

# Summary of Comments and Responses

on the March 19, 2020  
Proposed Statewide Clean Water Act Section 303(d) List Portion  
of the 2018 California Integrated Report  
and Draft Staff Report

Release Date:  
September 18, 2020

Comment Deadlines:  
12:00 noon on Thursday, April 30th, 2020, and  
12:00 noon on Thursday, May 14, 2020

DIVISION OF WATER QUALITY  
**STATE WATER RESOURCES CONTROL BOARD**  
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY



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# Letter 1: Arne Anselm, Ventura Countywide Stormwater Quality Management Program

No.	Comment	Response
<p>1.001</p> <p>1.002</p> <p>1.003</p> <p>1.004</p>	<p>The Program supports the following:</p> <p>1. The LA Board's "off-cycle" 303(d) assessment determination of fully delisting the following seven Ventura County beaches: Ormond Beach, Peninsula Beach, Point Mugu Beach, Port Hueneme Beach Park, Rincon Parkway Beach, San Buenaventura Beach, and Surfer's Point at Seaside.</p> <p>2. The LA Board's determination to not place Promenade Park Beach on the 303(d) list for indicator bacteria.</p> <p>3. The LA Board determination that assessing available bacteria data against the shellfish standard is inappropriate at this time. The Program further supports the LA Board's decision that the shellfish standard should not be considered for final 303(d) listing decisions at this time.</p> <p>4. The original delisting determination by the LA Board remain and requests the seven beaches be removed completely from the 303(d) list for all beneficial uses as adopted at the March 14, 2019 LA Board hearing.</p>	<p>As described in Section 4.2 of the Staff Report, the Los Angeles Regional Water Board assessed bacteria data at nine beaches in Ventura County and determined that the water contact recreation (REC-1) beneficial use is supported in eight of the nine beaches. Data from one of the beaches indicated that the REC-1 beneficial use is impaired. Based on this assessment, Los Angeles Regional Water Board proposed removing seven beaches, from the 2014/2016 303(d) list. The eighth beach was not listed as impaired on the 2014/2016 303(d) list it was proposed that it remain not listed. The ninth beach was listed on the 2014/2016 303(d) list and it was proposed to remain on the 2018 303(d) list. The Los Angeles Regional Water Board approved the recommendations on March 14, 2019.</p> <p>In reviewing the Los Angeles Regional Water Board listing recommendations, State Water Resources Control Board ("State Water Board") staff confirmed that the REC-1 objective was not exceeded at the eight beaches.</p> <p>However, the seven beaches recommended for delisting by the Regional Board also have shellfish harvesting (SHELL) assigned as a beneficial use. Per Section 3.3 of the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List ("Listing Policy"), a water segment shall be placed on the section 303(d) list if bacteria water quality standards are exceeded using the binomial distribution. The ocean waters at the seven beaches are designated with the SHELL beneficial use, which protects areas where shellfish may be harvested for human consumption. The Water Quality Control Plan for the Los Angeles Region ("Los Angeles Basin Plan") includes a total coliform water quality objective for the protection of the SHELL use. Data were appropriately compared to the total coliform objective. The 303(d) assessment</p>

		<p>process is not used to establish, revise, or refine any water quality objective or beneficial use.</p> <p>The seven beaches partially support beneficial uses (support REC-1 but not SHELL), therefore, the State Water Board recommends changing the Regional Water Board's delisting recommendations for the seven beaches to instead keep them on the 303(d) list as impaired for the SHELL use.</p>
1.005	<p>The recommendation from the 2019 Final Staff Report and Work Plan for 2019 Ocean Plan Review (Staff Report). Based on the understanding that the shellfish objectives for California are outdated and currently under review the Staff Report states in Issue H: Shellfish Harvesting Beneficial Uses and Water Quality Objectives: <b>"State Water Board staff recommends undertaking a project to consider amending the Ocean Plan to (1) separate the shellfish harvesting beneficial use into recreational shellfish harvesting, commercial shellfish harvesting beneficial uses, and potentially tribal shellfish harvesting beneficial uses; and (2) revise the existing shellfish harvesting total coliform objective, develop a fecal coliform objective, or both.; and (3) assess alternative pathogen indicators to best account for risk to human health as related to shellfish harvesting and consumption, commercial, or sport purposes."</b></p> <p>Adopting a fecal coliform standard for shellfish harvesting areas and separating the shellfish harvesting beneficial use into recreational and commercial shellfish beneficial uses were also identified as a high priority in Issue 5 of the Ocean Plan Triennial Review Workplan in 2011.</p>	<p>Comments concerning the shellfish objective are beyond the scope of the comments the State Water Board will receive for its consideration of the Clean Water Act ("CWA") 303(d) list for 2018. The State Water Board receives comment from the public with respect to waterbody-pollutant combinations that are timely requested for its review in addition to those that the State Water Board elects to consider. (See Listing Policy, Section 6.3.) Such waterbody-pollutant combinations are identified in the State Water Board's Revised Notice of Opportunity to Comment (April 9, 2020).</p> <p><a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html</a></p> <p>The commenter is correct that the State Water Board recognizes that undertaking a project to consider amending the California Ocean Plan's ("Ocean Plan") SHELL beneficial use and water quality objective is a high priority. As stated in Section 4.2 of the Staff Report, "Once a new objective has been developed, the listing will be reevaluated. Until that time, the Regional Water Board placed the 303(d) listings due to the SHELL use as low priority for TMDL development."</p>
1.006	<p>The Program feels applying the current shellfish harvesting bacteria water quality objective to determine 303(d) impairments during this assessment</p>	<p>See response to comment 1.005.</p>

	is problematic. As identified in the 2011 and 2019 Ocean Plan Work Plan, the shellfish harvesting beneficial use and objective are outdated and need to be revised. Because of this, the Program asks that REC-1 standard be applied during this assessment period as applied by the LA Board.	Additionally, the CWA section 303(d) and the Listing Policy (p.1) require that existing standards be evaluated to determine ambient performance of surface water against those standards and the assessment process may not be used to revise water quality objectives.
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## Letter 2: Bart Deamer

No.	Comment	Response
2.001	You may remember that the North Coast staff mentioned at last week's hearing two auxiliary areas in support of their Russian River listing recommendation: a PhyloChip study the North Coast had commissioned, and the "recommendation" of enterococci as a fecal indicator bacteria by Nicholas Ashbolt, one of the two peer review scientists of their original draft TMDL. The purpose of this email is to give you additional background on these two claimed support topics. As you'll see, the briefest examination of the background shows that these areas contradict, rather than support, the proposed listing.	See responses below.
2.002	The North Coast commissioned Lawrence Berkeley National Laboratory to study the Russian River using its PhyloChip technology, which uses community analysis of tens of thousands of microbes to detect those characteristic of different sources. The Lab's final report, dated May 1, 2014 and [is] entitled " <a href="#">Russian River Human Impact Study: PhyloChip Microbial Community Analysis</a> ,"	For the 2018 Integrated Report, data from the Phylochip™ study (Dubinsky and Anderson, 2014. Russian River Human Impact Study PhyloChip Microbial Community Analysis) were not used to show a relationship between the location or density of onsite wastewater treatment systems ("OWTS") and human fecal signals. Instead, the Phylochip™ data were used as evidence of human fecal material presence in several Russian River hydrologic unit code, level 12 ("HUC-12") subwatersheds. The presence of human fecal material, as demonstrated in part by Phylochip™ data, provides support for the use of enterococci data to determine

<p>As its title indicates, the most specific question the study was designed to answer was “Do areas with onsite water treatment influence the variability of the microbial community in the Russian River watershed?” See item 5 on page 2. The communities the chip was designed to detect were bovine, avian and human (combining sewage, septage and direct excreta).</p> <p>The Lab’s response to this question (see page 20) was (quoting):</p> <ul style="list-style-type: none"> <li>• There were no significant differences in bacterial communities associated with parcel density or septic risk</li> <li>• There were no trends in bacterial communities associated with samples that exceeded concentration limits of <i>Enterococcus</i> fecal indicators but had low concentrations <i>E. coli</i> fecal indicators.</li> <li>• No sites in areas with both high parcel density and high septic risk contained evidence of human fecal signal.</li> <li>• In areas with high parcel density and low septic risk, one site (Site 5) was found to have probable human fecal signal on two sampling dates.</li> <li>• No human fecal signal was detected at low parcel density sites with both low and high septic risk. In the three additional catchments of interest that were analyzed, site 14 had a strong human fecal signal.</li> </ul> <p>These findings clearly show <b>no</b> relationship between OWTS and human fecal signals in the Russian River. It is disingenuous, and disrespectful of the State Board, for the North Coast staff to present the</p>	<p>impairment because any exceedance of the enterococci evaluation guideline is less likely to be associated with plant sources or by replication in the environment. The presence of human fecal material shows that the waterbody is impacted by sewage and enterococci is an indicator of human health risk from water contact in sewage-impacted waters.</p> <p>Additional discussion of the use of enterococci and Phylochip™ data for the Russian River was added to Section 3.1.4 of the Staff Report to clarify the assessment methodology.</p> <p>Furthermore, the Phylochip™ study was designed to address multiple questions, not just those reported by the commenter. As described in the report, monitoring tasks were identified for the following five management questions: 1) What is the spatial variability of the microbial community in the Russian River? 2) What is the temporal variability of the microbial community in the Russian River? 3) Do land uses influence the variability of the microbial community in the Russian River watershed? 4) Do recreational beach areas influence the variability of the microbial community? 5) Do areas with onsite wastewater treatment influence the variability of the microbial community in the Russian River watershed?</p> <p>With respect to management questions 1 and 2, the study identified several locations with bacteria indicative of human and/or grazer fecal waste, some at very high levels. For the mainstem Russian River, the PhyloChip study (Dubinsky and Anderson, 2014. Russian River Human Impact Study PhyloChip Microbial Community Analysis) reports on page 10 that:</p> <p style="padding-left: 40px;">In the wet period samples, the bacterial community at beaches between Commisky Station Road to Memorial Beach was similar in composition and structure to dry period samples from the same locations (Table 2-3, Figure 2-2). The community began to diverge at Steelhead Beach and was increasingly distinct moving downstream to Forestville Access, Johnson’s and Monte Rio Beaches (Figure 2-2). Divergence at these sites</p>
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<p>PhyloChip study as supporting its listing recommendation.</p>	<p>during the wet period was primarily caused by the occurrence of Clostridia that were not found upstream (Table 2-3) or in dry period samples (Table 2-2). At Johnson's Beach and Monte Rio Beach in the wet period, Clostridia, Bacteroidaceae and Verrucomicrobia (Akkermansia species) that are common in human fecal sources were dominant taxa in the microbial community. In addition, large numbers of potentially pathogenic Staphylococcus were found at Johnson's Beach and Monte Rio Beach along with human fecal bacteria. It is important to note that none of the fecal indicator tests used for monitoring (Enterococcus, <i>E. coli</i>, total coliforms) exceeded water quality limits (CDHS 2011) at Johnson's Beach and Monte Rio Beach (Table 2-3) where numerous fecal-associated Clostridia, Bacteroidaceae, Verrucomicrobia and Staphylococcus were detected.</p> <p>With respect to management question 3, the study found that bacterial community richness was higher in the wet season than in the dry season and that richness trended higher in waters draining agricultural lands and lower in waters draining forestlands. But the study did not detect a correlation between land cover type and human or grazer fecal bacterial taxa. Nonetheless, the study identified human fecal waste signals in Limerick Creek (developed onsite septic site), Abramson Creek (agricultural site), and Copeland and Piner creeks (developed sewered sites), among others.</p> <p>With respect to management question 4, the study found DNA evidence of human fecal waste at Johnson's Beach following a holiday weekend, which was associated with enterococci exceedances, but not <i>E. coli</i>.</p> <p>With respect to management question 5, the study did not establish a correlation between DNA evidence of human fecal waste and specific OWTS study categories such as high and low density of OWTS or high and low risk OWTS. However, the study did</p>
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		<p>measure DNA evidence of human fecal waste at some OWTS sites, which were also associated with HuBac (<i>Bacteroides</i>) evidence of human fecal waste.</p> <p>In total, the commenter is correct that the Phylochip™ study did not establish clear correlations with land cover or OWTS landscape categories. However, it did: 1) identify locations with DNA evidence of human and grazer fecal waste, 2) corroborate other evidence that stormwater runoff during the wet season is the primary driver of fecal waste discharge (e.g., not swimmers themselves), 3) establish an association between Phylochip™ data and HuBac and BoBac (<i>Bacteroides</i>) data in many instances, and 4) establish that both <i>E. coli</i> and enterococci data are sometimes associated with DNA evidence of human and grazer fecal waste.</p>
2.003	<p>Dr. Ashbolt, a prominent surface water quality authority, was one of the two scientists asked to conduct <a href="#">peer review</a> of the North Coast staff's initial (January 2015) draft of the Russian River bacteria TMDL. That draft was unusual in that it proposed <i>Bacteroides</i> as the TMDL's target microorganism in the Russian River. <i>E. coli</i> was proposed as the target for 5 named tributary waterbodies, but not for the Russian River, as it already complied with the <i>E. coli</i> listing standard. Reliance on <i>Bacteroides</i> was hard to understand because, although it is useful as a sourcing tool, there were (and are) no epidemiological studies or other science supporting its use as a fecal indicator bacteria, i.e., statistically associated with the concentration of disease-causing microorganisms.</p>	<p>Comments associated with the Russian River Pathogen Total Maximum Daily Load ("TMDL") and Action Plan are beyond the scope of the State Water Board's March 5, 2020 notice of opportunity to submit written comments, which, for waterbodies within the North Coast Region, only pertains the State Water Board's proposed 303(d) listing and delisting recommendations as identified in Section 3 of the Draft Staff Report.</p> <p>With respect to the 2018 Integrated Report, multiple lines of evidence ("LOEs") were developed to assess impairment of the REC-1 beneficial use including:</p> <ul style="list-style-type: none"> <li>• Exceedances of the <i>E. coli</i> water quality objective in freshwater;</li> <li>• Exceedances of the enterococci water quality objective in saline water;</li> <li>• Enterococci exceedances of U.S. Environmental Protection Agency ("U.S. EPA") 2012 Recreational Water Quality Criteria supported by evidence of human fecal material presence as indicated by human <i>Bacteroides</i> and Phylochip™ data; and</li> <li>• Postings of public health advisories at beaches.</li> </ul>



		<p>For the 2018 Integrated Report, human <i>Bacteroides</i> data were used as evidence of the presence of human fecal material in several Russian River HUC-12 subwatersheds, similar to the use of Phylochip™ data. The presence of human fecal material, as demonstrated in part by human <i>Bacteroides</i> data, provides support for the use of enterococci data to determine impairment because any exceedance of the enterococci evaluation guideline is less likely to be associated with plant sources or by replication in the environment. Human <i>Bacteroides</i> concentrations of at least 1,000 genes per 100 mL of water is two orders of magnitude greater than the detection limit (of 60 genes per 100 mL of water) and is a reliable indication of the presence of human fecal material. This threshold was used as the numeric evaluation guideline for assessing human <i>Bacteroides</i> data in the Russian River watershed for the 2018 303(d) list.</p> <p>Human <i>Bacteroides</i> were detected above the 60 genes/100 mL reporting limit at all 17 of the mainstem Russian River monitoring locations. Sixteen of the 17 mainstem locations have median human <i>Bacteroides</i> results that are at least two orders of magnitude above the reporting limit. Human <i>Bacteroides</i> were detected above the 60 genes/100 mL reporting limit at all but one of the 35 tributary monitoring locations. Thirty-one of the 35 tributary locations have median human <i>Bacteroides</i> results that are at least two orders of magnitude above the reporting limit.</p> <p>Additional discussion of the use of human <i>Bacteroides</i> data, as well the use of other bacteria data, for the Russian River was added to Section 3.1.4 of the Staff Report to clarify the assessment methodology.</p>
2.004	Dr. Ashbolt's <a href="#">report</a> noted this and asked why enterococci, the only scientifically-established FIB other than <i>E. coli</i> , had not been considered. Far from endorsing their use as a FIB in the Russian River, he noted that enterococci were a proven (and in fact superior) FIB if human sewage had been established as their source or their human source was established	Regarding the Russian River specifically, the commenter is correct that Dr. Ashbolt recommends the use of enterococci as an indicator of public health protection where there is a known source of human fecal waste. He specifically notes the strength of enterococci thresholds for the protection of public health because of the clear dose-response relationship between gastrointestinal illness and enterococci density. He noted in his comments that the <i>Bacteroides</i>

	<p>by other means. (Sewage plant outfall was of course the source of enterococci in the EPA epidemiological studies in the 1980's that validated it as a FIB.) Quoting Dr. Ashbolt's report:</p> <p>Report at pages 4-5 (emphasis added).</p> <p>Like coliforms, enterococci are also well known to be symbionts of various insects, so they too can come from cold-blooded animals and <b>accumulate in soils/sediments, particularly in heavily vegetation environments</b>[22]. ....</p> <p>What is clear, however, is that <b>when sewage is known to contaminate recreational waters</b> (human enteric viruses maybe present and considered to cause the majority of recreational water users' GI illness), but there does not seem to be a dose-response relationship between E. coli concentration and gastrointestinal illness (just a threshold, which aligns with the GM &lt; 100 cfu/100 mL cited in Table 2.7); whereas there is a dose-response relationship with enterococci – hence EPA's preference for enterococci and this reviewers <b>if the presence of human sewage or cattle manure are confirmed by sanitary survey and/or use of specific Bacteroides markers or equivalent via microarray analysis.</b></p> <p>Report at pages 4-5 (emphasis added).</p>	<p>data revealed the presence of human fecal waste at most locations sampled within the Russian River watershed. Water Board staff relied on both <i>Bacteroides</i> and Phylochip™ data to identify locations with evidence of a human fecal waste signature, where consideration of enterococci results was therefore also appropriate.</p>
2.005	<p>Dr. Ashbolt's comments cautioning against using unsourced enterococci as a FIB in non-point-source, nature-heavy areas was not simply a thought that occurred to him while reviewing the Bacteroides draft of the TMDL. It directly reflects a scientific article <b>which he co-authored</b> published a year earlier, <i>Genome Sequencing Reveals the Environmental Origin of Enterococci and Potential Biomarkers for</i></p>	<p>The commenter correctly cautions against full reliance on enterococci as an indicator of public health risk in the absence of other evidence. See responses to comments 2.002, 2.003, and 2.004. Additionally, see Section 3.1.4 of the Staff Report, which was revised to add information regarding the appropriateness of enterococci as an indicator of risk of illness during water contact</p>

	<p><i>Water Quality Monitoring</i>, 48 Environmental Science and Technology 3707-37 (March 2014) (copy attached). Quoting from the introductory paragraphs:</p> <p>there is growing evidence to suggest that enterococci are present and may persist in a wide variety of environmental habitats, often in the absence of fecal contamination (reviewed in ref 8). <b>Recent reports suggesting a primarily autochthonous source for enterococci populations in marine beach sands and detritus, as well as in freshwater habitats, highlight the potential for such populations to confound water quality monitoring, questioning the value of Enterococcus spp. as fecal indicators.</b><sup>9-11</sup> Yet, it remains unknown how environmentally adapted strains relate to enteric enterococci targeted by current fecal indicator monitoring strategies. <b>Therefore, characterization of enterococci from such extra-enteric habitats is needed to assess their genomic distinctiveness and potential for confounding the interpretation of microbial water quality assessments.</b> Such molecular comparisons can reveal the ecological breadth of enterococci and provide insights into how closely related populations differentiate ecologically and functionally, <b>thus addressing fundamental gaps in microbial monitoring.</b></p> <p>Article at page 3707 (emphasis added).</p>	<p>recreation when associated with the presence of human fecal matter.</p>
2.006	<p>The balance of the article describes how advances in molecular analysis of enterococci can be used to determine their source. This is, of course, different from simply finding both enterococci and detectable amounts of human-source Bacteroides in a given waterbody, which is all the North Coast staff has been able to do.</p>	<p>See response to comments 2.002, 2003, and 2004.</p>

2.007	The source of the enterococci itself must be determined if they are to serve as a useful FIB in non-point-source, nature-heavy waters.	See the responses to comments 2.002, 2.003, and 2.004. Both human Bacteroides and Phylochip™ data provide evidence of the locations in the Russian River watershed where human fecal waste is present. In these locations, the dose-response relationship between enterococci and gastrointestinal illness provides a relevant LOE of the potential public health risk associated with exposure to human fecal waste sources. Additionally, human Bacteroides and PhyloChip™ data were collected in both dry and wet weather conditions, allowing comparison of human fecal material presence to enterococci data collected in both dry and wet weather periods.
2.008	The State Board scientific staff is no doubt fully familiar with these problems, as they led to the State Board's rejection of enterococci as a freshwater FIB in 2018.	See Section 3.1.4 of the Staff Report, which was revised to add information regarding the statewide bacteria water quality objectives, including the reasons for not including a statewide objective for enterococci and the reasons for using enterococci data for the 2018 Integrated Report.
2.009	It is disingenuous, and disrespectful of the State Board, for the North Coast staff to cite Dr. Ashbolt's peer review as in any way supporting its listing recommendations that are based on enterococci.	See responses to comments 2.003, 2.004, and 2.008.

### Letter 3: Bart Deamer

No.	Comment	Response
3.001	<p>In your review of the North Coast E. coli readings, I wanted to be sure you had the benefit of the tools and guidance that Lance Le and Prachi Kulkarni kindly provided to our OWTS-RRR group. Lance's March 20 email is below and its attachments are attached.</p> <p>Following the instructions in the "FIB_Assessment_Code_Annotations" document, I was able to reproduce the table on page 17 on my</p>	Comment noted. North Coast Regional Water Quality Control Board ("North Coast Regional Water Board") staff also provided these tools to State Water Board staff.

	<p>computer. This is the table that was the focus of my presentation at the hearing on Tuesday.</p> <p>Thank you for your interest in the underlying facts of the proposed bacteria listing for the reach of the Russian River within the Dutch Bill Creek-Russian River land area.</p>	
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## Letter 4: Bart Deamer

No.	Comment	Response
4.001	<p>In our comment letter of March 30, we noted briefly that the proposed E. coli listing of the HUC-12 land area just upstream from ours, Porter Creek-Russian River, was based solely on the same adding up of winter STVs of different waterbodies as was used in our area.</p>	<p>See Section 3.1.4 of the Staff Report, which was revised to add information about and clarify the geographic segmentation of data into hydrologic unit code, level 12 (“HUC-12”) subwatersheds. Additionally, Decision 79794 and associated LOEs were revised to clarify the evidence supporting the bacteria listing recommendations in the Russian River HUC-12 subwatersheds. The revised decision is found in Appendix B: North Coast Regional Water Board Waterbody Fact Sheets of the Proposed Final Staff Report. The prior versions are found in Appendix B of the Draft Staff Report.</p> <p>The Proposed Final Staff Report and appendices and the Draft Staff Report and appendices are available here:  <a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html</a></p> <p>Regarding the use of the statistical threshold value (“STV”), the statewide bacteria water quality objectives in Part 3 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California ( “ISWEBE Plan”) include a geometric mean and an STV. The geometric mean reflects the central tendency, which conveys information about the general concentration of harmful bacteria in the water. The geometric mean is calculated on a rolling basis from water quality data collected over a six-week period. The STV reflects the statistically expected amount of variation in the concentration of harmful</p>

No.	Comment	Response
		<p>bacteria and is set the 90% percentile of the geometric mean (“geomean”). An exceedance is counted if 10% or more of the samples during a 30-day period exceed the STV threshold.</p> <p>A subsection was added to Section 3.1.4 of the Staff Report to describe the use of geometric means and STVs when applying the Listing Policy methodology to the objective. In several instances and due to the limited bacteria sampling frequency during wet weather conditions, Russian River data for <i>E. coli</i>, enterococci, or both indicators were compared to the STV. In those instances, the waterbody segment was evaluated to determine attainment of the standard using the situation-specific weight of evidence listing factor pursuant to Section 3.11 or Section 4.11 of the Listing Policy. Decisions 77147 and 79794 were revised to clarify the use of Section 3.11 of the Listing Policy.</p> <p>Per Section 3.11 of the Listing Policy, impairment determinations in the Porter Creek-Russian River HUC-12 are based upon <i>E. coli</i> exceedances of the STV during the winter. Data for <i>E. coli</i> were compared to the STV because the number of wet weather samples were insufficient to calculate the <i>E. coli</i> geometric mean. Analyzing the data separately for the wet and dry seasons ensures that fecal waste discharges due to infiltration and runoff (e.g., rainfall and wet weather events) and attainment of standards during the winter are assessed.</p> <p>Additional LOEs for enterococci exceedances supported by evidence of human fecal matter from human <i>Bacteroides</i> and Phylochip™ data, plus postings of public health advisories, further reflect that this HUC-12 is impaired but are not specifically discussed in the Decision.</p>
4.002	<p>I wanted to give you the underlying raw data we were kindly given by Lisa Bernard (attached) to perform the analysis underlying our statement, and the tool we used.</p> <p>As Lance’s/Prachi’s memo indicates, the R script they provided needs to be modified to use it for</p>	<p>Comment noted. North Coast Regional Water Board staff also provided these data and tools to State Water Board staff.</p>

No.	Comment	Response
	<p>other areas. I did this for Porter Creek, and am attaching the revised script (FIB_Assessment_Porter_Creek.R). I'm also attaching the raw assessment file I obtained with this script (Exceedance_Table_Porter_Creek.csv), and the equivalent data with stations locations identified and totals added up (Exceedance_Table_Porter_Creek.xlsx).</p>	
4.003	<p>As you'll see the qualified data for this HUC-12 land area covers two stations on the Russian River and one station on each of two unnamed tributaries. Like our area, the geomean readings couldn't be better, the combined full-year and summer STV readings for all 3 bodies are below the listing criteria, and only the combined winter STV readings (7 exceedances out of 8 samples) would show impairment if it related to a single waterbody.</p>	<p><i>E. coli</i> geomean and STV results from both the wet and the dry seasons were assessed both separately and together to better evaluate seasonality with respect to REC-1 support and to assess the degree to which recreators themselves are the source of exceedance versus other sources such as OWTS, leaking sewer lines, agricultural operations, etc. Analyzing the data separately for the wet and dry seasons ensures that fecal waste discharges due to infiltration and runoff (e.g., winter occurrences) are not missed simply because the number of dry season samples so far outweighs the number of winter samples. This is an especially important issue on the mainstem Russian River where there are numerous swimming beaches where Sonoma County collects hundreds of dry season samples each year. Assessing the data seasonally better highlights winter exceedances and suggests the need for more refined source tracking. Data collected at mainstem monitoring locations from Healdsburg down to Monte Rio indicate such a need.</p> <p>See also response to comment 4.001.</p>
4.004	<p>But 6 of these 7 exceedances come from the unnamed tributaries; combining the two stations on the Russian River, the exceedance is only 1 out of 2 samples, which is below the listing minimum of 5 exceedances.</p>	<p>See Section 3.1.4 of the Staff Report, which was revised to add information about and clarify the geographic segmentation of data into hydrologic unit code, level 12 ("HUC-12") subwatersheds. Additionally, Decision 79794 and associated LOEs were revised to clarify the evidence supporting the bacteria listing recommendations in the Guerneville HSA and associated HUC-12 subwatersheds, including the Porter Creek-Russian River HUC-12 subwatershed. Data for the mainstem Russian River within the Porter Creek-Russian River HUC-12</p>

No.	Comment	Response
		<p>indicate 12 exceedances out of 42 STV calculations for enterococci during the wet season and 10 exceedances out of 40 STV calculations during the dry season, which is supported by <i>Bacteroides</i> and PhyloChip™ evidence of human fecal matter. Further, data for the tributaries within the Porter Creek-Russian River HUC-12 indicate 9 exceedances out of 11 STV calculations for <i>E. coli</i> year-round and 7 exceedances out of 8 STV calculations during the wet season. This is augmented in the tributaries by 11 exceedances out of 11 STV calculations for enterococci year-round (as well as excessive dry season and wet season exceedances), which is supported by <i>Bacteroides</i> and PhyloChip™ evidence of human fecal matter. LOE #133733 summarizes the <i>E. coli</i> evidence for Porter Creek-Russian River HUC-12. LOE #133748 summarizes the enterococci evidence for Porter Creek-Russian River HUC-12. The revised decisions are found in Appendix B: North Coast Regional Water Board Waterbody Fact Sheets of the Proposed Final Staff Report. The prior versions are found in Appendix B of the Draft Staff Report.</p> <p>The Proposed Final Staff Report and appendices and the Draft Staff Report and appendices are available here:</p> <p><a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html</a></p>

## Letter 5: Chris Malan, Living Rivers Council

No.	Comment	Response
5.001	<p>The SFBRWQCB (WB/Water Board) states:</p> <p><i>The main stem of the Napa River and Sonoma Creek were placed on the 303(d) list in the 1970s (Napa) and 1980s (Sonoma) for impairment due to elevated levels of nutrients (nitrates and phosphorus) that can cause</i></p>	<p>Comments concerning the recommended delisting of nutrients for the Napa River and Sonoma Creek are beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. The State Water Board receives comment from the public with respect to water body-pollutant combinations that are timely requested for its review in addition to</p>



<p><i>excessive algae growth, known as eutrophication. Eutrophic waters can significantly alter dissolved oxygen levels and pH, which are critical to aquatic wildlife, and can impact beneficial uses including cold freshwater habitat, warm freshwater habitat, and recreation. Staff began working on developing TMDLs for these two water bodies in 2003.</i></p> <p>LRC disagrees with this WB statement: <i>Since then (2003), data have been collected that demonstrates improved water quality conditions and supports removing these two water bodies from the 303(d) list for impairment by nutrients. These water bodies will remain on the 303(d) list for pathogens and sediment, for which the Board has already adopted TMDLs.</i></p>	<p>those that the State Water Board elects to consider. (See Listing Policy, Section 6.3.) Such waterbody-pollutant combinations are identified in the State Water Board’s April 9, 2020 <i>Revised Notice of Opportunity to Comment, Notice of Public Hearing, Notice of Public Meeting to Approve the Proposed Section 303(d) List for the North Coast Region and Notice of Opportunity to Comment and Notice of Public Meeting to Approve the Proposed 2018 Statewide Clean Water Act Section 303(d) List</i> (“Revised Notice of Opportunity to Comment”).</p> <p><a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html</a></p> <p>The delisting recommendations made by the San Francisco Bay Regional Water Quality Control Board (“San Francisco Bay Regional Water Board”) were not timely requested for review, and as a result, not included within the Notice. However, the following responses are provided in recognition that the San Francisco Bay Regional Water Board’s 2014 adoption of the delisting recommendations occurred before the Listing Policy amendment limited the State Water Board’s review of Regional Water board recommendations to those that were timely requested for review. Therefore, the State Water Board will accept review of the Napa River and Sonoma Creek nutrient delisting recommendations and will also provide advance notice and opportunity for public comment on the delisting recommendations from the San Francisco Bay Regional Water Board in accordance with Section 6.3 of the “Listing Policy.</p> <p>After review of the available data and information, in accordance with the Listing Policy, the State Water Board recommends upholding the San Francisco Bay Regional Water Board’s proposed delisting of the non-tidal portions of the Napa River and Sonoma Creek for nutrients because applicable water quality standards are not being exceeded.</p> <p>The justification to delist the Napa River for nutrients using a situation-specific weight of evidence approach in accordance with</p>
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5.002	<p>LRC submitted substantive comments on the Napa River Non Tidal Portion to Delist the Napa River from the Impaired Water Bodies List: 1.) The Law Offices of Thomas N. Lippe' letter on January 15, 2014-which stated that the SFBRWQCB must do CEQA to delist the Napa River for nutrients. LRC requests that a CEQA document be prepared to allow a deep study of the environmental impacts of delisting the Napa River for nutrients:</p>	<p>The California Environmental Quality Act ("CEQA") requires that public agencies conduct environmental review before they approve certain projects that might have a significant impact on the environment. The commenter incorrectly asserts that the Regional Water Board's approval of the Clean Water Act section 303(d) list requires such review. As a matter of law, the Regional Water Board's and the State Water Board's adoption and approval, respectively, of the 303(d) list does not amount to the "approval" of a "project" within the meaning of CEQA and its implementing regulations (Pub. Res. Code, § 21065; Cal. Code Regs., tit. 14, § 15378).</p> <p>First, the 303(d) list is an informational document and adoption of the 303(d) list is not a CEQA "approval" because it does not commit the Board to a "definite course of action." (Cal. Code Regs, tit. 14 § 15352.) Far from committing the State Water Board to a definite course of action, the State Water Board's adoption of the impaired waters list is subject to the plenary authority of U.S. EPA to approve, reject and/or change the list. There is no direct link between the action of the State Water Board and the final decision</p>

		<p>of U.S. EPA on what the list ought to contain. Second, the 303(d) list does not constitute a “project” under CEQA because the list has no potential for resulting in a “direct physical change in the environment, or a reasonably foreseeable indirect physical change on the environment.” (Pub. Res. Code § 21065; CEQA Guidelines § 15378.)</p> <p>As a result, CEQA is inapplicable to the action under consideration by the State Water Board.</p>
5.003	Consulting Fisheries Biologist, Patrick Higgins submitted expert comments, on January 10, 2014 to support the legal conclusion that significant environmental impacts due to nutrient enrichment will worsen if the Napa River fresh water segment is delisted for nutrients.	See responses to comment 5.002, 5.007, 5.008, 5.009, 5.010, and 5.011.
5.004	Furthermore, without a TMDL implementation program to reduce nutrients in the Napa River deprive the public of measurable performance standards and enforcement of nutrient end points. If the Nutrient TMDL is dropped the public will suffer further water quality decline and years of nutrient pollution depriving the public of swimming, fishing and recreation.	<p>Comments concerning a nutrient TMDL for the Napa River are beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to comment 5.001.</p> <p>Additionally, while a TMDL is not required for waters that are not listed as impaired per CWA section 303(d), water quality objectives associated with nutrients, such as the narrative biostimulatory conditions water quality objective, remain applicable to the Napa River regardless of the river’s impairment status. Regulatory efforts to address sources of nutrients in the San Francisco Bay Regional Water Board, such as vineyard waste discharge requirements, also remain applicable.</p>
5.005	LRC and it’s members regularly kayak the Napa River. We have been overwhelmed by algae on many occasions. It would be a tragedy to delist the Napa River for nutrients in the fresh water portion for these reasons:	Section 6.1.1 of the Listing Policy requires the Regional Water Boards and State Water Board (collectively, “Water Boards”) to actively solicit all readily available data and information. Section 6.1.1 also defines “all readily available data and information” as data and information that can be submitted into the California Environmental Data Exchange Network (CEDEN) or its successor database, as directed in the notice of solicitation. Accordingly, to

	<ul style="list-style-type: none"> <li>• This river is the second major fresh water flow to the San Francisco Bay which is now required to establish nutrient end points by EPA.</li> <li>• Streams are already choked with excessive plant material</li> <li>• Nutrient sources have dramatically increased in the hills do to thousands of acres each year being converted to vineyards</li> <li>• Waste water treatment plants (located in the fresh water portion of the Napa River) continue to regularly release illicit discharges to the Napa River being fined several times over the last 5 years: St. Helena, Calistoga-both have NOT improved their treatment plants.</li> <li>• Cities have been continuously fined (last 4 years) for excessive trihalomethanes (THMs) in drinking water which is a result of bleaching due to plant matter in the drinking water</li> <li>• The Napa River is starved for flows-exacerbating nutrient pollution</li> </ul>	<p>administer the listing process, the Water Boards are required to review data and information submitted to CEDEN or its successor database. Data that cannot be submitted to CEDEN can be submitted to the Water Boards per the instructions provided in the Data Solicitation Notice. In developing the 2018 Integrated Report, all readily available data submitted per the requirements of the November 3, 2016 Data Solicitation Notice were assembled and considered.</p> <p>The information presented here does not constitute “readily available information or data” within the meaning of the Listing Policy that is being assessed and considered by the State Water Board as required by Sections 6.1.1 and 6.1.2 of the Listing Policy. The information was not submitted to CEDEN nor, for non-CEDEN compatible data and information, submitted to the Water Boards per the instructions provided in the Data Solicitation Notice.</p> <p>The commenter is encouraged to submit data and information meeting the requirements of sections 6.1.1 and 6.1.2 of the Listing Policy in support of these statements to the State Water Board so that they may be assessed for the Integrated Report. The San Francisco Bay Regional Water Board is “on-cycle” for the 2024 Integrated Report. The data solicitation period for the 2024 Integrated Report is currently open and will close October 16, 2020.</p>
5.006	<p><i>Based on an evaluation of trends in annual stream flow only, SFBRWQCB (2013) stated that there were no trends evident from Napa River flow gauges for the period of record. Solely examining annual flow is inadequate because annual flow largely reflects runoff during the winter and spring, driven by precipitation which is extremely variable from year to year. Water demand for municipal and agricultural uses is low during the months when stream flow is high, and dams and reservoirs capture only a relatively small portion of winter/spring precipitation. In contrast, much of the summer stream flow is withdrawn and used for</i></p>	<p>The San Francisco Bay Regional Water Board adequately and appropriately addressed this comment in responding to comment 2.28 in their Response to Comments (<a href="https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/basin_plan/docs/121613/Item%206%20Napa%20Sonoma%20nutrient%20delist%20FINAL%20APPROVED.pdf">https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/basin_plan/docs/121613/Item%206%20Napa%20Sonoma%20nutrient%20delist%20FINAL%20APPROVED.pdf</a>) to the Revised Staff Report for Evaluation of Water Quality Conditions for Nutrients in Napa River and Sonoma Creek, stating:</p> <p>The Staff Report includes a simple analysis of stream flow based on the three USGS gauging stations in the River and Creek. Flow is a variable that affects algae growth since it is</p>

	<p><i>irrigation. Consequently, the effect of human activities on stream flow is much greater during the summer months than during winter/spring, and it should be expected that long term.</i></p>	<p>correlated with stream temperature, stream depth, and light penetration to the stream bottom. The Staff Report analysis did not find a significant change in annual flows over a 40 year period and concluded that increases in flow were unlikely to have been a factor in why eutrophic conditions decreased since initial reports from the mid-1970s. If summer low flows have indeed decreased, as proposed by the Commenter, then water quality conditions appear to have improved independent of reductions in flow, even though flow reductions have a hypothetical potential to increase algae blooms if all other variables remain the same.</p>
5.007	<p><i>We appreciate the SFBRWQCB staff providing raw data from 2011 and 2012 for the Napa River and Sonoma Creek, but those data and other data presented on your website indicate that many locations show signs of impairment consistent with nuisance algae blooms and nutrient pollution. Poorly buffered Pacific coast freestone streams, such as the Napa River and Sonoma Creek, can manifest nuisance algae blooms with very low levels of phosphorous and nitrogen (Welch et al. 1998). Therefore, lack of high levels of these nutrients does not mean that these waterbodies are not impaired. Also, phosphorous levels measured by the SFBRWQCB commonly exceed levels recognized as those needed to stimulate nuisance levels of algae blooms (Welch et al. 1998).</i></p>	<p>The San Francisco Bay Regional Water Board adequately and appropriately addressed this comment in responding to comment 2.2 their Response to Comments (<a href="https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/basin_plan/docs/121613/Item%206%20Napa%20Sonoma%20nutrient%20delist%20FINAL%20APPROVED.pdf">https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/basin_plan/docs/121613/Item%206%20Napa%20Sonoma%20nutrient%20delist%20FINAL%20APPROVED.pdf</a>) to the Revised Staff Report for Evaluation of Water Quality Conditions for Nutrients in Napa River and Sonoma Creek, stating:</p> <p>Impairment by eutrophication is caused by the interaction of a combination of environmental factors. Nuisance algae levels occur because of nutrient (nitrogen and phosphorus) concentrations interacting with environmental conditions such as sunlight, riparian shade, stream temperature, and stream velocity (Staff Report Section 2.1). Potential excessive nutrients or nutrient pollution is evaluated by assessing by both primary algal biomass indicators and secondary eutrophication indicators (e.g., pH and dissolved oxygen) while considering relevant environmental conditions. Not all algae growth or blooms will result in eutrophic conditions. Focusing on a single nutrient component, such as phosphorus, is not an effective way to determine impairment by eutrophication since a single nutrient does not result in eutrophic conditions.</p>

		Additionally, see response to comment 6.002 regarding the role of nitrogen and phosphorus as biostimulatory substances.
5.008	<i>While the de-listing justification document (SFBRWQCB 2013) states that chlorophyll a data suggest lack of impairment, there are notable exceptions at key mainstem locations on both the Napa River and Sonoma Creek indicative of nuisance algae blooms (N-09, N-55, S-06, S-13, S- 36).</i>	<p>The San Francisco Bay Regional Water Board adequately and appropriately addressed this comment in responding to comment 2.3 their Response to Comments (<a href="https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/basin_plan/docs/121613/Item%206%20Napa%20Sonoma%20nutrient%20delist%20FINAL%20APPROVED.pdf">https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/basin_plan/docs/121613/Item%206%20Napa%20Sonoma%20nutrient%20delist%20FINAL%20APPROVED.pdf</a>) to the Revised Staff Report for Evaluation of Water Quality Conditions for Nutrients in Napa River and Sonoma Creek, stating:</p> <p>Of the 34 chlorophyll a samples collected across the River and Creek in 2011 and 2012, we observed only three exceedances were above the identified benchmark of 150 mg/m<sup>2</sup>. The 150 mg/m<sup>2</sup> threshold is considered protective of the COLD beneficial use (Tetra Tech 2006). The observed chlorophyll a levels at site S-06 were 108 &amp; 37 mg/m<sup>2</sup>, and those at S-13 were 110 &amp; 71 mg/m<sup>2</sup>, all levels below the threshold of 150 mg/m<sup>2</sup>. While levels at three other sites had some observations above the threshold (i.e., 162 and 41 mg/m<sup>2</sup> at N-09, 161 mg/m<sup>2</sup> at N-55, and 259 and 27 mg/m<sup>2</sup> at S-36), we found these should not lead to a finding of impairment for the following reasons. No sites showed a consistent exceedance across both years for chlorophyll a and observed exceedances at N-09 and S-36 were close to the 150 mg/m<sup>2</sup> guidance threshold. For N-09 in both 2011 and 2012, secondary indicators (e.g., dissolved oxygen and pH) showed that the COLD beneficial use was not affected by algae blooms (see responses to Comments 2.26 and 2.27). For N-55, observed percent macroalgae cover was low, and the chlorophyll a level appeared related to a combination of very low late summer flow and the temporary removal of shade by a river restoration project. For S-36, secondary indicators (e.g., pH, dissolved oxygen) did not show signs of eutrophic conditions (see responses to Comments 2.26 and 2.27).</p>

		<p>The response to comment 2.26 demonstrates that pH levels measured in the Napa River and Sonoma Creek show that the cold freshwater (“COLD”) beneficial use is not affected by algae, and stated:</p> <p>While we would not rely solely on pH data for assessing impairment, it is appropriate that they be used as part of the evidence in a weight-of-evidence approach to consider delisting. Spot readings, of which we collected 54 samples, are useful in identifying potentially high pH levels, particularly as they were collected during daylight hours, when pH maxima would be expected to be reached (Water Board 2012, raw data). For example, the short-term high of pH 8.0-8.6 range at site S-19 occurred in the early morning and late morning, which is when SWAMP staff collected most spot measurements from sites in 2011 and 2012. Also, 11 continuous monitoring deployments occurred in the River and Creek over 2011-12. In eutrophic waters, the data would be expected to show strong daily variation in pH with peaks potentially exceeding the Basin Plan maximum objective of 8.5. However, the data do not exceed that threshold... The amount of grab and continuous monitoring data are enough to show that pH is meeting current water quality objectives under a weight-of evidence approach.</p> <p>The response to comment 2.27 demonstrates that dissolved oxygen levels measured at sites N-09 and N-55 on the Napa River and S-36 on Sonoma Creek show that the COLD beneficial use is not affected by algae, and stated:</p> <p>The dissolved oxygen lows recorded at sites S-36, N-09, and N-55 ... were below the Basin Plan objective for dissolved oxygen. However, the daily pattern of changes in oxygen does not support eutrophication as the cause, as explained below. We note that 2012 was a very dry year, and flows in 2012 were correspondingly low, likely contributing to the observed low dissolved oxygen levels then, which were not observed at the same sites in 2011. In fact, two sections of</p>
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		<p>the River's main stem that we intended to sample dried out in 2012. At site S-36, the mean dissolved oxygen was 6.4 and generally ranged from 5 to 10 mg/L for 80% of the observation period (Figure 2). After September 9, 2012, nighttime oxygen levels started to dip below 5 mg/L. At site N-55, the River was deep and wide (1-2 m depth by 9 m width) with very little flow (&lt; 1 cubic feet per second) ... Dissolved oxygen levels were generally between 1 and 4.5 mg/L, with low readings often observed around midnight ... The sonde at this site was tied to a root wad at the bottom of the stream. At these two sites, available data are insufficient to determine the cause of low dissolved oxygen conditions. However, they are not indicative of eutrophic conditions because the amount of daily variation was within ranges observed in non-eutrophic reference streams monitored by the Water Board (Water Board 2012, raw data). At site N-09 in 2012, dissolved oxygen data averaged 6.68 mg/L, and generally ranged from 5-10 mg/L, with some extreme low values observed around 7-10 PM. The daily fluctuations of about 4-5 mg/L are occurring because of daily cycles in photosynthesis and algae respiration (Nimick et al. 2011). This amount of daily variation was within ranges observed in non-eutrophic reference streams monitored by the Water Board (Water Board 2012, raw data). As noted above, they are not at levels exemplary of eutrophic conditions.</p>
5.009	<p><i>Overall significance of chlorophyll a data are also difficult to judge because there is no description of shade conditions at monitoring locations that might suppress algal growth.</i></p>	<p>The San Francisco Bay Regional Water Board addressed this comment by including shade information for each monitoring location in Appendix A Water Quality Data of their Revised Staff Report for Evaluation of Water Quality Conditions for Nutrients in the Napa River and Sonoma Creek.</p> <p><a href="https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/basin_plan/docs/121613/Item%206%20Napa%20Sonoma%20nutrient%20delist%20FINAL%20APPROVED.pdf">https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/basin_plan/docs/121613/Item%206%20Napa%20Sonoma%20nutrient%20delist%20FINAL%20APPROVED.pdf</a></p>



		<p>Average shade canopy cover for each site in the Napa River and Sonoma Creek are shown on pages 65 and 69 respectively.</p> <p>The average shade and canopy cover data in the Revised Staff Report confirm that average shade and canopy cover data were included for each site and for each date sampled for the Napa River and Sonoma Creek.</p>
5.010 5.011	<p><i>The SFBRWQCB (2013) conclusion to delist the Napa River and Sonoma Creek are not supported by their data and the report does not provide appropriate justification. The flux of flow in the Napa River is now falling to levels where the river has lost its capacity to clean itself and to maintain beneficial uses. The SFBRWQCB needs to take action to restore flow because it is the only means to remediate water quality problems and there is legal precedent for such action. The Board has the authority and to increase flows to meet water quality standards as established in Supreme Court case No. 92-1911 (Jefferson County PUD and City of Tacoma vs. Washington Dept. of Ecology). This case explicitly states that water quality authorities under the Clean Water Act can set water quantities sufficient to abate water quality problems:</i></p> <p><i>“Petitioners also assert more generally that the Clean Water Act is only concerned with water ‘quality,’ and does not allow the regulation of water ‘quantity.’ This is an artificial distinction. In many cases, water quantity is closely related to water quality; a sufficient lowering of the water quantity in a body of water could destroy all of its designated uses, be it for drinking water, recreation, navigation or, as here, as a fishery. In any event, there is recognition in the Clean Water Act itself that reduced stream flow, i.e., diminishment of water quantity, can constitute water pollution. First, the Act's definition of pollution as “the man made or man induced alteration of the chemical, physical, biological,</i></p>	<p>Comments concerning flow levels in the Napa River are beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. The State Water Board receives comment from the public with respect to waterbody-pollutant combinations that are timely requested for its review in addition to those that the State Water Board elects to consider. (See Listing Policy, Section 6.3.) Such waterbody-pollutant combinations are identified in the State Water Board’s Revised Notice of Opportunity to Comment (April 9, 2020).</p> <p><a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html</a></p> <p>See responses to comments 5.001, 5.006, 8.004, and 8.005.</p>

	<p><i>and radiological integrity of water" encompasses the effects of reduced water quantity (33 U.S.C. § 1362(19)). This broad conception of pollution – one which expressly evinces Congress' concern with the physical and biological integrity of water – refutes petitioners' assertion that the Act draws a sharp distinction between the regulation of water 'quantity' and water 'quality.' Moreover, §304 of the Act expressly recognizes that water 'pollution' may result from 'changes in the movement, flow, or circulation of any kind.</i></p>	
5.012	<p>Living Rivers Council disagrees with the SFBRWQCB's attempt to delist the Napa River for nutrients in the fresh water segment due to our long time experience kayaking the Napa River and seeing with our own eyes the decline in water quality due to excessive nutrient loading from all the sources. Therefore, LRC submits photo documentation/lines of evidence of excessive nutrient throughout the Napa River watershed: <b><u>See attachments I and II within this email which are substantive photo documentation of lines of evidence for submission to the SFBRWQCB of our eye witness to nutrient enrichment of the Napa River freshwater segment of this watershed and is part of this submission to the WB public comments due 4.30.2020.</u></b></p>	<p>The San Francisco Bay Regional Water Board adequately and appropriately addressed this comment in responding to comment 2.29 in their Response to Comments to the Revised Staff Report for Evaluation of Water Quality Conditions for Nutrients in Napa River and Sonoma Creek, stating:</p> <p>We agree that impairment of recreational beneficial uses can be assessed visually but such a process needs to be systematic. This is why Water Board staff followed SWAMP protocols in assessing percent macroalgae cover at 105 systematically-selected locations as a rapid visual indicator (results included in the Staff Report). Photographs of stream algae cannot be directly translated into a percent cover metric unless taken from an aerial view, which was not the case for the provided photograph. The Listing Policy was developed to ensure a reliable and consistent means for evaluating beneficial use impairment, including recreational beneficial uses. A single photograph, while helpful, does not meet the goals or requirements of the Listing Policy.</p> <p>In addition, some of the photographs submitted were taken after the data solicitation cut-off date for the 2018 Integrated Report and cannot be considered readily available data for the 2018 listing cycle. The data cut-off date for the 2018 listing cycle was May 3,</p>

		2017. See Section 1.3 of the Staff Report for more information on the Integrated Report listing cycles.
5.013	The Water Board needs a rigorous Nutrient TMDL and TMDL implementation program to reduce nutrient sources or the water quality will continue to decline. This severe water quality problem now has a profound impact the San Francisco Bay estuary health, beneficial uses and drinking water.	See responses to comments 5.001 and 5.004.

## Letter 6: Don McEnhill and Jamie Neary, Russian Riverkeeper

No.	Comment	Response
6.001	As protector of the Russian River watershed, RRK works on the basis that there are 20 different beneficial uses within the Russian River Hydrologic Unit. This means at least 20 different interests are at stake, with different stakeholders, interests, and at times, even conflicting interests. This does not matter though. As the North Coast Basin Plan states, when “more than one objective exists for the same water quality parameter, the objective protective of the most sensitive beneficial use applies.” Just as RRK keeps this in mind, the North Coast Regional Water Board should be doing the same.	Comment noted.
6.002	California, though an environmental leader, tends to turn a blind eye when it comes to agriculture and the multitude of negative effects agriculture has on water quality. As a result, our waterways have suffered from a constant influx of nutrient overload. This has caused a range of water issues: reduced salmonid habitat, disrupted food chains, water temperature increases, frequent harmful algal blooms, and reduced recreation.	In developing the 2018 Integrated Report, all readily available data submitted per the requirements of the November 3, 2016 Data Solicitation Notice were considered. Data were compared to narrative and numeric basin plan objectives and evaluation guidelines to determine beneficial use support status in accordance with the Listing Policy. Nutrient-related data did not support a listing

	<p>Not to mention the many other downstream and marine beneficial uses that are also harmed on a regular basis.</p> <p>Some of the negative results downstream include coastal acidification, food loss, structural loss and reduced recreation. These then correlate to SHELL, NAV, REC1/2, COMM, ASBS, EST, WILD, RARE, SPWN, and MIGR beneficial uses that are being further impaired when nutrient loading events combine with each other to cause massive degradation to the coastal and marine environment. <i>Understanding the Science of Ocean and Coastal Acidification</i>, EPA, <a href="https://www.epa.gov/ocean-acidification/understanding-science-ocean-and-coastal-acidification#coastal">https://www.epa.gov/ocean-acidification/understanding-science-ocean-and-coastal-acidification#coastal</a> (last updated Aug. 23, 2019) (noting that anthropogenic causes contribute to coastal acidification via nutrient overloading and runoff). See <i>also Coastal Acidification</i>, Southeast Ocean and Coastal Acidification Network.</p>	<p>recommendation for the mainstem Russian River and there were insufficient data to evaluate if biostimulatory conditions exist.</p> <p>Regarding the evaluation of readily available data and information see response to comment 5.005.</p> <p>In the North Coast Region, there are no numeric objectives to evaluate phosphorus, nitrogen, or nitrates for freshwater or saltwater aquatic life protections. Existing numeric thresholds relate to human health (i.e., the Municipal and Domestic Supply beneficial use, also known as “MUN”). Further, where ammonia and pH data are available, ammonia toxicity is calculated to determine if there is impairment of the COLD and warm freshwater (“WARM”) beneficial uses.</p> <p>The Water Quality Control Plan for the North Coast Region (“North Coast Basin Plan”) includes a narrative water quality objective for biostimulatory substances, which says “Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.” The State Water Board is developing a statewide objective for biostimulatory substances, which may replace the North Coast Basin Plan objective in the future. See the State Water Board’s Biostimulatory Substances Objective and Program to Implement Biological Integrity webpage located here:</p> <p><a href="https://www.waterboards.ca.gov/water_issues/programs/biostimulatory_substances_biointegrity/">https://www.waterboards.ca.gov/water_issues/programs/biostimulatory_substances_biointegrity/</a></p> <p>Also, subscribe to the “Biostimulatory Substances and Biological Integrity” email list for updates as a statewide water quality objective for biostimulatory substances is being developed. Instructions for subscribing to the email list are found here:</p> <p><a href="https://www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.html">https://www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.html</a></p>
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The U.S. EPA published ecoregional total nitrogen and total phosphorus criteria for rivers and streams, which contain recommendations to states and authorized tribes for establishing their water quality standards. These recommended criteria are guidance that states and tribes may use as a starting point for their water quality standards. The Russian River watershed is in aggregate nutrient ecoregion III (Xeric West), which includes all or parts of the States of Washington, Oregon, California, Nevada, Idaho, Wyoming, Montana, Utah, Colorado, New Mexico, Arizona and Texas.

The U.S. EPA determined that setting ecoregional criteria for the large-scale aggregates is not without its drawbacks - variability is high due to the lumping of many waterbody classes, seasons, and years worth of multipurpose data over a large geographic area. For these reasons, the U.S. EPA recommends that states and tribes develop nutrient criteria at the level III ecoregional scale and at the waterbody class scale where those data are readily available. The U.S. EPA expects that, in most cases, it will be necessary for states and authorized tribes to identify with greater precision the numeric nutrient levels that protect aquatic life and recreational uses. Additionally, the U.S. EPA guidance suggests that chlorophyll-a and turbidity data be collected and utilized in conjunction with nutrient data to evaluate conditions.

In addition to potential anthropogenic sources, nutrients occur naturally and vary in relationship to soils, geology, and land cover. Waterbody specific factors such as riparian cover, flow conditions, and stream channel configuration affect how nutrients are processed within the stream and play a large role in determining whether or not biostimulatory conditions will prevail. For these reasons it may not be appropriate to use nutrients alone to determine if biostimulatory conditions are present within a waterbody. The general approach used by the North Coast Regional Water Board is to evaluate nutrient data in conjunction with related indicator parameters (DO, pH, and chlorophyll-a) for

		<p>evidence of biostimulatory conditions that could potentially impair beneficial uses.</p> <p>Where there are sufficient data, the North Coast Regional Water Board has listed North Coast waters as impaired due to nutrients, nutrient enrichment, biostimulatory substances, phosphorus, or nitrogen. Listed waters currently include: the Estero Americano Hydrologic Area, Tule Lake &amp; Mt. Dome Hydrologic Sub Areas, areas of the Klamath River watershed, portions of the mainstem Scott River, the Laguna de Santa Rosa, and the lower portion of Mark West Creek.</p> <p>The North Coast Regional Water Board has called for the creation of a regional monitoring program to coordinate the best available independent science to support environmental regulatory and management decisions throughout the Russian River watershed. The Russian River Regional Monitoring Program (“R3MP”) is co-chaired by the North Coast Regional Water Board and the Russian River Watershed Association. The goal of the R3MP is to be a sound scientific program of watershed health assessment, forecasting, and reporting that informs coordinated environmental planning, regulation, and management in the watershed context. While the list of pollutants to be monitored has not been finalized, it is expected to include collection of data related to biostimulatory conditions (including nutrients) as one component.</p>
6.003	<p>One of the main ways to mitigate these downstream effects is to place limits on and regulate Nitrogen and Phosphorus discharges at their source. While the best way would be through numeric limits for surface waters, listing for narrative limits would be a start. It is time for California to stand up to agricultural interests and stop giving deference when it comes to the health of our waters. For that reason, we submit the following comments.</p>	<p>This comment is outside the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. The State Water Board receives comment from the public with respect to waterbody-pollutant combinations that are timely requested for its review in addition to those that the State Water Board elects to consider. (See Listing Policy, Section 6.3.) Such waterbody-pollutant combinations are identified in the State Water Board’s Revised Notice of Opportunity to Comment (April 9, 2020). That notice states that comments on waters in the North Coast Region shall be limited to “The State Water Board’s proposed 303(d) listing and delisting recommendations pertaining to all</p>

		<p>waterbodies within the North Coast Region, as identified in section 3 of the Draft Staff Report.”</p> <p><a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html</a></p> <p>See also response to 6.002.</p>
6.004	<p>Under the Clean Water Act, Section 303(d) requires states to list all surface waters that are not attaining, or not expected to attain, water quality standards upon the application of technology-based effluent limits. The 303(d) list must also identify the pollutants responsible for the failure to attain water quality standards and include a priority ranking for each impaired waterbody based on the severity and sensitivity of beneficial uses affected in that waterbody. Impaired water designations may be based on any pollutants that negatively affect the chemical, physical or biological integrity of our waters. This means that there may be multiple 303(d) listings for a single waterbody; and there often are. In effect, this listing process is one of the first steps towards achieving improved water quality in the United States and ensuring that all beneficial uses are met.</p> <p>The water quality standards that are at the heart of these 303(d) listings are found in the Water Quality Control Plan for the North Coast Region. Water quality standards consist of 4 factors:</p> <p>“1. Designated beneficial uses;</p> <p>2. The water quality objectives to protect those designated uses;</p> <p>3. Implementation of the Federal and State policies for antidegradation; and</p>	<p>See the response to comment 6.002 for further information on the objective analytical process undertaken when making impairment listing recommendations under Section 303(d) of the Clean Water Act. See response to comment 8.016 regarding Integrated Report requirements of Clean Water Act section 303(d) and the definition of standards. The listing of a waterbody-pollutant combination as impaired results in the development of a TMDL or alternative for the listed waterbody-pollutant combination.</p>

	<p>4. General policies for application and Implementation.”</p> <p>This means that when the North Coast Regional Board is looking at a waterbody for listing, they must do so with these standards in mind. If water quality standards are not being met or are not expected to be met, the waterbody must be listed.</p> <p>Once listed, states will prepare and implement in order of priority a pollution control plan, typically a Total Maximum Daily Load (TMDL). If given priority, a TMDL must be created to set parameters for the maximum amount of a pollutant allowed in the impaired waterbody and will serve as the starting point or planning tool for restoring water quality for beneficial uses. TMDLs and other pollution control plans are implemented via the permitting processes and integrated into other programs and policies. Waterbodies cannot be removed from the 303(d) list until a TMDL has been developed and approved by the EPA, or beneficial uses otherwise attained for that impaired waterbody.</p>	
6.005	<p>Thus, going through the 303(d) process and ensuring that it is done properly is paramount. To help ensure this, the Clean Water Act further requires states to consider “all existing and readily available water quality-related data and information,” when developing their 303(d) list. States must also submit a listing methodology to EPA and be able to provide “good cause” for not including an impairment on the list. Further, 303(d) listing processes are designed to be impartial of pollution source—if a waterbody’s beneficial use is impaired, the waterbody must be listed.</p>	<p>See response to comment 6.002. The Listing Policy describes the process by which the Water Boards comply with the listing requirements of CWA section 303(d), including listing and delisting factors that provide good cause for listing or not listing a waterbody as impaired.</p>
6.006	<p>It is clear that the above processes were not applied in full during compilation for the 2018 Integrated Report,</p>	<p>See response to comment 6.002.</p>



	<p>303(d) List for the North Coast Region. This is especially true for the impairment causing effects of Nitrogen and Phosphorous on North Coast beneficial uses. The Laguna de Santa Rosa mainstem and other tributaries of the Russian River, like Santa Rosa and Windsor Creeks are just a few examples. While we recognize that some of this stems from outdated samples or a lack of data all together, these waterbodies are still facing impairment and their beneficial uses are not being attained because of pollutants. There is no excuse—they must be listed under the Clean Water Act.</p>	<p>North Coast Regional Water Board staff are currently developing a TMDL or TMDL Alternative for the Laguna de Santa Rosa watershed to address dissolved oxygen, phosphorus, temperature, and sediment impairments. The commenter is encouraged to share any additional data relevant to assessment of impairment conditions in the Laguna de Santa Rosa watershed with TMDL staff.</p> <p>The mainstem Laguna de Santa Rosa and the mainstem of Mark West Creek downstream of the confluence with the Laguna de Santa Rosa are currently listed for phosphorus and other related pollutants, which will be addressed by the forthcoming TMDL or TMDL Alternative. When completed, adopted, and approved, the Laguna TMDLs or TMDL Alternatives will describe a program of implementation to recover beneficial uses and restore water quality conditions, including biostimulatory conditions.</p>
6.007	<p>Generally, nitrogen is a critical nutrient for plant growth and other biological activity within a water system. However, when nitrogen concentrations exceed natural amounts it becomes toxic to those same species it was once critical for. Exceedances are so dangerous because they can quickly turn a thriving ecosystem into a toxic one with increased nitrogen causing toxic algal blooms, decreased dissolved oxygen, temperature increases, and pH reductions. This is deadly to fish and most other aquatic species, not to mention beneficial uses for human use.</p> <p>In fact, nitrogen overload is frequently the base factor for many other pollutant type listings. Despite this, nitrogen is not being listed as an impairing pollutant for North Coast waterbodies, largely because there is no numeric for nitrogen. This is not a viable excuse though.</p>	<p>General statements regarding the ecological impacts of excessive nitrogen are outside the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to comment 6.003.</p> <p>See also response to comment 6.002.</p>
6.008	<p>Further, the North Coast Regional Board has been aware of this fact since at least 1995 when over the course of TMDL development for the Laguna de Santa</p>	<p>See responses to comments 6.002 and 6.006.</p>

	<p>Rosa for dissolved oxygen and ammonia, it became readily apparent that the real cause was nitrogen overload. Somehow this information got lost and is no longer being relied on though the facts remain the same. Further, upon realization that the Laguna de Santa Rosa's main impairments were caused by Nitrogen, the Laguna should have been relisted under nitrogen to affect this discovery. This did not happen though, and beneficial uses continue to be deeply impaired.</p>	<p>The Laguna de Santa Rosa ("Laguna") was added to the 303(d) list in 1990 for high levels of ammonia and low dissolved oxygen (DO) concentrations. A TMDL was completed for the Laguna for ammonia and dissolved oxygen in 1995. The TMDL concluded that high ammonia levels in the Laguna were the result of point and non-point source nitrogen inputs of various forms. Low dissolved oxygen concentrations were a result of inputs of organic matter and nutrients which stimulate algal growth and subsequently cause depressed dissolved oxygen levels when the algae dies and decays. The TMDL took the form of a Waste Reduction Strategy ("WRS") that addressed the reduction of nitrogen loading from point and non-point sources. With the implementation of the WRS and operational improvements at the City of Santa Rosa Waste Water Treatment Plant as well as improvements in waste storage and disposal activities at local dairies, nitrogen inputs to the Laguna were significantly reduced. Following implementation of the WRS and the subsequent attainment of nitrogen-ammonia interim concentration goals, as stated in the WRS, the Laguna was removed from the 303(d) list for ammonia and dissolved oxygen in 1998, pursuant to a recommendation by U.S. EPA. However, dissolved oxygen ("DO") levels in the Laguna continue to fall below the North Coast Basin Plan minimum DO objective of 7.0 mg/L and in many cases fluctuate significantly on a daily and seasonal basis.</p> <p>Although the Laguna de Santa Rosa TMDLs are not yet fully developed, evidence is clear that biostimulatory conditions exist and that instream phosphorus concentrations control harmful biostimulatory responses. Currently, the mainstem Laguna and lower Mark West Creek have no apparent capacity to assimilate additional phosphorus loads without continuing to exceed the North Coast Basin Plan water quality objectives for biostimulatory substances and DO. Therefore, reductions in internal and external phosphorus loads to these water bodies are needed to protect their beneficial uses, and to ultimately improve water quality conditions. Because phosphorus is the limiting nutrient in these waterbodies, reductions in nitrogen loads alone beyond current levels are not expected to result in added protection of the beneficial uses, or</p>
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		significant water quality improvements without reduction of phosphorus loads.
6.009	When nitrogen concentrations exceed naturally occurring levels it leads to substantial problems in downstream coastal waters. This excess predominantly comes from the application of more agricultural fertilizer than is necessary, animal waste, and other sources like septic systems and atmospheric deposition.	For the 2018 Integrated Report assessment process, there were no readily available data for total nitrogen, ammonia, nitrate, nitrite, or nitrate and nitrite for any ocean or coastal area, bay or harbor, estuary, or tidal wetland.  See response to comment 6.002.
6.010	Establishing scientifically based numeric criteria for nitrogen in surface waters would significantly decrease, if not eliminate, all of these toxic environments. Nitrogen numerics would also make the listing process much simpler as narratives would not have to be interpreted on a case-by-case basis.	See responses to comments 6.002 and 6.008. Further, the commenter is encouraged to participate in the next triennial review of the North Coast Basin Plan to provide comment on the development of nitrogen objectives as a priority basin planning project.
6.011	Phosphorus is another essential nutrient for all life forms, but at high concentrations it also causes water quality problems by overstimulating algae growth. Similar to nitrogen in many regards, phosphorus exceedances have the same negative effects on water quality and typically stem from the same sources.	See responses to comments 6.002 and 6.008.
6.012	Phosphorus numerics would make the listing process much simpler as narratives would not have to be interpreted on a case-by-case basis. Because of the similarities between nitrogen and phosphorus, the two are often spoken of collectively as a type of nutrient impairment.	This comment is outside the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to comment 6.003.  See also responses to comments 6.002 and 6.008.  Further, the commenter is encouraged to participate in the next triennial review of the North Coast Basin Plan to provide comment on the development of phosphorus objectives as a priority basin planning project.

6.013	<p>This common sequence of cascading effects—nutrient overload, algae growth, oxygen deprivation, temperature increase, and finally increased acidity—is detrimental to beneficial uses throughout the North Coast Basin. It is causing our surface waters to be impaired and for some of our beneficial uses, irreparably. For several years now, there has been clear scientific support linking agricultural runoff to impaired water quality throughout the United States. More recent studies are also demonstrating a clear link between nutrient loading events and coastal acidification.</p> <p>As a result, our economy, our way of life, our environment, and our climate change resiliency are all being put at risk. It often seems like this state puts everything second to agriculture. We are not saying agriculture is not important or that its interest do not need to be considered, rather we would just like the state to take into account the numerous other industries and interests in this state that also contribute substantially to the California GDP.</p> <p>Over the past 150 years, the Russian River watershed has transformed due to the large influx of agricultural activities and population growth.</p>	<p>This comment is outside the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to comment 6.003.</p> <p>Visit our website for information on Agricultural Lands Discharge Program at:</p> <p><a href="https://www.waterboards.ca.gov/northcoast/water_issues/programs/agricultural_lands/">https://www.waterboards.ca.gov/northcoast/water_issues/programs/agricultural_lands/</a></p>
6.014	<p>Unfortunately, salmon populations and the biological functions they rely on have had an inverse track with dramatic declines ever since.</p> <p>For sake of being concise, we direct attention to the following existing beneficial uses: RARE, MIGR and SPWN. Each of these is applicable for all waterbodies in the Russian River watershed, along with numerous others. However, these three are all particularly relevant to the health of salmon populations, one of the most sensitive species in the Russian River watershed.</p>	<p>See response to comment 6.002.</p> <p>Further, much of the Russian River watershed is currently listed as impaired due to sedimentation and elevated temperatures impairing the COLD beneficial use, which means there are also affects to spawning, reproduction, and development (“SPWN”), migration (“MIGR”), and rare, threatened, or endangered species (“RARE”) beneficial uses among others. The North Coast Regional Water Board looks forward to working closely with the commenter and</p>

<p>When a waterbody is identified as having a RARE use, it means that it “support[s] habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered.” Identifying waterbodies as RARE helps ensure that, “absent extraordinary circumstances, RARE species are not placed in jeopardy by the quality of the discharges to those waterbodies.” A MIGR use means that it supports “habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish.” When a waterbody is identified as having a SPWN use, it means that it supports “high quality aquatic habitats suitable for reproduction and early development of fish.” If any of these uses are being polluted to the point where the beneficial use is no longer viable, than those pollutants are said to adversely affect the beneficial use and would need to be listed.</p> <p>Throughout the salmon life cycle, their sensitivity to the aquatic environment changes in response to different aquatic factors. These factors include: low dissolved oxygen, low pH, high temperatures, and ammonia. If they exceed certain narrow parameters, these factors can result in reduced growth, decreased reproduction, deterred migration, reduced food supply, increased likelihood of disease, and decreases in population size. All of which act to defeat RARE, MIGR, and SPWN beneficial uses.</p> <p>When these external factors are further exacerbated by nitrogen or phosphorus runoff, there are dire effects for our protected species and their designated uses. When this happens, these factors are said to be adversely affecting the beneficial uses. Thus, pollutants that cause RARE species populations to decline, restrict necessary MIGR, or otherwise leads to reduced fitness,</p>	<p>other stakeholders, when staff are available to begin development of TMDLs or TMDL Alternatives to address these impairments.</p>
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	reduced survivability, and increased rates of disease need to be listed.	
6.015	<p>The Porter-Cologne Water Quality Control Act requires the Regional Water Board to establish beneficial uses and water quality objectives for waters of the state. Water quality objectives can be in either numeric or narrative form. Both Nitrogen and Phosphorus in surface waters have narrative criteria right now. Narrative criteria are a weaker standard as they are more subjective and are often insufficient to attain beneficial uses.</p>	<p>This comment is outside the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to comment 6.003.</p> <p>See also response to comment 6.002.</p> <p>Additionally, though narrative water quality objectives are sometimes more complicated than numeric objectives to apply when evaluating ambient water quality data, narrative objectives are not necessarily weaker. On the contrary, in many cases narrative water quality objectives are stronger as they describe water quality conditions that are the result of an interaction of multiple factors. A single numeric objective may be inadequate in such a case. Nonetheless, all water quality objectives hold equal weight and exceedance of either type of objective can result in an impairment determination.</p>
6.016	<p>Establishing scientifically based numeric criteria for nitrogen in surface waters would significantly decrease, if not eliminate, all of these toxic environments. Nitrogen numerics would also make the listing process much simpler as narratives would not have to be interpreted on a case-by-case basis.</p>	<p>This comment is outside the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to comment 6.003.</p> <p>See also responses to comments 6.002 and 6.008.</p> <p>Further, the commenter is encouraged to remain an active stakeholder participant in the many planning and permitting programs the North Coast Regional Water Board currently implements and/or is developing in the Russian River. It is through implementation of these planning and permitting programs that impaired water quality conditions will most readily be addressed.</p>
6.017	<p>Phosphorus is another essential nutrient for all life forms, but at high concentrations it also causes water quality problems by overstimulating algae growth. Similar to nitrogen in many regards, phosphorus exceedances have the same negative effects on water</p>	<p>See responses to comments 6.002 and 6.008.</p>

	<p>quality and typically stem from the same sources. Phosphorus numerics would make the listing process much simpler as narratives would not have to be interpreted on a case-by-case basis. Because of the similarities between nitrogen and phosphorus, the two are often spoken of collectively as a type of nutrient impairment.</p>	
6.018	<p>At minimum, waterbodies must be listed for failure to attain these narrative water quality standards. This means a good faith effort must actually be put forth to determine whether or not narrative standards are met.</p>	<p>See response to comment 6.002.</p>
6.019	<p>In the 303(d) analysis for the mainstem Laguna de Santa Rosa, Windsor Creek and mainstem Santa Rosa Creek, it is apparent that the MUN beneficial use was the primary determining factor as to whether a waterbody would be listed for nitrogen and/or nitrates. Even when other beneficial uses were considered, the narrative standards resulted in a non-listing despite evidence to the contrary.</p> <p>For instance, when looking at the mainstem Laguna de Santa Rosa to determine if impaired for 303(d) listing purposes two samples were used to determine compliance with MUN. No other beneficial uses were considered for listing purposes despite the fact that the Laguna has additional, more sensitive beneficial uses than MUN. In part of their reasoning, the North Coast Board simply states that because there is no numeric it is difficult to determine if the sample exceeds standards.</p> <p>This is insufficient to satisfy the “good cause” element noted above. Further, both samples are from 20 years ago! From increased agricultural activity and population around the Laguna to effects of reduced flow, a lot has</p>	<p>See responses to comments 6.002 and 6.006. Additionally, a more robust dataset is beneficial for analysis and the commenter is encouraged to submit sampling data to CEDEN. Additionally, staff are currently working on TMDLs or TMDL Alternatives for phosphorus, dissolved oxygen, sediment, and temperature impairments in the Laguna de Santa Rosa and the commenter is encouraged to share data and information relevant to these analyses to TMDL staff.</p>

	changed in 20 years and new samples are necessary for a more realistic picture of the Laguna today.	
6.020	<p>The following helps demonstrate the issues with the above North Coast conclusion. To start, the MUN nitrogen limit is 10mg/L. This is ten times the generally accepted 1.0mg/L threshold used for N in surface waters. Studies show that surface water nitrogen greater than 1.0mg/L increases eutrophic conditions, causing the area to heavily favor plants (i.e. algae) over animals like salmon. The EPA has long published the general guidelines of 1.0mg/l for N and 0.01mg/l for P for aquatic life protection—EPA's Total Nitrogen recommendations for the Xeric West are even less than 1.0mg/L for certain ecoregions. Considering that many beneficial uses are related to ecological health, most beneficial uses are also negatively affected by any nitrogen measurements that exceed 1.0mg/L. Thus, MUN is not a good measurement to be using to represent all the other beneficial uses and make listing determinations by.</p>	See response to comment 6.002.
6.021	<p>It is well documented that the Laguna fails to attain the narrative criteria for biostimulatory substances—nuisance and adverse effects on beneficial uses. The Laguna has become a eutrophic waterbody, dominated by plants and non-native species like ludwigia hexapetla. There is little room for historical fish populations to survive in the Laguna despite having multiple beneficial uses based on the health of fish and other aquatic species. When combined with the excess phosphorus also found in the Laguna, it makes sense that nothing can survive there. Water quality samples taken in the Laguna and the Russian River watershed have shown phosphorus levels ranging from 2.3–16 mg/L which far exceeds the EPA's recommendation of</p>	<p>See responses to comments 6.002, 6.006, 6.008, and 6.019.</p> <p>The mainstem Laguna de Santa Ros and the mainstem of Mark West Creek downstream of the confluence with the Laguna de Santa Rosa are currently listed for phosphorus as a result of the biostimulatory conditions evaluation and will be addressed through TMDLs or TMDL Alternatives that are currently under development for the Laguna de Santa Rosa watershed.</p> <p>Submit any data that your organization has to CEDEN so that it can be considered in future assessments.</p>



	<p>0.1 mg/L for total phosphorus in flowing waters to control eutrophication.</p> <p>Table 1. Water Quality Samples Collected in Russian River Watershed: January 2019</p> <table><tr><th>Sample No.</th><th>Total Phosphorus (mg/L)</th></tr><tr><td>1</td><td>3.5*</td></tr><tr><td>2</td><td>2.3*</td></tr><tr><td>3</td><td>6.1*</td></tr><tr><td>4</td><td>16*</td></tr><tr><td>5</td><td>4.6*</td></tr></table> <p>* Exceeds recommended USEPA Criteria on Aggregate Ecoregion 0.022 mg/L.</p>	Sample No.	Total Phosphorus (mg/L)	1	3.5*	2	2.3*	3	6.1*	4	16*	5	4.6*	
Sample No.	Total Phosphorus (mg/L)													
1	3.5*													
2	2.3*													
3	6.1*													
4	16*													
5	4.6*													
6.022	<p>The 303(d) list is meant to be impartial, and has the sole purpose of identifying waterbodies that are not attaining their beneficial uses. The regulations do not say the Regional Board can pick and choose which beneficial uses they use when listing. Thus, use of MUN to make most determinations is not in accordance with the Clean Water Act. Instead, the regulations are very clear in stating that when multiple objectives apply, the most sensitive ones are the ones to be followed.</p>	<p>See response to comment 6.002.</p>												
6.023	<p>It is clear that the North Coast Regional Board needs to reconsider the listing of the mainstem Laguna de Santa Rosa, mainstem Santa Rosa Creek, and Windsor Creek at minimum.</p>	<p>See responses to comments 6.002, 6.006, 6.008 and 6.019.</p>												

6.024	Collection of new samples for the Laguna de Santa Rosa, Santa Rosa Creek, and Windsor Creek that can be tested for Nitrogen and Phosphorus listing data.	The development of the Russian River Regional Monitoring Program (R3MP) will allow for a collaborative discussion of the monitoring needs of the Russian River watershed, including the Laguna de Santa Rosa. The completion, adoption, and approval of TMDLs or TMDL Alternatives for the Laguna de Santa Rosa watershed is the most direct way to address and resolve elevated nutrient discharges and the confounding factors of sediment and temperature that influence biostimulation.
6.025	<p>Listing of the Laguna de Santa Rosa on the 303(d) list for nitrogen impairment to its beneficial uses other than MUN.</p> <p>Listing of Windsor Creek on the 303(d) list for nitrogen impairment to its beneficial uses other than MUN.</p> <p>Listing of Windsor Creek on the 303(d) list for phosphorus impairment to its beneficial uses other than MUN.</p> <p>Listing of Santa Rosa Creek on the 303(d) list for nitrogen impairment to its beneficial uses other than MUN.</p> <p>Listing of Santa Rosa Creek on the 303(d) list for phosphorus impairment to its beneficial uses other than MUN.</p>	See responses to comments 6.002, 6.006, and 6.019.

## Letter 7: Glen Kau, City of Norwalk Public Services Department

No.	Comment	Response
7.001	In reviewing the report, relative to Reach 2 of the San Gabriel River (R2- SGR) wherein Norwalk is located, lead is still on the proposed 303(d) list. The City firmly believes it should not be. It should be placed either on	Reach 2 of the San Gabriel River is listed on the 303(d) list as impaired for lead. The decision (Decision 68588) for this waterbody-pollutant combination for the 2018 listing cycle is "Do Not Delist from 303(d) list (being addressed with U.S.EPA approved

	<p>the "de-list," or "do not list" on the 2016-2018 Decision ID Fact Sheet. The reasons are as follows:</p>	<p>TMDL)." No additional data were assessed for this listing cycle and Reach 2 of the San Gabriel River remains on the 303(d) list as impaired for lead.</p> <p>Section 4 of the Listing Policy describes the requirements for removing a waterbody from the 303(d) list (delisting). Reach 2 of the San Gabriel River may be removed from the 303(d) list if the minimum sample size and number of exceedances conform to Section 4.1 of the Listing Policy, or if the weight of evidence supports delisting per Section 4.11 of the Listing Policy.</p> <p>Reach 2 of the San Gabriel River will remain on the 303(d) list as impaired for lead until data or information that support delisting per the Listing Policy requirements described above, are assessed during an Integrated Report listing cycle.</p>
7.002	<ul style="list-style-type: none"> <li>Lead is a legacy pollutant that has been significantly reduced since it was removed from fuel in California since the late 1980's. As evidence of this, in November 2018, the USEPA withdrew lead from the California Toxics Rule (CTR) for all reaches and tributaries of the Los Angeles River.</li> </ul>	<p>The U.S. EPA approved site-specific criteria for lead in the Los Angeles River established by California and added to the Los Angeles Basin Plan. The U.S. EPA determined that the site-specific criteria were scientifically sound and protective of the designated uses of the waterbody. The U.S. EPA subsequently withdrew freshwater acute and chronic aquatic life criteria for lead for the Los Angeles River and its tributaries from the CTR to enable California to implement its U.S. EPA-approved water quality criteria.</p>
7.003	<ul style="list-style-type: none"> <li>There is no recent monitoring data to show that lead is still of a problem for San Gabriel River Reach 2 (SGR/R2).</li> </ul>	<p>See response to comment 7.001.</p> <p>The commenter is encouraged to upload recent monitoring data to CEDEN so that will be assessed in a subsequent listing cycle. If data or information support delisting, the waterbody-pollutant combination will be recommended for removal from the 303(d) list.</p>
7.004	<ul style="list-style-type: none"> <li>Lead is not on the 2016 303(d) list and all previous lists for Reach 3 of the San Gabriel River (see Attachment #1), which is located above R2-SGR, buffered by the Whittier Narrows Spreading Grounds.</li> </ul>	<p>Reach 2 of the San Gabriel River is listed as impaired for lead on the 2014/16 303(d) list.</p> <p>As described in Decision #68588, 12 of 124 samples exceeded the evaluation guideline for lead, which provides enough justification to place the waterbody on the 303(d) list as impaired for lead per</p>

		Section 3.1 of the Listing Policy. The fact that stream segments upstream or downstream of the impaired segment have not been determined to be impaired does not override the evidence that was used to determine impairment of Reach 2.
7.005	<ul style="list-style-type: none"> <li>Lead is not on the 2016 303(d) list and all previous lists for Reach 1 of the San Gabriel River, and the Estuary (see Attachment #1), which are located immediately below R2-SGR.</li> </ul>	See response to comment 7.004.
7.006	<ul style="list-style-type: none"> <li>The San Gabriel River Metals TMDL (addressing copper, zinc, and selenium, as well as lead) has not been updated since it was adopted by USEPA in 2007, a consequence of the Regional Board not updating the 303(d) list every two years with contemporary monitoring.</li> </ul>	<p>The State Water Board receives comments from the public with respect to waterbody-pollutant combinations that are timely requested for its review in addition to those that the State Water Board elects to consider. (See Listing Policy, Section 6.3.) Such waterbody-pollutant combinations are identified in the State Water Board's Revised Notice of Opportunity to Comment (April 9, 2020). That notice states that comments on waters in the Los Angeles Region shall be limited to "proposed changes to the delisting recommendations submitted by the Los Angeles Region, as identified in section 4.2 of the Draft Staff report."</p> <p><a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html</a></p> <p>Comments concerning the San Gabriel River Metals TMDL are beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018.</p> <p>Additionally, Section 6.1.2.1 of the Listing Policy describes the process for soliciting data for the Integrated Report. It states that the State Water Board shall release of notice of solicitation that identifies "which Regional Water Boards shall administer the listing process for that listing cycle." The Los Angeles Regional Water Board develops its 303(d) list pursuant to the notice of solicitation for each cycle.</p>
7.007	<ul style="list-style-type: none"> <li>The Los Angeles Regional Board apparently stopped SWAMP sampling and analysis for the San Gabriel River in 2009. It is unclear as to why.</li> </ul>	Comments on the Surface Water Ambient Monitoring Programs ("SWAMP") monitoring activities in the San Gabriel River are beyond the scope of the comments the State Water Board will

		receive for its consideration of the CWA 303(d) list for 2018. See response to comment 7.006.
7.008	<ul style="list-style-type: none"> <li>According to the 2014-2016 303(d) list Decision ID 32995 Fact Sheet for Lead, Line of Evidence 28206 (Attachment #2) the following monitoring results occurred between 1995 and 20071: 100 samples were taken, 86 during wet weather and 14 during dry weather for dissolved lead. Of the 100 samples, 85 were "non-detects" (NDs), 8 detects, but with no exceedances, and 7 exceedances. According to Table 3.1 of the State's 303(d) Listing Policy (below), the 7 exceedances are determined insufficient to place lead on the 303(d) TMDL list.</li> </ul>	<p>The San Gabriel River is listed as impaired for lead in the 2014/2016 Integrated Report. Comments on this listing decision are outside the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to comment 7.006.</p> <p>The commenter may request that the Los Angeles Regional Water Board review the listing decision during the 2024 Integrated Report listing cycle.</p>
7.009	Beyond this, according to the same Decision ID Fact Sheet, at Line of Evidence 87814, 72 samples were taken with no exceedances. This too would be sufficient to place lead on the "Do Not List" or "De-List" categories.	See response to comment 7.008.
7.010	In consideration of the preceding information, it would be appropriate to indicate "Do Not List" or "De-List" on the 2016-2018 Decision ID Fact Sheet for lead, R2-SGR, though either version will do.	See response to comment 7.008.
7.011	Withdrawing lead from R2-SGR will result in significant cost savings to the City, which, along with other local governments, is facing an unprecedented economic catastrophe due to the COVID-19 crisis.	<p>This comment is beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to comment 7.006.</p> <p>The TMDL prescribes allocations and an implementation schedule to achieve water quality objectives. Any legally binding requirements such as effluent limitations, best management practices, or reporting requirements are addressed in permits. A better forum for addressing these concerns would be the workshops and other public participation processes for the new regionwide MS4 permit in development.</p> <p>Additionally, the 303(d) list is not a rulemaking process and there is no economic impact from any listing or delisting decision. Economic</p>

		impacts are evaluated through rulemaking processes and in permit actions.
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## Letter 8: Grant Wilson, Earth Law Center

No.	Comment	Response
8.001	We support the majority of your listings and are encouraged by your dedication to protecting and restoring waterways.	Comment noted.
8.002	However, we respectfully ask that you revise the 2018 Integrated Report to address the substantive and procedural concerns that we list below.	See the responses below.
8.003	In sum, Earth Law Center (ELC) and Los Angeles Waterkeeper (LAW) request the timeliness and completeness of the Integrated Report, the listing of hydrologically-impaired waterways under Category 4C of the Integrated Report, the expansion of the CEDEN system to accommodate information in various formats, and a data submission deadline of a maximum of six months before the required submission date of the report.	See the individual responses below to each comment summarized here.
8.004	<b><u>2. The State Board Must Consider All Readily Available Data and Information, Including Flow Data, and List Waterways as “Impaired” Due to Hydromodification Where Supported by Such Data and Information</u></b>	The commenter is familiar with the declaration issued by the Sacramento Superior Court, in the legal action in which commenters are parties (Case No. 34-2017-80002726), which unequivocally concludes that neither federal or state law requires the State Water Board to include hydrologically impaired waterways in its CWA section 303(d) list or evaluate data supporting potential hydrological CWA section 303(d) impairments listings. The court similarly concluded that the State Water Board

also has no mandatory duty to characterize hydromodifications in its CWA section 305(b) report.

Section 303(d) of the CWA requires that each state, after establishing its water quality standards, compile a list of waters, referred to as “the section 303(d) list,” that do not meet those standards. (33 U.S.C. § 1313(d).) For each water on the section 303(d) list, the State Water Board must establish total maximum daily loads of certain “pollutants” that the water can sustain without exceeding water quality standards. (33 U.S.C. § 1313(d)(1)(C); see 33 U.S.C. § 1362(6) (defining “pollutant”).) In creating its section 303(d) list, the State Water Board is required to “assemble and evaluate all existing and readily available water quality-related data and information.” (40 C.F.R. § 130.7(b)(5).) The relevant data and information include the state’s “CWA section 305(b) report.” (*Id.* § 130.7(b)(5)(i).) The regulations implementing the CWA further provide that the state “shall include a priority ranking for all listed water quality-limited segments still requiring TMDLs,” and “shall identify the pollutants causing or expected to cause violations of the applicable water quality standards.” (40 CFR § 130.7(b)(4).) The state then must “establish TMDLs for the water quality limited segments identified” in the list, and submit the “list of waters, pollutants causing impairment, and the priority ranking” to the U.S. EPA for approval. (40 CFR § 130.7(c)(1), (d)(1).)

The section 305(b) report is a water quality assessment report regarding all navigable waters within the state that each state must submit to the U.S. EPA pursuant to CWA § 305(b). (33 U.S.C. § 1315(b).) The EPA compiles, analyzes, and transmits these § 305(b) reports to Congress. (*Id.* § 1315(b)(2).)

In the above-noted superior court case, the court concluded:

“Construed in context, the language of the Clean Water Act plainly requires listing only [water quality limited segments]

		<p>that require a TMDL which, as described above, defines the maximum amount (or “load”) of a pollutant that can be discharged into the water. Identifying waters impaired due to hydrological modifications, such as excessive water diversions, simply is not the purpose of the 303(d) list.</p> <p>“The State’s Listing Policy implements the listing requirements of section 303(d) of the Clean Water Act and is consistent with the requirements of the Clean Water Act, EPA regulations, and the EPA’s guidance. Although some of the California Listing Factors are broadly worded, the expressly-stated purpose of the Listing Policy is to identify “water quality limited segments” where the “water quality standard is not attained; the standards nonattainment is due to toxicity, a pollutant, or pollutants; and remediation of the standards attainment problem requires one or more TMDLs.”</p> <p>“Petitioners claim that the 305(b) report is ‘broader’ than the 303(d) list, but Petitioners have failed to identify any duty for states to describe low flow or hydrological conditions as part of their Integrated Report. At most, the EPA guidance requires the State to classify segments into ‘one or more’ of the reporting categories and provides that segments impaired due to lack of adequate flow or stream channelization ‘may’ be placed in Category 4c.</p> <p>“Moreover, even if Petitioners are correct that the State’s obligation under section 305(b) is broader than section 303(d), the 305(b) report has much less significance. Section 305(b) merely imposes a reporting requirement. The 305(b) report is not subject to EPA’s review, and the 305(b) report compels no subsequent regulatory action.” (Final Ruling on State Water Board’s Demurrer to Third Amended Petition, Dec. 8, 2018.)</p> <p>It follows that identifying hydrological impairments, which are “pollution” impairments and not “pollutant” impairments, is beyond the scope of the State Water Board’s April 9, 2020 Revised Notice</p>
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		<p>of Opportunity to Comment, which only pertains to “pollutant” impairments proposed to be included in the statewide 2018 CWA section 303(d) list.</p> <p>Although the comments concerning pollution assessments are beyond the scope of the notice, the following responses to each comment provide additional rationale.</p>
8.005	<p>The Clean Water Act, as implemented into state law by Porter-Cologne, requires listing <i>all</i> sources of impairment—including hydrologically-impaired waterways, such as those with low flows. Aside from being required, such listings are good public policy: Why would a state limit the amount of information it releases on impaired waters, information that could help it make better decisions about how to prioritize its resources? Many other states already correctly list hydrologically impaired waters, and so should California (Attachment 1 is a report from Earth Law Center on this subject).<sup>1</sup></p> <p>Footnote 1: For a full legal analysis and description of state practices, see Earth Law Center, "Flow-Impairment Toolkit: Impairment Listings for Low-Flow Waterways under the Clean Water Act," at: <a href="#">http://www.earthlawcenter.org/wp-content/uploads/2015/04/Flow-Impairment-Toolkit-Impairment-Listings-for-Low-Flow-Waterways-under-the-Clean-Water-Act.pdf</a>.</p>	<p>See response to comment 8.004.</p> <p>While other states may rely on other strategies for placing waterbody-pollutant combinations into Category 4c, the State Water Board uses an approach and methodology for Integrated Report assessments that is transparent and empirically justified such that it could be uniformly employed by all of the Regional Water Boards.</p> <p>Furthermore, 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.) The State Water Board has broad authority to 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 controversial and frequently involve</p>

		<p>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 (such as salmonids) depends on the unique circumstances of each situation and requires knowledge of other factors impacting the physical and biological integrity of the watercourse, including physical impediments to fish passage (dams and culverts, in addition to natural impediments such as waterfalls and landslides), sediment recruitment, 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. Neither federal or state law requires the State Water Board to consider water flow requirements or impairments when 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, 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 states to consider flow, pollution, or allocation of water rights, when reporting on standards attainment.</p>
8.006	In California, hydrologically-impaired waterways should be listed under Category 4C, which is reserved for waterways that are "impaired due to pollution not caused by a pollutant." <sup>2</sup> Although hydrological impairments do not trigger TMDLs, as explained by U.S. EPA, "States can employ a variety of watershed restoration tools and approaches to address the	<p>See response to comment 8.004.</p> <p>Similar to the requirements applicable to a state developing its 303(d) list of impaired waters, placing waters in Category 4c should be done in accordance with a description of the method used for Category 4c placements, the data and information used, and the rationale to support the decision. The State Water Board has not</p>

	<p>source(s) of the impairment” for Category 4C listings.<sup>3</sup> Some other states list hydrologically impaired waterways under Category 5 for convenience, and this is also a reasonable approach if California chooses to do so. (See Attachment 2 for examples of both approaches in a variety of states.)</p> <p>Footnote 2: See e.g., U.S. Environmental Protection Agency, "Information Concerning 2016 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions," p. 15 (Aug. 13, 2015).</p> <p>Footnote 3: <i>Id.</i></p>	<p>established such a methodology. Without a defined methodology for assessing non-pollutant related pollution, the Water Board does not have a consistent and transparent approach to analyzing the extent to which flow-related alterations cause or impact 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. Listing recommendations 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).]</p> <p>The State Water Board, in coordination with partner agencies, is undertaking various efforts related to the establishment of instream flows for California rivers and streams. In December 2017, the State Water Board adopted the Cannabis Cultivation Policy, which establishes forbearance periods and instream flow requirements for the diversion and use of water for cannabis cultivation.</p> <p>The 2018 Bay-Delta Plan update established flow objectives in the Lower San Joaquin River, which may be implemented through voluntary agreements or other processes in the absence of an approved voluntary agreement. Future updates to the Bay-Delta Plan are focused on flow and water project operations for the Sacramento River, tributaries, and the Delta, which may also include voluntary agreements.</p> <p>Additionally, the State Water Board and the Department of Fish and Wildlife are developing instream flow criteria to support critical habitat for anadromous fish in the South Fork Eel River, Mark West Creek, and Ventura River.</p> <p>State Water Board staff is also working with partner agencies on the California Environmental Flows Framework (“framework”) that will help to provide a consistent approach and tools to develop</p>
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		<p>ecological flow criteria for a variety of stream types. Flow criteria developed using the framework and tools may be used as the basis for establishment of flow objectives. The framework is being used to develop instream flow recommendations for the Los Angeles River.</p> <p>As waterbody-specific flow recommendations and objectives are established, staff will evaluate using them to support Category 4c placements in the 305(b) report.</p>
8.007	<p>Furthermore, federal regulations state that states must evaluate “all existing and readily available information” in developing their 303(d) lists and prioritizations.<sup>4</sup> Readily available data includes flow data as well as the 305(b) report itself.<sup>5</sup> However, the draft Staff Report seemingly failed to consider data specific to potential hydrological impairments, as do the staff reports of the Colorado River Regional Water Quality Control Board (“Colorado River Regional Board”) and the Lahontan Regional Water Quality Control Board (“Lahontan Regional Board”). Significant amounts of readily available data exists that supports the hydrological impairment of numerous California water segments, including the three “on cycle” regions for the 2018 Integrated Report, that has been completely ignored.</p> <p>Footnote 4: 40 CFR § 130.7(b)(5)</p> <p>Footnote 5: See <i>Thomas v. Jackson</i>, 581 F.3d 658, 661 (citing 40 C.F.R. § 130.7(b)(5)(i)).</p>	<p>Regarding the evaluation of readily available data and information see response to comment 5.005.</p> <p>Regarding the evaluation of hydrological data see response to comment 8.004.</p>
8.008	<p>Based on the legal and public policy justifications, we ask that the State Board to begin the practice of listing appropriate hydrologically impaired waterways. We recommend that you begin with those waterways that are undeniably impaired due to hydromodification based on readily available data and information.<sup>6</sup> To assist, below we have included some basic information</p>	<p>See responses to comments 8.004 and 8.006</p> <p>The general information referenced in the comment letter was not submitted to the State Water Board during the data solicitation period for the 2018 Integrated Report cycle.</p>

	<p>about waterways within “on cycle” regions that are justified for Category 4C listing in the 2018 Integrated Report, although we urge you to conduct a comprehensive analysis of <i>all</i> hydrologically impaired waterways in the future beginning with the 2020 Integrated Report.</p>	
8.009	<p><b>A. North Coast Region:</b> Many North Coast waterways are so severely and incontrovertibly impaired, and for which low flows are so clearly a cause, that there are no reasonable arguments against their 303(d) listing for altered flow under Category 4C. These waterways include, at minimum, the Scott River, Shasta River, Eel River, Mattole River, Maacama Creek, and Mark West Creek.<sup>7</sup> Citizens have submitted significant amounts of data and information on the hydromodification of these and other rivers,<sup>8</sup> but due to the State Board’s policy of excluding <i>all</i> Category 4C waterways regardless of the strength of support for a listing, this data and information does not appear to have even been considered.</p> <p>Footnote 7:</p> <p>See e.g., Earth Law Center, Comment Letter—303(d) List Portion of the 2014 and 2016 California Integrated Report (July 10, 2017), pp. 7-9 and attachment 2 (Clean Water Act Section 303(d) and 305(b) Listings of Impaired Waters: Ten Examples) (July 10, 2017), <a href="https://bit.ly/2xle9CB">https://bit.ly/2xle9CB</a>.</p> <p>Footnote 8:</p>	<p>See responses to comments 8.004 and 8.006.</p> <p>Flow data submitted during the data solicitation period was assembled and assessed by Water Board staff. As described in response to comment 8.006, above, in the absence of a defined methodology for assessing flow, the assessment process did not result in listing recommendations.</p>

	<p>See e.g., Regional Board 1 - North Coast Regional References, Ref: 3661, "Klamath Riverkeeper. 2010. Information</p> <p>regarding flow and hydromodification related impairments by P. Higgins with temperature and algae data for Shasta</p> <p>River tributaries" (Aug. 30, 2010).</p>	
8.010	<p><sup>6</sup>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.</p>	<p>See responses to comments 5.005 and 8.004.</p> <p>The commenter does not cite the authority for the assertion that the State Water Board may not legally impose date restrictions on what data are available because there is no such authority.</p> <p>Section 6.1 of the Listing Policy describes the process for evaluation of readily available data and information. Section 6.1.1 defines readily available data and information and states that the State and Regional Water Boards shall actively solicit all readily available data and information. Section 6.1.2.1 of the Listing Policy further explains that the State Water Board shall solicit data and information through a notice of solicitation.</p> <p>In the notice of solicitation the State Water Board identifies the data solicitation period and cut-off date for the listing cycle. As a practical matter, a data cut-off date is a necessary step that provides technical staff with the time to conduct a thorough assessment of the data and provides the public and stakeholders time to consider and comment upon proposed listing recommendations, in conformance with Listing Policy guidelines.</p>
8.011	<p><b>The State Board must consider all readily available data and information potentially supporting the hydrological impairment of the Scott River, Shasta River, Eel River, Mattole River, Maacama Creek, and Mark West Creek, amongst other waterways.</b></p>	<p>See responses to comments 5.005, 8.004, 8.006 and 8.009.</p> <p>The Water Boards assessed all readily available data submitted from the North Coast Region. The results of the assessment are</p>

	Waterways must then be listed as impaired due to hydromodification under Category 4C or 5 where supported by such readily available data and information.	described in the Waterbody Fact Sheets found in Appendix B of the Staff Report.
8.012	<p><b>B. Lahontan Region:</b> Waterways for which existing data support flow-impairment listings include the Mojave River (which has been severely dewatered by the over-utilization of interconnected groundwater)<sup>9</sup> and Squaw Creek (which the State Board itself recognized may not be meeting beneficial uses due to diminished flow conditions in a 2007 resolution approving a sediment TDML).<sup>10</sup> The Lahontan Regional Board has an abundance of information supporting hydromodification listings from its work to establish regional instream flow requirements that protect beneficial uses.<sup>11</sup> However, once again, due to the State Board's policy of excluding <i>all</i> Category 4C waterways, this data and information does not appear to have even been considered.</p> <p><b>The State Board must consider all readily available data and information potentially supporting the hydrological impairment of the Mojave River, Squaw Creek, and other waterways in the Lahontan Region.</b> Waterways must then be listed as impaired due to hydromodification under Category 4C or 5 where supported by such readily available data and information.</p> <p>Footnote 9: See e.g., "DRAFT: Beneficial Use Changes for the Mojave River Watershed and Other Minor Revisions," Lahontan Region Water Quality Control Board (Feb. 2019) ("Because of increased groundwater pumping ... some reaches of the Mojave River that previously had perennial surface flow now flow only during large storm run-off events.")</p>	<p>See responses to comments 5.005, 8.004, 8.006 and 8.009.</p> <p>The Water Boards assessed all readily available data submitted from the Lahontan Region. The results of the assessment are described in the Waterbody Fact Sheets found in Appendix C of the Staff Report.</p>

	<p>Footnote 10: State Water Resources Control Board, Resolution No. 2008-0008.</p> <p>Footnote 11: See Background Memorandum, “Workshop – Establishing Instream Flow Requirements to Protect Water Quality and Beneficial Uses,” Lahontan Regional Water Quality Control Board (Nov 15-16, 2017).</p>	
8.013	<p><b>C. Colorado River Region:</b> The Colorado River is perhaps the most obvious example of a hydrologically impaired waterway in the United States. At one time, the Colorado River, the world’s seventh-longest river, carried water from the Rocky Mountains 1,500 miles south into the Gulf of California. This is no longer the case. The Colorado River now regularly falls about 50 miles short of even reaching the sea because all of its water is diverted for irrigation and domestic uses.<sup>12</sup> Low flows suffered by the Colorado River are even going to worsen as climate change is expected to decrease the river’s flow up to 20 percent in the next 30 or so years. Dams constructed on the Colorado River also have huge ecological repercussions: Natural habitats have been destroyed, unnatural flow regimes have been created, sediment have become trapped that are essential to the creation of certain riparian habitats, and water temperatures have been altered, all of which devastates native fish population.<sup>13</sup> If the Colorado River does not suffer from hydrological impairment, then no river does.</p> <p><b>The State Board must consider all readily available data and information potentially supporting the hydrological impairment of the Colorado River and other waterways in the Colorado River Region.</b> Waterways must then be listed as impaired due to hydromodification under Category 4C or 5 where</p>	<p>See responses to comments 5.005, 8.004, 8.006 and 8.009.</p> <p>The Water Boards assessed all readily available data submitted from the Colorado River Region. The results of the assessment are described in the Waterbody Fact Sheets found in Appendix C of the Staff Report.</p>



	<p>supported by such readily available data and information.</p> <p>Footnote 12: Sarah Zielinski, <i>The Colorado River Runs Dry</i>, SMITHSONIAN INSTITUTION (Oct. 2010), <a href="http://www.smithsonianmag.com/science-nature/the-colorado-river-runs-dry-61427169/">www.smithsonianmag.com/science-nature/the-colorado-river-runs-dry-61427169/</a></p> <p>Footnote 13: Kurt Repanshek, <i>Report Raises Concerns Over How Colorado River Basin Dams Impact National Parks</i>, NATIONAL PARKS TRAVELER (May 1, 2011), <a href="http://www.nationalparkstraveler.org/2011/05/report-raises-concerns-over-how-coloradoriver-basin-dams-impact-national-parks8019">http://www.nationalparkstraveler.org/2011/05/report-raises-concerns-over-how-coloradoriver-basin-dams-impact-national-parks8019</a></p>	
8.014	<p>In sum, the State Water Board has more than enough data and information needed to list waterways, at a minimum those listed above, as hydrologically impaired under Category 4C. 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.</p>	See responses to comments 5.005, 8.004 and 8.006.
8.015	<p><b><u>3. California’s Policy of Policy of “Single-Category” Listings Only is Contrary to the Clean Water Act and EPA Guidance</u></b></p> <p>Waterways can be listed in multiple listing categories, including both Category 4C and 5. However, in its response to the July 15, 2019 comment letter from Earth Law Center, Los Angeles Waterkeeper, and Inland Empire Waterkeeper, the Lahontan Regional</p>	<p>See response to comment 8.004.</p> <p>U.S. EPA’s guidance concerning appropriate placement in the Integrated Report categories are recommendations to the states and not requirements. U.S. EPA’s 2015 guidance for the 2016 Integrated Report (Benita Best-Wong, Director, U.S. EPA, Office of Wetlands, Oceans, and Watershed, to Water Division Directors, Regions 1-10 (August 13, 2015)) cautions (p.1): “This memorandum is not a regulation and does not impose legally binding requirements on EPA or the States. EPA recommends that</p>

<p>Board justified its failure to list <i>any</i> waterways as hydrologically impaired as follows:</p> <p><i>The Water Board’s approach is to place a waterbody in one Category only. Portions of the Mojave River and Squaw Creek are in Categories 5 and 4a respectively, so placing them in Category 4c would be inconsistent with the current approach.</i><sup>14</sup></p> <p>This approach, which has been maintained by the State Board since at least the 2012 Integrated Report,<sup>15</sup> 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. U.S. EPA 2015 Guidance referring to 2006 Guidance clearly states that:</p> <p>EPA continues to recommend that States assign all of their surface water segments to <b><u>one or more of five reporting categories</u></b>.<sup>16</sup></p> <p>Footnote 14: Lahontan Regional Water Quality Control Board, Lahontan Region 2018 Integrated Report Response to Comments, p. 79 (2020),</p> <p><a href="https://www.waterboards.ca.gov/lahontan/water_issues/programs/tmdl/integrated_report/docs/ir_response_to_comments_clean.pdf">https://www.waterboards.ca.gov/lahontan/water_issues/programs/tmdl/integrated_report/docs/ir_response_to_comments_clean.pdf</a>.</p> <p>Footnote 15: See Final 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, p. 56 (2012),</p> <p><a href="https://www.waterboards.ca.gov/water_issues/program">https://www.waterboards.ca.gov/water_issues/program</a></p>	<p>the States prepare their 2016 IRs consistent with previous IR guidance including EPA’s 2006 IR Guidance, which is supplemented by EPA’s 2008, 2010, 2012 and 2014 memos.” The State Water Board categorization is consistent with the CWA, its implementing guidance, and U.S. EPA’s guidance.</p> <p>Section 2 of the Listing Policy describes the structure of the 303(d) list. Waters where water quality standards are not attained are identified as “Water Quality Limited Segments” per Section 2.1 of the Listing Policy. A water segment may be impaired for one or more pollutants. If all of the impairments in the water segment are being addressed by a TMDL or if an existing regulatory program is expected to result in attainment of the water quality standard then the water segment is identified as a “Water Quality Standard Being Addressed” per Section 2.2 of the Listing Policy.</p> <p>To meet CWA section 305(b) requirements of reporting on water quality conditions, the Integrated Report places each water segment into one of five “Integrated Report Condition Categories.” Section 2.3.4 of the Staff Report describes how the Integrated Report Condition Category is determined for each assessed waterbody. California has opted to place each assessed waterbody in a single Integrated Report Condition Category.</p>
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	<p><a href="s/tmdl/docs/2012_integrated_rpt_fnl.pdf">s/tmdl/docs/2012_integrated_rpt_fnl.pdf</a> (“A water body cannot be placed in Category 4C when it is already listed for several other pollutants”).</p> <p>Footnote 16: 2015 EPA Listing Guidance, <i>supra</i>, p. 15.</p>	
8.016	<p>Accordingly, flow impairments should be reflected in Category 4C <i>whether or not</i> there is a pollutant present. 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.<sup>17</sup> Because the state must comply with <i>both</i> Sections 305(b) and 303(d), it must provide information relevant to all categories applicable to a single water body.<sup>18</sup> The 2018 Integrated Report does not meet these mandates.</p> <p>Footnote 17: 33 U.S.C. §§ 1315(b), 1313(d); 40 C.F.R. §§ 130.7, 130.8.</p> <p>Footnote 18: 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. <i>See</i> U.S. EPA, 2002 Integrated Water Quality Monitoring and Assessment Report Guidance.</p>	See responses to comments 8.004 and 8.015.
8.017	<p>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.<sup>19</sup> California must do the same.</p> <p>Footnote 19: <i>See e.g.</i>, Earth Law Center, Comment Letter—303(d) List Portion of the 2014 and 2016</p>	See responses to comments 8.004, 8.015 and 8.016.

	California Integrated Report (July 10, 2017), pp. 7-9 and attachment 2 (Clean Water Act Section 303(d) and 305(b) Listings of Impaired Waters: Ten Examples) (July 10, 2017), <a href="https://bit.ly/2xle9CB">https://bit.ly/2xle9CB</a> .	
8.018	<p><b><u>4. California Does Not Need a Formal Methodology to List Waterways as Hydrologically Impaired Under Category 4C</u></b></p> <p>In its response to comments requesting Category 4C listings on its 2018 303(d) list, the Lahontan Regional Board stated as follows:</p> <p><i>Additionally, the State Water Board has not established a consistent methodology by which waters impaired by “pollution” are placed in Integrated Report Category 4c. Without a defined methodology, Regional Water Board and State Water Board staff do not have a consistent and transparent approach to analyzing the extent to which flow-related alterations cause or impact water quality standards. There are efforts underway to develop flow objectives for several waterbodies and once established staff will likely be able to use them to assess waters under Clean Water Act section 305(b).<sup>20</sup></i></p> <p>This argument, the same one the State Board has been making since at least the 2012 Integrated Report,<sup>21</sup> once again falls short. 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 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.”<sup>22</sup></p>	<p>See responses to comments 8.004 and 8.006.</p> <p>Additionally, the statement cited to the State Water Board was made in 2013 by staff working on the Integrated Report program as part of internal discussions on options for assessing flow-related alterations and assessing standard attainment, which continued to evolve. Using best professional judgement and interpreting a narrative water quality objective were options that were considered but not implemented, in part due to the need for an approach and methodology that is transparent and empirically justified such that it can be uniformly employed across the state. See response to comment 8.005 for additional discussion on California’s efforts regarding flow and water quality.</p>

	<p>In other words, the state itself has recognized that flow criteria are not necessary for flow impairment listings.</p> <p>Footnote 20: Lahontan Regional Water Quality Control Board, Lahontan Region 2018 Integrated Report Response to Comments, p. 79 (2020),  <a href="https://www.waterboards.ca.gov/lahontan/water_issues/programs/tmdl/integrated_report/docs/ir_response_to_comments_clean.pdf">https://www.waterboards.ca.gov/lahontan/water_issues/programs/tmdl/integrated_report/docs/ir_response_to_comments_clean.pdf</a>.</p> <p>Footnote 21: See Final 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 (2012),  <a href="https://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/2012_integrated_rpt_fnl.pdf">https://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/2012_integrated_rpt_fnl.pdf</a></p> <p>Footnote 22: Email from Nicholas Martorano, SWRCB to SWRCB/RWRCB staff (July 22, 2013) (available upon request).</p>	
8.019	<p>U.S. EPA addresses the process of identifying hydrologically impaired waters in its 2015 EPA Listing Guidance, which does not require adoption of flow standards as a prerequisite for listings, stating that:</p> <p>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 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</p>	See responses to comments 8.004, 8.006, and 8.015.

	<p>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.<sup>23</sup></p> <p>Footnote 23: 2015 EPA Listing Guidance, <i>supra</i>, p.15</p>	
8.020	<p>Finally, if the State Board actually believes that it needs a methodology to list pollution impairments under Category 4C, it should have developed one. Yet it has not even started to develop such a methodology despite arguing that it is necessary since at least the 2012 Integrated Report.<sup>24</sup> Earth Law Center has provided the State Board with detailed information about how other states list waterways as hydrologically impaired, which should be sufficient for the listing of at least the clearest instances of impairment due to hydromodification.</p> <p>Footnote 24: See Final 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 (2012), <a href="https://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/2012_integrated_rpt_fnl.pdf">https://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/2012_integrated_rpt_fnl.pdf</a>.</p>	See response to comment 8.006.
8.021	<p><b><u>5. The State Board Should Eliminate Onerous CEDEN Limitations to Ensure the Public Can Submit All Readily Available Data and Information</u></b></p> <p>Once again, there are too many barriers to the data submission process, discouraging full public participation. This includes the exclusion of data and</p>	<p>See response to comment 5005.</p> <p>Additionally, the requirement to submit data to CEDEN improves the timeliness and transparency of the Integrated Report.</p> <p>The CEDEN data are organized in a standardized format, which facilitates automation and improves overall processing speed.</p>

	<p>information not submitted through CEDEN, or exclusion of data that fails to meet strict formatting and quality assurance requirements, such as the exclusion of all PDF submissions and the mandatory inclusion of a signed QAPP. The State Board also once again did not commit to collecting all readily available data and information, regardless of whether it is submitted by the public. To address this, we ask that the State Board expand the ability of the system to accommodate information in various formats.</p>	<p>Through the use of CEDEN, Water Board staff are better able to standardize datasets, understand data quality, and perform accurate and consistent assessments of water quality data for 303(d) listing decisions. The CEDEN requirement allows staff to develop and use tools to automate large portions of the data processing, quality review, and analysis portions of the process, resulting in significant time savings.</p> <p>The CEDEN requirement also provides the public with a transparent and standardized process to submit water quality data and information, along with the minimum data requirements needed, for the Integrated Report. Tools and resources are available on the CEDEN website to assist the stakeholders and the public with uploading data.</p> <p>Furthermore, CEDEN allows data collected to be analyzed and used by many other programs and members of the public, making the resources spent on collecting and analyzing that data more valuable and widely utilized.</p>
8.022	<p><b><u>6. The 2018 Integrated Report Relies Upon Stale Data</u></b></p> <p>The State Board must have a data submission deadline that is closer to the date the Integrated Report is ultimately approved. In completing this year's integrated report, the Water Boards used data only from May 3, 2017 and earlier, forgoing several years of appropriate and necessary data. The data used to compile the list is therefore incomplete and outdated and the report therefore inaccurately represents the current state of impaired waters in the Lahontan, North Coast, and Colorado River Regions. This incompleteness is a violation of both the Clean Water Act and Porter-Cologne, which require that the lists utilize "all available data and information" in compiling the lists. (Additionally, we note that the State Board listing policy allows the State Board to effectively</p>	<p>See response to comment 8.010.</p> <p>In accordance with the Listing Policy (see sections 6 through 6.3), there are several steps in the data assessment process that must take place after the data submission deadline. It is not feasible to accept data up to six months prior to the report being submitted to the U.S. EPA as submitted data needs to be sufficiently analyzed and the State Water Board needs to conduct public review processes before the report can be submitted. Accepting data up to six months before submission would jeopardize both the accuracy and transparency of the Integrated Report assessments.</p> <p>For each Integrated Report listing cycle, millions of water quality data records are submitted for assessment. These data records must be reviewed for quality, mapped, and assessed per Listing Policy guidance to accurately identify impaired and unimpaired</p>

	<p>ignore all of the data in six of the nine regions when compiling the Integrated Report for eventual submission to EPA, as described in more details below.) To address this, we ask that the State Board accept data for a longer period of time. We suggest a data submission deadline of a maximum of six months before the submission date of the report. If the report is on time, that means a data submission deadline of no earlier than November 1 of odd-numbered years. If the Integrated Report is late, the data submission cutoff should be even later.</p>	<p>waters. Each listing cycle, the number of data records submitted increases.</p> <p>It takes approximately two years to adequately process, map, review for quality, and assess the data to evaluate whether water quality standards are attained, and beneficial uses are being supported at the waterbody level. Once these preliminary assessments are complete, the Water Boards seek public input. The public process takes an additional 1.5 to 2 years and provides for a transparent decision-making process that is responsive to stakeholder concerns and input.</p> <p>The State Water Board recognizes that producing timely and complete Integrated Reports is important. The State Water Board is currently working on several fronts to improve the process to administer the requirements of the Listing Policy. This includes upgrading existing data assessment tools and conducting multiple Integrated Report cycles concurrently.</p>
8.023	<p><b><u>7. The Listing Policy Must Require the Inclusion of All Regions in the Biennial Reports</u></b></p> <p>The current listing policy is insufficient and unlawful, as it does not require inclusion of all regions in the biennial reports. The Clean Water Act and Porter-Cologne requires California to identify all bodies of water for which technologically-based effluent limitations are insufficient to maintain water quality standards, which the 2018 Integrated Report will fail to do, because it only includes three of California's nine Water Board regions at a time. Though the State Board allowed other regions to submit data, by not requiring the submission, the reports remain incomplete in violation of both federal and state statutes. To address this, we ask that the State Board end the "three cycle" listing approach such that the Integrated Report is fully updated every two years.</p>	<p>This comment is beyond the scope of the State Water Board's consideration of the 2018 Integrated Report.</p> <p>Moreover, the U.S. EPA has now approved two of California's Integrated Reports that were completed using the regional approach (the 2012 and the 2014/2016 Integrated Report), as being consistent with federal requirements.</p> <p>Additionally, for each Integrated Report listing cycle, the State Water Board uses the previous Integrated Report as its starting point and evaluates readily available data and information for the "on cycle" regions to determine whether additions to or deletions from that previous report is necessary. Section 6.1.2.1 of the Listing Policy states that the notice of solicitation for each listing cycle shall identify which Regional Water Boards will administer the listing process. It also provides that the "off cycle" regions may administer the listing process for one or more water segments that would lead to a direct listing change from the previous listing cycle. Consistent with the Listing Policy, the 2018 notice of solicitation</p>



		identified the North Coast, Lahontan and Colorado River Basin Regional Water Quality Control Boards for the 2018 listing cycle. Additionally, four of the six “off cycle” regions chose to assess new data and update their Integrated Reports during the 2018 The San Francisco Bay, Los Angeles and Central Valley Regional Water Quality Control Boards recommended changes to the 303(d) list. The San Diego Regional Water Quality Board made changes to the 305(b) report.
8.024	<p><b><u>8. Timeliness of the Integrated Reports</u></b></p> <p>The last issue to address is the timeliness of the report itself. The Clean Water Act and Porter-Cologne Water Quality Act (which incorporates the requirements of the Clean Water Act) mandate completion of 303(d) and 305(b) reports every two years by April 1 of even numbered years. The 2018 report therefore should have been submitted to U.S. Environmental Protection Agency (“U.S. EPA”) on April 1, 2018. Therefore, the 2018 report is already more than two years late.</p> <p>The timeliness of the Integrated Report process was a primary subject of the lawsuit <i>Earth Law Center et al. v. State Water Resources Control Board</i>. The Sacramento Superior Court ruled in favor of the Petitioners on the timeliness issue and ordered that the State Board must begin to meet the Integrated Report deadline beginning no later than April 1, 2022. We look forward to following your progress on complying with the court order.</p>	<p>Substantial progress has been made to improve procedures for efficiency and accuracy. The Water Board is now administering multiple Integrated Report cycles concurrently. Two listing cycles are currently active and the data solicitation period for a third listing cycle has begun. Steps have been taken to automate and streamline many of the data processing, mapping, and analysis steps. These actions have and will continue to help staff process more data more quickly.</p> <p>The State Water Board is on track to meet the April 1, 2022 deadline and comply with the court order.</p>
8.025	In sum, we once again urge the State Board to follow the lead of the U.S. EPA, numerous other states, and other regions in identifying flow- and otherwise hydrologically-impaired waters in the Integrated Report where supported by readily available data.	See responses to comments 8.004, 8.005 and 8.006.

8.026	We also ask the State Board considers all readily available data—including flow data and data that is more recent than its unreasonable cutoff point.	See responses to comment 8.007, 8.010 and 8.021.
8.027	Finally, we reiterate that the State Board must begin meeting Integrated Report deadlines, and we look forward to seeing progress in that regard.	See response to comment 8.024.

## Letter 9: Jim Christian, The OWTS Residents of the Russian River

No.	Comment	Response
9.001	<p>The reach of the Russian River within the Dutch Bill Creek-Russian River HUC-12 area is the most important section of the Russian River, both in terms of water recreation and nearby OWTS-served residences, and includes the additional communities of Summerhome Park, Rio Nido, Guerneville, Northwood and Villa Grande. This is the area where the bulk of the costs of the pending Russian River bacteria TMDL will be imposed on OWTS owners—costs which Sonoma County has estimated at \$100 million or more.</p> <p>Russian River FIBs</p> <p>Even costs like \$100 million might be justified if the bacterial quality of the River endangered swimmers' health.</p>	Comments regarding the costs and other components of the Russian River Pathogen TMDL and associated Action Plan are beyond the scope of the State Water Board's March 5, 2020 notice of opportunity to submit written comments, which pertains to the proposed 303(d) listings and delisting recommendations for waterbodies within the North Coast Region. Comments on the TMDL and the TMDL Action Plan should be submitted when the State Water Board considers approval of the amendment to the North Coast Basin Plan, which is currently expected to occur in 2021.
9.002	The River has previously been listed for a scientifically-disproven FIB, fecal coliform, and a numeric standard that was 25% of the number used almost everywhere else: 50 (rather than 200) cfu/100 mL. The State Water Board's 2018 staff report on bacteria standards described this standard as: "This numeric objective is not	The 303(d) listing recommendations for the 2018 Integrated Report for the Russian River are not based on fecal coliform data for the protection of the REC-1 beneficial use. Nor does the 2018 Integrated Report assess compliance with the North Coast Basin Plan's natural conditions bacteria water quality objective. See Section 3.1.4 of the Staff Report for a description of the Russian

	<p>based on public health protection but rather is indicative of what should be found in high quality coastal and mountain waters.” See page 27 (copy attached as item 1). But as to E. coli, the staff of the North Coast Regional Water Quality Control Board determined that there were no E. coli EPA exceedances in the Russian River at any sampled station; only tributaries showed E. coli exceedances. See S. Butkus, “Evidence of Water Contact Recreation Impairment in the Russian River Watershed,” at pages 1-3 (copy attached as item 2). Accordingly, the original (2015) draft of the TMDL showed that no reduction was needed on the Russian River to meet the EPA E. coli standard; only tributaries were listed. See pages 8-5 and 8-6 (copies attached as item 3).</p> <p>It was therefore understandable that the 2015 and 2017 drafts of the TMDL focused on different FIBs: Bacteroides in the 2015 draft and enterococcus in the 2017 draft. (The 2017 and 2019 drafts made no mention of required reduction of any specific FIB.)</p>	<p>River bacteria assessment methodology for the 2018 Integrated Report.</p> <p>Additionally, the North Coast Regional Water Board is undertaking an assessment of ambient water quality conditions and natural conditions in the Russian River watershed. Following completion of the study, the North Coast Regional Water Board will evaluate the need to revise the 2019 adopted Russian River Pathogen TMDL Action Plan. Similarly, future Integrated Report cycles likely will include evaluation of bacteria data against the natural conditions bacteria objective.</p>
9.003	<p>To its credit, the State Board in 2018 adopted uniform, science-based, EPA-consistent FIB standards, making E. coli the exclusive FIB for freshwater listing purposes and prescribing the numeric criteria and their calculation</p>	<p>See response to Comment 2.008.</p>
9.004	<p>In their current submission, the NCRWQCB staff has recommended that the State Board list all waterbodies in this HUC-12 area for E. coli exceedances—the River itself and the various tributaries in this area. See the materials submitted for Decision ID 79754. Unfortunately, the lines of evidence submitted in support of this recommendation do not show the required calculations under the State Board’s 2018 bacteria listing standards. So our group asked the NCRWQCB staff to share the underlying calculation with us. With commendable openness, they did, including both the raw</p>	<p>The Listing Policy identifies the process for developing the 303(d) list of impaired waterbodies and Section 3 of the Listing Policy identifies the process for evaluating various types of data. Many waterbody-pollutant combinations are evaluated utilizing sections of the Listing Policy that utilize a binomial distribution to determine if waters shall be placed on the section 303(d) list. However, when all other listing factors do not result in the listing of a water segment but information indicates non-attainment of standards, a water segment shall be evaluated to determine whether the situation-specific weight of evidence demonstrates that a water quality standard is not attained per section 3.11 of the Listing Policy. If the</p>

	<p>data and the program used to analyze the raw data. An image of the staff's calculated E. coli exceedances for all stations in this area is attached as item 4. The staff's table identifies sampling locations only by station number; for clarity, we have added their locations as supplied by the staff, and highlighted the 4 stations on the River in yellow.</p> <p>As you can see, the E. coli geomean measures show no exceedances whatsoever in this HUC-12 area, out of 387 qualified full-year samples and 489 qualified dry-season samples. (There were no qualified wet-season geomean samples.) This is hardly a sign that the Russian River is dangerous for swimmers.</p>	<p>weight of evidence indicates non-attainment, the water segment shall be placed on the section 303(d) list.</p> <p>Where freshwater E.coli and saline water enterococcus geometric mean data exceeded statewide objectives, the binomial distribution was utilized under Section 3.3 of the Listing Policy as the basis for determining if waters should be placed on the 303(d) list. Where freshwater E.coli and saline water enterococcus STV data exceeded statewide objectives, the binomial distribution was utilized under Section 3.11 of the Listing Policy as the basis for determining if waters should be placed on the 303(d) list. In those areas where these data did not reflect impairment using the binomial distribution, the situation-specific weight of evidence approach was utilized under Section 3.11 of the Listing Policy to further assess because information indicates nonattainment of standards.</p> <p>For the 2018 Integrated Report, multiple LOEs were developed to assess impairment of the REC-1 beneficial use including:</p> <ul style="list-style-type: none"> <li>•Exceedances of the E. coli water quality objective in freshwater;</li> <li>•Exceedances of the enterococci water quality objective in saline water;</li> <li>•Enterococci exceedances of U.S. EPA's 2012 Recreational Water Quality Criteria supported by evidence of human fecal material presence as indicated by human Bacteroides and Phylochip™ data; and</li> <li>•Postings of public health advisories at beaches.</li> </ul> <p>Additional discussion of the multiple LOEs used to assess bacteria data for the Russian River was added to Section 3.1.4 of the Staff Report to clarify the assessment methodology.</p> <p>The commenter is correct that E. coli geomean data meets the water quality objective for the Dutch Bill Creek HUC-12</p>
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		<p>subwatershed. Both the geomean and STV are water quality objectives. The listing recommendation for the Dutch Bill Creek HUC-12 is based upon the STV of the E. coli data during the winter, not the geometric mean, and the listing recommendation is consistent with Section 3.11 of the Listing Policy. For the Russian River, the STV was used due to the limited bacteria sampling frequency during wet weather conditions. Additional LOEs supporting the conclusion that the HUC-12 is impaired for indicator bacteria include enterococci STV results supported by evidence of human fecal material through human Bacteroides and Phylochip™ data, as well as postings of beach advisories.</p>
9.005	<p>Geomeans are the preferred measure under the 2018 bacteria standards, but for periods for which a geomean cannot be calculated, for example those with fewer than 5 lab samples, the record is supplemented by STV calculations, which have no minimum number of lab samples.</p>	<p>See the response to comment 4.001 regarding geometric means and statistical threshold values. Additionally, Section III.E.2 of Part 3 of the ISWEBE Plan states that:</p> <p>When applying the listing and delisting factors contained in the Listing Policy, the geometric mean and STV shall be used as follows, unless a situation-specific weight of the evidence factor is being applied: Only the geometric mean values shall be applied based on a statistically sufficient number of samples, which is generally not less than five samples distributed over a six-week period. However, if a statistically sufficient number of samples is not available to calculate the geometric mean, then attainment of the water quality standard shall be determined based only on the STV. When making a listing or delisting decision based on the situation-specific weight of the evidence factor and if beach use or beach closure information is available, such information shall be evaluated.</p> <p>Section 5.2.6 of the Staff Report Including Substitute Environmental Documentation for Part 3 of the ISWEBE Plan states that,</p> <p>By assessing the geometric mean of a statistically sufficient number of samples, there is more certainty that the sample values reflect the true bacterial concentration of the water body. In cases where a sample location is remote or</p>

		<p>samples cannot be collected a frequency that allows for the calculation of a statistically representative geometric mean, the water quality can be assessed using the water quality objectives based on STV or [single sample maximum] only.</p> <p>In several instances, Russian River data for E. coli, enterococci, or both indicators were compared to the STV. In those instances, the waterbody segment was evaluated to determine attainment of the standard using the situation-specific weight of evidence listing factor pursuant to Section 3.11 or Section 4.11 of the Listing Policy. For the Russian River, the STV was used due to the limited bacteria sampling frequency during wet weather conditions.</p> <p>Decisions 77147 and 79794 were revised to clarify the use of Section 3.11 of the Listing Policy.</p>
9.006	Looking first at the full-season and dry-season STV numbers, neither the STV reading for any single station nor the combined STV readings for all stations in this area (River and tributaries) exceed the applicable listing criteria: the 19 combined exceedances in 171 full-year STV month-samples are below the listing threshold of 29 for this sample size; and the 7 combined exceedances in 145 dry-season STV month-samples are below the listing threshold of 24 for this sample size. Only the combined wet-season STV numbers for all stations in this area, 12 exceedances in 26 month-samples, exceeds the numeric listing standard (5 for this sample size). The staff's narrative conclusion on the page following the table confirms that area-combined winter-season STV readings are the only reason why all the waterbodies in this HUC-12 area are proposed for listing.	See response to comment 4.003.
9.007	But of course listing applies to waterbodies, not to HUC-12 land areas or any other land areas. The 10 tributary sampling stations in the table are spread over more than 10 miles of the Russian River, from Summerhome Park to Monte Rio. (All but 2 of the "tributaries" are creeks too	See Section 3.1.4 of the Staff Report, which was revised to add information about and clarify the geographic segmentation of data into HUC-12 subwatersheds. Additionally, Decision 79794 and associated LOEs were revised to clarify the evidence supporting the bacteria listing recommendations in the Guerneville HSA and

	<p>small to be named, so we are using the term broadly. It's safe to assume that the aggregate flow of all of these 10 tributaries is less than 1% of the flow of the River at any time of year.) But the Russian River is certainly a waterbody and so the 4 stations on the River should perhaps be combined. The results of combining the River locations are shown manually below the table. For the full year and dry season, the combined mainstem STV readings, like the combined area STV readings, are below the listing thresholds: the 7 exceedances out of 137 full-year sample-months are below the listing threshold of 23 for this sample size; and the 4 exceedances out of 131 dry-season sample-months are below the listing threshold of 22 for this sample size. Most significantly, the wet-season combined mainstem readings are also below the listing threshold: the 3 exceedances out of 6 wet-season STV sample-months are below the listing threshold of 5 for this sample size.</p>	<p>associated Russian River HUC-12 subwatersheds, including the Dutch Bill Creek-Russian River HUC-12 subwatershed. The revised decision is found in Appendix B: North Coast Regional Water Board Waterbody Fact Sheets of the Proposed Final Staff Report. The prior versions are found in Appendix B of the Draft Staff Report.</p> <p>The Proposed Final Staff Report and appendices and the Draft Staff Report and appendices are available here:</p> <p><a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html</a></p>
9.008	<p>This means that the proposed listing of this reach of the River depends fully and exclusively on adding in wet-season STV readings of various tributaries in the area to those of the River itself. There is no scientific or rational basis for adding readings from other waterbodies to the direct readings of the River itself. To fully understand how illogical this is, it should be noted that none of the tributaries itself meets any STV (or geomean) listing threshold; the combined area STV readings exceed the numerical listing standard only because there is a relatively large number of tributaries in this HUC-12 area!</p>	<p>See response to comment 4.001.</p>
9.009	<p>In the adjoining Porter Creek-Russian River HUC-12 area, our calculations, using the program provided by the staff, show that the same artifice was used to elevate wet-season STV exceedances. The staff's sampling data in this area consist of two stations on the River and a station on each of two unnamed tributaries, for a total of 3 waterbodies. Geomean exceedances for the full</p>	<p>See response to comment 4.001.</p>

	<p>year were 0 out of 141 qualified samples. (All samples were in the River; only full-year geomean data was provided.) Full-year STV exceedances were 1 out of 53 samples for the two River stations combined (below the listing threshold of 9 for this sample size) and 8 out of 81 aggregate month-samples for all 3 waterbodies combined (below the listing threshold of 11 for this sample size). Similarly, dry-season STV exceedances were 0 out of 51 month-samples for the two River stations combined, and 1 out of 53 month-samples for all 3 waterbodies combined (below the listing threshold of 9 for this sample size). For wet-season STV's, the two combined River stations showed 1 exceedance out of 2 month-samples (below the minimum listing threshold of 5). Only by adding in wet-season STV readings from the two tributaries (for an area total of 7 exceedances out of 8 month-samples) can the staff create the surface appearance of impairment.)</p>	
9.010	<p>We are of course aware that as a general public sanitation matter, improvements of some OWTS in some parts of this HUC-12 area are desirable. We support efforts by residents and public sanitation authorities to bring about these improvements, using existing governmental processes. But these are general public sanitation issues, not swimmer health issues.</p> <p>In its effort to list the Russian River in this HUC-12 area by adding in readings from tributaries, and ignoring the direct evidence of readings in the River itself, the North Coast Board is attempting to expand its regulatory powers beyond swimmer safety to encompass general public sanitation.</p>	See responses to comments 4.001 and 9.001.
9.011	<p>The massive financial burden of the associated TMDL, combined with the clear evidence that there is no impairment in the River and the lack of any basis in science or logic for adding in readings from a multitude</p>	See responses to comments 4.001 and 9.001.



	of other waterbodies, will trigger massive resistance from OWTS owners if they are forced to change their systems without any public financial support. Indeed, the unexplainable manner in which the NCRWQCB staff adds in readings from other waterbodies invites anti-environmental groups to attack the listing in court, with good prospects of having it declared arbitrary and capricious.	
9.012	Above all, the listing would deal a severe blow to the public's respect for the North Coast Board's work in this and its many other important areas of work. To uphold the public's respect and for the sake of regulatory integrity, the State Board should reject this misguided effort by the NCRWQCB.	See responses to comments 4.001 and 9.001.
9.013	We suggest that the State Board direct the North Coast Board to continue monitoring E. coli readings in both the Russian River and its tributary streams, and to recommend 303(d) listing of a waterbody--River or tributary—if and when samples in that waterbody exceed the listing threshold.	See responses to comments 4.001, 9.001, and 9.004.  Additional monitoring is helpful to refining the understanding of water quality conditions. The North Coast Regional Water Board is responsible for prioritizing its monitoring resources, and the Regional Water Board established the Russian River Regional Monitoring Program, which gathers scientists from multiple agencies and organizations for the purpose of pooling monitoring resources and establishing a comprehensive approach to evaluating water quality and watershed health. See <a href="https://sites.google.com/sfei.org/r3mp/">https://sites.google.com/sfei.org/r3mp/</a> .
9.014	To address the general public sanitation issues, we also highly recommend that the State Board make wastewater funding available to agencies and community groups in this area who come together to make needed OWTS improvements.	See response to comment 9.001.

## Letter 10: Jim Christian, The OWTS Residents of the Russian River

No.	Comment	Response
10.001	We have engaged with NCRWQCB staff through the process of TMDL preparation and 303(d) listing, pressing our concerns about unfunded mandates for septic replacements.	See response to comment 9.001.
10.002	We have also examined the data and data analysis that form the basis for the staff listing recommendation and for the TMDL action plan. Our review of the data finds that the proposed listing and TMDL action plan are not justified.	See responses below.
10.003	At the April 21st hearing, it was suggested that the listing decision was an abstract, technical matter, with few or no real-world consequences. With respect, the opposite is true: under the Clean Water Act, listing a water body on the 303(d) list begins a cascade of events leading to a TMDL, an Advanced Protection Management Plan and promulgation of costly regulations.	<p>The listing of a waterbody as impaired on the 303(d) list does not alone result in any specific outcome. It is through the adoption of a program to address the impairment that specific actions are recommended or required of responsible parties. The most common approach for addressing an impairment is a TMDL and associated action plan that is amended into a basin plan. Actions to address impairments can certainly be significant, which is one reason why such actions are considered through a stand-alone rule making action.</p> <p>Additionally, see response to comment 9.001 explaining why comments on the Russian River Pathogen TMDL are beyond the scope of the notice of opportunity to provide written comments.</p>
10.004	The North Coast staff has been working on the Russian River bacteria TMDL for six years, relying on a shifting series of fecal indicator bacteria. The initial listing was based on a discredited fecal coliform standard. Then the staff shifted to Bacteroides, then to enterococci.	The 303(d) listing recommendations for the 2018 Integrated Report for the Russian River are not based on fecal coliform data for the protection of the REC-1 beneficial use. See Section 3.1.4 of the Staff Report for a description of the Russian River bacteria assessment methodology for the 2018 Integrated Report.

		See response to comment 9.001 explaining why comments on the Russian River Pathogen TMDL are beyond the scope of the notice of opportunity to provide written comments.
10.005	In its latest draft, it has attempted to base listing on (i) an unprecedented, unscientific and illogical method of counting E. coli readings (in two reaches) and enterococci-plus-2013-beach alerts (in a third reach). If the Board accepts the completely unscientific rationales offered for listing, you will give the long-pending Russian River bacteria TMDL the regulatory green light the North Coast staff has been angling to achieve for six years.	<p>See Section 3.1.4 of the Staff Report, which was revised to add information about and clarify the geographic segmentation of data into HUC-12 subwatersheds. Section 3.1.4 was also revised to add a description of the Russian River bacteria assessment methodology for the 2018 Integrated Report.</p> <p>Additionally, Decisions 79794 and 77147 and associated LOEs were revised to clarify the evidence supporting the bacteria listing recommendations in the Russian River HUC-12 subwatersheds. The revised decisions are found in Appendix B: North Coast Regional Water Board Waterbody Fact Sheets of the Proposed Final Staff Report. The prior versions are found in Appendix B of the Draft Staff Report.</p> <p>The Proposed Final Staff Report and appendices and the Draft Staff Report and appendices are available here:</p> <p><a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html</a></p> <p>Finally, see the response to comment 9.001 explaining why comments on the Russian River Pathogen TMDL are beyond the scope of the notice of opportunity to provide written comments.</p>
10.006	The process will play out immediately and with dire financial consequences: a 303(d) listing will directly enable the TMDL, <b>which is currently before the State Board</b> , that will impose costs on OWTS owners estimated at \$100 million or more by the Sonoma County Board of Supervisors. 303(d) and TMDL adoptions will have very real and non-abstract consequences, as detailed in our oral comments April	See Section 3.1.4 of the Staff Report for the justification for the Russian River listing recommendations for the 2018 Integrated Report. See response to comment 9.001 explaining why comments on the Russian River Pathogen TMDL are beyond the scope of the notice of opportunity to provide written comments.

	<p>21st. These costs would be difficult to impossible for residents of the affected area to pay.</p> <ul style="list-style-type: none"> <li>• The economic analysis in the TMDL study outlines various possible sources of funding but there has been no attempt to provide funding to most of the affected communities. Villa Grande and Monte Rio did receive grant funding for a study. The study has many obstacles to overcome, <b>as there is no current authorization under State law to provide financial assistance to individual OWTS owners.</b> The State Board should pay little heed to broad reassurances from the North Coast staff that funding will eventually come; the staff itself has conceded that there is no funding source available for OWTS owners under current State law.</li> <li>• Any effort to implement the APMP standards will simply not be effective unless funding and support are provided to homeowners for addressing OWTS issues.</li> <li>• As the Russian River already complies with the applicable FIB standards for the REC-1 beneficial use, it offers <b>no justification whatever for imposing \$100 million of upgrade costs on OWTS owners.</b></li> </ul>	
10.007	<p>1. Use of HUC-12 areas for analysis contradicts the intended use of the areas and common logic.</p> <p>2. For the reaches of the Russian River within the Dutch Bill Creek and Porter Creek HUC-12 land areas, the North Coast staff has attempted to create apparent winter STV impairment by the simple expedient of adding in STV readings from 10 other waterbodies.</p> <p>This “new math” obscures clean records for geomean exceedances (<b>zero</b> exceedances out of hundreds of samples), non-impairment levels for summer, and no</p>	See responses to comments 4.001.

	full-year STV exceedances. In fact, the sampling record on which the listing recommendation is based <b>does not support impairment of a single waterbody in these areas, much less the Russian River itself.</b>	
10.008	<p>3. For the reach of the Russian River in the Brooks Creek HUC-12 land area, listing is sought based on a combination of enterococci readings and beach alerts during a 9-day period in 2013. The unreliability of enterococci as fecal indicator bacteria in non-point-source, nature-heavy fresh waterbodies—unless coupled with DNA sourcing analysis—is familiar ground for the State Board, which expressly rejected enterococci as a freshwater FIB because it produces too many false positives. The North Coast staff’s listing recommendation seeks to overcome this very substantial obstacle by adding in 4 beach alerts occurring during a 9-day period in 2013 at Healdsburg Memorial Beach. Beach alerts relate to very short-term conditions—several days at most—while impairment is based on readings over a six-week period (geomean) or a monthly period (STV) that are then evaluated over the summer season, the winter season and the full year. And there has not been a single beach alert in this land area in the six years since 2013. Beach alerts are fundamentally different from the measurements used in impairment determinations. And, if anything, the beach alert record in the Brooks Creek area shows that the Russian River is safe, not unsafe, for swimmers.</p>	<p>See response to comments 2.008. Further, Russian River HU, Middle Russian River HA, Geyserville HSA includes two extents in the Brooks Creek-Russian River HUC-12 that are already listed as impaired by indicator bacteria: Stream 1 on Fitch Mountain and the Russian River mainstem in Healdsburg from the railroad bridge to Memorial Beach at the Highway 101 bridge.</p> <p>Regarding beach alerts, the postings of public health advisories warning against water contact recreation, such as swimming, were assessed to identify those public beaches where swimming and other recreational beneficial uses were limited or potentially limited, which represents an indirect adverse impact to the REC-1 beneficial use. Public health advisories were issued within the Brooks Creek-Russian River HUC-12 on four occasions between 2013 and 2016, as summarized in LOE #133822. No impairment listing was made on health advisory postings alone.</p>
10.009	The State Board should require the North Coast staff to resubmit their lines of evidence so that they document the grounds for listing. Please examine the analysis carefully, including the shift to HUC-12 areas, before accepting the analysis.	State Water Board staff worked with North Coast Regional Water Board staff to evaluate the Russian River bacteria assessment methodology, including the geographic waterbody grouping by HUC-12 and the reassessment of several data sets. See Section 3.1.4 of the Staff Report, which was revised to add information about and clarify the geographic segmentation of data into “HUC-12 subwatersheds. Section 3.1.4 was also revised to add a

		<p>description of the Russian River bacteria assessment methodology for the 2018 Integrated Report.</p> <p>Additionally, Decisions 77147 and 79794 and LOEs were revised to clarify the evidence supporting the bacteria listing recommendations in the Russian River HUC-12 subwatersheds. The revised decisions are found in Appendix B: North Coast Regional Water Board Waterbody Fact Sheets of the Proposed Final Staff Report. The prior versions are found in Appendix B of the Draft Staff Report.</p> <p>The Proposed Final Staff Report and appendices and the Draft Staff Report and appendices are available here:</p> <p><a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html</a></p> <p>Many waterbody-pathogen combinations are already listed as impaired in the Russian River watershed. The 2018 Integrated Report assessment process confirmed these impairments and identified new segments, as well. There was no information collected that supports delisting any of the already listed segments.</p>
10.010	<p>The staff conclusions and the lines of evidence should be revised to address waterbodies, not HUC-12 land areas (or any other land areas) as they have done. It is a basic Clean Water Act principle that listing applies to waterbodies based on conditions in the listed waterbody. The decision packages fail to follow this basic principle in the following identified portions:</p> <p><b>Decision ID 7974:</b> staff conclusion fourth unnumbered paragraph and each of staff conclusion paragraphs 4 through 11, and lines of evidence 133972, 133735, 133764, 133734, 133733, 133826, 133825, 133772, 133798, 133755 and 133748. These listed “lines of</p>	<p>See Section 3.1.4 of the Staff Report, which was revised to add information about and clarify the geographic segmentation of data into HUC-12 subwatersheds.</p> <p>Additionally, Decisions 77147 and 79794 and associated LOEs were revised to clarify the evidence supporting the bacteria listing recommendations in the Russian River HUC-12 subwatersheds. The revised decisions are found in Appendix B: North Coast Regional Water Board Waterbody Fact Sheets of the Proposed Final Staff Report. The prior versions are found in Appendix B of the Draft Staff Report.</p> <p>The Proposed Final Staff Report and appendices and the Draft Staff Report and appendices are available here:</p>

	<p>evidence” are remarkable in that they do not name a single waterbody.</p> <p><b>Decision ID 77147:</b> staff conclusion (listing of waterbodies within Oat Valley Creek-Russian River HUC-12 and Brooks Creek-Russian River HUC-12) unnumbered introductory paragraph and each of staff conclusion paragraphs 4 through 10, and lines of evidence 133790, 133816, 133792133815, 133791, 133973, 133789, 133817, 133814, 133742, 133741, 133769, 133743, 133744, 133768, 133767, and 133824. Again, these listed “lines of evidence” are remarkable in that they do not name a single waterbody.</p>	<p><a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html</a></p>
10.011	<p><b>We request</b> the State Board to require the North Coast staff to revise and re-submit decision packages in which conclusions and lines of evidence that do not relate to a specific, named waterbody are eliminated and in which the listing conclusions are based only on lines of sampling evidence taken from the waterbody proposed for listing.</p>	<p>See Section 3.1.4 of the Staff Report, which was revised to add information about and clarify the geographic segmentation of data into HUC-12 subwatersheds.</p> <p>Additionally, Decisions 77147 and 79794 and associated LOEs were revised to clarify the evidence supporting the bacteria listing recommendations in the Russian River HUC-12 subwatersheds. The revised decisions are found in Appendix B: North Coast Regional Water Board Waterbody Fact Sheets of the Proposed Final Staff Report. The prior versions are found in Appendix B of the Draft Staff Report.</p> <p>The Proposed Final Staff Report and appendices and the Draft Staff Report and appendices are available here:</p> <p><a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html</a></p>
10.012	<p><b>2. Missing lines of evidence for waterbodies</b></p> <p>The North Coast staff’s analysis of the E. coli listing recommendations for waterbodies in the Dutch Bill Creek-Russian River HUC-12 land area and our group’s parallel analysis of the E. coli listing</p>	<p>Data for the hydrologic subareas were evaluated at the HUC-12 scale. LOEs were written that grouped the monitoring locations for each HUC-12. See Decision 79794 for a discussion of the data from monitoring locations referenced in the above comment.</p>

	<p>recommendations for waterbodies in the Porter Creek-Russian River (which has been submitted to the State Board staff) indicate that samples from the following waterbodies were used in making the listing recommendation:</p> <p><b>Dutch Bill Creek-Russian River HUC-12 area:</b></p> <ul style="list-style-type: none"> <li>• Unnamed tributary at River Road near Duncan (station code 114C01EDR)</li> <li>• Unnamed tributary at River Drive (station code 114C02SPR)</li> <li>• Unnamed tributary at Old Monte Rio Road (station code 114C03OMR)</li> <li>• Unnamed tributary at Main Street (station code 114C05MNS)</li> <li>• Unnamed tributary at River Road near Rio Nido (station code 114C06VRG)</li> <li>• Unnamed tributary at Foothill Drive (station code 114c12FSM)</li> <li>• Unnamed tributary at Market Street (station code 114C13LSA)</li> <li>• Unnamed tributary at Dell Rio Court (station code 114DDRC59)</li> <li>• Mays Creek (station code 114UM0355)</li> </ul> <p><b>Porter Creek-Russian River area:</b></p> <ul style="list-style-type: none"> <li>• Unnamed tributary at Trenton Road (station code 114C04TRF)</li> </ul>	
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	<ul style="list-style-type: none"> <li>• Unnamed tributary at Old Redwood Highway (station code 114UL3960)</li> </ul> <p>No lines of evidence were submitted for any of the above 11 waterbodies. Yet these waterbodies were crucial in the staff's recommendation: without them, there is no opportunity for anyone to even claim impairment of the Russian River reaches in these areas.</p>	
10.013	<p>We request the State Board to require the North Coast staff to revise and re-submit listing packages in which one or more lines of evidence is provided for each waterbody used in any listing recommendations</p>	<p>See Section 3.1.4 of the Staff Report, which was revised to add information about and clarify the geographic segmentation of data into HUC-12 subwatersheds.</p> <p>Additionally, Decisions 77147 and 79794 and associated LOEs were revised to clarify the evidence supporting the bacteria listing recommendations in the Russian River HUC-12 subwatersheds. The revised decisions are found in Appendix B: North Coast Regional Water Board Waterbody Fact Sheets of the Proposed Final Staff Report. The prior versions are found in Appendix B of the Draft Staff Report.</p> <p>The Proposed Final Staff Report and appendices and the Draft Staff Report and appendices are available here:  <a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html</a></p>
10.014	<p>To our knowledge, no water contact (REC-1) beneficial use has been established for any of the waterbodies listed in the preceding section or for Dutch Bill Creek, another waterbody that was used in the North Coast staff's listing recommendations.</p> <p>It is fundamental to Clean Water Act listings that each waterbody-pollutant pair be matched with a specified beneficial use, so that attainment or non-attainment of the standard applicable to that beneficial use can be determined.</p>	<p>The North Coast Basin Plan, Table 2-1, Beneficial Uses of Waters of the North Coast Region, identifies beneficial uses for the Russian River watershed by subarea. All subareas within the Russian River watershed identify water contact recreation (REC-1) as an existing beneficial use of the water. For Table 2-1, see:</p> <p><a href="https://www.waterboards.ca.gov/northcoast/water_issues/programs/basin_plan/180710/BPChapter2BeneficialUses.pdf#page=10">https://www.waterboards.ca.gov/northcoast/water_issues/programs/basin_plan/180710/BPChapter2BeneficialUses.pdf#page=10</a></p>

	<p>The REC-1 beneficial use of the Russian River is well-established. However, we know of no evidence that any of the above-listed waterbodies or Dutch Bill Creek has any significant REC-1 beneficial use, or any REC-1 beneficial use at all.</p> <p>We request that the State Board require the North Coast staff to establish REC-1 beneficial use for each waterbody upon which a listing recommendation is based in revised listing packages.</p>	
10.015	<p>Embarrassingly, the following lines of evidence are offered to support the staff's listing recommendation for the Guerneville HSA even though the waterbodies in question are located in the Geyserville HSA:</p> <p><b>Russian River at Healdsburg Memorial Beach:</b> lines of evidence 34365, 34383, 46612, 46611, 46610, 34366, 34363, 34384, 34381, 46608, 46609, 34380, 34362, 46614 and 46613.</p> <p><b>Russian River at Camp Rose:</b> lines of evidence 31926, 31983, 31984, 31839, 31818, 31927 and 31841.</p> <p>The careless handling of lines of evidence that these many errors demonstrate raises two questions:</p> <ul style="list-style-type: none"> <li>• the quality control processes that underly (or should underly) the preparation of listing recommendations, particularly where listing will impose costs on OWTS owners aggregating \$100 million or more</li> <li>• the degree to which the lines of evidence actually drive the listing recommendations or whether they are instead treated as procedural formalities only</li> </ul>	<p>Data were evaluated by HUC-12 and not on a waterbody basis. See Section 3.1.4 of the Staff Report, which was revised to add information about and clarify the geographic segmentation of data into HUC-12 subwatersheds.</p> <p>The data for the above sites are within the Brooks Creek–Russian River HUC-12, which lies within both the Geyserville HSA and the Guerneville HSA waterbodies. Therefore, LOEs containing these data should be included in both waterbodies. However, staff noted that the LOEs are only contained within the Geyserville HSA waterbody. The Regional Water Board updated the Decision for the Guerneville HSA (Decision #79794) to include these LOEs and the Decision language to discuss the findings.</p>
10.016	<p>We request the State Water Board to require the North Coast staff to re-submit listing decision packages that</p>	<p>See responses to comment 10.009 and 10.015. As part of the Integrated Report process, the State Water Board reviews</p>

	place lines of evidence in the correct listing package, and that the State Water Board staff discuss the quality controls applicable to listing recommendations with the North Coast staff.	Regional Water Board listing recommendations and works with the Regional Water Boards to provide clarification and updates where necessary. This quality assurance review process has been conducted for listing recommendations related to Russian River indicator bacteria and revisions were made as necessary.
10.017	The 303(d) listing has to stand on <i>E. coli</i> pathogen findings in the named waterway - period. The NC has struggled to make the facts fit a 303(d) conclusion, but plainly and simply the facts do not.	See response to comment 9.004. Additionally, see Section 3.1.4 of the Staff Report, which was revised to add discussion of the multiple LOEs used to assess bacteria data for the Russian River watershed and to clarify the assessment methodology.

## Letter 11: Katherine Rubin, Los Angeles Department of Water & Power

No.	Comment	Response
11.001	LADWP would like to reiterate its support for the Lahontan Regional Board's Bacteria Water Quality Objectives Evaluation Project. LADWP remains committed to supporting the Lahontan Regional Board to ensure that the Lahontan Regional Board's evaluation of the fecal coliform objective is based on the best available science and considers all available data.	Comment noted.
11.002	LADWP understands that, until a new bacteria objective is established by the Lahontan Regional Board, the fecal coliform objective remains applicable. However, LADWP respectfully suggests that development of the total maximum daily load (TMDL) based on perceived fecal coliform impairment to Bishop Creek B-1 Drain (Inyo), Bishop Creek Canal (Inyo), Bishop Creek Forks (North and South Forks below bifurcation) (Inyo), Horton Creek (Inyo), and Pine Creek (Inyo) should be given lowest priority pending the completion of the Bacteria Water Quality Objectives Evaluation Project. This will allow affected stakeholders to focus resources on providing full	<p>See response to comment 17.004 regarding the applicability and use of the fecal coliform water quality objective for Integrated Report assessments.</p> <p>The Lahontan Regional Water Quality Control Board ("Lahontan Regional Water Board") is developing a Vision Project Plan ("Vision Plan"), a TMDL-like project, to address bacteria impairments and guide restoration and protection efforts for Bishop Creek. The Vision Plan is a priority because of the risk to human health from contact with fecal pollution in water, as demonstrated by exceedances of the <i>E. coli</i> water quality objective for the protection of the REC-1 beneficial use.</p>

	<p>support to the Lahontan Regional Board to complete the evaluation project which may result in the fecal coliform objective being updated to conform to the Statewide Bacteria Objectives. Additionally this will provide for increased regulatory efficiency by not needing to revisit the TMDL upon completion of the Bacteria Water Quality Objectives Evaluation Project.</p>	<p>Additional information on the Vision Plan is available here:  <a href="https://www.waterboards.ca.gov/lahontan/water_issues/programs/tmdl/bishopcreek.html">https://www.waterboards.ca.gov/lahontan/water_issues/programs/tmdl/bishopcreek.html</a></p> <p>The Lahontan Regional Water Board has also commenced a Bacteria Water Quality Objective Evaluation Project, currently in its beginning stage, to evaluate the fecal coliform water quality objective. However, the Bacteria Water Quality Objective Evaluation Project will not change the applicability of the statewide <i>E. coli</i> objective established for the REC-1 beneficial use.</p> <p>The State Water Board expects that any waters listed as impaired by the fecal coliform objective would not be scheduled for total maximum daily load development until after the Lahontan Regional Water Board completes its planning effort. Additionally, should the fecal coliform objective be revised, the Lahontan Regional Water Board would re-assess the fecal coliform listings using the revised bacteria objective in accordance with the Listing Policy in the subsequent listing cycle for which it is on cycle.</p> <p>Bishop Creek is extensively used for contact recreation during the summer months, which coincides with peak impairment likely related to irrigation water delivery in the watershed. The two forks of Bishop Creek are recommended additions to the 303(d) list because of impairment for REC-1 as demonstrated by exceedances of the <i>E. coli</i> objective, and MUN as demonstrated by exceedances of the fecal coliform objective. The B1 Drain and Bishop Creek Canal are receiving waters for the Forks reach and are recommended 303(d) listings because of impairments of the municipal and domestic supply beneficial use ("MUN") by fecal coliform. These two waterbodies are included in the Vision Plan in part because of their hydrologic connectivity to Bishop Creek Forks.</p> <p>Horton and Pine Creeks are not subject to a TMDL project at this time and are classed as "low" priority for TMDL development on the 2018 303(d) list. Impairments to these creeks will likely be</p>
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		addressed by another regulatory action (such as a grazing permit or irrigated lands permit).
11.003 11.004	<p>LADWP respectfully requests that State Board further consider splitting the Bishop Creek Forks (North and South Forks below bifurcation) (Inyo) – Indicator Bacteria into two distinct listings. There is no justification to combine the North and South Forks into a single segment for listing purposes given the differences in land uses and sources of bacterial contamination, as further detailed in LADWP’s December 20, 2019 comment letter.</p> <p>The State Board’s Draft Staff Report does not specifically address the arguments set forth in LADWP’s previous comment letter, but does provide a general statement<sup>1</sup> that “Both watersheds have the same sources of bacteria; they share similar climate and hydrology, and the stream networks are connected by irrigation ditches. <b><i>Although the downstream portion of one of the two watersheds runs through an urban area</i></b>, overall the land uses are consistent” (emphasis added).</p> <p>LADWP respectfully suggests that a passing reference to one of the streams running through an urban area downplays the significance of the impact that a large urban area can have on downstream water quality. As previously mentioned in LADWP’s December 20, 2019 comment letter, the eastern portion of the South Fork flows extensively through the highly urbanized City of Bishop, while the North Fork flows through only small pockets of residential areas. The City of Bishop is the largest populated place in Inyo County. Stormwater runoff from urbanized areas, such as from the City of Bishop, can have a dramatic effect on downstream water quality as a result of urban specific sources such as oil, grease, coolants, fertilizers, pesticides, and</p>	<p>The Lahontan Regional Water Board adequately and appropriately addressed this comment in their Response to Comments to their Final Staff Report, stating:</p> <p style="padding-left: 40px;">Water Board staff believe that the way Bishop Creek is segmented remains valid and reflects the overarching land uses in the watershed. The current Bishop Creek segments are supported by the available water quality data and information.</p> <p>Further, the Lahontan Regional Water Board provided justification for the waterbody segmentation in their Final Staff Report, explaining:</p> <p style="padding-left: 40px;">The fourth segment, Bishop Creek Forks, comprises the north and south forks of Bishop Creek, which flow from the bifurcation below the alluvial fan through a collection of suburban neighborhoods, Bishop Paiute tribal lands, and the city of Bishop, to their respective confluences with Bishop Creek Canal downstream of the city of Bishop. The Bishop Creek Forks segment is heavily diverted for agricultural, grazing, and residential backyard uses, and is impacted by urban nonpoint source pollution at various locations in and around the city of Bishop boundary. In many neighborhoods, the north and south forks are diverted through backyards as decorative or irrigation waters, and hobby-ranching uses also exist on some properties in these neighborhoods. Water quality data from this segment of the creek indicates increasing bacterial degradation moving downstream, and the Bishop Creek Forks segment has been delineated based on the identified land uses’ impacts and potential implementation measures to improve water quality in the reach.</p> <p>While there are differences in land use along the Bishop Creek Forks reach, these differences are minor and other land use information,</p>

<p>introduce large sources of bacteria (i.e., human waste and pet droppings) that would not likely be present in less urbanized areas, such as the North Fork of Bishop Creek.</p> <p>While the Listing Policy does afford the Regional Water Boards discretion during the Data Quantify and Assessment Process, Section 6.1.5.1. states that, “If applicable and available, <b>environmental conditions in a water body or at a site must be taken into consideration</b> (e.g., effects of seasonality, events such as storms, the occurrence of wildfires, <b>land use practices</b>, etc.)” (emphasis added). Section 6.1.5.4 of the Listing Policy further provides, “The Regional Water Boards should identify stream reaches or lake/estuary areas that <b>may have different pollutant levels based on significant differences inland use</b>, tributary inflow, or discharge input.” (emphasis added).</p> <p>The magnitude of urbanization along the South Fork represents a significantly different land use than that along the North Fork. Therefore it is appropriate for the two forks to be bifurcated, rather than listed as one water body, for purposes of listing.</p> <p><sup>1</sup>It is unclear in the State Board’s Draft Report which arguments apply to Bishop Creek Forks (North and South Forks below bifurcation) (Inyo), Horton Creek (Inyo), and/or Pine Creek (Inyo) because the Draft Report appears to combine all three into one response. See page 56 of the State Board’s Draft Report.</p>	<p>population density, bacteria source data, and hydrologic connectivity between the North Fork and South Fork indicate the Bishop Creek Forks waterbody segment is an appropriate aggregation of sites and further segmenting is not warranted. Bacteria levels throughout the Bishop Creek Forks (North &amp; South Forks to bifurcation) waterbody segment are not expected to be different based on the minor differences in land use. Any impairment in each channel of the Bishop Creek Forks reach would need to be addressed in tandem.</p> <p>Additional information on land uses, pollutant sources, and hydrology, along with a map of the Bishop Creek Forks waterbody segment was added to Section 4.4.1 of the Staff Report.</p> <p>The City of Bishop, which primarily drains to the South Fork, has a population of approximately 3,700. The Bishop Paiute Tribe Reservation and the West Bishop area, which drains to both the North Fork and the South Fork, have a population of approximately 1,100 and 2,600, respectively. (U.S. Census Bureau, 2018). Satellite imagery shows similar paved areas and developed areas draining to both the North Fork and South Fork. Although heavy commercial, industrial, and high-density land uses (approximately 1,300 acres or 26% of the City of Bishop) drains to the South Fork, low-medium development associated with commercial retail and residential uses are in areas that drain to both the North Fork and South Fork. Stormwater runoff and other sources of bacteria from both of the developed areas that drain to the North Fork and South Fork are likely to be similar.</p> <p>The bacteria pollution that the Lahontan Regional Water Board is investigating in Bishop Creek Forks begin upstream of both the City of Bishop and Bishop Paiute Tribe Reservation, and persist through both channels of the Forks reach to the Bishop Creek Canal on the eastward boundary of the City of Bishop. The North and South Forks are impacted by bacteria issues originating from the same or similar land uses.</p> <p>Additionally, the North and South Forks are hydrologically connected via the Bishop B1 Drain. In terms of geography, the north and south</p>
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		channels of the Forks reach are in the same watershed, share similar land use and hydrology, and are interconnected by an array of irrigation infrastructure.
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## Letter 12: Norma J. Camacho, Valley Water

Note: Selected comments from this letter are identified and responded to here. Comments which restate points made in other parts of the letter, and comments which summarize or cite statute, regulations, water quality control plans, or Listing Policy language are not included here. To request a copy of the full comment letter, send an email to: [wqassessment@waterboards.ca.gov](mailto:wqassessment@waterboards.ca.gov) with "Request for 2018 Integrated Report comment letter" in the subject line.

No.	Comment	Response
12.001	Valley Water urges the State Water Board to find that the recommended "off-cycle" listing of lower Los Gatos Creek <sup>1</sup> as an impaired water body for temperature pursuant to Clean Water Act § 303(d) is not warranted at this time, and is inappropriate under the federal Clean Water Act (33. U.S.C. §§ 1251 et. Seq.), the California Porter-Cologne Water Quality Control Act (California Water Code §§ 13000 et. seq. (Porter-Cologne), and the State Water Resources Control Board Water Quality Control Policy for California and has cooler ambient water temperatures.	<p>State Water Board staff reviewed the San Francisco Bay Regional Water Board's proposed listing of lower Los Gatos Creek as impaired for temperature and determined that the assessment approach utilized by the Regional Water Board was consistent with applicable requirements of the Listing Policy and based on sound scientific rationale.</p> <p>The recommendation to list lower Los Gatos Creek as impaired for temperature is appropriate per requirements of the Listing Policy and evidence presented in Decision 10063.</p> <p>Additional discussion on the temperature assessment process for Los Gatos Creek was added to Section 4.1.1 of the Staff Report. See that section and below for additional responses.</p>
12.003	Moreover, the RWQCB previously included in their triennial review workplan a study like the one we suggest to review the latest scientific information applicable to Bay Area streams and determine appropriate temperature evaluation guidelines and an acceptable range of temperatures to protect local salmonids. The U.S. Environmental Protection Agency (EPA) has also concurred that research conducted	Additional study and understanding of life cycle based temperature requirements of steelhead in the Central California Coast Evolutionary Significant Unit is welcomed. The letter referenced in Appendix F acknowledges that there are legitimate scientific questions regarding the adaptability of salmonids to warmer conditions in California. Upon completion of the study mentioned, the San Francisco Bay Regional Water Board may reassess temperature data using the study results as temperature evaluation

<p>since 2003 with salmonid species from California rivers suggests that California steelhead:</p> <p>" ... may be locally adjusted to warmer temperatures relative to more northern populations, and ... these findings challenge the use of a single thermal criterion along the entirety of its [steelhead's] distribution range."</p> <p>(Letter from U.S. Environmental Protection Agency Deputy Asst. Administrator D. Lee Forsgren to Turlock Irrigation District General Manager Casey Hashimoto (June 27, 2018), p. 1, set forth in Attachment F to this letter.) The Study would address these needs for updated scientific information regarding temperature evaluation guidelines specific to Region 2 and its steelhead populations.</p> <p>Nevertheless, the RWQCB determined that Los Gatos Creek should first be listed for temperature without conducting this critically important Study, and then the Study should proceed after listing. There are numerous legal issues created by this approach as described in Attachment A.</p>	<p>guidelines, provided that they conform to the requirements of Section 6.1.3 of the Listing Policy.</p> <p>Until that time, it is appropriate to assess temperature data for Los Gatos Creek as described in Section 4.1.1 of the Staff Report. In particular, the evaluation guidelines used are applicable to steelhead in the southern portion of their range and have been applied to throughout California, including in the Stanislaus River under the proposed action in the National Marine Fisheries Service Biological and Conference Opinion on the Long-term Operations of the Central Valley and State Water Project. The evaluation guidelines are 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.</p> <p>Additionally, the San Francisco Bay Regional Water Board provided an appropriate and adequate response to this comment in the 2018 Proposed Revisions to the Clean Water Act Section 303(d) List of Impaired Waters for the San Francisco Bay Region Response To Comments ("2018 San Francisco Bay Response to Comments"), stating:</p> <p>We have used evaluation guidelines consistent with the Listing Policy and appropriate for Los Gatos Creek. However, we are open to recognizing the value of site-specific or regional temperature thresholds to develop TMDL temperature targets, but we do not recommend delaying the proposed listing until such new temperature thresholds are available. Based on our current understanding of temperature requirements for steelhead, we think it is unlikely that site-specific or regional temperature metrics will deviate substantially from those we used.</p>
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12.004	<p>Most importantly, the result of this approach is that the PNW Evaluation Criteria, which actually conflict with the temperature water quality objectives applicable to Los Gatos Creek for the reasons described in Attachment B, become precedent that is relied upon as a substitute standard for the temperature water quality objectives. This de facto regulatory effect is evidenced by the RWQCB's response to comments on the listing, particularly responses 3.2 and 3.4. (RWQCB, 2018 Proposed Revision to the Clean Water Act section 303(d) List of Impaired Waters for the San Francisco Bay Region Response to Comments (Mar. 6, 2019) pp. E-3 to 3-4; p. E-6.) It is also apparent in the temperature monitoring and reporting triggers established in the Municipal Regional Stormwater NPDES Permit (Order No. R2-2015-0049). Thus, adoption of the listing prior to conducting the Study effectively turns the inappropriate PNW Evaluation Criteria into regulatory standards applicable to Los Gatos Creek, which must be "undone" or revised by further regulatory action.</p>	<p>Water quality objectives can only be established through a rulemaking process that establishes or amends a water quality control plan. The 303(d) list is not a rulemaking process and the evaluation guidelines used to assess beneficial use attainment for the 303(d) list are not water quality objectives.</p> <p>The Listing Policy specifically states in Section 6.1.3, "[t]he [evaluation] guidelines are not water quality objectives and shall only be used for the purpose of developing the section 303(d) list." Similarly, the Introduction to the Listing Policy states that narrative water quality objectives will not be translated "for the purposes of regulating point sources" and that the policy generally "applies only to the listing process methodology used to comply with the C[lean] W[ater] A[ct] section 303(d)."</p> <p>There is no requirement to utilize any of the evaluation guidelines selected for 303(d) list assessments as monitoring requirements or triggers in storm water permits. Storm water permits undergo a separate public review process and the monitoring requirements and triggers are reviewed and evaluated for appropriateness at that time.</p>
12.005	<p>The two primary "further regulatory actions" available to address the discrepancy between an appropriate numerical interpretation of the temperature water quality objectives and the PNW Evaluation Criteria are: adoption of a Site Specific Objective for temperature; or preparation of a Use Attainability Analysis to support a determination that COLD does not exist and need not be supported by temperature water quality objectives numerically interpreted pursuant to the PNW Evaluation Criteria. The outcome of those additional regulatory actions would, as a practical matter, be equivalent to numerical interpretation of</p>	<p>Comment noted. Additionally, see response to comment 12.003.</p>

	<p>temperature water quality objectives in a manner consistent with actual, historical natural receiving water temperatures and temperatures that are appropriate to protect all properly defined, local designated beneficial uses, including those related to protection of local steelhead occupying Los Gatos Creek. That same water quality result would be attained much more efficiently, quickly, and at less expense by conducting the Study first to establish appropriate temperature evaluation guidelines for Region 2 prior to the listing action.</p>	
12.011	<p>Under the Clean Water Act, the state's obligation to assemble and evaluate all existing and readily available water quality data is not limited to the evaluation of data characterizing current water quality conditions within a water body. Instead, the obligation to assemble and evaluate all existing and readily available water quality data also applies to collection of data required to properly interpret the water quality standards that are at risk of non-attainment.</p>	<p>In creating its section 303(d) list, the State Water Board is required to "assemble and evaluate all existing and readily available water quality-related data and information." (40 C.F.R. § 130.7(b)(5).) Section 6.1.1 of the Listing Policy requires the Regional Water Boards and State Water Board to actively solicit all readily available data and information. Section 6.1.1 also defines "all readily available data and information" as data and information that can be submitted into the California Environmental Data Exchange Network (CEDEN) or its successor database, as directed in the notice of solicitation. Accordingly, to administer the listing process, the Water Boards are required to review data and information submitted to CEDEN or its successor database. Data that cannot be submitted to CEDEN can be submitted to the Water Board per the instructions provided in the Data Solicitation Notice. In developing the 2018 Integrated Report, all readily available data submitted per the requirements of the November 3, 2016 Data Solicitation Notice were assembled and considered. There is no obligation to assemble and evaluate all existing data and information in the selection of evaluation guidelines used to interpret narrative water quality objectives.</p> <p>For Los Gatos Creek, the San Francisco Bay Regional Water Board correctly applied Sections 6.1.3 and 6.1.5.9 of the Listing Policy to select appropriate temperature evaluation guidelines to evaluate temperature data. Regarding the appropriateness of the</p>

		<p>temperature evaluation guideline, see also response to comment 12.037.</p> <p>Regarding the evaluation and interpretation of temperature data consistent with Section 6.1.5.9 of the Listing Policy, see also response to comment 12.102.</p>
12.014	<p>6. Accordingly, comparing available current water quality data to narrative and numeric water quality objectives that set regulatory limits for particular constituents, characteristics or pollutants is quintessential to determining whether water quality standards are being met in a water body, or whether the water body should be listed as an impaired water. (<i>Center for Biological Diversity v. U.S. EPA</i> (W.D. Wash. 2015) 90 F.Supp.3d 1177, 1207; EPA, Water Quality Standards Handbook (2017), ch. 3, p. 4, ch. 7, p. 5.)</p>	Comment noted.
12.015	<p>7. Pursuant to the Listing Fact Sheets, the RWQCB considered the following beneficial uses<sup>1</sup> in the Basin Plan for Los Gatos Creek in evaluating whether Los Gatos Creek should be listed for temperature:</p> <p>a) “COLD” is an “existing” beneficial use for Los Gatos Creek. (Basin Plan, Table 2-1.) “COLD” is defined as “uses of water that support cold water ecosystems, including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.” (Basin Plan, § 2.1.3.)</p> <p>b) “MIGR” is a “potential” beneficial use for Los Gatos Creek. (Basin Plan, Table 2-1.) MIGR is defined as “[u]ses of water that support habitats necessary for migration, acclimatization between fresh water and salt water, and protection of aquatic organisms that are</p>	<p>Congress enacted the CWA in 1972 to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” (33 U.S.C. § 1251(a).) The CWA first emphasizes technology-based permitting requirements to reduce discharges of pollutants into navigable waters directly (<i>Id.</i>, §§ 1311(a), 1362(12).) When those controls are not adequate to maintain and improve water quality, the CWA uses a water-quality based approach. (<i>Id.</i>, § 1313). Pursuant to section 303(d) of the CWA, states must identify waters within their borders that do not meet water quality standards and prioritize those water quality limited segments for the development of total maximum daily loads. (<i>Id.</i>)</p> <p>Pursuant to CWA section 303(d) and its implementing regulations, a state’s obligation to identify water quality limited segments, or impaired waters, extends to its applicable “water quality standards” and is not limited to those standards involving only “existing” beneficial uses. (See <i>id.</i>; see 40 C.F.R. §§ 131.3(h) (defining “water quality limited segment” as “any segment where it is known that water quality does not meet applicable water quality standards,</p>

<p>temporary inhabitants of waters within the region.” (Id., § 2.1.10.)</p> <p>It is important for purposes of considering the Basin Plan temperature water quality objectives to note that the Basin Plan also designates GWR as an</p> <p>“existing” beneficial use for Los Gatos Creek. (Basin Plan, Table 2-1.) GWR is defined in the Basin Plan as: “Uses of water for natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting saltwater intrusion into freshwater aquifers.” (Id., § 2.1.7.)</p> <p><sup>1</sup>Under the federal Clean Water Act, for purposes of 303(d) listings, “existing” designated beneficial uses (as opposed to “potential” beneficial uses) should be considered. It is less clear whether it is appropriate to consider “potential” or “probable future” beneficial uses, for which Water Code section 13241 factors regarding characteristics of the hydrographic unit have not been fully considered during designation. However, even assuming (without concluding) that non-attainment of a “potential” use can support a listing, the RWQCB’s listing determination was still improper, as demonstrated below.</p>	<p>and/or is not expected to meet applicable water quality standards”), 131.3(i) (defining “water quality standards” as “provisions of State or Federal law which consist of a designated use or uses for the waters of the United States and water quality criteria for such waters based upon such uses. Water quality standards are to protect the public health or welfare, enhance the quality of water and serve the purposes of Act”); <i>compare id.</i>, § 131.3(f) (defining “designated uses” as “those specified in water quality standards for each water body or segment whether or not they are being attained); <i>with, id.</i>, § 131.3(e) (defining “existing uses” as “those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards”).)</p> <p>These obligations owed by a state under the CWA are mandatory and are not discretionary: Pursuant to Water Code section 13191.3, the State Water Board established its Listing Policy to provide the Regional Water Boards and the State Water Board with a “standardized approach for developing California’s section 303(d) list in order to achieve the overall goal of achieving water quality standards and maintaining beneficial uses in all of California’s surface waters.” (Listing Policy, p.1; See Wat. Code, § 13191.3 (requiring the State Water Board to prepare guidelines for the purposes of complying with CWA section 303(d)).)</p> <p>California’s water quality standards are generally established in water quality control plans, which include the Regional Water Boards’ “basin plans” and the State Water Board’s “statewide plans.” (See Wat. Code, §§ 13050, subd. (j) (specifying that water quality control plans consist of waters designated with beneficial uses to be protected and water quality objectives), 13050, subd. (f) (defining beneficial uses).) These water quality control plans are regulations, the concise summaries of which are published at California Code of Regulations, title 23, div. 3, chapter 23 (statewide plans), and div. 4, chapter 1 (basin plans). (See Gov’t Code, § 11353 (providing special procedures for water quality control plans to comply with the Administrative Procedures Act); <i>State Water Res. Cntrl. Bd. v. Office of Admin. Law</i> (1993) 12 Cal.App.4th 697, 704 (deeming water quality control plans “regulations”).) In many instances a Regional</p>
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Water Board's basin plan will specify whether its waterbody designations involve an "existing" beneficial use or a "potential" beneficial use, but that is not a requirement under either the CWA or the Porter-Cologne Water Quality Control Act ("Porter-Cologne Act").

Determining whether a use is an "existing" use is primarily relevant to whether a state may remove the use from its water quality standards (40 C.F.R. § 131.10(h)) and is not relevant to a state's obligation to assess its water quality standards under section 303(d). In any event, assuming for the sake of argument that only existing uses should be evaluated for assessment purposes under CWA section 303(d) (a proposition which the State Water Board denies), the U.S. EPA affords the states discretion to determine what a state considers to be an existing use, U.S. EPA's interpretation of that term notwithstanding. (See 40 C.F.R. § 131.3(e) (defining "existing use"); Letter *from* Director Denise Keehner, Standards and Health Protection Division, EPA, to Derek Smithee, Water Resources Board, State of Oklahoma (Sept. 5, 2008) (stating "existing uses" are "'known to be 'attained' when both the use *and* the water quality necessary to support the use has been achieved.'" (emphasis in original)) (which commenter describes as the "Existing Use Policy").

In adopting changes to its water quality standards regulations, U.S. EPA explained:

EPA also received comments requesting clarification on existing uses. EPA notes that in addressing these comments, EPA is not reopening or changing the regulatory provision at § 131.10(h)(1). [...] EPA provided additional clarification on existing uses in the background section of the proposed preamble, as well as in a September 2008 letter from EPA to the State of Oklahoma. Specifically, EPA explained that existing uses are known to be "actually attained" when the use has actually occurred and the water quality necessary to support the use has been attained. EPA recognizes, however, that all the necessary data may not be available to determine whether the use actually occurred or the water quality to support the use has been attained. *When*

		<p><i>determining an existing use, EPA provides substantial flexibility to states and authorized tribes to evaluate the strength of the available data and information where data may be limited, inconclusive, or insufficient regarding whether the use has occurred and the water quality necessary to support the use has been attained. In this instance, states and authorized tribes may decide that based on such information, the use is indeed existing.</i></p> <p><i>Some commenters expressed concern that this interpretation supports the removal of a designated use in a situation where the use has actually occurred but the water quality necessary to protect the use has never been attained, as well as in a situation where the water quality has been attained but the use has not actually occurred. Such an interpretation may be contrary to a state's or authorized tribe's environmental restoration efforts or water quality management goals. For example, a state or authorized tribe may designate a highly modified water body for primary contact recreation even though the water quality has never been attained to support such a use. In this situation, if the state or authorized tribe exercises its discretion to recognize such an existing use, then consistent with EPA's regulation the designated use may not be removed.</i></p> <p>(80 Fed. Reg. 51019, 51027-28 (emphasis added and footnotes omitted).)</p> <p>Based on the foregoing, the State Water Board assesses the applicable water quality standards contained in the pertinent water quality control plans in accordance with the Listing Policy to develop California's section 303(d) lists. Neither the Listing Policy nor the CWA limit such development to those uses that are "existing." Indeed, doing so would impede the restoration planning goal of section 303(d), developing and completing TMDLs or other alternative restoration approaches for waters not meeting water quality standards to "restore and maintain the chemical, physical,</p>
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		and biological integrity of the Nation's waters.” (33 U.S.C. § 1251(a).)
12.016	<p>8. The Basin Plan also establishes two temperature water quality objectives for Los Gatos Creek to protect the attainment of designated beneficial uses. The temperature water quality objectives for inland surface waters, including Los Gatos Creek, are:</p> <p>a) The <i>natural receiving water temperature</i> of inland surface waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.<sup>2</sup></p> <p>b) The temperature of any cold [COLD] or warm [WARM] freshwater habitat shall not be increased by more than 5°F (2.8°C) above <i>natural receiving water temperature</i>.</p> <p>(Basin Plan, § 3.3.17, emphasis added.)</p> <p><sup>2</sup>These comments focus on the impropriety of the proposed listing action, assuming that both temperature water quality objectives set forth in the Basin Plan and the RWQCB Staff Report are valid, adopted water quality objectives. However, there are serious legal issues with the validity of the first temperature water quality objective set forth in the Basin Plan, as follows.</p> <p>A water quality objective is a standard that limits or identifies a maximum level of water quality constituents or characteristics in a waterbody.</p> <p>Specifically, the Water Code defines a “water quality objective” as “the limits or levels of water quality constituents or characteristics, which are established</p>	<p>The commenter acknowledges that the focus of footnote 2 is the validity of the water quality standards contained in the San Francisco Bay Basin Water Quality Control Plan (“San Francisco Bay Basin Plan”). Footnote 2 contains various arguments to conclude the standards are invalid and, as such, may not be used to evaluate current water quality conditions to determine whether the waterbody is impaired. The action under consideration by the State Water Board is the approval of the 2018 CWA section 303(d) list.</p> <p>This comment is beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. The State Water Board receives comment from the public with respect to water body-pollutant combinations that are timely requested for its review in addition to those that the State Water Board elects to consider. (See Listing Policy, Section 6.3.) Such waterbody-pollutant combinations are identified in the State Water Board’s Revised Notice of Opportunity to Comment (April 9, 2020).</p> <p><a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html</a></p> <p>The commenter may address the proposed evaluation or refinement of a water quality standard with the San Francisco Bay Regional Water Board during its triennial review process or during its regularly scheduled board meetings.</p>

<p>for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.” (Wat. Code § 13050 subd. (h).) This temperature water quality objective as stated in the Basin plan is not a narrative or numeric “limit or level of water quality constituents or characteristics” that is applicable to protect beneficial uses or prevent nuisance “within a specific area.” Instead, this temperature “water quality objective” merely provides that no alteration of the natural receiving water temperature will be allowed, unless prior express approval of the alteration is obtained from the RWQCB. The need to obtain prior approval of an alteration in temperature is not a description or identification of limit or level of a water quality constituent or characteristic as required by the Water Code. The statement does not set forth an objective limit or measure of constituents, characteristics or pollutants, but merely states that any temperatures approved in the discretion of the water board are acceptable.</p> <p>Further, this temperature water quality objective as adopted fails to identify the specific beneficial use or uses within a specific area that are protected by the objective. The Water Code and Clean Water Act both require the RWQCB to identify the beneficial use or uses within a specific area that are protected or supported by particular water quality criteria or objectives. (Wat. Code §§ 13050, subd. (h); 13241; 33 U.S.C. §1313 subd. (c)(2)(A); see also 40 C.F.R. §§131.10-131.13.) The Basin Plan does not identify the specific beneficial use or uses within specific areas which are to be protected by this temperature water quality objective.</p> <p>Accordingly, this temperature water quality objective is arguably invalid and, as currently adopted, could not</p>	
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	as a matter of law be used for purposes of comparing current surface water quality conditions to regulatory “limits” or levels” for temperature as necessary to determine if a water segment should be listed as impaired under applicable state and federal law, regulations and policies.	
12.017 12.018	<p>9. Critically, these temperature water quality objectives are defined relative to a given water body’s “natural receiving water temperature.” Consequently, when considering a listing for non-attainment of temperature-related water quality standards in a water body, establishing the “natural receiving water temperature” is the first step required for conducting a comparison of current water quality conditions to temperature water quality objectives. The State Water Board recognized as much in the Water Quality Control Policy for Developing California’s Clean Water Act Section 303(d) List Functional Equivalent Document (September 2004) (“Listing Policy FED”), page 133:</p> <p>“Without natural receiving water temperatures it is impossible to interpret the Basin Plan and Thermal Plan water quality objectives.”</p> <p>10. Accordingly, to list a water body for failure to meet temperature water quality objectives defined relative to the “natural receiving water temperature” requires first and foremost identifying the “natural receiving water quality temperature” so that the temperature objective is properly interpreted numerically.’</p>	<p>While the narrative temperature water quality objective uses the value “natural receiving water quality temperature” to explain, in part, the temperature characteristics necessary to support the COLD beneficial use, the “natural receiving water temperature” need not be identified prior to assessing a waterbody as impaired for temperature with respect to the applicable beneficial uses.</p> <p>The Functional Equivalent Document for the Water Quality Control Policy for Developing California’s Clean Water Act Section 303(d) List (Sept. 2004) (“Listing Policy FED”) to which the commenter cites contains an analysis of different assessment approaches to interpret temperature water quality objectives (pp. 132-135.) The final approaches adopted are contained in the Listing Policy, which explains the process to evaluate temperature data at section 6.1.5.9. Section 4.1.1 of the Staff Report was revised to more fully explain how that guidance was followed to reach the temperature listing decision.</p> <p>Issue 5E in Listing Policy FED describes two alternatives for interpreting temperature water quality objectives for 303(d) list assessments.</p> <p>Alternative 1, is to list using the temperature objectives contained in the basin plans. Because basin plans generally define temperature objectives in two parts, including the natural receiving water temperature and a numeric limit on the increase of that temperature, the Listing Policy FED rejects this alternative because evaluating the objective would require data sets for “natural receiving water” temperatures, which is inherently complicated by many factors.</p>

		<p>As such, the statement quoted by the commenter “without natural receiving water temperatures it is impossible to interpret the Basin Plan and Thermal Plan water quality objectives” was presented in Alternative 1, which was rejected as an option for the Listing Policy.</p> <p>The final Listing Policy adopted Alternative 2, which provides a methodology for interpreting temperature impairments in the absence of data on natural receiving water temperatures. The approach described in Alternative 2 was adopted into Section 6.1.5.9 of the Listing Policy.</p> <p>The San Francisco Bay Regional Water Board correctly applied Section 6.1.5.9 of the Listing Policy to evaluate temperature impairment in Los Gatos Creek. See also response to comment 12.102.</p>
12.019	<p>11. Further, when comparing existing water quality conditions in a waterbody to temperature water quality objectives, the Listing Policy requires the water boards to use “‘historic’ [sic] or ‘natural’ temperature data” to “interpret numeric [temperature] water quality objectives.” (Listing Policy, § 6.1.5.9, p. 25 [“Evaluation of Temperature Data”].) A water board may <i>only use</i> an “alternative approach” comparing recent temperature monitoring data to temperature evaluation guidelines under certain circumstances, namely “[i]n the absence of necessary data to interpret numeric [temperature] water quality objectives,” and when “temperature data from past (historic) [sic] periods corresponding to times when the beneficial use was fully supported are not available.”<sup>3</sup> (Id.)</p> <p><sup>3</sup>This comment letter focuses on the RWQCB’s duty to evaluate the listing of Los Gatos Creek in compliance with the federal Clean Water Act, Porter-Cologne, and the Listing Policy. For that reason, we are</p>	<p>The commenter selectively quotes excerpts from the Listing Policy and in so doing mischaracterizes the Listing Policy’s process to evaluate temperature data.</p> <p>The Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (“Thermal Plan”) applies to interstate waters, enclosed bays, and estuaries, as its title indicates, and by definition does not apply to Los Gatos Creek, an inland surface water.</p> <p>The San Francisco Bay Basin Plan’s reference to the Thermal Plan to identify the water quality objectives applicable to interstate waters, enclosed bays, and estuaries does incorporate any of the terms of the Thermal Plan into the Basin Plan, particularly with respect to water quality objectives applicable to surface waters to which the Thermal Plan does not apply. The legislative intent to which commenter cites does not govern regulations adopted by two separate entities, here the San Francisco Bay Regional Water Board, which developed and adopted the Basin Plan, and the State Water Board, which adopted the Thermal Plan. In any event, the actual meaning of the phrase appears to be an unnecessary</p>

<p>commenting on the impropriety of the RWQCB's listing analysis based on the failure of that analysis to comply with the Listing Policy guidelines as adopted.</p> <p>In fact, however, some of the Listing Policy guidelines themselves are actually contrary to law, including the Listing Policy definition of "natural receiving water temperature" for purposes of interpreting temperature water quality objectives. The proper legal definition of "natural receiving water temperature" is actually set forth in the California Thermal Plan (1975) as follows:</p> <p>"[T]he temperature of the receiving water at locations, depths, and times which represent conditions <i>unaffected by any elevated temperature waste discharge or irrigation return waters.</i>" (Thermal Plan, p. 1, emphasis added.) While the phrase is not expressly defined in the Basin Plan, the Thermal Plan definition applies because the Basin Plan references the Thermal Plan in the temperature objectives provisions. (Basin Plan, § 3.3.17.) Further, the use of the same term in similar regulations is presumed to have the same meaning. (Boise Cascade Corp v. EPA (9th Cir. 1991) 942 F.2d 1427, 1432). This is especially true when as here, the agency has given a specific definition for a term. (<i>Urban Renewal Agency v. Cal. Coastal Zone Conservation Com</i>, (1975) 15 Cal.3d 577, 584, 585). Therefore, under the Basin Plan and the Thermal Plan, "natural receiving water temperature" is the temperature of a receiving water as it results from <i>all</i> influences, except elevated temperature waste discharges and irrigation return flows. Accordingly, under the Thermal Plan, "natural receiving water temperatures" are surface water temperatures as they might be influenced by sunlight or solar radiation (including temperature increases attributable to climate change) and changes in flow volumes or depths attributable to human activities</p>	<p>exercise where, as here, sufficient data of "historical" or "natural" receiving waters temperatures are not available.</p> <p>The Listing Policy FED explains (p. 133):</p> <p>Determination of "natural receiving water" temperatures is limited by the availability of natural background and ambient temperature monitoring data for water bodies. Assessment of natural receiving water temperatures is complicated by the fact that water temperature of streams vary substantially due to drainage area, stream size, geographical location, riparian vegetation, seasonal climatic conditions, elevation, and other factors (Lewis et al., 2000). Consequently, there are no generally available natural receiving water temperature data sets for stream segments that can be used because these natural levels are so site-specific.</p> <p>The commenter argues that the Listing Policy FED mistakenly mischaracterizes the scope of the phrase "natural temperature receiving waters" when the FED explains that the ability to ascertain a value for that phrase is "limited by the availability of historic monitoring data representative of unaltered and/or natural conditions in a waterbody" after it identifies the definition for the phrase contained in the Thermal Plan (FED, p. 132.) Yet that discussion follows after the FED also sets forth the temperature objectives generally contained in basin plans and notes that in most circumstances the phrase is not defined. As a result, the discussion in the FED is not incorrect because it contains concepts in its analysis unexpressed in the Thermal Plan. On the contrary, it would seem to suggest that evaluation of temperature data to construe the phrase is not limited to the precise definition set forth in the Thermal Plan. Indeed, that conclusion is borne out of the actual language adopted in the Listing Policy at section 6.1.5.9: "When 'historic' or 'natural' temperature data are not available, alternative approaches shall be employed."</p>
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<p>other than elevated temperature waste discharges or irrigation return flows.</p> <p>The Listing Policy FED acknowledges the Thermal Plan definition, but fails to quote it accurately, and then implicitly changes the definition through promulgation of the Listing Policy. Specifically, the State Water Board explained in the Listing Policy FED that the definition of natural receiving water temperatures is set forth in the Thermal Plan, but then nevertheless goes on to state, contrary to that definition, that “[d]etermining ‘natural receiving water temperature’ is limited by the availability of historic temperature monitoring data that is considered representative of unaltered and/or natural conditions in a water body.” (Listing Policy FED, p. 132-133.) This statement indicates that temperatures representative of unaltered and/or natural conditions in a water body are “natural receiving water temperatures,” rather than acknowledging that “natural receiving water temperatures” are the temperature conditions unaffected by elevated temperature waste discharges or irrigation return flows. The Listing Policy itself indicates, consistent with the Listing Policy FED, that “natural receiving water temperatures” are those “temperature data from past (historic) [sic] periods corresponding to times when the beneficial use was fully supported.” In fact, neither the Listing Policy nor the Listing Policy FED can legally revise or interpret the definition of “natural receiving water temperature” set forth in the Thermal Plan and appropriate for use in interpreting the temperature water quality objectives. Listing Policy, § 1, p. 1. (See, <i>Fl. Publ. Interest Research Citizen Lobby v. U.S. EPA</i> (2004) 386 F.3d 1070, 1088-1089).</p> <p>However, because Valley Water’s groundwater management and recharge activities currently affecting</p>	<p>In any event, insofar as the comment questions the validity of the guidance in the Listing Policy, the comment is beyond the scope of the action to be considered by the State Water Board—approval of the statewide 2018 CWA section 303(d) list.</p> <p>As described in response to comment 12.102 and Section 4.1.1 of the Staff Report, data are not available to determine natural receiving water temperatures in lower Los Gatos Creek. Therefore, the San Francisco Bay Regional Water Board appropriately followed the guidance in Section 6.1.5.9 and 6.1.3 to select appropriate evaluation guidelines for temperature and assess pursuant to Sections 6.1.5.1 through 6.1.5.7 of the Listing Policy.</p>
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	<p>Los Gatos Creek (which include introduction of flows for groundwater management purposes and flow maintenance during the dry season) do not involve elevated temperature waste discharges or irrigation return flows, and were established in their current form between 1935 and 1975, predating the date that COLD was designated as existing, there is no material distinction between the two definitions of “natural receiving water temperature” when considering “natural receiving water temperature” for Los Gatos Creek. Therefore, these comments, focus on the RWQCB’s failure to compare existing water quality conditions in Los Gatos Creek to temperature water quality objectives as interpreted using the adopted Listing Policy definition of “natural receiving water temperature.”</p>	
12.020	<p>12. With respect to determining when there are available “temperature data from past (historic) periods corresponding to time when the beneficial use was fully supported,” one must consider whether and when a beneficial use was designated as an “existing beneficial use.” The 1975 Basin Plan designated COLD as an “existing beneficial use.” (State Water Bd., Water Quality Control Plan San Francisco Bay Basin (2) (1975) p. 2-2</p> <p>[Table 2-1].) MIGR was designated as a “potential beneficial use” in the 1975 Basin Plan (id.), and is currently described as a “potential” beneficial use. (Basin Plan, Table 2-1.)<sup>4</sup> The current temperature water quality objectives were adopted into the Basin Plan to support COLD and other beneficial uses in or around 1975. (State Water Bd., Water Quality Control Plan San Francisco Bay Basin (2) (1975) p. 4-14, 4-17.)</p>	<p>Regarding the appropriateness of evaluating support of both existing and potential beneficial uses to make CWA section 303(d) listing recommendations, see responses to comments 12.015 and 12.102 and revisions to section 4.1.1 to the Staff Report.</p>

	<p><sup>4</sup>Although MIGR was not considered an existing use in 1975, it was established as an existing use sometime after 1975. Since operational practices and facilities have remained largely unchanged for Los Gatos Creek since 1975 when MIGR was designated a “potential” beneficial use, it is not clear to Valley Water, and the Basin Plan does not describe, what conditions in Los Gatos Creek changed between 1975 and the current Basin Plan to warrant designation of MIGR—a use that did not exist in 1975—as an existing use in the current Basin Plan that can support a Section 303(d) listing for impairment. These comments assume, without conceding, that the designation of MIGR as an existing use in the Basin Plan is valid and that the beneficial use can legally serve as the basis of the RWQCB’s recommended listing.</p>	
12.022	<p>14. Accordingly, the Listing Policy’s direction to collect and analyze historical data corresponding to “times when the beneficial use was fully supported” for purposes of determining “natural receiving water temperature” to numerically interpret the temperature water quality objectives means the RWQCB was first required to collect available actual temperature data from Los Gatos Creek during the time period on or shortly after November 28, 1975, at which time the COLD and MIGR uses had been designated as existing and potential uses, respectively, and the temperature objectives had been adopted. The RWQCB is instructed by the Listing Policy to use those data to numerically interpret the temperature water quality objectives for purposes of comparing the limitations established by the objectives to existing water quality conditions to reach a listing determination. Only in the absence of sufficient data to define the temperature water quality objectives could</p>	<p>The commenter incorrectly paraphrases Section 6.1.5.9 of the Listing Policy. Nowhere does the Listing Policy direct the Water Boards to collect and analyze historical data corresponding to times when uses were fully support. Section 6.1.5.9 requires such data to be evaluated if it is available. Here, it is not.</p> <p>For the purposes of Integrated Report assessments, the Water Boards are under no obligation to determine the conditions that existed and the beneficial uses that were supported on November 28, 1975. Integrated Report assessments evaluate a waterbody’s beneficial uses as designated in basin plans. See response to comment 12.015. This includes both existing and potential uses. See also response to comment 12.019.</p> <p>Because of the Los Gatos Creek watershed’s history of anthropogenic influences and a dearth of historic temperature data, the objective expressed through the natural receiving water temperature cannot be assessed. Since natural receiving water temperature data are not available, current temperature monitoring data were compared to the temperature requirements of steelhead in the creek as informed (through application of Listing Policy 6.1.3)</p>

	<p>the RWQCB turn to the use of an “alternative approach” or “temperature evaluation guidelines.”</p>	<p>by four evaluation guidelines. The temperature data available for Los Gatos Creek has not been shown to represent natural receiving water temperatures. Therefore the San Francisco Bay Regional Water Board appropriately followed Section 6.1.5.9 of the Listing Policy. See also response to comment 12.102 and Section 4.1.1 of the Staff Report.</p> <p>In preparing the proposed 303(d) list, all readily available data were considered. See also response to comment 12.011 regarding Listing Policy requirements for evaluation of available data and information. Additionally, the Listing Policy does not require data to be collected for assessment purposes.</p>
12.026	<p>2. Although the Regional Board documents in support of the listing made reference to the Basin Plan’s temperature water quality objectives,<sup>6</sup> it did not apply them to Los Gatos Creek. Neither the RWQCB Staff Report, the Fact Sheets, nor other supporting materials used by the RWQCB to support the temperature listing recommendation for lower Los Gatos Creek makes any attempt to answer these questions. There is no assessment of current water quality conditions as compared to these temperature water quality objectives in the Basin Plan. After citing these water quality objectives, instead of considering them, the RWQCB simply compared current water quality conditions directly to temperature evaluation guidelines, without ever considering whether the guidelines were technically appropriate or properly representative interpretations of attainment of the temperature water quality objectives within the hydrographic unit, as required by the Clean Water Act and the Listing Policy.</p> <p><sup>6</sup>The RWQCB’s restatement of the temperature water quality objectives in the Fact Sheets is derived from, but does not exactly match, the statement of the water quality objectives in the Basin Plan. Specifically, the</p>	<p>See Section 4.1.1. of the Staff Report, which was revised to clarify the temperature assessment process for Los Gatos Creek, including the justification for not assessing data against the natural receiving water temperature and the use of evaluation guidelines based on steelhead life cycle requirements to interpret the temperature water quality objective. The San Francisco Bay Regional Water Board correctly applied the alternative approach to assess temperature impacts as described in Section 6.1.5.9 of the Listing Policy. The San Francisco Bay Regional Water Board correctly followed Section 6.1.3 of the Listing Policy to select appropriate temperature evaluation guidelines to interpret the narrative temperature water quality objective in the San Francisco Bay Basin Plan.</p> <p>The word “intrastate” in the water quality objective language in Decision ID 100663 was an error. The Waterbody Fact Sheet in Appendix C was updated with the following, corrected text:</p> <p>The natural receiving water temperature of inland surface waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.</p>

	<p>RWQCB's citation of the temperature water quality objectives in the Fact Sheet for Los Gatos Creek (Decision ID 100663) substitutes the term "intrastate waters" for "inland waters," used in the Basin Plan. This substitution may have been made by the RWQCB to reflect that the State Water Board has applied the definitions included in the Thermal Plan, and particularly the definition for "natural receiving water temperature," to water quality objectives governing intrastate waters. (State Water Board, Water Quality Order No. 2002-0015, In the Matter of Review on Own Motion of Waste Discharge Requirements Order No. 5-01-044 for Vacaville's Easterly Wastewater Treatment Plant Issued by the California Regional Water Quality Control Board, Central Valley Region (Oct. 3, 2002) p. 49.) In any event, the RWQCB's analysis did not apply the temperature water quality objectives whatsoever.</p>	
12.028	<p>4. In this situation, there is a plethora of available "historic" temperature data for Los Gatos Creek corresponding to the time period in the vicinity of 1975 (when the RWQCB designated COLD as existing beneficial use and adopted the temperature water quality objectives for Los Gatos Creek), and, conservatively, there are data collected <i>even well before</i> 1975 and before MIGR was designated as a potential beneficial use. (Exponent, Technical Memorandum Regarding Evaluation of Proposed Temperature 303d Listing of Los Gatos Creek, California (Mar. 2020) pp. 5-21 ["Exponent Tech Memo"] [Attachment B].) The RWQCB was required to—but did not—assemble and consider these readily available data to establish "natural receiving water temperatures" in Los Gatos Creek.</p>	<p>Regarding the evaluation of historic data to establish natural receiving water temperature, see response to comment 12.102.</p>
12.029	<p>5. Not only did the RWQCB fail to assemble and consider data necessary to determine the "natural receiving water temperature" and numerically interpret</p>	<p>With regards to the determination of natural receiving water temperature, see responses to comments 12.017, 12.018, 12.019 and 12.102. Additionally, Section 4.1.1 of the Staff Report was</p>



<p>the temperature water quality objectives, there is no evidence that the RWQCB conducted the inquiries necessary to compare current water quality conditions to the water quality conditions required by the express wording of the temperature water quality objectives. (See RWQCB Staff Report, pp. 5-6; Listing Fact Sheet.) Specifically, the RWQCB failed to inquire or determine whether:</p> <p>a) Any evidence indicates an alteration in “natural receiving water temperature” that adversely affects beneficial uses and has not been approved by the water boards; and</p> <p>b) Any evidence that indicates an increase of 5°F (2.8°C) above “natural receiving water temperature” occurred in any cold [COLD] or warm [WARM] freshwater habitat in Los Gatos Creek.</p> <p>With respect to the first temperature water quality objective:</p> <p>a) The RWQCB failed to conduct any assessment regarding whether any alterations in temperature are in evidence, and if so, whether those changes occurred without water board approvals, and after existing uses and temperature water quality objectives were adopted (and fully supported) in 1975. Instead, the RWQCB only considered whether the water body would meet the “temperature evaluation guidelines” that were based on temperatures that support salmonids in the Pacific Northwest, which is an entirely different climatic region than Central Coastal California, and has cooler ambient water temperatures (“PNW Evaluation Criteria”). There was no consideration of whether current temperatures were a result of</p>	<p>revised to include recognition of the groundwater recharge beneficial use of Los Gatos Creek.</p>
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unpermitted alterations in Los Gatos Creek temperatures.

- b) The RWQCB also failed to conduct any inquiry, evaluation or assessment of whether any evidence exists of alterations in temperature occurring since 1975, and, if so, whether those alterations contributed to the realization of beneficial uses, or whether they adversely affected beneficial uses, including COLD and GWR.
- c) Since 1934, Valley Water has managed water resources in the Los Gatos Creek system to help ensure reliable water supplies. Two online reservoirs, the Vasona Reservoir and Lexington Reservoir, were built in Los Gatos Creek in 1935 and 1952, respectively, and water flowing into these reservoirs originates entirely from the surrounding watershed. These reservoirs were constructed to capture local runoff during the wet season to provide instream flows and to facilitate groundwater recharge even during the dry season. Beginning in about 1968, imported water was brought into Valley Water's service area pursuant to approvals issued by the Department of Water Resources and the Bureau of Reclamation via the South Bay Aqueduct and Central Valley Pipeline, which allowed Valley Water to provide more flow augmentation, meet increased water supply demand, and provide additional groundwater recharge. The Santa Clara Valley Water District Act (chapter 1405 of the statutes of 1951, as amended) ("District Act")<sup>7</sup> and three water rights licenses approved by the State Water Board for Lexington Reservoir, Vasona Reservoir, and the Kirk Diversion authorize Valley Water's flow and recharge management activities.<sup>8</sup> The Kirk Diversion is located downstream of Vasona Reservoir and is the point of diversion used to

convey creek flows to percolation ponds for groundwater recharge. In addition, Valley Water conducts flow management activities in Los Gatos Creek downstream of the Kirk Diversion pursuant to authorizations issued by the California Department of Fish and Wildlife for purposes of providing stream habitat and aquatic connection between the Creek and the Bay. Valley Water began these activities in the 1990s under a Memorandum of Understanding (“MOU”) with the California Department of Fish and Game, and has continued these activities pursuant to Lake and Streambed Alteration Agreements (“LSAAs”) for the Kirk Diversion with the California Department of Fish and Wildlife. The most recent LSAA authorizing these activities was issued in 2014, and that LSAA is currently being renewed. These agreements included requirements that Valley Water maintain in-stream flows within Los Gatos Creek past streamflow station SF 50, located at Lincoln Avenue, downstream of the Kirk Diversion. Without reservoir releases and the introduction of imported water to Los Gatos Creek below Vasona Reservoir, which has been ongoing since well before 1975, Los Gatos Creek would routinely dry out at times during the dry season.

- d) Temperatures associated with these flow management practices that were instituted prior to 1975, and/or that were approved by water boards and other agencies with jurisdiction for realization of GWR and other beneficial uses, are part of “historical” and “natural receiving water temperatures.” As a result, temperatures associated with operational flow management and recharge activities may not be considered as “alterations” or “increases” above the “natural receiving water temperatures” for purposes of determining a listing.

	<p><sup>7</sup>Valley Water was created to provide comprehensive water management for all beneficial uses and protection from flood in Santa Clara County. (Santa Clara Valley Water District Act, stats. 1951, ch. 1405, § 4, subd. (a) [“District Act”].) Specifically, section 4, subdivision (c)(3) authorizes Valley Water to “[p]rovide for the conservation and management of floodwater, stormwater, or recycled water, or other water from any sources within or outside the watershed in which the district is located for beneficial and useful purposes, including spreading, storing, retaining, and causing the water to percolate into the soil within the district.”</p> <p><sup>8</sup>These water rights determinations include State Water Resources Control Board License for Diversion and Use of Water nos. 5729 (Jun. 5, 1959), 6944 (July 18, 1963), and 11791 (Jun. 6, 1985).</p>	
12.034	<p>2. The RWQCB appears to justify this practice by stating that “[w]hen numeric regulatory limits were not available, evaluation guidelines were used to interpret narrative water quality objectives.” (RWQCB Staff Report, p. 5.) As a threshold matter, however, the Listing Policy does not unequivocally establish temperature water quality objectives as “narrative objectives” for which temperature evaluation guidelines may automatically be used. Nor does the Listing Policy authorize water boards to automatically and uncritically compare existing water quality conditions to temperature evaluation guidelines as a “proxy” for temperature water quality objectives. (Listing Policy § 6.1.5.9, p. 25.) Instead, the Listing Policy provides specific guidance on how to develop and apply</p>	<p>See response to comment 12.102 and revisions to the Staff Report at section 4.1.1.</p>

	evaluation guidelines, which the RWQCB did not follow.	
12.036	<p>4. Second, Listing Policy section 6.1.5.9, page 25 mandates that if an “alternative approach” is authorized “in the absence of necessary data to interpret numeric water quality objectives, [then] recent temperature monitoring data shall be compared to the <i>temperature requirements of aquatic life in the water segment</i>.” (Emphasis added.) The Listing Policy further requires that when using an “alternative approach” and temperature evaluation guidelines,</p> <p>“[i]nformation on current and <i>historic conditions and distribution of sensitive beneficial uses (e.g., fishery resources) in the water segment is necessary</i>.” (Id., emphasis added.) Further, Listing Policy requirements related to the use of evaluation guidelines generally specify that any guideline used for a listing evaluation must be one that “represents water quality objective attainment or beneficial use protection,” (Listing Policy § 6.1.3, p. 19), and must be “appropriate for the hydrographic unit.” (Listing Policy § 6.1.3, p. 20.) Again, these requirements of the Listing Policy assure that when evaluation guidelines are authorized and used, a direct comparison of water body conditions to appropriate water quality standards for the particular water bodies under consideration still results.</p>	Sections 6.1.5.9 and 6.1.3 of the Listing Policy were applied appropriately. See responses to comments 12.102 and 12.037 and revisions to section 4.1.1. of the Staff Report
12.037	5. In responding to comments that the PNW Evaluation Criteria were inappropriate for the temperature requirements of aquatic life in the Los Gatos Creek water segment, inconsistent with information regarding historical conditions in the water segment, and unrepresentative of water quality objective attainment in the hydrographic unit, the RWQCB simply responded by citing some of the Listing Policy requirements for identification of temperature	See Section 4.1.1. of the Staff Report, which was revised to clarify the temperature assessment process for Los Gatos Creek, including the justification for the evaluation guidelines. In the interpretation of the narrative water quality objective for temperature, the San Francisco Bay Regional Water Board selected the 7-day moving average of maximum daily temperature (“7DADM”), the lethal value, the maximum weekly average temperature (“MWAT”), and the rolling 7-day average temperature (“7DAVG”) to evaluate both short-term (acute) and long term (chronic) effects of elevated temperature

	<p>evaluation guidelines (but not the requirements that the evaluation guidelines must be appropriate and representative for the water segment and hydrographic unit), and then stated that the PNW Evaluation Criteria would be used because they had been used in other listing decisions for other water segments in different hydrographic units in California. (RWQCB, 2018 Proposed Revisions of the Clean Water Action Section 303(d) List of Impaired Waters for the San Francisco Bay Region, Response to Comments (Mar. 6, 2019) response 3.2, p. E-3 [“RWQCB RTC”]). There is no evidence in the administrative record that the RWQCB took any steps to analyze or assess the PNW Evaluation Criteria to determine if they would be appropriate for characterizing conditions in the water segment being evaluated, and would be technically representative of adopted Basin Plan temperature water quality objectives.</p>	<p>on steelhead. These thresholds were applied to data collected during the time periods and critical life stages (migration and rearing) when steelhead are present in the waterbody and most vulnerable to increased temperatures.</p> <p>As described in detail in Section 4.1.1 of the Staff Report and in compliance with Section 6.1.3 of the Listing Policy, each evaluation guideline is appropriate to use as it is applicable to the COLD and/or MIGR beneficial uses, is protective of the use(s), is linked to stream temperature, is scientifically based and peer reviewed, is well described, and identifies a range above which impacts occur and below which no or few impacts are predicted.</p> <p>The evaluation guidelines are appropriate for considering temperature impacts to steelhead populations of the Central California Coast Evolutionarily Significant Unit in Los Gatos Creek.</p> <p>Temperature in streams is not uniform in space or time, but consistent exceedance of these temperature thresholds suggests that high temperatures are impairing aquatic life, and that water quality standards are not being met. The evaluation guidelines have been and are being used for temperature assessments in the San Francisco Bay and North Coast regions, and these assessments have been accepted by U.S. EPA as part of several California integrated reports.</p> <p>See also response to comments 12.119, 12.131, and 12.132 for additional discussion of the 7DADM, MWAT and 7DAVG thresholds, respectively.</p>
12.039	<p>a) The PNW Evaluation Criteria bear no relationship to “natural receiving water temperatures” in Los Gatos Creek, which, pursuant to the Listing Policy and the Existing Uses Policy, were temperatures that fully supported existing and potential beneficial uses when they were designated and adopted into the Basin Plan in or around 1975. In fact, there is no evidence the four PNW Evaluation Criteria temperatures existed in</p>	<p>See responses to comments 12.015, 12.019, 12.022, 12.102, and 12.037.</p>

	Los Gatos Creek on, after, or even (conservatively) well before November 28, 1975. (Exponent Tech Memo, § 2, pp. 20-21.)	
12.040	b) The PNW Evaluation Criteria are not temperatures that are representative of conditions required by the distinct Central Coastal California steelhead population because no California water bodies or California steelhead were considered in the development of the evaluation criteria. (Exponent Tech Memo, § 3, pp. 22-43.)	See response to comment 12.019.
12.041	<p>c) The PNW Evaluation Criteria are not representative of conditions required by the distinct Central Coastal California steelhead population because they do not consider the well-documented adaptation of salmonid populations to climatic and surface water temperature conditions in California, which are warmer than in the Pacific Northwest. (Exponent Tech Memo § 4, pp. 44-48.) This scientific issue was recently confirmed as an important issue in a letter from EPA Deputy Assistant Administrator D. Lee Forsgren to Turlock Irrigation District General Manager Casey Hashimoto (June 27, 2018)</p> <p>(Attachment F), stating:</p> <p>“With respect to the applicability of EPA temperature guidance mentioned above [EPA’s Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards (2003) [i.e., the PNW Evaluation Criteria], the EPA considers there to be an open and legitimate scientific question about the adaptability of salmonid populations to warmer conditions in California. The EPA is aware of research with salmonid species from California rivers that suggests populations at the southern limit of their distribution may be locally adjusted to</p>	<p>Regarding the development of temperature thresholds specific to conditions in lower Los Gatos Creek, see responses to comments 12.003 and 12.037.</p> <p>With regards to steelhead adaptation to warmer climates, see response to comment 12.136.</p>

	warmer temperatures relative to more northern populations, and that these findings challenge the use of a single thermal criterion along the entirety of its [the steelheads'] distribution range.”	
12.052 , 12.053	<p>9. To realize, protect, and maintain the GWR use and to comply with its obligations under the District Act, SGMA and its LSAA with California Department of Fish and Wildlife, Valley Water must continue to manage flows into Los Gatos Creek. These flows, which are predominantly inflows from the local watershed captured and then released from Lexington and Vasona reservoirs, augmented by imported water, have historically (and well prior to 1975) been characterized by higher temperatures than those associated with the PNW Evaluation Criteria. Valley Water cannot unilaterally alter its flow management operations, or reduce or eliminate reservoir and imported water releases, notwithstanding that the flows often do not meet PNW Evaluation Criteria, without inducing seasonal dryback conditions and adversely affecting habitat, aquatic life, groundwater recharge and the realization of beneficial uses. Moreover, flows cannot be reduced or eliminated without jeopardizing implementation of Valley Water's groundwater management plan, which was approved by DWR as an alternative to a Groundwater Sustainability Plan for SGMA compliance.</p> <p>10. The RWQCB's reliance on an interpretation of the applicable temperature water quality objectives defined solely by reference to whether flow temperatures in the surface water are greater than the PNW Evaluation Criteria ignores that the Basin Plan's temperature water quality objective expressly requires protection of all designated existing “beneficial uses,” including GWR.</p>	<p>The groundwater recharge beneficial use designated for Los Gatos Creek is recognized as important. The 2018 Integrated Report assessment was an evaluation of the beneficial uses associated with aquatic life (COLD and MIGR), which are the beneficial uses most sensitive to high water temperatures. Temperature data were not evaluated for attainment of the groundwater recharge beneficial use, as it is not the most sensitive use to high temperature.</p> <p>Actions taken to address any impairment, including a temperature impairment, can be diverse, multi-faceted, and tailored to account for other beneficial uses. It is speculative to assume any particular outcome or management action. The commenter is encouraged to collaborate with the San Francisco Bay Regional Water Board during the development of any actions taken to address an impairment to Los Gatos Creek.</p>



12.054	<p>11. Defining the first temperature water quality objective as requiring attainment of the PNW Evaluation Criteria also jeopardizes future releases of any flows that are at higher temperatures than the chilly PNW Evaluation Criteria, even though those releases have temperatures consistent with historical flows and operations prior to 1975 and are necessary for compliance with the District Act, the approved alternative to a Groundwater Sustainability Plan and the SGMA, sustained flow in the Creek during the dry season, and for protection and realization of habitat, aquatic species and beneficial uses, including GWR.</p>	See responses to comments 12.017 and 12.052.
12.063 12.064 12.065	<p>7. Second, Water Code section 13241, subdivision (c) requires water quality objectives to reflect “[w]ater quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.” When setting water quality objectives, the Regional Board must also consider the availability of implementation measures necessary to achieve the water quality objective. (Wat. Code, § 13242.)</p> <p>8. “Controllable water quality factors” are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the State, that are subject to the authority of the State Water Board, or the Regional Board, and that may be reasonably controlled. (Basin Plan, § 3.1.)</p> <p>9. If the PNW Evaluation Criteria are used from this point forward as a proxy for the temperature water quality objective limits, there are no reasonable implementation measures that constitute controllable water quality factors that would attain those water quality standards. (See Exponent Tech Memo, § 5, pp. 48-50.) Nor were there any reasonable measures available when the water quality standards were</p>	<p>There is no requirement that evaluation guidelines used to assess data for California’s section 303(d) list consider controllable water quality factors. Regarding the interplay between 303(d) list assessments and water quality objectives, see response to comment 12.004.</p> <p>Temperature data for Lake Almanor will be assessed as part of the 2020/2022 Integrated Report, for which the Central Valley Regional Water Quality Control Board (“Central Valley Regional Water Board”) is on cycle. It is likely that a different assessment process is appropriate for Lake Almanor as it is a reservoir and beneficial uses may vary (for example, anadromous salmonids are likely not present).</p>

	<p>adopted in 1975. (Id.) Because temperatures in Los Gatos Creek cannot be influenced through reasonable “controllable water quality factors” to attain the PNW Evaluation Criteria temperatures, use of those temperatures as proxies for the temperature water quality objectives invalidates them under Water Code §§ 13241, subdivision (c), and 13242.<sup>9</sup></p> <p><sup>9</sup>The fact that the PNW Evaluation Criteria, when used as a proxy for the temperature water quality objectives, cannot be attained historically through reasonable “controllable water quality factors” is grounds for not listing Los Gatos Creek. The inability of a water body to historically attain the temperature water quality objective via controllable factors was considered in the State Water Board’s Decision ID 4323, which recommended against listing Lake Almanor for temperature. (State Water Board, Fact Sheets Supporting “Do Not List” Recommendations for Region 5 (2006) p. 558-559.) Staff decided not to list Lake Almanor for temperature because there was no evidence that human activities (i.e. controllable factors) were responsible for modifying the temperature regime and adversely impacting cold water species. (Id. at p. 558.) Rather, Lake Almanor, being a reservoir, took on its own temperature regime, which included seasonal development of warm and cold water layers, something unrelated to human induced impacts. (Id. at p. 559.)</p>	
12.074	<p>2. The RWQCB applied the “alternative approach,” by comparing current temperature data to the PNW Evaluation Criteria, but failed to demonstrate that historical temperature data were unavailable to define “natural receiving water temperature” for Los Gatos Creek, and/or that “natural receiving water temperature” for the Creek was impossible to determine using modeling or similar methodologies</p>	<p>Regarding the use of historical temperature monitoring data, see response to comment 12.102.</p>

	<p>based on available empirical data. In fact, as set forth in section 2 of the Exponent Tech Memo, there are extensive historical temperature monitoring data collected in Los Gatos Creek and other creeks in the hydrographic unit. RWQCB was required to consider and should have used these data to establish “natural receiving water temperature” for purposes of numerically interpreting the temperature water quality objectives and assessing their attainment by current water quality conditions.</p>	
12.075	<p>3. As described in Section I.B above, a review of available actual temperature data for Los Gatos Creek, and similar creeks in the watershed in the vicinity of November 1975 shows that “natural receiving water temperature” of Los Gatos Creek should more properly have been defined using those empirical data. The data reveal that historical temperature in Los Gatos Creek ranged between 6°C<sup>11</sup> (in the month of December) and 28°C (in the month of August). (Exponent Tech Memo, § 2, pp. 5-21.)</p> <p><sup>11</sup>Applying the Regional Board’s methodology for the listing recommendation of analyzing only the months of October through March, the lower limit of Los Gatos Creek’s pre-1975 range would have been 7°C.</p>	See response to comment 12.102.
12.076	<p>4. The actual empirical natural receiving water temperature data show that historical Creek temperatures are significantly higher than the PNW Evaluation Criteria. However, there is no indication that current Los Gatos Creek temperatures exceed natural (or historical) receiving water temperatures by 5°F (2.8°C) or more, or that alteration from those historical temperatures would adversely affect beneficial uses. In other words, there is no indication that the current</p>	Regarding the ability to determine natural receiving water temperatures in lower Los Gatos Creek, see response to comment 12.102 and Section 4.1.1 of the Staff Report. Regarding the appropriateness of the evaluation guidelines, see response to comment 12.037.

	<p>temperatures in the Creek exceed natural or historical water temperatures, which are the basis for the Basin Plan's temperature water quality objectives, and which should have been used as required by the Listing Policy to evaluate attainment. Therefore, contrary to the Listing Policy, the PNW Evaluation Criteria do not identify the appropriate maximum temperature "above which impacts occur, and below which no or few impacts are predicted." (Listing Policy § 6.1.3, p. 20.)</p>	
<p>12.082 , 12.083</p>	<p>4. Further, as explained in Sections 2 through 4 of the Exponent Tech Memo, the PNW Evaluation Criteria bear no relationship to the distribution or likely temperature requirements of steelhead within the Los Gatos Creek water segment. Peer-reviewed literature demonstrates that California salmonids have different temperature tolerances than Pacific Northwest salmonids. (Exponent Tech Memo, § 4, pp. 44-47.) EPA has recently acknowledged research concluding that salmonid populations at the southern limit of their distribution may be locally adjusted to warmer temperatures relative to their northern counterparts. (D. Lee Forsgren, EPA Letter to Casey Hashimoto, Turlock Irrigation Dist. (Jun. 27, 2018) p. 1.)</p> <p>5. Salmonids generally exhibit variable temperature tolerances based on local adaptation and genetic factors. (Exponent Tech Memo, § 4, pp. 44-47.) Steelhead in California (including those within Los Gatos Creek) are very likely adapted to warmer temperatures than salmonids in the Pacific Northwest, and thus the PNW Evaluation Criteria are not scientifically representative of the temperature requirements of steelhead within the Central Coastal California region. (<i>Ibid.</i>)</p>	<p>Regarding the scientific understanding of temperature requirements and local adaptations of salmonids, see responses to comments 12.037 and 12.136.</p>

12.084	6. Moreover, as established in Section 2 of the Exponent Tech Memo, the PNW Evaluation Criteria bear no relationship to the historical temperatures within the Los Gatos Creek water segment, primarily because they are based on conditions in the much colder climatic region encompassing Washington, Oregon, Idaho, and Canadian rivers, and are not reflective of the Bay Area's warmer Mediterranean climate and the historical "natural receiving water temperatures" in lower Los Gatos Creek. In addition, the PNW Evaluation Criteria were derived in large part for salmonid species other than steelhead.	Regarding historical temperatures in lower Los Gatos Creek, see response to comment 12.102. Regarding the appropriateness of the evaluation guidelines, see response to comment 12.037.
12.088	2. The scientific literature and data relied upon by the RWQCB to select and use the PNW Evaluation Criteria for purposes of listing a central California inland surface waterbody to protect COLD, and particularly to protect the Central Coastal California steelhead population were, in a sense, "peer-reviewed." However, as explained in detail in Section 3 of the Exponent Tech Memo, review and examination of the data and information supporting the PNW Evaluation Criteria ("the PNW Literature") reveals several significant scientific and technical issues that make the use of these "peer reviewed" guidelines inappropriate for the purpose of assessing water quality conditions in California water bodies.	Regarding the appropriateness of the temperature evaluation guidelines utilized to evaluate temperature data in lower Los Gatos Creek, see response to comment 12.037.
12.089	3. First, the PNW Evaluation Criteria are derived in part from studies that incorporate circular string-citations to un-peer reviewed studies, several of which are unavailable for review, and to studies that do not provide a sufficient scientific basis to establish the validity of the evaluation criteria for purposes of identifying water temperature requirements of steelhead generally, or of steelhead in the Central Coastal California distinct population segment. Several of the studies evaluate the temperature tolerance of	Regarding the scientific credibility of the temperature thresholds utilized to evaluate temperature data in lower Los Gatos Creek, see response to comments 12.037, 12.119, 12.131 and 12.132. The primary references (U.S. EPA 2003 and Sullivan et al. 2000) do include evaluations of temperature tolerance of other salmonid species, but they also provide evaluations for steelhead. The primary references include citations for steelhead life cycle stages and the recommended water temperatures to support those stages.

	salmonid species other than steelhead, which is of concern because other species of salmonids may have different temperature tolerances than steelhead. None of the studies cited in the PNW Literature examined the temperature tolerance of any salmonid species outside the Pacific Northwest.	
12.090	4. Second, some of the PNW Literature cited to support the PNW Evaluation Criteria are flawed and constitute poor science. For example, one study (Coutant 1970) failed to report acclimation temperatures for individual tests and made statistical errors in calculating and reporting results. One study cited in the PNW Literature, Fish and Hanavan (1948), does not include temperature information. The study that was likely the correct citation, Fish (1948), reported a number of factors, such as fishing, completion of the Grand Coulee Dam in 1939, and hatchery operations, that would be expected to affect sockeye counts in the Columbia River in Washington State in 1941, confounding any conclusions that temperature was the cause of observed impacts. Other studies inappropriately selected the lower end of a reported range of temperatures, misapplied the methodology used to compute the maximum weekly average temperature that will result in lethality, or inappropriately drew conclusions from a small number of fish descended from two Lake Superior steelhead individuals. These and other examples of flawed and poor science are described in Section 3 of Exponent Tech Memo.	<p>Regarding the scientific credibility of the temperature thresholds utilized to evaluate temperature data in lower Los Gatos Creek, see response to comments 12.037.</p> <p>The assertion that these criteria are a product of “poor science” is not supported. For example, the guidance provided by U.S. EPA (U.S. EPA 2003) underwent a peer review process, wherein two independent scientific panels provided comment on various aspects of the guidance and the scientific issue papers upon which the guidance relied. See also responses comments 12.119, 12.131 and 12.132. See also Section 4.1.1 of the Staff Report.</p>
12.091	5. Third, none of the PNW Literature provides scientific support for application of the PNW Evaluation Criteria to determine water temperatures required by steelhead populations located in California, which is a fact that is now acknowledged by EPA. (D. Lee Forsgren, EPA Letter to Casey Hashimoto, Turlock Irrigation Dist.	Regarding scientific understanding of thermal adaptations of salmonids, see response to comment 12.136.

	<p>(Jun. 27, 2018) p. 1.) As described in Section 4 of the Exponent Tech Memo, the scientific literature indicates that rainbow trout in general, and California steelhead populations in particular, are adapted to local environmental conditions and temperatures, which are warmer than temperatures in the Pacific Northwest. Evidence to support adaptation to warmer thermal regimes comes from comparative population studies, molecular genetics, and numerous observations of steelhead populations at the southern extremes of the species range, including at temperatures in excess of the PNW Evaluation Criteria. Thus, even if the studies used to derive the PNW Evaluation Criteria did not suffer from methodological and other flaws, those criteria should not be applied to steelhead populations adapted to warmer conditions in the southern end of the range, and in the Central California Coastal distinct population segment specifically.</p>	
12.102	<p>The RWQCB (2019b) temperature evaluation guidelines are implicitly based on the alternative approach, as “historical” or “natural” temperature was not defined, nor were “historical” or “natural” temperature data evaluated by the RWQCB in the proposed listing for Los Gatos Creek. However, the State Listing Policy clearly provides that, if available, historical or natural temperature data should be used to determine if a waterbody listing is appropriate, and only when historical or natural temperature data are unavailable shall an alternative approach, i.e., temperature evaluation guidelines, be used. As a result, the RWQCB should have considered any available historical or natural temperature data from Los Gatos Creek and other regional streams and rivers to determine whether to recommend the listing of Los Gatos Creek, rather than making listing recommendations based on temperature evaluation</p>	<p>See Section 4.1.1. of the Staff Report, which was revised to clarify the temperature assessment process for Los Gatos Creek, including the justification for not assessing data against the natural receiving water temperature and the use of evaluation guidelines based on steelhead life cycle requirements to interpret the temperature water quality objective.</p> <p>Section 6.1.5.9 of the Listing Policy states that “[t]emperature water quality objectives shall be evaluated as described in sections 6.1.5.1 through 6.1.5.7. To interpret and utilize the applicable narrative water quality objective, numeric evaluation guidelines are to be selected pursuant to Section 6.1.3 of the Listing Policy (requiring appropriate evaluation guidelines to be used to interpret a narrative water quality objective) and numeric data are to be evaluated to determine if the measurement was greater than the evaluated guideline pursuant to Section 6.1.5.7(B) of the Listing Policy. Accordingly, and pursuant to Sections 6.1.5.9 and 6.1.3 of the</p>

	<p>guidelines developed for Pacific Northwest (PNW) salmonids.</p>	<p>Listing Policy, four evaluation guidelines were used to evaluate temperature data in Los Gatos Creek.</p> <p>The temperature objectives from the San Francisco Bay Basin Plan applicable to the evaluation of COLD and MIGR beneficial use support in Los Gatos Creek are:</p> <p style="padding-left: 40px;">The natural receiving water temperature of inland surface waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.</p> <p style="padding-left: 40px;">The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8°C) above natural receiving water temperature.</p> <p>Section 6.1.5.9 of the Listing Policy states that “In the absence of necessary data to interpret numeric water quality objectives, recent temperature monitoring data shall be compared to the temperature requirements of aquatic life in the water segment.” Section 6.1.5.9 continues, in pertinent part, “[i]f temperature data from past (historic) periods corresponding to times when the beneficial use was fully supported are not available, information about presence/absence or abundance of sensitive aquatic life species shall be used to infer past (historic) temperature conditions if loss of habitat, diversions, toxic spills, and other factors are also considered.” The applicable water quality objectives are not solely numeric. Additionally, data do not exist to interpret the applicable narrative temperature objective from the San Francisco Bay Basin Plan, because it requires the natural receiving water temperature to be ascertained. Because of the Los Gatos Creek watershed’s long history of anthropogenic influences and a dearth of historic temperature data, the objective expressed through the natural receiving water temperature cannot be assessed. As a result, recent temperature monitoring data were compared to the temperature requirements of aquatic life in the segment as informed by the evaluation guidelines pursuant to section 6.1.3 of the Listing</p>
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		<p>Policy and in accordance with sections 6.1.5.1 through 6.1.5.7 of the Listing Policy as required by section 6.1.5.9.</p> <p>The commenter has presented an analysis of historical data but does not present any evidence that the historic data are representative of natural receiving water temperature during the time period represented by the historical data. Los Gatos Creek has undergone hydrologic alterations since the early 20<sup>th</sup> century including reservoir construction in the 1930s and through the 1950s. These data can be considered “historic,” but there is no basis for considering them as representing “natural” conditions.</p> <p>The commenter claims that temperatures have been high in Los Gatos Creek in the past. Since no information was presented that the beneficial uses were fully supported at the same time those temperatures were measured, those high historical temperatures indicate that beneficial uses (vis a vis steelhead migration and summer rearing) have not been supported during those times as well. The historical data do not invalidate the assessment approach used for the 2018 Integrated Report.</p> <p>Because data known to represent natural receiving water temperatures do not exist, the best available recent data were used to evaluate beneficial use support. The data set used is an extremely robust set of hourly temperature records collected over 12 years at more than 30 monitoring stations along Los Gatos Creek.</p>
12.103	<p>As noted in Keehner (2008), a beneficial use is considered to be an “existing” use if, as of November 28, 1975, (1) the use actually existed and (2) water quality was sufficient to support the use.<sup>5</sup> Thus, temperature data collected in the vicinity of November 28, 1975, represents an appropriate timeframe for the purposes of characterizing “historical” or “natural” temperature conditions under the Clean Water Act.</p>	<p>See response to comment 12.102.</p> <p>The commenter has not provided justification that the conditions in Los Gatos Creek on November 28, 1975 were natural receiving water temperatures.</p> <p>Additionally, see the response to comment 12.015 regarding potential and existing beneficial uses.</p>

	<p><sup>5</sup>EPA’s regulations define existing uses as “those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards. ... EPA considers the phrase ‘existing uses are those uses actually attained’ to mean the use and water quality necessary to support the use that have been achieved in the waterbody on or after November 28, 1975” (Keehner 2008).</p>	
12.105	<p>Water temperature data characterizing baseline “historical” or “natural” water temperature conditions in lower Los Gatos Creek before and near 1975 are available. Datasets describing historical temperature measurements made in Los Gatos Creek have been identified from as early as 1950 and include measurements from just below Lexington Reservoir to near the confluence of the Guadalupe River (Table 1).</p> <p>Exponent used six data sets both to determine “historical” or “natural” temperatures in Los Gatos Creek and to assess whether water temperatures have changed over time in Los Gatos Creek downstream of Lexington Reservoir. Four locations presented in Table 1 are between Lexington and Vasona Reservoirs and two are downstream of Vasona Reservoir. The oldest identified temperature data were measured monthly from 1950-1968 between Lexington Reservoir and Vasona Reservoir (Blodgett 1971). Monthly temperature measurements in this reach were also recorded from 1979-1991 by the U.S. Geological Society (USGS) at station 11168000 (Sylvester 1986, USGS NWIS undated), and continuous temperature data were recorded at hourly intervals by SCVWD<sup>6</sup> at station 30200-26 from 2000-2012 (RWQCB 2017b)<sup>7</sup>. Data recorded from 2000-2012 were used by the RWQCB (2019a, b) to evaluate 303(d) listing for Los Gatos Creek. Additionally, “historical” or “natural”</p>	<p>The commenter’s efforts in identifying additional datasets are appreciated; however, it has not been established how these datasets are representative of a time in which the beneficial uses were fully supported. See response to comment 12.102.</p>

	water temperatures and trends over time were assessed using temperature data collected below Vasona Reservoir for the 1979-1991 and 2000-2012 time periods.	
12.106 , 12.107	<p>Available historical data collected between Lexington Reservoir and Vasona Reservoir from 1950-68 (Figure 2), 1979–1991 (Figure 3), and 2000-2012 (Figure 4) indicate that monthly average daytime temperatures have remained largely consistent for over 60 years. This conclusion is supported by formal statistical testing based on monthly average daytime temperatures. The Kolmogorov-Smirnov statistical test was used to compare the distribution of monthly average temperatures between recent years (2000-2012) and each of the historical time periods. Analysis was limited to the months March through October, as this was the critical period assessed by the RWQCB (RWQCB 2019a). The distributions of monthly average temperatures between Lexington and Vasona Reservoirs are not significantly different between 2000-2012 and 1950-1968 (<math>p = .26</math>) or 1965-1969 (<math>p = .51</math>), as shown in Figure 5. Further, comparisons between 2000-2012 and 1979-1991 measurements at USGS station 11168000 also indicate no difference in the distribution of temperatures (<math>p = .30</math>; Figure 6). These analyses demonstrate that water temperatures in Los Gatos Creek between Lexington and Vasona Reservoirs have not increased over time and have remained consistent with historical conditions.</p> <p>Figure 7 shows that temperatures in Los Gatos Creek between Lexington and Vasona Reservoirs have historically consistently exceeded the temperature</p>	See response to comment 12.102.

	guidelines proposed for lower Los Gatos Creek by the RWQCB.	
12.108	No pre-1975 historical temperature data have been identified for Los Gatos Creek below Vasona Reservoir, and thus it is not possible to compare temperature data collected from 2000-2012 to pre-1975 data. Water temperature data at two stations on Los Gatos Creek below Vasona Reservoir, however, were reported for the period 1979-1991 (Table 1, Figure 1) at approximately monthly intervals (Sylvester 1986, USGS NWIS undated).	See response to comment 12.102.
12.109	Datasets describing water temperatures before and around 1975 in other regional creeks, including lower Los Gatos Creek and the Guadalupe River, are also available and can be used to supplement the measurements of water temperature in lower Los Gatos Creek. Water temperatures at several of these locations reached values comparable to (or higher) than temperatures in Los Gatos Creek.	Those data may provide insight; however, the commenter fails to establish how these datasets are representative of natural receiving water temperatures.  See also response to comment 12.102.
12.110	Table 2 shows the range (minimum to maximum) of temperatures for each station. The majority of stations shown in Table 2 report temperatures prior to 1975 that are warmer than the evaluation guideline temperatures applied to Los Gatos Creek, suggesting these guideline temperatures are not regionally appropriate.	See response to comment 12.109.
12.111	Statistical and empirical temperature models could potentially also be used to estimate “historical” or “natural” water temperatures for Los Gatos Creek during various periods as an ancillary line of evidence (SWRCB 2004, as amended in 2015). For example, the statistical relationships described in Section 2.1 between the historical data described above for the time periods 1950-1968 (Blodgett 1971, Figure 2), the	The commenter suggests that statistical or empirical modeling could potentially be used to estimate “historical” or “natural” water temperatures in Los Gatos Creek. The Listing Policy does not obligate the Water Boards to undertake such a modeling exercise.

	<p>USGS data from 1971-1991, and the 2000-2012 time period could be used to estimate creek-specific guidelines directly informed by historical data. Incorporation of available historical and contemporary temperature data from regional streams identified in Section 2.3 would likely improve development of these guidelines.</p>	
12.112	<p>Historical data are available for Los Gatos Creek (Table 1) and at least 26 locations within the CCC Steelhead DPS (Table 2 and Figure 3). These data demonstrate that “historical” or “natural” water temperatures in Los Gatos Creek and other regional streams have often been warmer than the temperature evaluation guidelines proposed by the RWQCB (RWQCB 2019a, b). Given the range of temperatures observed in these historical datasets, it is unlikely that natural stream temperatures in the region are appropriately represented by the guidelines used by the RWQCB (2019a, b) to recommend listing Los Gatos Creek. In fact, historical temperature data appear to show that the temperature evaluation guidelines used by the RWQCB (2019a, b) would require the water temperature of creeks in the region to be much colder than historically occurred in Los Gatos Creek and other regional streams. As discussed in Section 4, there is evidence that steelhead populations occupying these creeks have adapted to historical temperature conditions. To our knowledge, these historical and regional data have not been considered by the RWQCB in the proposed listing.</p>	<p>See responses to comments 12.102, 12.037, and 12.136.</p> <p>The data presented by the commenter can be taken as evidence that unnatural conditions may have existed for some time. However, the commenter fails to establish how these datasets are representative of natural receiving water temperatures.</p>
12.116	<p>Alternatively, new evaluation guidelines for temperature could be developed on a site-specific basis and will differ from the objectives that would support the COLD beneficial use in the PNW, a substantially cooler climatic region. As described in Section 6, we recommend establishing a regional</p>	<p>See response to comment 12.003.</p>

	cooperative scientific process to determine how historical data from Los Gatos Creek and other regional creeks can be used to determine scientifically appropriate temperature evaluation guidelines.	
12.119	<p>The 20°C criterion established by USEPA (2003) relied on multiple “temperature considerations”<sup>14</sup> to support the 7DADM guideline. The technical foundation for these temperature considerations was presented in a series of five issue papers that summarized the “latest literature” related to temperature needs of salmonids at various life stages. However, as detailed below, review of this supporting literature demonstrates that the temperature values specified by these temperature considerations were not based entirely on reliable studies of steelhead populations and did not consider CCC Steelhead. Instead, temperature consideration values were based on outdated, statistically inadequate, and indirect “chain” citations that do not adequately support the use of the temperature evaluation guidelines used by the RWQCB to propose listing Los Gatos Creek on the basis of protecting CCC Steelhead.</p> <p><sup>14</sup>Temperature considerations are not specifically defined by USEPA (2003), but in practice are literature-review-based compilations of water temperature values associated with particular activities and life stages.</p>	<p>The use of the 7DADM from U.S. EPA 2003 as an evaluation guideline for temperature in Los Gatos Creek is appropriate.</p> <p>U.S. EPA Region 9 supported the use of the 7DADM evaluation guideline developed in the Pacific Northwest by U.S. EPA Region 10 in California streams and rivers in their approval letter on California’s 2014/2016 303(d) list, stating in Enclosure 3:</p> <p>EPA believes that the Region 10 guidance and its associated Technical Issue Papers provide the most comprehensive compilation of research related to salmonid temperature requirements available. The studies compiled in the guidance and associated papers address the full geographic extent of salmonid populations including California. The recommended numeric criteria to protect coldwater salmonids in this report were recommended for use by California’s Department of Fish and Game (now Fish and Wildlife) in their temperature data submittal and subsequent comments for California’s 2008-2010 303(d) list and were subsequently utilized by EPA to add water-quality limited segments to that list. Additionally, the guidance’s recommended numeric criteria have been used by the National Marine Fisheries Service as thresholds when considering the suitability of expected water temperatures for Central Valley steelhead in the Stanislaus River under the proposed actions in their Biological and Conference Opinion on the Long-term Operations of the Central Valley and State Water Project (2009).</p> <p>The State Water Board explains its reliance on the U.S. EPA 2003 guidance in its response to comment on the Evaluation of San Joaquin River Flow and Southern Delta Water Quality Objectives</p>

and Implementation (“Fish Protection” Master Response, 2018 pages 44 and following):

In the water quality control plan planning process and other planning and regulatory processes (e.g., Federal Energy Regulatory Commission (FERC) relicensing), the State Water Board has maintained that any supporting studies and impact evaluations for these actions should follow the 2003 USEPA guidance. The 2003 USEPA temperature guidance is the product of a collaborative process between states, tribes, and federal agencies to: (1) meet the biological requirements of native salmonid species for survival and recovery pursuant to the ESA; (2) provide for the protection and propagation of salmonids under the Clean Water Act, and (3) meet the salmonid rebuilding needs of federal trust responsibilities with treaty tribes (USEPA 2003).

Additionally, the State Water Board’s “Fish Protection” Master Response containing a quote from Maria Rea (National Marine Fisheries Service) in a letter to Alexis Strauss (U.S. EPA) concerning its view on the thermal adaptability of salmonids.

The use of the US EPA 2003 criteria for listing water temperature impaired water bodies in the San Joaquin River basin is scientifically justified. It has been recognized that salmonid stocks do not tend to vary much in their life history thermal needs, regardless of their geographic location. There is not enough significant genetic variation among stocks or among species of salmonids to warrant geographically specific water temperature standards (US EPA 2001). Based upon reviewing a large volume of thermal tolerance literature, McCullough (1999) concluded that there appears to be little justification for assuming large genetic adaptation on a regional basis to temperature regimes....

		For example, the 7DAVG evaluation guideline is used in assessments for Suisun Creek, Stevens Creek, Codornices Creek, Arroyo Mocho, and more than twenty other creeks and rivers in the San Francisco Bay Region.
12.120	Because the Staff Report (RWQCB 2019b) indicates that the temperature evaluation guidelines for 7DADM were selected based on the protection of CCC Steelhead migration, Exponent evaluated the propriety of applying the five temperature considerations pertaining to adult migration in USEPA (2003) to evaluate temperature impacts on steelhead generally, and CCC Steelhead specifically: lethal temperature (one-week exposure), migration blockage and migration delay, disease risk, adult swimming performance, and overall reduction in migration fitness due to cumulative stress. The technical details of these five temperature considerations as they relate to steelhead generally, and specifically CCC Steelhead, are addressed below. This evaluation shows that the studies establishing the 7DADM are not studies of species representative of CCC Steelhead populations, and that listing of Los Gatos Creek based on a temperature evaluation guideline derived from those studies is not scientifically supportable or appropriate as a technical or regulatory matter.	<p>The use of the 7DADM as developed by U.S. EPA 2003 is appropriate as described in response to comment 12.119. The 7DADM threshold meets the requirements of Section 6.1.3 of the Listing Policy for selection of an evaluation guideline to interpret a narrative water quality objective. Section 4.1.1 of the Staff Report has been revised to provide additional rationale for the use of the U.S. EPA 7DADM threshold in Los Gatos Creek.</p> <p>The commenter is encouraged to work with the Regional Water Board on a site-specific study to further evaluate the steelhead temperature requirements in lower Los Gatos Creek.</p>
12.129	The 7DADM metric was used by the RWQCB as a temperature evaluation guideline related to the MIGR beneficial use (RWQCB 2019b). The RWQCB selected a 7DADM temperature of 20°C as the temperature evaluation guideline for Los Gatos Creek based on the recommendations by USEPA (2003) for PNW salmonids found in Idaho, Oregon, and Washington, and which most often did not evaluate steelhead. USEPA (2003) provided an analysis based on five “temperature considerations” related to salmonid migration in support of their recommended 7DADM	See response to comment 12.119. Additionally, the commenter’s assertion that the 7DADM evaluation guideline only includes two studies associated with steelhead is incorrect. McCollough cites a larger number of studies related to steelhead than the commenter indicates.



	<p>value. A review of the references listed in support of these five temperature considerations reveals a complex network of indirect chain citations, potential misattribution, and considerable uncertainty. Only two studies underlying USEPA (2003) were based on steelhead: Coutant (1970) and Strickland (1967). As discussed above, Coutant (1970) suffers from methodological and statistical issues, while Strickland (1967) does not directly deal with temperature. Accordingly, the use of the USEPA (2003) 7DADM temperature criterion to derive a temperature evaluation guideline applicable to Los Gatos Creek for protection of CCC Steelhead is not scientifically supported and is inappropriate from a technical and regulatory standpoint.</p>	
12.131	<p>In summary, it appears that Sullivan et al. (2000) collected, and then averaged, six separate values of MWAT to yield an aggregate value of 19.6°C. These six MWAT calculations were made using five temperature values (two lethal and three optimal temperature values). The five temperature values selected for use by Sullivan et al. (2000) for steelhead appear to have been arbitrary selections from the reported temperature ranges, which biased the calculated outcome,<sup>30</sup> poorly represented species-wide variability, and did not always comply with the methods for calculating the MWAT, and which therefore did not always meet the definitions for MWAT use described by Brungs and Jones (1977). An appropriate and properly calculated MWAT, reflecting the optimum temperature for growth and UUILT for steelhead adapted to the warmer Central Coastal California region, needs to be developed for purposes of assessing the need for a temperature listing of Los Gatos Creek to protect CCC Steelhead.</p>	<p>The MWAT threshold used by Sullivan et al. (2000) as well as the MWAT evaluation guideline used for assessing temperature data in Los Gatos Creek is appropriate. Sullivan et al. used lethal temperatures of 25.6°C and 26.5°C when computing the 19.6°C MWAT value. Higher or lower values of the lethal temperature could have been chosen for the calculation. Some authors have measured higher lethal temperatures for rainbow trout. For steelhead, a lethal threshold of 24°C is supported by many other researchers (U.S. EPA 1977, Moyle 1976, Bell 1986, Carter 2008) and used as the evaluation guideline for Los Gatos Creek temperature data. Other authors found even lower lethal thresholds for steelhead (e.g., 21.1 °C by the California Department of Fish and Game). Therefore, Sullivan et al. chose reasonable values for the lethal temperatures when computing the MWAT.</p>

12.132	<p>As set forth in Table 3, the RWQCB also used a rolling 7-day average temperature (7DAVG) evaluation guideline of 17°C. This temperature evaluation guideline was based on a “10% reduction in average growth compared to optimal conditions” (RWQCB 2019a, b).<sup>31</sup> It appears that the RWQCB (2019a) selected the upper value (17°C) of the range of temperature criteria for juvenile steelhead reported by Sullivan et al. (2000) in their Table 7.3 (13°C to 17°C) to serve as the temperature evaluation guideline. There was no justification or discussion provided by RWQCB (2019a) for the selection of this temperature evaluation guideline associated with a 10% reduction in growth as more appropriate than the temperature range associated with 20% reduction in growth, also reported by Sullivan et al. (2000) and corresponding to an upper temperature value of 19°C.</p>	<p>See Section 4.1.1. of the Staff Report, which was revised to clarify the temperature assessment process for Los Gatos Creek, including the justification for the 7DAVG evaluation guideline.</p> <p>Additionally, Sullivan et al. presents two ranges for steelhead in Table 7.3: a range for 10% reduction in mean growth (from optimal conditions) and a 20% reduction in mean growth. In view of the ranges presented in Sullivan et al., the more extreme 20% growth reduction value was avoided. The choice of 17 °C is an appropriate balance of protection of a threatened species and recognition of the uncertainty in this guideline expressed through the range of values. The upper end of the more protective range (10% growth reduction) was therefore chosen. Choosing the upper end of the 20% growth reduction range would not have been appropriate for steelhead, a threatened species under the Endangered Species Act.</p> <p>The 7DAVG evaluation guideline was exceeded 64% of the time in Lower Los Gatos Creek. It should be noted that the 7-day average temperatures calculated for the 20% reduction in growth ranged from 10°C to 19°C. If a 19 °C evaluation guideline for the 7DAVG was utilized, the guideline would have been exceeded 22,813 out of 47,179 times (48%). This number of exceedances far exceeds the critical value from the Listing Policy (7,830 of 47,179). Regardless if the most extreme (high temperature) value was selected from Table 7.3 of Sullivan, the data suggest impairment with respect to the 7DAVG.</p>
12.133	<p>The 17°C 7DAVG value employed by RWQCB (2019a, 2019b) is based on a series of mathematical models that are highly dependent on parameters that are expected to be sensitive to local conditions. Specifically, Sullivan et al.’s (2000) analysis is based on a food consumption rate model developed for a single stream in Washington and a bioenergetic model that was applied to temperature profiles from 21 streams in Washington and Oregon. RWQCB (2019b), USEPA (2003), and Sullivan et al. (2000) have not established that these site-specific food and</p>	<p>See the discussion of temperature adaptability of salmonids in responses to comments 12.037 and 12.136.</p>

	temperature models are appropriate for CCC Steelhead streams, where both temperature profiles and food availability conditions are different from the PNW streams that formed the basis for the models.	
12.135	<p>The studies cited by USEPA (2003) generally involved species and locations in the PNW (Materna 2001, McCullough et al. 2001). McCullough et al. (2001) reported, “The literature on genetic variation in thermal effects indicates occasionally significant but very small differences among stocks and increasing differences among subspecies, species, and families of fishes.” However, the literature cited by McCullough et al. (2001) to reach this conclusion for thermal responses generally evaluated species other than steelhead and used populations occurring close to those species’ ideal climate. (In contrast, the CCC Steelhead DPS is located in a region far from the species’ climatic ideal.) For example, the “most extensive” evaluation referenced by McCullough et al. (2001) was Hart (1952). Hart (1952) evaluated the geographic variation in lethal temperatures for 14 freshwater species<sup>32</sup> common to the Eastern United States and Canada, but Hart (1952) did not examine any salmonid or any fish population west of the Mississippi. Furthermore, none of the studies McCullough et al. (2001) relied on to evaluate the potential for thermal adaption in salmonids compared stocks as geographically disparate as CCC Steelhead are from PNW salmonids.</p>	Comment noted. See the responses to comments 12.037 and 12.136.
12.136	Exponent reviewed additional recent literature on rainbow trout in general and California steelhead populations in particular. The literature supports the existence of local adaptation to environmental conditions, including temperature regimes. The water temperatures of California streams differ from the temperatures of streams in the PNW, and therefore temperature evaluation guidelines derived for PNW	The additional literature review is appreciated. Although the research indicates that some non-steelhead salmonid populations had become thermally adapted to local, hotter stream temperature conditions, none of the authors cited has shown that Central California Coast steelhead have thermally adapted to their streams to a degree that the evaluation guidelines used for the Integrated Report are not applicable.

	streams and salmonid populations do not evaluate potentially different species-specific tolerances to typically higher Central Coastal California water temperatures. Exponent's review to date is not a comprehensive evaluation of California steelhead thermal tolerances and does not suggest specific alternative temperature evaluation guidelines to protect steelhead in Central Coastal California region, but is presented to describe the need for a region-specific study to develop appropriate temperature evaluation guidelines that consider historical waterbody temperatures and the potential for local adaptation of CCC Steelhead to the climatic region in which they occur.	<p>Further, the case for adaptation is uncertain. The commenter cites a study in which rainbow trout transplanted to Australia had a critical maximum temperature of 29°C. This is similar to a finding from Sloat and Osterback (2013)<sup>1</sup> cited by the commenter during the San Francisco Bay Regional Water Board's comment period. Sloat and Osterback found that southern California (Ventura, CA) steelhead could survive in pools with temperatures up to 30°C. However, they noted this does not mean that steelhead are thriving at this temperature as the steelhead surviving in these pools had sufficient food and lack of interspecies competition to endure the thermal stress. Steelhead are not a numerically dominant species in Los Gatos Creek and would, therefore, not enjoy this advantage when competing with other species for food resources. Importantly, the authors explicitly express doubt concerning the hypothesis that southern California steelhead populations have adapted higher thermal tolerances than more northerly populations.</p> <p>As stated in the response to comment 12.003, additional study and understanding of life cycle based temperature requirements of steelhead in the Central California Coast Evolutionary Significant Unit is welcomed. Upon completion of the study mentioned, the San Francisco Bay Regional Water Board may reassess temperature data using the study results as temperature evaluation guidelines, provided that they conform to the requirements of Section 6.1.3 of the Listing Policy. Until that time, it is appropriate to assess temperature data for Los Gatos Creek as described in Section 4.1.1 of the Staff Report and responses to comments 12.102 and 12.037.</p>
12.137	<i>In-situ</i> observations further support the genetic potential for local adaptation of CCC Steelhead to warmer water temperature than typical of PNW inland surface waters. Steelhead are present in California	The commenter makes the case that steelhead can be found in California streams at temperatures higher than the proposed evaluation guidelines and therefore must be thermally adapted. Evaluation guidelines are set at a level necessary to protect the

<sup>1</sup> Sloat, Matthew R., Osterback, Ann-Marie K. 2013. Maximum stream temperature and the occurrence, abundance, and behavior of steelhead trout (*Oncorhynchus mykiss*) in a southern California stream. NRC Research Press.

	streams at temperatures significantly higher than the RWQCB's proposed evaluation guidelines.	beneficial use rather than a level providing the bare minimum of survivable conditions.  See response to comment 12.136 regarding the example of salmonid survival under extreme conditions.
12.138	Evidence from studies in Southern California DPS populations further support the expectation for local adaptation (Boughton 2010). Southern California populations of steelhead have repeatedly been shown to occupy waters exceeding the RWQCB's temperature evaluation guidelines and other thresholds based on PNW salmonids.	See response to comment 12.137.
12.140 , 12.141	<p>Although we do not believe the RWQCB's proposed temperature evaluation guidelines are appropriate, Exponent performed a preliminary, conceptual analysis to estimate the amount of cooling that would theoretically be needed to decrease the temperature of Los Gatos Creek during the warm summer months. Specifically, Exponent calculated the heat transfer that would be required to reduce the stream temperature to target temperatures equivalent to the MWAT evaluation guideline used by the RWQCB in its listing recommendation. Exponent's analysis does not consider questions related to the feasibility or advisability of implementing such a solution (e.g., practicability, permitting considerations, environmental impacts, legal constraints) but is intended to provide an indication of the magnitude of heat transfer that would be required to meet the proposed RWQCB's evaluation guidelines.</p> <p>While it would be infeasible and impractical to deploy chillers to cool the creek temperatures in the theoretical manner analyzed here, this analysis</p>	Comment noted. Additionally, see response to comment 12.052.

	illustrates how difficult it would be to meet the temperature evaluation guidelines proposed by the RWQCB, given ambient conditions in the vicinity of Los Gatos Creek.	
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## Letter 13: Pat Abercrombie, Fitch Mountain Association

No.	Comment	Response
13.001	Our area would bear a large share of the costs that the TMDL will impose on Russian River OWTS owners—costs which Sonoma County has estimated at \$100 million or more.	See response to comment 9.001.
13.002	We understand that the Russian River was originally listed for fecal coliform, even though this fecal indicator bacteria had been shown decades earlier in EPA studies to be an invalid indicator.	See response to comment 10.004.
13.003	When the North Coast Regional Water Quality Control Board started its current Russian River bacteria TMDL effort, we were pleased to be told that the River showed no impairment of the EPA's E. coli standard at any sampled location. This was confirmed in the initial draft TMDL in 2015, which showed that no reduction of E.coli was needed on the River. (Reductions were proposed for several tributaries, however.) That draft focused on Bacteroides. The next draft focused on enterococci, which we understand has significant problems as a FIB in nature-heavy areas like the Russian River.	See response to comments 9.004 and 10.004.
13.004	To its credit, the State Board in 2018 adopted uniform, science-based FIB standards, making E. coli the	See response to comment 2.008.

	exclusive FIB for freshwater listing purposes and prescribing the numeric criteria and their calculation.	
13.005	<p>In their current submission in support of Decision ID 77147, the NCRWQCB staff confirms that there are no <i>E. coli</i> exceedances anywhere in our HUC-12 area: of 284 qualified full-year <i>E. coli</i> geomean samples over many years, not a single sample exceeded the geomean limit, and out of 110 STV month-samples, only 6 exceeded the STV limit, far fewer than the listing standard of 15 exceedances for this sample size. See paragraph 9 of the staff recommendation (copy enclosed as item #1). This is hardly a sign that the Russian River in our area is dangerous for swimmers.</p> <p>Nonetheless, the staff recommends listing the River (and its tributaries) in our area because of enterococci readings plus beach alerts.</p>	<p>See responses to comments 9.004 and 9.005. Also see Section 3.1.4 of the Staff Report, which was revised to add discussion of the multiple LOEs used to assess bacteria data for the Russian River watershed and to clarify the assessment methodology.</p> <p>Decision ID 77147 is for indicator bacteria in the Russian River HU, Middle Russian River HA, Geyserville HSA, through which the Russian River extends from just north of Cloverdale to Healdsburg. The proposed listing of the Brooks Creek-Russian River HUC-12 is based upon exceedances of the STV for <i>E. coli</i> during the winter. Additional LOEs for enterococci exceedances supported by evidence of human fecal matter from human <i>Bacteroides</i> and Phylochip™ data, plus postings of public health advisories, further reflect that this HUC-12 is impaired but are not specifically discussed in the Decision. The proposed listing of the Oat Valley Creek- Russian River HUC-12 is based upon exceedances of the STV for enterococci year-round supported by evidence of human fecal matter from human <i>Bacteroides</i> and Phylochip™ data, plus postings of public health advisories.</p>
13.006	<p>Enterococci were expressly rejected by the State Board as a freshwater listing FIB because:</p> <p>“studies have found that in some cases enterococci will multiply in some freshwaters and create false positives in samples while <i>E. coli</i> does not have this drawback (Cohen et al. 2001, Wade et al 2003). Using enterococci bacteria could lead to false positives, would be ineffective and could result in needless work investigating violations of standards, when no real violation has occurred.”</p> <p>See page 60 of the staff report (copy enclosed as item #2).</p>	See response to comment 2.008.

	<p>The State Board's rejection of enterococci has been confirmed in many scientific papers after the 2001 and 2003 studies cited above by the State Board staff. For example, Weigand, Ashbolt et al., <i>Genome Sequencing Reveals the Environmental Origin of Enterococci and Potential Biomarkers for Water Quality Management</i>, Environ. Sci. Technol. 2014, 48, 3707-14, warns against using enterococci for water quality monitoring unless they are genetically traced to enteric sources:</p> <p>"there is growing evidence to suggest that enterococci are present and may persist in a wide variety of environmental habitats, often in the absence of fecal contamination (reviewed in [a 2012 study]). Recent reports suggesting a primarily autochthonous source for enterococci populations in marine beach sands and detritus, as well as in freshwater habitats, highlight the potential for such populations to confound water quality monitoring, questioning the value of <i>Enterococcus</i> spp. as fecal indicators. [Footnote references to a 2012 study and two 2013 studies.] Yet, it remains unknown how environmentally adapted strains relate to enteric enterococci targeted by current fecal indicator monitoring strategies. Therefore, characterization of enterococci from such extra-enteric habitats is needed to assess their genomic distinctiveness and potential for confounding the interpretation of microbial water quality assessments."</p> <p>See page 3707 (copy enclosed as item #3).</p>	
13.007	<p>The NCRWQCB's reliance on enterococci for listing the Russian River in our area is <b>in direct opposition both to the State Board's 2018 bacteria decision and to the science.</b></p>	See response to comment 2.008.



13.008	<p>Perhaps acknowledging that enterococci are an unsupportable basis for a freshwater 303(d) listing, the NCRWQCB staff has enlisted Sonoma County beach alerts to bolster its case, citing 4 unspecified beach alerts between 2013 and 2016. Upon examination, however, the alerts in question give no substantive support: all 4 occurred in a brief period from June 25 to July 3, 2013 at Healdsburg Memorial Beach in response to temporary, high readings of total coliform or <i>E. coli</i>. These were alerts only, not beach closures. And there has not been a single beach alert at this site or any other site in our HUC-12 area in the 6 years since then. A copy of the Sonoma County beach alert records from 2013 through 2019 is enclosed as item #4.</p> <p>It is important to keep in mind that beach alerts are based on instantaneous conditions, while 303(d) listing is based on carefully defined measures over a 6- or 12-month period. <b>It is directly contrary to science and reason (and to the State Board) to try to use beach alerts as a basis for a 303(d) listing.</b> This is especially true when the beach alerts occurred at a single location in a single, short period more than 6 years ago. And it is doubly true when the only other basis offered is a FIB that the State Board has expressly rejected, and the State-approved FIB, <i>E. coli</i>, shows no impairment.</p>	<p>See responses to comments 2.008 and 9.004 for a discussion of enterococci and the approach to data evaluation. See response to comment 10.008 regarding the use of posting of health advisories at beaches.</p> <p>For clarity, the <i>E. coli</i> threshold for issuing a beach alert corresponds to an estimated 36 illnesses per 1,000 water contact recreators. The threshold for an exceedance of the statewide water quality objective is an estimated 32 illnesses per 1,000 water contact recreator.</p>
13.009	<p>We are of course aware that as a general public sanitation matter, improvements of some OWTS in some parts of Fitch Mountain are desirable. Our association has been actively pursuing this with local agencies and continues to do so. But these are general public sanitation issues, not swimmer health issues.</p>	<p>See responses to comments 9.001, 9.004, and 10.008.</p>

	In its effort to list the Russian River in our area using a rejected FIB and isolated, one-time, scientifically-irrelevant beach alerts, and ignoring the direct E. coli evidence, the North Coast Board is attempting to expand its regulatory powers beyond swimmer safety to encompass general public sanitation.	
13.010	<p>The massive financial burden of the associated TMDL, combined with the clear evidence that there is no impairment in the River and the lack of any basis in science or logic for listing, will trigger massive resistance from OWTS owners in our area if they are forced to change their systems without any public financial support. Indeed, the lack of any scientific basis for the NCRWQCB staff recommendation invites anti-environmental groups to attack the listing in court, with good prospects of having it declared arbitrary and capricious.</p> <p>Above all, the listing would deal a severe blow to the public's respect for the North Coast Board's work in this and its many other important areas of work.</p> <p>To uphold the public's respect and for the sake of regulatory integrity, the State Board should reject this misguided effort by the NCRWQCB staff.</p>	See response to comments 9.001 and 9.004.
13.011	We suggest that the State Board direct the North Coast Board to continue monitoring E. coli readings in the Russian River, and to recommend 303(d) listing if and when samples exceed the State-established listing thresholds over the State-prescribed periods.	See Section 3.1.4 of the Staff Report, which was revised to add discussion of the multiple LOEs used to assess bacteria data for the Russian River watershed and to clarify the assessment methodology. Additionally, see the response to comment 9.013 regarding monitoring.
13.012	To address the general public sanitation issues, we also highly recommend that the State Board make wastewater funding available to agencies and	See response to comment 9.001.

	community groups in our area to make needed OWTS improvements.	
13.013	The OWTS-RRR group has informed us that it fully supports this comment letter.	Thank you for your comments and for representing OWTS-RRR.

## Letter 14: Rich Juricich, Colorado River Board of California

No.	Comment	Response
14.001 14.002	<p>Upon reviewing the 2018 California Integrated Report, we are seeking clarification on the Appendix A constituents shown for the Colorado River. For the Colorado River Region 7 portion, my agency had provided extensive information and comments related to total dissolved solids, specific conductivity, and sodium for the Colorado River as part of the Region 7, 2018 Staff Report. The Region 7 Board ultimately decided not to include these three constituents in the Region 7 Staff Report. However, these constituents are listed in Appendix A of the 2018 California Integrated Report. We understand from an April 17, 2020, email from Ms. Lori Webber, State Board staff, that this information will be corrected in the final draft. The Colorado River information is shown on lines 3576-3587 in Appendix A.</p> <p><i>The Board requests that the 2018 Integrated Report consider the following information:</i></p> <p><i>1. Since 1973, the water quality of the Colorado River has been the focus of an extensive salinity control and management program that is now implemented through the existing federal agencies and seven-state regulatory program for the Colorado River through the</i></p>	<p>Thank you for bringing this to our attention. These listing recommendations had been proposed in the Colorado River Basin Regional Water Quality Control Board's ("Colorado River Basin Regional Water Board") draft Staff Report based on the evaluation of total dissolved solids ("TDS") and Specific Conductivity data using secondary maximum contaminant levels ("SMCL") to interpret the narrative water quality objective in the Colorado River Basin Water Quality Control Plan ("Colorado River Basin Plan") for aesthetic qualities. At the time the draft Staff Report with listing recommendations was released for public comment, the Colorado River Basin Water Board had only received non-flow-weighted data for the Colorado River, and staff was therefore unable to analyze or apply the flow-weighted, site-specific salinity water quality objectives in the Colorado River Basin Plan.</p> <p>Following the release of the Colorado River Basin Regional Water Board's draft Staff Report and public workshop on October 10, 2019, Regional Water Board staff received flow-weighted data for the Colorado River. As a result, the Colorado River Basin Regional Water Board had the right type of data to compare to the site-specific objectives for salinity in the Basin Plan. Based on the Regional Water Board's analysis of the data provided, it was determined that the Colorado River is in attainment of the site-specific salinity objectives and recommends removing the proposed listings for TDS and Specific conductivity for the Colorado River from the draft Staff Report.</p>

No.	Comment	Response
	<p><i>Salinity Control Forum (Forum) and its federal Advisory Council</i>  <i>(<a href="https://www.coloradoriversalinity.org/">https://www.coloradoriversalinity.org/</a>), for which California has representatives appointed by California's Governor, including a representative of the State Water Resources Control Board.</i></p> <p><i>2. With the passage of the 1974 Colorado River Basin Salinity Control Act (P.L. 93-320), as amended, the seven Colorado River Basin states, including California, adopted salinity standards for the Colorado River. Those standards are composed of numeric criteria for TDS at three stations (i.e., below Hoover Dam, below Parker Dam, and at Imperial Dam) and a Plan of Implementation of annual salinity control measures designed to reduce the probability of exceeding the numeric criteria at the three stations. The 1972 salinity levels at the three stations were selected as the numeric criteria, and were subsequently adopted by the U.S. Environmental Protection Agency (EPA) in 1975, include the following:</i></p> <p><i>a. Below Hoover Dam (723 mg/L);</i>  <i>b. Below Parker Dam (747 mg/L); and</i>  <i>c. At Imperial Dam (879 mg/L).</i></p> <p><i>These salinity water quality standards as measured by TDS are also contained in the Basin Plan for the Colorado River Region.</i></p> <p><i>3. The Colorado River Basin Salinity Control Program annual Plan of Implementation is designed to keep the average annual flow-weighted salinity concentrations at or below the 1972 levels (specified in the numeric criteria) while allowing the continued use and development of Colorado River water supplies upstream of Imperial Dam. The technical approach used to determine compliance with the established</i></p>	<p>Prior to the release of the March 19, 2020 Draft Staff Report and appendices for the statewide 2018 Integrated Report , the listing recommendations were updated to "Do Not List" in the Waterbody Fact Sheets (Appendix C), which were released to the public on March 19, 2020. However, the decisions were inadvertently included in the March 19, 2020 version of Appendix A. The errors in Appendix A have been corrected to be consistent with the Statewide Waterbody Fact Sheets (Appendix C), as follows: ▯</p> <p>The following waterbody-pollutant decisions on the Colorado River (Imperial Reservoir to California-Mexico Border) were removed from Appendix A:</p> <ul style="list-style-type: none"> <li>• Total Dissolved Solids (Decision ID 101798)</li> <li>• Specific Conductivity (Decision ID 101797)</li> <li>• Sodium (Decision ID 101784)</li> </ul> <p>The following waterbody-pollutant decisions on the Colorado River and Associated Lakes and Reservoirs (Lake Havasu Dam to Imperial Dam) were removed from Appendix A:</p> <ul style="list-style-type: none"> <li>• Total Dissolved Solids (Decision ID 104158)</li> <li>• Specific Conductance (Decision ID 70202)</li> <li>• Sodium (Decision ID 104423)</li> </ul> <p>For additional information regarding the above decisions, see Appendix C of the Proposed Final Staff Report.</p>

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	<p><i>salinity standards is published in biennial Progress Reports for Quality of Water, Colorado River Basin. The most recent report is available at this link.</i></p> <p><i>(<a href="https://www.usbr.gov/uc/progact/salinity/pdfs/PR25final.pdf">https://www.usbr.gov/uc/progact/salinity/pdfs/PR25final.pdf</a> )</i></p> <p><i>4. Through the Forum and Advisory Council, the seven Basin states and federal agencies remain focused on improving salinity conditions in the Colorado River above Imperial Dam. In fact, the Forum is currently working on the draft 2020 Triennial Review of Water Quality Standards for Salinity. The Final Review for 2017 is available here:</i></p> <p><i>(<a href="http://www.coloradoriversalinity.org/docs/2017%20Review%20-%20FINAL.pdf">http://www.coloradoriversalinity.org/docs/2017%20Review%20-%20FINAL.pdf</a>). The State Water Resources Control Board is tasked with approving the Triennial Review reports pursuant to section 303(c) of the federal Clean Water Act. On May 5, 2015, the State Board approved Resolution No. 2015-0029 approving the 2014 Triennial Review.</i></p> <p><i>5. Annual federal appropriation for salinity control programs in the Colorado River Basin vary from \$25 million to \$34 million per year for on-farm and off-farm projects.</i></p> <p><i>6. Salinity below Imperial Dam is managed as a federal responsibility to meet the terms and obligations associated with the 1944 U.S./Mexico Water Treaty and Minute No. 242 enacted in 1973. Minute No. 242 requires that salinity control measures be taken to ensure that Colorado River water delivered to Mexico at Morelos Dam will have an average annual salinity concentration of no more than 115 +/- 30 parts per million TDS higher than the average annual flow-weighted salinity concentration of the Colorado River water arriving at Imperial Dam.</i></p>	

No.	Comment	Response
	<p><i>7. The Colorado River contains a significant amount of naturally occurring salinity. The EPA has identified that almost two-thirds of the current salt-load of the Colorado River above Hoover Dam comes from natural sources (e.g., geological formations, rangeland runoff, etc.). The Forum is working collaboratively with federal and state land management agencies in those states to implement projects to manage and reduce salt-loading to the Colorado River from these natural sources.</i></p> <p><i>For example, shallow groundwater in the Paradox Valley located in Colorado is one of the most concentrated sources of salinity (approximately 260,000 mg/L) in the Upper Basin. The Paradox Valley Unit project (PVU)</i></p> <p><i>(<a href="https://www.usbr.gov/uc/progact/paradox">https://www.usbr.gov/uc/progact/paradox</a>) was designed to intercept shallow saline groundwater (brine) before it discharges to the Dolores River, a tributary to the Colorado River. Constructed in the late 1980s and early 1990s, the PVU is comprised of a brine collection well field, a brine treatment facility, and a 16,000-foot deep injection well. Under normal operations, the PVU injects about nine to ten million gallons of highly saline brine per month, resulting in the annual control of about 100,000 tons of salt.</i></p> <p><i>8. The Colorado River is unique among California water bodies because it is an interstate river that flows for 1450 miles from its headwater in the state of Colorado and is shared by Colorado, Wyoming, Utah, New Mexico, Arizona, Nevada and California. California is a very minor contributor of both water supply and total dissolved solids relative to the upstream areas. For example, as part of the draft 2020 Triennial Review for the Colorado River Salinity Control Forum, there are currently no NPDES permits</i></p>	

No.	Comment	Response
	<p><i>associated with California discharges to the Colorado River.</i></p> <p><i>Based on the information described above, the Board believes that adequate standards are in place for the Colorado River through the continued implementation of the Colorado River Basin Salinity Control Program, as administered by the seven Basin States Salinity Control Forum, and the seven Basin States and Federal agencies Advisory Council.</i></p>	
14.003	<p>Additionally, the Board asks that you consider comments that may be submitted by our member agencies including the Coachella Valley Water District, Imperial Irrigation District, The Metropolitan Water District of Southern California, and the Palo Verde Irrigation District; specifically those portions of those comments addressing the water quality standards of the mainstream Colorado River and its reservoir system.</p>	<p>Comment noted. See responses to those comments submitted by your member agencies.</p>

## Letter 15: Sarah Spinuzzi, Coachella Valley Waterkeeper

No.	Comment	Response
15.001	<p>Coachella Valley Waterkeeper supports the State Water Board staff's listing recommendations for the Colorado River Basin Region. Waterkeeper commends the Colorado River Basin Regional Water Quality Control Board staff's efforts to analyze data for 56 waterbody segments and 2,204 waterbody-pollutant combinations. We support the recommendation to add 25 new listings on the 303(d) list. 303(d) listings are a</p>	<p>Comment noted.</p>

	critical component of the Clean Water Act's structure and help ensure the continued reduction of pollutant loading in precious surface water resources. The Colorado River Basin is an exceptionally arid region of the United States, making the protection of surface water resources even more critical for the sustainability of habitats and communities that rely them.	
15.002	As one of the only grassroots organizations advocating for sustainable, clean surface and groundwater resources in the Coachella Valley, we look forward to further participating in the 303(d) listing process as the Regional Board works through its data assessment of the 11 waterbodies where non-attainment of water quality standards is indicated during the 2020/2022 Integrated Report Cycle.	Comment noted.

## Letter 16: Steve Bigley, Coachella Valley Water District

No.	Comment	Response
16.001	The Coachella Valley Water District ("CVWD") submits these comments regarding the recommendation of State Water Resources Control Board (State Board) staff not to change the Colorado River Basin Regional Water Quality Control Board's (Regional Board) proposed listings for turbidity and manganese in the Colorado River. CVWD asks the State Board to either delete these proposed listings or instruct the Regional Board to reconsider them for the reasons explained below.	See response to comment 16.003.
16.002	CVWD also asks the State Board to correct what appears to be an error in Appendix A of the State Board documents. Appendix A does not accurately reflect the Regional Board's 303(d) decision and final Staff Report.	See response to comment 14.001.



	To maintain an accurate record, CVWD asks that Appendix A be corrected.	
16.003	<p>CVWD also requests that the proposed listings for turbidity and manganese in the Colorado River be deleted or remanded to the Regional Board. Both of these listings were the result of instructions from Regional Board staff at the November 18, 2019 Regional Board meeting that the Regional Board was legally obligated to apply the Secondary Maximum Contaminant Levels (“SMCL”), contained in Title 22 of the California Code of Regulations, section 64449, as evaluation guidelines as the basis for these proposed listings, despite the fact that the SMCLs have not been adopted as water quality objectives in the Colorado River Basin Plan. Regional Board staff indicated to the Board that the State Board and EPA would list any waterbodies exceeding the SMCLs if the Regional Board failed to do so. In contrast, State Board staff concludes in their Staff Report at pages 57-58 that no change to these proposed listings is recommended because use of the SMCL is <i>appropriate</i> under the State Board’s Water Quality Control Policy for Development of California’s Clean Water Act Section 303(d) List (“Listing Policy”). As explained below, CVWD believes that the use of the SMCLs is not warranted here and is certainly not mandatory. Therefore, these proposed listings should be deleted or, at a minimum, they should be remanded to the Regional Board for consideration using its discretion rather than acting under the misimpression that use of the SMCLs are mandated by the State Board or EPA.</p>	<p>The Colorado River Basin Regional Water Board appropriately assessed turbidity and manganese data against narrative objectives to protect the MUN beneficial use, and used the SMCL as the numeric evaluation guideline to do so in accordance with Section 6.1.3 of the Listing Policy.</p> <p>At the adoption meeting, the Colorado River Basin Regional Water Board extensively discussed the appropriateness of applying the SMCLs to the Colorado River. The board concluded that in the absence of any other existing evaluation guideline, the exceedances of the SCMLs indicate there may be a problem and it should be further investigated. Staff explained numerous times that listing the waterbody does not necessarily mean a TMDL must be developed. Rather, staff explained that the listing would trigger an evaluation and investigation of the sources of the pollutants, the causes, and the natural background pollutant levels and that any development of a TMDL would depend on the resulting findings and be in accordance with the Colorado River Basin Regional Water Board’s priorities. The Colorado River Basin Regional Water Board expressly affirmed that it will begin to evaluate the potential development of a turbidity site-specific water quality objective for the Colorado River.</p> <p>The State Water Board’s draft Staff Report (pg. 58) supporting the proposed the 2018 303(d) list provides:</p> <p style="padding-left: 40px;">State Water Board staff reviewed the Regional Water Board approved listings for manganese and turbidity in the Colorado River and concluded that the manganese and turbidity <i>SMCLs were applied appropriately, per section 6.1.3 of the Listing Policy</i>, as evaluation guidelines to translate the narrative water quality objective for the MUN beneficial use.</p> <p>(Draft Staff Report, pg. 58 [emphasis added].)</p>

		<p>While use of the SCMLs may not be mandatory per se, as compared to the situation where SMCLs are expressly incorporated into a basin plan as a part of a chemical constituent water quality objective (which they are for six of the nine Regional Water Boards), the Listing Policy explains that “[n]arrative water quality objectives shall be evaluated using evaluation guidelines.” (Section 6.1.3.) Accordingly, the Water Board’s should use the SCMLs as an evaluation guideline when the requirements of the Listing Policy are met, particularly where no other appropriate evaluation guideline exists to assess applicable water quality standards.</p> <p>The Listing Policy’s objective “is to establish a standardized approach for developing California’s section 303(d) list in order to achieve the overall goal of achieving water quality standards and maintaining beneficial uses in all of California’s surface waters.” (Section 1.) To achieve that overarching objective, the Listing Policy requires narrative water quality objectives to be evaluated using evaluation guidelines. The guidelines to be used must represent standards attainment or beneficial use protection. (Listing Policy, Section 6.1.3.) “The guidelines are not water quality objectives and shall only be used for the purpose of developing the section 303(d) list.” (<i>Id.</i>)</p> <p>The pertinent narrative water quality objectives contained in the Colorado River Basin Plan are as follows:</p> <p>Turbidity: “Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.”</p> <p>Aesthetics: “All waters shall be free from substances attributable to wastewater of domestic or industrial origin or other discharges which adversely affect beneficial uses not limited to: [...] producing objectionable color, odor, taste or turbidity.”</p>
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		<p>The water quality objective for chemical constituents provides, in part: “No individual chemical or combination of chemicals shall be present in concentrations that adversely affect beneficial uses.”</p> <p>For turbidity, the Colorado River Basin Regional Water Board interpreted the narrative turbidity, aesthetic qualities, and chemical constituents, water quality objectives using the recommended value for turbidity from the Secondary Drinking Water Standards SMCLs (5 nephelometric turbidity units) (Cal. Code Regs., tit. 22, § 6449, Table A) as the numeric evaluation guideline in accordance with Section 6.1.3 of the Listing Policy.</p> <p>For manganese, the Colorado River Basin Regional Water Board interpreted the narrative aesthetic qualities and chemical constituents water quality objective using the recommended value for manganese from the Secondary Drinking Water Standards SMCLs (0.05 mg/L) (Cal. Code Regs., tit. 22, § 6449, Table A) as the numeric evaluation guideline in accordance with Section 6.1.3 of the Listing Policy.</p> <p>SMCLs, including those for turbidity and manganese,</p> <p>“...may apply to any contaminant in drinking water that may adversely affect the odor or appearance of the water and may cause a substantial number of persons served by the public water system to discontinue its use, or that may otherwise affect the public welfare. Regulations establishing secondary drinking water standards may vary according to geography or other circumstances and may apply to any contaminant in drinking water that adversely affects the taste, odor, or appearance of the water when the standards are necessary to ensure a supply of pure, wholesome, and potable water.” (Health &amp; Saf. Code, § 116275, subd. (d).).</p> <p>Use of the SMCLs for turbidity and manganese is reasonable because taste and odor thresholds may be used to implement narrative water quality objectives that prohibit adverse tastes and odors in waters of the state and prohibit nuisance conditions.</p>
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		<p>Turbidity levels greater than the SMCL can cause cloudy water with an undesirable taste or odor. Manganese levels greater than the SMCL can cause black to brown water, black staining, and a bitter metallic taste.</p> <p>Use of the SMCLs for turbidity and manganese is also reasonable because the SMCLs meet the criteria for an acceptable evaluation guideline for the evaluation of narrative water quality objectives per Section 6.1.3 of the Listing Policy. The SMCLs are applicable to the MUN beneficial use, are protective of the use, are linked to the pollutants under consideration, are scientifically based, are well described, and identify a range above which impacts occur and below which no or few impacts are predicted. Additionally, the SMCLs are appropriate for application to the Colorado River as the river is designated with the MUN beneficial uses. Evidence of peer review of the turbidity and manganese SMCLs is not readily available. The SMCLs for these parameters were developed prior to regulations which required peer review per section 116365(c)(3)(D) of the Health and Safety Code as standard practice. Furthermore, in the absence of alternative guidelines for the protection of taste and odor in water used for municipal and domestic supply and for the prevention of nuisance conditions, the turbidity and manganese SMCLs should be used.</p> <p>The SMCL for turbidity was exceeded in ten of 31 total fraction and two of 17 dissolved fraction water samples in the Colorado River as described in Decision ID 70281. The SMCL for manganese was exceeded in six out of six samples in the Colorado River as described in Decision ID 101826. It may be the case that meeting the SMCLs for turbidity and manganese would not be reasonably attainable in some circumstances. In those circumstances, it would be appropriate for the Colorado River Basin Regional Water Board to consider establishing a specific numeric value applicable to turbidity or manganese or both while ensuring the best water quality that is attainable as a source of drinking water supplies be attained.</p>
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16.004	<p><b>The Proposed Turbidity Listing for the Colorado River (Lake Havasu Dam to Imperial Dam)</b></p> <p>The Regional Board has recommended that the State Board add the Colorado River (Lake Havasu Dam to Imperial Dam) to the 303(d) list as being impaired for turbidity. In making this recommendation, the Regional Board relied on direction from Regional Board staff at the November 18, 2019 Regional Board meeting that use of the SMCL for turbidity to support the proposed listing was mandatory. State Board staff finds the use of the turbidity SMCL was <i>appropriate</i>, but does not claim that its use was mandatory. The turbidity SMCL should not be used for the Colorado River and, at a minimum, the Regional Board should be instructed to use its discretion to assess whether to apply the SMCL in this specific situation.</p>	<p>See response to comment 16.003 regarding the discussion at the Colorado River Regional Water Board adoption meeting and the appropriateness of assessing turbidity data using the SMCL associated with the MUN beneficial use.</p>
16.005	<p>The Colorado River is naturally very turbid. Historically, the Colorado River had extremely high turbidity, with a suspended load averaging between 1,450 and 6,140 mg/L, depending on the month, at Lees Ferry (Neuwerth 2019 attached). This high turbidity informed the evolution of native fish within the River such as the razorback sucker and the bonytail. Dams have greatly reduced the natural turbidity of the River, and this lower turbidity has resulted in significant declines in these native species. Multiple state and federal agencies participate in adaptive management programs that include high flow dam releases to help <i>increase</i> sediment transport in the River. These efforts also include native fish augmentation programs, including in the segment of the River subject to the Regional Board's proposed listing.</p> <p>The proposed turbidity listing is thus fundamentally at odds with state and federal efforts to protect native fish in the Colorado River that focus on <i>increasing</i> sediment</p>	<p>See response to comment 16.003 regarding the appropriateness of assessing turbidity data using the SMCL associated with the MUN beneficial use. The narrative turbidity water quality objective could be interpreted differently for the protection of the MUN beneficial use and the protection of aquatic life beneficial uses. A revision of the narrative water quality objective to provide specific objectives for different uses might be helpful. Therefore, a better forum for raising concerns about the most sensitive beneficial use associated with turbidity is the triennial review of the Colorado River Basin Plan. The triennial review is the mechanism for setting priorities for projects to amend the Basin Plan, including beneficial use changes and development of site-specific water quality objectives.</p> <p>Although SMCLs are drinking water standards used by water purveyors to determine the quality of water supplied to the public by community water systems, SMCLs may also be used to assess the water quality of ambient surface waters. As discussed in responses to comment 16.003, the use of SMCLs is reasonable because taste and odor thresholds may be used to interpret</p>

	<p>transport not <i>decreasing</i> it. Native fish are poorly adapted to avoid predation in clear water, and higher turbidity levels benefit native fish by significantly limiting certain types of nonnative predation. Listing the Colorado River as impaired for turbidity would be inconsistent with these state and federal efforts and detrimental to the native species.</p> <p>This inconsistency is a direct result of using a treated drinking water standard such as the SMCL for turbidity for this segment of the Colorado River. Although the Regional Board has adopted some SMCLs as part of its Basin Plan, the Regional Board has not in general adopted the SMCL for turbidity, and certainly has not adopted it for the Colorado River. In fact, the use of the SMCL for turbidity in this segment of the Colorado River is inconsistent with the Listing Policy for at least two reasons. First, the Listing Policy provides that the listing process is not to be used to “establish, revise, or refine any water quality objective or beneficial use . . . .” (Listing Policy, p. 1.) At a minimum, the Regional Board is using the SMCL to “revise” or “refine” the existing water quality objectives in the Basin Plan, which, as noted, do not include the SMCL for turbidity. As explained above, these revisions or refinements are inconsistent with other state and federal efforts to protect native fish in the Colorado River. In accordance with the Listing Policy, the State Board should prevent this use of the process to revise or refine existing water quality objectives.</p>	<p>narrative water quality objectives that prohibit adverse tastes and odors in waters of the state and prohibit nuisance conditions. Applying SMCLs in ambient waters prior to any drinking water treatment is also appropriate because exceedances of SMCLs may increase the cost of drinking water treatment or result in additional monitoring by water purveyors, which may impact ability to provide municipal water supply. Additionally, there is often uncertainty as to whether the ambient water is used for untreated, individual water supply systems that are separate from a community water system. In other words, treatment may not always be available prior to use or in some circumstances treatment requirements may be waived.</p>
16.006	<p>Second, the proposed turbidity listing is based on and misuses the SMCL as an evaluation guideline. Under specific circumstances, not present here, the Listing Policy permits the use of evaluation guidelines to evaluate narrative water quality objectives. However, such use is only appropriate when the evaluation guidelines are applicable to the beneficial use and</p>	<p>See response to comment 16.003 and 16.005.</p>

	<p>provide meaningful information relevant to the narrative water quality objective. The SMCL for turbidity, which has not been adopted by the Regional Board, is a consumer acceptance level for water supplied to the public by community water systems. It addresses treated drinking water and is not intended to apply to a naturally turbid surface water such as the Colorado River. It is therefore not an applicable evaluation guideline for the narrative water quality objective for aesthetic qualities in Colorado River surface water. As noted above, rather than providing meaningful information to help guide the evaluation of the narrative water quality objective, the use of the SMCL for turbidity here sets in motion activities that will starve the River of sediments and turbid conditions that support native fish, warm freshwater and endangered species beneficial uses, all based on the erroneous premise that lower turbidity levels are needed to meet an SMCL level that apply to finished drinking water.</p>	
16.007	<p>At a minimum, the Regional Board should be informed that it has the legal discretion to assess whether using the SMCL for turbidity is appropriate here. Because the Regional Board was instructed that it had no such discretion, the State Board should either delete the proposed listing or remand it to the Regional Board with instructions to use its discretion in this unique case.</p>	<p>The State Water Board is required to evaluate the relevant waterbody fact sheets adopted by the Regional Water Board for completeness, consistency with the Listing Policy, and consistency with applicable law, as stated in Section 6.3 of the Listing Policy. Section 6.3 of the Listing Policy also states that the State Water Board may receive public comments concerning Regional Water Board listing recommendations that are timely requested for review and may make changes. The State Water Board has reviewed the turbidity decision and endorses the Regional Water Board's use of the SMCLs. Finally, listing recommendations are not remanded to the Regional Board but instead are approved or revised by the State Water Board. Additionally, see response to comment 16.004.</p>
16.008	<p><b>Proposed Manganese Listing for the Colorado River (Imperial Reservoir to California-Mexico Border)</b></p>	<p>See response to comment 16.003 in regards to the use of the manganese SMCL as an evaluation guideline to interpret the</p>

	<p>The Regional Board has recommended that the State Board add the Colorado River (Imperial Reservoir to California-Mexico Border) to the 303(d) list as being impaired for manganese. In making this recommendation, the Regional Board was told by staff and legal counsel at the November 18, 2019 Regional Board meeting that the Board was obligated to apply the SMCL for manganese when evaluating the listing recommendation. State Board staff recommends no change to the listing, finding that the use of the SMCL is <i>appropriate</i>. CVWD asks the State Board to either delete the proposed listing or send the issue back to the Regional Board to use its discretion to determine whether use of the SMCL is warranted here.</p>	<p>applicable narrative objectives in the Colorado River Basin Plan. Additionally, see response to comment 16.007.</p>
16.009	<p>Manganese occurs in minerals found in sediments that are particularly common in the deserts of southeastern California and southwestern Arizona where the Colorado River flows. Manganese can discolor water when it is in the dissolved state that is found in the reducing conditions that occur in some groundwater. However, in surface water, manganese is typically particulate and attached to other sediments. No impacts to surface water beneficial uses are associated with this naturally occurring manganese in the Colorado River. To the extent this surface water is used for municipal water supply, sediments, including the attached manganese, are filtered out as required under the federal and state Safe Drinking Water Act to ensure effective disinfection before municipal use.</p>	<p>See response to comment 16.003 regarding the appropriateness of assessing manganese data using the SMCL associated with the MUN beneficial use. See response to comment 16.005 regarding the appropriateness of applying SMCLs to ambient surface waters.</p>
16.010	<p>As with the turbidity SMCL, the Regional Board has not adopted the SMCL for manganese as a water quality objective in its Basin Plan at all, and certainly has not adopted the SMCL as a water quality objective specific to the Colorado River. In fact, the Basin Plan expressly incorporates <i>other</i> portions of Title 22 as numeric water quality objectives when it is appropriate to do so, but</p>	<p>See response to comment 16.003.</p>



	<p>not the SMCL for manganese. Thus, the omission of the manganese SMCL from the Basin Plan must be read and construed as deliberate and intentional. Applying that SMCL now to support this listing can only be viewed as an effort to “revise” or “refine” water quality objectives, an application that is prohibited by the Listing Policy. (Listing Policy, p.1.)</p>	
16.011	<p>In addition, using the SMCL for manganese in the surface water of this segment of the Colorado River has no application to any beneficial use and provides no meaningful information relevant to the narrative water quality objectives for aesthetic and chemical constituents. The SMCL is a consumer acceptance level for water supplied to the public by community water systems. It addresses treated drinking water. It is not an applicable evaluation guideline because it does not provide meaningful information to evaluate the narrative water quality objectives for the Colorado River. Using the SMCL is thus not consistent with the Listing Policy. The State Board should either delete the proposed listing or remand it back to the Regional Board to use its discretion, which staff erroneously claimed it did not have, to actually consider whether the application of the SMCL is appropriate here.</p>	<p>See responses to comments 16.003 and 16.009.</p>
16.012	<p><b>Appendix A to the Staff Report Must be Corrected</b></p> <p>In support of its recommendations to the State Board in connection with the 2018 California Integrated Report, State Board staff prepared a Staff Report, including Appendix A. With regard to the Regional Board for the Colorado River Basin Region, Appendix A reflects the earlier 303(d) listing recommendations of Regional Board staff, not the staff’s final recommendations nor the actual actions taken by the Regional Board. CVWD has worked with other stakeholders to bring this issue to the attention of Regional and State Board staff, and</p>	<p>See response to comment 14.001</p>

	CVWD is informed and believes that staff will correct Appendix A accordingly. As of today, however, CVWD has not received a corrected Appendix A and therefore makes this comment for the record.	
16.013	For the reasons expressed above, CVWD requests that the State Board either delete the proposed listings for turbidity and manganese in these segments of the Colorado River or send them back to the Regional Board to use its discretion to assess whether use of the SMCLs is appropriate here.	See response to comment 16.003.
16.014	As explained in this letter, using the SMCLs is either prohibited by the Listing Policy or not consistent with the Listing Policy because the SMCLs are not appropriate evaluation guidelines as applied to the unique conditions in the Colorado River. In this specific case, the SMCLs are neither achievable nor contribute to attainment of beneficial uses, and in the case of turbidity, could actually harm beneficial uses.	See responses to comments 16.003 and 16.005.
16.015	The State Board should therefore delete the proposed listings. At a minimum, the State Board should clarify that use of the SMC Ls is not mandatory. Because the Regional Board was informed that it had to use the SMCLs, the State Board should direct the Regional Board to reconsider its recommendations using its discretion. Based on an analysis of site and case-specific circumstances, and a science-based assessment of the actual conditions in the Colorado River, the Regional Board, using its discretion, may well have reached a different recommendation. It should be required to use its discretion and revisit these recommendations.	See responses to comments 16.003 and 16.004.

16.016	In addition. CVWD requests that Appendix A be corrected to reflect the actual recommendations made by the Regional Board.	See response to comment 14.001.
16.017	<p>The relationship between increased turbidity and reduced predation of native Colorado River fish may explain why native fish persistence and natural recruitment is correlated with areas of relatively high turbidity (Albrecht et al. 2010, Albrecht et al. 2017, Kegerries et al. 2017, Valdez et al. 2012). The only known self-sustaining population of razorback sucker in the Colorado River Basin is found in Lake Mead; this natural recruitment appears to be related to the amount and availability of turbidity, in combination with inundated cover (Valdez et al. 2012, Kegerries et al. 2017). Razorback sucker has been able to persist in several small pockets around Lake Mead, and the key component seems to be that “all of these areas deliver sediment and turbidity” (Albrecht et al. 2017). Valdez et al. (2012) note that “the best chances for successful reproduction and recruitment by the razorback sucker is in areas that provide vegetative cover and turbidity.” Vegetation and turbidity, either together or in isolation, are enough to prompt surges in successful reproduction of this native fish species (Valdez et al. 2012). The importance of turbidity in the survival of these endangered fish therefore indicates that great care should be taken when implementing actions that reduce turbidity. Indeed, native fish management may prompt targeted or localized enhancement of turbidity, rather than the elimination of it.</p>	Comment noted. Regarding turbidity and benefits to native species in the Colorado River, see also response to comment 16.005.

## Letter 17: Theresa A. Dunham, Kahn, Soares & Conway, LLP

No.	Comment	Response
17.001	Application of the fecal coliform objective of 20/100 ml (as a log mean over any 30-day period) <sup>1</sup> has the potential to significantly impact my clients, as well as other cattle grazing operations throughout the Lahontan Region.	<p>The CWA and the Listing Policy require the Water Boards to identify waters that do not meet or are not expected to meet applicable water quality standards and assemble and evaluate the water quality data and information to list or not list the subject waters. Application of the Listing Policy for the development of the 303(d) list does not determine compliance with any permit or waste discharge limit.</p> <p>Also see responses to comments 17.004, 17.005, and 17.013.</p>
17.002	Notably, we are actively working with the Lahontan Regional Water Board staff to address the improper application of this objective to waterbodies located in cattle grazing areas, and look to participate in the Regional Board's review process of this objective when it is restarted.	See responses to comments 17.004, 17.005, and 17.013.
17.003	we summarize here our concerns with the Lahontan Regional Water Board's actions taken with respect to use of this water quality objective during the 303(d) listing process, and most importantly with the newly developed rationale that this objective is associated with the municipal drinking water (MUN) beneficial use. We also address the State Water Board staff review of the fecal coliform listings we questioned in our December 20, 2019 request for review.	<p>See below for responses to the individual comments summarized here.</p> <p>Additionally, Section 4.4.1 of the Staff Report was revised to clarify the rationale for supporting the Lahontan Regional Water Board's interpretation of the use of their fecal coliform objective to evaluate attainment of the MUN use.</p>
17.004	Over the years, the Lahontan Regional Water Board has offered several different explanations and/or justifications with respect to the fecal coliform objective in question.	<p>The Lahontan Region's fecal coliform bacteria objective applies to all surface waters in the region.</p> <p>The use of the fecal coliform objective for the protection of the REC-1 beneficial uses in the Grazing Conditional Waiver (Order R6T-2017-0033) was appropriate because it states in Finding 19.a that "Conditions of this Waiver require compliance with</p>

<p>First, within the context of the General Conditional Waiver of Waste Discharge Requirements for Grazing Operations in the East Walker River Watershed (Bridgeport Valley and Tributaries) of the Lahontan Region (Order R6T-2017-0033, or Grazing Conditional Waiver), the fecal coliform objective of 20 colonies per 100 ml was included because the Grazing Conditional Waiver stated that it was important for protecting surface waters for recreational uses. (Grazing Conditional Waiver, p. 5.) Similarly, the 2014-2016 Integrated Report used the 20/100 mL fecal coliform objective to identify impaired waterbodies for the water contact recreational beneficial use (REC-1).</p> <p>Then, sometime during the State Water Board's process for adoption of statewide bacteria objectives into the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE) in or around 2016-2017, the Lahontan Regional Water Board claimed that the statewide objectives did not supercede Lahontan's fecal coliform objective because it was an objective of <i>general applicability</i>. Accordingly, when the State Water Board adopted the statewide bacteria objectives in 2018, they also adopted the following footnote into the ISWEBE:</p> <p>As of February 4, 2019, the effective date of Part 3 of the ISWEBE, the BASIN PLAN (p. 3-4) for the Lahontan Regional Water Board contains fecal coliform bacteria water quality objectives that are generally applicable to all surface waters within the region and not expressly established for the reasonable protection of the REC-1 beneficial use. Part 3 of the ISWEBE establishes numeric bacteria water quality objectives for the REC-1 beneficial use and, therefore, would apply to applicable waters within the Lahontan region</p>	<p>Basin Plan water quality objectives which protect the most sensitive beneficial uses: Water Contact Recreation (REC-1) or Municipal and Domestic Supply (MUN).” Additionally, while one part of the Grazing Conditional Waiver may have emphasized the importance of protecting surface waters for recreational uses, the waiver as a whole specified that the applicable beneficial uses protected by the waiver are REC-1 and MUN. Upon the State Water Board's adoption of the statewide bacteria objectives, the statewide <i>E. coli</i> objective did not supersede the region's fecal coliform objective, not because the State Water Board formally disputed its application to REC-1, but because the Basin Plan did not <i>expressly</i> associate the fecal objective with the REC-1 use (which was “the scope” of the bacteria project). The relevant findings in the adopting resolution (No. 2018-0038) are:</p> <p>17. The Bacteria Provisions' Bacteria Water Quality Objectives <u>supersede any numeric water quality objective (and not any narrative water quality objective) for bacteria for the REC-1 beneficial use contained in a water quality control plan</u> before the effective date of the Bacteria Provisions. [...]. [Emphasis added.]</p> <p>18. The Lahontan Regional Water Board's water quality control plan contains a numeric fecal coliform bacteria water quality objective [...]. <u>The fecal coliform objective is generally applicable to all surface waters within the region and was not expressly established for the protection of the REC-1 beneficial use.</u> Part 3 of the ISWEBE would establish numeric Bacteria Water Quality Objectives for REC-1 waters and would not supersede the fecal coliform objective established generally for all surface waters in the region. <u>Therefore, the existing fecal coliform objective and the applicable Bacteria Water Quality Objective would apply to all REC-1 surface waters within the Lahontan region.</u> [...] [Emphasis added.]</p> <p>The language contained in the footnote for the bacteria provisions contained in the ISWEBE Plan to which the commenter refers</p>
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	<p>that have REC-1 beneficial use and do not supercede the fecal coliform objectives.</p> <p>Now, for the first time, as part of the 2018-2019 process for identification of 303(d) impaired waterbodies, the Lahontan Regional Water Board claims that the 20 fecal coliform objective is necessary to protect the MUN beneficial use. During the listing process, the Lahontan Regional Water Board provided some post hoc rationalizations as to how and why the 20 fecal coliform objective is associated with the MUN use. We address those rationalizations further below. Most importantly, however, is the fact that the revolving door of beneficial uses associated with this specific objective is a clear indication that the Lahontan Regional Water Board has no justification for the fecal water quality objective in question.</p>	<p>clarifies that two objectives would apply to REC-1 surface waters in the region but contains no expression as to whether the fecal coliform objective is also protective of the MUN beneficial use.</p> <p>See also response to comment 17.006 regarding interpreting the fecal coliform data under the Listing Policy using the fecal coliform objective and the MUN beneficial use.</p>
17.005	<p>Rather, there is an objective in search of a beneficial use to protect. This is inconsistent with both the Clean Water Act and the Porter Cologne Water Quality Control Act (Porter-Cologne), and the process for setting water quality standards.</p> <p>The Federal Clean Water Act places primary reliance for developing water quality standards on the states. California implements the Clean Water Act through Porter-Cologne. Under Porter-Cologne, regional boards must formulate and adopt water quality control plans (i.e., Basin Plans). These Basin Plans contain three elements: 1) the beneficial use to be protected; 2) water quality objectives; and 3) program of implementation. (<i>United States v. State Water Resources Control Bd.</i> 182 Cal.App.3d 82, 119.)</p> <p>Identification of the beneficial use to be protected for waterbodies within a region is the first step. Then, after beneficial uses are identified, water quality objectives</p>	<p>Water quality objectives are generally defined as the levels of water quality constituents or characteristics established for the reasonable protection of beneficial uses. (Wat. Code., §§ 13050, subd. (h); 13241.) That there is a correlation between the water quality objective and beneficial use for which it reasonably protects is clear, and basin plans designate waters that consist of both. (<i>Id.</i>, § 13050, subd. (j).) Yet the Porter-Cologne Act does not require water quality control plans to expressly identify the beneficial use(s) for which a water quality objective was established.</p> <p>The Lahontan Region's Basin Plan generally does not expressly identify each use for which an objective was specifically established and that approach is not inconsistent with the Porter-Cologne or the CWA.</p> <p>In accordance with the Porter-Cologne Act, the Lahontan Region Basin Plan is a water quality control planning strategy document to achieve water quality goals. The Lahontan Basin Plan (chpt. 2) lists all the relevant beneficial uses applicable to the region's</p>

<p>are to be established to protect the beneficial use. For example, Water Code section 13241 provides that “each regional board shall establish such water quality objectives in water quality control plans as in its judgment <i>will ensure the reasonable protection of beneficial uses....</i>” (Emphasis added.) Similarly, the term water quality objectives is defined in statute to mean: “the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.” (Water Code section 13050(h); See <i>San Joaquin River Exchange Contractors Water Authority v. State Water Resources Control Bd.</i> (2010) 183 Cal.App.4th 1110, 1115-1116.)</p> <p>Here, the Lahontan Region’s Basin Plan contains a fecal coliform objective that appears to be in constant search of a beneficial use to protect. This approach is backwards, and is inconsistent with the process for setting water quality standards in Basin Plans. Pursuant to Water Code section 13241, a water quality objective is developed to protect a beneficial use. A beneficial use is not identified to justify a water quality objective. The water quality objective is tied to the beneficial use, not the other way around.</p>	<p>surface waters, including the REC-1 beneficial use and the MUN beneficial use, which are designated to waterbodies and must be maintained. The Lahontan Basin Plan (chpt. 2) acknowledges the State Water Board, through the Sources of Drinking Water Policy (State Water Board Resolution No. 88-63), established that all surface waters and ground waters are suitable or are potentially suitable for municipal or domestic supply, with limited exceptions. It also designates the majority of the surface waters within the region with the REC-1 beneficial use.</p> <p>The Lahontan Basin Plan (chpt. 2) instructs that beneficial uses and water quality objectives to protect those uses must be established for all waters within the region and Chapter 3 contains the applicable water quality objectives. The fecal coliform objective applies to all of the region’s surface waters (chpt. 3) to which both the REC-1 and MUN uses apply. The Lahontan Basin Plan explains that the water quality objectives define the upper limit that the Lahontan Regional Water Board considers protective of beneficial uses (chpt. 3). With respect to the region’s methodology in developing water quality objectives, the Lahontan Basin Plan explains:</p> <p style="padding-left: 40px;">The general methodology used in establishing water quality objectives involves, first, designating beneficial water uses; and second, selecting and quantifying the water quality parameters necessary to protect the most vulnerable (sensitive) beneficial uses. Because of the limited human impact on many waters of the Region, and because site-specific information is limited for many waters in the Region, many water quality objectives were established at levels better than that necessary to protect the most vulnerable beneficial use. As additional information is obtained on the quality of the Region’s waters and/or the beneficial uses of those waters, certain water quality objectives and/or beneficial uses may be updated based on the new information. [Lahontan Basin Plan, 3-1.]</p>
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		<p>Section 4.4.1 of the Staff Report was revised to clarify the appropriateness of associating the fecal coliform objective with the MUN beneficial use.</p> <p>See also response to comment 17.006.</p>
17.006	<p>Further, prior to this latest development, the Lahontan Regional Water Board has never previously claimed, or provided historical evidence from adoption of the Basin Plan, that the 20 fecal coliform objective in the Basin Plan was intended to protect the MUN beneficial use. Accordingly, the Lahontan Regional Water Board cannot now, decades later, claim that the objective is necessary to protect the MUN beneficial use.</p>	<p>In approving the Lahontan Regional Water Board's 1994 basin plan amendment, the U.S. EPA acknowledges that the basin plan contained the stringent fecal coliform objective for waters particularly subjected to heavy recreational use based on the assumption that the water is ingested and that the objective was later made applicable to all waters based on the fact that most waters were identified as being suitable for sources of drinking water. See U.S. EPA's approval letter (Letter from Alexis Strauss, Director, Water Division, Region IX of the U.S. EPA, to Edward C. Anton, Acting Executive Director, State Water Board (May 29, 2000)), which states, in part:</p> <p>The 1975 Basin Plans contained separate sets of fecal coliform objectives for surface waters designated for water contact recreation (REC-1) and for waters designated for non-contact water recreation (REC-2). The REC-1 objectives were more stringent based on the assumption that water may be ingested. The North Lahontan Basin Plan included still more stringent fecal coliform objectives for specific water bodies which were subjected to heavy recreational use. [¶]</p> <p>In the updated Basin Plan [per the October 1994 amendment], all surface water bodies have existing REC-1 and REC-2 uses designated, except Opal Mountain Springs in the Harper Valley Hydrologic Subarea. The updated Basin Plan does not include separate objectives based on REC-1 vs. REC-2 designations. Rather, the stringent fecal coliform requirements which were previously applicable only to North Basin water bodies are now applicable regionwide. The rationale for this change is based upon the fact that most surface waters of the region are now considered to be</p>



		<p>sources of drinking water, which therefore justifies requiring a greater level of protection region-wide against fecal coliform contamination.</p> <p>Consistent with the inference in U.S. EPA's above discussion, the fecal coliform objective is relevant to the protection of the MUN beneficial use. Fecal coliform is a bacterial indicator of human pathogenic bacteria and viruses. As with the potential for ingestion during primary recreational activities, humans can be exposed to fecal coliform through the use of water for community, military, or individual water supply systems including, but not limited to, drinking waters supply.</p> <p>The Bacteria Water Quality Objective Evaluation Project currently underway by the Lahontan Regional Water Board is the appropriate venue to determine whether the fecal coliform objective should be revised. The State Water Board will include in the resolution adopting the 2018 CWA section 303(d) list that its expectation is that the scheduling for the development of a TMDL for these MUN bacteria listings are assigned a low priority to account for the completion of the Bacteria Water Quality Objective Evaluation Project currently underway by the Lahontan Regional Water Board. The State Water Board will additionally instruct that if the fecal coliform objective is revised, the MUN bacteria listings will be reassessed in the next listing cycle.</p> <p>Section 4.4.1 of the Staff Report is revised to clarify the appropriateness of associating the fecal coliform objective with the MUN beneficial use.</p>
17.007	As we commented in our December 20, 2019 letter requesting review of the 303(d) listings, the Lahontan Regional Water Board inappropriately cited to a 1973 guidance <sup>2</sup> document during the course of the adoption hearing as their justification for claiming that the 20 fecal coliform objective was necessary to protect the MUN beneficial use. The document in question was one of a series of memorandum that the State Water	The State Water Board's Management Memorandum No. 20 Water Quality Objectives from 1973 includes "Tentative Guidelines for Evaluating the Quality of Raw Water Used as a Source of Municipal Supplies (MUN)" which includes a fecal coliform concentration of less than 20/100 ml (see Attachment 2). While the memorandum's use of the 20 fecal coliform objective is not direct evidence that the Lahontan Regional Water Board adopted the objective to protect the MUN use, it

	<p>Board provided to the regional boards and their contractors when they developed the Basin Plans per Porter-Cologne in the early 1970s. The mere existence of this memorandum and its reference to the 20 fecal coliform objective provides no evidence that the Lahontan Regional Board adopted the objective in question to protect the MUN beneficial use. Further, and as articulated above, the Lahontan Board's historical use of the objective for protecting the</p> <p>REC-1 beneficial use provides evidence to the contrary.</p>	<p>provides supporting rational to use the fecal coliform objective to evaluate the MUN beneficial use. Additionally, see the response to comment 17.006.</p>
17.008	<p>Moreover, the Lahontan Regional Water Board did not fully or properly characterize reference to the 20 fecal coliform guideline contained in the 1973 guidance document. As included in the 1973 guidance memorandum, which contains an attachment for tentative guidelines, 20 fecal coliform is identified as one of many tentative guideline-threshold concentrations for "raw water used as a source of municipal drinking water." With this identification, there are two notes (or caveats) that apply. First, threshold concentration means that "[n]atural waters that contain less than these threshold concentrations will be suitable for domestic water supply with no treatment <i>other than proper disinfection</i> ...." Second, there is an applicable note to paragraph 4, which states that "proper disinfection is required." Taken together, these notes clearly indicate that the 20 fecal coliform objective is not intended to mean that raw water below this threshold is protective of the MUN beneficial use without proper disinfection. In all cases, disinfection is still required. Thus, while this value may appear on the tentative guidelines table, it was never intended to be a standard that applied directly to receiving waters to protect</p>	<p>See response to comment 17.007.</p> <p>Additionally, the table of tentative guidelines for evaluating the quality of raw water used as a source of municipal supplies (MUN) in the State Water Board's 1973 memorandum, including footnote (a) to the table, indicates that the less than 20 fecal coliforms per 100 mL threshold concentration applies to natural or raw waters, which would be applicable to ambient streams, rivers, lakes, and other surface waters assessed by the Integrated Report.</p> <p>Footnote (a) also states: "Concentrations in excess of these threshold values will cause an added economic burden for the user or may even render the water unsuitable for domestic purposes." When the footnote is considered in its entirety, it is clear that the intent of the fecal coliform threshold was that it should apply to raw water.</p>

	municipal drinking water uses for use without disinfection.	
17.009	<p>Further, the Lahontan Regional Water Board's reliance on inapplicable regulations is misplaced. Specifically, the Lahontan Regional Water Board cites to Title 40 of the Code of Federal Regulations, section 142.71 to allege that use of the 20 fecal coliform standard for protecting the MUN beneficial use was "consistent" with this rule. This regulation applies only to drinking water utilities subject to the Safe Drinking Water Act. It does not establish ambient water quality standards for MUN waters. Rather, the rule specifies when filtration is required for finished drinking water. Notably, source waters exceeding these levels may continue to be used as a water supply source. Nothing within this regulation, or the State's Listing Policy, suggests that this regulation is justification for listing a waterbody as impaired.</p>	<p>The Lahontan Region 2018 Integrated Report Response to Comments states that associating the fecal coliform objective with the MUN beneficial use for the purpose of listing recommendations is</p> <p>... consistent with 40 Code of Federal Regulations part 141.71 which indicates that to avoid filtration, source water quality conditions must have a fecal coliform concentration equal to or less than 20/100mL.</p> <p>Part 141.71 indicates that to avoid filtration, source water quality conditions must have a fecal coliform concentration equal to or less than 20/100mL. Concentrations above this level could impact the MUN beneficial use as additional cost and effort would be required to filter water to ensure it is safe to drink. Use of such a threshold as an evaluation guideline for development of the 303(d) list is consistent with Section 6.1.3 of the Listing Policy, which states that evaluation guidelines may be used if it can be demonstrated that the evaluation guideline, among other criteria, identifies a range above which impacts occur and below which no or few impacts are predicted.</p> <p>Therefore, the reference to part 141.71 provides further evidence that the fecal coliform objective has relevance to the protection of the MUN use. See also response to comment 17.006 regarding the appropriateness of associating the fecal coliform objective with the MUN beneficial use.</p>
17.010	We appreciate that State Water Board staff reviewed our request in conjunction with preparation of the Draft Staff Report for the 2018 Integrated Report.	Comment noted.
17.011	However, the response provided fails to address our concerns with respect to the Lahontan Regional Water Board's new action to associate the MUN beneficial use	See responses to comments 17.004, 17.005, and 17.006.

	<p>with the 20 fecal coliform objective. Specifically, the Draft Staff Report contains one sentence in response to our concerns, which is as follows: “The Regional Water Board’s fecal coliform objective is an applicable water quality objective in the Basin Plan and therefore it is appropriate to evaluate the attainment of the MUN beneficial use.” (Draft Staff Report, p. 55.) The two parts of this sentence are unrelated to each other and do not respond to the issue presented in our December 20, 2019 request for review. We fail to see how the presence of the fecal coliform objective in the Basin Plan automatically means that is related to attainment of the MUN beneficial use. Nothing in the Basin Plan, or to our knowledge documents associated with development of the Basin Plan, suggests that the two are connected. Further, nothing in this sentence explains or justifies the appropriateness of the Lahontan Regional Water Board’s actions to associate MUN beneficial use protection with the 20 fecal coliform water quality objective now – years after the objective has been claimed to protect other beneficial uses.</p>	
17.012	<p>In light of this deficiency, we respectfully request that the State Water Board exclude from the 303(d) list those waterbodies being listed due to application of the 20 fecal coliform objective for protection of the MUN beneficial use.</p>	<p>See responses to comments 17.004, 17.005, and 17.006.</p>
17.013	<p>Excluding these water body segments will not have any adverse impact on public health as the State Water Board’s statewide bacteria objective would still apply, and waterbodies impaired based on this standard would still be subject to listing.</p>	<p>Comment noted. See response to comment 17.004.</p> <p>Additionally, the State Water Board will include in the resolution adopting the 2018 CWA section 303(d) list that its expectation is that the scheduling for the development of a TMDL for these MUN bacteria listings are assigned a low priority to account for the completion of the Bacteria Water Quality Objective Evaluation Project currently underway by the Lahontan Regional Water Board. The State Water Board will additionally instruct that if the</p>

		fecal coliform objective is revised, the MUN bacteria listings will be reassessed in the next listing cycle.
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## Letter 18: Tina L. Shields, Imperial Irrigation District

No.	Comment	Response
18.001	The Draft Staff Report for the 2018 Integrated Report for Clean Water Act Sections 305(b) and 303(d) ("Draft Staff Report") recommends the addition of new waterbody/pollutant combinations to the State's 303(d) list, including listing the Colorado River (Imperial Reservoir to California-Mexico Border) as impaired for manganese and the Colorado River (Lake Havasu Dam to Imperial Dam) as impaired for turbidity. IID believes that these two listing recommendations are not supported by the facts or the law, and, therefore, requests that the State Board either remove these listings from the recommendations set forth in the Integrated Report, or remand the listings to the Regional Board for reconsideration. By this letter, IID joins in all arguments made by the Coachella Valley Water District in its April 28, 2020 comment letter on this matter, as well as all arguments made by the Colorado River Board of California in its April 29, 2020 comment letter on this matter.	See response to comment 16.003.
18.002	Furthermore, on October 30, 2019, IID submitted detailed comments on the Regional Board's listing recommendations as presented in the public review draft of the Sections 305(b) and 303(d) Integrated Report for the Colorado River Basin Region ("Regional Integrated Report"). Several of those comments influenced the final Regional Integrated Report's content. However, the Regional Board continued to	Comment noted.

No.	Comment	Response
	recommend listing of the two pollutant/waterbody combinations discussed herein. Consequently, counsel for IID attended the Regional Board's November 14, 2019 meeting on adoption of Resolution R7-2019-0054 and provided further testimony on the proposed listings. IID incorporates by reference and reiterates the issues raised in IID's October 30, 2019 comment letter, and November 14, 2019 testimony, both of which should be in the State Board's file on the Regional Board's listing recommendations.	

## Letter 19: Ray Tahir, TECS Environmental

No.	Comment	Response
19.001	The metals TMDL, more than any other TMDL, accounts for most of TMDL compliance costs for MS4 Permittees. For example, the City of Rosemead is obligated to spend \$1.44 million to meet the 2024 metals TMDL milestone for the Upper Los Angeles River EWMP group. The cost for Rosemead and other Permittees to comply with the metals TMDL is unwarranted because they are legally invalid for the following:	<p>See responses to comments 7.006 and 7.011. The cost of compliance with a TMDL and the basis of the Los Angeles River and San Gabriel River TMDLs for metals are beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018.</p> <p>A better forum for raising concerns about an existing TMDL, including economic impacts, is the triennial review of the Los Angeles Basin Plan as it is the mechanism for setting priorities for projects to amend the Basin Plan. The Los Angeles Regional Water Board is currently conducting the 2020-2022 triennial review. Revisions to the Los Angeles River Metals TMDL or the San Gabriel River Metals TMDL would require a basin plan amendment, which is a rule-making action.</p>
19.002	<ul style="list-style-type: none"> <li>Many, if not all of the metals WQS, on which TMDLs are based, were not established in accordance with the California Toxic Rule</li> </ul>	See response to comments 7.006 and 19.001.

No.	Comment	Response
	<p>(CTR). CTR requires setting a WQS: (1) based on ambient monitoring of receiving waters (reaches); and (2) real-time application of a hardness value to make WQS compliance less stringent. Instead, the Regional Board based WQS on monitoring of receiving waters during wet weather and applied a default hardness, which resulted in a more difficult and costly numeric target for MS4 Permittees to meet.</p>	
19.003	<ul style="list-style-type: none"> <li>The metals TMDLs for several reaches in Los Angeles County are legally invalid because they are not on the 303(d) list. A TMDL cannot be a TMDL unless it is on the 303(d) list.</li> </ul>	<p>See response to comment 7.006 and 19.001.</p> <p>Additionally, a 303(d) listing is not a prerequisite for TMDL development. A TMDL may be developed for waterbodies that are not previously listed as impaired on the 303(d) list. As discussed in the <i>Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options</i> ("Impaired Waters Policy") adopted by State Water Board Resolution 2005-0050,</p> <p>"Where waters are not meeting their beneficial uses from anthropogenic sources of pollutants, the Water Boards will use the Total Maximum Daily Load (TMDL) program to craft an implementation plan to ensure that the waters meet all applicable standards as soon as is practicable" (p. 1). "Irrespective of whether CWA section 303(d) requires a TMDL, the process for addressing waters that do not meet applicable standards must be accomplished through existing regulatory tools and mechanisms" (p. 2)."</p> <p>"Existing regulatory tools include individual or general waste discharge requirements (be they under Chapter 4 or under Chapter 5.5 (NPDES permits) of the Porter-Cologne Water Quality Control Act), individual or general waivers of waste discharge requirements, enforcement actions, interagency</p>

No.	Comment	Response
		<p>agreements, regulations, basin plan amendments, and other policies for water quality control” (p. 5).</p> <p>TMDLs are often adopted as basin plan amendments and are one type of program of implementation to achieve water quality objectives authorized under Water Code section 13242. Establishing programs to achieve water quality objectives are not dependent on the water body first becoming impaired and identified on the CWA section 303(d) list.</p>
19.004	<ul style="list-style-type: none"> <li>The metals TMDL did not comply with the State’s Water Quality Policy for Developing California’s Clean Water Act Section 303(d), which requires a statistical test to determine placement of a toxic pollutant on the 303(d) list. Instead, the Regional Board claims it has the discretion to designate a pollutant as a TMDL without it being placed on the 303(d) list, based on its own legal authority. However, it has failed to identify the source of that legal authority.</li> </ul>	See responses to comments 7.006 and 19.003.
19.005	These deficiencies must be corrected. The Regional Board should, by Resolution, mandate that any metal TMDL improperly established is voided pending correction. Not taking such action will result in MS4 Permittees having to continue to spend resources on invalid TMDLs.	See responses to comments 7.006 and 19.003.
19.006	It should be noted, as mentioned to the Regional Board previously, that Measure W funding is not enough to pay for compliance. The City of Glendora, for example, would need to spend \$9.6 million from its General Fund to pay for infiltration projects that address the metals TMDLs. The irony	See responses to comments 7.006 and 19.001.



No.	Comment	Response
	is that Glendora is located in Reach 3 of the San Gabriel River, which is not 303(d) listed for metals.	
19.007	<p>The Regional Board is obligated to comply with CTR, which is a federal regulation (40 CFR Part 131). CTR sets water quality standards (WQS) for toxic pollutants in accordance with defined criteria. Toxics generally include metals (copper, lead, selenium and zinc in particular) and pesticides. Compliance with CTR includes: (1) sampling of a metal or other toxic constituent that was taken from a receiving water during its ambient (dry weather) condition; and (2) sampling concurrently with calcium carbonate to adjust for water chemistry using a hardness value. However, the sampling data -- for the most part -- the Regional Board relies on to show exceedances was not based on the ambient condition of the receiving water from which the samples were taken. CTR is clear on this:</p> <p><i>... this rule is not self implementing; rather it establishes ambient conditions that the State of California will implement in future permit proceedings. .</i></p> <p>Ambient is the normal condition of a receiving water that exists prior to or after a storm event.</p>	<p>See response to 7.006.</p> <p>Further, the California Toxics Rule (CTR) numeric water quality criteria are used to develop the 303(d) list in accordance with Section 3.1 and Section 4.1 of the Listing Policy. Those sections state that water segments shall be placed on or removed from the section 303(d) list if numeric water quality objectives, which are found in a regional basin plan or statewide water quality control plan, or California/National Toxics Rule water quality criteria are exceeded or not exceeded.</p> <p>The CTR includes equations to calculate hardness-adjusted criteria for cadmium, copper, chromium, lead, nickel, silver and zinc in water. If hardness data are available, the hardness-adjusted criteria are calculated and compared to the metals sample result to determine exceedances. If hardness data are not available, the criteria numbers in the CTR are compared to the sample result to determine exceedances using a default hardness concentration of 100 mg/L.</p> <p>The commenter is encouraged to submit metals data and hardness data collected at the same location and time to CEDEN for assessment in future Integrated Report listing cycles.</p> <p>Additionally, the CTR does not support the proposition asserted that ambient water quality in the receiving water is tied to the condition prior to or after a storm event.</p>

No.	Comment	Response
19.008	<p>Nor did the Regional Board comply with CTR's hardness value requirement. Hardness provides a method of setting a real-time TMDL limit to determine compliance with a toxic pollutant. The Regional Board has not, for the most part, used a real-time hardness value. Instead, it used a default value of 100 mg/l and on other occasions a medium hardness factor. However, CTR does not require either. CTR referenced the 100 mg/l hardness value as an example for calculating a toxic, such as copper, but makes it clear that a real-time hardness value should be used. The hardness adjustment is necessary to setting an accurate numeric target for a toxic pollutant, which is variable based on each sampling event. Generally, the higher the hardness value the higher the limit, which is easier to comply with. Instead, the Regional Board has, for example, set a static limits for the San Gabriel and Los Angeles Rivers. It appears that the default hardness value was used. Using a real-time hardness value has resulted in higher limits, making it easier to comply with.</p>	<p>This comment is beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to 7.006.</p> <p>See also responses to comments 19.001 and 19.007.</p>
19.009	<p>The Regional Board could have required MS4 Permittees to conduct ambient monitoring for toxics using the correct hardness value by requiring it in the 2012 MS4 Permit's Monitoring and Reporting Program. When this issue was raised in comments to the Regional Board in 2017, staff responded by claiming that CTR lies outside the scope of the 303(d). Clearly, it does not.</p>	<p>The monitoring and reporting requirements of a municipal separate storm sewer system ("MS4") permit are outside the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to comment 7.006.</p> <p>A better forum for raising concerns about a permit's requirements is during the development or renewal of the permit by the Regional Water Board.</p>
19.010	<p>The Regional Board's Surface Water Ambient Monitoring Program (SWAMP) did follow CTR in its</p>	<p>See responses to comments 7.006 and 19.009.</p>

No.	Comment	Response
	<p>sampling of metals and other toxics. But this practice ended in 2009. Why it was halted is unclear. Some suggest that ambient monitoring was not continued because it would make compliance with water quality standards on the TMDLs on which they are based easier and, therefore, make Watershed Management Programs, specific only to the Los Angeles MS4 Permit, unnecessary. It has also been suggested that the Regional Board did not employ SWAMP to perform the ambient monitoring, which is funded through a surcharge on each MS4 Permit. Instead, the Regional Board required MS4 Permittees to monitor in the receiving water during storm events, which makes compliance more difficult and provides a justification for compliance with Watershed Management Programs.</p>	<p>SWAMP's monitoring activities are outside the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018.</p>
19.011	<p>The Regional Board should adopt a Resolution declaring that all toxics-related WQS and TMDLs, which did not comply with CTR, should be voided. Non-compliance means not setting WQS based on ambient sampling and not applying a real-time hardness value at the time sampling for a toxic pollutant.</p>	<p>The appropriateness of applying a real-time hardness value versus a default hardness value when setting a water quality objective or TMDL for a toxic pollutant is outside the scope comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to comment 7.006.</p> <p>A better forum is the triennial review of the Los Angeles Basin Plan as it is the mechanism for setting priorities for projects to amend the Basin Plan, including amendments to water quality objectives and TMDLs. The Los Angeles Regional Water Board is currently conducting the 2020-2022 triennial review.</p>
19.012	<p>The Regional Board should also direct its SWAMP unit to re-commence ambient monitoring for all toxic pollutants.</p>	<p>See response to comment 19.010.</p>

No.	Comment	Response
19.013	<p><b>III. Recalculate Lead Water Quality Standard Los Angeles Rivers Reaches In Accordance with USEPA's CTR Amendment and State's Basin Plan Amendment Revised Attachment A to Resolution No. RIS-004</b></p> <p>Effective November of 2018, USEPA withdrew from CTR lead as a toxic pollutant from all reaches and tributaries of the Los Angeles River. It did so because the State revised the lead WQS based on a calculation of a site specific objective (SSO) water effects ratio (WER). This has resulted in eliminating lead as WQS for lead. However, the 303(d) Decision ID Fact Sheets for lead listings for Los Angeles River reaches and tributaries do not reflect the revised criteria.</p>	<p>See response to comment 7.006. Additionally, when a new water quality objective is promulgated, the data are assessed in accordance with the new objective in the next Integrated Report listing cycle.</p> <p>The Los Angeles Regional Water Board was on-cycle in the 2014/2016 listing cycle and assessed data from all waterbodies at that time.</p> <p>The Los Angeles Region was not on-cycle for the 2018 Integrated Report. While the Los Angeles Regional Water Board elected to conduct a limited number of "off-cycle" assessments for the 2018 Integrated Report, the Board did not elect to assess lead data in the Los Angeles River. The Los Angeles Region will be on-cycle for the 2024 Integrated Report and at that time will evaluate all readily available lead data in accordance with the new water quality objective. Refer to the June 29, 2020 Notice of Public Solicitation of Water Quality Data for the 2024 Cycle (<a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/docs/2024_solicitation_notice_final.pdf">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/docs/2024_solicitation_notice_final.pdf</a>). Note that submittals are due at 12:00 p.m. noon on October 16, 2020.</p>
19.014	<p>The Regional Board should adopt a Resolution to remove lead from the 303(d) list for Los Angeles River and its tributaries and indicate on corresponding Decision ID Fact Sheets "Do Not List." The affected reaches and tributaries include, but may not be limited to:</p>	<p>See responses to comments 7.006 and 19.013.</p>
19.015	<p><b>IV. Regional Board's 2017 Response to Comments Erroneously Claimed that Discussion of TMDLs Was Not Within the Scope of the 303(d) List Update</b></p>	<p>See responses to comments 19.001 and 19.003. Additionally, the Los Angeles Regional Water Board responded appropriately in its March 30, 2017 Revised Response to Comments on the Draft 2016 303(d) List that:</p>

No.	Comment	Response
	<p>This is totally baffling. The 303(d) list references TMDLs as the following excerpt from the State’s 303(d) listing policy mentions:</p> <p><i>At a minimum, the California section 303(d) list shall identify waters where standards are not met, pollutants or toxicity contributing to standards exceedance, and the TMDL completion schedule</i></p> <p>As Regional Board staff should know, a TMDL is required when a water quality standard is not met. If a TMDL is not 303(d) listed, as is the case for several reaches, then cities within those reaches should not have to comply with it. Yet, Attachment K identifies TMDLs with which cities are required to comply. It is clear that there is an obvious connection between the 303(d) list and TMDLs.</p>	<p>“Comments on the TMDLs are outside the scope of this proposed action.”</p>
19.016	<p>Regional Board staff must retract its claim that the discussion of TMDLs is not within the scope of the 303(d) update and not repeat it in forthcoming response to comments in re: the proposed 2018 303(d) update.</p>	<p>See response to comment 19.001.</p>
19.017	<p><b>V. CalWQA Data Was Misused to Require Compliance with TMDLs that Are Not 303(d) Listed</b></p> <p>In the Regional Board’s 2017 response to comments in re: the 2014-2016 303(d) list update, 68 references to CalWQA were contained in it. According to staff (Renee Purdy) data from it was used to justify not placing Arroyo Seco Reaches 1-3 on the “Do Not List” fact sheet, despite the fact that the none of the previous 303(d) lists (starting with the 1998 list) identifies any metal for Arroyo</p>	<p>This comment is beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to 7.006.</p> <p>Additionally, the Los Angeles Region was not on-cycle for the 2018 Integrated Report. While the Los Angeles Regional Water Board elected to conduct a limited number of “off-cycle” assessments for the 2018 Integrated Report, the Board did not elect to assess data for Arroyo Seco. The Los Angeles Region will be on-cycle for the 2024 Integrated Report. Refer to the June 29, 2020 Notice of Public Solicitation of Water Quality Data for the 2024 Cycle</p>

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	<p>Seco Reaches. The request to place Arroyo Seco reaches on the 303(d) list was to make it clear that they are not subject to the metals TMDL. It should be noted that nothing in the <i>State's Water Quality Policy For Developing California's Clean Water Act Section 303(d) List</i> recognizes CalWQA as a 303(d) listing determinant.</p>	<p><a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/docs/2024_solicitation_notice_final.pdf">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/docs/2024_solicitation_notice_final.pdf</a>). Note that submittals are due at 12:00 p.m. noon on October 16, 2020.</p>
19.018	<p><b>Requisite Action:</b></p> <p>Regional Board staff must provide CalWQA data to prove that Arroyo Seco and other reaches that are not subject to a metals TMDL. If it cannot, must withdraw its claim that CalWQA justifies that MS4 Permittees located in non-303(d) listed reaches are subject to metals TMDLs.</p>	<p>This comment is beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to 7.006.</p> <p>See also response to comment 19.017.</p>
19.019	<p><b>VI. Causing or Contributing to a Downstream Reach Cannot be a Justification for Requiring an Upstream Reach that Is Not Subject to a TMDL to be Subject to it Nevertheless</b></p> <p>Both the Los Angeles River and San Gabriel River Metals TMDL extend to reaches that are not 303(d) listed for a metal(s). This is based on the Regional Board's assumption that an upstream reach, which is NOT 303(d) listed for a metal, can be responsible for causing or contributing to a downstream reach which is 303(d) listed for the corresponding metal. Also, the Regional Board asserts that the opposite is true: a downstream reach which is 303(d) listed for metal can somehow extend to an upstream reach. This is course defies the law of gravity. This weird rationale has been applied to Reach 2 and 3 of the San Gabriel River, and Coyote Creek (a tributary thereof); San Jose Creek, Reach 1 and</p>	<p>This comment is beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to 7.006.</p> <p>See also response to comment 19.003.</p>

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	<p>2; Reach 2 of the Rio Hondo and its tributaries; and Los Angeles River Reaches 1 through 6 and its tributaries. For example, Reach 4 of the Los Angeles River is not listed for any metal TMDL on the 2016 303(d) list. Yet, according to the MS4 Permit, Reach 4 is subject to the Los Angeles River metals TMDL. As is the case with the Regional Board's use of CalWQA to determine a TMDL, "causing or contributing" to a downstream or upstream reach impairment is also not a TMDL determinant according to the State's 303(d) policy. Placement on the 303(d) list is solely determined by a certain number of exceedances of water quality criteria based on water quality sampling and analysis.</p>	
19.020	<p><b>Requisite Action:</b></p> <p>By Regional Board Resolution, affirm that any TMDL that appears on the MS4 Permit but is not 303(d) listed is invalid.</p>	<p>This comment is beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to 7.006.</p> <p>See also responses to comment 19.003 and 19.019.</p>
19.021	<p><b>VII. TMDLs Listed in the MS4 Permit But Are Not on the 303(d) list Must be Placed on the Do Not List</b></p> <p>An overwhelming number of TMDLs identified in the MS4 Permit are not 303(d) listed – a fact that was mentioned in 303(d)-related comments submitted to the Los Angeles Regional Board in 2017. Yet the Regional Board ignored that concern. Instead, as mentioned above, it justified the non-303(d) listed TMDLs by: (1) claiming that the CalWQA data base warrants their placement in the MS4 Permit; or (2) that non-303(d) listed reaches are subject to downstream reaches that are 303(d)</p>	<p>This comment is beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to 7.006.</p> <p>See also response to comments 19.003</p>



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	<p>listed for a pollutant based on the assumption that upstream reaches cause or contribute to the impairment of downstream reaches that are 303(d) listed.</p>	
19.022	<p><b>Requisite Action:</b></p> <p>By Resolution, the Regional Board should affirm that only TMDLs that are 303(d) listed are subject to MS4 Permit compliance. The Decision ID fact sheets should, for each invalid TMDL placed in the MS4 Permit, say “do not list.” This would make it clear that affected MS4 Permittees are not subject to TMDLs if they are not 303(d) listed and, therefore, need not continue to spend resources unnecessarily on inapplicable TMDLs. The impacted reaches that should be placed on the 303(d) “do not list” include:</p> <p>Arroyo Seco Reaches 1-3 for copper, lead, zinc, and selenium</p> <ul style="list-style-type: none"> <li>• Reach 1, Rio Hondo for selenium</li> <li>• Reach 2, of the Rio Hondo for copper, lead, zinc, and selenium</li> <li>• Reach 3 of the San Gabriel River for copper, lead, zinc, selenium; and toxicity</li> <li>• Estuary, San Gabriel River for copper</li> <li>• Reach 1, San Gabriel River for copper, selenium, lead, and zinc</li> <li>• Reach 2, San Gabriel River for copper, selenium, and zinc</li> <li>• Reach 1, San Jose Creek for copper, lead, selenium, and zinc</li> <li>• Reach 2, San Jose Creek for copper, lead, selenium, and zinc</li> </ul>	<p>This comment is beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to 7.006.</p> <p>See also response to comments 7.006, 19.003 and 19.009.</p>



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	<ul style="list-style-type: none"> <li>• Reach 1, Los Angeles River for selenium</li> <li>• Reach 2, Los Angeles River for selenium and zinc;</li> <li>• Reach 3, Los Angeles River for lead, selenium, and zinc</li> <li>• Reach 4, Los Angeles River for copper, lead, selenium, and zinc;</li> <li>• Peck Road Park Lake for copper, lead, selenium, and zinc;</li> <li>• Compton Creek for selenium</li> <li>• Coyote Creek for lead, selenium, and zinc</li> </ul>	
19.023	<p><b>IX.TMDLs Based on Water Sampling and Analysis that is More than 4 Years Old Must be Voided</b></p> <p>Many of the TMDLs, based on Decision ID fact sheets, were listed because of dated monitoring data. For example, lead for Reach 2 of the San Gabriel River was listed based on data that originated in 1995 and ended in 2007. Additional monitoring data is reported in the San Gabriel River Metals TMDL adopted by USEPA in 2007. This TMDL determined that future monitoring for metals be ambient-based. Sampling and analysis should be conducted by the Regional Board's SWAMP and in accordance with CTR and the State's 303(d) listing policy. Using dated monitoring data has resulted and will continue to result in MS4 Permittees having to comply with TMDLs that may no longer be warranted.</p>	<p>This comment is beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to 7.006.</p> <p>See also response to comment 19.013. Additionally, there is no provision in the Listing Policy precluding the use of data that is more than 4 years old for assessment. See Section 6.1.5.3 of the Listing Policy for requirements pertaining to the temporal representation of data for use in the Integrated Report.</p>
19.024	<p><b>Requisite Action:</b></p> <p>Regional Board by Resolution void any TMDL that is based on monitoring data that is 4 years old, is</p>	<p>This comment is beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to 7.006.</p>

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	not compliant with CTR, or in keeping with the State's 303(d) listing policy. It should also direct its SWAMP unit to re-commence ambient monitoring of toxics, bacteria, and other pollutants as soon as possible.	See also responses to comments 19.001, 19.007, 19.010 and 19.023.
19.025	All of the metals TMDLs for reaches in Los Angeles County must be voided. It is almost certain that the Regional Board did not evaluate the TMDLs correctly against CTR criteria. Specifically, it did not set WQS based on sampling from ambient receiving waters, nor did it adjust the sampled metals using a real-time hardness value. Just this alone should be sufficient to void each metal TMDL.	This comment is beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to 7.006.  See also responses to comments 19.001 and 19.011.
19.026	The Regional Board must identify which of those TMDLs are not CTR-compliant and notify the impacted cities that they are not subject to them.	This comment is beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to 7.006.  See also response to comment 19.001.
19.027	Beyond this, an overwhelming number of metals were not placed on the 303(d) list yet, the Regional Board imposed them on cities through the 2012 MS4 Permit. The Regional Board must correct this problem by (1) placing the invalid TMDLs on the 303(d) "Do Not List";	This comment is beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to 7.006.  See also responses to comments 19.001 and 19.003.
19.028	(2) notifying the affected cities that they are not required to comply with them (executed by Resolution).	This comment is beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to 7.006.

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		See also response to comment 19.001 and 19.003.
19.029	Further, the Regional Board did not consistently follow the State's 303(d) list development policy. Lead for Compton Creek, for example, was not placed on the 303(d), "Do Not De-List" despite the fact that the 303(d) Decision ID fact sheet indicates that lead should not have been listed. According to the fact sheet, only 1 of 15 samples and 0 of 3 samples for lead exceeded the criteria to determine impairment to a beneficial use and placement on the 303(d) list. Further, the samples were based on wet weather in Compton Creek instead of on its ambient (dry weather) condition.	<p>This comment is beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to comment 7.006.</p> <p>Additionally, the Los Angeles Region was not on-cycle for the 2018 Integrated Report. While the Los Angeles Regional Water Board elected to conduct a limited number of "off-cycle" assessments for the 2018 Integrated Report, the Board did not elect to assess lead data for Compton Creek. The Los Angeles Region will be on-cycle for the 2024 Integrated Report. Refer to the June 29, 2020 Notice of Public Solicitation of Water Quality Data for the 2024 Cycle  <a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/docs/2024_solicitation_notice_final.pdf">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/docs/2024_solicitation_notice_final.pdf</a>. Note that submittals are due at 12:00 p.m. noon on October 16, 2020.</p>
19.030	Beyond this, as mentioned above, USEPA removed lead from CTR for all Los Angeles River reaches, which includes Compton Creek.	<p>This comment is beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to 7.006.</p> <p>See also response to comment 7.002.</p>
19.031	The actions are necessary to spare cities from using General Funds to pay for watershed management programs which were created to comply with TMDLs. As mentioned, Measure W stormwater tax funds are not sufficient to defray the cost of TMDL compliance.	<p>This comment is beyond the scope of the comments the State Water Board will receive for its consideration of the CWA 303(d) list for 2018. See response to 7.006.</p> <p>See also response to comment 19.001.</p>

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19.032	The actions are also necessary to accurately establish WQS for the protection of beneficial uses for receiving waters in Los Angeles County.	Comment noted.

## Letter 20: Emily Jeffers, Center for Biological Diversity

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20.001	The Center submits these comments to the State Water Resources Control Board on the proposed statewide Clean Water Act section 303(d) list of water quality limited segments portion of the 2018 California Integrated Report. The Center submitted data regarding microplastic pollution on May 3, 2017, and submitted a separate letter with data regarding ocean acidification also on May 3, 2017. These letters are attached here and incorporated by reference. The data submitted by the Center indicates that many water bodies are not meeting their designated uses due to impairments from plastic pollution and/or ocean acidification, and highlights the urgent need for the state to reduce plastic pollution and ocean acidification in California's surface waters.	<p>This comment letter was received after the deadline identified in the applicable notice for public comment, but the State Water Board will consider the comment in its consideration of adopting the CWA section 303(d) list for the waters located in the North Coast region and provides the following responses in recognition of remote work challenges associated with the COVID-19 pandemic.</p> <p>See the following responses to comments regarding submitted data and information.</p> <p>The Water Boards are engaged in the following multiple efforts to address the issues of ocean acidification, microplastic and trash pollution in California's marine waters.</p> <p>Ocean acidification, hypoxia and climate change impacts, as well as microplastics and microfibers, are two of the five highest priority issues identified by the 2019 Review of the Water Quality Control Plan for Ocean Waters of California ("Ocean Plan Review").</p> <p>The State Water Board may consider amending the Ocean Plan to address ocean acidification and hypoxia (see Ocean Plan Review, Issue F). In preparation for a potential Ocean Plan amendment, the State Water Board is working with the Ocean Protection Council, the Ocean</p>

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		<p>Science Trust, the Southern California Coastal Water Research Project, and others to better understand questions associated with ocean acidification and hypoxia. This includes development of indicators and thresholds to evaluate ocean acidification.</p> <p>This joint effort also includes assessing sources of ocean acidification and hypoxia, particularly in the Southern California Bight, using a three-dimensional numerical ocean model that assesses atmospheric data, ocean current circulation patterns, and biogeochemical elemental cycling. This model has been developed and calibrated. Over the next two to three years, it will be used to run scenarios to better understand source contributions, including storm water runoff and wastewater discharge sources. The results are expected to inform future standards actions or regulatory requirements, or both.</p> <p>The Ocean Plan Review also ranked microplastics and microfibers as a high priority (See Issue U). An amendment to the Ocean Plan may include developing monitoring methods, monitoring requirements, or adding water quality objectives and implementation provisions.</p> <p>Microplastic pollution is also being investigated through the Recycled Water and the Drinking Water programs. A recent development is the definition of microplastics, which was adopted by the State Water Board on April 7, 2019.</p> <p>The State Water Board is actively updating monitoring programs for constituents of emerging concern (CECs), including microplastics. For more information, see the SWAMP Constituents of Emerging Concern website: <a href="https://www.waterboards.ca.gov/water_issues/programs/swamp/cec_aquatic/">https://www.waterboards.ca.gov/water_issues/programs/swamp/cec_aquatic/</a></p>

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		<p>The Water Boards are an active participant in the Trash Workgroup of the California Water Quality Monitoring Council, which is developing standard methods to assess trash pollution to evaluate the effectiveness of Trash Policy Implementation. The commenter is encouraged to participate in and contribute to these efforts as they move forward.</p>
20.002	<p>The Center reminds the State Board of its obligation to consider all available data in compiling its 303(d) list of impaired waters. 40 C.F.R. § 130.7(b)(5) (“Each State shall assemble and evaluate all existing and readily available water quality related data and information to develop the list.”).</p>	<p>The commenter correctly cites to U.S. EPA regulations that require states to “assemble and evaluate all existing and readily available water quality-related data and information to develop the [303(d) lists].” (40 C.F.R. § 130.7(b)(5)) Section 130.7(b)(6)(iii) continues to explain, however, that a state is not required to use all such data and information where the state provides a rationale for excluding such data.</p> <p>The State Water Board established the Listing Policy to describe the process by which the board and the Regional Water Board will comply with the listing requirements of section 303(d) of the CWA.</p> <p>See also response to comment 5.005 regarding Listing Policy requirements for evaluation of available data and information.</p> <p>In many instances, the data and information submitted or referenced by the commenter is not “readily available” per Section 6.1.1 of the Listing Policy because it was submitted for regions that were “off-cycle.”</p> <p>As described in the applicable November 3, 2016 Data Solicitation Notice, the 2018 Integrated Report will encompass listing recommendations for the on-cycle Regional Water Boards: the North Coast Regional Water Board, the Lahontan Regional Water Board, and the</p>

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		<p>Colorado Regional Water Board. While data pertaining to waters located within the regions of other Regional Water Boards may be submitted, they will not be assessed until the applicable Integrated Report listing cycle, although Regional Water Boards do have the discretion to assess data and information while “off-cycle.”</p> <p>Furthermore, in order to be considered of sufficient quality to be used as a primary LOE to support a 303(d) listing or delisting recommendation, data and information must meet the minimum quality assurance requirements as outlined in Section 6.1.2 (Administration of the Listing Process) and Section 6.1.4 (Data Quality Assessment Process) of the Listing Policy and referenced in the November 3, 2016 Data Solicitation Notice. As described in the responses below, in many instances, the data and information submitted or referenced by the commenter does not meet the requirements of Sections 6.1.2 or 6.1.4 and could not be used to support a 303(d) impairment recommendation for the 2018 Integrated Report.</p> <p>Additional information is provided in the responses below regarding the use of specific data sets and information submitted by the commenter for assessment of ocean acidification, trash, and microplastics pollution.</p> <p>Staff encourages the commenter to re-submit the data in conformance with the requirements Sections 6.1.1, 6.1.2 and 6.1.4 of the Listing Policy, and as specified in the data solicitation notice, for future Integrated Report listing cycles, including data for waters in regions that are off-cycle for the 2018 Integrated Report.</p> <p>Note that readily available data (data submitted in conformance with Section 6.1.1 of the Listing Policy) relevant to waterbodies in the San Francisco Bay Region,</p>

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		<p>Los Angeles Region, and Santa Ana Region will be assembled and evaluated for the 2024 Integrated Report in which those Regional Water Boards are on-cycle. Please resubmit the data for that cycle. Refer to the June 29, 2020 Notice of Public Solicitation of Water Quality Data for the 2024 Cycle  <a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/docs/2024_solicitation_notice_final.pdf">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/docs/2024_solicitation_notice_final.pdf</a>. Note that submittals for the 2024 Integrated Report are due at 12:00 p.m. noon on October 16, 2020.</p> <p>Staff are evaluating readily available data relevant to the waterbodies in the Central Coast Region and San Diego Region that were timely submitted as part of the 2020/2022 cycle.</p>
20.003	<p>Specifically, in its comments, the Center urged the State Water Board to analyze and monitor the following water bodies as they may be threatened or impaired due to ocean acidification:</p> <ul style="list-style-type: none"> <li>a. Hog Island Oyster, North Coast (38.162°N, -122.8939 °W)</li> <li>b. Trinidad Station, North Coast (41.055 °N, -124.14703 °W)</li> <li>c. Indian Island, North Coast (40.81503 °N, -124.15754 °W)</li> <li>d. Humboldt, North Coast (40.7775 °N, -124.19652 °W)</li> <li>e. Tiburon, Central Coast (37.8915 °N, -122.4467 °W)</li> </ul>	<p>The geographic information submitted for stations in the North Coast Region is incomplete and the data do not meet the requirements to be considered of sufficient quality to be used as a primary LOE in assessing water quality attainment, per Listing Policy sections 6.1.2 and 6.1.4.</p> <p>The geographic coordinates for these stations were submitted without datum and do not meet the requirements of section 6.1.2.1 of the Listing Policy which states that “Metadata for any Geographical Information System data must be included. The metadata must detail all the parameters of the projection, including datum.”</p> <p>Additionally, the coordinates for Bodega Rock, Station 65 are provided to only tenth of a decimal degree, which is only accurate to a distance of several miles. This level of accuracy does not meet the spatial representation requirements in Section 6.1.5.2 of the Listing Policy, as it is not possible to determine the area of the Pacific Ocean</p>



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	<p>f. Santa Cruz, Central Coast (36.9603°N, -122.0203 °W)</p> <p>g. Moss Landing (36.8025 °N, -121.7915 °W)</p> <p>h. Monterey Bay (36.61855278°N, -121.901536111 °W)</p> <p>i. Gorda Rock, Station 57 (40.246 °N, -124.384 °W)</p> <p>j. Bodega Rock, Station 65 (38.300 °N, -123.1 °W)</p> <p>k. Off Gorda Rock, Station 61 (40.103 °N, -124.711 °W)</p> <p>l. Off Bodega Bay, Station 69 (37.762 °N, -123.274 °W)</p> <p>m. Off Crescent City, Station 105 (41.96 °N, -124.49 °W)</p>	<p>to which the data apply, if the monitoring location is within three nautical miles of the shoreline (i.e., is a water of the state), or if the location is in the North Coast or San Francisco Bay Regional Water Boards boundary.</p> <p>The Santa Cruz, Moss Landing, and Monterey Bay stations are located within the boundaries of the Central Coast Regional Water Quality Control Board, which is “on-cycle” for the 2020/2022 listing cycle. Data and information properly submitted for the 2020/2022 cycle will be assembled and evaluated.</p> <p>The Tiburon station is located within the boundaries of the San Francisco Bay Regional Water Board, which is not on-cycle until the 2024 listing cycle. Data and information properly submitted for the 2024 cycle will be assembled and evaluated.</p> <p>In addition, three of the stations – Off Crescent City, Station 105; Off Gorda Rock, Station 57; and Off Bodega Bay, Station 69 – are located at a distance greater than three nautical miles beyond the shoreline and are therefore waters outside of the state’s boundaries for which the State Water Board develops its 303(d) list.</p> <p>Additionally, see response to comment 20.002.</p>
20.004	<p>For waters impaired due to plastic pollution, the Center’s comments identified waters of the San Francisco Bay, ocean waters off Santa Cruz, San Clemente, and Santa Catalina Islands, ocean Waters off Sunset Cliffs, San Diego, and ocean waters adjacent to the following North Coast (Region 1) Beaches: MacKerricher State Beach; Ten Mile Beach; Glass</p>	<p>See below for each of the responses regarding data and information submitted regarding plastic pollution in the North Coast Region. Data from waters outside of the North Coast Region will be reviewed for conformance with Listing Policy Section 6.1.1, 6.1.2 and 6.1.4 requirements at the end of the data solicitation period for their respective Integrated Report cycle. See response to comment</p>

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	Beach; Clam Beach; North Jetty Beach; South Jetty Beach; and North and South Salmon Creek Beach.	20.002 for additional information regarding Listing Policy Section 6.1.1, 6.1.2 and 6.1.4 requirements.
20.005	<p>Additionally, the Center emphasized that California must obtain all readily available data on ocean acidification and plastic pollution from sources the Center provided in its letters and consider the attainment status of all of California's relevant water quality standards.</p> <p>In its draft 303(d) list, the State Board has not identified any waters as threatened or impaired due to microplastic pollution or ocean acidification. The Center urges the State Board to examine the data provided in the Center's comments, and reminds the State Board that it may not ignore data before it, nor fail to address relevant information in making its decision regarding which water bodies to include on the 303(d) list. See <i>Brower v. Evans</i>, 257 F.3d at 1067 (agency may not "completely fail[] to address some factor consideration of which was essential to making an informed decision"); <i>Sierra Club v. Hankinson</i>, 939 F. Supp. 865, 870 (N.D. Ga 1996) ("The Court is further concerned with Georgia's apparent failure to use 'all existing readily available water quality-related data and information . . . such as . . . available EPA databases.'"). Best available information, as submitted in our letters and attached, indicates that waters in California must be listed as impaired due to ocean acidification and plastic pollution. The State Board must evaluate the data presented by the Center in comment letters, and provide an explanation as to why it was not sufficient for making an impaired waters listing due to ocean acidification and plastic pollution. 40 C.F.R. § 130.7(b)(5) (duty to evaluate all existing information).</p>	<p>The parenthetical information which the commenter provides for the <i>Brower</i> case is an incomplete excerpt and in its full context pertains to a matter not pertinent here—the limits of deferential review courts give an agency's scientific or technical methodology to fulfill an obligation expressly required of it by statute particularly where the agency's statutory construction is not reasoned. As already discussed, the State Water Board is adhering to the process required by the provisions of the Listing Policy to administer the 2018 CWA section 303(d) list.</p> <p>In the <i>Sierra Club</i> case to which commenter cites, and as pertinent here, the plaintiff sued U.S. EPA under the Administrative Procedures Act alleging its approval of Georgia's 303(d) list was arbitrary and capricious. On review of motions for summary judgment, the court expressed concern that the state failed to evaluate narrative standards and did not consider all existing and readily available data and information. The court could not conclude whether the failure to consider such evidence was arbitrary and capricious as a matter of law.</p> <p>Additionally, regarding the State Water Board's consideration of data referenced in the commenter's letter, see response to comment 20.002. See response to comment 20.003 regarding the assessment of ocean acidification data and the response to comment 20.004 regarding the assessment of plastic pollution data.</p>

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20.006	<p>California should list its marine and fresh waters as impaired as required by section 303(d) of the Clean Water Act because existing pollution controls are insufficient for marine waters to meet the state's water quality standards (33 U.S.C. § 1313(d)).</p>	<p>When the Water Board conducts an evaluation of water quality for the California 303(d) list, data and information that meet the requirements of Section 6.1.1 of the Listing Policy as "readily available" are accepted. The data and information are assessed in conformance with the Data Quality and Data Quantity Assessment Processes described in Sections 6.1.4 and 6.1.5 of the Listing Policy, respectively. If the results of the assessment show that water quality does not meet the applicable water quality standard for a pollutant, the water segment is recommended for listing on the 303(d) list. Section 2 of the Staff Report was revised to clarify this process.</p> <p>All readily available data from marine and fresh waters submitted for the 2018 Integrated Report was assessed per Listing Policy requirements. The Staff Report includes the proposed 303(d) list, which is based on these assessments.</p>
20.007	<p>On its impaired waters list, California must include all water bodies that fail to meet "any water quality standard," including numeric criteria, narrative criteria, water body uses, and antidegradation requirements (40 C.F.R. § 130.7 (b)(1),(3), &amp; (d)(2)).</p>	<p>Comment noted.</p>
20.008	<p>There are several water quality standards that must be used to gauge if waters with plastic pollution are impaired. California's ocean waters are protected for beneficial uses including aesthetic enjoyment; mariculture; preservation and enhancement of designated Areas of Special Biological Significance (ASBS); marine habitat; and shellfish harvesting. (California Ocean Plan ("COP"), § I (A))</p> <p>The following water quality objective applies to California's ocean waters: Trash shall not be present in</p>	<p>See response to comment 20.004 regarding the assessment of plastic pollution data for waters outside of the North Coast Region.</p> <p>See response to comment 20.011 regarding the assessment for waters in the North Coast Region.</p>

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	<p>ocean waters, along shorelines or adjacent areas in amounts that adversely affect beneficial uses or cause nuisance. (COP, § II (C)(5))</p> <p>The following water quality objective applies to California's Inland Surface Waters and Enclosed Bays and Estuaries: Trash shall not be present in inland surface waters, enclosed bays, estuaries [...] in amounts that adversely affect beneficial uses or cause nuisance (Inland Surface Waters and Enclosed Bays and Estuaries Plan. ("ISWEBEP"), § III (A))</p> <p>The nine Regional Water Quality Control Boards ("Regional Boards") in California have developed water quality standards for each region that must be used to gauge if waters contaminated with microplastics pollution are impaired. Applicable beneficial uses to be protected and water quality objectives specific to each region evaluated in this report are detailed in section V below.</p> <p>California has a general policy of water quality antidegradation for high quality waters within its jurisdiction, the purpose of which is to ensure that "existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies." (Statement of Policy with Respect to Maintaining High Quality Waters in California ("Antidegradation Policy"))</p> <p>California must evaluate the attainment status of each of these standards with respect to microplastics</p>	

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	<p>pollution. To do so, California should be evaluating all readily available information about microplastics pollution. There are increasingly comprehensive data sets that contain information on microplastics pollution, and California must evaluate these data to assess its freshwater and marine waters for impairment by microplastics.</p>	
20.009	<p>The commenter provides general information and literature sources defining microplastics and indicating that microplastic pollution is present in oceans around the world; that microplastic pollution is present in birds, turtles, fish, corral, and shellfish; that microplastic pollution causes harm to marine life, and that microplastic pollution can bioaccumulate and potentially harm humans.</p>	<p>The Water Board appreciates comments that provide information to staff and the public about the impacts of microplastics and trash pollution.</p>
20.010	<p>California's marine and fresh waters and beaches are significantly impacted by microplastic pollution and violate numerous water quality standards. The following is a brief summary of studies documenting the presence of microplastics in California:</p> <ol style="list-style-type: none"> <li>1. <u>Sutton et al. 2016</u> - All nine surface samples collected in the San Francisco Bay (Region 2) contained microplastics, with an average concentration of 700,000 microplastics km<sup>-2</sup>. Eight wastewater treatment facilities, representing approximately 60% of treated wastewater flowing into the San Francisco Bay, discharged 56 million microplastic particles per day.</li> <li>2. <u>Adventure Scientists (AS) Global Microplastics Initiative</u> - Dozens of samples collected in surface</li> </ol>	<p>The samples from Sutton et al. (2016) were collected in waters of the San Francisco Bay Region. The samples from Adventure Scientists were collected in marine waters of the Santa Cruz Island in the Central Coast Region, the San Clemente and Santa Catalina Islands in the Los Angeles Region, and Sunset Cliffs in the San Diego Region. These Regional Water Boards were not “on-cycle” for the 2018 Integrated Report. While data for “off-cycle” regions were accepted into CEDEN, the microplastics data will not be assessed until the applicable Integrated Report listing cycle.</p> <p>The Central Coast and San Diego Regional Water Boards are on cycle for the 2020/2022 Integrated Report cycle. Readily available data and information submitted for the 2020/2022 Integrated Report is currently being assessed.</p>

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	<p>marine and freshwaters throughout California contained microplastics. Several locations, including the San Francisco Bay and ocean waters off San Diego, demonstrated elevated concentrations of microplastic pollution (<math>\geq 10</math> microplastics <math>L^{-1}</math>). Several samples were collected in designated Areas of Special Biological Significance, including the Channel Islands National Park.</p>	<p>The San Francisco and Los Angeles Regions are on cycle for the 2024 Integrated Report cycle. The commenter is encouraged to submit the microplastics data to CEDEN for the 2024 Integrated Report cycle.</p>
20.011	<p>The following is a brief summary of studies documenting the presence of plastic trash in California:</p> <p>1. California Coastal Commission Annual Coastal Cleanup Day - Hundreds of volunteers annually collect thousands of pounds of plastic waste—ranging from cigarette butts to balloons, lighters and plastic bottle caps—on numerous beaches on the North Coast (Region 1).</p> <p>*See Appendix A for a summary of micro- and macroplastics data, water bodies to be designated as impaired, and water quality standard violations. These data demonstrate water body impairments that are described below.</p>	<p>The trash was collected during California Coastal Commission Annual Cleanup days at Clam Beach County Park, North Jetty/Samoa Dunes Recreation Area, South Jetty/South Spit, and Trinidad State Beach in Humboldt County; Glass Beach, MacKerricher State Park and Ten Mile Beach in Mendocino County; and North Salmon Creek Beach and South Salmon Creek Beach in Sonoma County.</p> <p>The trash data for the North Coast waters submitted by the commenter were properly submitted in accordance with Section 6.1.1 of the Listing Policy. The trash data were assembled into fact sheets with LOEs, evaluated, and decisions developed. Additionally, Section 3.1.5 was added to the Staff Report to describe the trash data and assessment process.</p> <p>The North Coast Basin Plan designates the beaches listed above with the non-contact recreation (“REC-2”) beneficial use, which is defined as “Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting,</p>

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		<p>sightseeing, or aesthetic enjoyment in conjunction with the above activities.”</p> <p>The California Ocean Plan contains the following narrative water quality objective for trash: “Trash shall not be present in ocean waters, along shorelines or adjacent areas in amounts that adversely affect beneficial uses or cause nuisance.”</p> <p>Section 6.1.3 of the Listing Policy provides guidance for selecting numeric evaluation guidelines to interpret narrative water quality objectives. These requirements specify that the evaluation guidelines must be applicable and 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.</p> <p>For trash data, there is no appropriate interpretive evaluation guideline that meets the requirements set forth in Section 6.1.3 of the Listing Policy for ocean beaches in the North Coast Region. The amount of trash along a beach that would impair aesthetic enjoyment while recreating or would cause a nuisance is subjective without a scientifically-based and peer reviewed threshold above which impacts occur and below which no or few impacts are predicted. Without an appropriate evaluation guideline, it is not possible to determine if the quantity of trash collected on the beaches constitutes an exceedance of the trash water quality objective or impairment of the REC-2 beneficial use of the beaches.</p> <p>However, the presence of trash on the beaches indicates that the REC-2 beneficial use may be potentially threatened. Accordingly, the decisions for these</p>



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		<p>waterbody-pollutant combinations state that beneficial uses are potentially threatened.</p> <p>As a result of the trash assessments, North Jetty/Samoa Dunes, South Jetty/South Spit, Glass Beach, Ten Mile Beach, North Salmon Creek Beach and South Salmon Creek Beach were placed in Integrated Report Condition Category 3. Clam Beach, MacKerricher State Park, and Trinidad State Beach are currently listed on the 303(d) list as impaired for bacteria, and therefore remain in Integrated Report Condition Category 5.</p> <p>The California Water Quality Monitoring Council's Trash Monitoring Workgroup is working to promote implementation and continued refinement of standardized trash monitoring methods. The State Water Board is an active participant in the Trash Monitoring Workgroup. As trash monitoring methods are refined for statewide use, they will be incorporated into trash assessments for future Integrated Report cycles.</p>
20.012 20.013 20.014	<p>The surface waters of San Francisco Bay warrant listing because water samples from Sutton et al. (2016) and Adventure Scientists indicate various water quality violations summarized in Appendix A.</p> <p>First, Sutton et al. (2016) found that eight wastewater treatment facilities discharged an average of 7 million microplastic particles per day into the San Francisco Bay. In total, the eight facilities, representing approximately 60% of treated wastewater flowing into the Bay, discharged 56 million microplastic particles per day (Appendix B).</p> <p>These data indicate San Francisco Bay violates the Bioaccumulation water quality objective set forward by</p>	<p>See response to comment 20.010.</p>



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	<p>the San Francisco Bay Basin (Region 2) Water Quality Control Plan (“Region 2 Plan”), which requires that for the San Francisco Bay basin, “[c]ontrollable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in [...] aquatic life.” (Region 2 Plan, § 3(2)(2))</p> <p>By-catch prey fish, collected by Sutton et al. (2016) in the lower San Francisco Bay contained microplastic in their guts, especially fibers. The tendency for microplastics, including fibers, to concentrate toxic POPs is well documented, and discussed at length above. Various studies have documented elevated levels of POPs on microplastics found on beaches in California (Rios et al. 2007; Van et al. 2012), including in San Francisco (Ogata et al. 2009). Rochman et al. (2013b) showed that fish exposed to microplastics with chemical pollutants sorbed from the marine environment bioaccumulate these chemical pollutants and suffer liver toxicity and pathology. Fish fed virgin microplastics also showed signs of stress (<i>Id</i>). Therefore, the water body in question violates Region 2 Bioaccumulation water quality objective and is impaired. (Region 2 Plan, § 3(2)(2))</p> <p>Second, several samples collected by Adventure Scientists in the central San Francisco Bay contained elevated concentrations of microplastic pollution (<math>\geq 10</math> microplastics <math>L^{-1}</math>) (Figure 1; Appendix B). Samples from Adventure Scientists that fall within State waters must be considered. All nine surface samples from Sutton et al. (2016) in the central, lower, and south San Francisco Bay contained microplastics at concentrations greater than 14,000 microplastics <math>km^{-2}</math> (Figure 2). The samples showed an average microplastic abundance of 700,000 microplastics <math>km^{-2}</math>,</p>	

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	<p>indicating Bay surface waters have higher microplastic levels than other urban water bodies sampled in North America, such as the Great Lakes and Chesapeake Bay (Eriksen et al. 2013; Yonkos et al. 2014).</p> <p>These data indicate that the surface waters of the central San Francisco Bay are in violation of the San Francisco Bay Basin Toxicity water quality objective which states that, for the San Francisco Bay basin, “[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms. Detrimental responses include, but are not limited to, decreased growth rate and decreased reproductive success of resident or indicator species.” (Region 2 Plan, § 3(3)(17))</p> <p>The concentrations of microplastics measured in San Francisco Bay are at levels that have detrimental effects on aquatic organisms. Microplastics in excess of 10 microplastics L<sup>-1</sup> are known to harm fish. Lönnstedt and Eklöv (2016) demonstrated how exposure to 10 microplastics L<sup>-1</sup>—similar concentrations to those found in the central San Francisco Bay by Adventure Scientists—inhibited hatching of European perch (<i>Percea fluviatilis</i>) larvae, altered feeding rates, and increased predator-induced mortality rates. Data presented here indicate fishes in the waters of the San Francisco Bay, including the shiner perch (<i>Cymatogaster aggregata</i>), are likely to encounter concentrations of microplastics that could potentially negatively influence their larval ecology.</p> <p>Several other studies have demonstrated how environmentally relevant concentrations of microplastics negatively impact marine fauna. For</p>	

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	<p>example, Green (2016) demonstrated how microplastic concentrations of 80 µg L<sup>-1</sup> harmed a variety of marine benthic organisms including periwinkles, isopods, and clams in lower intertidal to shallow subtidal zones on temperate beaches, indicating that numerous species of marine life in the Bay are likely to encounter deleterious concentrations of microplastics. The water body in question violates Region 2 Toxicity water quality objective and is impaired. (Region 2 Plan, § 3(3)(17))</p> <p>Microplastics concentrations recorded in San Francisco Bay by Adventure Scientists meet the detrimental concentration level, and the Sutton et al. (2016) data corroborate high concentrations of microplastics in the Bay. A comparison of microplastic sampling methodologies by Barrows et al. (2016) found the methods employed by Adventure Scientists (grab sampling) generally capture over three orders of magnitude more microplastic per volume of water than when using sampling methods similar to Sutton et al. (2016) (net trawling). Consequently, microplastic concentrations found by Sutton et al. (2016) likely substantially underestimate the extent of microplastic pollution in the lower and south Bay. Considering this, the surface waters of the lower and south San Francisco Bay are also in violation of the Region 2 Toxicity water quality objective and need to be listed as impaired. (Region 2 Plan, § 3(3)(17))</p>	
20.015	<p>Third, the data of Sutton et al. (2016) and Adventure Scientists indicate surface waters of the central, lower and south San Francisco Bay are in violation of the Region 2 Floating Material water quality objective which states that, for the San Francisco Bay basin, “[w]aters shall not contain floating material, including solids [...] in</p>	<p>See responses to comment 20.010.</p>

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	<p>concentrations that cause nuisance or adversely affect beneficial uses.” (Region 2 Plan, § 3(3)(6)) Protected Region 2 beneficial uses include Commercial and Sport Fishing, Estuarine Habitat, Shellfish Harvesting, Fish Spawning, and Wildlife Habitat. (Region 2 Plan, § 2(1)(4),(5),(17),(18),(20))</p> <p>Microplastics prevalent on beaches in San Francisco exhibit elevated levels of persistent organic pollutants including DDT (Ogata et al. 2009). Evidence suggests plastics and associated adsorbed pollutants are capable of bioaccumulating and pose an increasing ecological threat to marine organisms, including commercially harvested fish and shellfish (Rochman et al. 2013b; Rochman et al. 2015) as well as humans (reviewed by: Chae &amp; An 2017). Data presented here indicate fishes and shellfish in the San Francisco Bay are likely to encounter concentrations of microplastics that could potentially negatively influence their ecology.</p> <p>Additionally, Green (2016) illustrates how repeated exposure to high concentrations of microplastics can alter assemblages in marine habitat by reducing abundance of benthic fauna. Surface waters of the San Francisco Bay therefore violate the Region 2 Floating Material water quality objective (Region 2 Plan, § 3(3)(6)) which protects beneficial uses including Commercial and Sport Fishing, Estuarine Habitat, Shellfish Harvesting, Fish Spawning, and Wildlife Habitat. (Region 2 Plan, § 2(1)(4),(5),(17),(18),(20))</p>	
20.016 20.017	<p>Fourth, the central, lower, and south San Francisco Bay are not in compliance with the ISWEBEP Trash water quality objective which states “[t]rash shall not be present in inland surface waters, enclosed bays,</p>	See response to comment 20.010.

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20.018	<p>estuaries [...] in amounts that adversely affect beneficial uses [...]” (ISWEBEP, § III (A))</p> <p>The State Water Board must also consider whether data from Adventure Scientists and Sutton et al. (2016) indicate that the central, lower, and south San Francisco Bay violate protected Region 2 beneficial uses including Commercial and Sport Fishing, Estuarine Habitat, Fish Migration, Shellfish Harvesting, Fish Spawning, and Wildlife Habitat. (Region 2 Plan, § 2(1)(4),(5),(10),(17),(18),(20))</p> <p>Finally, the State Water Board must consider whether the data presented above indicate non-compliance with the State’s Antidegradation Policy, which maintains that “any change [...] will not unreasonably affect present and anticipated beneficial use.” Beneficial uses adversely affected by plastic pollution, as argued above, include Commercial and Sport Fishing, Estuarine Habitat, Shellfish Harvesting, Fish Spawning, and Wildlife Habitat. (Region 2 Plan, § 2(1)(4),(5),(10),(17),(18),(20))</p>	
20.019	<p>The ocean waters surrounding both Santa Cruz and San Clemente Islands are polluted with microplastics at concentrations of 2 microplastics L<sup>-1</sup> and 1 microplastic L<sup>-1</sup> respectively, as reported by Adventure Scientists (Appendix B). Ocean waters surrounding both Santa Cruz and San Clemente Islands are considered Areas of Special Biological Significance (ASBS) by the State (ASBS # 17 and 23, respectively). The presence of microplastic in ocean waters surrounding these islands (Figure 1) violates the beneficial use of the COP which protects the “preservation and enhancement of the Areas of Special Biological Significance.” (COP, § I (A))</p>	<p>Santa Cruz and San Clemente Islands are in the Central Coast and Los Angeles Regions, respectively. With regards to the applicability of data collected in these regions to the 2018 Integrated Report, see response to comment 12.010.</p>

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20.020	<p>Additionally, an ocean surface sample from Law et al. (2014) just outside the boundary of ASBS #28 (Santa Catalina Island - Subarea Four) exhibited a concentration of 3,600 microplastics km<sup>-2</sup> (Appendix B). Considering the close proximity of this sample to ASBS #28 (Figure 1), it is reasonable to conclude that the waters within ASBS #28 also contain measurable levels of microplastic. The State Water Board must consider the data from Law et al. 2014 (the sample is within State ocean waters) and evaluate whether ocean waters within ASBS #28 violate the COP beneficial use protecting the preservation and enhancement of ASBS. (COP, § I (A))</p>	<p>See response to comment 20.010.</p> <p>Note also that a single sample would not satisfy the two-sample minimum required to make a recommendation to list a water segment for toxicants in water, as described in section 3.1 of the Listing Policy.</p>
20.021 20.022	<p>The State Water Board must also consider whether the ocean waters off Santa Cruz, San Clemente and southwest Santa Catalina Islands are in violation of other protected State ocean water beneficial uses including aesthetic enjoyment, mariculture, marine habitat, and shellfish harvesting. (COP, § I (A))</p> <p>The State Water Board must finally consider whether the data presented above indicate non-compliance with the State's Antidegradation Policy, which protects present beneficial uses including aesthetic enjoyment, mariculture, marine habitat, and shellfish harvesting. (COP, § I (A))</p>	<p>See responses to comment 20.010.</p>
20.023	<p>An ocean surface sample collected by Adventure Scientists in the coastal waters of San Diego contained a concentration of 14 microplastics L<sup>-1</sup> (Figure 1; Appendix B). Lat/Long coordinates of the sample indicate it was collected within state ocean waters. The ocean surface waters off San Diego therefore violate the COP beneficial uses which protect fish spawning,</p>	<p>See response to comment 20.010 and 20.020.</p>

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	shellfish harvesting, mariculture, commercial and sport fishing, and marine habitat. (COP, § I (A))	
20.024	Plastics prevalent on beaches in San Diego exhibit elevated levels of a variety of persistent organic pollutants (Van et al. 2011). A quickly growing body of evidence suggests plastics and associated adsorbed pollutants are capable of bioaccumulating and pose an increasing ecological threat to marine organisms as well as humans (reviewed by: Chae & An 2017).	See response to comment 20.009.
20.025	As discussed previously, Lönnstedt and Eklöv's groundbreaking work (2016) demonstrates how environmentally relevant levels of microplastic particles ( $10 \text{ L}^{-1}$ ) are capable of inhibiting hatching of larvae, altering feeding rates, and increasing predator-induced mortality rates in European perch ( <i>Percea fluviatilis</i> ). Data presented here indicate fishes in the waters of San Diego, including several species off surfperch, are likely to encounter concentrations of microplastics that could potentially negatively influence their reproduction and early development.	See response to comment 20.009.
20.026	As mentioned above, various species of shellfish, including the blue mussel ( <i>Mytilus edulis</i> ), native to San Diego, have been shown to ingest microplastics which may persist in their circulatory system for over 48 days despite transfer to clean water (Brown et al. 2008). A third of shellfish found in seafood markets in California contained anthropogenic debris, primarily in the form of microplastics (Rochman et al. 2015), and European researches found microplastics present in two bivalve species cultured for human consumption (Van Cauwenberghe & Janssen 2014). Taken together, the studies mentioned above in conjunction with data from Adventure Scientists demonstrate that shellfish in San	See response to comment 20.010.

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	<p>Diego are likely encountering concentrations of microplastics that could potentially negatively impact their growth and ecology, and humans ingesting shellfish collected from the region are likely being exposed to microplastics and associated pollutants.</p>	
20.027	<p>Choy and Drazen (2013) found that 19% of pelagic game fish sampled in the North Pacific had ingested plastic. Approximately a quarter of fish sold at markets in California for human consumption had ingested anthropogenic debris, primarily in the form of microplastics and microfibers from textiles (Rochman et al. 2015). Rochman et al. (2013b) demonstrated how chemical pollutants sorbed from the marine environment, as well as hazardous chemicals from the material itself can transfer from microplastic particles to the tissue of fishes and bioaccumulate, inducing liver toxicology and pathology.</p>	<p>See response to comment 20.009.</p>
20.028	<p>Additionally, the work of Green (2016) illustrates how microplastic concentrations of 80 µg L<sup>-1</sup> are capable of harming a variety of marine organisms, indicating that repeated exposure to high concentrations of microplastics could alter assemblages in marine habitat by reducing abundance of benthic fauna. Therefore, ocean surface waters off San Diego violate the COP beneficial uses protecting fish spawning, shellfish harvesting, mariculture, commercial and sport fishing, and marine habitat. (COP, § I (A))</p>	<p>See response to comment 20.009. Also note that the 2016 paper by Green that is referenced pertains to European flat oysters (<i>Ostrea edulis</i>), a northern Atlantic species, and the study was conducted in Northern Ireland. The results may overestimate or underestimate effects of microplastics to similar species in warmer waters near San Diego.</p>
20.029 20.030	<p>The State Water Board must also consider whether the microplastic data from Adventure Scientists indicate that coastal waters off San Diego violate protected State ocean water beneficial uses including aesthetic enjoyment. (COP, § I (A))</p>	<p>See response to comment 20.010.</p>



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	<p>Lastly, the State Water Board must consider whether the elevated concentrations of microplastics found in ocean waters off San Diego violate the State's Antidegradation Policy which protects present beneficial uses. Beneficial uses adversely impacted by microplastic pollution, as argued above, include shellfish spawning, shellfish harvesting, mariculture, commercial and sport fishing, and marine habitat. (COP, § I (A))</p>	
<p>20.031 20.032</p>	<p>The ocean waters off MacKerricher State Beach, Ten Mile Beach, Glass Beach, Clam Beach, North Jetty Beach, South Jetty Beach, Doran Park Beach, and North and South Salmon Creek Beach warrant listing (Figure 1). Multi-year beach cleanup data (Table 1; Appendix B) demonstrate the beaches violate the COP Trash provision which states: "[t]rash shall not be present in ocean waters, along shorelines or adjacent areas in amounts that adversely affect beneficial uses or cause nuisance." (COP, § II (C)(5)) Beneficial uses that must be protected include aesthetic enjoyment. (COP, § I (A))</p> <p>Coastal cleanup data reveal that multiple beaches along the North Coast (Region 1) are inundated with significant amounts of visually offensive plastic trash (Appendix B). For example, an average of 415 pounds of trash was collected annually at North Jetty Beach in Humboldt County by volunteers from 2010-2015 (Table 1). Trash collected included, but was not limited to: plastic grocery bags, cigarette butts, food wrappers, take-away food containers, plastic bottle caps, plastic beverage bottles, lighters, fishing line, and tires. Numerous large, identifiable pieces of trash on any beach are certainly offensive to the sense of sight and inhibit aesthetic enjoyment when sunbathing,</p>	<p>See response to comment 20.011</p> <p>Note that the data submission did not include beach cleanup data from Doran Park Beach. Beach cleanup data was submitted for MacKerricher State Beach, Ten Mile Beach, Glass Beach, Clam Beach, North Jetty Beach, South Jetty Beach, North Salmon Creek Beach, South Salmon Creek Beach, and Trinidad Beach.</p>

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	<p>beachcombing, camping, sightseeing, and studying tide-pool marine life. The recurrence of trash on North Jetty Beach, and on the other beaches listed above, year after year shows that the adjacent waters are polluted. The ocean waters off these beaches therefore violate the COP aesthetic enjoyment beneficial use (COP, § I (A)) and should be listed as impaired.</p>	
20.033	<p>Plastic trash including straws, plastic bottle caps, and grocery bags collected from Trinidad State Beach in Humboldt County suggests that adjacent waters violate the beneficial use that protects the preservation and enhancement of ASBS (COP, § I (A)); waters immediately off Trinidad State Beach are within a mile of ASBS #6 (Trinidad Head). It is reasonable to conclude that the waters within ASBS #6 also contain measurable levels of plastic trash. The State Water Board must evaluate whether the presence of plastic trash on shorelines in close proximity to ASBS #6 violate the COP beneficial use protecting ASBS. (COP, § I (A))</p>	<p>Section 6.1.5.2 of the Listing Policy discusses spatial representation and states that samples should be representative of the waterbody segment. Evaluating waters one mile away from a sample site is inconsistent with those Listing Policy requirements.</p> <p>The source of the trash collected on Trinidad State Beach or other ocean beaches is unknown. The trash may have been transported from the upstream watershed, been deposited on the beach by beachgoers, or washed ashore from ocean waters. It is not scientifically defensible to infer presence of trash in waters spatially distant from the actual sample location.</p> <p>Trash data from Trinidad State Beach was collected during one sampling event on September 19, 2014. Section 6.1.5.3 of the Listing Policy discusses spatial representation and states: "If the majority of samples were collected on a single day or during a single short-term natural event (e.g., a storm, flood, or wildfire), the data shall not be used as the primary data set supporting the listing decision."</p>
20.034	<p>The State Water Board must also evaluate whether waters adjacent to Trinidad State Beach violate the COP Trash provision (COP, § II (C)(5)) which states that trash may not be present in amounts on shorelines</p>	<p>See responses to comment 20.011 and 20.033.</p>

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	that adversely affect beneficial uses, including aesthetic enjoyment. (COP, § I (A))	
20.035	The waters off all beaches listed above must also be evaluated under COP water quality objectives including Floating Particulates (COP, § II (C)(1)) and beneficial uses (COP, § I (A)).	See response to comment 20.011 for a discussion of the assessment of trash data for North Coast ocean beaches. See response to comment 20.033 regarding why it is inappropriate to evaluate ocean waters using beach trash data.
20.036	<p>Lastly, the State Water Board must consider whether the data from the California Coastal Commission presented above indicate non-compliance with the State's Antidegradation Policy, which protects present beneficial uses. Beneficial uses potentially impacted by plastic trash include shellfish spawning, shellfish harvesting, mariculture, commercial and sport fishing, and marine habitat. (COP, § I (A))</p> <p>Data from studies that are conducted within California State waters and along shorelines or adjacent areas must be considered. A selection of data compiled by C. Box of the 5 Gyres Institute demonstrate significant levels of microplastic pollution on beaches throughout the San Francisco Bay (Region 2)(Appendix B). High volumes of microplastics on beaches indicate elevated concentrations of microplastics in adjacent waters (e.g. Wessel et al. 2016), suggesting waters off the beaches listed in Appendix B may be impaired. Ocean waters adjacent to these beaches should be evaluated for violation of the State's Trash provision for ocean waters (COP, § II (C)(5)). Inland surface waters, enclosed bays, and estuaries adjacent to these beaches should also be evaluated for violation of the ISWEBEP Trash water quality objective. (ISWEBEP, § III (A)) Beneficial uses that must be protected include fish spawning, shellfish harvesting, mariculture, commercial and sport</p>	See responses to comment 20.008 and 20.010.

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	<p>fishing, and marine habitat. (COP, § I (A)), as well as Commercial and Sport Fishing, Estuarine Habitat, Shellfish Harvesting, Fish Spawning, and Wildlife Habitat. (Region 2 Plan, § 2(1)(4),(5),(17),(18),(20))</p> <p>The State Water Board must also evaluate whether the waters off these beaches violate the State's Antidegradation Policy.</p> <p>We urge the State Water Board to identify as impaired the specific water bodies identified in this letter.</p>	
20.037	<p>The State Water Board must consider all readily available data on the impacts of microplastics on the State of California's waters for its water quality assessment and consider the attainment status of all of California 's relevant water quality standards.</p>	<p>See response to comment 20.002.</p>
20.038	<p>Additionally, due to the unique properties of microplastics, the State Water Board should adopt a water quality criterion particular to microplastics.</p>	<p>See response to comment 20.001.</p>
20.039	<p>A criterion of “less than one item of microplastic (<math>\leq 5\text{mm}</math>) <math>\text{m}^{-2}</math> for sediments or <math>\text{m}^{-3}</math> in the water column and no more than one synthetic fiber <math>50\text{ mL}^{-1}</math> sediment for subtidal sediments” is appropriately based upon the measurement standards noted by Hidalgo-Ruz et al. (2012).</p>	<p>Comment noted.</p>
20.040	<p>Finally, we urge the state to improve its own monitoring program so that it can detect microplastics-related water quality problems.</p>	<p>See response to comment 20.001.</p>

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20.041	<p>On behalf of the Center for Biological Diversity (The Center), I submit this letter to the State Water Resources Control Board (State Water Board) to request that the effects of ocean acidification should be analyzed in water bodies across California, and specifically the north coast region. California's coastal and estuarine waters are affected by increasing acidity due to atmospheric carbon dioxide deposition and local contributions. Ocean acidification should be explicitly acknowledged in the 2018 integrated report and objectives for beneficial uses should include mitigation for ocean acidification.</p>	<p>See response to comment 20.001.</p>
20.042	<p>Coastal, estuarine, and bay waters across the California north coast are already experiencing the harmful effects of ocean acidification. Increasing concentrations of atmospheric carbon dioxide and the contribution of coastal pollution, sedimentation, and inadequate watershed management can substantially amplify the fluctuating pH conditions in waters of California's north coast making them more acidic and highly vulnerable to ocean acidification.</p> <p>Strong scientific evidence shows that growth, survival, and behavioral changes in marine species are can be linked to ocean acidification. Increases of atmospheric carbon dioxide (CO<sub>2</sub>), due to human activities, increases the uptake of CO<sub>2</sub> into the oceans making coastal and estuarine waters more acidic by decreasing the pH. Acidic conditions along the California's north coast have already impaired the survival and growth of calcifying organisms such as oysters, mussels, scallops, pteropods, and bryozoans. These adverse effects can extend throughout the food webs, threatening the functioning of coastal and estuarine ecosystems, and affecting fisheries and human</p>	<p>The State Water Board appreciates comments that provide information to staff and the public about the increasing impacts of ocean acidification.</p> <p>See also response to comment 20.001 for efforts being taken by the Water Boards. See response to comment 20.057 regarding the assessment process for ocean acidification in California's marine waters.</p>

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	<p>communities. There is strong scientific evidence that ocean acidification directly affects shellfish and other marine groups compromising growth, survival, reproduction, and metabolism. Ocean acidification can also amplify the toxicity of harmful algal blooms, impair fish behavior, affect shellfish's taste, and affect prey source and distribution of fish and marine mammals. California must analyze data and information on ocean acidification to determine whether they are threatened or impaired.</p>	
20.043	<p>The California's State Water Board should list water bodies already affected by ocean acidification in the 2018 integrated report. Specifically, beneficial uses, numeric and narrative standards, and antidegradation standards must be met to avoid an impaired water listing.</p>	<p>See response to comment 20.042.</p>
20.044	<p>Specifically, the Center urges the State Water Board to analyze and monitor the following water bodies as they may be threatened or impaired due to ocean acidification:</p> <ul style="list-style-type: none"> <li>a. Hog Island Oyster, North Coast (38.162°N, -122.8939 °W)</li> <li>b. Trinidad Station, North Coast (41.055 °N, -124.14703 °W)</li> <li>c. Indian Island, North Coast (40.81503 °N, -124.15754 °W)</li> <li>d. Humboldt, North Coast (40.7775 °N, -124.19652 °W)</li> <li>e. Tiburon, Central Coast</li> </ul>	<p>See response to comment 20.003.</p>

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	<p>(37.8915 °N, -122.4467 °W)</p> <p>f. Santa Cruz, Central Coast (36.9603°N, -122.0203 °W)</p> <p>g. Moss Landing (36.8025 °N, -121.7915 °W)</p> <p>h. Monterey Bay (36.61855278°N, -121.901536111 °W)</p> <p>i. Gorda Rock, Station 57 (40.246 °N, -124.384 °W)</p> <p>j. Bodega Rock, Station 65 (38.300 °N, -123.1 °W)</p> <p>k. Off Gorda Rock, Station 61 (40.103 °N, -124.711 °W)</p> <p>l. Off Bodega Bay, Station 69 (37.762 °N, -123.274 °W)</p> <p>m. Off Crescent City, Station 105 (41.96 °N, -124.49 °W)</p>	
20.045	<p>Additionally, California must further obtain all readily available data on ocean acidification from sources listed in this letter (below) and analyze them for its water quality assessment.</p>	<p>See response to comment 20.002.</p>
20.046	<p>California may not ignore its duties under the Clean Water Act to solicit and consider ocean acidification data and information during its biennial water quality assessments. Not only does the Clean Water Act section 303(d) mandate that states must list waters that</p>	<p>See response to comments 20.001 and 20.002.</p>

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	<p>are not meeting water quality standards as impaired, but also EPA has directed states to do so (EPA 2010).</p> <p>California's State Water Board can address ocean acidification in regional waters through the Clean Water Act. Under the Clean Water Act and EPA's mandate, the state has the authority and duty to identify waters impaired by ocean acidification. Impaired waters listing can help with local management, control local sources of pollution, and even address cross-border sources of pollution that contribute to acidification. It is not unique for water pollution to have sources that are not confined to one region or state, and the Clean Water Act has already grappled with downstream and cross-border pollution<sup>1</sup>. There is also a precedent and guidance for addressing atmospheric deposition as a source of water pollution under section 303(d).<sup>2</sup></p> <p>EPA's (2010) memorandum instructs that states should list waters not meeting water quality standards, including marine pH water quality standards, and should solicit existing and readily available information on ocean acidification using the current 303(d) listing framework. EPA also recommended that states:</p> <ul style="list-style-type: none"> <li>(1) request and gather existing data related to ocean acidification, including temperature, salinity, dissolved oxygen, nitrate, total alkalinity, and pH;</li> <li>(2) develop assessment methods for evaluating impacts of ocean acidification on marine waters based on existing pH and biological water quality criteria;</li> <li>(3) track the progress of federal efforts to develop assessment and monitoring methods;</li> </ul>	



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	<p>(4) develop bio-assessment methods and/or bio-criteria to reflect ocean acidification impacts;</p> <p>(5) and include in their Integrated Report methodology a description of how they consider available ocean acidification data and information for assessment decisions.</p> <p>In this letter we show that ocean acidification is already impacting California's coastal, bay, and estuarine waters and its negative effects will only grow more severe with business-as-usual greenhouse emission scenarios. Thus, the Center urges the State Water Board to analyze readily available data and assess its coastal, bay and estuarine waters to identify threatened and impaired waters due to ocean acidification under section 303(d) of the Clean Water Act.</p> <p>Footnote 1: See e.g., <i>Arkansas v. Oklahoma</i>, 503 U.S. 91 (1992) (EPA has clear authority to require a discharge permit to comply with a downstream state's water quality standards); <i>Milwaukee v. Illinois</i>, 451 U.S. 304 (1981) (Milwaukee's battle with Illinois over sewage discharges into Lake Michigan); <i>Gulf Restoration Network v. Jackson</i>, 2013 U.S. Dist. LEXIS 134811 (E.D. La. 2013) (concerning EPA authority to set water quality standards for multiple states whose runoff contributes to the Gulf of Mexico dead zone).</p>	
20.047	<p>The California must identify waters impaired by ocean acidification as required by section 303(d) of the Clean Water Act because existing pollution controls are insufficient for waters to meet the state marine water quality objectives.<sup>3</sup> California must include all water</p>	<p>See responses to comments 20.001, 20.002, and 20.057.</p>

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	bodies that fail “ <i>any water quality objectives</i> ” including numerical, narrative, and anti-degradation criteria. Below is a summary of water quality standards for the state of California applicable to the north coast region.	
20.048	<b>Beneficial uses:</b> “The beneficial uses of the ocean waters of the State that shall be protected include industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designated Areas of Special Biological Significance (ASBS); rare and endangered species; marine habitat; fish migration; fish spawning and shellfish harvesting.” <sup>4</sup>	Comment noted.
20.049	<b>Numerical objectives:</b> “The pH shall not be changed at any time more than 0.2 units from that which occurs naturally” (California Ocean Plan, Water Quality Objectives, Chemical Characteristics, Section II.D.2).. The national recommended water quality criteria for marine waters states that the pH shall fall between 6.5 and 8.5 units. The North Coast basin plan states that “The pH shall not be changed at any time more than 0.2 units” for coastal waters.” <sup>5</sup>	Comment noted.
20.050	<b>Biological objectives):</b> “Marine communities, including vertebrate, invertebrate, algae, 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 (California Ocean Plan, Water Quality Objectives, Biological Characteristics, Section II.E.1 and 2).	Comment noted.
20.051	<b>Antidegradation policy:</b> California’s antidegradation policy requires continued maintenance of existing high quality. Whenever the existing quality of water is better	Comment noted.

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	that the quality of water established in the Ocean Basin Plan as objectives (both narrative and numerical), such existing quality shall be maintained unless appropriate findings are made under the policy.	
20.052	California must evaluate the attainment status of each water body against each of these standards with respect to ocean acidification. Moreover, if the water quality standards are not being attained, and “ <i>the source-stressor is unknown (e.g., carbon deposition, nutrient enrichment, industrial discharge, natural background, etc.), then EPA expects the segment to be listed</i> ” (EPA 2010).	<p>See response to comment 2.006 regarding the data assessment process.</p> <p>See response to comment 20.057 regarding the assessment process for ocean acidification in California’s marine waters.</p>
20.053	California must evaluate all readily available parameters related to ocean acidification. There are increasingly important high-resolution data sets that contain information on ocean acidification (see below). Thus, the state must evaluate these data to determine how they differ from natural conditions and assess its coastal waters for impairment by ocean acidification.	See response to comment 20.002.
20.054 20.055 20.056	The commenter provided general information and literature sources indicating that ocean acidification harms marine life (e.g., impairs capacity of organisms to produce shells and skeletons), that California waters are vulnerable to ocean acidification, that models predict future ocean acidification impacts and climate change will exacerbate impacts, and that shellfish in California are especially vulnerable. The commenter also provides information regarding the linkage of aragonite saturation to shell dissolution and states that local anthropogenic sources contribute to ocean acidification and should be addressed.	<p>The State Water Board appreciates comments that provide information to staff and the public about the impacts of ocean acidification.</p> <p>See also response to comment 20.001 for efforts being taken by the Water Boards. See response to comment 20.057 regarding the assessment process for ocean acidification in California’s marine waters.</p>

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20.057	<p>Ocean acidification in California coastal waters is already affecting important shelled organisms such as pelagic pteropods (Ohman et al. 2009; Bednaršek et al. 2014; Bednaršek &amp; Ohman 2015; Bednaršek et al. 2016, 2017). Pteropods are small sea snails that use the aragonite form of calcium carbonate to secrete their spiral shells (Bednaršek et al. 2012b). Pteropods may be the best indicator for water impairment due to their striking vulnerability to ocean acidification (Bednaršek et al. 2012b; Stanford's Woods Institute for the Environment et al. 2016; Weisberg et al. 2016; Bednaršek et al. 2017). These mollusks are among the calcifier groups most sensitive to declines of aragonite saturation conditions because their delicate aragonite shells (Comeau et al. 2012; Lischka &amp; Riebesell 2012; Bednaršek et al. 2016). In fact, in-life dissolution of pteropods-shells fossil can be used as an indicator of past ocean carbonate saturation conditions (Wall-Palmer et al. 2013). In the California Current Ecosystem, pteropods are already impacted by ocean acidification with reduction in abundance and signs of shell damages due to more acidified waters (Bednaršek et al. 2014; Bednaršek &amp; Ohman 2015). For example, sampling studies along the Washington-Oregon-California coast showed that on average, severe dissolution is found in 53 % of onshore pteropods and 24 % of offshore individuals due to undersaturated</p>	<p>Establishment of a numeric evaluation guideline to assess ocean acidification for the Integrated Report in California continues to evolve. Currently, there is no numeric evaluation guideline available for ocean acidification assessments that meets the requirements of Section 6.1.3 of the Listing Policy.</p> <p>While an aragonite saturation state of 1.1 to 1.3 is offered as a numeric evaluation guideline associated with stress and higher energy consumption in pteropods (Bednaršek et al. 2017<sup>2</sup>), a more recent paper by the same lead author (Bednaršek et al. 2019<sup>3</sup>) identifies aragonite saturation states that range from 1.5 to 0.9 as early warning to lethal impacts.</p> <p>In addition to efforts described in response to comment 20.001, the Water Boards are currently working directly with the Southern California Coastal Water Research Project and the Ocean Protection Council to determine if aragonite saturation is the most appropriate indicator of degraded marine communities and to determine the range above which impacts occur and below which no or few impacts are predicted. In other words, the research will hopefully lead to numeric evaluation guidelines that are scientifically rigorous and sensitive enough to identify ocean acidification impairments at a geographical scale (water segment) appropriate for the Integrated Report. The research may also lead to the development of numeric</p>

<sup>2</sup> Bednaršek N, Klinger T, Harvey CJ, Weisberg S, McCabe RM, Feely RA, Newton J, Tolimieri N. 2017. New ocean, new needs: Application of pteropod shell dissolution as a biological indicator for marine resource management. *Ecological Indicators* **76**:240–244.

<sup>3</sup> Bednaršek, N. *et al.* 2019. Systematic Review and Meta-Analysis Toward Synthesis of Thresholds of Ocean Acidification Impacts on Calcifying Pteropods and Interactions with Warming. 6 *Frontiers in Marine Science* 16pp (May 2019).

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	<p>waters in the top 100 m with respect to aragonite (Bednaršek et al. 2014).</p> <p>Field studies have demonstrated that pteropod's shell exhibit increasing dissolution as aragonite saturation (<math>\Omega</math>) declines below 1.3 (Bednaršek &amp; Ohman 2015) and extensive dissolution (e.g., 30-50% shell surface area) in areas where aragonite saturation state is below 1.0 (Bednaršek et al. 2012a; Bednaršek &amp; Ohman 2015). Values of <math>\Omega</math> aragonite from 1.1 to 1.3 causes stress in pteropods and calcification is maintained at the expense of higher energy consumption (Bednaršek et al. 2017). At values below <math>\Omega</math> aragonite = 1.1 extensive shell dissolution and irreparable damage is often observed (Bednaršek et al. 2017) (Fig. 3). This highlights how aragonite saturation state is an important proxy to directly detect the impacts of ocean acidification on these organisms and how water quality standards must include this parameter. Pteropods are so sensitive to acidic waters that their vertical distribution track changes in water chemistry in the southern California Current System (Bednaršek &amp; Ohman 2015). As aragonite saturation horizon (<math>\Omega</math> aragonite = 1.0) shoals (from &gt;100 m to &lt;75 m deep) pteropod abundance declines at depth below 100 m where waters are less saturated with respect to aragonite. In addition, severe shell dissolution is observed at depths where <math>\Omega</math> aragonite equals 1.1 to 1.4 (Bednaršek &amp; Ohman 2015). This dynamic in pteropod abundance due to change in sea water chemistry can directly affect those species that feed on them (Doubleday and Hopcroft 2015).</p> <p>Vertical distribution of pteropods is already affected by ocean acidification which may have important consequences for the species that feed on them.</p>	<p>water quality objectives, which would be considered through a rulemaking, standards process. The research is expected to be completed in the next two to three years.</p> <p>Although the Water Boards are actively working to develop assessment methods to interpret the Ocean Plan's narrative water quality objective that marine communities shall not be degraded, in the absence of a numeric evaluation guideline, ocean acidification data for the North Coast Region cannot be assessed for the 2018 Integrated Report.</p>

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	<p>Pteropods show vertical migrations to deeper waters during the day and feed in shallower waters at night to avoid predation. Ocean acidification can drastically constrain these vertical migrations by narrow the range of optimal carbonate saturation and thus calcification. For example, in the Pacific Northwest, diel migration for <i>L. helicina</i> is relatively shallow (100 m) because undersaturated waters with respect to aragonite (Mackas &amp; Galbraith 2012). Thus, as pteropods are affected by ocean acidification through calcification and survivorship, ocean acidification indirectly affects species higher in the food web that depend on them as food source.</p> <p>Pteropods are one of the most important species in oceanic marine food webs and their decline could threaten the functioning of entire coastal ecosystems and commercially important fisheries (Doubleday &amp; Hopcroft 2015). Pteropods are common prey for important commercial fishes such as anchovies, herring, jack mackerel, sablefish, and pink, chum, Coho, and sockeye salmon (Brodeur et al. 1987; Armstrong et al. 2005; Aydin et al. 2005; Brodeur et al. 2007). In addition, zooplankton, squid, whales and even birds eat pteropods. Pteropods are the main food sources for commercially and culturally important species such as Pacific salmon, herring, and squid (Doubleday &amp; Hopcroft 2015). Therefore, temporal or spatial reduction in pteropod abundance will have drastic cascading effects on the species that rely on them as the main food source. For example, 30 % of the variability of pink salmon survival during spring-summer in Prince Williams Sound, southern Alaska, has been directly associated with changes in the</p>	

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	abundance and distribution of the pteropod <i>Limacina helicina</i> (Doubleday and Hopcroft 2015).	
20.058	<p>Laboratory and mesocosm experiments show that pH and calcium carbonate saturation state levels observed in coastal and estuarine waters of California also impair calcification rates of other marine calcifiers such as coccolithophorids, foraminifera, other mollusks, bryozoans, and sea urchins (Orr et al. 2005; Ries et al. 2009; Doney et al. 2009; Wittmann &amp; Pörtner 2013; Haigh et al. 2015; Yang et al. 2016; Swezey et al. 2017). Many calcifying species are directly affected by ocean acidification by decreasing calcification rates and compromising growth and survival. Overall calcifying organisms such as corals, echinoderms, and mollusks tend show higher sensitivity than crustaceans and fish species (Ries et al. 2009; Wittmann &amp; Pörtner 2013) (Fig. 4). For example, in experimental conditions, calcification rates in temperate corals, urchins, limpets, clams, scallops, and oysters decrease considerably as aragonite saturation state declines below 1.5 corresponding to very elevated pCO<sub>2</sub> (i.e., over 900 µatm) (see Ries et al. 2009). Studies also suggest that some species of juvenile fish of economical important coastal regions are highly sensitive to higher than normal pCO<sub>2</sub> concentrations and lower pH, exhibiting high mortality rates (Ishimatsu et al. 2004). Ocean acidification can also impair the taste of shellfish such as shrimp (Dupont et al. 2014) likely by increasing the accumulation of phenolic compounds (Jin et al. 2015). This last finding has implications for water quality standards in California, which specify that water quality must not change the taste of shellfish.</p> <p>Ocean acidification will have negative impacts on calcification, survival, growth, reproduction and other</p>	See response to comment 20.057.



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	<p>physiological processes at the species level in the absence of evolutionary adaptation or acclimatization over the coming decades (Kroeker et al. 2013). These effects can accumulate through marine communities disrupting ecological process and energy fluxes (Nagelkerken &amp; Connell 2015; Linares et al. 2015; Lemasson et al. 2017; Sunday et al. 2017). Together, these studies forecast drastic changes in species composition with negative impacts through marine population and communities that ultimately affect ecosystem functionality and services.</p>	
20.059	<p>Local stressors can drastically magnify and contribute to acidification in California north coastal and estuarine waters. Local anthropogenic stressors such as eutrophication (Waldbusser et al. 2011; Cai et al. 2011), pollution (Bisc��re et al. 2015; Flynn et al. 2015), sulfur dioxide deposition (Doney et al. 2007), hypoxia (Kemp et al. 2005; Melzner et al. 2012), river discharge (Salisbury et al. 2008), runoff from acidic fertilizers (Dentener et al. 2006), and harmful algal blooms (Wu et al. 2014b) can substantially contribute to ocean acidification in coastal waters (Duarte et al. 2013; Waldbusser &amp; Salisbury 2014). Acidification can also be exacerbated by non-uniform changes in water circulation and biological processes such as respiration (Feely et al. 2010) and precipitation runoff (Cooley &amp; Doney 2009; Doney et al. 2009; Cheung et al. 2009). Non-atmospheric sources combined with anthropogenic CO<sub>2</sub> can result in sudden negative ecosystem consequences when they coincide with physical processes such as upwelling that bring O<sub>2</sub> deprived, CO<sub>2</sub>-enriched and low-pH waters to nearshore regions (Feely et al. 2009). For example, high mortality rates of oyster larvae from oyster hatcheries in the Pacific Northwest have been linked to the combination of</p>	See response to comment 20.054.



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	<p>multiple anthropogenic stressors in a lower pH environment (Barton et al. 2012; Timmins-Schiffman et al. 2012). Waters must be listed as impaired even if the impairment is caused by multiple stressors and even if the contribution of each is undetermined.</p> <p>The US West Coast had one of the worst harmful algal blooms recorded in 2015 with the highest concentrations of domoic acid yet observed<sup>6</sup> and ocean acidification may have increased their toxicity. These toxic algal blooms led managers to close down the entire West Coast crab fisheries from the southern Washington coast to Southern California<sup>7</sup>. The toxicity of harmful algal blooms increases with ocean acidification and eutrophication can alter phytoplankton growth and succession (Wu et al. 2014b; Flynn et al. 2015). This means that the water quality standard for toxic and other deleterious organic and inorganic substances for marine waters can be affected by both pH and pollution. For example, the toxicity of some harmful algal blooms can increase with ocean acidification (Sun et al. 2011) and with land-runoff and/or water column stratification (Hallegraeff 2010).</p> <p>Harmful algal blooms can cause mass mortality of wildlife, shellfish harvesting closures, and tremendous risk to human health. For example, in 2015 alone, more than 2500 California sea lion pups were stranded likely due to changes in prey availability (sardines) associated with ocean warming<sup>8</sup> and perhaps toxic algae blooms that affected prey distribution and abundance. In 2017, the number of CA sea lions dying due to toxic algae blooms is increasing.<sup>9</sup> Some species of <i>Pseudo-nitzschia</i>, a global distributed diatom genus, produce domoic acid, a neurotoxin that causes amnesic shellfish poisoning. Studies have shown that acidified</p>	

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	<p>conditions due to increasing pCO<sub>2</sub> can increase toxins concentration as much as five-fold in this harmful microalgae (Sun et al. 2011; Tatters et al. 2012). Toxicity levels are positively correlated with mortality of shellfish, fish, marine mammals, and can cause deleterious effects in the central nervous system in humans known as paralytic shellfish poisoning (Tatters et al. 2012; Fu et al. 2012; Tatters et al. 2013). For example, results from laboratory experiments indicate that levels of the toxin domoic acid and growth rate in the diatom <i>Pseudo-nitzschia multiseries</i> increases as pCO<sub>2</sub> in water increases from 220 to 730 ppm (Sun et al. 2011). Some nearshore waters off the California coast such as off Pt. St. George have reached corrosive concentrations of pCO<sub>2</sub> (~1000 ppm) (Feely et al. 2008) that far exceeds those of laboratory experiments and that are known to increase the toxicity levels of algae.</p>	
20.060	<p>Currently, several approaches can be used to prevent locally intensified ocean acidification. Recently, the West Coast Ocean Acidification and Hypoxia Science Panel working in partnership with the California Ocean Science Trust published a report highlighting major findings, recommendations, and actions that West Coast states can take now to address ocean acidification locally (Chan et al. 2016). This report suggested that the effectiveness of local actions will be higher in semi-enclosed water bodies such as estuaries and bays where local physical-chemical processes dominated over oceanic forcing (Chan et al. 2016). Thus, local actions will be paramount in California since semi-enclosed water bodies such as estuaries and bays represent a substantial portion of marine waters in the region. The state of California has already a legal framework to address not only local stressors that</p>	See response to 20.001.

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	<p>amplify the effects of ocean acidification, but also reduce local and state level carbon dioxide emissions that primarily contribute to the problem.</p> <p>Ocean acidification can have a localized impact and often acts synergistically with other stressors. Marine species have a limited capacity to deal simultaneously with several stressors, and often the negative combined effects of ocean acidification with other local stressors are stronger than the sum of their parts. This is because ocean acidification in coastal areas can be intensified by the negative effects of local stressors (e.g., pollution, hypoxia, warming) (WCOAHP 2015b). Additional declines of pH, aragonite saturation states and dissolved oxygen associated with local stressors can suddenly push marine species across a critical threshold that drastically impairs their physiology and can cascade up through the food web affecting entire ecosystems (Nagelkerken &amp; Connell 2015; Haigh et al. 2015). As marine species fare better dealing with one stressor instead of multiple stressors, the most practical, fast, and direct approach to deal with ocean acidification is to eliminate other local stressors and therefore increase the resilience of marine species to corrosive waters.</p> <p>Under the Clean Water Act, California has ample authority to address local sources that contribute to ocean acidification, including storm water runoff, sewage contamination, and management actions to build resilience. Anthropogenic ocean acidification combined with local stressors that lower pH greatly magnifies the global ocean acidification problem and has drastic effects in coastal and estuarine waters affecting entire shellfish fisheries (Chan et al. 2016). Ocean acidification can be especially problematic in</p>	

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	<p>estuarine and coastal waters adjacent to urban areas drastically reducing water quality that impairs the survival and growth of marine species. By addressing local pollution, eutrophication, river runoff and shoreline erosion (among others), California State Water Board will not only prevent the magnification of the ocean acidification problem, but also provide marine organisms with better capacity and more time to resist ocean acidification while we work to reduce atmospheric CO<sub>2</sub>.</p> <p>Although the primary solution to eliminate ocean acidification is to drastically curb CO<sub>2</sub> emissions globally and locally, local management actions that directly address water quality by eliminating pollution, hypoxia, excess of land-based nutrient runoff, and sedimentation from land erosion will substantially ameliorate the likely stronger and synergistic deleterious effects of ocean acidification on marine species (Chan et al. 2016). Addressing local stressors may alone improve the health of coastal waters and protect coastal economies that depend on shellfish fisheries. Moreover, under the Clean Water Act, California has the authority to reduce atmospheric CO<sub>2</sub> that contributes to ocean acidification water quality violations. The Clean Water Act has a long history of being used to address water pollution from atmospheric deposition. For example, section 303(d) of the Clean Water Act has been used to address cross-border pollution from atmospheric mercury, PCBs, and acid rain. California can do its part, as well as hold other states accountable for their contributions to ocean acidification.</p>	
20.061	California must identify waters as impaired where in situ studies show shell dissolution of pteropods (Table 1)	Regarding the Water Board's ability to use existing studies to list portions of California's marine waters as impaired

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	<p>(Feely et al. 2016). Pteropod shell dissolution indicates that water quality is not meeting standards, including designated uses for marine habitat, degradation of biological communities, and not maintaining high water quality and existing uses that once supported pteropods. Recent analyses identify <b>pteropod shell condition</b> as the best biological indicator of water quality impairment in response to ocean acidification in coastal waters (Stanford's Woods Institute for the Environment et al. 2016; Weisberg et al. 2016; Bednaršek et al. 2017). This is because pteropod shell condition is highly vulnerable to corrosive waters and has been linked to the organisms' growth and survival performance (Bednaršek et al. 2012a, 2012b; Lischka &amp; Riebesell 2012; Bednaršek &amp; Ohman 2015). In fact, pteropod shell condition can reflect the acidification status of coastal waters and is already showing negative effects from ocean acidification, i.e., pteropod are already responding strongly to current ocean acidification</p> <p>(Bednaršek et al. 2012a; Comeau et al. 2012; Bednaršek &amp; Ohman 2015; Bednaršek et al. 2016).</p> <p>As explained above, changes in pteropod populations can predictively drive higher level ecosystem changes through food web dynamics by declining prey availability for higher consumers such as fish, birds, and marine mammals (Doubleday &amp; Hopcroft 2015). Thus, changes in pteropod population trends can be a measurable and early warning indicator of ecosystem health and potential changes that can be easily detected (Stanford's Woods Institute for the Environment et al. 2016). Finally, pteropods are widely distributed and the methods to measure shell conditions have been already established, making them the best</p>	<p>for ocean acidification, see response to comments 20.001, 20.002, and 20.057.</p>

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	biological indicators regarding ocean acidification (Stanford's Woods Institute for the Environment et al. 2016; Weisberg et al. 2016; Bednaršek et al. 2017).	
20.062	<p>California must determine the naturally occurring pH range for each water body in order to establish a baseline to compare current pH levels. As mentioned above, the numerical criteria for pH in California states that <i>"the pH shall not be changed at any time more than 0.2 units from that which occurs naturally"</i>. We assume that natural occurring pH range should not have the influence of anthropogenic carbon dioxide emissions that started after the industrial revolution in the late 1760-1800. Below I explain a calculation approach to determine natural pH range (pre- industrial times when atmospheric CO<sub>2</sub> was ~ 280 ppm) that may occur at specific sites without human influence. To determine natural pH range with this approach, each monitoring station should have at least time series data for temperature and salinity for several years as well as two carbonate system parameters such as: pCO<sub>2</sub>, total alkalinity, pH, CO<sub>2</sub>, DIC, etc. In the next section we used this approach to calculate natural pH variation range and compare it with current pH fluctuations. Then we calculated the number of deviation of current pH from natural variability under current ocean conditions. Here is a description of the methodology to determine natural pH conditions or pre-industrial levels.</p> <p><i>Methodology to calculate natural variation for pH</i></p> <p>To determine natural pH conditions water parameters such as salinity and temperature are needed as well as at least two carbonate system variables. If only one carbonate system was measured (e.g., pCO<sub>2</sub> or pH), I derived estimates of total alkalinity (TA) based on a</p>	<p>See response to comment 20.002 regarding data submittal.</p> <p>The model used to estimate natural pH values and for comparison of current pH data has not undergone peer review and does not meet the requirements for an evaluation guideline as stated in Section 6.1.3 of the Listing Policy. Additionally, some of the pH data submitted contains a disclaimer that the data is from a real-time data feed that has not been post-processed or checked for errors. The data have not been reviewed for quality and thus do not meet the data quality requirements in Section 6.1.4 of the Listing Policy.</p> <p>Should model results be used, and based on a limited assessment of the model, it appears that exceedances of the pH objective are less than 10% for North Coast Region sites. Should the Listing Policy's binomial distribution assessment process be used, it appears the submitted data may not be indicative of impairment for ocean acidification.</p>

No.	Comment	Response
	<p>function<sup>10</sup> of temperature and salinity calibrated to discrete TA measurements for the Northwest Pacific Ocean considering longitude from Lee et al. (2006) . To calculate pH and <math>\Omega_{arag}</math>, I used the empirical estimates of TA paired with temperature, salinity and pCO<sub>2</sub> or pH of sea water and solved for the carbonic acid system using the package <i>seacarb</i> v 3.0.8 (Gattuso et al. 2015) in the statistic environment R (R Core Team 2015) for the time period when that data were available. I applied the K<sub>1</sub> and K<sub>2</sub> dissociations constants from Mehrbach et al. (1973) refitted by Dickson and Millero (1987), and KSO<sub>4</sub> from Dickson (1990) using the total pH scale. For detailed description of TA calculations refer to Lee et al. (2006). Finally, I calculated pH values and aragonite saturation states that should have been present during pre-industrial levels of atmospheric CO<sub>2</sub> (280 ppm) assuming similar temporal variation in sea surface water pCO<sub>2</sub>, salinity, and 0.8 °C cooler than current day. I also assumed that surface water pCO<sub>2</sub> values are increasing at about the same rate as the atmosphere values as determined by Takahashi et al. (2009). These calculations may actually underestimate the real pH natural range values because I assumed, 1) the overall change in sea surface temperature as the global average (which may be lower than local trends, especially in coastal waters), and 2) that there is no change in terrestrial inputs of nutrients, freshwater, and carbon linked to climate, land-used and marine inputs, and ocean circulation in the past and future. This is unlikely due to climate change and human influence (Hauri et al. 2013). However, this exercise provides a conservative assessment of the decline in pH at specific stations and provide the best estimate of natural variability for pH.</p>	

No.	Comment	Response
20.063	<p><b>a. Hog Island Oyster, University of California Davis, Bodega Marine Laboratory (38.162°N, -122.8939 °W).</b></p> <p><b>Station description:</b> “CeNCOOS in situ water quality monitoring using a Burkolator at Hog Island Oyster Company in Tomales Bay. This station is part of the Central and Northern California Ocean Observing System (CeNCOOS). They measure various water quality parameters at fixed points along the California coast. Data collection was supported by Bodega Marine Laboratory, University of California, Davis, and NOAA's Integrated Observing System to the Central and Northern California Ocean Observing System at the Monterey Bay Aquarium Research Institute (NA11NOS0120032). Data were also facilitated by the Hog Island Oyster Company.”</p> <p><b>Impairment:</b> These waters may be impaired by ocean acidification based on the numeric criteria because 0.05% of pH values (98 out of 179,545 samples) varied more than 0.2 units from that which occurs naturally (Fig. 5). See section 3 for methodology, explanation, and assumptions of natural pH range calculations. Current average pH has significantly declined by 0.1087 units (<math>p &lt; 2.2e-16</math>) from natural levels in this station. California needs to analyze these data in its assessment and continue to monitor them. In addition, several pH measurements fall below 7.8, a threshold which has been shown to have deleterious effects on Pacific oyster (Barton et al. 2012), Olympia oyster (Hettinger et al. 2012, 2013a), pteropods (Weisberg et al. 2016), and urchins (Kapsenberg et al. 2017). This violates the biological and beneficial use criteria as well as the antidegradation policy.</p>	<p>See responses to comments 20.002 regarding data submittal and 20.062 regarding use of the pH model.</p> <p>In addition, should model results be used, and based on a limited assessment of the model, a 0.05% exceedance rate would not constitute an impairment per the binomial distribution in Table 3.2 of the Listing Policy.</p>



No.	Comment	Response
20.064	<p><b>b. Trinidad Station</b>, Humboldt State University (41.055 °N, -124.14703 °W)</p> <p><b>Station description:</b> "The Trinidad shore station is maintained by Humboldt State University. The station has been operational since 2009 and consists of subsurface sensors mounted rigidly to a pier. The sensors provide near-real-time observations of ocean water salinity, temperature, dissolved oxygen, chlorophyll fluorescence, turbidity and pH. Water depth at this location ranges from approximately 5 ft to 15 ft. These nearshore sensors are part of the Central and Norther California Ocean Observing System (CeNCOOS). They measure various water quality parameters at fixed points along the California coast."</p> <p><b>Impairment:</b> These waters may be impaired by ocean acidification. Approximately 2.8% of pH values (5834 out of 207258 samples) varied more than 0.2 units from that which occurs naturally (Fig. 6). See section 3 for methodology, explanation, and assumptions of natural pH range calculations. Current average pH has significantly declined by 0.092 units (<math>p &lt; 2.2e-16</math>) from natural levels in this station. California needs to analyze these data in its assessment and continue to monitor them. In addition, several pH measurements fall below 7.8, a threshold which has been shown to have deleterious effects on Pacific oyster (Barton et al. 2012), Olympia oyster (Hettinger et al. 2012, 2013a), pteropods (Weisberg et al. 2016), and urchins (Kapsenberg et al. 2017). This violates the biological and beneficial use criteria as well as the antidegradation policy.</p>	<p>See responses to comments 20.002 regarding data submittal and 20.062 regarding use of the pH model.</p> <p>In addition, should model results be used, and based on a limited assessment of the model, a 2.8% exceedance rate would not constitute impairment per the binomial distribution in Table 3.2 of the Listing Policy.</p>

No.	Comment	Response
20.065	<p><b>c. Indian Island</b>, CeNCOOS (40.81503 °N, -124.15754 °W)</p> <p><b>Station description:</b> "The Indian Island shore station is maintained by the Wiyot Tribe's Natural Resources Department who share the data with Humboldt State University and CeNCOOS. The station has been operational since 2004 and consists of subsurface sensors mounted rigidly to a piling. The sensors provide near-real-time observations of water salinity, conductivity, temperature, dissolved oxygen, turbidity, pH, depth, and chlorophyll fluorescence. Near real-time data from the sensor became available 2/19/16 and is available in 15 min increments. These nearshore sensors are part of the Central and Norther California Ocean Observing System (CeNCOOS). They measure various water quality parameters at fixed points along the California coast."</p> <p><b>Impairment:</b> These waters may be impaired by ocean acidification. Approximately 0.8 % of pH values (45 out of 5702 samples) varied more than 0.2 units from that which occurs naturally (Fig. 7). See section 3 for methodology, explanation, and assumptions of natural pH range calculations. Current average pH has significantly declined by 0.12 units (<math>p &lt; 2.2e-16</math>) from natural levels in this station. California needs to analyze these data in its assessment and continue to monitor them. In addition, several pH measurements fall below 7.8, a threshold which has been shown to have deleterious effects on Pacific oyster (Barton et al. 2012), Olympia oyster (Hettinger et al. 2012, 2013a), pteropods (Weisberg et al. 2016), and urchins (Kapsenberg et al. 2017). This violates the biological</p>	<p>See responses to comments 20.002 regarding data submittal and 20.062 regarding use of the pH model.</p> <p>In addition, should model results be used, and based on a limited assessment of the model, an 0.85% exceedance rate would not constitute an impairment per the binomial distribution in Table 3.2 of the Listing Policy.</p>

No.	Comment	Response
	and beneficial use criteria as well as the antidegradation policy.	
20.066	<p><b>d. Humboldt</b>, CeNCOOS (40.7775 °N, -124.19652 °W)</p> <p><b>Station description:</b> "The Humboldt shore station is located on the Chevron dock and is maintained by Humboldt State University. This station has been active since November 2012 and is the replacement system of the previous water quality station at Dock B. In August 2015 PAR and Solar Radiation sensors were added to the instrumentation suite. These nearshore sensors are part of the Central and Norther California Ocean Observing System (CeNCOOS). They measure various water quality parameters at fixed points along the California coast."</p> <p><b>Impairment:</b> These waters may be impaired by ocean acidification. Approximately 0.9 % of pH values (648 out of 75455 samples) varied more than 0.2 units from that which occurs naturally (Fig. 8). See section 3 for methodology, explanation, and assumptions of natural pH range calculations. Current average pH has significantly declined by 0.104 units (<math>p &lt; 2.2e-16</math>) from natural levels in this station. California needs to analyze these data in its assessment and continue to monitor them. In addition, several pH measurements fall below 7.8, a threshold which has been shown to have deleterious effects on Pacific oyster (Barton et al. 2012), Olympia oyster (Hettinger et al. 2012, 2013a), pteropods (Weisberg et al. 2016), and urchins (Kapsenberg et al. 2017). This violates the biological and beneficial use criteria as well as the antidegradation policy.</p>	<p>See responses to comments 20.002 regarding data submittal and 20.062 regarding use of the pH model.</p> <p>In addition, should model results be used, and based on a limited assessment of the model, a 0.9% exceedance rate would not constitute an impairment of the binomial distribution in Table 3.2 of the Listing Policy.</p>

No.	Comment	Response
20.067	<p><b>e. Tiburon</b>, CeNCOOS (37.8915 °N, -122.4467 °W)</p> <p><b>Station description:</b> "The Tiburon shore station is maintained by San Francisco State University. The station has been operational since 2002 and consists of both in-water and meteorological sensors. The in-water sensors are fixed to a pier and provide near-real time observations of water salinity, temperature, dissolved oxygen, chlorophyll fluorescence, turbidity and pH. San Francisco State University - <a href="http://sfbeams.sfsu.edu/">http://sfbeams.sfsu.edu/</a>. These nearshore sensors are part of the Central and Norther California Ocean Observing System (CeNCOOS). They measure various water quality parameters at fixed points along the California coast."</p> <p><b>Impairment:</b> These waters may be impaired by ocean acidification. California needs to analyze these data in its assessment and continue to monitor them. Several pH measurements fall below 7.8, a threshold which has been shown to have deleterious effects on Pacific oyster (Barton et al. 2012), Olympia oyster (Hettinger et al. 2012, 2013a), pteropods (Weisberg et al. 2016), and urchins (Kapsenberg et al. 2017). This violates the biological and beneficial use criteria as well as the antidegradation policy.</p>	<p>See response to comments 20.002 regarding data submittal. The Tiburon station is located within the San Francisco Bay Region, which is not “on-cycle” for the 2018 Integrated Report. The San Francisco Region will be “on-cycle” for the 2024 Integrated Report cycle and the commenter is encouraged to submit data and information for the 2024 Integrated Report cycle. Refer to the June 29, 2020 Notice of Public Solicitation of Water Quality Data for the 2024 Cycle (<a href="https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/docs/2024_solicitation_notice_final.pdf">https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/docs/2024_solicitation_notice_final.pdf</a>) including information on minimum data requirements.</p> <p>Finally, it appears that the percentage of exceedances is not stated. However, the Tiburon Station graph shows hundreds of data points, which indicates that the “several” exceedances would represent a very small percentage of samples and would likely not constitute an impairment per the Listing Policy’s binomial distribution.</p>
20.068	<p><b>f. Santa Cruz</b>, CeNCOOS (36.9603°N, -122.0203 °W)</p> <p><b>Station description:</b> “CeNCOOS in situ Water monitoring data at the Santa Cruz municipal wharf. Data collection was supported by multiple awards to University of Californian at Santa Cruz and an award from NOAA's Integrated Observing System to the Central and Northern California Ocean Observing System at the Monterey Bay Aquarium Research Institute (NA11NOS0120032). These nearshore</p>	<p>See response to comment 20.002.</p> <p>The Santa Cruz station is located within the boundaries of the Central Coast Region, which is not “on-cycle” for the 2018 Integrated Report. The Central Coast Region is “on-cycle” for the 2020/2022 Integrated Report. Readily available data and information for the 2020/2022 Integrated Report are currently being assessed.</p>

No.	Comment	Response
	<p>sensors are part of the Central and Norther California Ocean Observing System (CeNCOOS). They measure various water quality parameters at fixed points along the California coast.”</p> <p><b>Impairment:</b> These waters may be impaired by ocean acidification. Approximately 1.2 % of pH values (2186 out of 179011 samples) varied more than 0.2 units from that which occurs naturally (Fig. 8). See section 3 for methodology, explanation, and assumptions of natural pH range calculations. Current average pH has significantly declined by 0.11 units (<math>p &lt; 2.2e-16</math>) from natural levels in this station. In addition, several pH measurements fall below 7.8, a threshold which has been shown to have deleterious effects on Pacific oyster (Barton et al. 2012), Olympia oyster (Hettinger et al. 2012, 2013a), pteropods (Weisberg et al. 2016), and urchins (Kapsenberg et al. 2017). This violates the biological and beneficial use criteria as well as the antidegradation policy.</p>	
20.069	<p><b>g. Moss Landing Marine Laboratory Seawater Station,</b></p> <p>CeNCOOS (36.8025 °N, -121.7915 °W)</p> <p><b>Station description:</b> “CeNCOOS in situ water monitoring data at the Moss Landing Marine Laboratory Seawater Station. Data collection was supported by multiple awards to the Moss Landing Marine Laboratory Seawater Station from NOAA's Integrated Observing System to the Central and Northern California Ocean Observing System at the Monterey Bay Aquarium Research Institute (NA11NOS0120032). These nearshore sensors are part of the Central and Norther California Ocean Observing System (CeNCOOS). They</p>	<p>See response to comment 20.002. The Moss Landing Marine Laboratory Seawater Station is located within the boundaries of the Central Coast Region, which is not “on-cycle” for the 2018 Integrated Report. The Central Coast Region is “on-cycle” for the 2020/2022 Integrated Report. Readily available data and information for the 2020/2022 Integrated Report are currently being assessed.</p>

No.	Comment	Response
	<p>measure various water quality parameters at fixed points along the California coast.”</p> <p><b>Impairment:</b> These waters may be impaired by ocean acidification. California needs to analyze these data in its assessment and continue to monitor them. In addition, several pH measurements fall below 7.8, a threshold which has been shown to have deleterious effects on Pacific oyster (Barton et al. 2012), Olympia oyster (Hettinger et al. 2012, 2013a), pteropods (Weisberg et al. 2016), and urchins (Kapsenberg et al. 2017). This violates the biological and beneficial use criteria as well as the antidegradation policy.</p>	
20.070	<p><b>h. Monterey Bay Aquarium Station,</b> CeNCOOS (36.61855278°N, -121.901536111 °W)</p> <p><b>Station description:</b> “Time series data from 'Monterey Bay Aquarium Seawater Intake. These nearshore sensors are part of the Central and Norther California Ocean Observing System (CeNCOOS). They measure various water quality parameters at fixed points along the California coast.”</p> <p><b>Impairment:</b> These waters may be impaired by ocean acidification. California needs to analyze these data in its assessment and continue to monitor them. In addition, several pH measurements fall below 7.8, a threshold which has been shown to have deleterious effects on Pacific oyster (Barton et al. 2012), Olympia oyster (Hettinger et al. 2012, 2013a), pteropods (Weisberg et al. 2016), and urchins (Kapsenberg et al. 2017). This violates the biological and beneficial use criteria as well as the antidegradation policy.</p>	<p>See responses to comments 20.002. The Monterey Bay Aquarium Station is located within the boundaries of the Central Coast Region, which is not “on-cycle” for the 2018 Integrated Report. The Central Coast Region is “on-cycle” for the 2020/2022 Integrated Report. Readily available data and information for the 2020/2022 Integrated Report are currently being assessed.</p>

No.	Comment	Response
20.071	<p><b>i. California Current Ecosystem 2 (CCE-2),</b> NOAA, PMEL (34.324°N, 120.814°W)</p> <p><b>Station description:</b> “A MAPCO2 system was deployed on a California Current Ecosystem Interdisciplinary Biogeochemical Mooring on January, 2010. This mooring is part of a multi-investigator, multi-disciplinary project with two surface moorings in the California Current (the other is CCE-1) with a sensor suite covering biological, chemical, and physical oceanography as well as meteorology. [...]. CCE-2 is positioned on the shelf break on the California Coast, where localized upwelling processes are at their maximum. For more information about the buoy and other sensors, please visit UCSD's California Current Ecosystem Data Page. [...] On March 24, 2012, a surface seawater pH sensor was added to the CCE-2 mooring. [...]. This project is supported by NOAA's Ocean Acidification Program.”</p> <p><b>Impairment:</b> This buoy is located in federal waters ~60 miles East of Santa Barbara. We added these data for reference (Fig. 13).</p>	<p>See response to comment 20.002. This station is located outside of state waters and will not be considered for the California Integrated Report.</p>
20.072	<p>California has a duty to evaluate ocean acidification parameters during its water quality assessment (EPA 2010). California must “<i>evaluate all existing and readily available water quality-related data and information to develop the list</i>” 40 C.F.R. § 130.7(b)(5). Beyond reviewing the information submitted by the Center, California must also evaluate pH and other monitoring data that is readily available and seek out additional ocean acidification data from state, federal, and</p>	<p>Regarding obtaining and considering data, see response to comment 20.002.</p> <p>Regarding the Water Boards’ efforts to evaluate existing data to address ocean acidification in California, see response to comment 20.001.</p> <p>The State Water Board followed the guidance in Section 6.1.2.1 of the Listing Policy to solicit all readily available</p>



No.	Comment	Response
	<p>academic research institutions. EPA's 2010 memo and Integrated Report Guidance discussed several sources, including the NOAA data (EPA 2010: 7-9; EPA Guidance 30-31). There are several sources for high resolution ocean acidification data that will be available in the near future.</p> <p>The state must obtain and consider data being collected from Oregon State, the University of Washington, University of California system, the National Oceanic and Atmospheric Administration, the Ocean Observatories Initiative, and other research institutions. These institutions are conducting research surveys as well as have permanently moored instruments that are gathering information about ocean acidification. For example, much of these data, including measurements of CO<sub>2</sub>, dissolved oxygen, turbidity, temperature, and salinity dating back to 2005, have been archived and are available to California. Data relevant to ocean acidification in California has also been transmitted to and made available by the <u>Pacific Marine Environmental Laboratory</u>. Finally, the Center urges the state to improve its own monitoring program so that it can detect ocean acidification related water quality problems at a higher temporal resolution.</p> <p>The following are additional sources from which the regional water board can obtain and evaluate data from:</p> <ul style="list-style-type: none"> <li>• <u>Central and Northern California Ocean Observation System Data Portal</u></li> <li>• <u>Bodega Ocean Observing Node</u></li> </ul>	<p>data and information for the 2018 cycle. A notice was distributed to solicit data and information from any interested party, including private citizens, public agencies, state and federal governmental agencies, non-profit organizations, and businesses. Additionally, the commenter's list of additional sources of ocean acidification data are appreciated.</p> <p>Obtaining data from waters outside of California is beyond the scope of the State Water Board's solicitation obligation. Section 6.1.2.1 states that the State Water Board's obligation pertains to entities "possessing data and information regarding the quality of the Region's waters."</p>



No.	Comment	Response
	<ul style="list-style-type: none"> <li>• <u>NOAA Pacific Marine Environmental Laboratory Carbon Program</u></li> <li>• <u>National Estuarine Research Reserve System</u></li> <li>• <u>Oregon State University, College of Earth, Ocean and Atmospheric Sciences</u></li> <li>• <u>Ocean Observatories Initiative</u></li> <li>• <u>NOAA National Ocean Data Center</u></li> <li>• <u>National Data Buoy Center</u></li> <li>• <u>University of Washington's Oceanic Remote Chemical Analyzer (ORCA) Group</u></li> <li>• <u>Northwest Association of Networked Ocean Observing Systems (NANOOS)</u></li> <li>• <u>Integrated Ocean Observing System</u></li> <li>• <u>Global Ocean Acidification Observing Network</u></li> </ul> <p>California should obtain and evaluate data on all relevant parameters of ocean acidification that are available from these and other sources including its own water quality database. Coastal and estuarine ocean acidification parameters were not considered for the most part in the last Integral Report. Thus, California should seek, analyze, and discuss data on water quality parameters relevant to ocean acidification.</p>	
20.073	<p>The Center urges the California's State Water Board to analyze whether water bodies across the region are impaired by ocean acidification. The State Water Board should consider ocean acidification as major water</p>	<p>See response to comments 20.001, 20.002, 20.057, and 20.062.</p>

No.	Comment	Response
	<p>quality issue to avoid harmful biological impacts. Several water bodies do not attain the biological, beneficial use, or anti-degradation criteria for pH. Scientific evidence over the past decade clearly shows that these waters are becoming more acidic, directly compromising the growth and survival of important calcifying coastal and estuarine species.</p>	
20.074	<p>It is imperative that California takes action now on ocean acidification to address this increasingly important water quality problem before it has devastating consequences on coastal, estuarine and bay ecosystems. Delaying action could make future management strategies less effective and likely more costly. Minimizing or preventing additional local stressors on coastal ecosystems such as nutrient inputs associated with development and urbanization can ameliorate compounding threats of ocean acidification. The actions that California takes now would decrease the negative effects of ocean acidification. Inaction on ocean acidification will result in negative ecological and economic consequences disproportionately impacting coastal communities.</p>	See response to comment 20.001.

## Letter 21: Berlinda Blackburn, City of Coachella

No.	Comment	Response
21.001	<p>The Proposed Listing identifies the Coachella Valley Storm Water Channel ("CVSC") as impaired for eight pollutants that require a total maximum daily load ("TMDL"). The U.S. EPA has approved a TMDL for indicator bacteria for CVSC ("CVSC bacteria TMDL").</p>	<p>The final listing decision for indicator bacteria for the Coachella Valley Storm Water Channel places this waterbody-pollutant combination in Category 4a (Do Not Delist-being addressed with U.S.EPA approved TMDL; see Decision ID 71461 in Appendix C of the Staff Report). The City of Coachella is indicated as responsible</p>

No.	Comment	Response
	<p>The CVSC Bacteria TMDL identifies the City as responsible party, based in the outdated and incorrect assumption that the City's municipal separate storm sewer system ("MS4") discharges to the CVSC.</p> <p>The City's MS4 does not discharge into the CVSC. Since 2011, the City has eliminated all discharges from the MS4 by diverting the flows from the MS4's into dry wells. The City's current MS4 permit recognizes this diversion. {footnote 1}. Between 2013 and 2015, the City conducted a two-year monitoring program of the MS4's outfalls to the wells, which confirmed that the MS4 does not discharge to CVSC. The 2015 report of the results of the monitoring study are included with this comment letter.</p> <p>For these reasons, the City requests the record for the action to adopt the Proposed Listing reflect that the City's MS4 does not discharge into the CVSC and, therefore, is not a known, suspected, or potential source of the pollutants identified as impairing CVSC.</p>	<p>party in the Coachella Valley Stormwater Channel Bacteria Indicators TMDL, as approved by U.S. EPA in 2012.</p> <p>However, the City of Coachella is not mentioned in the applicable listing decision, any of the supporting LOEs, the 2018 Integrated Report draft staff report, nor the 2018 Integrated Report for the Colorado River Basin Region Final Staff Report. Therefore, addressing the City's status with respect to the TMDL is beyond the scope of the State Water Board's consideration of the 2018 CWA section 303(d) list.</p> <p>A better venue to address the applicability of the Coachella Valley Stormwater Channel Bacteria Indicators TMDL to the discharge from the City's MS4 is through discussions with the Colorado River Regional Water Board.</p>

## Summary Oral Comments from the April 21, 2020 Hearing

Code	Commenter
22.1	Bart Deamer, OWTS-Russian River Residents
22.2	Pat Ambercrombie, Fitch Mountain Resident Association
22.3	Richard Homer, Villa Grande
22.4	Jim Christian, Fitch Mountain Inn
22.5	Phil Gross, Hacienda Improvement Association
22.6	Sarah Yardley, Resident along Russian River
22.7	Kaitlin Kalua, California Coastkeeper representing Humboldt Baykeeper and Russian Riverkeeper in the North Coast Region

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22.1.001	The TMDL will \$100 million in upgrade costs, which would be a overly burdensome for property owners. Implement TMDL measures that are financially fair.	See response to comment 9.001
22.1.002	The North Coast Regional Water Quality Control Board has consistently started that the mainstem of the Russian River showed no impairment of the EPA's <i>E. coli</i> [criteria], although impairments were shown in several tributaries. The first draft of the TMDL assessed Bacteroides and the next draft focused on enterococci, which we understand has significant problems as a FIB in nature-heavy areas like the Russian River.	See Section 3.1.4 of the Staff Report, which was revised to add information regarding the statewide bacteria water quality objectives, including the reasons for not including a statewide objective for enterococci and the reasons for using enterococci data for the 2018 Integrated Report. Additionally, see the responses to comments 9.001 and 9.004.
22.1.003	North Coast Regional Water Quality Control Board staff used <i>E. coli</i> for the assessment, but then started using other microorganisms (e.g., bacteroides, enterococci); however, in 2018, the State Water Resources Control Board rejected enterococci and accepted <i>E. coli</i> .	See Section 3.1.4 of the Staff Report, which was revised to add information regarding the statewide bacteria water quality objectives, including the reasons for not including a statewide objective for enterococci and the reasons for using enterococci data for the 2018 Integrated Report.
22.1.004	Assessments have aggregated sample data from locations outside of a particular reach to support a listing for that reach. Reaches should be evaluated on based on data in that reach.  The State Board should insist that any decision for an individual waterbody should be based on what's in that waterbody.	See Section 3.1.4 of the Staff Report, which was revised to add information about and clarify the geographic segmentation of data into HUC-12 subwatersheds.
22.2.001	Listings should not consider beach alerts that are based on Enterococci data. Peer reviewer Nicholas Ashbolt wrote that Enterococci may persist in absence of fecal contamination and the State Water Resources Control Board rejected using Enterococci for freshwater listings "due to this tendency for false	See Section 3.1.4 of the Staff Report, which was revised to add information regarding the statewide bacteria water quality objectives, including the reasons for not including a statewide objective for enterococci and the reasons for using enterococci data

Index	Summary Comment	Response
	<p>positives.” Further, since 2013 beach alerts/closures were only posted over a nine-day during 2013-2016 sampling; those were just alerts.</p> <p>Sonoma County estimated compliance would cost the OWTS owners \$100M with no financial support when the science does not support listing the Russian River in the Fitch Mountain area.</p>	<p>for the 2018 Integrated Report. Additionally, see the response to comment 10.008 regarding posting beach advisories.</p>
12.3.001	<p>Communities along the Russian River provide the largest amount of affordable housing in Sonoma County and two of the communities have been described as disadvantaged unincorporated communities by Sonoma LAFCO. The economic effects of listing a water as impaired and the subsequent TMDL is very expensive and there is a clear need for assistance. The North Coast Regional Water Quality Control Board should take the lead in financial assistance for compliance.</p>	<p>See response to comment 9.001.</p>
12.4.001	<p>The original 303(d) listings weren’t directed at septic systems. The TMDL targets cesspools without evidence they area a meaningful contributor of the Russian River pollution load. Further, septic systems are in consistent, year-round use, but the data varies from year to year. This may be because the public doesn’t have access to restrooms along the beach.</p>	<p>See response to comment 9.001.</p>
12.4.002	<p>Analyses do not support or justify the cost of \$50,000 to \$100,000 per septic system upgrade. It’s a large cost without assured financing.</p>	<p>See response to comment 9.001.</p>
12.4.003	<p>Data from the mainstem of the Russian River does not meet 303(d) listing criteria.</p>	<p>See Section 3.1.4 of the Staff Report for the justification for the Russian River listing recommendations for the 2018 Integrated Report.</p>

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12.4.004	Do not place the Russian River on the 303(d) list for bacteria; instead, let AB-885 address any septic issues.	Under CWA section 303(d), California is required to review, make changes as necessary, and submit to U.S. EPA a list identifying waterbodies not meeting water quality standards and the water quality parameter not being met (i.e., the 303(d) list). See Section 3.1.4 of the Staff Report for a description of the evidence for placing portions of the Russian River watershed on the 303(d) list for bacteria. Comments regarding AB-885, the associated State Water Board's OWTS Policy, and options for addressing bacteria impairments in the Russian River watershed are beyond the scope of the State Water Board's March 5, 2020 notice of opportunity to submit written comments, which pertains to the proposed 303(d) listings and delisting recommendations for waterbodies within the North Coast Region.
22.5.001	North Coast Regional Water Quality Control Board staff have said the development of the TMDL includes a public process, but the commenters here today are all part of the same OWTS group and feel left out of the process. Russian River residents care about the river and want to help fix issues with it but will continue to oppose the cost prohibitive TMDL because neighbors will be forced out of their homes.	See response to comment 9.001.
22.5.002	<p>Regulatory staff do not consider how expensive the TMDL will be to implement. They explicitly stated that while it is nice to make implementation affordable that "should not suggest that [they] actually undergo a cost benefit analysis to justify their applications. A cost-benefit analysis is not a requirement of CEQA." But costs and benefits are important to the residents of the Russian River. The County of Sonoma estimates implementing the TMDL will cost over \$100 million and the response to that from Regional Board staff is tepid.</p> <p>The Russian River is an area with affordable housing. Costs from TMDL OWTS requirements would make</p>	See response to comment 9.001.

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	<p>the cost of living unaffordable. Residents can't save enough money to refurbish septic in 15-year timeframe; their saving \$3,000 to \$5,000 a year for 15 years is not feasible.</p>	
22.5.003	<p>Return this draft of the 303(d) list to the regional board with instructions to work with the community rather than ignore it, and create a plan that costs much much less than this.</p> <p>If you really can't see the wisdom of kicking this back to the Regional Board, then you're going to have to show us the money because we have not seen or heard of any evidence that the Regional Board is working to address the financial burden of the TMDL requirements.</p> <p>The Russian River OWTS Advisory Board gave a great deal of advice today, but not our consent to the outcome.</p>	See response to comments 9.001.
22.6.001	<p>The 303(d) listing is by waterbody and also by HUC-12s. Regional Board staff have changed from analyzing individual waterbodies to using HUC-12s, which are incorreced referred to as "sub-watersheds" in the Regional Board staff presentation. When asked about the 2019 change to the HUC-12 level for analysis, Regional Board staff responded that lots of others are using HUC-12s for 303(d) listings and TMDLs. "Lots of others" is not a reason and "we want this analysis to meet logical scientific criteria.</p> <p>Pollution in a downstream waterbody does not imply that upstream waterbodies are impaired.</p>	<p>See Section 3.1.4 of the Staff Report, which was revised to add information about and clarify the geographic segmentation of data into HUC-12 subwatersheds. Additionally, Decisions 77147 and 79794 and associated LOEs were revised to clarify the evidence supporting the bacteria listing recommendations in the Russian River HUC-12 subwatersheds. The revised decisions are found in Appendix B: North Coast Regional Water Board Waterbody Fact Sheets of the Proposed Final Staff Report. The prior versions are found in Appendix B of the Draft Staff Report.</p> <p>The Proposed Final Staff Report and appendices and the Draft Staff Report and appendices are available here:</p> <p><a href="https://www.waterboards.ca.gov/water_issues/programs/">https://www.waterboards.ca.gov/water_issues/programs/</a></p>

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		<a href="water_quality_assessment/2018_integrated_report.html">water_quality_assessment/2018_integrated_report.html</a>
22.7.001	We appreciate the work by [Water Boards] staff to update list for bacteria and pathogens.	Comment noted.
22.7.02 part a	There needs to be Region-wide freshwater nutrient numeric limits, specifically for nitrogen and phosphorus. Local waterkeepers have detected significant levels and exceedances of nutrients throughout the Region. Some Regional Boards have established a limit of 10 mg/L for nitrogen, but that is derived from drinking water standards and is ten times the amount that will lead to eutrophication and impair ecosystems. Without a numeric objective, permits will ultimately fail to protect rivers and streams, which will degrade and impact fisheries and recreation.	See the response to comment 6.002.
22.7.02 part b	Humboldt Baykeeper is asking the State Board to direct the North Coast Regional Board to support listings for nitrogen and phosphorus, and then manage Harmful Algal Blooms (HABs) throughout the Region.	<p>The State Water Board is working actively with the Regional Water Boards to develop the statewide Biostimulatory-Biointegrity Policy, which will provide guidance for assessment of nitrogen and phosphorus data, and cyanotoxin data for the Integrated Report. See response to comment 6.002 for additional information. The State Water Board also works closely with the Regional Water Boards to implement the statewide Freshwater Harmful Algal Bloom monitoring program and the California CyanoHAB Network.</p> <p>The commenter is encouraged to participate in the next triennial review of the Basin Plan to provide comment on the development of nitrogen and phosphorus objectives as a priority basin planning project.</p> <p>The North Coast Region has a Harmful Algal Bloom Monitoring and Response Program that conducts monitoring, outreach, and coordination to track and respond to harmful algal blooms. The</p>



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		<p>State Water Board is coordinating with the U.S. EPA, Office of Environmental Health Hazard Assessment, and the Regional Water Boards to determine an appropriate numeric threshold for cyanotoxins in surface water to best interpret narrative water quality objectives.</p>