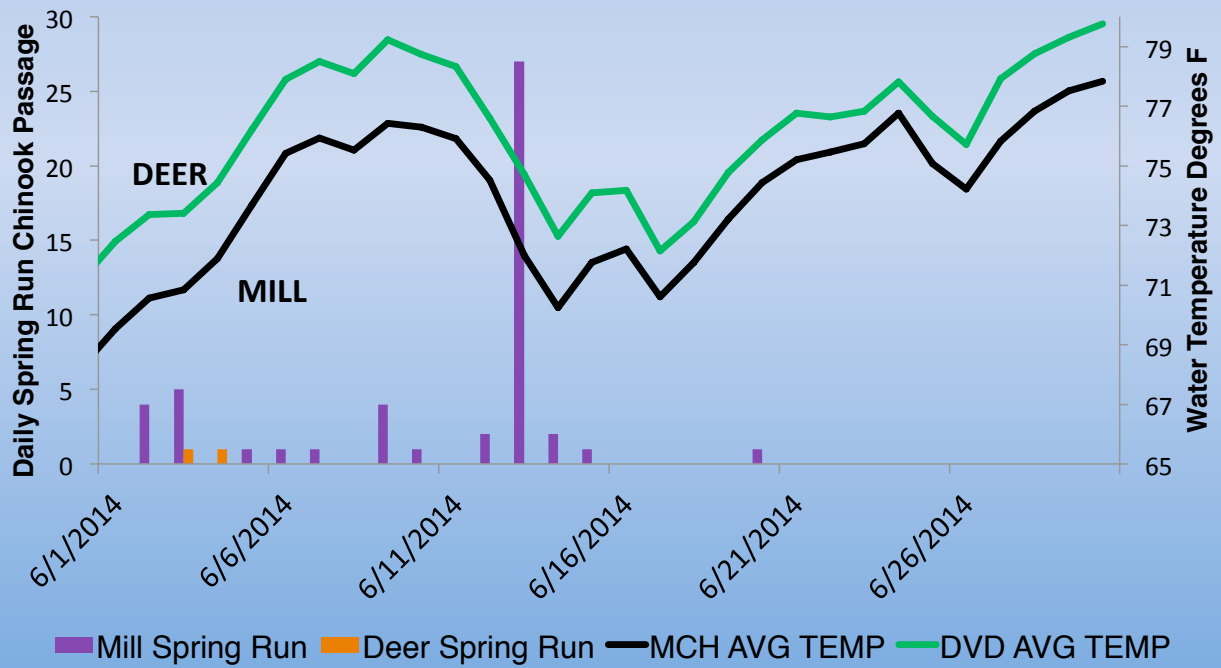
Deer vs Mill Post Diversion Flow June



CDFW Recommended a 50 cfs Minimum Base Flow in June on Deer and Mill to Maintain Tolerable Water Temperatures for Late-Migrating Spring Run

- June 1-11 Mill Creek daily post diversion water temperatures averaged 3 degrees cooler than Deer Creek.
- CDFW concludes that due to insufficient post-diversion instream flow in Deer Creek, water temperatures became too warm in June for spring run.

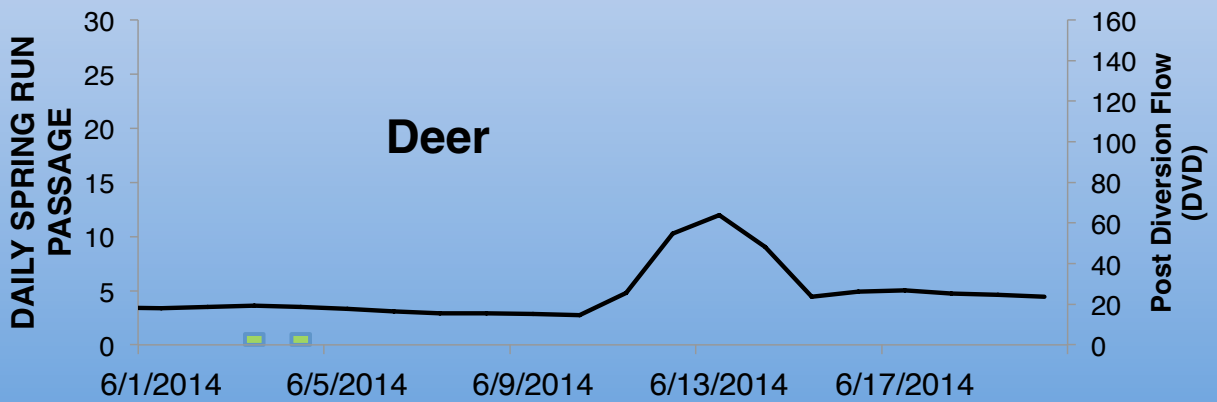
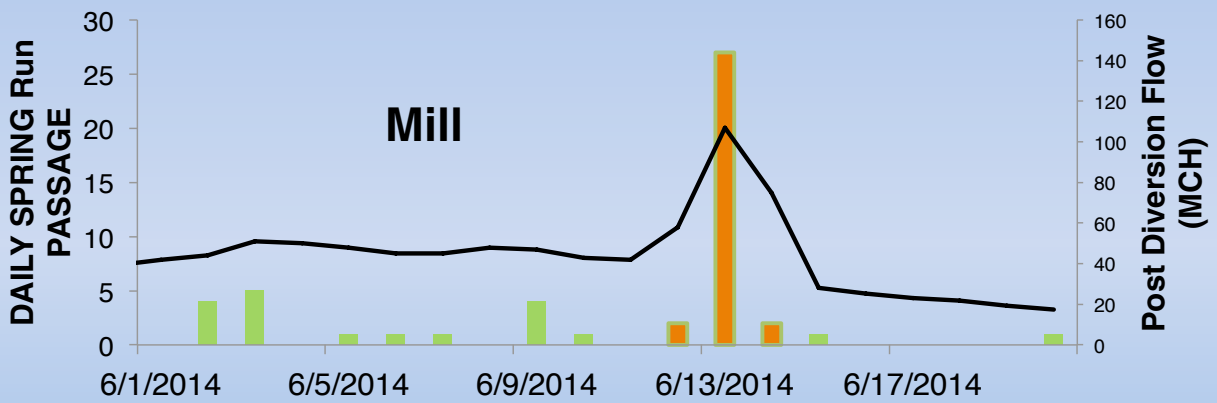
Deer vs Mill Water Temperature June



CDFW Recommended a June Pulse Flow to Facilitate Late-Migrating Spring Run in 2014

- Observed spring run entering Mill Creek during June 12 -14 pulse flow: **32**
- Observed spring run entering Deer Creek during June 12-14 pulse flow: **0**
- CDFW concludes Deer Creek spring run showed no response to the June pulse flow due to low stream flows and high water temperatures in lower Deer Creek June 1-11 resulting from diversions.

June Pulse Flow Response: Mill vs Deer



Protection of Late-Migrating Spring Run in Deer and Mill in 2014 in Conclusion:

- A total of **52** late-migrating spring run entered Mill Creek during June in 2014. Only **2** late-migrating spring run entered Deer Creek during June in 2014. These 2 fish migrated under exceptional low flow and warm water conditions.
- CDFW concludes that additional spring run would have entered Deer Creek in June had the recommended flows in lower Deer Creek been provided.

2014 Mill Creek CV Fall Steelhead Passage

- CDFW CESA MOU fall flow restoration date: October 15.
- Diverters complied with flow restoration October 15.
- First fall-entry CV steelhead observed at video station October 18.
- An estimated total of **203** fall-entry steelhead entered Mill Creek between October 18 and December 10, 2014.

2014 Deer Creek CV Fall Steelhead Passage

- SWRCB Curtailment fall flow restoration date: October 15.
- Diverters complied with flow restoration October 15.
- First fall-entry CV steelhead observed at video station October 25.
- An estimated total of **88** fall-entry steelhead entered Deer Creek between October 25 and December 8, 2014.

2014 Antelope Creek CV Fall Steelhead Passage

- CDFW CESA MOU fall flow restoration date: November 1.
- Diverters voluntarily restored full unimpaired flow on October 26.
- First fall-entry CV steelhead observed at video station November 1st.
- An estimated total of **17** fall-entry steelhead entered Antelope Creek between November 1 and December 3, 2014.

Water Rights Holders Entering into CESA MOU's with CDFW in 2014:

- 4 water rights holders on Mill Creek signed CESA MOU's (approximately 80% of total adjudicated flow)
- 2 water rights holders on Deer Creek signed CESA MOU's (approximately 35% of total adjudicated flow)
- 2 water rights holders on Antelope Creek signed CESA MOU's (100% of total adjudicated flow)

Water Rights Holders Who Entered into CESA MOU's With CDFW in 2014

Mill Creek	Deer Creek	Antelope Creek
Los Molinos Mutual Water Company	Deer Creek Irrigation District	Edwards Ranch
Nobmann Cattle LLC	Grant Leininger	Los Molinos Mutual Water Company
Peyton Pacific Properties		
The Nature Conservancy		

2015 CDFW/NMFS Spring Flow Recommendation for Mill and Deer Creeks :

- **Adult Base Flows:** 50 cfs below lowest diversion dam January 1 through June 15.
- **Juvenile Base Flows:** 20 cfs below lowest diversion dam January 1 through June 30.
- **Pulse Flows:** Full natural flow as measured above diversions for a minimum of 48 hours, not to exceed 72 hours up to once every two weeks April 1 through June 15.

2015 CDFW/NMFS Spring Flow Recommendation for Antelope Creek:

- Adult Base Flows: 35 cfs below Edwards diversion dam January 1 through May 15.
- Juvenile Base Flows: 15 cfs below Edwards diversion dam January 1 through May 30.
- Pulse flows: Full natural flow as measured above Edwards diversion dam for a minimum of 48 hours, not to exceed 72 hours up to once every two weeks April 1 through May 15.

**2015 CDFW/NMFS Fall Flow
Recommendation for Mill and Deer
Creeks :**

- Adult Base Flows: 50 cfs below lowest diversion dam October 15 through December 31.
- Juvenile Base Flows: 20 cfs below lowest diversion dam October 15 through December 31.

2015 CDFW/NMFS Fall Flow Recommendation for Antelope Creek:

- Adult Base Flows: 35 cfs below Edwards diversion dam November 1 through December 31.
- Juvenile Base Flows: 15 cfs below Edwards diversion dam November 1 through December 31.

Attachment C.3.d

Subject: Mill Flows Group presentation 5-19-2016

Date: Thursday, May 19, 2016 at 5:28:32 PM Central European Summer Time

From: Johnson, Matt@Wildlife, MATT@WILDLF5B11367-F176-4E87-B9F1-1E52EAFE4005F31>

To: Anderson, William@Waterboards, WIL1CE4591D-5589-4E20-A07E-7DA7BCF577E8944>, , Marc J.@Waterboards, MAR177BB840-CE38-4335-B27C-80B09A7D0092679>

CC: Gregg Werner' (gwerner@TNC.ORG)

Hi Will and Marc,

Here is a pdf copy of the fish update I am giving today. Matt

Matt Johnson

Environmental Scientist

California Dept. of Fish and Wildlife

1530 Schwab St. Red Bluff, CA

(530)-527-9490

Matt.Johnson@wildlife.ca.gov

Every Californian should conserve water. Find out how at:



SaveOurWater.com · Drought.CA.gov

Mill Flows Group Fish Update
May 19, 2016
Matt Johnson CDFW Red Bluff



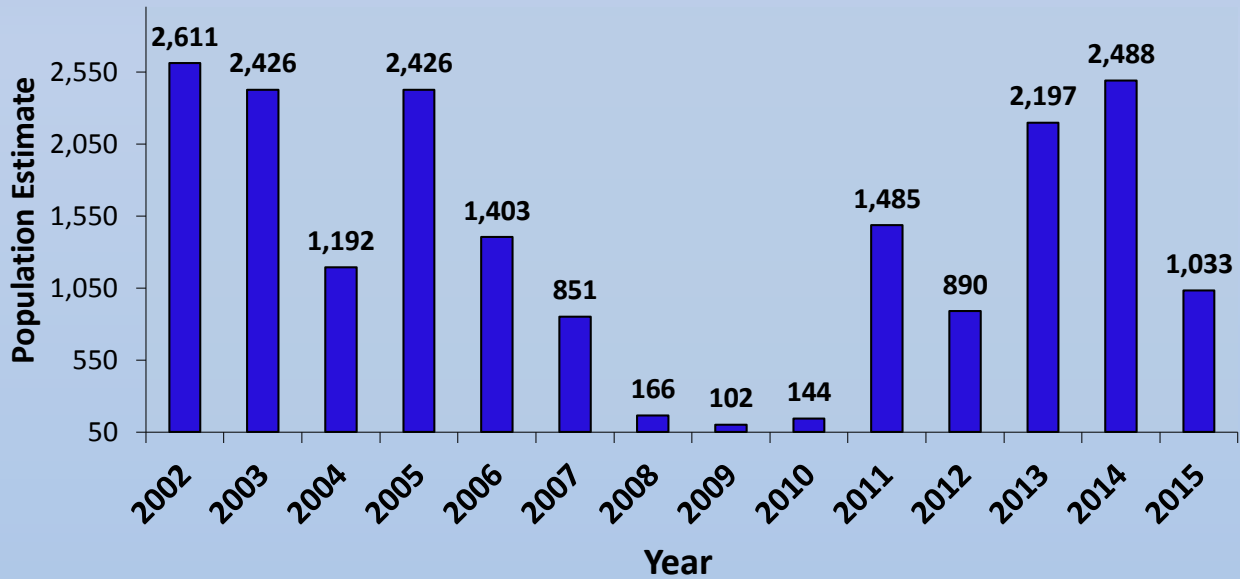
Old Ward ladder, new Ward ladder



Final 2015 Mill Creek Fall Chinook and Steelhead Results

- Estimated escapement of 1,033 fall-run Chinook
- This estimate based on video counts past Ward Dam (968 fish) and redd survey below Ward (33 complete redds)
- Estimated total of 56 fall-entry steelhead

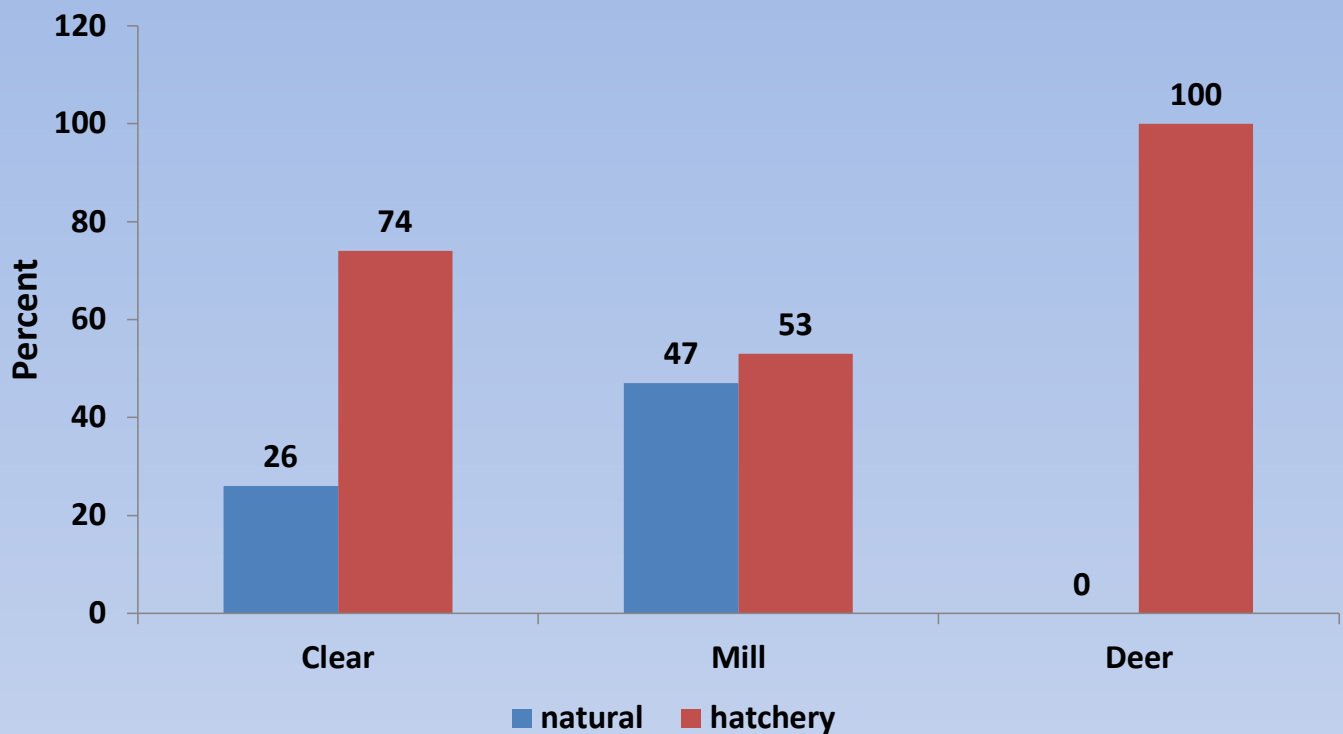
Mill Creek Fall-Run Chinook 2002-2015



2015 Estimated Mill Creek Fall-Run Chinook Hatchery/Natural Proportions

- Total population estimate: 1,033
- 62 carcasses examined
- 9 “marked” fish observed
- Estimated hatchery origin 53.3% (551 fish)
- Estimated natural origin 46.7% (482 fish)
- Hatchery strays = 25% from CNFH and 75% from FRH
- 100% off-site (trucked) releases

2015 estimated hatchery vs natural fall-run Chinook composition

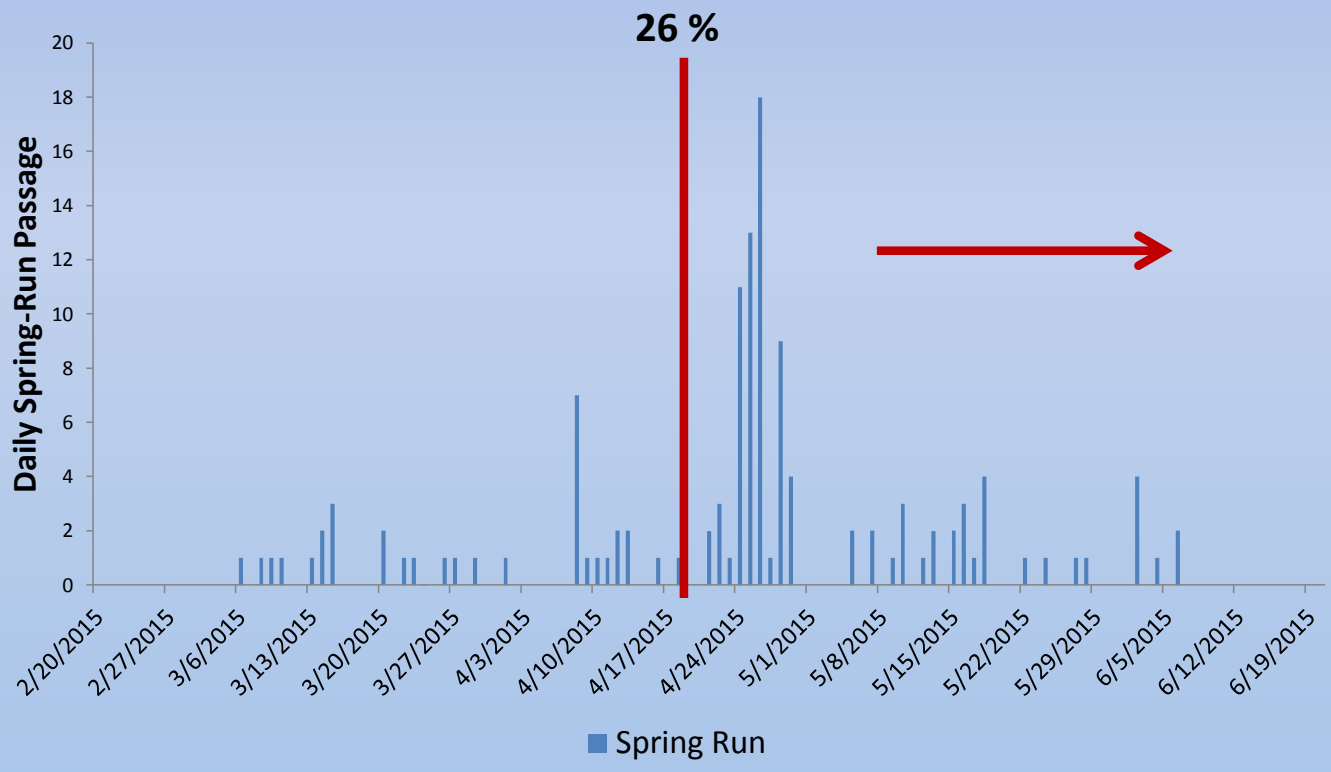




Draft 2016 Mill Creek Spring-Run Passage Results

- Video has been reviewed through April 19
- First spring-run observed on March 16
- A draft total of **17** counted so far...
- In 2015 spring-run passage through April 19 represented only 26% of the total run...
- There is still hope?

2015 Mill Creek Spring-Run Passage



Build a salmon a new fish ladder and...





End...

Attachment C.3.e

Subject: RE: Presentations for Todays Flows Group Meeting

Date: Thursday, September 22, 2016 at 5:10:49 PM Central European Summer Time

From: Johnson, Matt@Wildlife, MATT@WILDLF5B11367-F176-4E87-B9F1-1E52EAFE4005F31>

To: Gregg Werner, Lester, Aric@DWR, ARICF8DF986F-0989-4553-8D87-AA53C0EF8C1EC03>, Henderson, Brad@Wildlife, BRAD@WIL7009707B-21A7-45CF-95B5-C0C3D08F0724EEE>, Brian.Ellrott@noaa.gov, , Los Molinos Mutual Water Company (bundyburt@gmail.com), Colleen Harvey-Arrison, Schultz, Daniel@Waterboards, DANIEL@WAT741CC8D3-E434-4A20-905F-BDEBAC8F434FB82>, Darrell Mullins, Gretchen Umlaf, Jake Jacobson, , Marc J.@Waterboards, MAR177BB840-CE38-4335-B27C-80B09A7D0092679>, Berry, Michael@DWR, MICHAED93493C1-F45D-40D0-888C-0E02E49E6FF80B9>, Uttley, Paige@Wildlife, PAIGE444B0476-FE67-42E1-B06C-65E8D19E1276C99>, Steve Cann, Todd Hamer, Bratcher, Patricia@Wildlife, PATA6FAB05E-A7A0-470A-96E6-D1F5FF8DFADE16D>, Anderson, William@Waterboards, WIL1CE4591D-5589-4E20-A07E-7DA7BCF577E8944>

Thanks Gregg. Attached is my 2016 spring-run and Ward Dam fish ladder update. Matt

Matt Johnson

Environmental Scientist

California Dept. of Fish and Wildlife

1530 Schwab St. Red Bluff, CA

(530)-527-9490

Matt.Johnson@wildlife.ca.gov

Every Californian should conserve water. Find out how at:



SaveOurWater.com · Drought.CA.gov

From: Gregg Werner [mailto:gwerner@TNC.ORG]

Sent: Thursday, September 22, 2016 8:08 AM

To: Lester, Aric@DWR; Henderson, Brad@Wildlife; Brian.Ellrott@noaa.gov; Burt Bundy - Tehema Co Board of supervisors, Los Molinos Mutual Water Company (bundyburt@gmail.com); Colleen Harvey-Arrison; Schultz, Daniel@Waterboards; Darrell Mullins; Gregg Werner; Gretchen Umlaf; Jake Jacobson; Van Camp, Marc J.@Waterboards; Johnson, Matt@Wildlife; Berry, Michael@DWR; Uttley, Paige@Wildlife; Steve Cann; Todd Hamer; Bratcher, Patricia@Wildlife; Anderson, William@Waterboards

Subject: Presentations for Todays Flows Group Meeting

Good Morning,

We have two PowerPoints scheduled for today 's Flows Group meeting. For those attending by phone a pdf of one the PowerPoints is attached so that you can follow along on the "Discussion of the potential of rearing habitat improvement in lower Mill Creek ". Matt Johnson will send the second pdf shortly.

Gregg Werner

Senior Project Director, California Water Program

The Nature Conservancy

190 Cohasset Road, Suite 177

Chico, CA 95926

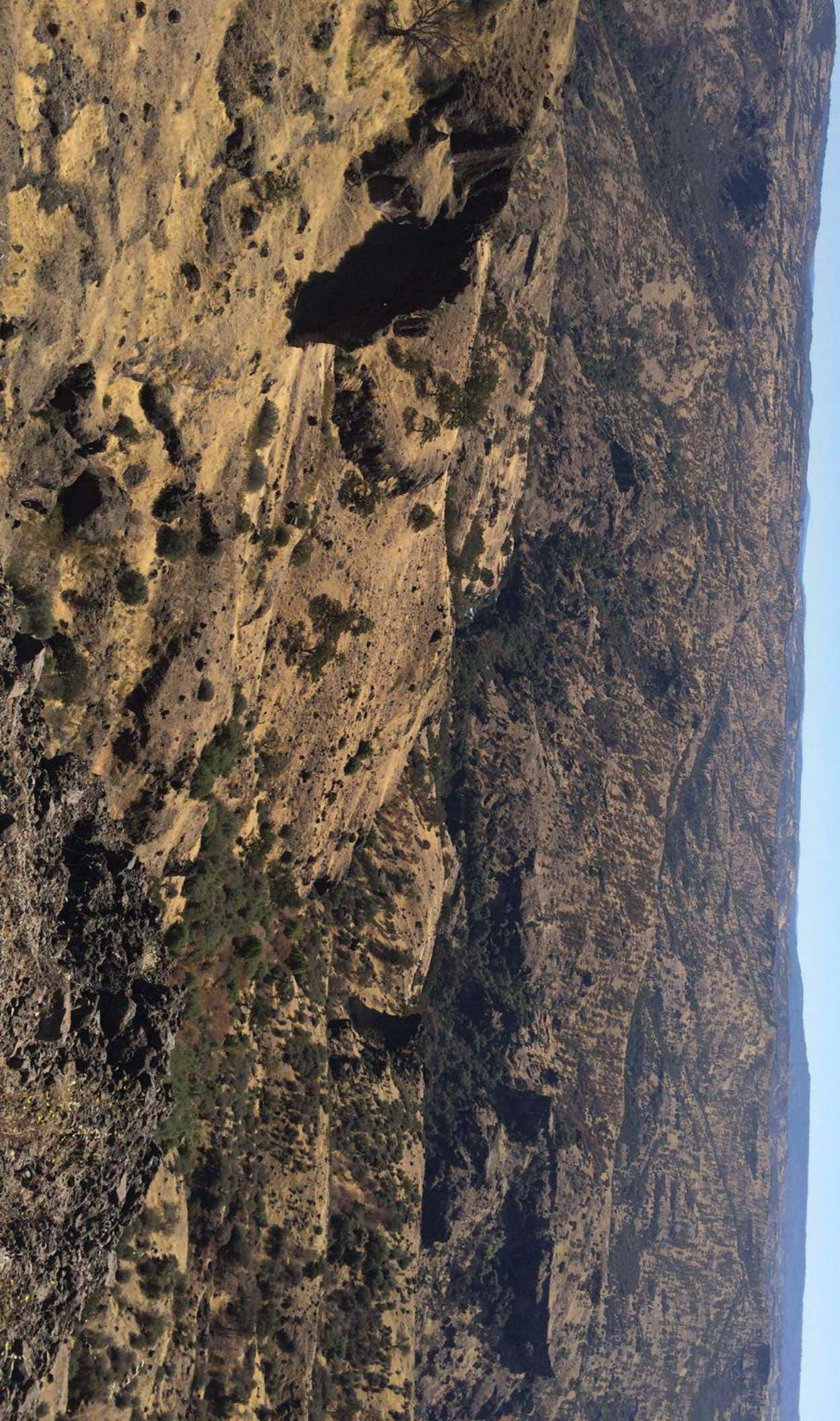
Cell phone (530) 941-4877

gwerner@tnc.org

Mill Creek Flows Group

September 22, 2016

Matt Johnson CDFW



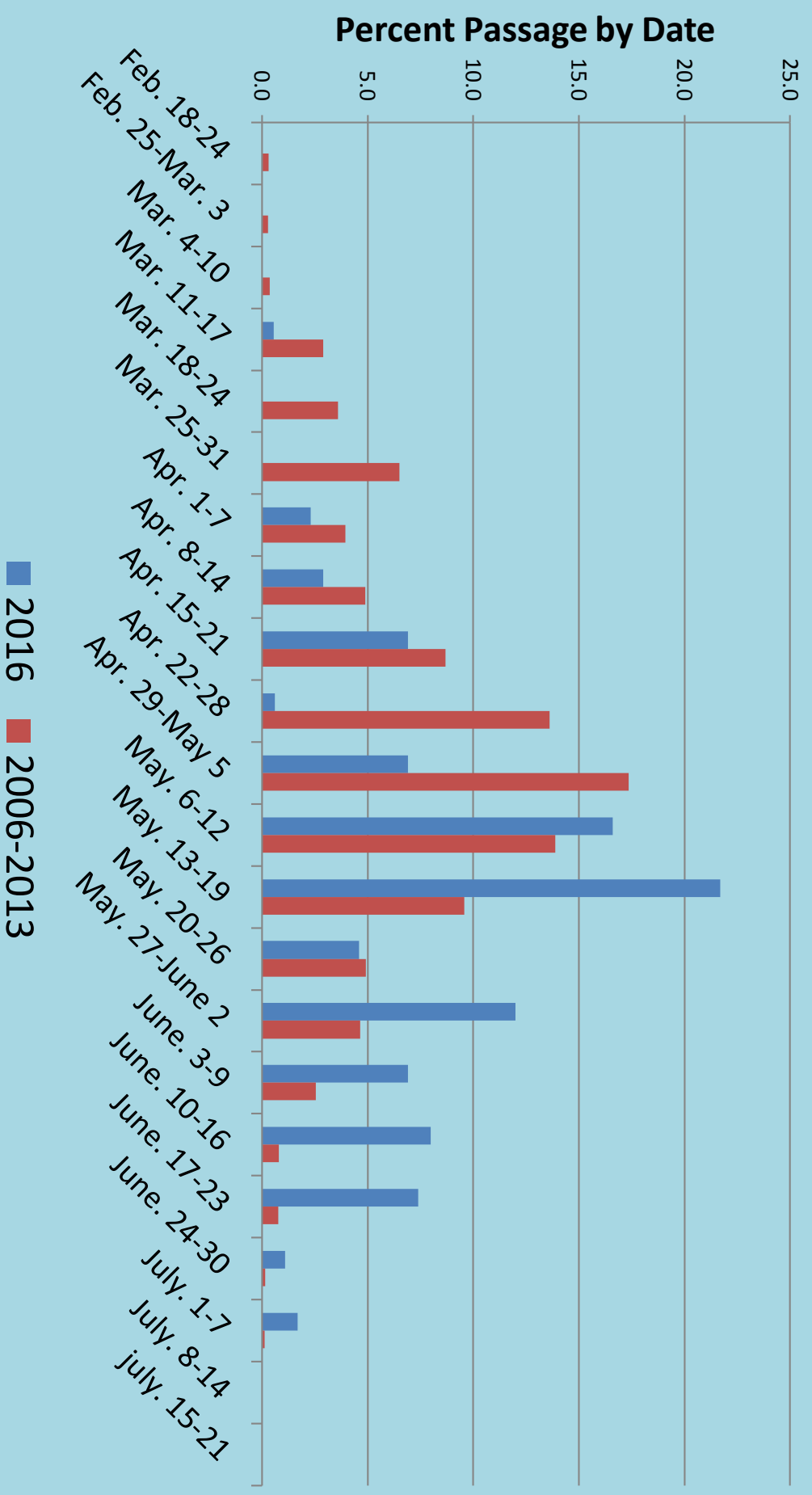
The 2016 Mill Creek Spring-Run
Population Estimate is...

175

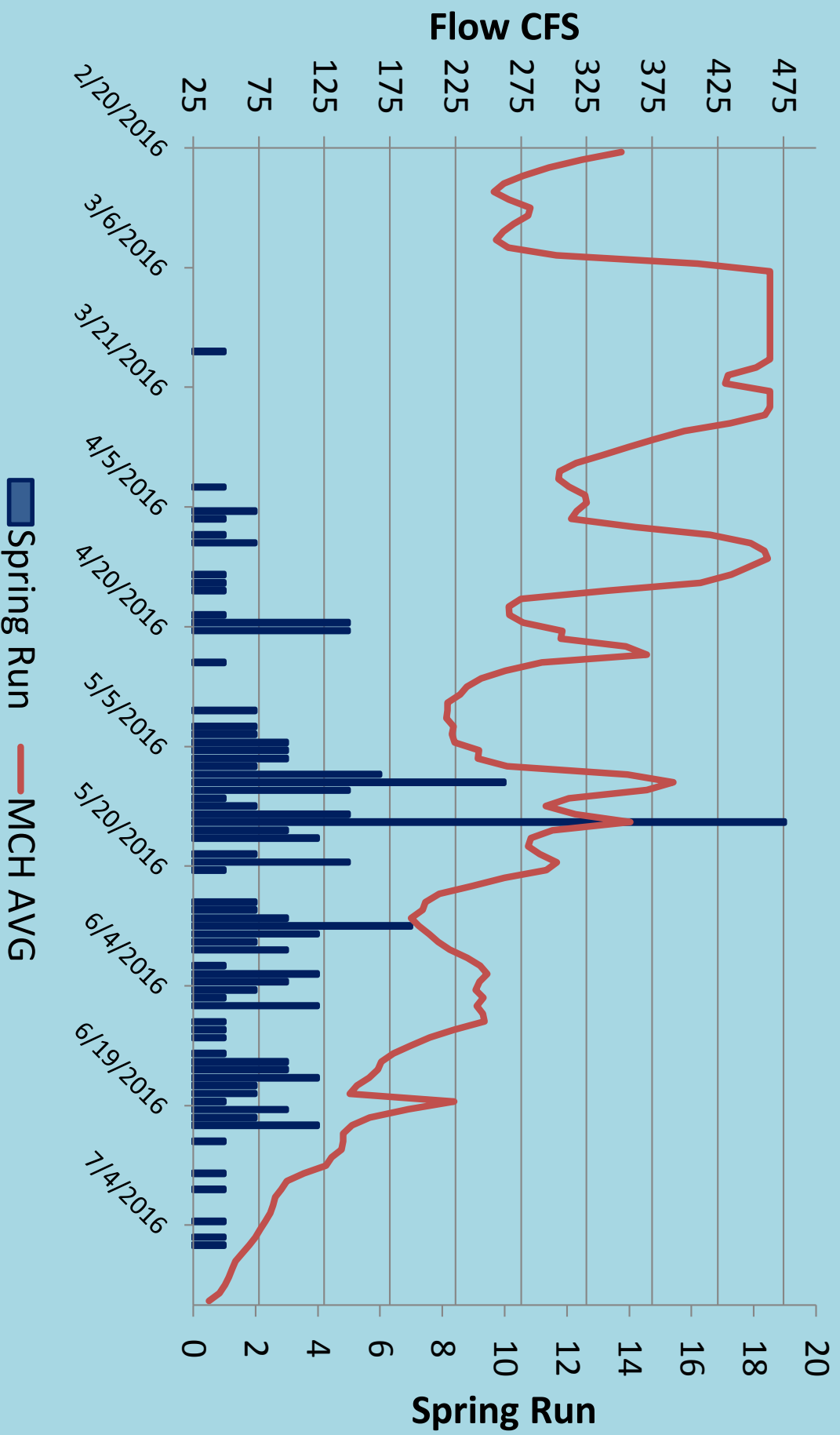
A few Fish Facts...

- First fish observed at Ward March 16
- Last fish observed at Ward July 6
- Peak Passage: 19 fish on May 14
- A little later migration than normal?

Run Timing: 2016 vs. 2006-2013



Fish vs Flow...



Problems and Solutions at the New Ladder...



Before



After



Attachment C.4

Attachment C – State Water Board Staff Correspondence with California Department of Fish and Game Staff Related to Fish Passage

Attachment C.4.a

Subject: Mill Creek Fall Chinook Flow and Passage

Date: Saturday, May 10, 2014 at 2:01:48 AM Central European Summer Time

From: Johnson, Matt@Wildlife, MATT@WILDLF5B11367-F176-4E87-B9F1-1E52EAFE4005F31>

To: Schultz, Daniel@Waterboards, DANIEL@WAT741CC8D3-E434-4A20-905F-BDEBAC8F434FB82>

CC: Bratcher, Patricia@Wildlife, PATA6FAB05E-A7A0-470A-96E6-D1F5FF8DFADE16D>, Gretchen Umlauf
- NOAA Federal' (gretchen.umlaufl@noaa.gov)

Hi Dan,

Attached is a spreadsheet containing Mill Creek fall-run Chinook passage and flow data for 2009-2013.

I highlighted in yellow days where adult fall-run Chinook passage was recorded at MCH within a daily average of 60 cfs or less.

I believe this is some of our best supportive documentation of adult Chinook passage under minimum flows for Mill and Deer Creeks. Matt

Matt Johnson

Environmental Scientist

California Dept. of Fish and Wildlife

1530 Schwab St. Red Bluff, CA

(530)-527-9490

Matt.Johnson@wildlife.ca.gov

Attachment C.4.b

Subject: Mill Creek water right summary

Date: Friday, May 30, 2014 at 11:07:01 PM Central European Summer Time

From: Bratcher, Patricia@Wildlife, PATA6FAB05E-A7A0-470A-96E6-D1F5FF8DFADE16D>

To: Schultz, Daniel@Waterboards, DANIEL@WAT741CC8D3-E434-4A20-905F-BDEBAC8F434FB82>

Dan —for your info. I'm working off of the assumption that this is relatively accurate.

Redamonti is now owned by Crain; that is the only correction I'm aware of.

Patricia (Tricia) Bratcher

Habitat Restoration Coordinator, Sacramento River Watershed

California Department of Fish and Wildlife

Email: Patricia.Bratcher@wildlife.ca.gov

601 Locust Street

Redding, CA 96001

Work: (530) 225-3845

Cell: (530) 945-4261

Fax: (530) 225-2381

Mill Creek Water Rights and Potential Fish Flows Summary

9/23/2012

Water Right Owner	cfs At 203 cfs flow	% of total	cfs At 150 cfs flow	% of total	cfs At 80 cfs flow	% of total
<i>Priority rights</i>						
Droz	3	1.5%	3	2.0%	3	3.0%
Clough	11	5.4%	6	4.0%	5	5.0%
Owens	6	3.0%	5	3.3%	5	5.0%
<i>Priority total</i>	20	9.9%	14	9.3%	13	13.0%
<i>Proportionate rights</i>						
LMMWC	139.5	68.7%	103.6	69.1%	50.4	50.4%
TNC (Jones & Wood)	17.4	8.6%	12.9	8.6%	6.3	6.3%
TNC (Chastra & T Jones reservation)	0.5	0.2%	0.5	0.3%	0.5	0.5%
DCID (Smith and Patrick)	10.5	5.2%	7.8	5.2%	4	4.0%
Call	7.4	3.6%	5.5	3.7%	2.8	2.8%
Redamanti	5.7	2.8%	4.2	2.8%	2.2	2.2%
Kremer	1.9	0.9%	1.4	0.9%	0.7	0.7%
<i>Proportionate total</i>	182.9	90.1%	135.9	90.6%	66.9	66.9%
Total Water Rights	202.9	100.0%	149.9	99.9%	79.9	79.9%
 Potential Fish Flow Increments						
TNC water rights	17.4	8.6%	12.9	8.6%	6.3	6.3%
DCID water rights (currently in litigation)	10.5	5.2%	7.8	5.2%	4	4.0%
DWR wells (cfs for longer term pumping)	8.2	4.0%	8.2	5.5%	8.2	8.2%
Potential additional wells	10	4.9%	10	6.7%	10	10.0%
Dye Creek LMMWC shares	11.2	5.5%	8.3	5.5%	4.0	4.0%
Water conservation/efficiency improvements	?		?		?	
LMMWC-provided pulse flows	?		?		?	
total	57.2	28.2% 0	47.2	31.4% 0	32.5%	

Attachment C.4.c

Subject: RE: Board Tasks

Date: Thursday, April 2, 2015 at 1:36:16 AM Central European Summer Time

From: Johnson, Matt@Wildlife, MATT@WILDLF5B11367-F176-4E87-B9F1-1E52EAFE4005F31>

To: Roberts, Jason@Wildlife, JASON@WILD6CAEDF58-FB81-4D68-B36F-A964A6745F3DC97>

CC: Schultz, Daniel@Waterboards, DANIEL@WAT741CC8D3-E434-4A20-905F-BDEBAC8F434FB82>

Attached is a spreadsheet with the Mill Creek diverters and their percentages.

I can definitely make time on Monday to install flow gages. Dan, I'll give you a ring tomorrow morning and we can work out the details. Matt

From: Roberts, Jason@Wildlife
Sent: Wednesday, April 01, 2015 2:56 PM
To: Johnson, Matt@Wildlife
Cc: Schultz, Daniel@Waterboards
Subject: Board Tasks

Matt,

Two things

Can you provide us a list of the diverters in Mill Creek and associated percentages (TNC, LMMWC, Peyton, Nobmann)

Can you coordinate with Dan and plan on coming out to Cone Grove Park to help them install a flow gage on Monday.

Thanks,

Jason

Jason Roberts, Fisheries Supervisor

Northern Region (Region 1)

California Department of Fish and Wildlife

601 Locust Street, Redding, CA 96001

(530) 225-2131

Jason.Roberts@wildlife.ca.gov

Mill Creek Water Rights and Potential Fish Flows Summary

2/18/14

Decreed Water Rights

Water Right Owner	cfs At 203 cfs flow	% of total	cfs At 150 cfs flow	% of total	cfs At 80 cfs flow	% of total
<i>Priority rights</i>						
Droz	3	1.5%	3	2.0%	3	3.8%
Clough	11	5.4%	6	4.0%	5	6.3%
Peyton (Owens)	6	3.0%	5	3.3%	5	6.3%
<i>Priority total</i>	20	9.9%	14	9.3%	13	16.3%
<i>Proportionalte rights</i>						
LMMWC	139.5	68.7%	103.6	69.1%	50.4	63.0%
Other individual water rights	43.4	21.4%	32.3	21.5%	16.5	20.6%
TNC (Jones & Wood)	17.4	8.6%	12.9	8.6%	6.3	7.9%
TNC (Chastra & T Jones reservation)	0.5	0.2%	0.5	0.3%	0.5	0.6%
OCID (Smith and Patrick)	10.5	5.2%	7.8	5.2%	4	5.0%
Call	7.4	3.6%	5.5	3.7%	2.8	3.5%
Crain (Redamonti)	5.7	2.8%	4.2	2.8%	2.2	2.8%
Kremer	1.9	0.9%	1.4	0.9%	0.7	0.9%
<i>Proportionate total</i>	182.9	111.5%	168.2	112.1%	83.4	104.3%
Total Water Rights	202.9	100.0%	182.2	121.5%	96.4	120.5%

Potential Fish Flow Increments

Fish Flow Source	cfs At 203 cfs flow	% of total	cfs At 150 cfs flow	% of total	cfs At 80 cfs flow	% of total
TNC water rights (with an agreement)	30.5	15.0%	30.5	20.3%	30.5	38.1%
DWR wells (cfs for longer term pumping)	8.2	4.0%	8.2	5.5%	8.2	10.2%
Additional DWR well (Byrd)	4	2.0%	4	2.7%	4	5.0%
Additional DWR well (other)	?		?		?	
OCID water rights (currently in litigation)	10.5	5.2%	7.8	5.2%	4	5.0%
LMMWC-discretionary flows	?		?		?	
Dye Creek LMMWC shares	11.2	5.5%	8.3	5.5%	4.0	5.0%
Water conservation/efficiency improvements	?		?		?	
Total	64.3	31.7%	58.7	39.1%	50.7	63.3%

Attachment C.4.d

Subject: RE: Deer and Mill spring run

Date: Friday, April 17, 2015 at 1:10:26 AM Central European Summer Time

From: Johnson, Matt@Wildlife, MATT@WILDLF5B11367-F176-4E87-B9F1-1E52EAFE4005F31>

To: Matt_Brown@fws.gov, Roberts, Jason@Wildlife, JASON@WILD6CAEDF58-FB81-4D68-B36F-A964A6745F3DC97>

CC: Schultz, Daniel@Waterboards, DANIEL@WAT741CC8D3-E434-4A20-905F-BDEBAC8F434FB82>

I think low flows are probably having some influence on lower than expected spring run returns to Deer and Mill this year. The USGS stream flow table for California shows daily flow statistics, including minimum and maximum flow for the date, based on 99 years of record for Deer and Mill. I just checked in and we are running within a few cfs of the minimum flow for April 16 set in 1977:

<http://waterdata.usgs.gov/ca/nwis/current/?type=flow>

Scroll down the list to see Deer and Mill Creek. Pretty neat.

It would be interesting to check in with Clint Garmin on Butte Creek to see how his springers are doing. Back in mid-March he said something like 1,300 fish had already passed through his Vaki. Clint has offered that peak run-timing for Butte Creek is mid-March through mid-April. Matt

From: Brown, Matt [mailto:matt_brown@fws.gov]

Sent: Thursday, April 16, 2015 3:51 PM

To: Roberts, Jason@Wildlife

Cc: Schultz, Daniel@Waterboards; Johnson, Matt@Wildlife

Subject: Re: Deer and Mill spring run

On Clear Creek and Battle Creek our spring Chinook come in a little later than in Mill and Deer Creek so we don't expect to have seen many by now. Our creeks also have higher minimum instream flows.

Matt Brown

Program Manager

Clear Creek and Battle Creek Program

Red Bluff Fish and Wildlife Office

U.S. Fish and Wildlife Service

Red Bluff, CA 96080

(530) 527-3043 ext 253

On Thu, Apr 16, 2015 at 3:41 PM, Roberts, Jason@Wildlife <Jason.Roberts@wildlife.ca.gov> wrote:

Dan,

I checked into other spring run streams up here and there doesn't seem to be a large variation from the normal expectations. Whereas on Deer and Mill I think there is. I think it is due to the low flow conditions this year compared to previous years.

Matt, feel free to opine and/or clarify.

Sent from my iPhone

Subject: Some news on fish passage during pulse flows

Date: Friday, June 20, 2014 at 7:13:42 PM Central European Summer Time

From: Bratcher, Patricia@Wildlife, PATA6FAB05E-A7A0-470A-96E6-D1F5FF8DFADE16D>

To: West, Yvonne@Waterboards, YVONNE@WATERB6324016D-E37D-4627-86E3-E123FDDCA5AB77E>, Schultz, Daniel@Waterboards, DANIEL@WAT741CC8D3-E434-4A20-905F-BDEBAC8F434FB82>

Hi there —I have heard, but not totally confirmed, that during last week 's pulse flow, no fish were observed going by the video setup on Deer Creek. In contrast, I think about 28 adult spring-run Chinook entered and went by the video setup on Mill Creek. I think that 2 or 3 SR adult carcasses have been recovered on Mill Creek in the last week or so, but on June 13th, Matt did rescue an adult somewhere behind the Upper Dam diversion and let it go upstream; the temps were high at that time, as you know, so it 's amazing the adult was alive ...they never cease to amaze me.

Sometime in the week of the 9th, staff discovered a "pushup " dam on lower Deer Creek below SVRIC. It appears to have completely blocked passage at that lower flow. I don 't know how this may have affected passage during the pulse, since I just found out about it. Law enforcement is investigating.

In the interest of our long sought after collaboration, which I hold very dear, I wanted you to know. However, Please do not forward. Thanks! tricia

Patricia (Tricia) Bratcher

Habitat Restoration Coordinator, Sacramento River Watershed

California Department of Fish and Wildlife

Email: Patricia.Bratcher@wildlife.ca.gov

601 Locust Street

Redding, CA 96001

Work: (530) 225-3845

Cell: (530) 945-4261

Fax: (530) 225-2381

Attachment C.5

Memorandums of Understanding

Attachment C.5.a

Subject: Emailing: CESA_2081(a) MOU_Mill TNC_Signed Final 2015.pdf

Date: Thursday, April 2, 2015 at 9:07:09 PM Central European Summer Time

From: Roberts, Jason@Wildlife, JASON@WILD6CAEDF58-FB81-4D68-B36F-A964A6745F3DC97>

To: Schultz, Daniel@Waterboards, DANIEL@WAT741CC8D3-E434-4A20-905F-BDEBAC8F434FB82>

Your message is ready to be sent with the following file or link attachments:

CESA 2081(a) MOU Mill TNC Signed Final 2015 pdf

Note: To protect against computer viruses e mail programs may prevent sending or receiving certain types of file attachments Check your e mail security settings to determine how attachments are handled

**MEMORANDUM OF
UNDERSTANDING**

by and between

THE NATURE CONSERVANCY

and

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

MILL CREEK

This California Endangered Species Act Memorandum of Understanding ("CESA MOU") is made and entered into by and between The Nature Conservancy (hereinafter called TNC) and the California Department of Fish and Wildlife (hereinafter called the "CDFW").

The purpose of this CESA MOU is to provide a framework for cooperative activities and monitoring that involve or address issues of importance to spring-run Chinook salmon (*Oncorhynchus tshawytscha*) in Mill Creek, eastern Tehama County. This CESA MOU provides for take associated with actions taken by the CDFW or TNC to rescue and relocate Chinook salmon or assist with increasing flows in the creek for the benefit of spring-run Chinook salmon as management activities under authority of Section 2081(a) of the California Fish and Game Code.

RECITALS

WHEREAS, the CDFW has jurisdiction over the conservation and protection of fish, wildlife, and native plants and their habitats necessary for biologically sustainable populations of those species and holds those resources in trust for the people of California (California Fish and Game Code Section 1802).

WHEREAS, spring-run Chinook salmon are classified as a threatened species by the State of California Fish and Game Commission pursuant to the California Endangered Species Act (CESA, Code section 2050 et seq.).

WHEREAS, Fish and Game Code section 2080 prohibits the import, export, take, possession, purchase or sale of any species, in whole or in part, that has been listed as threatened or endangered by the California Fish and Game Commission. Take is defined in Fish and Game Code section 86 as 'hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill.' However, Fish and Game Code section 2081(a) allows CDFW to authorize take and other acts prohibited by Fish and Game Code section 2080 for scientific, educational, or management purposes. This CESA MOU authorizes a limited level of take of spring-run Chinook salmon for management

purposes.

WHEREAS, Fish and Game Code section 5937 states, "The owner of any dam shall allow sufficient water at all times to pass through a fishway, or in absences of a fishway, allow sufficient water to pass over, around or through the dam to keep in good condition any fish that may be planted or exist below the dam..."

WHEREAS, salmonid presence shall be defined by reviewing historical records and utilizing current fisheries monitoring on Deer, Mill, and Antelope creeks and the Sacramento River between the Red Bluff Diversion Dam and the confluence of Clear Creek.

WHEREAS, on January 17, 2014, Governor Brown issued a proclamation, declaring the state to be in an emergency due to the drought conditions.

WHEREAS, on April 25, 2014, Governor Brown issued an Executive Order directing state agencies to, in part, work with other state and federal agencies and with landowners in priority watersheds to protect threatened and endangered species and species of special concern and maximize the beneficial uses of scarce water supplies, including employment of voluntary agreements to secure instream flows, relocate members of those species or take other measures.

WHEREAS, on December 22, 2014, Governor Brown issued another Executive Order declaring a continued state of emergency due to drought conditions, extending many of the terms of the April 25, 2014 Executive Order until May 31, 2016.

WHEREAS Mill Creek provides many important surface water beneficial uses, including agriculture, recreation, wildlife habitat, freshwater habitat, and anadromous fish habitat, particularly for spring-run Chinook salmon (*Oncorhynchus tshawytscha*) listed as threatened under the Federal and State Endangered Species Acts and Central Valley steelhead trout (*Oncorhynchus mykiss*) listed as threatened under the Federal Endangered Species Act. Due in part to naturally occurring low flows, agricultural diversions, channel morphology and excessive temperatures, the upstream migration of adults or downstream migration of juvenile spring-run Chinook salmon and steelhead may be impeded or blocked in some years. In 2014, conditions in Mill Creek are poorer than is typical for this time of year. Conditions may further deteriorate such that listed juvenile and adult spring-run Chinook salmon will need the restoration of suitable instream flow conditions to provide passage and/or be rescued and relocated.

WHEREAS, the flow prescriptions identified in this CESA MOU are considered by CDFW to be the minimum flows, in the current Drought Emergency, necessary to allow for adult and juvenile salmonid migration in Mill Creek below Ward Dam, and they are considered the minimum flows needed to minimize the effects of drought while balancing salmonid and agricultural interests.

WHEREAS, TNC is a private, non-profit conservation organization whose mission is to conserve the lands and waters on which all life depends.

WHEREAS, TNC owns two decreed water rights, which total 17.4 cubic feet per second, to divert Mill Creek surface water for irrigation and other purposes. TNC currently permits the Los Molinos Mutual Water Company (LMMWC) to divert its water rights for irrigation use in return for LMMWC providing an offsetting amount of water for instream flows for salmonids when requested by CDFW.

WHEREAS, TNC leases Dye Creek Ranch which abuts Mill Creek near the Upper Diversion Dam (Lease Property). TNC is willing to participate with the CDFW in fish rescue and relocation activities by allowing access through the Lease Property for the purposes of monitoring, and/or capturing and removing, and/or relocating spring-run Chinook salmon on or to Mill Creek adjacent to the Lease Property or to the Sacramento River.

NOW, THEREFORE, THE PARTIES HERETO AGREE AS FOLLOWS:

1. Purpose

Elements of this MOU include eligibility, fish rescue efforts, designated fish passage flows, changes in the timing of diversions to provide improved instream flow and water temperature conditions which would minimize the need to rescue fish, monitoring, and evaluations of management actions. The specific elements of the program are tailored by stream and by an eligible diverting entity and as described in this MOU.

2. Methods

- A. Monitoring: CDFW or its agent will carry out all monitoring activities. Monitoring and evaluation plans shall be in place to inform the effectiveness of the flow events and/or rescue efforts. Those activities may include:
- i. Use of video monitoring to determine if adult salmonids are moving through lower Mill Creek in response to minimum base flows and pulse flow events, and to determine population abundance.
 - ii. Snorkel surveys may be conducted upstream and downstream of diversion structures and critical riffle areas to determine if minimum base flows are passing salmonids through these areas. It is the intent of the CDFW to detect any salmonid stranding issues before mortalities are observed, so that sufficient time is provided to inform diverters and to take proactive flow restoration or other fish rescue actions.
 - iii. Monitoring of habitat conditions in Mill Creek or the Sacramento River prior to relocation of salmonids at risk, including spring run.
- B. Fish Capture and Relocation: CDFW or its agent will carry out all fish capture and relocation activities. CDFW, or its agent, will notify TNC at the telephone number listed in Section 11, of all planned fish rescue/relocation activities it will carry out on

the Real Property.

- i. CDFW or its agent may relocate salmonids, including spring run, captured from elsewhere in the lower Mill Creek watershed (e.g. diversion canals), to Mill Creek adjacent to Real Property if suitable instream conditions exist, or to a suitable location on the Sacramento River.
- ii. CDFW or its agent may monitor stream depth and temperature at relocation site(s) post-relocation to determine if conditions remain adequate to keep salmonids alive and provide for salmonid passage.

3. TNC Commitments

- A. TNC agrees to provide reasonable access to CDFW and its agents, including equipment access, to the Lease Property to carry out any of the management activities listed in Section 2 of this CESA MOU for the purposes of:
 - i. Monitoring habitat conditions and salmonid abundance, size, and condition prior to any management activities;
 - ii. Capturing and removing salmonids from and/or relocating salmonids to suitable habitat, and for monitoring conditions post-relocation; or
 - iii. Monitoring stream flow conditions during flow events and/or during post-rescue/relocation to determine if conditions remain adequate to keep salmonids alive and provide for passage.
- B. TNC agrees to permit its water rights to be utilized for Required Management Elements (RME's) by Los Molinos Mutual Water Company (LMMWC) as outlined in a separate Memorandum of Understanding between CDFW and LMMWC, which is attached (Attachment 1)

4. CDFW Commitments Regarding Fish Management Activities on the Lease Property

- A. CDFW agrees that CDFW and its agents will conduct all rescue/relocation activities only after CDFW has provided the advance notice to TNC as provided in Section 2 above.

5. Authorized Take Level

Fish mortality related to diversions from Mill Creek made in compliance with the base flow and pulse flow requirements stated in this MOU is authorized under CESA. The number of spring run which may die in the course of fish capture and relocation activities conducted by CDFW is typically small (less than 10%) and is much-reduced from levels of mortality that will potentially occur in absence of carrying out this activity. As such, fish mortalities related to, or

occurring in the course of, fish rescue activities is authorized.

6. Federal Endangered Species Act

Central Valley spring -run Chinook salmon are listed as a threatened species under the federal Endangered Species Act (ESA) of 1973. In its regulations, NMFS has limited the general prohibition of taking threatened spring-run Chinook salmon under the federal ESA to allow, CDFW, its employees, and its designees to perform the rescue activities listed in Section 1 above.

TNC is not expected or authorized to assist in the handling of Central Valley spring-run Chinook salmon as a part of the fish rescue effort. Nothing in this CESA MOU authorizes any action pursuant to the federal ESA.

7. Effective Date and Termination

Unless terminated sooner by either party of the CESA MOU by giving thirty (30) days prior written notice of earlier termination, this CESA MOU shall commence on the date of execution and will terminate on **December 31, 2015**, both days inclusive.

8. Dispute Resolution

The Parties shall make reasonable efforts to resolve any disputes that may arise from this CESA MOU in a prompt and timely manner. In the event of a dispute, the Party claiming a dispute shall give verbal and written notice of the dispute to the other Parties within 5 business days. If resolution of the dispute cannot be resolved within 5 business days of the notice either party may terminate the CESA MOU through written notice. Termination of the CESA MOU will result in a loss of take coverage for future actions.

9. Amendments

Amendments to this CESA MOU may be proposed by either party and shall become effective when both parties sign a written modification to this document.

10. Applicable Law

This CESA MOU shall be construed under and governed by the laws of the State of California and of the United States, without giving effect to any principles of conflicts of law if such principles would operate to construe the CESA MOU, as amended herein, under the laws of any other jurisdiction.

11. Notice and Contact Persons

Any written notice or telephone notice required to be given by the CESA MOU, shall be deemed to have been given by the notifying party when mailed, postage prepaid or delivered to the following representatives, who will also serve as main contact people for their respective Party:

For TNC:

Gregg Werner, Senior Project Director
The Nature Conservancy
190 Cohasset Road, Suite 177
Chico, CA 95926
gwerner@tnc.org
(530) 941-4877

For CDFW:

Mr. Matt Johnson
Northern Region
California Department of Fish and Wildlife
1530 Schwab Street
Red Bluff, CA 96080
Matt.Johnson@wildlife.ca.gov
(530) 527-9490

13. Signatories' Authority

The signatories to the CESA MOU on behalf of all the Parties hereto warrant and represent that they have authority to execute the CESA MOU and to bind the Parties on whose behalf they execute the CESA MOU. This CESA MOU may be executed in counterparts.

14. Disclaimer

The CDFW shall incur no fiscal obligation under this CESA MOU.

IN WITNESS WHEREOF, THE PARTIES HERETO HAVE EXECUTED THIS CESA MOU TO BE IN EFFECT AS OF THE DATE LAST WRITTEN BELOW.



Brian Stranko
Director, California Water Program,
The Nature Conservancy



NEIL MANJI
Regional Manager,
Region 1

Date: _____

Date: _____

The Nature Conservancy
190 Cohasset Road, Suite 177
Chico, CA 95926
(530) 897-6370

California Department of
Fish and Wildlife, Region 1
601 Locust Street
Redding CA 96001

(530) 225-2300

Attachment 1: Memorandum of Understanding between Los Molinos Mutual Water Company and the California Department of Fish and Wildlife, dated March 16, 2015.

NOTE: THE FOLLOWING PAGES OF THE TNC MOU ARE COMPRISED OF THE LOS MOLINOS MUTUAL WATER COMPANY CESA MOU.

Attachment C.5.b

Subject: FW: Clough Water right MOU

Date: Friday, June 20, 2014 at 8:18:25 PM Central European Summer Time

From: Bratcher, Patricia@Wildlife, PATA6FAB05E-A7A0-470A-96E6-D1F5FF8DFADE16D>

To: Schultz, Daniel@Waterboards, DANIEL@WAT741CC8D3-E434-4A20-905F-BDEBAC8F434FB82>

Patricia (Tricia) Bratcher
Habitat Restoration Coordinator Sacramento River Watershed
California Department of Fish and Wildlife
Email: Patricia.Bratcher@wildlife.ca.gov
601 Locust Street
Redding CA 96001
Work: (530) 225 3845
Cell: (530) 945 4261
Fax: (530) 225 2381

Original Message

From: Roberts Jason@Wildlife
Sent: Thursday June 19 2014 9:58 AM
To: Milliron Curtis@Wildlife; Johnson Matt@Wildlife; Bratcher Patricia@Wildlife
Cc: Harris Michael R @Wildlife
Subject: FW: Clough Water right MOU

FY

Original Message

From: Darrel Mullins [mailto:Immutual@att.net]
Sent: Thursday June 19 2014 9:56 AM
To: Brown Howard
Cc: Gretchen Umlauf; Candace Owens; Roberts Jason@Wildlife
Subject: Clough Water right MOU

Hi All

Attached is a copy of a signed MOU between Los Molinos Mutual Water Co and Candace Owens
This agreement meets the objectives as outlined in the "Fish Flows" agreements that Los Molinos Mutual Water Co has signed with National Marine Fisheries and the California Department of Fish and Wildlife
If you have any questions please call 530 567 5764

Darrell Mullins
General Manager
Los Molinos Mutual Water Co

MEMORANDUM

TO: Los Molinos Mutual Water Company

FROM: Candace Owens

SUBJECT: Memorandum of Agreement Regarding Use of Clough Ranch Water Rights by LMMWC for 2014 Fishery Flows.

When executed by the appropriate official at Los Molinos Mutual Water Company, this memorandum shall constitute the written agreement of the undersigned, owners of what is known as the Clough Water Right under the Los Molinos River Adjudication, to the following:

1. We agree that Los Molinos Mutual Water Company, in its capacity as Watermaster of Mill Creek under the Decree (the "Decree") entered in the matter of *Los Molinos Land Company v Clarence V. Clough, et al, Tehama County Superior Court No. 3811*, may, subject to the conditions described below, utilize a proportionate share of the flows allocable to us under the Clough Water Right for purposes of maintaining in stream flows in Mill Creek as required under those certain agreements between LMMWC and National Marine Fisheries Service and LMMWC and the California Department of Fish and Wildlife (collectively the "Mill Creek 2014 Fishery Agreements") dated May 10th 2014 and May 13th 2014, respectively.
2. Water under the Clough Water Right, if required for implementation of the Mill Creek 2014 Fishery Agreements, shall be reduced by LMMWC proportionately with all water subject to regulation under the Decree, it being the intent hereof that diversion to us of water under the Clough Water Right shall be reduced in a proportion that reflects the quantity of the Clough Water Right then existing in comparison to the total water then required to meet the Mill Creek 2014 Fishery Agreements, as follows:

During the Base flow requirement the Clough Water Right will contribute 2.5cfs of their water Right to maintain a Base Flow of 50cfs as outlined in the MOU that LMMWC has with the fish agencies or contribute 1.25cfs if the base flow is lowered to 25cfs. During Pulse Flows as outlined in MOU with agencies Clough Water Right will contribute 1cfs if the stream flow at MLM shows 130cfs pre diversion and up to 5cfs if the stream flow at MLM is 129 or less

3. The agreement by us is an accommodation for purposes of cooperating with LMMWC in meeting the requirements of the Mill Creek 2014 Fishery Agreements and shall not constitute, nor be construed or interpreted as, a limitation or qualification of the priority or priority accorded to the Clough Water Right under the Decree. This agreement shall terminate and be of no force and effect upon termination of the Mill Creek 2014 Fishery Agreements, or September 31, 2014, whichever occurs first. From and after the termination of this agreement, the water rights of the Clough Ranch, and the priority accorded to those rights, will be restored as per the Decree.
4. This agreement shall not be extended or renewed, nor shall the undersigned, by their execution hereof be considered to have affected or dedicated any portion of their Clough Ranch water rights to in stream usage by LMMWC except as described herein.

LOS MOLINOS MUTUAL WATER COMPANY

Dated: 6/17/2014

Garrett E. Mullins

CLOUGH RANCH

Dated: 6-18-14

Candace Owens

Attachment C.5.c

Subject: RE: June 27 Meeting Follow-up

Date: Wednesday, July 2, 2014 at 8:55:46 PM Central European Summer Time

From: Bratcher, Patricia@Wildlife, PATA6FAB05E-A7A0-470A-96E6-D1F5FF8DFADE16D>

To: Gregg Werner, Lester, Aric@DWR, ARICF8DF986F-0989-4553-8D87-AA53C0EF8C1EC03>, Brian.Ellrott@noaa.gov, Burt Bundy, Chris Alford, Colleen Harvey-Arrison, Schultz, Daniel@Waterboards, DANIEL@WAT741CC8D3-E434-4A20-905F-BDEBAC8F434FB82>, Darrell Mullins, Harry Rectenwald, Jake Jacobson, Roberts, Jason@Wildlife, JASON@WILD6CAEDF58-FB81-4D68-B36F-A964A6745F3DC97>, Johnson, Matt@Wildlife, MATT@WILDLF5B11367-F176-4E87-B9F1-1E52EAFE4005F31>, Maurice Hall, Berry, Michael@DWR, MICHAED93493C1-F45D-40D0-888C-0E02E49E6FF80B9>, Uttley, Paige@Wildlife, PAIGE444B0476-FE67-42E1-B06C-65E8D19E1276C99>, Steve Cann, Steve Tussing

Thanks, Gregg.

Just for you and other 's info, the following entities signed a CESA MOU with the CA Dept. of Fish and Wildlife, as part of the 2014 drought curtailments:

LMMWC

TNC

Peyton Pacific Properties (Mr. Bailey Peyton bought the Pfendler Ranch)

Nobmann Cattle Company LLC

Candace Clough Owens signed a separate agreement with LMMWC regarding flow management during the drought, in the context of the terms that LMMWC had in their CESA MOU.

These can be found in pdf version on the CDFW website, path

<http://cdfgnews.wordpress.com/2014/05/14/cdfw-and-noaa-fisheries-introduce-voluntary-drought-initiative-to-protect-salmon-and-steelhead/>

tricia

Patricia (Tricia) Bratcher

Habitat Restoration Coordinator, Sacramento River Watershed

California Department of Fish and Wildlife

Email: Patricia.Bratcher@wildlife.ca.gov

601 Locust Street

Redding, CA 96001

Work: (530) 225-3845

Cell: (530) 945-4261

Fax: (530) 225-2381

From: Gregg Werner [mailto:gwerner@TNC.ORG]

Sent: Wednesday, July 02, 2014 11:44 AM

To: Lester, Aric@DWR; Brian.Ellrott@noaa.gov; Burt Bundy; Chris Alford; Colleen Harvey-Arrison; Schultz, Daniel@Waterboards; Darrell Mullins; Gregg Werner; Harry Rectenwald; Jake Jacobson; Roberts, Jason@Wildlife; Johnson, Matt@Wildlife; Maurice Hall; Berry, Michael@DWR; Uttley, Paige@Wildlife; Steve Cann; Steve Tussing ; Bratcher, Patricia@Wildlife

Subject: June 27 Meeting Follow-up

Good Morning,

Below is a brief summary of our Mill Creek Flows Group meeting on last Friday, June 27. If you see the need for any additions or corrections please let me know.

Paige Uttley (DFW), Dan Schultz (CA WRCB) and Jason Robertson (DFW) attended the Flows Group meeting for the first time.

Presentation on Planning for Tributary Flows as Part of Phase 4 the Bay-Delta Effort

- *Dan Shultz of the Water Resources Control Board reviewed the anticipated work. It appeared that Mill Creek is likely to be included.*

Update on Water Resources Control Board Emergency Regulatory Actions and the Voluntary Agreements/MOU's

- *Dan Shultz, Tricia, Tricia and Matt will provided information about the process and the current status. Darrel noted that most of the Mill Creek water rights owners had signed Voluntary Agreements and MOUs.*

Review of the Results of the Three Spring Pulse Flows

- *Matt reviewed the three pulse flows and the results.*

Introduction to the Minimum Instream Flow Recommendations Study

- *Paige Uttley of DFW reviewed the objectives and status of the project. She noted that the focus was anadromous salmonids and indicated that a technical report and flow recommendation to the CA WRCB were anticipated with a draft report in early 2015.*

Review of Projects for the Dave Vogel Project List

- *The Dave Vogel list was briefly discussed and Chris provided background as to the genesis and purpose of the list. The discussion was continued to the July meeting.*

Update on the Additional Conjunctive Use Well Proposal

- *Mike explained that direct DWR purchase and operation was not an option. He and Darrell discussed the options for a lease of water by DWR that might permit the LMMWC to develop and operate the wells. Discussion between LMMWC and DWR were to continue.*

Update/Discussion of Other Flow and Water Conservation Projects and Funding Sources

- *Gregg noted the Davids Engineering work on flow monitoring for lower Mill Creek as being critical to the TNC/LMMWC agreement on the use of TNC water rights.*
- *Burt noted that the Mill Creek Management Committee will be meeting on Wednesday July 16.*

Schedule the Next Meeting, Discuss the Preliminary Agenda and Determine Follow-up Actions and Responsibilities

- *The next Flows Group meeting was set for Wednesday, August 27 at 9:00 at the DWR office in Red Bluff. Tentative agenda items included an update from Paige on the DFW Instream flow study and a review of the Vogel restoration projects list as it pertains to Mill Creek.*

Follow-up actions that were set included:

Gregg will send out electronic versions of the past flows agreements to the Group

Gregg will communicate/coordinate with Paige and Jeff Davids regarding flow measurements

Mike will follow-up with LMMWC for DWR on the water lease concept

Gregg will add Paige, Dan and Jason to the Flows Group contact list

Gregg will meet with Matt and Jason to review the Flows Group activities with Jason

Chris will send out a more manageable version of the Vogel List focused on Mill Creek

Gregg will send out a meeting summary and follow-up email

Also, a summary of the previous flow-related agreements for Mill Creek is attached along with the four agreements.

Thank you all for your continued efforts for Mill Creek.

Gregg Werner

Senior Project Director, Central Valley and Mountains

190 Cohasset Road, Suite 177

Chico, CA 95926

Cell phone (530) 941-4877

gwerner@tnc.org

Attachment C.5.d

Subject: CDFW CESA MOU's for your files

Date: Tuesday, May 20, 2014 at 12:45:25 AM Central European Summer Time

From: Bratcher, Patricia@Wildlife, PATA6FAB05E-A7A0-470A-96E6-D1F5FF8DFADE16D>

To: Schultz, Daniel@Waterboards, DANIEL@WAT741CC8D3-E434-4A20-905F-BDEBAC8F434FB82>, West, Yvonne@Waterboards, YVONNE@WATERB6324016D-E37D-4627-86E3-E123FDDCA5AB77E>

CC: Harris, Michael R.@Wildlife, MICHAEL R.@2ABA4823-BFD0-4643-8E1E-33E9DAE7B9705EC>

Dan and Yvonne —I wasn't sure whom to send these to, but for SWRCB records, please accept the attached signed copies of the CESA MOU 's we have for Antelope and Mill Creeks that have been completed thus far.

Regards, tricia

Patricia (Tricia) Bratcher

Habitat Restoration Coordinator, Sacramento River Watershed

California Department of Fish and Wildlife

Email: Patricia.Bratcher@wildlife.ca.gov

601 Locust Street

Redding, CA 96001

Work: (530) 225-3845

Cell: (530) 945-4261

Fax: (530) 225-2381

**MEMORANDUM OF
UNDERSTANDING**

by and between

LOS MOLINOS MUTUAL WATER COMPANY

and

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

ANTELOPE CREEK

This California Endangered Species Act Memorandum of Understanding ("CESA MOU") is made and entered into by and between Los Molinos Mutual Water Company (hereinafter called LMMWC), acting through its Board of Directors, and the California Department of Fish and Wildlife (hereinafter called the "CDFW").

The purpose of this CESA MOU is to provide a framework for cooperative activities and monitoring that involve or address issues of importance to spring-run Chinook salmon (*Oncorhynchus tshawytscha*) in Antelope Creek, eastern Tehama County. This CESA MOU provides for take associated with actions taken by the CDFW or LMMWC to rescue and relocate Chinook salmon or assist with increasing flows in the creek for the benefit of spring-run Chinook salmon as management activities under authority of Section 2081(a) of the California Fish and Game Code.

RECITALS

WHEREAS, the CDFW has jurisdiction over the conservation and protection of fish, wildlife, and native plants and their habitats necessary for biologically sustainable populations of those species and holds those resources in trust for the people of California (California Fish and Game Code Section 1802).

WHEREAS, spring-run Chinook salmon are classified as a threatened species by the State of California Fish and Game Commission pursuant to the California Endangered Species Act (CESA, Code section 2050 et seq.).

WHEREAS, Fish and Game Code section 2080 prohibits the import, export, take, possession, purchase or sale of any species, in whole or in part, that has been listed as threatened or endangered by the California Fish and Game Commission. Take is defined in Fish and Game Code section 86 as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill." However, Fish and Game Code section 2081(a) allows CDFW to authorize take and other acts prohibited by Fish and Game Code section 2080 for scientific, educational, or management purposes. This CESA

MOU authorizes a limited level of take of spring-run Chinook salmon for management purposes.

WHEREAS, on January 17, 2014 Governor Brown issued a proclamation, declaring the state to be in an emergency due to the drought conditions.

WHEREAS, on April 25, 2014, Governor Brown issued an Executive Order directing state agencies to, in part, work with other state and federal agencies and with landowners in priority watersheds to protect threatened and endangered species and species of special concern and maximize the beneficial uses of scarce water supplies, including employment of voluntary agreements to secure instream flows, relocate members of those species or take other measures.

WHEREAS Antelope Creek provides many important surface water beneficial uses, including agriculture, recreation, wildlife habitat, freshwater habitat, and anadromous fish habitat, particularly for spring-run Chinook salmon (*Oncorhynchus tshawytscha*) listed as threatened under the Federal and State Endangered Species Acts and steelhead trout (*Oncorhynchus mykiss*) listed as threatened under the Federal Endangered Species Act. Due in part to naturally occurring low flows, agricultural diversions, channel morphology and excessive temperatures, the upstream migration of adults or downstream migration of juvenile spring-run Chinook salmon and steelhead may be impeded or blocked in some years. In 2014, conditions in Antelope Creek are poorer than is typical for this time of year. Conditions may further deteriorate such that listed juvenile and adult spring-run Chinook salmon will need the restoration of suitable instream flow conditions to provide passage and/or be rescued and relocated.

WHEREAS, LMMWC has water rights inherited from the Coneland Water Company to divert Antelope Creek surface water for irrigation and services approximately 600 acres of land within Tehama County. The diverted water associated with these rights enters a diversion ditch and irrigation system maintained by LMMWC.

WHEREAS, LMMWC has a prescriptive easement to access certain real property associated with the Edwards Diversion Dam on Antelope Creek, Tehama County (Real Property). LMMWC is willing to participate with the CDFW in fish rescue and relocation activities by allowing access to its ditches for the purposes of monitoring, and/or capturing and removing, and/or relocating spring-run Chinook salmon on or to Antelope Creek adjacent to the Real Property or to the Sacramento River

NOW, THEREFORE, THE PARTIES HERETO AGREE AS FOLLOWS:

1. Purpose

The general elements of this MOU include eligibility, fish rescue efforts, designated fish passage flows, changes in the timing of diversions to provide improved instream flow and water temperature conditions which would minimize the need to rescue fish, monitoring, and evaluations of management actions. The specific elements of the program are tailored by stream and by an eligible diverting entity and as described in this MOU.

The elements of this CESA MOU, including flows, monitoring and evaluation, if implemented in the manner described in this below, will provide fishery protections necessary to avoid significant drought-related harm to spring-run Chinook salmon. The flows in this CESA MOU are based on our current understanding of the best available information for protecting fisheries, while maintaining water use in Antelope Creek and are comparable to, and achieve, a similar biological outcome for fishery protection, as those required in the regulations being proposed by the State Water Resources Control Board (Title 23 C.C.R. 877-879.2).

2. Methods

- A. **Monitoring:** CDFW or its agent will carry out all monitoring activities in accordance with standard fishery practices. Monitoring and evaluations plans shall be in place to inform the effectiveness of the flow events and/or rescue efforts. Monitoring and evaluations will be conducted by CDFW staff. CDFW, or its agent, will notify LMMWC at least 24 hours in advance, to the telephone number listed in Section 12 of this MOU, of all planned monitoring activities it will carry out on the Real Property. Those activities may include:
- i. Use of video stations to determine if fish are moving through lower Antelope Creek in response to minimum base flows and pulse flow events, and to determine population abundance.
 - ii. Snorkel surveys will be conducted upstream and downstream of diversion structures and critical riffle areas to determine if minimum base flows are passing fish through these areas. It is the intent of the CDFW to detect any fish stranding issues before mortalities are observed, so that sufficient time is provided to inform diverters and take proactive flow restoration or other fish rescue actions.
 - iii. Monitoring of habitat conditions in Antelope Creek, its distributaries, or the Sacramento River prior to relocation of salmonids at risk, including spring-run Chinook salmon.
- B. **Fish Capture and Relocation.** CDFW or its agent will carry out all fish capture and relocation activities in accordance with standard fishery practices. CDFW, or its agent, will notify LMMWC, at least 24 hours in advance, to the telephone number listed in Section 12, of all planned fish rescue/relocation activities it will carry out on the Real Property.
- i. Upon determination that stream flow and temperature conditions for salmonids, including spring-run Chinook salmon, are deteriorating in the lower Antelope Creek watershed, or upon reasonable projections of same, CDFW will capture and remove salmonids, including spring-run Chinook, from Antelope Creek adjacent to LMMWC's Real Property and relocate those salmonids to suitable habitat elsewhere in the watershed OR into the Sacramento River.
 - ii. Relocating juvenile salmonids, including spring-run Chinook salmon, captured from elsewhere in the lower Antelope Creek watershed, to Antelope Creek adjacent to Real Property if suitable instream conditions exist, or to a suitable

- location on the Sacramento River; or
- iii. Monitoring stream depth and temperature at relocation site(s) post-relocation to determine if conditions remain adequate to keep salmonids alive and provide for salmonid passage.

3. Notice to Other Water Diverters

Prior to notifying LMMWC as described in Section 2.0, the CDFW will request all water diverters on Antelope Creek at or below Edwards Diversion Dam not to divert any Bypassed Water, as defined below in Section 4.C (i). If the CDFW determines that any water diverter at or below Edwards Diversion Dam will not cooperate, the CDFW may: (a) elect not to request LMMWC to bypass water, in which case the CDFW will notify LMMWC of its decision as soon as possible; (b) withdraw from the MOU in accordance with Section 13.0; (c) suspend the bypass flow events; or (d) take some other action consistent with the MOU.

4. LMMWC Commitments

- A. LMMWC agrees to provide reasonable access to CDFW and its agents, including equipment access, to the Real Property to carry out any of the management activities listed in Section 1 of this CESA MOU for the purposes of:
 - i. Monitoring habitat conditions and spring-run Chinook salmon abundance, size, and condition prior to any management activities;
 - ii. Capturing and removing spring-run Chinook salmon from and/or relocating fish to suitable habitat, and for monitoring conditions post-relocation; or
 - iii. Monitoring stream flow conditions during flow events and/or during post-rescue/relocation to determine if conditions remain adequate to keep fish alive and provide for passage. This includes maintenance of the streamflow gage located above Edwards Diversion Dam, which is on Real Property owned by LMMWC.
- B. All water diversion facilities that LMMWC owns, operates, or controls associated with the property where fish may need to be removed and relocated to more suitable habitats shall be operated and maintained in accordance with current laws and regulations.
- C. LMMWC agrees to perform Required Management Elements (RME's) as outlined below as a condition of this MOU, according to the type of diversion activities conducted at a particular site:
 - i. Bypass Flows: Upon notice from the CDFW, LMMWC agrees to bypass a portion of the surface water it would otherwise divert from Antelope Creek for agricultural use to augment fish transportation flows in Antelope Creek, sometimes referred to herein as "Bypassed Water." The amount to be bypassed will be proportional to the streamflow adjudicated to LMMWC, as

opposed to the streamflow adjudicated to Los Molinos Mutual Water Company. Bypassed Water will be limited to flow releases during the fall, as set forth below.

- a. **Minimum Base Flow:** These flows are required to support fish that may already be in Antelope Creek but may not have moved out to the Sacramento River. Base flows are defined as that flow which is measured above points of diversion on Antelope Creek, as measured at the historic U.S. Geologic Survey (USGS) flow gage site above Edwards Diversion Dam.
 1. **Juvenile Spring-run Chinook: Fall Base flows:** To meet the needs of out-migrating yearling juvenile spring-run Chinook; Central Valley steelhead (juvenile and adult) will also benefit from this flow prescription; see also Section 7.

Once there is a freshet that doubles the full natural flow (measured at the historical USGS gage location above Edward's Dam) after October 15, 2014 but prior to November 1, 2014, then a base flow of 35 cfs. or full natural flows, whichever is less, must be maintained from that point forward; this flow will be measured at Cone Grove Park. A freshet is defined as a sudden rise in the level of a stream, or a flood, caused by heavy rains or the rapid melting of snow and ice.

If there is not a freshet that doubles the full natural flow before November 1, 2014, then for the period from November 1 to December 31, 2014, a flow of 35 cfs. or if the flow is less than 35 cfs, then the full natural flow, whichever is less, will be maintained, as measured at Cone Grove Park.

It is duly noted that adult and juvenile spring-run Chinook salmon and steelhead are present in stream during other months. However, for the purpose of this CESA MOU, the critical passage periods described above are critical to fish protection during the drought.

- D. LMMWC shall notify the CDFW's fisheries program at the telephone number listed in Section 12, at least three (3) days prior to any significant planned changes in operation of the diversion and associated screen and bypass and other structures.
- E. All water diversion facilities shall be maintained so they do not prevent, impede, or tend to prevent or impede the passing of fish upstream or downstream.
- F. LMMWC shall notify CDFW, at the telephone number listed in Section 12, at least three days, or as soon as practicable, prior to closing a headgate or valve

and will terminate on **December 31, 2014**, both days inclusive.

9. Dispute Resolution

The Parties shall make reasonable efforts to resolve any disputes that may arise from this MOU in a prompt and timely manner. In the event of a dispute, the Party claiming a dispute shall give verbal and written notice of the dispute to the other Parties within 5 business days. If resolution of the dispute cannot be resolved within 5 business days of the notice either party may terminate the MOU through written notice. Termination of the MOU will result in a loss of take coverage for future actions.

10. Amendments

Amendments to this CESA MOU may be proposed by either party and shall become effective when both parties sign a written modification to this document.

11. Applicable Law

This CESA MOU shall be construed under and governed by the laws of the State of California and of the United States, without giving effect to any principles of conflicts of law if such principles would operate to construe the CESA MOU, as amended herein, under the laws of any other jurisdiction.

12. Notice and Contact Persons

Any written notice, and the telephone notice specified in Section 4 required to be given by the CESA MOU, shall be deemed to have been given by the notifying party when mailed, postage prepaid or delivered to the following representatives, who will also serve as main contact people for their respective Party:

For LMMWC:
Mr. Darrell Mullins
25162 Josephine Street
Los Molinos, CA 96055
lmmutual@att.net

For CDFW:
Mr. David Leitaker
Northern Region
California Department of Fish and Wildlife
1760 Bidwell Street
Red Bluff, CA 96080
David.Leitaker@wildlife.ca.gov
(530) 528-9406

13. Signatories' Authority

The signatories to the CESA MOU on behalf of all the Parties hereto warrant and represent that they have authority to execute the CESA MOU and to bind the Parties on whose behalf they execute the CESA MOU.

14. Disclaimer

The CDFW shall incur no fiscal obligation under this CESA MOU.

IN WITNESS WHEREOF, THE PARTIES HERETO HAVE EXECUTED THIS CESA MOU TO BE IN EFFECT AS OF THE DATE LAST WRITTEN BELOW.



DARRELL MULLINS
Manager,
Los Molinos Mutual Water Company

Date: 5/19/2014

25162 Josephine Road
Los Molinos, CA 96055
(530) 384-2737



NEIL MANJI
Regional Manager,
Region 1

Date: 5/19/14

California Department of
Fish and Wildlife, Region 1
601 Locust Street
Redding CA 96001
(530) 225-2300

**MEMORANDUM OF
UNDERSTANDING**

by and between

EDWARDS RANCH

and

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

This California Endangered Species Act Memorandum of Understanding ("CESA MOU") is made and entered into by and between Edwards Ranch (hereinafter called EDWARDS RANCH) and the California Department of Fish and Wildlife (hereinafter called the "CDFW").

The purpose of this CESA MOU is to provide a framework for cooperative activities and monitoring that involve or address issues of importance to spring-run Chinook salmon (*Oncorhynchus tshawytscha*) in Antelope Creek, eastern Tehama County. This CESA MOU provides for take associated with actions taken by the CDFW or EDWARDS RANCH to rescue and relocate Chinook salmon or assist with increasing flows in the creek for the benefit of spring-run Chinook salmon as management activities under authority of Section 2081(a) of the California Fish and Game Code.

RECITALS

WHEREAS, the CDFW has jurisdiction over the conservation and protection of fish, wildlife, and native plants and their habitats necessary for biologically sustainable populations of those species and holds those resources in trust for the people of California (California Fish and Game Code Section 1802).

WHEREAS, spring-run Chinook salmon are classified as a threatened species by the State of California Fish and Game Commission pursuant to the California Endangered Species Act (CESA, Code section 2050 et seq.).

WHEREAS, Fish and Game Code section 2080 prohibits the import, export, take, possession, purchase or sale of any species, in whole or in part, that has been listed as threatened or endangered by the California Fish and Game Commission. Take is defined in Fish and Game Code section 86 as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill." However, Fish and Game Code section 2081(a) allows CDFW to authorize take and other acts prohibited by Fish and Game Code section 2080 for scientific, educational, or management purposes. This CESA MOU authorizes a limited level of take of spring-run Chinook salmon for management purposes.

WHEREAS, on January 17, 2014 Governor Brown issued a proclamation, declaring the state to be in an emergency due to the drought conditions.

WHEREAS, on April 25, 2014, Governor Brown issued an Executive Order directing state agencies to, in part, work with other state and federal agencies and with landowners in priority watersheds to protect threatened and endangered species and species of special concern and maximize the beneficial uses of scarce water supplies, including employment of voluntary agreements to secure instream flows, relocate members of those species or take other measures.

WHEREAS Antelope Creek provides many important surface water beneficial uses, including agriculture, recreation, wildlife habitat, freshwater habitat, and anadromous fish habitat, particularly for spring-run Chinook salmon (*Oncorhynchus tshawytscha*) listed as threatened under the Federal and State Endangered Species Acts and steelhead trout (*Oncorhynchus mykiss*) listed as threatened under the Federal Endangered Species Act. Due in part to naturally occurring low flows, agricultural diversions, channel morphology and excessive temperatures, the upstream migration of adults or downstream migration of juvenile spring-run Chinook salmon and steelhead may be impeded or blocked in some years. In 2014, conditions in Antelope Creek are poorer than is typical for this time of year. Conditions may further deteriorate such that listed juvenile and adult spring-run Chinook salmon will need the restoration of suitable instream flow conditions to provide passage and/or be rescued and relocated.

WHEREAS, EDWARDS RANCH is a privately-owned farm with adjudicated rights to divert Antelope Creek surface water for irrigation.

WHEREAS, EDWARDS RANCH is subject to flow maintenance responsibilities in a stream as per Division 4, Parts 7040 to 7045 of the California Water Code.

WHEREAS, EDWARDS RANCH owns certain real property associated with Edwards Diversion Dam on Antelope Creek, Tehama County (Real Property). EDWARDS RANCH is willing to participate with the CDFW in fish rescue and relocation activities by allowing access to the Real Property for the purposes of monitoring, and/or capturing and removing, and/or relocating spring-run Chinook salmon on or to Antelope Creek adjacent to the Real Property or to the Sacramento River.

NOW, THEREFORE, THE PARTIES HERETO AGREE AS FOLLOWS:

1. Purpose

The general elements of this MOU include eligibility, fish rescue efforts, designated fish passage flows, changes in the timing of diversions to provide improved instream flow and water temperature conditions which would minimize the need to rescue fish, monitoring, and evaluations of management actions. The specific elements of the program are tailored by stream and by an eligible diverting entity and as described in this MOU.

The elements of this CESA MOU, including flows, monitoring and evaluation, if implemented in the manner described in this below, will provide fishery protections necessary to avoid significant drought-related harm to spring-run Chinook salmon. The flows in this CESA MOU are based on our current understanding of the best available information for protecting fisheries, while maintaining water use in Antelope Creek and are comparable to, and achieve, a similar biological outcome for fishery protection, as those required in the regulations being proposed by the State Water Resources Control Board (Title 23 CCR 877-879.2).

2. Methods

- A. Monitoring. CDFW or its agent will carry out all monitoring activities in accordance with standard fishery practices. Monitoring and evaluations plans shall be in place to inform the effectiveness of the flow events and/or rescue efforts. Monitoring and evaluations will be conducted by CDFW staff. CDFW, or its agent, will notify EDWARDS RANCH at least 24 hours in advance, to the telephone number listed in Section 12 of this MOU, of all planned monitoring activities it will carry out on the Real Property. Those activities may include:
- i. Use of video stations to determine if fish are moving through lower Antelope Creek in response to minimum base flows and pulse flow events, and to determine population abundance.
 - ii. Snorkel surveys will be conducted upstream and downstream of diversion structures and critical riffle areas to determine if minimum base flows are passing fish through these areas. It is the intent of the CDFW to detect any fish stranding issues before mortalities are observed, so that sufficient time is provided to inform diverters and take proactive flow restoration or other fish rescue actions.
 - iii. Monitoring of habitat conditions in Antelope Creek, its distributaries, or the Sacramento River prior to relocation of salmonids at risk, including spring-run Chinook salmon.
- B. Fish Capture and Relocation: CDFW or its agent will carry out all fish capture and relocation activities in accordance with standard fishery practices. CDFW, or its agent, will notify EDWARDS RANCH, at least 24 hours in advance, to the telephone number listed in Section 12, of all planned fish rescue/relocation activities it will carry out on the Real Property.
- i. Upon determination that stream flow and temperature conditions for salmonids, including spring-run Chinook salmon, are deteriorating in the lower Antelope Creek watershed, or upon reasonable projections of same, CDFW will capture and remove salmonids, including spring-run Chinook, from Antelope Creek adjacent to EDWARDS RANCH's Real Property and relocate those salmonids to suitable habitat elsewhere in the watershed OR into the Sacramento River;
 - ii. Relocating juvenile salmonids, including spring-run Chinook salmon, captured from elsewhere in the lower Antelope Creek watershed, to Antelope Creek adjacent to Real Property if suitable instream conditions exist, or to a suitable location on the Sacramento River; or

- iii. Monitoring stream depth and temperature at relocation site(s) post-relocation to determine if conditions remain adequate to keep salmonids alive and provide for salmonid passage.

3. Notice to Other Water Diversifiers

Prior to notifying EDWARDS RANCH as described in Section 2.0, the CDFW will request all water diversifiers on Antelope Creek at or below Edwards Diversion Dam not to divert any Bypassed Water, as defined below in Section 4 C (ii). If the CDFW determines that any water diverter at or below Edwards Diversion Dam will not cooperate, the CDFW may: (a) elect not to request EDWARDS RANCH to bypass water, in which case the CDFW will notify EDWARDS RANCH of its decision as soon as possible; (b) withdraw from the MOU in accordance with Section 13.0; (c) suspend the bypass flow events; or (d) take some other action consistent with the MOU.

4. EDWARDS RANCH Commitments

- A. EDWARDS RANCH agrees to provide reasonable access to CDFW and its agents, including equipment access, to the Real Property to carry out any of the management activities listed in Section 1 of this CESA MOU for the purposes of:
 - i. Monitoring habitat conditions and spring-run Chinook salmon abundance, size, and condition prior to any management activities;
 - ii. Capturing and removing spring-run Chinook salmon from and/or relocating fish to suitable habitat, and for monitoring conditions post-relocation; or
 - iii. Monitoring stream flow conditions during flow events and/or during post-rescue/relocation to determine if conditions remain adequate to keep fish alive and provide for passage. This includes maintenance of the streamflow gage located above Edwards Diversion Dam, which is on Real Property owned by EDWARDS RANCH.
- B. All water diversion facilities that EDWARDS RANCH owns, operates, or controls associated with the property where fish may need to be removed and relocated to more suitable habitats shall be operated and maintained in accordance with current laws and regulations.
- C. EDWARDS RANCH agrees to perform Required Management Elements (RME's) as outlined below as a condition of this MOU, according to the type of diversion activities conducted at a particular site:
 - i. Bypass Flows: Upon notice from the CDFW, EDWARDS RANCH agrees to bypass a portion of the surface water it would otherwise divert from Antelope Creek for agricultural use to augment fish transportation flows in Antelope Creek, sometimes referred to herein as "Bypassed Water." The amount to be bypassed will be proportional to the streamflow adjudicated to

EDWARDS RANCH, as opposed to the streamflow adjudicated to Los Molinos Mutual Water Company. Bypassed Water will be limited to flow releases during the fall, as set forth below.

- a. **Minimum Base Flow:** These flows are required to support fish that may already be in Antelope Creek but may not have moved out to the Sacramento River. Base flows are defined as that flow which is measured above points of diversion on Antelope Creek, as measured at the historic U.S. Geologic Survey (USGS) flow gage site above Edwards Diversion Dam.
 1. **Juvenile Spring-run Chinook: Fall Base flows.** To meet the needs of out-migrating yearling juvenile spring-run Chinook; Central Valley steelhead (juvenile and adult) will also benefit from this flow prescription; see also Section 7.

Once there is a freshet that doubles the full natural flow (measured at the historical USGS gage location above Edward's Dam) after October 15, 2014 but prior to November 1, 2014, then a base flow of 35 cfs, or full natural flows, whichever is less, must be maintained from that point forward; this flow will be measured at Cone Grove Park. A freshet is defined as a sudden rise in the level of a stream, or a flood, caused by heavy rains or the rapid melting of snow and ice.

If there is not a freshet that doubles the full natural flow before November 1, 2014, then for the period from November 1 to December 31, 2014, a flow of 35 cfs, or if the flow is less than 35 cfs, then the full natural flow, whichever is less, will be maintained, as measured at Cone Grove Park.

It is duly noted that adult and juvenile spring-run Chinook salmon and steelhead are present in stream during other months. However, for the purpose of this CESA MOC, the critical passage periods described above are critical to fish protection during the drought.

- D. EDWARDS RANCH shall notify the CDFW's fisheries program at the telephone number listed in Section 12, at least three (3) days prior to any significant planned changes in operation of the diversion and associated screen and bypass and other structures.
- E. All water diversion facilities shall be maintained so they do not prevent, impede, or tend to prevent or impede the passing of fish upstream or downstream.
- F. EDWARDS RANCH shall notify CDFW, at the telephone number listed in Section 12, at least three days, or as soon as practicable, prior to closing a

headgate or valve when fish stranding may occur in the diversion conduit as a result of that activity.

- G. In cooperation with CDFW staff, EDWARDS RANCH shall regularly inspect all fish screens and bypass pipes or channels to verify that they are effectively protecting salmonids and other fish species in accordance with CDFW and National Marine Fisheries Service (NMFS) fish screening criteria. Sufficient flow will also be supplied in the fish ladder, located on Edwards Diversion Dam to provide upstream and downstream migration of fish.

5. CDFW Commitments Regarding Fish Management Activities on the Real Property

- A. CDFW agrees that CDFW and its agents will conduct all rescue/relocation activities only after CDFW has provided the advance notice to EDWARDS RANCH as provided in Section 2 above.
- B. CDFW will maintain the fish screens it has already agreed to maintain previously in writing.

6. Authorized Take Level

Chinook salmon: The number of spring-run Chinook salmon which may die in the course of fish capture and relocation activities conducted by CDFW is typically small (less than 10%) and is much-reduced from levels of mortality that will potentially occur in absence of carrying out this activity. As such, fish mortalities related to, or occurring in the course of, fish rescue activities is authorized.

7. Federal Endangered Species Act

Central Valley spring-run Chinook salmon are listed as a threatened species under the federal Endangered Species Act (ESA) of 1973. In its regulations, NMFS has limited the general prohibition of taking threatened spring-run Chinook salmon under the federal ESA to allow CDFW, its employees, and its designees to perform the rescue activities listed in Section 1 above. Central Valley steelhead are also listed as threatened by the Endangered Species Act; the flow prescription identified in Section 4 has been vetted with NMFS staff and determined to be consistent with flow prescriptions identified in volunteer agreements developed by NMFS during the 2014 drought period. However, nothing in this CESA MOU authorizes any action pursuant to the federal ESA.

EDWARDS RANCH is not expected or authorized to assist in the handling of Central Valley spring-run Chinook salmon as a part of the fish rescue effort.

8. Effective Date and Termination

Unless terminated sooner by either party of the CESA MOU by giving thirty (30) days prior written notice of earlier termination, this CESA MOU shall commence on the date of execution

and will terminate on **December 31, 2014**, both days inclusive.

9. Dispute Resolution

The Parties shall make reasonable efforts to resolve any disputes that may arise from this MOU in a prompt and timely manner. In the event of a dispute, the Party claiming a dispute shall give verbal and written notice of the dispute to the other Parties within 5 business days. If resolution of the dispute cannot be resolved within 5 business days of the notice either party may terminate the MOU through written notice. Termination of the MOU will result in a loss of take coverage for future actions.

10. Amendments

Amendments to this CESA MOU may be proposed by either party and shall become effective when both parties sign a written modification to this document.

11. Applicable Law

This CESA MOU shall be construed under and governed by the laws of the State of California and of the United States, without giving effect to any principles of conflicts of law if such principles would operate to construe the CESA MOU, as amended herein, under the laws of any other jurisdiction.

12. Notice and Contact Persons

Any written notice, and the telephone notice specified in Section 4 required to be given by the CESA MOU, shall be deemed to have been given by the notifying party when mailed, postage prepaid or delivered to the following representatives, who will also serve as main contact people for their respective Party:

For EDWARDS RANCH:

Mr. James (Jim) Edwards
13038 Highway 99-E
Red Bluff, CA 96080
eranch@clearwire.net
(530) 527-4285

For CDFW:

Mr. David Leitaker
Northern Region
California Department of Fish and Wildlife
1760 Bidwell Street
Red Bluff, CA 96080
David.Leitaker@wildlife.ca.gov
(530) 528-9406

13. Signatories' Authority

The signatories to the CESA MOU on behalf of all the Parties hereto warrant and represent that they have authority to execute the CESA MOU and to bind the Parties on whose behalf they execute the CESA MOU.


14. Disclaimer

The CDFW shall incur no fiscal obligation under this CESA MOU.

IN WITNESS WHEREOF, THE PARTIES HERETO HAVE EXECUTED THIS CESA MOU TO BE IN EFFECT AS OF THE DATE LAST WRITTEN BELOW.



JAMES EDWARDS
Edwards Ranch



NEIL MANJI
Regional Manager,
Northern Region

Date: 5/19/14

Date: 5/19/14

13038 Highway 99 E
Red Bluff, CA 96080
(530) 527-4285

California Department of
Fish and Wildlife, Region 1
601 Locust Street
Redding CA 96001
(530) 225-2300

**MEMORANDUM OF
UNDERSTANDING**

by and between

LOS MOLINOS MUTUAL WATER COMPANY

and

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

MILL CREEK WATERSHED

This California Endangered Species Act Memorandum of Understanding ("CESA MOU") is made and entered into by and between Los Molinos Mutual Water Company, (hereinafter called LMMWC), acting through its Board of Directors, and the California Department of Fish and Wildlife (hereinafter called the "CDFW").

The purpose of this CESA MOU is to provide a framework for cooperative activities and monitoring that involve or address issues of importance to spring-run Chinook salmon (*Oncorhynchus tshawytscha*) in Mill Creek, eastern Tehama County. This CESA MOU provides for take associated with actions taken by the CDFW or LMMWC to rescue and relocate Chinook salmon or assist with increasing flows in the creek for the benefit of spring-run Chinook salmon as management activities under authority of Section 2081(a) of the California Fish and Game Code.

RECITALS

WHEREAS, the CDFW has jurisdiction over the conservation and protection of fish, wildlife, and native plants and their habitats necessary for biologically sustainable populations of those species and holds those resources in trust for the people of California (California Fish and Game Code Section 1802).

WHEREAS, spring-run Chinook salmon are classified as a threatened species by the State of California Fish and Game Commission pursuant to the California Endangered Species Act (CESA, Code section 2050 et seq.).

WHEREAS, Fish and Game Code section 2080 prohibits the import, export, take, possession, purchase or sale of any species, in whole or in part, that has been listed as threatened or endangered by the California Fish and Game Commission. Take is defined in Fish and Game Code section 86 as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill." However, Fish and Game Code section 2081(a) allows CDFW to authorize take and other acts prohibited by Fish and Game Code section 2080 for scientific, educational, or management purposes. This CESA

MOU authorizes a limited level of take of spring-run Chinook salmon for management purposes.

WHEREAS, on January 17, 2014 Governor Brown issued a proclamation declaring the state to be in an emergency due to the drought conditions.

WHEREAS, on April 25, 2014, Governor Brown issued an Executive Order directing state agencies to, in part, work with other state and federal agencies and with landowners in priority watersheds to protect threatened and endangered species and species of special concern and maximize the beneficial uses of scarce water supplies, including employment of voluntary agreements to secure instream flows, relocate members of those species or take other measures.

WHEREAS Mill Creek provides many important surface water beneficial uses, including agriculture, recreation, wildlife habitat, freshwater habitat, and anadromous fish habitat, particularly for spring-run Chinook salmon (*Oncorhynchus tshawytscha*) listed as threatened under the Federal and State Endangered Species Acts and Central Valley steelhead trout (*Oncorhynchus mykiss*) listed as threatened under the Federal Endangered Species Act. Due in part to naturally occurring low flows, agricultural diversions, channel morphology and excessive temperatures, the upstream migration of adults or downstream migration of juvenile spring-run Chinook salmon and steelhead may be impeded or blocked in some years. In 2014, conditions in Mill Creek are poorer than is typical for this time of year. Conditions may further deteriorate such that listed juvenile and adult spring-run Chinook salmon will need the restoration of suitable instream flow conditions to provide passage and/or be rescued and relocated.

WHEREAS, LMMWC serves as the Watermaster for Mill Creek and operates two low diversions for agricultural water from both the north and south banks. As per the 1920 adjudication decree, LMMWC is also tasked with allocating water supplies, maintaining records of diversion and use, and with maintaining the structures necessary for diversion, conveyance, and delivery of water to all those entitled under the Decree to the water of Mill Creek, including LMMWC for the benefit of its shareholders

WHEREAS, LMMWC, in its role as Watermaster for Mill Creek, is subject to Division 2, Part 4 of the California Water Code.

WHEREAS, LMMWC has adjudicated rights to divert Mill Creek surface water for irrigation and services approximately 7,000 acres of land within Tehama County.

WHEREAS, LMMWC owns or has access to certain real property associated with the LMMWC Diversion Dam on Mill Creek, Tehama County (Real Property). LMMWC is willing to participate with the CDFW in fish rescue and relocation activities by allowing access to the Real Property for the purposes of monitoring, and/or capturing and removing, and/or relocating spring-run Chinook salmon on or to Mill Creek adjacent to the Real Property or to the Sacramento River.

NOW, THEREFORE, THE PARTIES HERETO AGREE AS FOLLOWS:

1. Purpose

The general elements of this CESA MOU include eligibility, fish rescue efforts, designated fish passage flows, changes in the timing of diversions to provide improved instream flow and water temperature conditions which would minimize the need to rescue fish, monitoring, and evaluations of management actions. The specific elements of the program are tailored by stream and by an eligible diverting entity and as described in this CESA MOU.

2. Methods

- A. **Monitoring.** CDFW or its agent will carry out all monitoring activities in accordance with standard fishery practices. Monitoring and evaluations plans shall be in place to inform the effectiveness of the flow events and/or rescue efforts. Monitoring and evaluations will be conducted by CDFW staff. CDFW, or its agent, will notify LMMWC at least 24 hours in advance, to the telephone number listed in Section 1.2 of this CESA MOU, of all planned monitoring activities it will carry out on the Real Property. Those activities may include:
- i. Use of video stations to determine if fish are moving through lower Mill Creek in response to minimum base flows and pulse flow events, and to determine population abundance.
 - ii. Snorkel surveys conducted upstream and downstream of diversion structures and critical riffle areas to determine if minimum base flows are passing fish through these areas. It is the intent of the CDFW to detect any fish stranding issues before mortalities are observed, so that sufficient time is provided to inform diverters and take proactive flow restoration or other fish rescue actions.
 - iii. For pulse flow evaluations, identifying fish passage issues by conducting snorkeling surveys downstream of the potential barrier to determine if listed salmonids are in the vicinity of the potential passage issue. Assessment of critical riffles will also be conducted (e.g. cross section profile, longitudinal surveys). Once a fish passage issue is identified, the CDFW will make pulse flow recommendations to LMMWC on the magnitude of pulse flows that may help to move fish upstream past the area. See Section 4.C (i)(a) for a definition of "pulse flow magnitude".
 - iv. Monitoring of habitat conditions in Mill Creek or the Sacramento River prior to relocation of salmonids at risk, including spring-run Chinook salmon.
- B. **Fish Capture and Relocation:** CDFW or its agent will carry out all fish capture and relocation activities in accordance with standard fishery practices. CDFW, or its agent, will notify LMMWC, at least 24 hours in advance, to the telephone number listed in Section 1.2, of all planned fish rescue/relocation activities it will carry out on the Real Property.
- i. Upon determination that stream flow and temperature conditions for salmonids, including spring-run Chinook salmon, are deteriorating in the lower Mill Creek watershed, or upon reasonable projections of same, CDFW will capture and remove salmonids, including spring-run Chinook, from Mill Creek adjacent to

LMMWC's Real Property and relocate those salmonids to suitable habitat elsewhere in the watershed OR into the Sacramento River;

- ii. Relocating juvenile salmonids, including spring-run Chinook salmon, captured from elsewhere in the lower Mill Creek watershed, to Mill Creek adjacent to Real Property if suitable instream conditions exist, or to a suitable location on the Sacramento River; or
- iii. Monitoring stream depth and temperature at relocation site(s) post-relocation to determine if conditions remain adequate to keep salmonids alive and provide for salmonid passage.

3. Notice to Other Water Diverters

Prior to notifying LMMWC as described in Section 2.0, the CDFW will request all water diverters on Mill Creek below LMMWC's diversion dam not to divert any Bypassed Water, as defined below in Section 4.C (i). If the CDFW determines that any water diverter below LMMWC's diversion dam will not cooperate, the CDFW may: (a) elect not to request LMMWC to bypass water, in which case the CDFW will notify LMMWC of its decision as soon as possible; (b) withdraw from the CESA MOU in accordance with Section 13.0; (c) suspend the bypass flow events; or (d) take some other action consistent with the CESA MOU.

4. LMMWC Commitments

- A. LMMWC agrees to provide reasonable access to CDFW and its agents, including equipment access, to the Real Property to carry out any of the management activities listed in Section 1 of this CESA MOU for the purposes of:
 - i. Monitoring habitat conditions and spring-run Chinook salmon abundance, size, and condition prior to any management activities;
 - ii. Capturing and removing spring-run Chinook salmon from and/or relocating fish to suitable habitat, and for monitoring conditions post-relocation; or
 - iii. Monitoring stream flow conditions during flow events and/or during post-rescue/relocation to determine if conditions remain adequate to keep fish alive and provide for passage.
- B. All water diversion facilities that LMMWC owns, operates, or controls associated with the property where fish may need to be removed and relocated to more suitable habitats shall be operated and maintained in accordance with current laws and regulations.
- C. LMMWC agrees to perform Required Management Elements (RME's) as outlined below as a condition of this CESA MOU, according to the type of diversion activities conducted at a particular site:
 - i. Bypass Flows: The flow prescriptions identified in the CESA MOU are considered by National Marine Fisheries Service and CDFW to be the minimal flows that are necessary to allow for adult and juvenile fish migration on lower Mill Creek, and they are considered the minimum flows needed for minimize the effects of drought while balancing fish and

agricultural interests. Upon notice from the CDFW, LMMWC agrees to bypass a portion of the surface water it would otherwise divert from Mill Creek for agricultural use to augment fish transportation flows in Mill Creek, sometimes referred to herein as "Bypassed Water." The amount to be bypassed will be proportional to the streamflow adjudicated to LMMWC (~50-69%, depending on pre-diversion instream flows). Bypassed Water will be limited to flow releases during the spring and fall, as set forth below:

a. **Minimum Base Flow:** These flows are required to support fish that may already be in Mill Creek but may not have passed to upper elevations OR moved out to the Sacramento River.

1. **Adult Spring Run Chinook:** 50 cubic feet per second (cfs) between April 1 and June 14, 2014, and 25 cfs between June 15 and 30, 2014 for fish passage through the 2.8 miles of stream between the confluence with the Sacramento River and Ward Dam, as measured at the Department of Water Resources (DWR) flow gage below Ward Dam. Adult Chinook critical passage periods are from April 1 through June 30.

If monitoring and evaluations conducted by CDFW determine that fish are not present in lower Mill Creek or water temperatures are not conducive to fish survival during the period of June 15 to 30, 2014, and it is mutually agreed to by CDFW and LMMWC, base flows may be reduced below 25 cfs.

2. **Juvenile spring-run Chinook:** 50 cubic feet per second (cfs) between April 1 and June 14, 2014, and 25 cfs between June 15 and 30, 2014 for fish passage through the through the 2.8 miles of stream between the confluence with the Sacramento River and Ward Dam, as measured at the Department of Water Resources (DWR) flow gage below Ward Dam. Juvenile spring-run Chinook could be present in the system for a large portion of the year. However, as it pertains to this CESA MOC, the critical passage periods are April 1 through June 30 for young-of-the-year juvenile spring-run Chinook, and October 15 through December 31 for yearling juvenile spring-run Chinook. For the fall period, 50 cfs is required for out-migrating yearling juvenile spring-run Chinook and coincidentally Central Valley juvenile and adult steelhead (*Oncorhynchus mykiss*), which are federally listed as Threatened. In the event of a rain freshet, base flows could start on October 1, 2014 if mutually agreed to by NMFS, CDFW and LMMWC.

If monitoring and evaluations conducted by CDFW determine that fish are not present in lower Mill Creek or water temperatures are not conducive to fish survival during the period of June 15 to 30, 2014, and it is mutually agreed to by CDFW and LMMWC, base flows may be reduced below 25 cfs.

- ii. Pulse Flows: Pulse flows mimic the sudden increases in stream discharge following rain or snowmelt events which are absent in drought years. Adult salmonids have evolved to take advantage of such conditions when returning to natal tributaries. Previous pulse flows on Mill and Deer creeks lasting 24 hours or more have helped to create an attraction flow at the confluence of the tributary creek with the Sacramento River, encouraging fish to enter the stream, and providing the greatest instantaneous improvement to fish passage conditions through critical riffles and diversion structures. Pulse flows also encourage juvenile salmonids to migrate downstream before summer water temperatures become too warm.
 - a. Magnitude of pulse flows. A minimum of 50 cfs over base flow (see Section 4.C (i)(a) or full natural flows as recorded at the U.S. Geological Survey (USGS) Stream Gage at the mouth of the canyon above Upper Dam. The duration of the pulse flow in terms of time at which peak flow is maintained will be a minimum of 24 hours but not more than 72 hours.
 - b. Time period of pulse flows: April 1 through June 30, at a minimum of once every two weeks.

If monitoring and evaluations conducted by CDFW determine that fish are not present in lower Mill Creek or water temperatures are not conducive to fish survival during June, and it is mutually agreed to by NMFS, CDFW and LMMWC, pulse flows may cease prior to June 30, 2014.

- D. LMMWC shall notify the Department's fisheries program at the telephone number listed in Section 12, at least three (3) days prior to any significant planned changes in operation of the diversion and associated screen and bypass and other structures.
- E. All water diversion facilities shall be maintained so they do not prevent, impede, or tend to prevent or impede the passing of fish upstream or downstream. This includes installation and correct usage of CDFW-approved temporary fish passage structure, as described in a separate agreement between LMMWC and CDFW for use of such fish passage structure in 2014.
- F. LMMWC shall notify CDFW, at the telephone number listed in Section 12, at least three days, or as soon as practicable, prior to closing a headgate or valve when fish stranding may occur in the diversion conduit as a result of that activity.
- G. In cooperation with CDFW staff, LMMWC shall regularly inspect all fish screens and bypass pipes or channels to verify that they are effectively protecting salmonids and other fish species in accordance with CDFW and National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) fish screening criteria.

Sufficient flow will be supplied from the diversion into a fish bypass to safely and efficiently return fish back to the stream.

5. CDFW Commitments Regarding Fish Management Activities on the Real Property

- A. CDFW agrees that CDFW and its agents will conduct all rescue/relocation activities only after CDFW has provided the advance notice to LMMWC as provided in Section 2 above
- B. CDFW will maintain the fish screens, bypass structures and/or fish ladders it has already agreed to maintain previously in writing.

6. Authorized Take Level

Chinook salmon: The number of spring-run Chinook salmon which may die in the course of fish capture and relocation activities conducted by CDFW is typically small (less than 10%) and is much-reduced from levels of mortality that will potentially occur in absence of carrying out this activity. As such, fish mortalities related to, or occurring in the course of, fish rescue activities is authorized.

7. Federal Endangered Species Act

Central Valley spring-run Chinook salmon are listed as a threatened species under the federal Endangered Species Act (ESA) of 1973. In its regulations, NMFS has limited the general prohibition of taking threatened spring-run Chinook salmon under the federal ESA to allow, CDFW, its employees, and its designees to perform the rescue activities listed in Section 1 above.

LMMWC is not expected or authorized to assist in the handling of Central Valley spring-run Chinook salmon as a part of the fish rescue effort. Nothing in this CESA MOU authorizes any action pursuant to the federal ESA.

8. Effective Date and Termination

Unless terminated sooner by either party of the CESA MOU by giving thirty (30) days prior written notice of earlier termination, this CESA MOU shall commence on the date of execution and will terminate on **December 31, 2014**, both days inclusive.

9. Dispute Resolution

The Parties shall make reasonable efforts to resolve any disputes that may arise from this CESA MOU in a prompt and timely manner. In the event of a dispute, the Party claiming a dispute shall give verbal and written notice of the dispute to the other Parties within 5 business days. If resolution of the dispute cannot be resolved within 5 business days of the notice either party may terminate the CESA MOU through written notice. Termination of the CESA MOU will result in a loss of take coverage for future actions.

10. Amendments

Amendments to this CESA MOU may be proposed by either party and shall become effective when both parties sign a written modification to this document.

11. Applicable Law

This CESA MOU shall be construed under and governed by the laws of the State of California and of the United States, without giving effect to any principles of conflicts of law if such principles would operate to construe the CESA MOU, as amended herein, under the laws of any other jurisdiction.

12. Notice and Contact Persons

Any written notice, and the telephone notice specified in Section 4 required to be given by the CESA MOU, shall be deemed to have been given by the notifying party when mailed, postage prepaid or delivered to the following representatives, who will also serve as main contact people for their respective Party:

For LMMWC: Mr. Darrell Mullins
25162 Josephine Street
Los Molinos, CA 96055
lmmutual@att.net

For CDFW: Mr. David Leitaker
Northern Region
California Department of Fish and Wildlife
1760 Bidwell Street
Red Bluff, CA 96080
David.Leitaker@wildlife.ca.gov
(530) 528-9406

13. Signatories' Authority

The signatories to the CESA MOU on behalf of all the Parties hereto warrant and represent that they have authority to execute the CESA MOU and to bind the Parties on whose behalf they execute the CESA MOU.

14. Disclaimer

The CDFW shall incur no fiscal obligation under this CESA MOU.

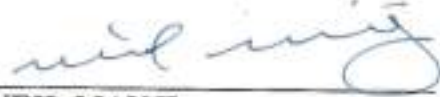
IN WITNESS WHEREOF, THE PARTIES HERETO HAVE EXECUTED THIS CESA
MOU TO BE IN EFFECT AS OF THE DATE LAST WRITTEN BELOW.



DARRELL MULLINS
Manager,
Los Molinos Mutual Water Company

Date: 5/19/2014

25162 Josephine Road
Los Molinos, CA 96055
(530) 384-2737



NEIL MANJI
Regional Manager,
Region 1

Date: 5/19/14

California Department of
Fish and Wildlife, Region 1
601 Locust Street
Redding CA 96001
(530) 225-2300

Attachment C.5.e

Subject: Example of CDFW and diverter MOA

Date: Wednesday, June 1, 2016 at 12:44:03 AM Central European Summer Time

From: Bratcher, Patricia@Wildlife, PATA6FAB05E-A7A0-470A-96E6-D1F5FF8DFADE16D>

To: Schultz, Daniel@Waterboards, DANIEL@WAT741CC8D3-E434-4A20-905F-BDEBAC8F434FB82>

Tricia Bratcher

California Department of Fish and Wildlife, Region 1

Habitat Restoration Coordinator, Upper Sacramento River and tributaries

Senior Environmental Scientist (Specialist)

601 Locust Street

Redding, CA 96001

Email: Patricia.Bratcher@wildlife.ca.gov

Office: (530) 225-3845

Fax: (530) 225-2381

Cell: (530) 945-4261

**MEMORANDUM OF AGREEMENT
BETWEEN
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
AND LOS MOLINOS MUTUAL WATER COMPANY
REGARDING WARD DIVERSION DAM ON MILL CREEK**

This Memorandum of Agreement ("Agreement") is made by and between the California Department of Fish and Wildlife ("Department") and Los Molinos Mutual Water Company ("LMMWC"), each a "Party" and together, the "Parties."

WHEREAS, the Department has jurisdiction over the conservation and protection of fish, wildlife, and native plants and their habitats necessary for biologically sustainable populations of those species and holds those resources in trust for the people of California pursuant to Fish and Game Code section 1802.

WHEREAS, LMMWC owns, operates, and maintains the Ward Dam on Mill Creek in Tehama Creek on property owned by LMMWC ("Property"). The Ward Dam is depicted in Exhibit 1, attached hereto.

WHEREAS, Mill Creek provides habitat for Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*), listed as a threatened species under the federal and California Endangered Species Acts ("ESA"); Central Valley steelhead (*Oncorhynchus mykiss*), listed as threatened under the federal ESA; and fall-run Chinook salmon (*O. tshawytscha*), a State Species of Special Concern.

WHEREAS, there is an existing fish ladder on the Ward Dam and an existing fish screen and fish bypass return pipe ("bypass") below the head gate in the ditch that conveys water from Mill Creek to LMMWC's customers ("ditch").

WHEREAS, LMMWC has agreed to have the existing fish ladder, fish screen, bypass pipe, and head gate replaced with a new ladder, screen, bypass, and head gate to allow unimpeded fish passage up- and downstream of the dam, among other obligations described herein, and has further agreed to take ownership of the new ladder, fish screen, bypass, and head gate after they have been installed, all in accordance with the agreement between LMMWC and the U.S. Fish and Wildlife Service attached hereto as Exhibit 2.

NOW, THEREFORE, the Parties agree as follows

I. PURPOSE

This Agreement defines the Parties' obligations regarding the operation, maintenance, and monitoring of the new fish ladder, fish screen, bypass pipe, and head gate after they have been installed.

II. FISH SCREEN AND BYPASS

A. The Department agrees as follows:

1. The Department agrees to inspect, maintain, and repair the new fish screen and bypass to ensure they are functioning as designed and effectively protecting spring-run Chinook salmon, steelhead, and other fish in Mill Creek at all life stages in accordance with the applicable screening criteria set forth in the following publications:
 - California Salmonid Stream Habitat Restoration Manual, 4th Edition. California Department of Fish and Game (2010).
 - Fish Screening Criteria for Anadromous Salmonids. National Marine Fisheries Service, Southwest Region (January 1997).
2. If the Department determines the fish screen or bypass is not functioning as designed, the Department shall take necessary measures to correct the problem(s). If the Department concludes it is incapable of correcting the problem(s), the Department shall notify LMMWC immediately.
3. The Department's obligations set forth in this Section II.A shall apply: (a) only to the new screen and bypass, and not to any existing or subsequent screen and bypass; and (b) only if the Department is allowed or able to access the fish screen and bypass after notifying LMMWC in accordance with Section V below.

B. LMMWC agrees as follows:

1. LMMWC agrees to provide flows sufficient to meet the screening and bypass criteria set forth in the publications listed in Section II.A.1.

LMMWC agrees that at all times it is diverting water for any purpose from Mill Creek at the dam point of diversion, the bypass shall remain open with sufficient flow supplied from the diversion to safely and efficiently return fish back to the creek in accordance with the applicable screening criteria set

forth in the publications listed in Section II.A.1, unless the Department allows otherwise.

III. FISH PASSAGE AND DIVERSION STRUCTURES

A. LMMWC agrees as follows:

1. LMMWC agrees to regularly inspect the fish ladder to ensure it is functioning as designed in accordance with the applicable fish passage criteria set forth in the following publications:
 - California Salmonid Stream Habitat Restoration Manual, 4th Edition, Volume II, Parts IX and XII. California Department of Fish and Game (2010), and
 - Anadromous Salmonid Passage Facility Design. NMFS, Northwest Region, Portland, Oregon, National Marine Fisheries Service (2011).
2. If LMMWC or the Department determines that the fish ladder is not functioning properly, LMMWC shall take necessary measures to correct the problem(s). If LMMWC concludes it is incapable of correcting the problem, LMMWC shall notify the Department immediately for assistance. Upon receipt of such notice, the Department shall determine whether Department personnel or materials are available to assist LMMWC, and provide a written response to LMMWC based on this determination.
3. LMMWC agrees that during periods when fish passage is required, the fish ladder shall remain open and sufficient flow will pass through it to meet design criteria and to allow for volitional upstream and downstream fish passage, unless the Department allows otherwise.
4. LMMWC agrees to operate and maintain the fish ladder as specifically described in the *Operation and Maintenance (O&M) Plan for Ward Dam Fish Ladder, Mill Creek, Tehama County*, that the Department will provide LMMWC prior to completion of the fish ladder and at which time the plan shall be incorporated herein by reference.
5. LMMWC agrees that it shall be solely responsible for operating and maintaining the fish ladder at all times, notwithstanding any assistance the Department may give to

LMMWC, or any problems with the ladders LMMWC reports or does not report to the Department.

6. LMMWC agrees that it shall be solely responsible for operating and maintaining all diversion structures that could have an impact on aquatic species or the operation or structural integrity of the new fish ladder or fish screen. Diversion structures include, but are not limited to, the diversion dam, head gates, sluice gates, and diversion conduits and controls.

IV. MONITORING

LMMWC agrees the Department may install and maintain any fish monitoring devices at the Ward Dam facility, provided operation of the devices or associated equipment will not interfere with LMMWC's ability to divert water into the ditch.

V. ACCESS

- A. LMMWC agrees that Department non-enforcement employees may enter upon the Property to: (a) meet the Department's obligations set forth in Section II.A while those obligations are in effect; (b) assess the diversion, fish screen, bypass, fish ladder, and head gate; (c) install and maintain any fish monitoring devices at the Ward Dam facility; and (d) provide LMMWC assistance regarding these facilities in accordance with the following provisions:
 1. The Department shall notify LMMWC, whether verbally or in writing, prior to entering the Property. LMMWC may be present or have a representative present at any time a Department employee is on the Property.
 2. Department employees shall make every effort to avoid causing any damage to the road described in Section V.B or the Property while they are on the Property.
 3. LMMWC shall not be liable for any loss or damage to Department property or for the injury to or death of any Department employee that occurs when a Department employee is on the road described in Section V.B or the Property, unless the loss, damage, injury, or death is due solely to LMMWC's negligence or willful misconduct.
 4. By signing this Agreement, LMMWC hereby warrants and represents that it has the authority to grant the Department

the right to enter the Property in accordance with the provisions herein.

5. If the Department would like to enter the Property for a reason not described in Section V.A, the Department shall obtain permission, either verbally or in writing, from LMMWC.
 7. Nothing in this section limits or otherwise effects the authority Department enforcement employees may have to enter the Property.
- B. The Parties acknowledge that for either Party to reach the Property, it must use a road LMMWC does not own but has a right to use. LMMWC agrees that if necessary, it will facilitate the use of this road by the Department so it can reach the Property. If the Department is not allowed or able to use the road for any reason, the Department's obligations set forth in Section II.A shall not apply during the period of time the Department is not allowed or able to use the road to reach the Property.

VI. CONTACTS

Any written or verbal communications with respect to the Agreement shall be made to the following persons:

California Department of Fish and Wildlife:

Jason Roberts
601 Locust Street
Redding, CA 96001
(530) 225-2131
jason.roberts@wildlife.ca.gov

Los Molinos Mutual Water Company:

Darrell Mullins
Manager, LMMWC
25162 Josephine Street
Los Molinos, CA 96055
(530) 384-2737
lmmutual@att.net

VII. EFFECTIVE DATE

This Agreement becomes effective upon the last date of signature.

VIII. TERM

This Agreement, except the Department's obligations set forth in Section II.A, shall remain in effect for as long as the Ward Dam is in place. The Department's obligations set forth in Section II.A shall remain in effect until December 31, 2025, unless the Department agrees to extend this term.

IX. DISPUTE RESOLUTION

The Parties shall make reasonable efforts to resolve any disputes that may arise from this Agreement in a prompt and timely manner.

X. COMPLIANCE WITH OTHER LAWS

Nothing in the Agreement relieves LMMWC from complying with, or liability for violation of any local, state, or federal law or regulation that might apply to the operation and maintenance of the dam, fish screen, bypass, fish ladder, and head gate, whether before, during, or after the new fish ladder, fish screen, bypass, and head gate are installed.

To comply with Fish and Game Code section 1602, LMMWC agrees to submit a notification to the Department for the operation and maintenance of the dam, ladder, screen, bypass, and head gate pursuant to section 1602 within 90 days after the new ladder, screen, bypass, and head gate are installed.

XI. HOLD HARMLESS

LMMWC shall hold harmless, protect, and indemnify the Department and its directors, officers, employees, agents, contractors, and representatives and the heirs, personal representatives, successors and assigns of each of them (each an "Indemnified Party" and, collectively, "Indemnified Parties") from and against any and all liabilities, penalties, costs, losses, damages, expenses (including, without limitation, reasonable attorneys' fees and experts' fees), causes of action, claims, demands, orders, liens or judgments (each a "Claim" and, collectively, "Claims"), arising from or in any way connected with the existing or new fish ladder, fish screen, bypass, or head gate and the obligations specified in this Agreement. If any action or proceeding is brought against any of the Indemnified Parties by reason of any such Claim, the Association shall, at the election of and upon written notice from the Department, defend such action or proceeding by counsel reasonably acceptable to the Indemnified Party or reimburse the Department for all charges incurred for services of the California Attorney General in defending the action or proceeding.

XII. AMENDMENTS

Section V may be amended at any time only by written mutual agreement between the Department and LMMWC. Section V may be amended at any time by the Department or LMMWC upon written notice to the other Party. All other provisions herein may be amended at any time by written mutual agreement between the Department and LMMWC provided notice of the amendment(s) is given to the other Party.

XIII. AUTHORITY

Each signatory to the Agreement warrants and represents that he or she has the authority to execute the Agreement on behalf of the Party he or she represents.

XIV. SIGNATURES

This Agreement may be signed in counterparts.

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement.

LOS MOLINOS MUTUAL WATER COMPANY



DARRELL MULLINS
Manager

4/20/2024
Date

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE



NEIL MANJI
Regional Manager
Northern Region

4/26/24
Date

USFWS ANADROMOUS FISH RESTORATION PROGRAM
OWNER/OPERATOR AGREEMENT with Los Molinos Mutual Water Company
Mill Creek: Upper Dam and Ward Dam

Background:

This Owner/Operator Agreement (Agreement), between Los Molinos Mutual Water Company (LMMWC), facility Owner/Operator, and the U.S. Fish and Wildlife Service, hereinafter referred to as USFWS, is entered into pursuant to authority contained in the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) and the Fish and Wildlife Act of 1956 (16 U.S.C. 742a-j), as amended. This project was selected because the Owner/Operator shares a common objective with the USFWS to restore habitat and provide for passage for the benefit of Federal trust species on private lands, and the project supports priority actions identified in the USFWS Anadromous Fish Restoration Plan (USFWS 2001).

The LMMWC, 25162 Josephine Street, P.O. Box 211, Los Molinos, CA, hereby agrees to participate with the USFWS in implementing the designed project at the specific locations, Upper Dam (latitude 40.054893° longitude -122.031977) and Ward Dam (aka Lower or Runyon) (latitude 40.052952 longitude -122.076679). Northwest Hydraulic Consultants (NHC) is designing the fish passage remediation at both the Upper Dam and Ward Dam. The designs and responsibilities are agreed upon through a Technical Advisory Committee process made up of state (California Department of Fish and Wildlife (CDFW)) and federal agencies (National Marine Fisheries Service) and LMMWC representatives.

By signing this Agreement, the Owner/Operator joins as a participant in a fish passage improvement program and grants to the USFWS authority to complete the fish passage improvement project as described in Exhibit A (attached). Any donation of supplies or equipment to the Owner/Operator for carrying out the fish passage improvements is included in Exhibit A. Once the fish passage project construction is completed, LMMWC will retain full ownership. The responsibility for maintenance and operation of the entire diversion structure, including fish ladder, will be defined in a separate MOU with CDFW. The goals and objectives of this fish passage improvement program are to meet the state and federal fish screen criteria and comply with protection of species under the Endangered Species Act. The USFWS will not be held responsible for any future maintenance or instream effects from the constructed project.

Agreement Term:

The term of this Agreement will begin when it has the three signatures below. It will be completed three years from the latest date of the signatures below. This Agreement may be modified at any time by mutual written consent of the parties. It may be terminated by either party upon 30 days advance written notice to the other party. Any act of nature, outside the control of all parties, that is substantive and results in partial or complete failure of the Project as described in Exhibit A may be cause for modification or termination of this Agreement.

Owner/Operator Roles and Responsibilities:

1) The Owner/Operator, with legal authority over facilities management decisions on their property, guarantees ownership of the above-described facilities and warrants that there are no outstanding rights that interfere with this Owner/Operator Agreement.

2) The Owner/Operator will notify the USFWS of planned or pending changes in ownership. A change of ownership shall not change the terms of this Agreement. The Agreement and terms shall be in effect on the described land for the term of the Agreement.

3) The Owner/Operator of the diversion facility retains all rights to control trespass and retains all responsibility for taxes, assessments, and damage claims.

4) During the agreement period, the Owner/Operator must allow the construction under this award to take place without interference.

5) At the end of agreement period, the constructed improvements will become the sole property and complete responsibility of LMMWC. There shall be no obligation to the USFWS after the term of the Agreement has expired.

6) The LMMWC has been working proactively with the Technical Advisory Committee working in coordination with Jeff Souza/Tehama Environmental Solutions to secure any necessary permits and with NHC on construction designs. The Owner/Operator agrees to identify USFWS' contribution to the project during public presentations, reports, or other information published about the project, as appropriate.

USFWS Roles and Responsibilities:

1) The USFWS will work with the other landowner at this site, Mr. Peyton (see also separate Agreement), and LMMWC throughout the entire Agreement term to support actions needed to ensure that the project is designed and constructed per the Agreement and functions as designed.

2) The USFWS, its agents, or assignees will provide advanced notice (48 hours) prior to accessing the Landowner property to implement the project described in the work plan, and to monitor project success.

3) The USFWS assumes no liability for damage or injury other than that caused by its own negligence, on the above acreage. The USFWS does not assume jurisdiction over the premises by this Agreement.


Literature Cited:

USFWS. 2001. Final Restoration Plan for the Anadromous Fish Restoration Program. Prepared as per compliance with the Central Valley Project Improvement, Act, USFWS, Sacramento, CA.

Signatures:



Darrell Mullins, Manager, LMMWC
3/23/2015
Date



Roy Garlett, Board President, LMMWC
3-23-2015
Date



James G. Smith, USFWS Red Bluff FWO Project Leader
3/27/2015
Date

EXHIBIT A - (95% Basis of Design and Plans) see attached.

Attachment C.5.f

Subject: Final signed CESA MOU, Mill Creek, TNC

Date: Wednesday, June 4, 2014 at 6:48:05 PM Central European Summer Time

From: Bratcher, Patricia@Wildlife, PATA6FAB05E-A7A0-470A-96E6-D1F5FF8DFADE16D>

To: Evoy, Barbara@Waterboards, BARBARA@WATEROC556DE1-8FEA-4DD1-91A5-2BBA7A82D039430>, Schultz, Daniel@Waterboards, DANIEL@WAT741CC8D3-E434-4A20-905F-BDEBAC8F434FB82>

CC: Harris, Michael R.@Wildlife, MICHAEL R.@2ABA4823-BFD0-4643-8E1E-33E9DAE7B9705EC>, Milliron, Curtis@Wildlife, CURTIS@WID6225358-75DE-4453-A1BB-7C89776CC016E1D>, Babcock, Curt@Wildlife, CURT@WILDLC0430971-3CA8-4A5F-B3E0-9035453BE8E077B>, Manji, Neil@Wildlife, NEIL@WA8401E16-1244-4295-BA37-5F7DE1032D7DA60>, Murray, Nancee@Wildlife, NANCEE@WILDC805F95F-5155-4F8D-B9FC-4848E2AA444E2BC>, Johnson, Matt@Wildlife, MATT@WILDLF5B11367-F176-4E87-B9F1-1E52EAFE4005F31>, Roberts, Jason@Wildlife, JASON@WILD6CAEDF58-FB81-4D68-B36F-A964A6745F3DC97>, Brown, Howard, Gretchen Umlauf - NOAA Federal, Gregg Werner, Cori Ong (cong@TNC.ORG)

Priority: High

Ms. Evoy and Mr. Schultz: As per the letter from CDFW dated June 2, 2014 regarding Mill Creek, please see the attached, final CESA MOU between CDFW and The Nature Conservancy on Mill Creek flows.

Thank you for your consideration. Regards, Tricia Bratcher

Patricia (Tricia) Bratcher

Habitat Restoration Coordinator, Sacramento River Watershed

California Department of Fish and Wildlife

Email: Patricia.Bratcher@wildlife.ca.gov

601 Locust Street

Redding, CA 96001

Work: (530) 225-3845

Cell: (530) 945-4261

Fax: (530) 225-2381

**MEMORANDUM OF
UNDERSTANDING**

by and between

THE NATURE CONSERVANCY

and

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

MILL CREEK WATERSHED

This California Endangered Species Act Memorandum of Understanding ("CESA MOU") is made and entered into by and between The Nature Conservancy (hereinafter called TNC) and the California Department of Fish and Wildlife (hereinafter called the "CDFW").

The purpose of this CESA MOU is to provide a framework for cooperative activities and monitoring that involve or address issues of importance to spring-run Chinook salmon (*Oncorhynchus tshawytscha*) in Mill Creek, eastern Tehama County. This CESA MOU provides for take associated with actions taken by the CDFW or TNC to rescue and relocate Chinook salmon or assist with increasing flows in the creek for the benefit of spring-run Chinook salmon as management activities under authority of Section 2081(a) of the California Fish and Game Code.

RECITALS

WHEREAS, the CDFW has jurisdiction over the conservation and protection of fish, wildlife, and native plants and their habitats necessary for biologically sustainable populations of those species and holds those resources in trust for the people of California (California Fish and Game Code Section 1802),

WHEREAS, spring-run Chinook salmon are classified as a threatened species by the State of California Fish and Game Commission pursuant to the California Endangered Species Act (CESA, Code section 2050 et seq.)

WHEREAS, Fish and Game Code section 2080 prohibits the import, export, take, possession, purchase or sale of any species, in whole or in part, that has been listed as threatened or endangered by the California Fish and Game Commission. Take is defined in Fish and Game Code section 86 as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill." However, Fish and Game Code section 2081(a) allows CDFW to authorize take and other acts prohibited by Fish and Game Code section 2080 for scientific, educational, or management purposes. This CESA MOU authorizes a limited level of take of spring-run Chinook salmon for management

purposes.

WHEREAS, on January 17, 2014, Governor Brown issued a proclamation, declaring the state to be in an emergency due to the drought conditions.

WHEREAS, on April 25, 2014, Governor Brown issued an Executive Order directing state agencies to, in part, work with other state and federal agencies and with landowners in priority watersheds to protect threatened and endangered species and species of special concern and maximize the beneficial uses of scarce water supplies, including employment of voluntary agreements to secure instream flows, relocate members of those species or take other measures.

WHEREAS Mill Creek provides many important surface water beneficial uses, including agriculture, recreation, wildlife habitat, freshwater habitat, and anadromous fish habitat, particularly for spring-run Chinook salmon (*Oncorhynchus tshawytscha*) listed as threatened under the Federal and State Endangered Species Acts and Central Valley steelhead trout (*Oncorhynchus mykiss*) listed as threatened under the Federal Endangered Species Act. Due in part to naturally occurring low flows, agricultural diversions, channel morphology and excessive temperatures, the upstream migration of adults or downstream migration of juvenile spring-run Chinook salmon and steelhead may be impeded or blocked in some years. In 2014, conditions in Mill Creek are poorer than is typical for this time of year. Conditions may further deteriorate such that listed juvenile and adult spring-run Chinook salmon will need the restoration of suitable instream flow conditions to provide passage and/or be rescued and relocated.

WHEREAS, TNC is a private, non-profit conservation organization whose mission is to conserve the lands and waters on which all life depends.

WHEREAS, TNC owns two decreed water rights, which total 17.4 cubic feet per second, to divert Mill Creek surface water for irrigation and other purposes. TNC currently permits the Los Molinos Mutual Water Company (LMMWC) to divert its water rights for irrigation use in return for LMMWC providing an offsetting amount of water for instream flows for salmonids when requested by CDFW.

WHEREAS, TNC leases Dye Creek Ranch which abuts Mill Creek near the Upper Diversion Dam (Lease Property). TNC is willing to participate with the CDFW in fish rescue and relocation activities by allowing access through the Lease Property for the purposes of monitoring, and/or capturing and removing, and/or relocating spring-run Chinook salmon on or to Mill Creek adjacent to the Lease Property or to the Sacramento River.

NOW, THEREFORE, THE PARTIES HERETO AGREE AS FOLLOWS:

1. Purpose

The general elements of this CESA MOU include eligibility, fish rescue efforts, designated fish

passage flows, changes in the timing of diversions to provide improved instream flow and water temperature conditions which would minimize the need to rescue fish, monitoring, and evaluations of management actions. The specific elements of the program are tailored by stream and by an eligible diverting entity and as described in this CESA MOU.

2. Methods

- A. Monitoring: CDFW or its agent will carry out all monitoring activities in accordance with standard fishery practices. Monitoring and evaluations plans shall be in place to inform the effectiveness of the flow events and/or rescue efforts. Monitoring and evaluations will be conducted by CDFW staff. CDFW, or its agent, will notify TNC at least 24 hours in advance, to the telephone number listed in Section 11 of this CESA MOC, of all planned monitoring activities it will carry out on the Lease Property and/or when the Lease Property is accessed to conduct monitoring activities. These activities may include:
- i. Use of video stations to determine if fish are moving through lower Mill Creek in response to minimum base flows and pulse flow events, and to determine population abundance.
 - ii. Snorkel surveys conducted upstream and downstream of diversion structures and critical riffle areas to determine if minimum base flows are passing fish through these areas. It is the intent of the CDFW to detect any fish stranding issues before mortalities are observed, so that sufficient time is provided to inform diverters and take proactive flow restoration or other fish rescue actions.
 - iii. For pulse flow evaluations, identifying fish passage issues by conducting snorkeling surveys downstream of the potential barrier to determine if listed salmonids are in the vicinity of the potential passage issue. Assessment of critical riffles will also be conducted (e.g. cross section profile, longitudinal surveys).
 - iv. Monitoring of habitat conditions in Mill Creek or the Sacramento River prior to relocation of salmonids at risk, including spring-run Chinook salmon.
- D. Fish Capture and Relocation: CDFW or its agent will carry out all fish capture and relocation activities in accordance with standard fishery practices. CDFW, or its agent, will notify TNC, at least 24 hours in advance, to the telephone number listed in Section 11, of all planned fish rescue/relocation activities it will carry out on the Lease Property and/or when the Lease Property is accessed to conduct fish capture and relocation activities.
- i. Upon determination that stream flow and temperature conditions for salmonids, including spring-run Chinook salmon, are deteriorating in the lower Mill Creek watershed, or upon reasonable projections of same, CDFW will capture and remove salmonids, including spring-run Chinook, from Mill Creek adjacent to TNC's Lease Property and relocate those salmonids to suitable habitat elsewhere in the watershed OR into the Sacramento River;
 - ii. Relocating juvenile salmonids, including spring-run Chinook salmon, captured from elsewhere in the lower Mill Creek watershed, to Mill Creek adjacent to Lease Property if suitable instream conditions exist, or to a suitable location on the Sacramento River; or
 - iii. Monitoring stream depth and temperature at relocation site(s) post-relocation to

determine if conditions remain adequate to keep salmonids alive and provide for salmonid passage.

3. TNC Commitments

- A. TNC agrees to provide reasonable access to CDFW and its agents, including equipment access, to the Lease Property to carry out any of the management activities listed in Section 1 of this CESA MOU for the purposes of:
 - i. Monitoring habitat conditions and spring-run Chinook salmon abundance, size, and condition prior to any management activities;
 - ii. Capturing and removing spring-run Chinook salmon from and/or relocating fish to suitable habitat, and for monitoring conditions post-relocation; or
 - iii. Monitoring stream flow conditions during flow events and/or during post-rescue/relocation to determine if conditions remain adequate to keep fish alive and provide for passage.

- B. TNC agrees to permit its water rights to be utilized for Required Management Elements (RME's) by Los Molinos Mutual Water Company (LMMWC) as outlined in a separate Memorandum of Understanding between CDFW and LMMWC, which is attached (Attachment 1)

4. CDFW Commitments Regarding Fish Management Activities on the Lease Property

- A. CDFW agrees that CDFW and its agents will conduct all rescue/relocation activities only after CDFW has provided the advance notice to TNC as provided in Section 2 above.

5. Authorized Take Level

Chinook salmon: The number of spring-run Chinook salmon which may die in the course of fish capture and relocation activities conducted by CDFW is typically small (less than 10%) and is much reduced from levels of mortality that will potentially occur in absence of carrying out this activity. As such, fish mortalities related to, or occurring in the course of, fish rescue activities is authorized.

6. Federal Endangered Species Act

Central Valley spring-run Chinook salmon are listed as a threatened species under the federal Endangered Species Act (ESA) of 1973. In its regulations, NMFS has limited the general prohibition of taking threatened spring-run Chinook salmon under the federal ESA to allow CDFW, its employees, and its designees to perform the rescue activities listed in Section 1 above.

TNC is not expected or authorized to assist in the handling of Central Valley spring-run Chinook salmon as a part of the fish rescue effort. Nothing in this CESA MOU authorizes any action pursuant to the federal ESA.

7. Effective Date and Termination

Unless terminated sooner by either party of the CESA MOU by giving thirty (30) days prior written notice of earlier termination, this CESA MOU shall commence on the date of execution and will terminate on **December 31, 2014**, both days inclusive.

8. Dispute Resolution

The Parties shall make reasonable efforts to resolve any disputes that may arise from this CESA MOU in a prompt and timely manner. In the event of a dispute, the Party claiming a dispute shall give verbal and written notice of the dispute to the other Parties within 5 business days. If resolution of the dispute cannot be resolved within 5 business days of the notice either party may terminate the CESA MOU through written notice. Termination of the CESA MOU will result in a loss of take coverage for future actions.

9. Amendments

Amendments to this CESA MOU may be proposed by either party and shall become effective when both parties sign a written modification to this document.

10. Applicable Law

This CESA MOU shall be construed under and governed by the laws of the State of California and of the United States, without giving effect to any principles of conflicts of law if such principles would operate to construe the CESA MOU, as amended herein, under the laws of any other jurisdiction.

11. Notice and Contact Persons

Any written notice or telephone notice required to be given by the CESA MOU, shall be deemed to have been given by the notifying party when mailed, postage prepaid or delivered to the following representatives, who will also serve as main contact people for their respective Party:

For TNC:
Gregg Werner, Senior Project Director
The Nature Conservancy
190 Cuhasset Road, Suite 177
Chico, CA 95926
gwerner@tnc.org
(530) 941-4877

For CDFW:
Mr. Matt Johnson
Northern Region
California Department of Fish and Wildlife
1530 Schwab Street
Red Bluff, CA 96080

Matt.Johnson@wildlife.ca.gov
(530) 527-9490

13. Signatories' Authority

The signatories to the CESA MOU on behalf of all the Parties hereto warrant and represent that they have authority to execute the CESA MOU and to bind the Parties on whose behalf they execute the CESA MOU.

14. Disclaimer

The CDFW shall incur no fiscal obligation under this CESA MOU.

IN WITNESS WHEREOF, THE PARTIES HERETO HAVE EXECUTED THIS CESA MOU TO BE IN EFFECT AS OF THE DATE LAST WRITTEN BELOW.

Eric Hallstein by cong
ERIC HALLSTEIN,
Director of Conservation Investments,
The Nature Conservancy

Date: June 2, 2014

The Nature Conservancy
190 Cohasset Road, Suite 177
Chico, CA 95926
(530) 897-6370

Neil Manji
For NEIL MANJI
Regional Manager,
Region 1

Date: 6-3-14

California Department of
Fish and Wildlife, Region 1
601 Locust Street
Redding CA 96001
(530) 225-2300

Attachment 1: Memorandum of Understanding between Los Molinos Mutual Water Company and the California Department of Fish and Wildlife, dated May 19, 2014.

NOTE: PAGES 8 THROUGH 15 OF THE TNC MOU ARE COMPRISED OF THE LOS MOLINOS MUTUAL WATER COMPANY CESA MOU.

**MEMORANDUM OF
UNDERSTANDING**

by and between

LOS MOLINOS MUTUAL WATER COMPANY

and

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

MILL CREEK WATERSHED

This California Endangered Species Act Memorandum of Understanding ("CESA MOU") is made and entered into by and between Los Molinos Mutual Water Company, (hereinafter called LMMWC), acting through its Board of Directors, and the California Department of Fish and Wildlife (hereinafter called the "CDFW").

The purpose of this CESA MOU is to provide a framework for cooperative activities and monitoring that involve or address issues of importance to spring-run Chinook salmon (*Oncorhynchus tshawytscha*) in Mill Creek, eastern Tehama County. This CESA MOU provides for take associated with actions taken by the CDFW or LMMWC to rescue and relocate Chinook salmon or assist with increasing flows in the creek for the benefit of spring-run Chinook salmon as management activities under authority of Section 2081(a) of the California Fish and Game Code.

RECITALS

WHEREAS, the CDFW has jurisdiction over the conservation and protection of fish, wildlife, and native plants and their habitats necessary for biologically sustainable populations of those species and holds those resources in trust for the people of California (California Fish and Game Code Section 1802).

WHEREAS, spring-run Chinook salmon are classified as a threatened species by the State of California Fish and Game Commission pursuant to the California Endangered Species Act (CESA, Code section 2050 et seq.).

WHEREAS, Fish and Game Code section 2080 prohibits the import, export, take, possession, purchase or sale of any species, in whole or in part, that has been listed as threatened or endangered by the California Fish and Game Commission. Take is defined in Fish and Game Code section 86 as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill." However, Fish and Game Code section 2081(a) allows CDFW to authorize take and other acts prohibited by Fish and Game Code section 2080 for scientific, educational, or management purposes. This CESA

MOU authorizes a limited level of take of spring-run Chinook salmon for management purposes.

WHEREAS, on January 17, 2014 Governor Brown issued a proclamation, declaring the state to be in an emergency due to the drought conditions.

WHEREAS, on April 25, 2014, Governor Brown issued an Executive Order directing state agencies to, in part, work with other state and federal agencies and with landowners in priority watersheds to protect threatened and endangered species and species of special concern and maximize the beneficial uses of scarce water supplies, including employment of voluntary agreements to secure instream flows, relocate members of those species or take other measures.

WHEREAS Mill Creek provides many important surface water beneficial uses, including agriculture, recreation, wildlife habitat, freshwater habitat, and anadromous fish habitat, particularly for spring-run Chinook salmon (*Oncorhynchus tshawytscha*) listed as threatened under the Federal and State Endangered Species Acts and Central Valley steelhead trout (*Oncorhynchus mykiss*) listed as threatened under the Federal Endangered Species Act. Due in part to naturally occurring low flows, agricultural diversions, channel morphology and excessive temperatures, the upstream migration of adults or downstream migration of juvenile spring-run Chinook salmon and steelhead may be impeded or blocked in some years. In 2014, conditions in Mill Creek are poorer than is typical for this time of year. Conditions may further deteriorate such that listed juvenile and adult spring-run Chinook salmon will need the restoration of suitable instream flow conditions to provide passage and/or be rescued and relocated.

WHEREAS, LMMWC serves as the Watermaster for Mill Creek and operates two low diversions for agricultural water from both the north and south banks. As per the 1920 adjudication decree, LMMWC is also tasked with allocating water supplies, maintaining records of diversion and use, and with maintaining the structures necessary for diversion, conveyance, and delivery of water to all those entitled under the Decree to the water of Mill Creek, including LMMWC for the benefit of its shareholders.

WHEREAS, LMMWC, in its role as Watermaster for Mill Creek, is subject to Division 2, Part 4 of the California Water Code.

WHEREAS, LMMWC has adjudicated rights to divert Mill Creek surface water for irrigation and services approximately 7,000 acres of land within Tehama County.

WHEREAS, LMMWC owns or has access to certain real property associated with the LMMWC Diversion Dam on Mill Creek, Tehama County (Real Property). LMMWC is willing to participate with the CDFW in fish rescue and relocation activities by allowing access to the Real Property for the purposes of monitoring, and/or capturing and removing, and/or relocating spring-run Chinook salmon on or to Mill Creek adjacent to the Real Property or to the Sacramento River.

NOW, THEREFORE, THE PARTIES HERETO AGREE AS FOLLOWS:

1. Purpose

The general elements of this CESA MOU include eligibility, fish rescue efforts, designated fish passage flows, changes in the timing of diversions to provide improved instream flow and water temperature conditions which would minimize the need to rescue fish, monitoring, and evaluations of management actions. The specific elements of the program are tailored by stream and by an eligible diverting entity and as described in this CESA MOU.

2. Methods

- A. **Monitoring:** CDFW or its agent will carry out all monitoring activities in accordance with standard fishery practices. Monitoring and evaluations plans shall be in place to inform the effectiveness of the flow events and/or rescue efforts. Monitoring and evaluations will be conducted by CDFW staff. CDFW, or its agent, will notify LMMWC at least 24 hours in advance, to the telephone number listed in Section 12 of this CESA MOU, of all planned monitoring activities it will carry out on the Real Property. Those activities may include:
- i. Use of video stations to determine if fish are moving through lower Mill Creek in response to minimum base flows and pulse flow events, and to determine population abundance.
 - ii. Snorkel surveys conducted upstream and downstream of diversion structures and critical riffle areas to determine if minimum base flows are passing fish through these areas. It is the intent of the CDFW to detect any fish stranding issues before mortalities are observed, so that sufficient time is provided to inform diverters and take proactive flow restoration or other fish rescue actions.
 - iii. For pulse flow evaluations, identifying fish passage issues by conducting snorkeling surveys downstream of the potential barrier to determine if listed salmonids are in the vicinity of the potential passage issue. Assessment of critical riffles will also be conducted (e.g. cross section profile, longitudinal surveys). Once a fish passage issue is identified, the CDFW will make pulse flow recommendations to LMMWC on the magnitude of pulse flows that may help to move fish upstream past the area. See Section 4.C (i)(a) for a definition of "pulse flow magnitude".
 - iv. Monitoring of habitat conditions in Mill Creek or the Sacramento River prior to relocation of salmonids at risk, including spring-run Chinook salmon.
- B. **Fish Capture and Relocation:** CDFW or its agent will carry out all fish capture and relocation activities in accordance with standard fishery practices. CDFW, or its agent, will notify LMMWC, at least 24 hours in advance, to the telephone number listed in Section 12, of all planned fish rescue/relocation activities it will carry out on the Real Property.
- i. Upon determination that stream flow and temperature conditions for salmonids, including spring-run Chinook salmon, are deteriorating in the lower Mill Creek watershed, or upon reasonable projections of same, CDFW will capture and remove salmonids, including spring-run Chinook, from Mill Creek adjacent to

LMMWC's Real Property and relocate those salmonids to suitable habitat elsewhere in the watershed OR into the Sacramento River;

- ii. Relocating juvenile salmonids, including spring-run Chinook salmon, captured from elsewhere in the lower Mill Creek watershed, to Mill Creek adjacent to Real Property if suitable instream conditions exist, or to a suitable location on the Sacramento River; or iii. Monitoring stream depth and temperature at relocation site(s) post-relocation to determine if conditions remain adequate to keep salmonids alive and provide for salmonid passage.

3. Notice to Other Water Diversifiers

Prior to notifying LMMWC as described in Section 2.0, the CDFW will request all water diversifiers on Mill Creek below LMMWC's diversion dam not to divert any Bypassed Water, as defined below in Section 4.C (i). If the CDFW determines that any water diverter below LMMWC's diversion dam will not cooperate, the CDFW may: (a) elect not to request LMMWC to bypass water, in which case the CDFW will notify LMMWC of its decision as soon as possible; (b) withdraw from the CESA MOU in accordance with Section 13.0; (c) suspend the bypass flow events; or (d) take some other action consistent with the CESA MOU.

4. LMMWC Commitments

- A. LMMWC agrees to provide reasonable access to CDFW and its agents, including equipment access, to the Real Property to carry out any of the management activities listed in Section 1 of this CESA MOU for the purposes of:
 - i. Monitoring habitat conditions and spring-run Chinook salmon abundance, size, and condition prior to any management activities;
 - ii. Capturing and removing spring-run Chinook salmon from and/or relocating fish to suitable habitat, and for monitoring conditions post-relocation; or
 - iii. Monitoring stream flow conditions during flow events and/or during post-rescue/relocation to determine if conditions remain adequate to keep fish alive and provide for passage.
- B. All water diversion facilities that LMMWC owns, operates, or controls associated with the property where fish may need to be removed and relocated to more suitable habitats shall be operated and maintained in accordance with current laws and regulations.
- C. LMMWC agrees to perform Required Management Elements (RME's) as outlined below as a condition of this CESA MOU, according to the type of diversion activities conducted at a particular site:
 - i. Bypass Flows: The flow prescriptions identified in the CESA MOU are considered by National Marine Fisheries Service and CDFW to be the minimal flows that are necessary to allow for adult and juvenile fish migration on lower Mill Creek, and they are considered the minimum flows needed for minimize the effects of drought while balancing fish and

agricultural interests. Upon notice from the CDFW, LMMWC agrees to bypass a portion of the surface water it would otherwise divert from Mill Creek for agricultural use to augment fish transportation flows in Mill Creek, sometimes referred to herein as "Bypassed Water." The amount to be bypassed will be proportional to the streamflow adjudicated to LMMWC (-50-69%, depending on pre-diversion instream flows). Bypassed Water will be limited to flow releases during the spring and fall, as set forth below.

a. **Minimum Base Flow:** These flows are required to support fish that may already be in Mill Creek but may not have passed to upper elevations OR moved out to the Sacramento River.

1. **Adult Spring Run Chinook:** 50 cubic feet per second (cfs) between April 1 and June 14, 2014, and 25 cfs between June 15 and 30, 2014 for fish passage through the 2.8 miles of stream between the confluence with the Sacramento River and Ward Dam, as measured at the Department of Water Resources (DWR) flow gage below Ward Dam. Adult Chinook critical passage periods are from April 1 through June 30.

If monitoring and evaluations conducted by CDFW determine that fish are not present in lower Mill Creek or water temperatures are not conducive to fish survival during the period of June 15 to 30, 2014, and it is mutually agreed to by CDFW and LMMWC, base flows may be reduced below 25 cfs.

2. **Juvenile spring-run Chinook:** 50 cubic feet per second (cfs) between April 1 and June 14, 2014, and 25 cfs between June 15 and 30, 2014 for fish passage through the through the 2.8 miles of stream between the confluence with the Sacramento River and Ward Dam, as measured at the Department of Water Resources (DWR) flow gage below Ward Dam. Juvenile spring-run Chinook could be present in the system for a large portion of the year. However, as it pertains to this CESA MOU, the critical passage periods are April 1 through June 30 for young-of-the-year juvenile spring-run Chinook, and October 15 through December 31 for yearling juvenile spring-run Chinook. For the fall period, 50 cfs is required for out-migrating yearling juvenile spring-run Chinook and coincidentally Central Valley juvenile and adult steelhead (*Oncorhynchus mykiss*), which are federally listed as Threatened. In the event of a rain freshet, base flows could start on October 1, 2014 if mutually agreed to by NMFS, CDFW and LMMWC.

If monitoring and evaluations conducted by CDFW determine that fish are not present in lower Mill Creek or water temperatures are not conducive to fish survival during the period of June 15 to 30, 2014, and it is mutually agreed to by CDFW and LMMWC, base flows may be reduced below 25 cfs.

- ii. **Pulse Flows:** Pulse flows mimic the sudden increases in stream discharge following rain or snowmelt events which are absent in drought years. Adult salmonids have evolved to take advantage of such conditions when returning to natal tributaries. Previous pulse flows on Mill and Deer creeks lasting 24 hours or more have helped to create an attraction flow at the confluence of the tributary creek with the Sacramento River, encouraging fish to enter the stream, and providing the greatest instantaneous improvement to fish passage conditions through critical riffles and diversion structures. Pulse flows also encourage juvenile salmonids to migrate downstream before summer water temperatures become too warm.
 - a. **Magnitude of pulse flows:** A minimum of 50 cfs over base flow (see Section 4.C (i)(a) or full natural flows as recorded at the U.S. Geological Survey (USGS) Stream Gage at the mouth of the canyon above Upper Dam. The duration of the pulse flow in terms of time at which peak flow is maintained will be a minimum of 24 hours but not more than 72 hours.
 - b. **Time period of pulse flows:** April 1 through June 30, at a minimum of once every two weeks.

If monitoring and evaluations conducted by CDFW determine that fish are not present in lower Mill Creek or water temperatures are not conducive to fish survival during June, and it is mutually agreed to by NMFS, CDFW and LMMWC, pulse flows may cease prior to June 30, 2014.

- D. LMMWC shall notify the Department's fisheries program at the telephone number listed in Section 12, at least three (3) days prior to any significant planned changes in operation of the diversion and associated screen and bypass and other structures.
- E. All water diversion facilities shall be maintained so they do not prevent, impede, or tend to prevent or impede the passing of fish upstream or downstream. This includes installation and correct usage of CDFW-approved temporary fish passage structure, as described in a separate agreement between LMMWC and CDFW for use of such fish passage structure in 2014.
- F. LMMWC shall notify CDFW, at the telephone number listed in Section 12, at least three days, or as soon as practicable, prior to closing a headgate or valve when fish stranding may occur in the diversion conduit as a result of that activity.
- G. In cooperation with CDFW staff, LMMWC shall regularly inspect all fish screens and bypass pipes or channels to verify that they are effectively protecting salmonids and other fish species in accordance with CDFW and National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) fish screening criteria.

Sufficient flow will be supplied from the diversion into a fish bypass to safely and efficiently return fish back to the stream.

5. CDFW Commitments Regarding Fish Management Activities on the Real Property

- A. CDFW agrees that CDFW and its agents will conduct all rescue/relocation activities only after CDFW has provided the advance notice to LMMWC as provided in Section 2 above.
- B. CDFW will maintain the fish screens, bypass structures and/or fish ladders it has already agreed to maintain previously in writing.

6. Authorized Take Level

Chinook salmon: The number of spring-run Chinook salmon which may die in the course of fish capture and relocation activities conducted by CDFW is typically small (less than 10%) and is much-reduced from levels of mortality that will potentially occur in absence of carrying out this activity. As such, fish mortalities related to, or occurring in the course of, fish rescue activities is authorized.

7. Federal Endangered Species Act

Central Valley spring -run Chinook salmon are listed as a threatened species under the federal Endangered Species Act (ESA) of 1973. In its regulations, NMFS has limited the general prohibition of taking threatened spring-run Chinook salmon under the federal ESA to allow, CDFW, its employees, and its designees to perform the rescue activities listed in Section 1 above.

LMMWC is not expected or authorized to assist in the handling of Central Valley spring-run Chinook salmon as a part of the fish rescue effort. Nothing in this CESA MOU authorizes any action pursuant to the federal ESA.

8. Effective Date and Termination

Unless terminated sooner by either party of the CESA MOU by giving thirty (30) days prior written notice of earlier termination, this CESA MOU shall commence on the date of execution and will terminate on December 31, 2014, both days inclusive.

9. Dispute Resolution

The Parties shall make reasonable efforts to resolve any disputes that may arise from this CESA MOU in a prompt and timely manner. In the event of a dispute, the Party claiming a dispute shall give verbal and written notice of the dispute to the other Parties within 5 business days. If resolution of the dispute cannot be resolved within 5 business days of the notice either party may terminate the CESA MOU through written notice. Termination of the CESA MOU will result in a loss of take coverage for future actions.

10. Amendments

Amendments to this CESA MOU may be proposed by either party and shall become effective when both parties sign a written modification to this document.

11. Applicable Law

This CESA MOU shall be construed under and governed by the laws of the State of California and of the United States, without giving effect to any principles of conflicts of law if such principles would operate to construe the CESA MOU, as amended herein, under the laws of any other jurisdiction.

12. Notice and Contact Persons

Any written notice, and the telephone notice specified in Section 4 required to be given by the CESA MOU, shall be deemed to have been given by the notifying party when mailed, postage prepaid or delivered to the following representatives, who will also serve as main contact people for their respective Party:

For LMMWC: Mr. Darrell Mullins
25162 Josephine Street
Los Molinos, CA 96055
lmmwual@att.net

For CDFW: Mr. David Leitaker
Northern Region
California Department of Fish and Wildlife
1760 Bidwell Street
Red Bluff, CA 96080
David.Leitaker@wildlife.ca.gov
(530) 528-9406

13. Signatories' Authority

The signatories to the CESA MOU on behalf of all the Parties hereto warrant and represent that they have authority to execute the CESA MOU and to bind the Parties on whose behalf they execute the CESA MOU.

14. Disclaimer

The CDFW shall incur no fiscal obligation under this CESA MOU.

IN WITNESS WHEREOF, THE PARTIES HERETO HAVE EXECUTED THIS CESA
MOU TO BE IN EFFECT AS OF THE DATE LAST WRITTEN BELOW.



DARRELL MULLINS
Manager,
Los Molinos Mutual Water Company

Date: 5/19/2014

25162 Josephine Road
Los Molinos, CA 96055
(530) 384-2737



NEIL MANJI
Regional Manager,
Region 1

Date: 5/19/14

California Department of
Fish and Wildlife, Region 1
601 Locust Street
Redding CA 96001
(530) 225-2300

Attachment C.5.g

Subject: FW: Final Mill Creek LMMWC CESA Drought MOU

Date: Saturday, March 14, 2015 at 9:21:49 PM Central European Standard Time

From: Roberts, Jason@Wildlife, JASON@WILD6CAEDF58-FB81-4D68-B36F-A964A6745F3DC97>

To: Ragazzi, Erin@Waterboards, ERIN@WATER0C3CA974-28ED-4FEF-BA90-4B156E175625E6A>, Schultz, Daniel@Waterboards, DANIEL@WAT741CC8D3-E434-4A20-905F-BDEBAC8F434FB82>, Brown, Howard

Priority: High

FYI, LMMWC signed last night.

From: Roberts, Jason@Wildlife

Sent: Saturday, March 14, 2015 12:19 PM

To: Curtis Milliron

Cc: Murray, Nancee@Wildlife; Johnson, Matt@Wildlife; Patricia.Bratcher@wildlife.ca.gov); Babcock, Curt@Wildlife

Subject: Final Mill Creek LMMWC CESA Drought MOU

Importance: High

For Neil 's signature.

Jason Roberts, Fisheries Supervisor

Northern Region (Region 1)

California Department of Fish and Wildlife

601 Locust Street, Redding, CA 96001

(530) 225-2131

Jason.Roberts@wildlife.ca.gov

**MEMORANDUM OF
UNDERSTANDING**

by and between

LOS MOLINOS MUTUAL WATER COMPANY

and

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

MILL CREEK

This California Endangered Species Act Memorandum of Understanding ("CESA MOU") is made and entered into by and between Los Molinos Mutual Water Company (hereinafter called LMMWC), acting through its Board of Directors, and the California Department of Fish and Wildlife (hereinafter called the "CDFW").

The purpose of this CESA MOU is to provide a framework for cooperative activities and monitoring that involve or address issues of importance to salmonids, particularly Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*), hereinafter referred to as spring run, in Mill Creek, Tehama County. This CESA MOU provides for take associated with actions taken by the CDFW and actions taken by LMMWC to rescue and relocate spring run or assist with increasing flows in the creek for the benefit of spring run as management activities under the authority of Section 2081(a) of the California Fish and Game Code.

RECITALS

WHEREAS, the CDFW has jurisdiction over the conservation and protection of fish, wildlife, and native plants and their habitats necessary for biologically sustainable populations of those species and holds those resources in trust for the people of California (California Fish and Game Code Section 1802).

WHEREAS, spring run are classified as a threatened species by the State of California Fish and Game Commission pursuant to the California Endangered Species Act (CESA, Code section 2050 et seq.).

WHEREAS, Fish and Game Code section 2080 prohibits the import, export, take, possession, purchase or sale of any species, in whole or in part, that has been listed as threatened or endangered by the California Fish and Game Commission. Take is defined in Fish and Game Code section 86 as ‘hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill.’ However, Fish and Game Code section 2081(a) allows CDFW to authorize take and other acts prohibited by Fish and Game

Code section 2080 for scientific, educational, or management purposes. This CESA MOU authorizes a limited level of take of spring run for management purposes.

WHEREAS, salmonid presence shall be defined by reviewing historical records and utilizing current fisheries monitoring on Deer, Mill, and Antelope creeks and the Sacramento River between the Red Bluff Diversion Dam and the confluence of Clear Creek.

WHEREAS, on January 17, 2014 Governor Brown issued a proclamation, declaring the state to be in an emergency due to the drought conditions.

WHEREAS, on April 25, 2014, Governor Brown issued an Executive Order directing state agencies to, in part, work with other state and federal agencies and with landowners in priority watersheds to protect threatened and endangered species and species of special concern and maximize the beneficial uses of scarce water supplies, including employment of voluntary agreements to secure instream flows, relocate members of those species or take other measures.

WHEREAS, on December 22, 2014, Governor Brown issued another Executive Order declaring a continued state of emergency due to drought conditions, extending many of the terms of the April 25, 2014 Executive Order until May 31, 2016.

WHEREAS, Mill Creek provides many important surface water beneficial uses, including agriculture, recreation, wildlife habitat, freshwater habitat, and anadromous fish habitat, particularly for spring run listed as threatened under the Federal and State Endangered Species Acts and Central Valley steelhead (*Oncorhynchus mykiss*) hereinafter referred to as steelhead listed as threatened under the federal Endangered Species Act. Due in part to naturally occurring low flows, agricultural diversions, channel morphology and excessive temperatures, the upstream migration of adults or downstream migration of juvenile spring run and steelhead may be impeded or blocked in some years. Conditions may further deteriorate such that spring run and steelhead will need the restoration of suitable instream flow conditions to provide passage and/or be rescued and relocated.

WHEREAS, the flow prescriptions identified in this CESA MOU are considered by CDFW to be the minimum flows, in the current Drought Emergency, necessary to allow for adult and juvenile salmonid migration in Mill Creek below Ward Dam, and they are considered by CDFW to be the minimum flows needed to minimize the effects of drought while balancing salmonid and agricultural interests.

WHEREAS, LMMWC does not agree that the flow prescriptions identified in this CESA MOU are the minimums necessary, or that they are the result of balancing fishery and agricultural interests, but, in the spirit of cooperation, LMMWC will agree to these demands for the duration of this CESA MOU.

WHEREAS, LMMWC serves as the Watermaster for Mill Creek and operates two low

diversions for agricultural water from the north and south banks. As per the August 16, 1920 adjudication decree, Superior Court of Tehama County Decree # 3811 (the “Decree”), LMMWC is also tasked with allocating water supplies, maintaining records of diversion and use, and with maintaining the structures necessary for diversion, conveyance, and delivery of water to all those entitled under the Decree to the water of Mill Creek, including LMMWC for the benefit of its shareholders.

WHEREAS, LMMWC has adjudicated rights to divert Mill Creek surface water for irrigation and services approximately 7,000 acres of land within Tehama County.

WHEREAS, LMMWC owns or has access to certain real property associated with the LMMWC Diversion Dam on Mill Creek, Tehama County (Real Property). LMMWC is willing to participate with the CDFW in fish rescue and relocation activities by allowing, to the extent permitted by its ownership and/or easement rights, access to the Real Property for the purposes of monitoring, and/or capturing and removing, and/or relocating salmonids on or to Mill Creek adjacent to the Real Property or to the Sacramento River.

WHEREAS, it is acknowledged that LMMWC has over 20 years of history working cooperatively with the Mill Creek Conservancy, CDFW, and the Department of Water Resources to protect Chinook salmon and steelhead in Mill Creek including flow exchange agreements executed in 1990 and 2007.

NOW, THEREFORE, THE PARTIES HERETO AGREE AS FOLLOWS:

1. Purpose

The elements of this CESA MOU, including flows, monitoring and evaluation, if implemented in the manner described below, will provide fishery protections necessary to avoid significant drought-related harm to salmonids, particularly spring run. The flows in this CESA MOU are based on CDFW’s best available information for protecting salmonids, while maintaining water use in Mill Creek and are comparable to, and achieve, a similar biological outcome for salmonid protection as those required in the emergency regulations proposed and passed by the State Water Resources Control Board in 2014 (Title 23 CCR 877-879.2).

2. CDFW Monitoring and Fish Rescue Commitments

- A. **Monitoring:** CDFW or its agent will carry out all monitoring activities. Monitoring and evaluation plans shall be in place to inform the effectiveness of the flow events and/or rescue efforts. Monitoring activities will assist CDFW in determining the presence of adult and juvenile salmonids in or near Mill Creek. CDFW shall inform LMMWC of its monitoring results and inform LMMWC if adult or juvenile salmonids are not present. CDFW shall notify LMMWC if water temperatures exceed the thresholds identified in section 3.C below. CDFW, or its agent, will notify LMMWC at the telephone number listed in Section 11, of all planned monitoring it will carry out on the Real Property. Monitoring activities may include:

- i. Use of video monitoring to determine if adult salmonids are moving through lower Mill Creek in response to minimum base flows and pulse flow events, and to determine population abundance.
 - ii. Snorkel surveys may be conducted upstream and downstream of diversion structures and critical riffle areas to determine if minimum base flows are passing salmonids through these areas. It is the intent of the CDFW to detect any salmonid stranding issues before mortalities are observed, so that sufficient time is provided to inform diverters and to take proactive flow restoration or other fish rescue actions.
 - iii. Monitoring of habitat conditions in Mill Creek or the Sacramento River prior to relocation of salmonids at risk, including spring run.
- B. Fish Capture and Relocation: CDFW or its agent will carry out all fish capture and relocation activities. CDFW, or its agent, will notify LMMWC at the telephone number listed in Section 11, of all planned fish rescue/relocation activities it will carry out on the Real Property.
- i. CDFW or its agent may relocate salmonids, including spring run, captured from elsewhere in the lower Mill Creek watershed (e.g. diversion canals), to Mill Creek adjacent to Real Property if suitable instream conditions exist, or to a suitable location on the Sacramento River.
 - ii. CDFW or its agent may monitor stream depth and temperature at relocation site(s) post-relocation to determine if conditions remain adequate to keep salmonids alive and provide for salmonid passage.

3. LMMWC Commitments

- A. LMMWC agrees to provide reasonable access to CDFW and its agents, including equipment access, to the Real Property to carry out any of the management activities listed in Section 2.0 of this CESA MOU for the purposes of:
- i. Monitoring habitat conditions and salmonid abundance, size, and condition prior to any management activities;
 - ii. Capturing and removing salmonids from and/or relocating salmonids to suitable habitat, and for monitoring conditions post-relocation; or
 - iii. Monitoring stream flow conditions during flow events and/or during post-rescue/relocation to determine if conditions remain adequate to keep salmonids alive and provide for passage.

- B. All water diversion facilities that LMMWC owns, operates, or controls associated with the Real Property shall be operated and maintained in accordance with current laws and regulations.
- C. LMMWC agrees to perform the following Required Management Elements (RME's) as outlined below as a condition of this MOU, according to the type of diversion activities conducted at a particular site:

- i. **Minimum Base Flow:** These flows are required to support juvenile and adult salmonids that may already be 1) holding in the Sacramento River waiting to enter Mill Creek; 2) in Mill Creek but may not have passed to upper elevations; or (3) in Mill Creek, but which may not have moved out to the Sacramento River. Unless otherwise noted, the flow requirements identified below, OR full natural flows (whichever is less) will be provided by 8:00 a.m. on the dates identified below.

- a. March 15 through June 15:

50 cubic feet per second (cfs) for salmonid passage through the 2.8 miles of stream between Ward Dam and the confluence with the Sacramento River, as measured at the Department of Water Resources (DWR) flow gage below Highway 99 (CDEC Station ID: MCH).

If stream temperatures measured at MCH meet or exceed a daily minimum of 75 °F (when the base flow requirement of 50 cfs is being met) for a seven day consecutive period in the month of June, adult base flows can be reduced to juvenile base-flow requirements until the end of the juvenile base-flow period is reached, or June 30, whichever comes earlier, as provided below.

- b. June 16 through June 30:

20 cfs for juvenile salmonid passage through the 2.8 miles of stream between Ward Dam and the confluence with the Sacramento River, as measured at MCH.

If monitoring and/or evaluations conducted by CDFW determine that juvenile salmonids are not present in lower Mill Creek during juvenile base-flow requirement periods June 16 through June 30, juvenile base flow requirements may be relaxed.

- c. October 15 through December 31:

50 cfs for salmonid passage through the 2.8 miles of stream between Ward Dam and the confluence with the Sacramento River, as measured at MCH.

- ii. Pulse Flows: Pulse flows mimic the sudden increases in stream discharge following rain or snowmelt events which may be absent in drought years. Adult salmonids have evolved to take advantage of such conditions when returning to natal tributaries. Previous pulse flows on Mill and Deer creeks lasting 24 hours or more have helped to create an attraction flow at the confluence of the tributary creek with the Sacramento River, encouraging salmonids to enter the stream, and providing the greatest instantaneous improvement to salmonid passage conditions through critical riffles and diversion structures. Pulse flows also encourage juvenile salmonids to migrate downstream before summer water temperatures become too warm.

- a. Magnitude and duration of pulse flows:

Pulse flows will be carried out for a maximum of 60 hours. Pulse flows will begin at 5:00pm. 100 cfs as measured at MCH will be required for the first 36 hours of the pulse flow. If pre-diversion stream flow measured above Upper Dam (USGS gage #11381500) is below 100 cfs, full natural flow achieved through closure of all agricultural diversion structures will be maintained in Mill Creek during the first 36 hours of the pulse flow.

The remaining period of the pulse flow shall include a declining ramping flow schedule, such that each adjustment in flow reduction will not exceed 10 cfs, with a minimum 3-hour period between adjustments until a return to base flow level. The ramping schedule for each pulse flow will be determined by LMMWC, in compliance with these standards.

- b. Time period of pulse flows:

April 1 through June 15, up to once every two weeks. CDFW shall notify LMMWC at least 72 hours in advance when said pulse flow will be required. When feasible, these pulse flows will be scheduled to coincide with low pressure systems and/or natural rainfall or snowmelt events.

CDFW will make its best effort to provide preliminary fish counts for pulse flow event periods to LMMWC prior to the scheduling of subsequent pulse flow event. In addition, if monitoring and evaluations conducted by CDFW determine that salmonids are not present or water temperatures are not

conducive to salmonid survival during June, and it is mutually agreed to by CDFW and LMMWC, pulse flows may cease prior to June 15.

- D. LMMWC shall notify the CDFW's Fisheries Program at the telephone number listed in Section 11, at least three (3) days prior to any significant planned changes in operation of the diversion and associated screen and bypass and other structures.
- E. All water diversion facilities shall be maintained so they do not prevent, impede, or tend to prevent or impede the passing of salmonids upstream or downstream.
- F. LMMWC shall notify CDFW, at the telephone number listed in Section 11, at least three days, or as soon as practicable, prior to closing a headgate or valve when salmonid stranding may occur in the diversion conduit as a result of that activity.
- G. In cooperation with CDFW staff, LMMWC shall regularly inspect all fish screens and bypass pipes or channels to verify that they are effectively protecting salmonids and other fish species in accordance with CDFW and National Marine Fisheries Service (NMFS) fish screening criteria. Sufficient flow will also be supplied in the fish ladder, located on Ward Dam to provide upstream and downstream migration of salmonids.

4. CDFW Commitments Regarding Fish Management Activities on the Real Property

- A. CDFW agrees that CDFW and its agents will conduct all rescue/relocation activities only after CDFW has provided the advance notice to LMMWC as provided in Section 2 above.
- B. CDFW will maintain the fish screens it has already agreed to maintain previously in writing.
- C. Upon request, CDFW will provide all data after it has passed quality assurance review.

5. Authorized Take Level

Fish mortality related to diversions from Mill Creek made in compliance with the base flow and pulse flow requirements stated in this MOU is authorized under CESA and pursuant to this CESA MOU. The number of spring run which may die in the course of fish capture and relocation activities conducted by CDFW is typically small (less than 10%) and is much-reduced from levels of mortality that will potentially occur in absence of carrying out this activity. As such, fish mortalities related to, or occurring in the course of, fish rescue activities is authorized.

6. Federal Endangered Species Act

Spring run are listed as a threatened species under the federal Endangered Species Act (ESA) of 1973. In its regulations, NMFS has limited the general prohibition of taking threatened spring run under the ESA to allow, CDFW, its employees, and its designees to perform the rescue activities listed in section 2, above. Steelhead are also listed as threatened by the ESA; the flow prescription identified in Section 3 has been shown to NMFS staff and appears to be consistent with flow prescriptions identified in volunteer agreements developed by NMFS during the 2014 drought period. However, nothing in this CESA MOU authorizes any action pursuant to the Federal ESA.

LMMWC is not expected or authorized to assist in the handling of spring run as a part of the fish rescue effort.

7. Effective Date and Termination

Unless terminated sooner by either party of the CESA MOU by giving thirty (30) days prior written notice of earlier termination, this CESA MOU shall commence on the date of execution and will terminate on **December 31, 2015**, both days inclusive.

8. Dispute Resolution

The Parties shall make reasonable efforts to resolve any disputes that may arise from this MOU in a prompt and timely manner. In the event of a dispute, the Party claiming a dispute shall give verbal and written notice of the dispute to the other Parties within 5 business days. If resolution of the dispute cannot be resolved within 5 business days of the notice either party may terminate the MOU through written notice. Termination of the MOU will result in a loss of take coverage for future actions.

9. Amendments

Amendments to this CESA MOU may be proposed by either party and shall become effective when both parties sign a written modification to this document.

10. Applicable Law

This CESA MOU shall be construed under and governed by the laws of the State of California and of the United States, without giving effect to any principles of conflicts of law if such principles would operate to construe the CESA MOU, as amended herein, under the laws of any other jurisdiction.

11. Notice and Contact Persons

Any written notice, and the telephone notice specified in Section 4 required to be given by the CESA MOU, shall be deemed to have been given by the notifying party when mailed, postage prepaid or delivered to the following representatives, who will also serve as main contact people for their respective Party:

For LMMWC:
Mr. Darrell Mullins
25162 Josephine Street
Los Molinos, CA 96055
Immutual@att.net
(530) 384-2737

For CDFW:
Mr. Matt Johnson
Northern Region
California Department of Fish and Wildlife
1530 Schwab Street
Red Bluff, CA 96080
Matt.Johnson@wildlife.ca.gov
(530) 527-9490

12. Signatories' Authority

The signatories to the CESA MOU on behalf of all the Parties hereto warrant and represent that they have authority to execute the CESA MOU and to bind the Parties on whose behalf they execute the CESA MOU.

13. Disclaimer

The CDFW shall incur no fiscal obligation under this CESA MOU.

IN WITNESS WHEREOF, THE PARTIES HERETO HAVE EXECUTED THIS CESA MOU TO BE IN EFFECT AS OF THE DATE LAST WRITTEN BELOW.

DARRELL MULLINS
Manager,
Los Molinos Mutual Water Company

Date: _____

25162 Josephine Road
Los Molinos, CA 96055
(530) 384-2737

NEIL MANJI
Regional Manager,
Region 1

Date: _____

California Department of
Fish and Wildlife, Region 1
601 Locust Street
Redding CA 96001
(530) 225-2300

Attachment C.5.h

Subject: FW: Mill Creek MOU meeting

Date: Tuesday, December 23, 2014 at 9:00:36 PM Central European Standard Time

From: Milliron, Curtis@Wildlife, CURTIS@WID6225358-75DE-4453-A1BB-7C89776CC016E1D>

To: Manji, Neil@Wildlife, NEIL@WA8401E16-1244-4295-BA37-5F7DE1032D7DA60>, Murray, Nancee@Wildlife, NANCEE@WILDC805F95F-5155-4F8D-B9FC-4848E2AA444E2BC>, Babcock, Curt@Wildlife, CURT@WILDLC0430971-3CA8-4A5F-B3E0-9035453BE8E077B>, Harris, Michael R.@Wildlife, MICHAEL R.@2ABA4823-BFD0-4643-8E1E-33E9DAE7B9705EC>, Bratcher, Patricia@Wildlife, PATA6FAB05E-A7A0-470A-96E6-D1F5FF8DFADE16D>

CC: Brown, Howard, Schultz, Daniel@Waterboards, DANIEL@WAT741CC8D3-E434-4A20-905F-BDEBAC8F434FB82>, Roberts, Jason@Wildlife, JASON@WILD6CAEDF58-FB81-4D68-B36F-A964A6745F3DC97>

FYI.

Initiating discussions with LMMWC on Mill Creek flow management MOU.

Curtis

Curtis Milliron, Fisheries Program Manager

Northern Region (Region 1)

California Department of Fish and Wildlife

601 Locust Street, Redding, Ca 96001

(530) 225-2280

Curtis.Milliron@wildlife.ca.gov

From: Milliron, Curtis@Wildlife

Sent: Tuesday, December 23, 2014 10:33 AM

To: Burt Bundy; Darrel Mullins <Immutual@att.net > (Immutual@att.net)

Cc: Johnson, Matt@Wildlife; Roberts, Jason@Wildlife

Subject: Mill Creek MOU meeting

Folks,

Burt and I set aside next Monday, 12/29, for a meeting to discuss a 2015 MOU between LLMWC and CDFW for Mill Creek water management. We plan to meet at the Red Bluff County Offices at 2:00 PM.

Jason,

Please send the draft Mill Creek MOU to the group before the scheduled meeting.

Thanks everyone for being available next Monday.

Curtis

Curtis Milliron, Fisheries Program Manager

Northern Region (Region 1)

California Department of Fish and Wildlife

601 Locust Street, Redding, Ca 96001

(530) 225-2280

Curtis.Milliron@wildlife.ca.gov

Attachment C.5.i

Subject: RE: MOUs

Date: Thursday, April 2, 2015 at 7:15:07 PM Central European Summer Time

From: Roberts, Jason@Wildlife, JASON@WILD6CAEDF58-FB81-4D68-B36F-A964A6745F3DC97>

To: Schultz, Daniel@Waterboards, DANIEL@WAT741CC8D3-E434-4A20-905F-BDEBAC8F434FB82>

Dan,

Here are the two of the four signed MOUs

LMMWC – Mill Creek

DCID – Deer Creek

We have signatures for the following, but are waiting on our Regional Manager to sign also.

TNC – Mill Creek

LMMWC – Antelope Creek

Thanks,

Jason

From: Schultz, Daniel@Waterboards

Sent: Wednesday, April 01, 2015 3:27 PM

To: Roberts, Jason@Wildlife

Subject: MOUs

Jason,

Can you please send me copies of the voluntary agreements you have entered into on all three creeks, when you get a chance.

Thanks,

Dan


~~~~~

Daniel Schultz  
Sr. Environmental Scientist  
Public Trust Unit  
Division of Water Rights

Phone: 916-323-9392

Fax: 916-341-5400

[dschultz@waterboards.ca.gov](mailto:dschultz@waterboards.ca.gov)



**MEMORANDUM OF  
UNDERSTANDING**

**by and between**

**LOS MOLINOS MUTUAL WATER COMPANY**

**and**

**CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE**

**MILL CREEK**

*This California Endangered Species Act Memorandum of Understanding ("CESA MOU") is made and entered into by and between Los Molinos Mutual Water Company (hereinafter called LMMWC), acting through its Board of Directors, and the California Department of Fish and Wildlife (hereinafter called the "CDFW").*

The purpose of this CESA MOU is to provide a framework for cooperative activities and monitoring that involve or address issues of importance to salmonids, particularly Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*), hereinafter referred to as spring run, in Mill Creek, Tehama County. This CESA MOU provides for take associated with actions taken by the CDFW and actions taken by LMMWC to rescue and relocate spring run or assist with increasing flows in the creek for the benefit of spring run as management activities under the authority of Section 2081(a) of the California Fish and Game Code.

**RECITALS**

WHEREAS, the CDFW has jurisdiction over the conservation and protection of fish, wildlife, and native plants and their habitats necessary for biologically sustainable populations of those species and holds those resources in trust for the people of California (California Fish and Game Code Section 1802).

WHEREAS, spring run are classified as a threatened species by the State of California Fish and Game Commission pursuant to the California Endangered Species Act (CESA, Code section 2050 et seq.).

WHEREAS, Fish and Game Code section 2080 prohibits the import, export, take, possession, purchase or sale of any species, in whole or in part, that has been listed as threatened or endangered by the California Fish and Game Commission. Take is defined in Fish and Game Code section 86 as 'hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill.' However, Fish and Game Code section 2081(a) allows CDFW to authorize take and other acts prohibited by Fish and Game

Code section 2080 for scientific, educational, or management purposes. This CESA MOU authorizes a limited level of take of spring run for management purposes.

WHEREAS, salmonid presence shall be defined by reviewing historical records and utilizing current fisheries monitoring on Deer, Mill, and Antelope creeks and the Sacramento River between the Red Bluff Diversion Dam and the confluence of Clear Creek.

WHEREAS, on January 17, 2014 Governor Brown issued a proclamation, declaring the state to be in an emergency due to the drought conditions.

WHEREAS, on April 25, 2014, Governor Brown issued an Executive Order directing state agencies to, in part, work with other state and federal agencies and with landowners in priority watersheds to protect threatened and endangered species and species of special concern and maximize the beneficial uses of scarce water supplies, including employment of voluntary agreements to secure instream flows, relocate members of those species or take other measures.

WHEREAS, on December 22, 2014, Governor Brown issued another Executive Order declaring a continued state of emergency due to drought conditions, extending many of the terms of the April 25, 2014 Executive Order until May 31, 2016.

WHEREAS, Mill Creek provides many important surface water beneficial uses, including agriculture, recreation, wildlife habitat, freshwater habitat, and anadromous fish habitat, particularly for spring run listed as threatened under the Federal and State Endangered Species Acts and Central Valley steelhead (*Oncorhynchus mykiss*) hereinafter referred to as steelhead listed as threatened under the federal Endangered Species Act. Due in part to naturally occurring low flows, agricultural diversions, channel morphology and excessive temperatures, the upstream migration of adults or downstream migration of juvenile spring run and steelhead may be impeded or blocked in some years. Conditions may further deteriorate such that spring run and steelhead will need the restoration of suitable instream flow conditions to provide passage and/or be rescued and relocated.

WHEREAS, the flow prescriptions identified in this CESA MOU are considered by CDFW to be the minimum flows, in the current Drought Emergency, necessary to allow for adult and juvenile salmonid migration in Mill Creek below Ward Dam, and they are considered by CDFW to be the minimum flows needed to minimize the effects of drought while balancing salmonid and agricultural interests.

WHEREAS, LMMWC does not agree that the flow prescriptions identified in this CESA MOU are the minimums necessary, or that they are the result of balancing fishery and agricultural interests, but, in the spirit of cooperation, LMMWC will agree to these demands for the duration of this CESA MOU.

WHEREAS, LMMWC serves as the Watermaster for Mill Creek and operates two low

diversions for agricultural water from the north and south banks. As per the August 16, 1920 adjudication decree, Superior Court of Tehama County Decree # 3811 (the "Decree"), LMMWC is also tasked with allocating water supplies, maintaining records of diversion and use, and with maintaining the structures necessary for diversion, conveyance, and delivery of water to all those entitled under the Decree to the water of Mill Creek, including LMMWC for the benefit of its shareholders.

WHEREAS, LMMWC has adjudicated rights to divert Mill Creek surface water for irrigation and services approximately 7,000 acres of land within Tehama County.

WHEREAS, LMMWC owns or has access to certain real property associated with the LMMWC Diversion Dam on Mill Creek, Tehama County (Real Property). LMMWC is willing to participate with the CDFW in fish rescue and relocation activities by allowing, to the extent permitted by its ownership and/or easement rights, access to the Real Property for the purposes of monitoring, and/or capturing and removing, and/or relocating salmonids on or to Mill Creek adjacent to the Real Property or to the Sacramento River.

WHEREAS, it is acknowledged that LMMWC has over 20 years of history working cooperatively with the Mill Creek Conservancy, CDFW, and the Department of Water Resources to protect Chinook salmon and steelhead in Mill Creek including flow exchange agreements executed in 1990 and 2007.

NOW, THEREFORE, THE PARTIES HERETO AGREE AS FOLLOWS:

### **1. Purpose**

The elements of this CESA MOU, including flows, monitoring and evaluation, if implemented in the manner described below, will provide fishery protections necessary to avoid significant drought-related harm to salmonids, particularly spring run. The flows in this CESA MOU are based on CDFW's best available information for protecting salmonids, while maintaining water use in Mill Creek and are comparable to, and achieve, a similar biological outcome for salmonid protection as those required in the emergency regulations proposed and passed by the State Water Resources Control Board in 2014 (Title 23 CCR 877-879.2).

### **2. CDFW Monitoring and Fish Rescue Commitments**

- A. Monitoring: CDFW or its agent will carry out all monitoring activities. Monitoring and evaluation plans shall be in place to inform the effectiveness of the flow events and/or rescue efforts. Monitoring activities will assist CDFW in determining the presence of adult and juvenile salmonids in or near Mill Creek. CDFW shall inform LMMWC of its monitoring results and inform LMMWC if adult or juvenile salmonids are not present. CDFW shall notify LMMWC if water temperatures exceed the thresholds identified in section 3.C below. CDFW, or its agent, will notify LMMWC at the telephone number listed in Section 11, of all planned monitoring it will carry out on the Real Property. Monitoring activities may include:

- i. Use of video monitoring to determine if adult salmonids are moving through lower Mill Creek in response to minimum base flows and pulse flow events, and to determine population abundance.
  - ii. Snorkel surveys may be conducted upstream and downstream of diversion structures and critical riffle areas to determine if minimum base flows are passing salmonids through these areas. It is the intent of the CDFW to detect any salmonid stranding issues before mortalities are observed, so that sufficient time is provided to inform diverters and to take proactive flow restoration or other fish rescue actions.
  - iii. Monitoring of habitat conditions in Mill Creek or the Sacramento River prior to relocation of salmonids at risk, including spring run.
- B. Fish Capture and Relocation: CDFW or its agent will carry out all fish capture and relocation activities. CDFW, or its agent, will notify LMMWC at the telephone number listed in Section 11, of all planned fish rescue/relocation activities it will carry out on the Real Property.
- i. CDFW or its agent may relocate salmonids, including spring run, captured from elsewhere in the lower Mill Creek watershed (e.g. diversion canals), to Mill Creek adjacent to Real Property if suitable instream conditions exist, or to a suitable location on the Sacramento River.
  - ii. CDFW or its agent may monitor stream depth and temperature at relocation site(s) post-relocation to determine if conditions remain adequate to keep salmonids alive and provide for salmonid passage.

### **3. LMMWC Commitments**

- A. LMMWC agrees to provide reasonable access to CDFW and its agents, including equipment access, to the Real Property to carry out any of the management activities listed in Section 2.0 of this CESA MOU for the purposes of:
- i. Monitoring habitat conditions and salmonid abundance, size, and condition prior to any management activities;
  - ii. Capturing and removing salmonids from and/or relocating salmonids to suitable habitat, and for monitoring conditions post-relocation; or
  - iii. Monitoring stream flow conditions during flow events and/or during post-rescue/relocation to determine if conditions remain adequate to keep salmonids alive and provide for passage.

- B. All water diversion facilities that LMMWC owns, operates, or controls associated with the Real Property shall be operated and maintained in accordance with current laws and regulations.
- C. LMMWC agrees to perform the following Required Management Elements (RME's) as outlined below as a condition of this MOU, according to the type of diversion activities conducted at a particular site:

- i. **Minimum Base Flow:** These flows are required to support juvenile and adult salmonids that may already be 1) holding in the Sacramento River waiting to enter Mill Creek; 2) in Mill Creek but may not have passed to upper elevations; or (3) in Mill Creek, but which may not have moved out to the Sacramento River. Unless otherwise noted, the flow requirements identified below, OR full natural flows (whichever is less) will be provided by 8:00 a.m. on the dates identified below.

- a. March 15 through June 15:

50 cubic feet per second (cfs) for salmonid passage through the 2.8 miles of stream between Ward Dam and the confluence with the Sacramento River, as measured at the Department of Water Resources (DWR) flow gage below Highway 99 (CDEC Station ID: MCH).

If stream temperatures measured at MCH meet or exceed a daily minimum of 75 °F (when the base flow requirement of 50 cfs is being met) for a seven day consecutive period in the month of June, adult base flows can be reduced to juvenile base-flow requirements until the end of the juvenile base-flow period is reached, or June 30, whichever comes earlier, as provided below.

- b. June 16 through June 30:

20 cfs for juvenile salmonid passage through the 2.8 miles of stream between Ward Dam and the confluence with the Sacramento River, as measured at MCH.

If monitoring and/or evaluations conducted by CDFW determine that juvenile salmonids are not present in lower Mill Creek during juvenile base-flow requirement periods June 16 through June 30, juvenile base flow requirements may be relaxed.

- c. October 15 through December 31:



50 cfs for salmonid passage through the 2.8 miles of stream between Ward Dam and the confluence with the Sacramento River, as measured at MCH.

- ii. Pulse Flows: Pulse flows mimic the sudden increases in stream discharge following rain or snowmelt events which may be absent in drought years. Adult salmonids have evolved to take advantage of such conditions when returning to natal tributaries. Previous pulse flows on Mill and Deer creeks lasting 24 hours or more have helped to create an attraction flow at the confluence of the tributary creek with the Sacramento River, encouraging salmonids to enter the stream, and providing the greatest instantaneous improvement to salmonid passage conditions through critical riffles and diversion structures. Pulse flows also encourage juvenile salmonids to migrate downstream before summer water temperatures become too warm.

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Pulse flows will be carried out for a maximum of 60 hours. Pulse flows will begin at 5:00pm. 100 cfs as measured at MCH will be required for the first 36 hours of the pulse flow. If pre-diversion stream flow measured above Upper Dam (USGS gage #11381500) is below 100 cfs, full natural flow achieved through closure of all agricultural diversion structures will be maintained in Mill Creek during the first 36 hours of the pulse flow.

The remaining period of the pulse flow shall include a declining ramping flow schedule, such that each adjustment in flow reduction will not exceed 10 cfs, with a minimum 3-hour period between adjustments until a return to base flow level. The ramping schedule for each pulse flow will be determined by LMMWC, in compliance with these standards.

- b. Time period of pulse flows:

April 1 through June 15, up to once every two weeks. CDFW shall notify LMMWC at least 72 hours in advance when said pulse flow will be required. When feasible, these pulse flows will be scheduled to coincide with low pressure systems and/or natural rainfall or snowmelt events.

CDFW will make its best effort to provide preliminary fish counts for pulse flow event periods to LMMWC prior to the scheduling of subsequent pulse flow event. In addition, if monitoring and evaluations conducted by CDFW determine that salmonids are not present or water temperatures are not

conducive to salmonid survival during June, and it is mutually agreed to by CDFW and LMMWC, pulse flows may cease prior to June 15.

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- E. All water diversion facilities shall be maintained so they do not prevent, impede, or tend to prevent or impede the passing of salmonids upstream or downstream.
- F. LMMWC shall notify CDFW, at the telephone number listed in Section 11, at least three days, or as soon as practicable, prior to closing a headgate or valve when salmonid stranding may occur in the diversion conduit as a result of that activity.
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#### **5. Authorized Take Level**

Fish mortality related to diversions from Mill Creek made in compliance with the base flow and pulse flow requirements stated in this MOU is authorized under CESA and pursuant to this CESA MOU. The number of spring run which may die in the course of fish capture and relocation activities conducted by CDFW is typically small (less than 10%) and is much-reduced from levels of mortality that will potentially occur in absence of carrying out this activity. As such, fish mortalities related to, or occurring in the course of, fish rescue activities is authorized.

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Spring run are listed as a threatened species under the federal Endangered Species Act (ESA) of 1973. In its regulations, NMFS has limited the general prohibition of taking threatened spring run under the ESA to allow, CDFW, its employees, and its designees to perform the rescue activities listed in section 2, above. Steelhead are also listed as threatened by the ESA; the flow prescription identified in Section 3 has been shown to NMFS staff and appears to be consistent with flow prescriptions identified in volunteer agreements developed by NMFS during the 2014 drought period. However, nothing in this CESA MOU authorizes any action pursuant to the Federal ESA.

LMMWC is not expected or authorized to assist in the handling of spring run as a part of the fish rescue effort.

#### **7. Effective Date and Termination**

Unless terminated sooner by either party of the CESA MOU by giving thirty (30) days prior written notice of earlier termination, this CESA MOU shall commence on the date of execution and will terminate on **December 31, 2015**, both days inclusive.

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The Parties shall make reasonable efforts to resolve any disputes that may arise from this MOU in a prompt and timely manner. In the event of a dispute, the Party claiming a dispute shall give verbal and written notice of the dispute to the other Parties within 5 business days. If resolution of the dispute cannot be resolved within 5 business days of the notice either party may terminate the MOU through written notice. Termination of the MOU will result in a loss of take coverage for future actions.

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Amendments to this CESA MOU may be proposed by either party and shall become effective when both parties sign a written modification to this document.

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This CESA MOU shall be construed under and governed by the laws of the State of California and of the United States, without giving effect to any principles of conflicts of law if such principles would operate to construe the CESA MOU, as amended herein, under the laws of any other jurisdiction.

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For LMMWC:  
Mr. Darrell Mullins  
25162 Josephine Street  
Los Molinos, CA 96055  
[lmmutual@att.net](mailto:lmmutual@att.net)  
(530) 384-2737

For CDFW:  
Mr. Matt Johnson  
Northern Region  
California Department of Fish and Wildlife  
1530 Schwab Street  
Red Bluff, CA 96080  
[Matt.Johnson@wildlife.ca.gov](mailto:Matt.Johnson@wildlife.ca.gov)  
(530) 527-9490

### 12. Signatories' Authority

The signatories to the CESA MOU on behalf of all the Parties hereto warrant and represent that they have authority to execute the CESA MOU and to bind the Parties on whose behalf they execute the CESA MOU.

### 13. Disclaimer

The CDFW shall incur no fiscal obligation under this CESA MOU.

IN WITNESS WHEREOF, THE PARTIES HERETO HAVE EXECUTED THIS CESA MOU TO BE IN EFFECT AS OF THE DATE LAST WRITTEN BELOW.



**DARRELL MULLINS**  
Manager,  
Los Molinos Mutual Water Company

Date: 3/17/2015

25162 Josephine Road  
Los Molinos, CA 96055  
(530) 384-2737



**NEIL MANJI**  
Regional Manager,  
Region 1

Date: 3/10/15

California Department of  
Fish and Wildlife, Region 1  
601 Locust Street  
Redding CA 96001  
(530) 225-2300

**MEMORANDUM OF  
UNDERSTANDING**

**by and between**

**DEER CREEK IRRIGATION DISTRICT**

**and**

**CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE**

**DEER CREEK**

*This California Endangered Species Act Memorandum of Understanding ("CESA MOU") is made and entered into by and between Deer Creek Irrigation District (hereinafter called DCID), acting through its Board of Directors, and the California Department of Fish and Wildlife (hereinafter called the "CDFW").*

The purpose of this CESA MOU is to provide a framework for cooperative activities and monitoring that involve or address issues of importance to salmonids, particularly Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*), hereinafter referred to as spring run, in Deer Creek, Tehama County. This CESA MOU provides for take associated with actions taken by the CDFW or DCID to rescue and relocate spring run or assist with increasing flows in the creek for the benefit of spring run as management activities under the authority of Section 2081(a) of the California Fish and Game Code.

**RECITALS**

WHEREAS, the CDFW has jurisdiction over the conservation and protection of fish, wildlife, and native plants and their habitats necessary for biologically sustainable populations of those species and holds those resources in trust for the people of California (California Fish and Game Code Section 1802).

WHEREAS, spring run are classified as a threatened species by the State of California Fish and Game Commission pursuant to the California Endangered Species Act (CESA, Code section 2050 et seq.).

WHEREAS, Fish and Game Code section 2080 prohibits the import, export, take, possession, purchase or sale of any species, in whole or in part, that has been listed as threatened or endangered by the California Fish and Game Commission. Take is defined in Fish and Game Code section 86 as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill." However, Fish and Game Code section 2081(a) allows CDFW to authorize take and other acts prohibited by Fish and Game Code section 2080 for scientific, educational, or management purposes. This CESA

MOU authorizes a limited level of take of spring run for management purposes.

WHEREAS, Fish and Game Code section 5937 states, "The owner of any dam shall allow sufficient water at all times to pass through a fishway, or in absences of a fishway, allow sufficient water to pass over, around or through the dam to keep in good condition any fish that may be planted or exist below the dam..."

WHEREAS, salmonid presence shall be defined by reviewing historical records and utilizing current fisheries monitoring on Deer, Mill, and Antelope creeks and the Sacramento River between the Red Bluff Diversion Dam and the confluence of Clear Creek.

WHEREAS, on January 17, 2014 Governor Brown issued a proclamation, declaring the state to be in an emergency due to the drought conditions.

WHEREAS, on April 25, 2014, Governor Brown issued an Executive Order directing state agencies to, in part, work with other state and federal agencies and with landowners in priority watersheds to protect threatened and endangered species and species of special concern and maximize the beneficial uses of scarce water supplies, including employment of voluntary agreements to secure instream flows, relocate members of those species or take other measures.

WHEREAS, on December 22, 2014, Governor Brown issued another Executive Order declaring a continued state of emergency due to drought conditions, extending many of the terms of the April 25, 2014 Executive Order until May 31, 2016.

WHEREAS, Deer Creek provides many important surface water beneficial uses, including agriculture, recreation, wildlife habitat, freshwater habitat, and anadromous fish habitat, particularly for spring run listed as threatened under the Federal and State Endangered Species Acts and Central Valley steelhead (*Oncorhynchus mykiss*) hereinafter referred to as steelhead listed as threatened under the federal Endangered Species Act. Due in part to naturally occurring low flows, agricultural diversions, channel morphology and excessive temperatures, the upstream migration of adults or downstream migration of juvenile spring run and steelhead may be impeded or blocked in some years. Conditions may further deteriorate such that spring run and steelhead will need the restoration of suitable instream flow conditions to provide passage and/or be rescued and relocated.

WHEREAS, the flow prescriptions identified in this CESA MOU are considered by CDFW to be the minimum flows, in the current Drought Emergency, necessary to allow for adult and juvenile salmonid migration in Deer Creek below Stanford Vina Ranch Irrigation Company (SVRIC) dam, and they are considered the minimum flows needed to minimize the effects of drought while balancing salmonid and agricultural interests.

WHEREAS, DCID is a political subdivision of the State of California, duly organized and existing under Division 11 of the California Water Code and providing water service for the irrigation of lands and crops within the county of Tehama.

WHEREAS, DCID has adjudicated rights to divert Deer Creek surface water for irrigation. DCID has an adjudicated right to approximately 33 percent of the flow of Deer Creek and SVRIC, located downstream of DCID, has an adjudicated right to 66 percent of the flow from Deer Creek.

WHEREAS, DCID owns or has access to certain real property associated with the DCID Diversion Dam on Deer Creek, Tehama County (Real Property). DCID is willing to participate with the CDFW in fish rescue and relocation activities by allowing access to the Real Property for the purposes of monitoring, and/or capturing and removing, and/or relocating salmonids on or to Deer Creek adjacent to the Real Property or to the Sacramento River.

NOW, THEREFORE, THE PARTIES HERETO AGREE AS FOLLOWS:

### **1. Purpose**

Elements of this MOU include eligibility, fish rescue efforts, designated fish passage flows, changes in the timing of diversions to provide improved instream flow and water temperature conditions which would minimize the need to rescue fish, monitoring, and evaluations of management actions. The specific elements of the program are tailored by stream and by an eligible diverting entity and as described in this MOU.

The elements of this CESA MOU, including flows, monitoring and evaluation, if implemented in the manner described below, will provide fishery protections necessary to avoid significant drought-related harm to salmonids, particularly spring run. The flows in this CESA MOU are based on the best available information for protecting salmonids, while maintaining water use in Deer Creek and are comparable to, and achieve, a similar biological outcome for salmonid protection as those required in the regulations being proposed by the State Water Resources Control Board (Title 23 CCR 877-879.2).

### **2. Methods**

- A. Monitoring: CDFW or its agent will carry out all monitoring activities. Monitoring and evaluation plans shall be in place to inform the effectiveness of the flow events and/or rescue efforts. Those activities may include:
  - i. Use of video monitoring to determine if adult salmonids are moving through lower Deer Creek in response to minimum base flows and pulse flow events, and to determine population abundance.
  - ii. Snorkel surveys may be conducted upstream and downstream of diversion structures and critical riffle areas to determine if minimum base flows are passing salmonids through these areas. It is the intent of the CDFW to detect any salmonid stranding issues before mortalities are observed, so that sufficient time



is provided to inform diverters and to take proactive flow restoration or other fish rescue actions.

iii. Monitoring of habitat conditions in Deer Creek or the Sacramento River prior to relocation of salmonids at risk, including spring run.

B. Fish Capture and Relocation: CDFW or its agent will carry out all fish capture and relocation activities. CDFW, or its agent, will notify DCID at the telephone number listed in Section 12, of all planned fish rescue/relocation activities it will carry out on the Real Property.

i. CDFW or its agent may relocate salmonids, including spring run, captured from elsewhere in the lower Deer Creek watershed (e.g. diversion canals), to Deer Creek adjacent to Real Property if suitable instream conditions exist, or to a suitable location on the Sacramento River.

ii. CDFW or its agent may monitor stream depth and temperature at relocation site(s) post-relocation to determine if conditions remain adequate to keep salmonids alive and provide for salmonid passage,

### **3. Notice to Other Water Diverters**

Prior to notifying DCID as described in Section 2.0, the CDFW will request all water diverters on Deer Creek below DCID's diversion dam not to divert any Bypassed Water, as defined below in Sections 4.C (i) and 4.C (ii). If the CDFW determines that any water diverter below DCID's diversion dam will not cooperate, the CDFW may: (a) elect not to request DCID to bypass water, in which case the CDFW will notify DCID of its decision as soon as possible; (b) withdraw from the MOU in accordance with Section 9.0; (c) suspend the bypass flow events; or (d) take some other action consistent with the MOU. If this were to occur (i.e. other diverters not cooperating), DCID will still have met its commitment to provide flows for listed fish and thereby avoid a violation of CESA, during the timeframe of the CESA MOU.

### **4. DCID Commitments**

A. DCID agrees to provide reasonable access to CDFW and its agents, including equipment access, to the Real Property to carry out any of the management activities listed in Section 2.0 of this CESA MOU for the purposes of:

i. Monitoring habitat conditions and salmonid abundance, size, and condition prior to any management activities;

ii. Capturing and removing salmonids from and/or relocating salmonids to suitable habitat, and for monitoring conditions post-relocation; or

- iii. Monitoring stream flow conditions during flow events and/or during post-rescue/relocation to determine if conditions remain adequate to keep salmonids alive and provide for passage.
- B. All water diversion facilities that DCID owns, operates, or controls associated with the property where salmonids may need to be removed and relocated to more suitable habitats shall be operated and maintained in accordance with current laws and regulations.
- C. DCID agrees to perform the following Required Management Elements (RME's) as outlined below as a condition of this MOU, according to the type of diversion activities conducted at a particular site. The amount to be bypassed and/or diverted will be proportional to the streamflow adjudicated to DCID (33.3%) and applies to minimum Base Flow and Pulse Flows identified below:
- i. Minimum Base Flow: These flows are required to support juvenile and adult salmonids that may already be 1) holding in the Sacramento River waiting to enter Deer Creek; 2) in Deer Creek but may not have passed to upper elevations; or (3) may not have moved out to the Sacramento River. Unless otherwise noted, the flow requirements identified below, OR full natural flows (whichever is less) will be provided by 8:00 a.m. on the dates identified below.

a. January 1 through June 15:

50 cubic feet per second (cfs) for salmonid passage through the five miles of stream between SVRIC Dam and the confluence with the Sacramento River, as measured at the Department of Water Resources (DWR) lower Deer Creek flow gage located below SVRIC Dam (CDEC Station ID: DVD).

If stream temperatures measured at DVD meet or exceed a daily minimum of 75 °F (when the base flow requirement of 50 cfs is being met) for a seven day consecutive period in the month of June, adult base flows can be reduced to juvenile base-flow requirements until the end of the juvenile base-flow period is reached, or June 30, whichever comes earlier, as provided below.

b. June 16 through June 30:

20 cfs for juvenile salmonid passage through the five miles of stream between SVRIC Dam and the confluence with the Sacramento River, as measured at DVD.

If monitoring and/or evaluations conducted by CDFW determine

that juvenile salmonids are not present in lower Deer Creek during juvenile base-flow requirement periods June 16 through June 30, juvenile base flow requirements may be relaxed.

c. October 15 through December 31:

50 cfs for salmonid passage through the five miles of stream between SVRIC Dam and the confluence with the Sacramento River, as measured at DVD.

- ii. Pulse Flows: Pulse flows mimic the sudden increases in stream discharge following rain or snowmelt events which may be absent in drought years. Adult salmonids have evolved to take advantage of such conditions when returning to natal tributaries. Previous pulse flows on Mill and Deer creeks lasting 48 hours or more have helped to create an attraction flow at the confluence of the tributary creek with the Sacramento River, encouraging salmonids to enter the stream, and providing the greatest instantaneous improvement to salmonid passage conditions through critical riffles and diversion structures. Pulse flows also encourage juvenile salmonids to migrate downstream before summer water temperatures become too warm.

a. Magnitude and duration of pulse flows:

Pulse flows will begin at 5:00pm. 100 cfs as measured at DVD will be required for the first 36 hours of the pulse flow. If pre-diversion stream flow measured at the Upper Deer Creek stream gage (USGS gage #11383500) is below 100 cfs, full natural flow achieved through closure of all agricultural diversion structures will be maintained in Deer Creek during the first 36 hours of the pulse flow.

The remaining period of the pulse flow shall include a declining ramping flow schedule, such that each adjustment in flow reduction will not exceed 10 cfs, with a minimum 3-hour period between adjustments until a return to base flow level.

b. Time period of pulse flows:

April 1 through June 15, up to once every two weeks. CDFW shall notify DCID at least 72 hours in advance when said pulse flow will be required.

CDFW will make its best effort to provide preliminary fish counts for pulse flow event periods to DCID prior to the scheduling of a subsequent pulse flow event. In addition, if



monitoring and evaluations conducted by CDFW determine that salmonids are not present or water temperatures are not conducive to salmonid survival during June, and it is mutually agreed to by CDFW and DCID, pulse flows may cease prior to June 15.

- D. DCID shall notify the CDFW's Fisheries Program at the telephone number listed in Section 12, at least three (3) days prior to any significant planned changes in operation of the diversion and associated screen and bypass and other structures.
- E. All water diversion facilities shall be maintained so they do not prevent, impede, or tend to prevent or impede the passing of salmonids upstream or downstream.
- F. DCID shall notify CDFW, at the telephone number listed in Section 12, at least three days, or as soon as practicable, prior to closing a headgate or valve when salmonid stranding may occur in the diversion conduit as a result of that activity.
- G. In cooperation with CDFW staff, DCID shall regularly inspect all fish screens and bypass pipes or channels to verify that they are effectively protecting salmonids and other fish species in accordance with CDFW and National Marine Fisheries Service (NMFS) fish screening criteria. Sufficient flow will also be supplied in the fish ladder (when in operation), located on DCID Dam to provide upstream and downstream migration of salmonids.

#### **5. CDFW Commitments Regarding Fish Management Activities on the Real Property**

- A. CDFW agrees that CDFW and its agents will conduct all rescue/relocation activities only after CDFW has provided the advance notice to DCID as provided in Section 2 above.
- B. CDFW will maintain the fish screens it has already agreed to maintain previously in writing.
- C. Upon request, CDFW will provide all data after it has passed quality assurance review.

#### **6. Authorized Take Level**

Fish mortality related to diversions from Deer Creek made in compliance with the base flow and pulse flow requirements stated in this MOU is authorized. The number of spring run which may die in the course of fish capture and relocation activities conducted by CDFW is typically small (less than 10%) and is much-reduced from levels of mortality that will potentially occur in absence of carrying out this activity. As such, fish mortalities related to, or occurring in the course of, fish rescue activities is authorized.

## **7. Federal Endangered Species Act**

Spring run are listed as a threatened species under the federal Endangered Species Act (ESA) of 1973. In its regulations, NMFS has limited the general prohibition of taking threatened spring run under the Federal ESA to allow, CDFW, its employees, and its designees to perform the rescue activities listed in Section 1 above. Steelhead are also listed as threatened by the Endangered Species Act; the flow prescription identified in Section 4 has been shown to NMFS staff and appears to be consistent with flow prescriptions identified in volunteer agreements developed by NMFS during the 2014 drought period. However, nothing in this CESA MOU authorizes any action pursuant to the Federal ESA.

DCID is not expected or authorized to assist in the handling of spring run as a part of the fish rescue effort.

## **8. Effective Date and Termination**

Unless terminated sooner by either party of the CESA MOU by giving thirty (30) days prior written notice of earlier termination, this CESA MOU shall commence on the date of execution and will terminate on **May 31, 2016**, both days inclusive.

## **9. Dispute Resolution**

The Parties shall make reasonable efforts to resolve any disputes that may arise from this MOU in a prompt and timely manner. In the event of a dispute, the Party claiming a dispute shall give verbal and written notice of the dispute to the other Parties within 5 business days. If resolution of the dispute cannot be resolved within 5 business days of the notice either party may terminate the MOU through written notice. Termination of the MOU will result in a loss of take coverage for future actions.

## **10. Amendments**

Amendments to this CESA MOU may be proposed by either party and shall become effective when both parties sign a written modification to this document.

## **11. Applicable Law**

This CESA MOU shall be construed under and governed by the laws of the State of California and of the United States, without giving effect to any principles of conflicts of law if such principles would operate to construe the CESA MOU, as amended herein, under the laws of any other jurisdiction.

## **12. Notice and Contact Persons**

Any written notice, and the telephone notice specified in Section 4 required to be given by the CESA MOU, shall be deemed to have been given by the notifying party when mailed, postage

prepaid or delivered to the following representatives, who will also serve as main contact people for their respective Party:

For DCID:  
Mr. John Edson  
PO Box 154  
Vina, CA 96092  
[john@edsonappraisals.com](mailto:john@edsonappraisals.com)  
(530) 519-2366

For CDFW:  
Mr. Matt Johnson  
Northern Region  
California Department of Fish and Wildlife  
1530 Schwab Street  
Red Bluff, CA 96080  
[Matt.Johnson@wildlife.ca.gov](mailto:Matt.Johnson@wildlife.ca.gov)  
(530) 527-9490


### 13. Signatories' Authority

The signatories to the CESA MOU on behalf of all the Parties hereto warrant and represent that they have authority to execute the CESA MOU and to bind the Parties on whose behalf they execute the CESA MOU.

### 14. Disclaimer

The CDFW shall incur no fiscal obligation under this CESA MOU.

IN WITNESS WHEREOF, THE PARTIES HERETO HAVE EXECUTED THIS CESA MOU TO BE IN EFFECT AS OF THE DATE LAST WRITTEN BELOW.

  
\_\_\_\_\_  
**JOHN W. EDSON**  
President,  
Deer Creek Irrigation District

Date: 3/16/15

PO Box 154

  
\_\_\_\_\_  
**NEIL MANJI**  
Regional Manager,  
Region 1

Date: 3/16/15

California Department of

Vina, CA 96092  
(530) 519-2366

Fish and Wildlife, Region 1  
601 Locust Street  
Redding CA 96001  
(530) 225-2300

## **Attachment C.6**

# **Miscellaneous 303(d)/305(b) Flow Impairment Listing Correspondence from the State Water Board**

***Attachment C.6.a***

**State Water Resources Control Board**  
**Division of Water Quality**  
**Draft Informational Item & Staff Report**

1. **Subject:**

Assessment of Flow Impairment for Integrated Report

2. **Purpose:**

The purpose of this staff report is to provide background information regarding the consideration of assessing water flow impairment for inclusion in the State Water Resources Control Board's (State Water Board) Integrated Report pursuant to the Clean Water Act sections 303(d) and 305(b), identify proposed assessment strategy for flow impairment, and propose a draft agenda for State Water Board to consider flow assessment as an informational item to provide interested parties the opportunity to provide comments.

3. **The Clean Water Act—Water Quality Assessment and the Integrated Report:**

The Clean Water Act requires states to identify waters for which effluent limitations for specific point sources are not stringent enough after implementation of technology-based controls to implement water quality standards applicable to those waters. (CWA § 303(d)(1)(A).) The Clean Water Act also requires states to identify waters for which controls on thermal discharges are not stringent enough to assure protection of shellfish, fish, and wildlife. (CWA § 303(d)(1)(B).) These two lists are combined into a single list that is commonly referred to as the 303(d) List. States are required to identify and submit to USEPA biennially those waters on their 303(d) List. States are also required to prepare and submit to USEPA biennial reports based on a description of the water quality of all navigable waters and an analysis of the extent to which those waters provide for the protection of fish and wildlife and provide for recreational activities in and on the water. (CWA § 305(b)(1)(A); (B); 40 C.F.R. § 130.8, subd. (b)(1).) This report is commonly referred to as the 305(b) Report. The 305(b) Report "serves as the primary assessment of State water quality" and based on the data and problems identified in that report, "States develop water quality management (WQM) plan elements to help direct all subsequent control activities." (40 C.F.R. § 130.8(a).) USEPA strongly encourages states to submit a single report (the Integrated Report) that satisfies the reporting requirements of CWA sections 303(d), 305(b) and 314 (the Clean Lakes Program). The Integrated Report has five basic categories of lists developed by USEPA. Water bodies that are assessed for water quality are

placed onto one of the Integrated Report category lists. Below is the definition of each category list that describes how each of the categories is used in California.

Category 1: A water segment that supports a minimum of one California beneficial use for each Core Beneficial Use that is applicable to the water and has no other uses impaired.

Category 2: A water segment that supports some, but not all, of its California beneficial uses and can have other uses that are not assessed or lack sufficient information to be assessed.

Category 3: A water segment with water quality information that could not be used for an assessment for reasons including but not limited to: monitoring data have poor quality assurance, insufficient number of samples in a dataset, no existing numerical objectives or evaluation guidelines, or the information alone cannot support an assessment.

Category 4: At least one beneficial use is not supported, but a Total Maximum Daily Load (TMDL) is not needed.

Subcategory 4a: A water segment for which ALL its 303(d) listings are being addressed; and 2) at least one of those listings is being addressed by a USEPA approved TMDL.

Subcategory 4b: A water segment for which ALL its 303(d) listings are being addressed by action(s) other than TMDL(s).

Subcategory 4c: A water segment that is impaired or affected by pollution and is not caused by a pollutant and a TMDL is therefore not required.

Category 5: A water segment where standards are not being met and a TMDL is required but not yet completed for at least one of the pollutants being listed for this segment (the 303(d) list).

#### 4. The State Water Board's Policy for Developing California's Section 303(d) List.

In California, the methodology used to develop the CWA Section 303(c) List is established by the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (herein the Listing Policy). The objective of the Listing Policy is to establish a standardized approach for developing California's section 303(d) list to achieve the overall goal of achieving water quality standards and maintaining beneficial uses in California's surface waters. Regarding the Clean Water Act and the State Water Board's Listing Policy and the, the distinction between "pollutants" and "pollution" is important in evaluating whether flow impairment must be identified in the state's Integrated Report, and if so, whether it is



compelled by section 303(d) or 305(b). The CWA defines the term "pollution" as "the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water." (CWA § 505(19).) A "pollutant" is "dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water." (CWA § 505(6).) Pursuant to those defined terms, flow and habitat alterations are considered *pollution* and not specific *pollutants*.

Section 303, subdivision (a)(2), requires TMDLs to be developed for pollutants and not for pollution. Hence, TMDLs are not required for water bodies impaired by flow alteration and habitat alteration. Because the State Water Board's Listing Policy provides guidelines concerning listing of "pollutants" and not "pollution", the State Water Board does not include flow impairment as a listing category. However, as previously noted, the Clean Water Act specifically requires a state's 305(b) Report to include a "description of the water quality of all navigable waters in such State during the preceding year" which shall include "an analysis of the extent to which all navigable waters of such State provide for the protection and propagation of a balanced population of shell fish, fish, and wildlife, and allow recreational activities in and on the water" (CWA § 305(b);2)(A)-(B).) By its express terms, the "description" of the water quality required by Section 305(b) is not limited to the discharge of pollutants and may include flow and habitat alteration as indicators of water quality.

#### 5. Considerations Regarding the Assessment of Flow

USEPA asserts that even if no TMDLs are required for the low flow impaired waterways, there are other benefits to include these waterways on the 303(d) list, such as source assessment and tracking. In its 1999 and 2000 TMDL rulemakings, USEPA articulated several reasons for requiring the descriptions of water bodies or segments impaired by flow and other pollution, by stating that categorizing water bodies for pollution is consistent with the CWA goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. In discussing Subcategory 4c, USEPA suggests that segments should be placed in Category 4c when the state demonstrates that the failure to meet an applicable water quality standard is not caused by a pollutant, but instead is caused by other types of pollution. States should schedule these segments for monitoring to confirm that there continues to be no pollutant associated with the failure to meet the water quality standard and to support water quality management actions necessary to address the cause(s) of the impairment (USEPA 2006 IR Guidance). *Examples of circumstances where an impaired segment may be placed in Category 4c include segments impaired solely due to lack of adequate flow or to stream channelization.* (USEPA 2006 IR Guidance, p. 56 (emphasis added).) As of 2004, states have identified over 2,000 water bodies impaired by flow alteration. (USEPA 2005 Integrated Report.)

**Water Quality and Designated Uses:** Broadly accepted scientific studies conducted over the past 30 years demonstrate that various flow regimes affect physical conditions for aquatic life,

for example, water depth and velocity, and access to certain substrate types and cover. Stream flows necessary for physical habitat are also essential for biological processes. In many demonstrated cases, water chemistry parameters such as dissolved oxygen and temperature are directly affected by stream flow.

The designated uses of water bodies can be impaired when flow alteration affects the magnitude, frequency, duration, timing and rate of change of water quantity. The Clean Water Act does not directly address the impairment of existing and classified designated uses of streams and rivers in favor of off-stream uses. This means that, while the amount of flow required for uses that withdraw water, such as industrial, agricultural and drinking water uses, should be in addition to the flow required for aquatic life and recreational uses, there are no Clean Water Act requirements that mandate this result.

The following discusses flow as a water quality indicator for the following beneficial uses.

#### Aquatic Life

The conditions necessary for the health of the myriad species of flora and fauna included in the "aquatic life" criteria are directly tied to water quantity and the magnitude, frequency, duration, timing and rate of change of flow events. For example, if a discharge meets all water quality standards for chemistry, but fails to address physical aspects such as volume and timing, the discharge fails at protecting aquatic life. Additionally, aquatic communities require high volume flushing flows, critical for sediment transport, clean substrates and species lifecycles.

#### Recreational Contact

A key component of water-based recreation is water quantity. Recreational uses such as swimming and boating take a certain amount of water to exist, while sudden large increases in water flow can make both of those activities unsafe for the public.

#### Fish Consumption

Fishing requires healthy aquatic communities. To focus water quality assessment only on chemical or pathogen concentrations of water without considering the physical and biological integrity, can fail to protect the recreational user.

#### Drinking Water and Industrial Uses

Clean drinking water is critical to our society, and is given paramount priority in the Clean Water Act. Water quality and quantity are critical to drinking water and industrial uses because without enough water to assimilate nutrients and pollutants, the water

can become unfit for human or animal consumption, or industrial processes. Likewise, pollutants carried by storm water flows can impair water quality for off-stream uses.

#### 6. Previous Public Comments Regarding Flow Assessment.

Comments submitted for the development of the 2012 Integrated Report. A group of 20 environmental organizations submitted information about the existence of water quality data for flow assessment. In their letter, the undersigned organizations requested the following two types of listings: 1) pollutant listings including trash, bacteria, polychlorinated biphenyl ethers (PCB) and a wide range of conventional pollutants such as temperature, fecal coliform bacteria, oil and grease, and pH, and 2) identifying water bodies impaired or threatened by alterations in natural flow, groundwater contamination, and anthropogenic climate change-caused impacts.

The Natural Resources Defense Council (NRDC) also sent a letter stating that the State Water Board should follow the lead of other states to identify in the 2012 Integrated Report those water bodies in the State that are impaired by altered natural flow. The NRDC letter indicated that federal and state agencies' policies and programs, including the Water Board's Policy for Maintaining Instream Flows in Northern California Coastal Streams, the Department of Fish and Game Instream Flow Program, the US Geological Survey, National Marine Fisheries and US Fish and Wildlife Services have substantial information relating to flow alterations harming designated beneficial uses in California.

The Quana Valley Indian Reservation stated that "Water quality information indicates severe impairments to the federally and state listed Chinook salmon...flow impairment is also greatly impacting all cultural significant flora and fauna to the tribe."

Comments and Staff Responses on Listing Policy, September 2004. A number of comments were submitted during the development of the Listing Policy in 2004 to request the Listing Policy to include criteria for flow alteration. A sample of those comments and State Water Board staff responses are

- a. Comment: Listing Policy would fail to identify water quality problems related to invasive species, habitat degradation, flow modification, or other non-pollutant sources.
  - c. Staff Response: SB 469 requires the SWRCB to prepare guidelines to be used by the State board and the Regional Boards for the purpose of listing and delisting waters and developing and implementing the TMDL program and Total Maximum Daily Loads pursuant to section 203(c). Developing a master list of all problems in state waters would be a difficult and controversial task that would reach far beyond the scope of the TMDL program.

- o Comment: The State must list waters impaired by 'Pollution' Section 3.1 of the draft Policy similarly states that water segments for which standards exceeds reflect 'pollution' (e.g., 'physical alteration of the water body that cannot be controlled') shall not be placed on the 303(d) list. This position is reiterated in Section 2.1, which limits listing to waters impaired by a pollutant or pollutants.' We disagree with this proposition, and maintain that water bodies that are impaired by any source of pollution must be listed. This position is supported both by the plain language of section 303(d) (1) (A) and by legal opinions interpreting it, and has been supported by the RWQCBs as well in testimony and elsewhere. This position is also supported by the NRC, which found that the TMDL program 'should encompass all stressors, both pollutants and pollution, that determine the condition of the water body' The NRC found this step to be important because 'activities that can overcome the effects of 'pollution' and bring about water body restoration -- such as habitat restoration and channel modification 'should not be excluded from consideration during TMDL plan implementation.'

- o Staff Response: The State must list waters for pollutants in compliance with 40 CFR 130.7(b) in order to identify and schedule TMDLs for water quality limited segments still requiring TMDLs. USEPA Guidance (2003a) notes that 'pollution problems should be placed in separate categories from those waters that need TMDLs. This Policy is consistent with that guidance from USEPA. The Listing Policy does not limit listings to particular pollutant sources. Rather, the policy requires listing of all waters that do not meet standards due to pollutants (the exception is toxicity). 'Pollution' like habitat modification, flow restrictions, etc. should not be included on the section 303(d)-list.

- o Comment: The TMDL Roundtable recommended that water bodies that have beneficial uses that are impaired due to factors such as lack of flow, degraded aquatic habitat, and physical changes to stream channels should be identified on the list. The draft Listing Policy is not consistent with this recommendation. The proposal is for such waters not to be listed.

- o Staff Response: The Policy is focused on addressing problems related to pollutants that may cause water quality standards attainment problems. The Policy is not focused on addressing pollution problems such as habitat and physical changes in stream channels. Federal guidance does not require inclusion of problems related to habitat or physical changes in the water environment to be included on the section 303(d) list (USEPA, 2003a).

## 7. How Other States Address Flow:

Numerous states recognize the need for a narrative or numeric water quality standard for flow protection and several states are addressing flow impairments if the data and information

demonstrating that beneficial use of the water is not protected. For example, the State of Vermont has a narrative and numeric flow standard for assessing flow alteration and developed strategies to address flow alteration and listings. The State of Tennessee developed a narrative for flows needed to support recreation and aquatic life in 2008. In all cases, states used different approaches for assessment of stream flow but have initiated the process to identify flow impairment and some of the states make listing decisions based on the data and information available to the states. Below is a summary of flow criteria and listing information in other states.

State of California: As explained above, the State of California does not currently assess flow as a water quality indicator for the Integrated Report. The State is currently developing in-stream flow objectives that will help in the assessment of data for flow alteration in the future. The Division of Water Rights also has prepared the "Instream Flow Study for Protection of Public Trust Resources. A Prioritized Schedule and Estimate Costs" that was submitted to the California Legislature in December 2010. In this report staff indicated that most effective way for the state to use limited resources toward improving instream flow is to partner with other organizations to supplement work already being done. Assessing flow data for the Integrated Report may initiate the involvement of others in the process of improving the instream flow in the state waters.

Under Water Code, § 1128.2 (g), State Water Board is expected to update annually a report that identifies streams that have not yet been listed as fully appropriated but may become fully appropriated within the next year. It would seem that most, if not all, streams that are listed as impaired due to low flows should be listed in that report. In 2012 the annual report will trigger a process by which registrations are not issued automatically, but must be evaluated to determine if water is fully appropriated. That process will result in determinations about whether water is available for appropriation, considering how much water must be left instream for protection of instream beneficial uses. Those decisions, in turn, will provide a basis for updating the list of fully appropriated streams.

A few historical section 303(d) listings exist in California that are based on inadequate flow. The documentation on these and other listings prior to 2006 are not available in the California Water Quality Assessment (CaWQA) database that is used to prepare the Integrated Report. The Los Angeles Water Board listed the Ventura River Reach 3 and Reach 4 on the 303(d) List in 1996. The Los Angeles Water Board staff recently prepared a Staff Report for each of these segments. The Staff Report for Ventura River Reach 3 discusses removal of this reach from the section 303(d) List because there were no data or information cited to support the original impairment listing of Reach 3 for diversions/pumping. A review of available studies and reports relating to the river and, in particular, Reach 3 flows and how they might impact use by steelhead trout, does not indicate impairment in this reach or human caused flow alteration from water diversions and pumping.

Impairments from water diversions and pumping in Ventura River Reach 4 (Coyote Creek to Camino Cielo Road) are being considered for removal from Category 5 (Section 303(d) list (TMDL required list)) and placement on the Subcategory 4b (being addressed by action other than TMDL) under Sections 2.2 and 4.11 of the Listing Policy.

The change to Subcategory 4b is because the Steelhead Restoration and Management Plan for California identified a number of potential actions that could aid steelhead trout recovery within Reach 4. The two recommended actions that directly impact Reach 4 have been completed; namely, the construction of a fish passage at the Robles Diversion and modification of bypass flows at Robles per NOAA Fisheries' Biological Opinion. Other recommended actions that indirectly affect the use of Reach 4 by steelhead trout are still underway. The actions completed in Reach 4 and those underway in the watershed to remedy the impairment qualify the Reach 4 listings for water diversions and pumping to be moved to the "being addressed by action other than TMDL" list from the "TMDL required" list. The point being that by these being listed, an action was taken to remedy the problem, that otherwise might never happen.

State of Washington: The State of Washington addresses flow under the Water Resources Act of 1971. The statute states, "The quality of the natural environment shall be protected and, where possible, enhanced as follows: (a) Perennial rivers and streams of the state shall be maintained with base flows necessary to provide for preservation of wildlife, fish, scenic, aesthetic and other environmental values, and navigational values." The Governor's Salmon Recovery Office was established by the Legislature, through the Salmon Recovery Planning Act. The Governor's Statewide Strategy for Recovery of Salmon refers both to protection of existing stream flows where they are adequate to meet the needs of salmon, and the restoration of stream flows where flows are not currently adequate.

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The obligation to meet instream flows through the watershed plan or to meet Endangered Species Act requirements is compelling the state to take a different approach to setting and achieving instream flows. If a river currently has enough water to meet instream needs, a traditional "preservation" instream flow may suffice. If a river does not currently have adequate stream flows, a "restoration" flow would need to be set at a flow that can be achieved. instream flow rules adopted as a result of watershed plans, or salmon recovery plans, could actually have two different flow rates - an instream flow for preservation purposes that is only achieved during wetter years, and another instream flow that is expected to be met most of the time and for which strategies are in place to ensure they are achieved.

The Washington Department of Ecology listed 45 streams in 1998 under Section 303(d) because based on the information collected by other agencies flows were inadequate to support designated instream water uses such as fish. The streams listed on the 1998 303(d) list were moved to the new subcategory 4C (impaired by a non-pollutant) when the US EPA Guidance for preparing Integrated Report became available in 2004. These streams are generally expected to be addressed in the future through the establishment, protection and restoration of stream

flows. Washington State relies on other agencies work and to conduct surveys if there are improvements in flow and sufficient water is available for fish in order to reevaluate these water bodies for consideration of delisting.

State of North Carolina: The State of North Carolina Division of Water Quality like many other states uses design flow statistics of the lowest 7-day average flow that occurs on average once every 10 years (7Q10) to define low flow for the purpose of setting permit discharge limits that must be met when the stream flow is as low as 20% of the 7Q10. All wastewater discharges are required to be treated so that water quality standards will still be met when the stream flow is as low as the 7Q10. Withdrawals that are 20% of the 7Q10 or more require additional analysis. The location of the proposed project and the habitat rating of the downstream aquatic habitat will determine whether an analysis or site-specific instream flow study is used to determine the flow. North Carolina does not have any 303(d) listings for flow alteration.

State of South Carolina: In 1980, the South Carolina Department of Natural Resources (DNR) developed an approach focused on fish health that aimed to establish the amount of flow that is necessary to support both healthy streams and recreation for permit programs. Three main use categories were considered: navigation, in-channel water coverage, and fish passage.

For navigation, it was determined that at least 20% of the river width had to meet a guideline of either 1 ft. or 2 ft. deep in order that the stream could provide for navigation and that 20% flow in a river was usually protective of this threshold. For the in-channel water coverage an approach inflection point (or maximum benefit point) was set as the threshold with 20% flow to be protective of this threshold. For fish passage, it was determined that at least 10% of the stream width had to meet this guideline in order to say that the stream could provide for fish passage. In addition, this guideline had to be met for at least 10 ft. long segments along the length of the river. Along the coast, they found that 60% flow was needed. However, for non-coastal area only 40% flow in a river was generally protective of this threshold. The reason for this difference is that in the non-coastal area the main concern is having sufficient flow for the fish to swim past rocky shoals, while along the coast the connection of the stream to its floodplain is the critical factor.

Although from a scientific perspective DNR would prefer site-specific studies, DNR sees this approach as a relatively protective standard that is developed for the purposes of a permit program. South Carolina is not listing water bodies for flow alteration on 303(d) list at this time.

State of Tennessee: The Tennessee Wildlife Resource Agency has an instream flow program and the Tennessee Department of Environment and Conservation (TDEC) issues Aquatic Resource Alteration Permits (ARAP's). One must apply for an ARAP to make an alteration to a stream, lake, wetland, or river. The TDEC monitors water withdrawals where a quantity activity such as altering instream flow can lead to a quality impact. Water withdrawals are regulated under the

**Water Quality Control Act.** The State of Tennessee is not currently listing water bodies for flow alteration on their 303(d) list.

Both the Tennessee Water Quality Control Act and the Tennessee Wildlife Code require that water withdrawal not result in a condition of pollution or harm to aquatic habitat and that resulting instream flow provide for the protection of fish and aquatic life. Protection and conservation of fish, aquatic life, and aquatic habitat require that instream flow not be less than 20% above the September median flow or 20% above the appropriate multiple of the 7Q10 and reflect the necessary flow regime according to the natural hydrograph of that river due to sustained water withdrawal.

**State of Michigan:** The Michigan Legislature passed Public Act 32 In 2006. This is the first Michigan state law to regulate water withdrawal. The objective of this Act was to prevent any large withdrawal (generally referring to withdrawal that average more than 100,000 gallon of water [0.1547 ft<sup>3</sup>/s] in any consecutive 30- day period) from causing an adverse resources impact. The median streamflow for the summer month of lowest flow was specified by state decision makers as the index flow on which likely impacts of withdrawals would be assessed. At sites near long-term streamflow-gauging stations, analysis of streamflow records during July, August, and September was used to determine the index flow. At ungaged sites, an alternate method for computing the index flow is based on a regression model that computes the index water yield, which is the index flow divided by the drainage area. The Michigan Department of Environmental Quality listed 7,000 miles of rivers and streams for flow alteration on the 2008 303(d) list based on this criteria. A formal process to improve the flow in these water bodies has not been implemented yet.

**State of Idaho.** The State of Idaho legislature declared that the public health, safety and welfare required streams of the state and their environments be protected against loss of water supply to preserve the minimum stream flows required for the protection of fish and wildlife habitat, aquatic life, recreation, aesthetic beauty, transportation and navigation values, and water quality. Approval is based upon a finding that it (a) will not interfere with any vested water right, (b) is in the public (not private) interest; (c) is necessary for the preservation of fish and wildlife habitat, aquatic life, recreation, aesthetic beauty, navigation, transportation, or water quality of the stream, the minimum flow or lake level and not the ideal or most desirable flow or lake level; and (e) is capable of being maintained as evidenced by records of stream flows and water levels and the existing or future establishment of necessary gauging stations and bench marks

The State of Idaho is currently listing for flow alteration in their Integrated Report. Idaho references the data relevant to the water body listed in their fact sheets as "data showed that flow is altered, i.e. many of man's activities in the lower watershed contribute to degradation of flow and habitat condition." The Idaho Integrated Report explains several key elements of flow alteration and reasons for listing including: 1) multiple flow manipulations have adverse effects



on habitat, 2) flow alteration that adversely affect beneficial uses are not pollutants under Clean Water Act 303(d), 3) there are no water quality standards for flow or habitat nor are they suitable for estimation of load capacity or load allocation, 4) because of these limitations, a TMDL will not be developed, 5) the State recommends to list the river segment for flow alteration in subcategory 4c based on available data and information and multiple lines of evidence.

State of Vermont: Vermont has established a comprehensive approach to addressing flow alteration that incorporates monitoring/assessment and includes technical assistance, regulatory programs and funding with strategies for how each can specifically address flow alteration.

Vermont developed criteria for both a natural flow regime and a natural flow regime that is altered by human-made structures. Where the natural flow regime is not altered or substantially influenced by any human-made structure or device, compliance with the applicable numeric water quality criteria required unless an alternate flow statistic is specified in their Water Quality rules. For natural flow regime that is altered by human-made structures the applicable numeric water quality criteria is based on required minimum flow levels or alternative flow statistic is specified in their Water Quality rules. If there is no minimum flow requirement in place it is calculated on the basis of the 7Q10 flow value or at the absolute low flow value resulting from flow regulation, whichever is less, unless an alternative flow statistic is specified in their Water Quality rules.

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vermont addressing and preventing flow alteration promotes several surface water quality goals and objectives including minimizing anthropogenic nutrient and organic pollution, protecting and restoring aquatic and riparian habitats, minimizing flood and fluvial erosion hazards, and minimizing toxic and pathogenic pollution and chemicals of emerging concern.

vermont conducts monitoring and assessment and uses the monitoring data to address flow alteration. A wide range of monitoring and assessment activities provide a way to understand the cause and effects of flow alteration. Existing Vermont monitoring and assessment activities include stream geomorphic assessments, the Vermont Dam Inventory, river corridor planning, floodplain mapping, dam safety inspection program, basin planning and TMDL development, biological monitoring, river & stream gauging, and fish and wildlife assessment work. Water bodies considered to be altered by flow are put on the Vermont "Priority Waters List" and are considered outside the scope of the 303(d) list. These waters correspond to Subcategory 4c of USEPA's Integrated Report. The most recent statewide water quality assessment indicates that biological condition does not meet water quality standards in over 6,300 acres of lake waters (11% of inland lake acres) due to flow alteration, while a further 4,400 acres exhibit stress. For

streams, the biological condition fails to meet water quality standards in over 210 miles (~4% of biologically assessed streams) due to flow alteration, while a further 70 miles exhibit stress.

Management strategies integrate physical assessment data, the Vermont Dam Inventory and a water withdrawal inventory with existing water quality data and floodplain data in Agency GIS systems to enhance basin planning capabilities. Vermont also developed and maintains a lake level monitoring and streamflow gaging network to support hydrologic modeling for lakes, river reach and watershed scales. The integration of monitoring and assessment programs with data and appropriate interpretations are made accessible through program-tailored reporting from a web-based data management and map serve system.

Vermont has many programs that provide technical assistance for addressing flow alteration. These include a Streamflow Protection Program, Vermont Department of Fish and Wildlife-fisheries division, Vermont Dam task Force, US Fish & Wildlife Service, Stream Alteration Program, Floodplain Management Program, and Lakes and Ponds section. The goal of these technical assistance programs is to develop and maintain technical expertise in hydrology to address how alterations serve multiple programs, while also having the capacity to educate and train the public in the design and collection of data and analytical methods necessary to understand flow alteration causes.

Key regulatory programs that address flow alteration in Vermont include Section 401 Water Quality Certifications, Section 404 Permits, Water Resources Panel, Stream Alteration Permits, and Flood Hazard Area Regulations. The strategies for these programs is to develop and maintain regulatory and enforcement capacity using adopted rules and procedures to exercise the State's jurisdiction over flow alteration activities, to run an efficient regulatory program which maximizes the degree to which environmental impact and economic feasibility of flow alteration projects have been vetted before project proponents submit proposals for state technical assistance and regulatory review, and to develop and maintain an integrated approach to flow management and stream alterations.

Funding programs that Vermont employs to address flow alteration are US-FWS habitat restoration funds, supplemental Environmental Projects funded through enforcement actions and the States Unsafe Dam Fund.

Beyond the monitoring/assessment, technical assistance, regulatory and funding programs mentioned above, Vermont also has programs to inform and educate the general public about the causes and effects of flow alteration. These include the Streamflow Protection Program, the Basin Planning Program, the Lakes and Ponds Section, American Rivers, Trout Unlimited and River and Lake Groups. The goal is to develop an educational program that informs the public of the importance of protecting streamflow and natural lake water levels, the impacts of dams,

hydroelectric projects and water withdrawals on lake, river and wetland ecology and ecosystem services, and explains the true costs and benefits of hydroelectric power development. To ensure the success of this program they plan on adopting a marketing approach, partnering with other agencies and organizations, using social media and other technology based approaches to reach a range of audiences, specifically young adults and youth, and developing and maintaining an interactive website for the public to access information about how the State deals with stressors such as flow alteration.

Summary of Flow Assessments by the States: In conclusion, although the assessment of flow alteration and identifying water bodies impacted by flow alteration is inconsistent among states, most of the states reviewed have taken actions, including 303(d) listing for flow alterations, to preserve the minimum stream flow required for protection of fish and wildlife, aquatic life, and recreational uses of the states' waters.

#### 8. Available Data and information For Flow Assessment in California:

##### *Available Water Quality Criteria:*

In the early 1980s, the Department of Fish and Game (DFG) identified 21 streams and watercourses for which minimum flow levels needed to be established in order to assure the continued viability of stream-related fish and wildlife resources. A list of streams with high priority for the development of flow recommendations was developed in coordination with all DFG regional offices. The investigations included field studies, data analyses, and consultations with local, state and federal agencies and interested individuals and organizations for 21 water bodies in California. That study launched a program designed to assist the California DFG and the State Water Board to meet its existing obligations under Public Resources Code (PRC, section 10001. Under that statute, DFG is obligated to identify and list "those streams and watercourses throughout the state for which minimum flow levels need to be established in order to assure the continued viability of stream-related fish and wildlife resources." Water Code section 1257.5 requires the State Water Board to consider stream flow requirements for fish and wildlife purposes when acting on applications to appropriate water.

##### Instream Flow Studies for the Protection of Public Trust Resources: Prioritized Schedule and Estimate of Costs

In December 2010, State Water Board's Division of Water Rights prepared a report on "Instream Flow Studies for the Protection of Public Trust Resources: Prioritized Schedule and Estimate of Costs" (2010 Instream Flow Report) for the legislature in accordance with Water Code section 85087.

The 2010 Instream Flow Report explains, "The State Water Board determined that those streams

which serve as habitat for threatened and endangered California anadromous fish, such as coho and chinook salmon and steelhead trout, should be prioritized for instream flow studies. Some of the rivers and streams listed may no longer support anadromous populations. These water bodies are included in the list as candidates for restoration of anadromous populations. Inland streams that do not generally support anadromous populations are prioritized in a separate schedule. Rivers and streams which are located within the habitat range of declining native amphibian and reptile populations, such as the California Red-legged Frog and Western Pond Turtle, are noted. The presence of these species across all three schedules demonstrates a shared ecological concern between different regions of the state."

The 2010 Instream Flow Report included three schedules:

- Schedule 1 – High Priority Rivers and Streams Tributary to the Sacramento River and Delta. There are two priority groups in this schedule. Priority 1 includes rivers and streams that serve as habitat for spring-run chinook salmon. Spring-run Chinook are more adversely affected by lack of flow than fall-run Chinook because they enter fresh waterways as the dry season begins.
- Schedule 2 – High Priority Rivers and Streams Outside the Sacramento River and Delta Watershed that Support Anadromous Species. There are two priority groups in this schedule. Priority 1 includes rivers and streams that serve as habitat for either Coho Salmon, or Southern California Steelhead. Coho salmon are more sensitive than Chinook or Steelhead. Their range is limited to the North Coast, where they are federally listed as threatened, and the Central Coast where they are federally listed as endangered. Southern California Steelhead are federally listed as endangered.
- Schedule 3 – High Priority Rivers and Streams Outside the Sacramento River and Delta Watershed that Support Non-Anadromous Species. The rivers and streams in this schedule do not generally serve as habitat for the anadromous species used to prioritize the rest of the schedules. There are two priority groups in this schedule. Priority 1 includes rivers and streams that serve as habitat for the Lahontan Cutthroat Trout, a federally listed threatened species, as well as the Lost River, which is the sole habitat of the Lost River Sucker, a federally listed endangered species. All other rivers and streams in Schedule 3 list species that are endemic to the Lahontan region and are sensitive according to the California Natural Diversity Database.

9. The State Water Board's 2012-2014 Integrated Report Timeline:

The 2012 Integrated Report is a combined effort by State and the Regional Water Boards' staff. The State Water Board staff is developing lines of evidence for each dataset being assessed. Using these lines of evidence the Regional Water Board staff will be preparing the decision recommendations for the Regional Water Boards' approval.

A. Consideration of Flow Assessment.

There are two options for including flow assessment in the 2012 Integrated Report: 1- the lines of evidence to be developed by the State Water Board staff early in this process, 2- the State Water Board staff develop and include the lines of evidence after the Regional Water Boards process is completed and include the flow information in the statewide assessment for the California Integrated Report. Table 1 shows the latest timeline for the State and Regional Water Boards' tasks to produce the Integrated Report steps that are addressed by the State Water Board and the Regional Water Boards.

#### 2012-2014 Integrated Report Timeline

| Integrated Report Task                                           | Timeline                                              |
|------------------------------------------------------------------|-------------------------------------------------------|
| Data Solicitation (State Water Board)                            | January 2010 to August 2010                           |
| Data Quality Assurance (State Water Board)                       | September to December 2010                            |
| Developing Lines of Evidence (State Water Board)                 | January 2011 to December 2012 * time line is extended |
| Developing Decision Recommendations (Regional Water Boards)      | January 2013 to June 2013                             |
| Public Review and Board Hearing (Regional Water Boards)          | June 2013 to October 2013                             |
| Review of Regional Boards Integrated Reports (State Water Board) | October 2013 to February 2014                         |
| Public Review and Board Hearing (State Water Board)              | March 2014 to June 2014                               |

#### B. Alternatives for Flow Assessment

##### *Alternative 1- No Change*

Under this alternative staff will not assess the available water quality data for flow. This alternative requires the least amount of staff effort. This alternative is consistent with the Listing Policy. However, the Listing Policy also requires using all available data and information. Staff will need to respond to the environmental groups that submitted data for why the available data were not assessed.

##### *Alternative 2- Assess the available Data and Place the Water Bodies in Category 3*

Under this alternative, staff will be developing a line of evidence for water bodies with available water quality data but due to lack of flow objectives in California will not be making an assessment or listing recommendation. Staff will use the data and information to identify the water segment, and other environmental characteristics in the line of evidence. Staff will make a recommendation

of "Do Not List" due to insufficient information, i.e., lack of flow water quality objectives. Theoretically these water bodies will be placed in Category 3 and will be revisited after a flow objective is developed in California. This alternative requires very little effort of staff because only a line of evidence needs to be developed. This alternative is likely to be favored by the regulated communities since placing water bodies in Category 3 requires collecting more information. However, this alternative will not provide useful information to address flow until additional information for the water bodies placed in Category 3 become available in the future. Neither does this alternative address the concern raised by interested parties that flow impairment should be addressed by the State Water Board to promote actions for improvements.

#### ***Alternative 3- Assess Available Data and Place Water bodies in Subcategory 4c***

If this alternative is used, staff will assess the available data and place the water bodies with available data showing beneficial uses impaired from altered flow in Integrated Report Subcategory 4c (impairment due to pollution-TMDL is not required). This alternative is consistent with the Clean Water Act's definition of "pollution" and some of the other states assessment of altered natural flow. This alternative also will address the environmental groups and NRDC data submittal and comments requesting the Water Board to address flow alteration in the 2012 Integrated Report.

As discussed earlier this option has already been implemented in the State of Vermont. Flow is considered a water quality indicator attributable to a non-pollutant (pollution) and is designated as "altered" rather than "impaired." "Altered" water bodies in Vermont are placed on the "Waters outside the scope of the 303(d) List" which actually corresponds to Category 4c of USEPA's Consolidated Assessment Listing Methodology. By placing the water bodies on the "Altered" list, flow altered water bodies are designated as altered to the extent that one or more designated uses are not supported. Although this means a TMDL is not required, by having a designated list for flow alteration they are able to track flow altered water bodies and implement technical assistance, regulatory, funding and educational programs that address potential causes and provide options for corrective actions. While similar programs in California can be used to address flow alteration, a coordinated mechanism among agencies to address flow currently does not exist in California. If a TMDL is not required or some type of regulatory action doesn't exist to address the water quality impairment, water bodies may be on the Subcategory 4c list for an unlimited time period. Additionally, Alternative 3 (placing water bodies in subcategory 4c) addressed the pollution listings in other states because other states can put their water bodies in more than one category. In some circumstances, identification of a segment as impaired or threatened occurs where the pollutant is not known—the impairment must be included on Category 5 but there is no priority for establishing a TMDL until the pollutant becomes known. Where the assessment of new data and information demonstrates that the use impairment is not associated with a pollutant but is attributable only to other types of pollution (e.g., flow alteration), the segment would then be placed on Subcategory 4c. (USEPA 2006 FR Guidance, p. 60.) USEPA Region 9 doesn't allow California to put water bodies in more than one category. In California a water body only falls into Subcategory 4c in the Integrated Report if no other pollutant listings exist for that water body. Otherwise, the water body will be

placed in Category 5 when it is listed for pollutants, thereby, making the flow impairment issue virtually hidden.

***Alternative 4- Assess Available Data and Place water bodies in Subcategory 4b***

If this alternative is used, staff will assess the available data and place the water bodies with available data showing impairment of beneficial uses from altered flow in the 2012 Integrated Report Subcategory 4b (impairment is addressed by actions other than TMDLs). If this alternative is chosen, prior to placing a water body in Subcategory 4b the regulatory programs that will address flow alteration of this water body must be identified. When placing a water body in Subcategory 4b (listing is addressed by actions other than a TMDL), programs, actions and a timeline must be included in the listing. This alternative provides a mechanism for getting other agencies and entities collaboration in improving the in-stream flow of the water body. However, resources are needed at the Regional level prior to placing water bodies in Subcategory 4b. This option can be effective after the in-stream flow objective become available and the Water Board will partner with other organizations to address flow alteration.

**10. Proposed Informational Item Goals:**

If the State Water Board directs an informational item be brought to the Board on flow assessment, the agenda could address the following points:

- A. Presentation of Issue of Assessing Flow for Integrated Report
  - Background re Integrated Report and the Clean Water Act
  - ~~Examples of what other states are doing:~~
  - Discuss alternative approaches for flow assessment.
  - Present possible methods or strategy to move forward with Flow Assessment
- B. Opportunity for Public to Comment
- C. Opportunity for State Board to Provide Direction to Staff

***Attachment C.6.b***



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**Subject:** Flow LOE example  
**Date:** Monday, July 22, 2013 9:18:10 AM  
**Attachments:** [Shasta R LOE Final.pdf](#)  
**Importance:** High

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Hello Again,

Attached is an example LOE/decision document that was developed by Earth Law Center to serve as an example when making flow decisions. While it doesn't fit our current format per se it does offer good information for use in the "Data Used to Assess Water Quality" section of the LOE as well as narratives to add to the "Decisions Relationships" section of the decision fact sheets. There will be another example which I will send out when I receive it.

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