

DRAFT Comment Summary and Responses:

Total Maximum Daily Loads (TMDLs) for Temperature, Dissolved Oxygen, Nutrient, and Microcystin impairments in the Klamath River and Site Specific Water Quality Objectives for Dissolved Oxygen in the Klamath River

No.	Representative	Company
1	United States Environmental Protection Agency	Alexis Strauss
2	California Cattlemen’s Association	Justin Oldfield
3	California Department of Transportation	G. Scott McGowen
4	City of Klamath Falls	Mark Willrett
5	County of Siskiyou	Ric Costales
6	Ellison, Schneider & Harris LLP on behalf of PacifiCorp	Robert Donlan
7	General Public	James Foley
8	General Public	James R. Finses
9	General Public	Mark Chestnut
10	General Public	Tom Chambers
11	General Public	Tom Connick
12	Karuk Tribe	Leaf Hillman
13	Klamath Forest Alliance	Petey Brucker
14	Klamath Water Users Association	Greg Addington
15	Quartz Valley Indian Reservation	Crystal Bowman
16	Sandy Bar Ranch	Blythe Reis
17	The New 49’ers	Dave McCracken

No.	Author	Comment	Response
0.1	Multiple	Many of the comments submitted in opposition to the State Board’s approval of this TMDL were previously submitted to the North Coast Regional Water Quality Control Board and submitted verbatim to the State Board, without further explanation.	Many of the individual comments submitted to the State Water Resources Control Board (State Water Board) on this matter are identical to a comment submitted to the North Coast Regional Water Quality Control Board (North Coast Water Board) at the time the draft version of this TMDL was under consideration. As part of its consideration process, the North Coast Water Board provided written responses to all of the significant comments it received. The North Coast Water Board’s responses either indicated that changes would be made

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			<p>to the regulatory provisions or to the related documentation in response to the comment (in which case corresponding changes were made), or the North Coast Water Board's written responses indicated that that changes would not be made, and the response included the reason.</p> <p>Where a commenter merely repeats a comment that was originally tendered to the North Coast Water Board on a prior version of a TMDL, but fails to disclose what quarrel, if any, the commenter has with the response provided or the action taken by the North Coast Water Board in response to the comment, the State Water Board is unable to address the comment. Specifically, in those cases where the North Coast Water Board made changes in response to a comment, the commenter has failed to explain how the changes were allegedly inadequate. Likewise, where the North Coast Water Board did not make changes, the commenter has failed to explain how the response or explanation that the North Coast Water Board provided was allegedly inadequate, or even whether the commenter believes that the response was inadequate.</p> <p>Where a commenter has merely repeated a comment submitted below, the State Water Board cannot divine what the commenter believes has been adequately satisfied and what has not, nor can it determine the reason for any remaining dissatisfaction. State Water Board staff has reviewed the North Coast Water Board's responses to ensure that they are thorough and address the specific question presented.</p>
1.1	Alexis Strauss	EPA supports the North Coast Regional Board's approach for the site specific water quality objectives for dissolved oxygen in the Klamath River. These site specific objectives for dissolved oxygen.	State Board staff agrees with the U.S. Environmental Protection Agency (U.S. EPA) and appreciates its comments and support.

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		(DO SSOs) update existing objective applicable to the Klamath River; they accommodate data from current collection technologies and are based on DO values achievable under natural conditions, and temperature and pressure. EPA recommends that the State Board approve the amendment to the North Coast Basin Plan to establish the DO SSOs, and submit the DO SSOs to EPA for review under Clean Water Act Section 303(c).	
1.2	Alexis Strauss	EPA worked closely with the North Coast Regional Board during development of the <i>Staff Report for the Klamath River Total Maximum Daily Loads (TMDLs) Addressing Temperature, Dissolved Oxygen, Nutrient and Microcystin Impairments in California</i> and the <i>Klamath River and Lost River Implementation Plans</i> . We are impressed by the quality of the document, and are confident that it represents a strong technical approach. EPA supports the State Board's approval of these amendments to the North Coast Basin Plan (to establish the action plan for the Klamath River TMDLs and the Implementation Plan for the Klamath and Lost River basins), as they represent an important next step in the process of advancing water quality in the Klamath Basin.	State Water Board staff agrees with U.S. EPA and appreciates its comments and support.
1.3	Alexis Strauss	While EPA supports the Board's approval of this amendment, this letter does not constitute an approval or determination by EPA under Clean Water Act Sections 303(c) or 303(d). EPA looks forwards to the submittal of the DO SSOs and the Klamath River TMDLs by the State Board to enable EPA approval by December 31, 2010. As you know, EPA is to adopt or establish nutrient and temperature TMDLs for the Klamath River, from the Oregon border to the Pacific Ocean, by December 31, 2010 in accordance with the consent decree <i>Pacific Coast Federation of Fishermen's Associations, et al- v, Marcus (No. 95-4474 MHP, 11 March 1997)</i> , amended in December 2007 (<i>Notice of Agreement to Modify Schedule for Establishment of Total Maximum Daily Loads</i> (filed in US, District Court for the Northern District of California)	Comment acknowledged.
2.0	Justin Oldfield	None of the comments expressed by this author raise any new issues not addressed previously by the North Coast Water Board	State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with

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			its responses. Please see Response to comment 0.1 as well as North Coast Water Board's responses to "Comment Q1- Q12".
2.1	Justin Oldfield	CCA is concerned with many of the long-term impacts the adoption of the proposed amendment to the TMDL in its current form will likely have on ranchers within the North Coast region, specifically the adoption of a region-wide waiver of waste discharge requirements for grazing activities. CCA respectfully requests the State Water Resources Control Board (State Water Board) not approve proposed amendment at this time and provide direction to the North Coast Regional Water Quality Control Board (North Coast Regional Board) staff to continue to work with CCA and ranchers within the region to address issues of concern relative to the Implementation Plan and the adoption of a regional grazing waiver which staff indicates will include grazing on non-irrigated rangeland in addition to irrigated lands.	State Water Board staff recommends approval of the Basin Plan amendment. The North Coast Water Board has confirmed their commitment to continue to work with the stakeholders. The North Coast Water Board staff has not yet decided on the appropriate recommendations concerning the specific requirements of the waiver program and will base those recommendations on the outcome of the stakeholder process. Also the development of the future agricultural waiver will have ample opportunities for public input and involvement.
2.2	Justin Oldfield	First and foremost, CCA and ranchers support the use of best management practices based on sound science and research developed by range specialists. Over the years, the University of California Cooperative Extension (UCCE), with the support of the industry, have been working to better demonstrate the effectiveness of rangeland best management practices focused on preventing or minimizing water quality impacts where they exist from grazing activities. CCA has also supported outreach and educational efforts by UCCE, the Natural Resources Conservation Service, Resource Conservation Districts and others to help ranchers develop ranch management plans and successfully implement best management practices on the ground. As such, ranchers have proactively worked to participate in educational short courses, implement sound best management practices and are always actively striving to improve the lands they depend on to produce food for California, our nation and the world.	State Water Board staff echoes the North Coast Water Board staff's acknowledgement of the work done, and measures taken by ranchers to proactively work to improve water quality. Both the State and North Coast Water Boards strongly supports these activities and recommend that these efforts be continued.
2.3	Justin Oldfield	Table 4-18 of the Implementation plan outlines the North Coast Regional Board's intention to adopt a region-wide agricultural	Table 4-18 does outline the North Coast Water Board's commitment to consideration of an agricultural

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		<p>waiver by 2012 that would cover irrigated agricultural and grazing activities. It also outlines activities for ranchers in the interim to complete including the formation of watershed groups to report to the North Coast Regional Board in the future as part of the grazing waiver program.</p> <p>The use of watershed groups, also expressed as coalitions, used by Regional Boards to manage costs associated with water quality monitoring should not be used for grazing activities on non-irrigated rangeland, and in most cases, irrigated pasture. Economic return per-acre from beef production on rangeland is typically minimal since it takes large tracts of land to produce and raise cattle appropriately. Economic returns from grazing activities should not be compared to those of intensive agriculture who bring a much larger return per acre and may be better suited to bear the costs of watershed groups or coalitions.</p>	<p>conditional waiver by December 2012. Table 4-18 also recommends actions for any party conducting grazing activities or activities associated with irrigated agriculture that discharge waste or have the potential to discharge waste on non-federal land in the Klamath River basin. These are only recommendations and as stated above in response to comment 2.1 the development of the future agricultural waiver will have ample opportunities for public input and involvement. State Water Board staff understands the commenter's concern but cannot recommend delay of the approval of this Basin Plan amendment because of concerns over a conditional waiver that is not part of this amendment and that will have its own opportunity for public input and involvement.</p>
2.4	Justin Oldfield	<p>Likewise, CCA firmly believes that ranchers should not be responsible for water quality monitoring associated with the adoption of a grazing waiver largely because the costs will be unbearable. Research has demonstrated that photo monitoring is effective and feasible and has been demonstrated to be an effective alternative to water quality monitoring in order to document, track and correct known discharges of sediment or pathogens on rangeland.</p>	<p>State Water Board staff understands the commenter's concern but cannot recommend delay of the approval of this Basin Plan amendment because of concerns over speculative monitoring requirements and costs for a conditional waiver that is not part of this amendment and that will have its own opportunity for public input and involvement.</p>
2.5	Justin Oldfield	<p>A region-wide grazing waiver associated with the adoption of the proposed amendment should also be clear not to presume that all grazing activities discharge sediment, waste or impact stream temperature. As stipulated by the law, only activities that discharge or propose discharge waste are required to be covered by one of the various regulatory mechanisms outlined by the California Water Code. Ranchers are proactive in implementing various best management practices that prevent the discharge of waste and sediment, therefore grazing near riparian areas does not definitively demonstrate that waste or sediment is being discharged. Ranchers are also the experts in addressing potential</p>	<p>State Water Board staff echoes the North Coast Water Board staff's response, "The need for a regulatory program to regulate agricultural discharges is established by the State Nonpoint Source Policy." "All dischargers are subject to regulation under the Porter-Cologne Act including both point and nonpoint source dischargers." (State Nonpoint Source Policy) The agricultural waiver program would only apply to operations that discharge waste to waters of the State, not to all agricultural activities. Not all growers and ranchers would need to apply for waiver coverage. The waiver would</p>

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		<p>areas of discharge on their lands, and any regulatory program should respect a ranchers' ability to determine where and when best management practices should be used. CCA urges the State Water Board and North Coast Regional Board take this into account when considering the implementation of this TMDL and the development of other TMDLs or waivers throughout the state related to grazing.</p>	<p>conditionally waive a discharger's <i>obligation</i> to apply for Waste Discharge Requirements (including submittal of a Report of Waste Discharge) and authorize the discharge(s) if the conditions of the waiver are met. The Porter-Cologne Water Quality Control Act specifically states that "all discharges of waste into the waters of the State are privileges, not rights."</p> <p>State Water Board staff agrees with the commenter that not all agricultural activities result in a discharge of waste. The agricultural waiver program would only apply to operations that discharge waste to waters of the State, not to all agricultural activities. Staff commends and thanks the ranchers for their proactive implementation of best management practices that prevent the discharge of waste and sediment. Staff also agrees that in many cases ranchers are the experts in addressing potential areas of discharge on their lands and thus join the North Coast Water Board staff in welcoming their input and feedback during the development of the North Coast Water Boards agricultural waiver.</p>
2.6	Justin Oldfield	<p>Other sources of pathogen and sediment discharge are prevalent within watersheds as well, both from human activities and wildlife. The proposed amendment should effectively address these others sources, including a realistic and well established background baseline for pathogens contributed from unregulated sources. Ranchers should not be required to implement costly mitigation measures for water quality impacts they may have no control over.</p>	<p>State Water Board staff agrees that agricultural discharges are not the sole source of sediment or pathogen discharges into the watersheds. Although this amendment is not designed to specifically address pathogens, many sediment related management practices are known to address pathogens as well. The North Coast Water Board staff's analysis was not limited to any particular source but analyzed the watersheds numerous sources.</p> <p>Also please see response to comment 2.4.</p>
3.1	G. Scott McGowen	<p>Caltrans strongly supports efforts to protect human health and achieve the best water quality possible. In addition, Caltrans has been proactive in and committed to meeting TMDL goals within the</p>	<p>State Water Board staff commends and thanks Caltrans for being proactive in and committed to meeting TMDL goals within the North Coast Region.</p>

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		North Coast Region,	
3.2	G. Scott McGowen	<p>Caltrans' major concern relates to habitat restoration. Section 303(d)(1)(C) of the Clean Water Act, as described in the State Water Resources Control Board's (SWRCB) water quality control policy, "requires the states to identify impaired waters and to establish the total maximum daily loads for certain pollutants impairing those waters". According to the United States Environmental Protection Agency (USEPA), a TMDL is a numerical calculation of the amount of a pollutant that a water body can assimilate and still meet water quality standards. In the immediate case, removal of fish passage barriers has not been shown in the administrative record to improve water quality, increase the number or location of thermal refugia, or set any numerical limits on any pollutant impairing fish migration. Fish passage barriers are neither pollutants nor waste. As previously mentioned in our August 2009 letter, it is Caltrans position that the use of a TMDL to restore the habitat is not appropriate unless it establishes numerical limitations on the introduction of pollutants into the waters. The NCRWQCB failed to address this comment and instead responded with the text from SB 857.</p>	<p>The North Coast Water Board addressed this comment in response to "Comment P3", specifically: "The TMDL implementation plan is intended to work with existing requirements and has noted the importance of assessing and remediating fish barriers in protecting and restoring the COLD beneficial use of the Klamath Basin. Barriers prevent fish from reaching cold water refugia that have been recognized in the TMDL as essential for maintaining the natural temperature regime in the Klamath Basin." State Water Board staff agrees with the North Coast Water Board's response.</p> <p>Also, Water Code section 13242 requires a program of implementation for achieving water quality objectives and shall include but not be limited to: (a) A description of the nature of the actions which are necessary to achieve the objectives, including recommendations for appropriate actions by any entity, public or private. Therefore assessing and remediating fish barriers would be part of the plan of implementation required under Water Code section 13242.</p>
3.3	G. Scott McGowen	<p>As we also mentioned in our August 2009 letter, Caltrans lacks resources to address the TMDL outside of the funding allocated to applicable highway projects. Unlike local governmental entities, Caltrans does not possess the authority to impose user or utility fees to pay for the TMDL implementation. The NCRWQCB responded with understanding that Caltrans acknowledges its responsibility to comply with state and federal water quality law and regulation, but funding remains an issue. Caltrans requests that the difficulty in funding be acknowledged and that language be added to the TMDL to allow for flexibility in implementation during times of funding challenges.</p>	<p>State Water Board staff agrees with the North Coast Water Board response to this comment. The Basin Plan amendment does not prevent the North Coast Water Board from allowing some flexibility; however, State Water Board staff defer to the judgment of the North Coast Water Board to not include this language specifically in the Basin Plan amendment.</p>
3.4	G. Scott McGowen	<p>Comment Letter included attachment of previously submitted Comment Letter to the North Coast Water Board.</p>	<p>State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with</p>

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			its responses. Please see response to comment 0.1.
4.1	Mark Willrett	The City recognizes and appreciates the significant inter-state collaborative efforts that many parties have made to understand, develop, and promote the health of the Klamath River.	State Water Board staff thanks the City for its recognition and appreciation of the significant inter-state collaborative efforts that many parties have made to understand, develop, and promote the health of the Klamath River.
4.2	Mark Willrett	We have been an active participant in this process by implementing river protection restoration measures in our own jurisdiction. We have also participated in the development of TMDLs in Oregon and commented on the UKL TMDL and, more recently, the OR TMDL. The City's comments on the OR TMDL are under review by the Oregon Department of Environmental Quality ("DEQ" or "Department"). The comments to DEQ are attached to this letter and incorporated herein by reference.	State Water Board staff has not responded to the attached letter as the comments are not regarding the Klamath River TMDLs in California and therefore could not determine how or if those comments pertain to this Basin Plan amendment.
4.3	Mark Willrett	The planned phosphorus load reductions at the Stateline are irrational and unreasonable and not likely to occur.	The North Coast Water Board has already addressed this comment in its responses to "Comment D1, D2, and Hemstreet Comment 2". State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses. Please see response to comment 0.1.
4.4	Mark Willrett	Neither the State Board nor the Regional Board has authority over non-point or point source discharges in Oregon. Further, California does not have any authority to assign an enforceable load allocation to the Stateline. It is the Oregon DEQ that has authority over point and non-point sources in Oregon that discharge into the Klamath River. Nonetheless, it is clear that California authorities will rely on the DEQ to implement non-point and point source controls for constituents like phosphorous to address water quality objectives in California.	The North Coast Water Board has already addressed this comment in its responses to "Comment G1 and G2". State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses. Please see response to comment 0.1.
4.5	Mark	The City raised significant concerns under Section A of its	The North Coast Water Board has already addressed this

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	Willrett	<p>comments to DEQ about the underlying premise of the OR TMDL that, once the UKL TMDL is implemented, only 70,786 pounds of total phosphorus will enter Lake Ewauna from the UKL. As indicated in the OR TMDL Figure 2.38 (replicated below), that is a planned 91 percent reduction in phosphorus loading from the upstream UKL (818,049 pounds to 70,786 pounds), which is extreme, unprecedented and not supported by water quality trends in the region or by similar efforts in other states. This is evident by the OR TMDL Figure 2-18 (replicated below), which is a time series of mean total phosphorus concentrations from the UKL from 1990 through 2002 (the time the UKL TMDL was approved) and through 2009. Over this period, the record does not show reductions in phosphorus loading from the OKL.</p> <p>Unfortunately, the planned phosphorus load reductions at the Stateline in the CA TMDL are based on the same false premise - the attainment of extremely low phosphorus reductions from the UKL. See Staff Report at Figure 5.1 (expected annual phosphorus load allocations at Stateline); see <i>also</i> Plan Amendment at Table 4-16 (nutrient and organic matter daily load allocations at 245+ pounds of phosphorus at Stateline). As the Regional Board acknowledges, there is no question that the UKL system is naturally eutrophic, highly variable, and the dominant source of downstream water quality impairments. See Staff Report at 4-2, 4-4, 4-14, 9-6; see <i>also</i> Plan Amendment at 4-6.00. There is simply no scientific or technical evidence that the presumed and unprecedented reductions of loads from the highly variable and nutrient-rich UKL will ever occur. Therefore there is no rational basis to support California's assumptions about the loads it expects to receive at the Stateline now, in five years, or decades into the future.</p>	<p>comment in its responses to “Comment D1, D2, and Hemstreet 2”.</p> <p>State Water Board staff reviewed the North Coast Water Board’s responses to these comments and agrees with its responses.</p> <p>Please see response to comment 0.1.</p>
4.6	Mark Willrett	<p>The DEQ and Regional and State Boards need to focus on non-point source controls in the UKL system to improve water quality in the Klamath River.</p>	<p>North Coast Water Board staff worked closely with Oregon Department of Environmental Quality staff throughout the development of the Klamath River TMDLs, in accordance with the Memorandum of</p>

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			<p>Agreement on the development of the Klamath River TMDLs signed by the North Coast Water Board, Oregon Department of Environmental Quality, and U.S. EPA Regions 9 and 10. The California Klamath River TMDL specifies the loads at Stateline, leaving the more detailed assessment of loads (including breakout of point and nonpoint sources) to the Oregon Klamath River TMDL. The Upper Klamath Lake TMDL is an Oregon Department of Environmental Quality adopted; U.S. EPA approved TMDL which provides a framework for achieving TMDL compliant conditions. The vast majority of the pollutant load in the Klamath basin is from nonpoint sources, such as the sources identified in Table 4.1. The California Klamath River TMDL does provide source area load estimates and priority has been placed on assisting with reducing loads within Oregon. Thus the development of the Klamath basin water quality tracking and accounting system is intended to promote collaboration on priority pollutant sources. However, as the commenter stated, neither the State Water Board nor the North Coast Water Board has authority over non-point or point source discharges in Oregon. Therefore, it is unclear how the commenter expects California to prioritize non-point source pollution control in Upper Klamath Lake when it will ultimately be at the State of Oregon's discretion to implement the load and wasteload allocations in the way it deems appropriate.</p>
4.7	Mark Willrett	The City appreciates the need for action on the part of Oregonians to protect water resources in California. However, that action needs to be grounded in reasonable expectations of what load reductions are possible and who should bear the costs of those reductions.	Please see response to comment 4.3.
4.8	Mark Willrett	The Staff Report recognizes that the UKL is the dominant source of downstream loading of phosphorus, but then seems to under-emphasize its significance. For instance, Section 6.2 of the Staff Report states in pertinent part:	State Water Board staff disagrees that the Staff Report misleads individuals to underestimate the magnitude of the contribution of nutrients from Upper Klamath Lake. The Staff Report clearly states that Upper Klamath Lake

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		<p>...Nutrient loads in the Klamath River at stateline originate mainly from Upper Klamath Lake, as well as from the Lost River basin through the Klamath Straits Drain and Lost River Diversion Channel, and to a lesser extent from point sources in Oregon. Nutrients coming from these sources contribute to DO and pH swings downstream, as well as to aquatic plant growth within the river and blue-green algae blooms within the Copco and Iron Gate reservoirs in California.</p> <p>Such references are misleading and should instead explain that there is a comparatively enormous contribution of nutrients from the UKL which dwarfs contribution from point sources.</p>	<p>delivers high levels of nutrients and organic matter to the Klamath River.</p>
4.9	Mark Willrett	<p>Thus, it is clear that compliance with the draft phosphorus Waste Load Allocation ("WLAs") by the City and other point sources in Oregon will not produce a perceptible improvement in river water quality without significant reduction in the UKL loads. In the case of the City, if it is required to meet its draft WLA for phosphorus, such compliance will come at an exorbitant cost with little promise of any measurable water quality improvements.</p> <p>There is a profound need for authorities in Oregon and California to prioritize non-point source pollution controls in the upstream UKL without requiring point sources to immediately construct high cost treatment facilities with little promise of actually improving water quality. In Sections B and C of the City's Comments to DEQ, the City recommended measures to prioritize non-point source control and to ease undue burdens on point sources (e.g., by not allocating WLAs to point sources at this time, by setting them higher, by phasing in WLAs over time to prioritize nonpoint source controls, and/or by implementing WLAs that do not apply year round to expand wastewater treatment options). Such measures would also allow DEQ and NPDES permittees to address significant uncertainties surrounding prospective arsenic standards, and to resolve unknowns as to the effects of the proposed dam decommissioning on Klamath River water quality, before the City is</p>	<p>Please see response to comment 4.6.</p>

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		forced to invest significant rate-payer funds into treatment technologies.	
4.10	Mark Willrett	The City also expressed to DEQ and reiterates here its strong endorsement for the concept of water quality credit trading as a potential low-cost method to achieve water quality objectives. Such efforts are clearly supported by the Regional Board as a key implementation measure for the CA TMDL. See Staff Report at 6-66. However, the City cautions both DEQ and the State and Regional Boards that it is critical that no authority should consider this emerging market when determining what WLA to allocate to a permittee. The fact that there can be water quality trades does not mean there will be and does not justify allocating to a point source a low WLA simply because it might at some point be able to purchase credits from another.	Water quality credit trading was not used to determine allocations but rather included by the North Coast Water Board as an option to potentially provide flexibility in meeting the allocations. There is no requirement to seek compliance through trading. The North Coast Water Board has structured a pollutant trading and tracking program to encourage the implementation of centralized treatment options. This approach reflects consideration of engineering, costs, political and social factors, magnitude of impact, degree of success, and feasibility.
4.11	Mark Willrett	The State and Regional Boards should delay the adoption of this TMDL or develop alternative plans based on realistic load reduction scenarios.	Please see response to comment 4.3.
4.12	Mark Willrett	The DEQ has not yet adopted the OR TMDL and only recently closed the public comment period. It is illogical for California to adopt the downstream CA TMDL before Oregon adopts its TMDL. After all, the downstream TMDL is based on presumed load allocations at the Stateline that themselves are flawed, not adopted, not enforceable, and subject to change by the DEQ. Assuming these allocations are changed, California's assumptions about loads it expects to receive at the Stateline will be meaningless.	<p>The North Coast Water Board has already addressed this comment in its responses to “Comment G5, G6”, and G8”.</p> <p>State Water Board staff reviewed the North Coast Water Board’s responses to these comments and agrees with its responses.</p> <p>Please see response to comment 0.1.</p> <p>State Water Board staff disagrees with this comment Staff do not agree that these allocations are flawed. These allocations have been adopted by the North Coast Water Board. Allocations themselves are not directly enforceable. These allocations at Stateline are consistent with the necessary reductions to meet California’s water quality standards.</p>
4.13	Mark	However, given the timing of the proposed adoption of the CA	The North Coast Water Board has already addressed this

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	Willrett	TMDL, the City is very concerned that if California adopts this TMDL, that will undeniably create undue and inappropriate pressure on the part of the DEQ to adopt the OR TMDL and, in the course of doing so, to disregard or dismiss the significant comments that the City has made on the OR TMDL, even if the Department agrees with those comments.	comment in its response to "Comment G3, and G8". State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses. Please see response to comment 0.1. The North Coast Water Board is obligated to ensure that water quality standards are met for protecting designated beneficial uses. These allocations are consistent with meeting water quality standards in California.
4.14	Mark Willrett	The City recognizes that there is a consent decree that apparently requires that the CA TMDL be adopted in 2010. See Staff Report at 1-3. However, the timing for adoption has been extended at least once and, under the circumstances, it should be extended again to adopt the CA TMDL after the load allocations in Oregon are final and enforceable. Otherwise, the adoption of the downstream TMDL could potentially constrain DEQ's independent judgment to adopt appropriate load allocations for the upstream segments of the Klamath River. Alternatively, the State and Regional Boards should integrate into their TMDL an analysis of alternatives that may be feasibly accomplished in the event that the draconian load reduction assumptions at the Stateline prove unattainable and how downstream load allocations would be adjusted accordingly.	The North Coast Water Board has already addressed this comment in its response to "Comment G5", G6", G8, D1, D2, and Hemstreet 2". State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses. Please see response to comment 0.1.
4.15	Mark Willrett	Such actions are consistent with the first principle expressed in the Plan Amendment's list of "Implementation Actions" to address the Stateline load allocations that the Regional Board, the DEQ, and the U.S. Environmental Protection Agency ("EPA") Regions 9 and 10 "[w]ork to develop and implement a joint adaptive management program, including joint time frames for reviewing progress and considering adjustments to TMDLs...." See Plan Amendment at Table 4-18. In the City's view, adaptive management involves developing planning scenarios for what to do if the DEQ and the Regional Board are wrong about the realistic load reductions from	The North Coast Water Board has already addressed this comment in its response to "Comment D1, D2, and Hemstreet 2". State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its response. Please see response to comment 0.1.

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		the UKL. Given that it is highly unlikely that the phosphorus loads will be reduced as planned at the Stateline, the State and Regional Boards should revise the CA TMDL to adopt more realistic assumptions for load reductions or, in the alternative, to adopt measures that would apply in the event that phosphorus loads are not reduced as expected.	
4.16	Mark Willrett	As explained under Section E of the City's public comments on the OR TMDL, the WLAs assigned to the City for nitrogen and phosphorus are predicated on model output that is not reliable and, in turn, the WLAs themselves are unreasonable. It appears that the CA TMDL is based on the same modeling output performed in Oregon. See Staff Report at 4-1. The City has requested that the DEQ review and revise its use of the TMDL models and modeling output to ensure that such output can reasonably be relied on to support allocation decisions. The Regional Board should also review and revise its use of the models and modeling output for the CA TMDL to reflect more realistic assumptions about phosphorus loading from the UKL, to the extent such models relied on model output from Oregon.	<p>The North Coast Water Board has already addressed this comment in its response to "Comment D1, D2", and Hemstreet 2".</p> <p>State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses.</p> <p>Please see response to comment 0.1.</p>
4.17	Mark Willrett	The City also requests a clarification in the Plan Amendment and a technical revision to the Staff Report. Table 4-18 of the Plan Amendment refers to one implementation action to achieve Stateline allocations by "Explore[ing] engineered treatment options such as treatment wetlands, algae harvesting, and package wastewater treatment systems to reduce nutrient loads to the Klamath River and encourage implementation of these options where feasible..." The City requests clarification as to what is meant by "package wastewater treatment systems." The City also notes that Figure 4.2 of the Staff Report is supposed to present a "Current total nitrogen annual loading diagram," but the diagram should be revised because it presents information about phosphorus loading and not nitrogen loading.	<p>The word "package" has been deleted from the referenced sentence in Table 4-18 by the Executive Officer of the North Coast Water Board.</p> <p>Thank you for pointing out the error in Figure 4.2. The correct figure with Total Nitrogen loads will be changed in the final staff report.</p>
4.18	Mark Willrett	The City is concerned that the Regional and State Boards' proposed Plan Amendment and the CA TMDL are set up for failure. The TMDL erroneously relies on a poor foundation that	The North Coast Water Board has already addressed this comment in its response to "Comment D1, D2, and Hemstreet 2.

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		massive and unprecedented phosphorus load reductions will occur in Oregon when there is nonscientific or technical basis to support this assumption. The City also strongly encourages the Regional and State Boards to delay finalizing the TMDL until Oregon has established appropriate phosphorus load reduction assumptions for the UKL system and finalized its TMDL for the Klamath River. That way the expected load reductions at the Stateline can be based in reality as opposed to the unrealistic targets set in the OR and CA TMDLs.	<p>State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses.</p> <p>Please see response to comment 0.1.</p>
4.19	Mark Willrett	Comment Letter included attachment of a Comment letter submitted to the Oregon Department of Environmental Quality on the Upper Klamath and Lost River Subbasins Draft TMDL and Water Quality Management Plan.	State Water Board staff has not responded to the attached letter as the comments are not regarding the Klamath River TMDLs in California and therefore could not determine how or if those comments pertain to this Basin Plan amendment.
5.1	Ric Costales	Letter and Attachment Letter were submitted in their entirety to the North Coast Water Board	<p>State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses.</p> <p>Please see response to comment 0.1.</p>
6.1	Robert Donlan	The Regional Water Board's responses do not adequately address a key concern of PacifiCorp's comments, namely that the very large nutrient load reductions required by the Klamath River TMDL are not achievable or practicable. For example, the TMDL's nutrient allocations call for reductions in total phosphorus (TP) of up to 98 percent and total nitrogen (TN) of up to 75 percent at Stateline (and other downstream locations by extension). The Regional Water Board's responses (including Responses 1, 2, 4, 21, 22, 77, 107, 109, 170, 172, 204, 205, 209, and 238 in Appendix 10) offer no substantive technical rationale supporting the achievability and practicality of these very large nutrient load reductions. Rather, the responses only provide simple unsubstantiated opinion statements, such as Regional Water Board staff "disagrees with this comment" (e.g., Response 2) or "believe that the targets and allocations are achievable" (e.g., Response 172).	<p>State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses.</p> <p>Please see response to comment 0.1.</p> <p>State Water Board staff has reviewed the TMDL staff report and previous responses to these comments prepared by the North Coast Water Board and agree that there is substantial technical justification and rationale for the TMDL pollutant load reductions and a well defined implementation framework to achieve these reductions.</p> <p>To briefly reiterate the key points:</p> <ul style="list-style-type: none"> ▪ The boundary conditions for the Klamath River come from the Upper Klamath Lake TMDL, which is the

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			<p>best information available;</p> <ul style="list-style-type: none"> ▪ Scientific studies such as Eilers (2004) demonstrate an increase in productivity and changes in species composition in Upper Klamath Lake that are coincident with historic large-scale land disturbance activities in the upper basin; ▪ The nutrient and organic matter are above natural background levels and large reductions are necessary to meet water quality standards; ▪ As part of Interim Measure 10 of the Klamath Hydropower Settlement Agreement, PacifiCorp and the North Coast Water Board will be investigating the many available technologies to achieve required reductions; and <p>The TMDL implementation plan is flexible, providing the opportunity to offset load allocations, and time schedules that are appropriate. The TMDL adaptive management framework will allow for modification of TMDL targets and allocations if appropriate.</p>
6.2	Robert Donlan	<p>The Regional Water Board's responses do not adequately address PacifiCorp's request for actual documented cases in which nutrient load reductions on such a large scale have been achieved elsewhere, or even determined to be feasible and achievable for planning and implementation purposes, particularly where nutrient sources are overwhelmingly nonpoint source-dominated as in the Klamath Basin (e.g., Responses DI and 205). The Regional Water Board briefly mentions (in Response DI) four "nutrient management programs", namely Lake Washington, Moses Lake, Gulf of Mexico hypoxia, and the Chesapeake Bay. The Lake Washington and Moses Lake programs are at a much smaller scale than the Klamath Basin. In the case of Lake Washington, nutrient sources are principally related to specific point-source discharges (e.g., sewage treatment plants). The Gulf of Mexico and Chesapeake Bay programs involve nutrient load reduction goals that are at much lower percentages than required in the Klamath River TMDL.</p>	<p>All TMDLs include unique characteristics and a technical precedent is not a requirement for each new TMDL. While the Klamath Basin is unique, the North Coast Water Board staff examples include relevant information from other parts of the country in response to PacifiCorp's comment. State Water Board staff agrees that the magnitude of nutrient load reductions needed to achieve water quality standards is large, though not unprecedented. For instance, the Mississippi Basin / Gulf of Mexico TMDL requires reductions over a larger geographic scale and a larger total mass reduction of nutrients. State Water Board staff reviewed the implementation plan and support the proposed approach as a reasonable framework to achieve the Klamath River TMDLs.</p>

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		<p>If the above programs are the only cases that the Regional Water Board can cite, this simply reinforces PacifiCorp's conclusion that the magnitude of nutrient load reductions required in the Klamath River TMDL are unprecedented and unlikely to be attained.</p>	
6.3	Robert Donlan	<p>PacifiCorp's previous comments demonstrated that the TMDL's water quality targets and load allocations are inappropriate and unrealistic because they do not reflect the reality of the Klamath River Basin's natural or background nutrient enriched characteristics. The TMDL acknowledges that Upper Klamath Lake's hypereutrophic status "has had profound water quality implications and has resulted in impairment of beneficial uses ... in downstream waters" of the Klamath River. The Regional Water Board's response (Response 1) also acknowledges that the 'TMDL nutrient limits for reservoirs do require nutrient reduction below background" (emphasis added). Despite these acknowledgements, the Regional Water Board's response (Response 1) states that the "targets and allocations are achievable and the implementation plan provides a strong framework to develop the necessary management actions required to achieve the proposed nutrient reductions". Also, it is unclear why the Regional Water Board considers the implementation plan to be "strong" (Response 1), given that it is only a generalized framework for the process for developing an implementation plan. Beyond these general statements and information, the TMDL and the Regional Water Board's responses to various PacifiCorp's comments on this issue (including Responses A6, A30, B10, B12, C47, D4, D9, E, 23, 25, 75, 77, 119, 125, 205, 206, 207, 238, 248, 296, 299, and 301 in Appendix 10) provide no details on the specific actions, technologies, or methods the Regional Water Board assumes could achieve these large nutrient reductions, nor the likely timeframe in which the reductions could be attained. Absent these details, the TMDL lacks credibility, particularly given the Klamath River's natural nutrient-enriched characteristics.</p>	<p>State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses. The TMDL staff report reference to Upper Klamath Lake is in regards to its current degraded condition which will be addressed through the Oregon's fully approved Upper Klamath Lake TMDL. In addition, the staff report very clearly delineates between upstream pollutant loading from sources in the upper part of the basin above the PacifiCorp facilities and the impairments due to conditions within the reservoirs. As explained in Chapter 5 of the TMDL staff report, the nutrient allocations to PacifiCorp facilities (in CA) are the difference between water quality objective compliance without the reservoirs versus with the reservoirs. The allocation is not a result of upstream pollutant loads; upstream loads will be addressed through other allocations and the Upper Klamath Lake and Lost River TMDLs. The allocation to PacifiCorp is to address water quality conditions within its own facilities. The water quality conditions within the reservoirs are the responsibility of PacifiCorp. The allocations to the reservoirs provide the nutrient concentrations required to restore beneficial use supporting water quality conditions. PacifiCorp is also offered the opportunity to demonstrate alternative in-reservoir management implementation measures to achieve the TMDL chlorophyll-a and microcystin targets.</p> <p>The implementation plan lays out several important policy initiatives that are currently under development. PacifiCorp is participating in the development of some</p>

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			<p>but not all of the programs being put into place. These combined programs address the sources of impairment to the Klamath River and given the implementation timeline, State and North Coast Water Board staff are confident that the TMDL will be successful in addressing Klamath River impairments and restoring beneficial uses.</p> <p>PacifiCorp is in the best position to develop a plan and timeline to bring its facilities into compliance and its participation is essential. A generalized framework is necessary to accommodate various parallel processes occurring, and also places PacifiCorp in a leadership role.</p> <p>Additionally Chapter 9.5.2 details analysis of compliance measures, associated potential environmental impacts, and possible mitigation measures for the Klamath Hydroelectric Project.</p>
6.4	Robert Donlan	<p>The Regional Water Board's responses are also inadequate because EPA's TMDL regulations require that load allocations be "attributed" to nonpoint and natural background sources based on best estimates of the actual pollutant loadings from those sources and of the load reductions that can practicably be achieved from them. See 40 C.F.R. § 130.2. There is no basis in the record for reasonably concluding that the TMDL load allocations can practicably be achieved; to the contrary, the record shows that they cannot practicably be achieved.</p>	<p>State Water Board staff has carefully reviewed the record, including response to "Comment K53", which addresses this and other arguments raised by PacifiCorp. We find the response more than adequate. The load allocations assigned to the Klamath Hydroelectric Project facilities are appropriate for a FERC-regulated hydroelectric facility. The implementation program is sufficiently flexible to allow time to study and implement a range of compliance measures.</p> <p>Also see response to comment 6.3.</p>
6.5	Robert Donlan	<p>PacifiCorp provided extensive comments detailing our concern with the 20 percent reduction in solar radiation in the river models, including detailed performance metrics based on model simulations denoting clear bias under the Regional Water Board's assumptions. The Regional Water Board's responses (including</p>	<p>State Water Board staff reviewed the North Coast Water Board's responses to these comments ("Hemstreet 9, 68, and 261") and agrees with its responses. Staff note the following points from the North Coast Water Board's response and information in the record:</p>

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		<p>Responses 9, 68, and 261) do not address the fundamental issue: although the river models and reservoir models utilized different solar radiation values (calculated and measured, respectively), the river model (as supplied by PacifiCorp) was calibrated to the calculated solar values, and these temperature calibration parameters were not changed when solar radiation was reduced by 20 percent. Regional Water Board comments do not address this critical, yet fundamental issue: simply lowering the calculated solar radiation by 20 percent in the river models without recalibration introduces systematic bias towards lower simulated temperatures compared to field observations. Another element of the comment that is not adequately addressed is why the 20 percent reduction was applied to all river reaches from Link Dam to the Klamath River estuary, even though the stated concern was a single site – Klamath River near Shovel Creek. USGS (Risley and Rounds, 2006) had provided a detailed peer review of the river calibration period - five years from 2000-04 - citing it as the best available model for regulatory processes. However, this peer review finding does not justify a solar radiation reduction without recalibration of the model.</p> <p>Further, this reduction in solar radiation, which was described as an "error" and an "oversight" in the recently released USGS review of the TMDL model (Rounds and Sullivan 2010), was corrected in the Lake Ewauna to Keno reservoir reach portion of the model upon which the USGS commented, but remains uncorrected in downstream river reaches. Thus, this comment remains unaddressed.</p>	<ul style="list-style-type: none"> • The 20% adjustment in the RMA-11 (riverine model) model was done as part of a calibration process. • The North Coast Water Board’s response is clear that the 20% reduction was applied to all river reaches for consistency in assumptions used for the Resource Management Associates model segments. (See Staff Report section 3.2.) • Rounds and Sullivan’s review of the model identified a remnant of code in the U.S. Army Corps of Engineers’CE-QUAL-W2 model that should have been removed but was mistakenly left in. It was removed following Rounds and Sullivan’s review. • The 20% reduction in solar radiation in the riverine reaches was always intentional, and was done to ensure the riverine model operated with the same solar radiation magnitudes as the reservoir models. • PacifiCorp’s model formulations simulate the “dams out” condition using solar radiation inputs that are 20% greater than both measured conditions, and simulated “dams in” conditions.
6.6	Robert Donlan	<p>The Regional Water Board's responses continue to defend the biased selection of phosphorus loads and concentrations from the Upper Klamath Lake TMDL to form boundary conditions. Regional Water Board staff selected the single year 1995 as the representative year from the Upper Klamath Lake TMDL. Using either load or concentration, 1995 is not the median year, but rather has lower loads and concentrations than the median year (which was 1998: 1995 was approximately 14 percent lower by</p>	<p>The Upper Klamath Lake TMDL is a fully approved TMDL and it is appropriate to use those values as the upper basin boundary conditions for the Klamath River TMDL compliance scenarios. State Water Board staff has consulted with North Coast Water Board staff who reviewed the Walker model output in consultation with Oregon Department of Environmental Quality staff and they have determined that 1995 is the median year for</p>

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		<p>concentration and nearly 30 percent lower by load than 1998). Also, using the median values to set regulatory criteria in the TMDL ensures that for half of the years the river will not be in compliance, leading to unrealistic expectations from regulated entities and unrealized water quality benefits. Selecting the appropriate year coupled with sensitivity analysis would have readily quantified the potential effect of the selected boundary condition and led to a more appropriate TMDL analysis.</p>	<p>loading. The purpose of the nutrient targets is to establish a general goal for conditions where beneficial uses are supported and water quality standards are met. Natural variability around the TMDL nutrient target is expected, exceeding the TMDL goal in a given year is a problem only if dissolved oxygen, pH, and other numeric water quality standards are violated. The TMDL is an adaptive management process and it is the Oregon Department Of Environmental Quality's discretion as to whether, with sufficient progress towards compliance with TMDL targets and improved water quality conditions, a reassessment of TMDL targets is appropriate.</p>
6.7	Robert Donlan	<p>The Regional Water Board's responses continue to defend the incorrect extrapolation of the Upper Klamath Lake TMDL for phosphorus to other nutrients based on fixed species ratios (stoichiometry). This incorrect extrapolation leads to unrealistic negative organic matter concentrations. To ameliorate negative concentrations, a minimum value was applied, leading to an overall loss of mass in the system boundary condition. The fixed annual ratios relating one nutrient species to another resulted in a seasonal distribution of organic matter that is counter to the scientific literature, with minimum values (near zero) occurring in summer and maximum values occurring in winter.</p>	<p>State Water Board staff have coordinated with North Coast Water Board staff and consulted with the TMDL model contractor (Tetra Tech) in developing the following response:</p> <ol style="list-style-type: none"> 1) The fixed stoichiometry ratio used in the Klamath River TMDL model was derived from data and is used as a fixed ratio in the model because there is no reliable way to represent this relationship as a dynamic time variable ratio. Therefore, to use a fixed stoichiometry ratio would at least allow us to represent a "general trend"; 2) It is incorrect to attribute "negative organic matter" concentrations to fixed stoichiometry. From general experience reviewing any number of water quality sampling data sets from various monitoring programs it is not uncommon to find a situation where the summation of NH4 and NO3 is greater than TN, which, if directly used to derive Org-N would result in negative values. Because real world data are subject to considerable uncertainty, assumptions are commonly needed and applied to constrain derived values, as in the present case.

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			<p>3) In Upper Klamath Lake, under TMDL conditions, it is possible that organic matter can be low during summer due to lack of watershed input and depressed algal production, but can be higher during winter due to storms. The scenario runs using the Upper Klamath Lake TMDL conditions represent a hypothetical analysis based on a certain set of assumptions. There is currently no evidence that disproves these assumptions.</p>
6.8	Robert Donlan	<p>The Regional Water Board's responses do not adequately address the incorrect partitioning of organic matter. Regional Water Board staff concluded that data from 2007-2008 were not applicable because "the data are 5 to 8 years more recent than the modeled period" (Response 259). However, Regional Water Board staff relied heavily on draft data and draft reports for their assessment of conditions in Copco and Iron Gate reservoirs from later data sets (Asarian et al. 2010). Further, the critical issue of partitioning was first broached in 2006 between Watercourse Engineering, Inc, and the Regional Board Staff and their consultant Tetra Tech. USGS reports with data from 2007 and 2008 clearly documented the more representative partitioning of organic matter, including seasonal variation. The data from 2007 and 2008 has clearly been one of the most insightful and useful data sets collected in the upper Klamath River to date. This is the best available data (even though collected in a time period later than 2000), and would have dramatically improved the model's accuracy in representing the system, yet was ignored in the TMDL analysis.</p>	<p>PacifiCorp's consultant submitted data following model development, calibration, and completion of TMDL scenario model runs. State Water Board staff finds no evidence to suggest that data was selectively used by the North Coast Water Board staff in its analysis. The North Coast Water Board is not required to incorporate new data sets submitted after model runs are completed. Incorporating this information into the model would have required more time and resources than were available, and using information from a year other than the model development year (2000) for highly variable data would have introduced another form of uncertainty to the analysis that offsets the value of incorporating the more recent data. The use of more recent data (Asarian 2010) appears to be included as a stand alone empirical data analysis used as an additional line of evidence.</p> <p>North Coast Water Board staff previously responded to the main technical point raised in this comment and those points are summarized again here for completeness:</p> <ul style="list-style-type: none"> ▪ Upper Klamath Lake water quality conditions are highly dynamic and variable, and can differ from year to year significantly, therefore the 2007-2008 data might not provide a good representation of what happened in 2000; and ▪ With the current partitioning in the model, the

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			<p>model was able to not only reproduce the observed DO well, but also the organic matter well. This indicates a reasonable, though not perfect, representation of the conditions in 2000.</p>
6.9	Robert Donlan	<p>Downstream implications of these boundary conditions at Link Dam for the 2000 year simulation are also important. In PacifiCorp's comments associated with Response 300, it was pointed out that the model results from the TMDL output indicate severe nutrient limitation on benthic algae, creating an unrealistic condition, which would have dramatic effects on food webs in the Klamath River between Keno Dam and the springs below J.C. Boyle Dam. However, the Regional Water Board's response dismisses the concern that these conditions upstream of the Oregon-California stateline are unattainable yet provides no sufficient explanation as to why.</p>	<p>The North Coast Water Board staff response to the referenced PacifiCorp comment is based on the premise that nutrient reductions can be achieved over time and that water quality conditions (including benthic algal biomass) will be monitored. The adaptive management framework provides the opportunity to adjust nutrient reduction allocations should conditions suggest that such a change is warranted. State Water Board staff agrees with this response.</p> <p>State Water Board staff has also reviewed the technical and legal responses and references provided in the North Coast Water Board staff comments on attainability and find that this material adequately addresses the issues raised by PacifiCorp.</p>
6.10	Robert Donlan	<p>The Regional Water Board's responses continue to defend the insufficient single year calibration: The model was only calibrated in California for 2000. Although the TMDL states that the model was validated in Oregon for 2002, calibration parameters differed between the 2000 and 2002 simulations, casting doubt on the validation. Five modeled years were provided by PacifiCorp and data were available to develop additional modeled years. These additional modeled years would have allowed assessment of interannual variability that is critical to setting regulatory criteria. At a minimum, these other modeled years should have been analyzed to determine if the 2000 year applied in the TMDL analysis represented median (or low or high) conditions with respect to water quality.</p> <p>Furthermore, the Regional Water Board's responses are contradictory, indicating on the one hand that the one year is sufficient for model calibration and to set TMDL requirements, but</p>	<p>Many of the comments submitted on behalf of PacifiCorp, including comments previously submitted to the North Coast Water Board, address issues about the Klamath River TMDL models that were applied for development of the TMDLs. State Water Board staff recognize that water quality models are inherently complex, and ones depicting a large and variable system such as the Klamath River are especially so. State Water Board staff acknowledges the significant effort employed by the North Coast Water Board in collaborating with PacifiCorp and working jointly with US EPA Region's 9 and 10, Oregon Department of Environmental Quality, and US EPA's contractor TetraTech on the modeling work. In addition, State Water Board staff acknowledges the extensive peer review of the models that was performed in development of the TMDLs. Finally, State Water</p>

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		<p>on the other hand indicating that one year is insufficient for other studies (e.g., Response 45, 259). The Regional Water Board needs to consider all data and information consistently.</p>	<p>Board staff recognizes that application of water quality models are always limited by the quantity and quality of information available, and often require best professional judgment. Given all of these points, State Water Board staff support the overall approach taken by the North Coast Water Board in developing and applying the Klamath River TMDL models for TMDL development.</p> <p>State Water Board staff reviewed all previous responses prepared by North Coast Water Board staff regarding model calibration (e.g. responses to “Comments A3, A10, A11, A77” and “comment Category A Attachment 1 Comment E1”) and support the model calibration and validation efforts employed. State Water Board staff agrees with the following statement by the Klamath River TMDL development team, included in the response to “Comment Category A Attachment 1 Comment E1”:</p> <p>“TMDLs are frequently developed using a single, “design” year selected by the project team. The year chosen for developing the model and establishing the TMDL was selected because it included periods of critical low flow and poor water quality conditions. This is consistent with the margin of safety requirement and the goal of developing environmentally conservative allocations... The Klamath River TMDL model development process has been heavily focused on capturing seasonal variability to the extent practicable. The TMDL development team does not believe that adding more model years to the model development process would significantly change the model parameters, given the within-year variability in this system.”</p> <p>The responses to “Comments Hemstreet 45 and 259” were not related to model calibration, but rather addressed the use of more than one year of data, where</p>
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			possible, when making judgments about model boundary conditions and model parameterization.
6.11	Robert Donlan	The Regional Water Board's responses continue to defend conservative assumptions that are insufficient to allow for sensitivity analysis and quantification of uncertainty: The conservative assumptions approach identified in the TMDL (Response 190) includes only a handful of mostly small magnitude effects, and is not quantified in any manner. Without sensitivity analysis and quantification of uncertainty, the predictive tools (models) used in the TMDL are not adequate to form explicit regulatory requirements, let alone provide guidance to the regulated community regarding prescriptions to improve water quality.	TMDLs must be developed with either an explicit or implicit margin of safety. An implicit margin of safety is established by incorporating conservative assumptions in the calculation of the loading capacity. State Water Board staff support the use of the conservative assumptions applied for the Klamath River TMDLs. Further, State Water Board staff support the North Coast Water Board's approach to evaluating model uncertainty and support the responses provided on this subject (e.g. responses to "Comments A2, A51" and "Comment Category A Attachment 1 Comment E1, and C2").
6.12	Robert Donlan	It appears as though the Regional Water Board made some changes to model parameters between the Draft TMDL in June 2009 and the Revised Draft TMDL in December 2009. However, the TMDL does not discuss formal recalibration of the model. Rather the figures and results were simply updated, i.e., formal reassessment of sensitivity and model calibration were not addressed (and uncertainty is not quantified or sufficiently accommodated in the draft or final TMDL). A non-unique calibration data set is problematic in the Klamath River TMDL model application (Response D1, page 20 Appendix 10).	In response to public comments on the June 2009 draft, some changes were made to model parameters between the June 2009 draft and the December 2009 draft; however, as noted in response to "Comment Category A Attachment 1 Comment D3": "The inconsistent values noted have been corrected and documented in the final Model Report, and these corrections did not result in major changes in model predictions." The model parameters used and final calibration results are documented in the North Coast Water Board's final Staff Report.
6.13	Robert Donlan	An important note in the application of both RMA and CE-QUAL-W2 models is that they are "off the shelf" models. (Response C3, page 14 Appendix 10) and that for specific applications it is the calibration parameter set that defines the model version for a particular river system, i.e., an RMA or CE-QUAL-W2 application to a river or reservoir in another system is not the "same" model application as the one used in the Klamath Basin. Thus when the model parameters changed notably between June and December, PacifiCorp commented that the latter model was notably "different," while the Regional Water Board identified the models as "the same." The use of "the same" is vague and misleading; they are	The North Coast Water Board has already addressed this comment in its responses to "Comment Hemstreet 9". State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with the response. See also response to comments 0.1 and 6.10.

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		<p>not the same models, particularly because formal recalibration did not occur. Nor are they the same model that was submitted for peer review, which the Regional Water Board relies upon heavily in its comment responses.</p>	
<p>6.14 through 6.21</p>	<p>Robert Donlan</p>	<p>The Regional Water Board's responses do not adequately address PacifiCorp's comments regarding the incorrect specification of nutrient inflows that were used for the TMDL compliance scenarios. The Regional Water Board's responses also do not adequately address the implications of this incorrect speciation on modeled reservoir algal production (Responses 306 through 313). The Regional Water Board needs to more directly address and implement corrections related to the following model problems arising from this incorrect specification:</p> <ul style="list-style-type: none"> ▪ Incomplete representation of nutrient dynamics in response to reservoir presence (e.g., the modeling does not accurately reflect that the reservoirs reduce loads during maximum biostimulatory periods, or retain and moderate event-driven nutrient peaks from upstream) ▪ Reductions in phosphorus and organic matter (by 30 percent), but not algae in incoming waters; ▪ Unrealistic algal concentrations in inflow (constant throughout year); ▪ Inconsistent definition for "summer" regarding attainment of 10 ug/L chlorophyll a criteria in Copco reservoir; ▪ Lack of uncertainty and sensitivity quantification regarding model results, and the 10 ug/L chlorophyll a criteria in Copco reservoir; ▪ The incorrect assumption that all incoming algae is toxin-producing cyanobacteria; ▪ The inherent bias in the modeling of Copco and Iron Gate reservoirs from assuming the presence of <i>only</i> a single algal group (which is assumed to consist of 100 percent toxin-producing cyanobacteria). 	<p>State Water Board staff has reviewed the referenced materials and consulted with Tetra Tech and have the following responses to the specific points raised in the comment:</p> <ul style="list-style-type: none"> ▪ The nutrient dynamics analysis provided in the TMDL staff report demonstrates that the TMDL model reservoir retention rate is similar to other estimates (using various approaches). ▪ Setting the algal concentration as a constant was an assumption used in the scenario to ensure that algal blooms were a result of reservoir dynamics and not due to upstream nutrient and algae pulses. ▪ The definition of "summer" or critical period is constant through out the TMDL (May through September); ▪ Existing model analysis without multiple iterations is appropriate for setting nutrient targets; ▪ There was no assumption that incoming algae was toxin producing cyanobacteria; and ▪ The simplifying assumption of a single algal species is consistent with the primary use of the model.

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6.22	Robert Donlan	<p>PacifiCorp's previous comments showed that the TMDL's "temperature and dissolved oxygen compliance lens" approach for assigning allocations to Copco and Iron Gate reservoirs would be unrealistic to actually apply in the reservoirs. The Regional Water Board's responses (including Responses A163, C8, 06, 08, 011, 022, 023, U6, U7, 5, 178, and 211 in Appendix 10) do not provide any information on if and how such a "compliance lens" approach has been used elsewhere, and provide no technical details on how such an approach could be realistically implemented. The Regional Water Board needs to either provide actual examples of use of such a "compliance lens" approach elsewhere, or clearly acknowledge that the "compliance lens" approach required in this TMDL is new and unprecedented. The Regional Water Board needs to do more than simply require a "compliance lens" in concept; the Board needs to provide specific details on how the "compliance lens" approach would be applied in practice. It is inappropriate to leave such details to be developed in "the initial PacifiCorp compliance plan and as part of the TMDL adaptive management framework" (e.g., Responses 06 and U6), particularly since the "compliance lens" concept is unrealistic for actual application to a dynamic and advection-dominated reservoir setting.</p>	<p>State Water Board staff has reviewed the relevant sections of the North Coast Water Board TMDL staff report and the responses referenced in this comment. The compliance lens is adequately described to address the existing impairment. The North Coast Water Board is not required to provide examples of other TMDLs that utilize a similar approach, or detail technical precedent. Furthermore, the Regional Water Boards are actually prohibited by State law from requiring specific "means of compliance" (California Water Code section 13360). Each TMDL is different and by design, adapted to serve the unique characteristics of each watershed. State Water Board staff has reviewed the compliance lens concept and find that it is an acceptable approach for beneficial use protection, while avoiding an unrealistic application of both temperature and DO standards uniformly throughout the water column of a reservoir.</p>
6.23	Robert Donlan	<p>PacifiCorp's previous comments showed that the TMDL's negative nutrient "load allocations" upstream of Copco Reservoir are unprecedented, and are not appropriately addressed to pollutant loadings to the Klamath River from PacifiCorp or that PacifiCorp can control. The Regional Water Board's responses-(including Responses 5, 180, 182, 185, and 208 in Appendix 10) neither adequately nor correctly address PacifiCorp's comments on this matter. EPA's TMDL regulations define a TMDL load allocation as "[t]he portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources" (40 CFR § 130.2(g)). Because PacifiCorp is not the cause or source of the nutrient loading upstream of Copco Reservoir, the TMDL cannot attribute</p>	<p>State Water Board staff agrees with the premise that the nutrient allocation reductions assigned to PacifiCorp facilities are appropriate to address the water quality conditions created by the presence of those facilities. PacifiCorp facilities are the cause and the source of the well-documented nuisance green and blue-green algae blooms. State Water Board staff finds that the approach taken by the North Coast Water Board is appropriate.</p>

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		that loading to PacifiCorp. As such, it is inappropriate and incorrect to assign any nutrient load allocation-positive, zero, or negative-to PacifiCorp upstream of Copco Reservoir.	
6.24	Robert Donlan	PacifiCorp's previous comments showed that retention of nutrients by PacifiCorp's reservoirs plays an important role in decreasing nutrient loads to the Klamath River downstream of Iron Gate dam. The Regional Water Board's responses (including Responses A40, K1, 52, 53, 57, 139, 144, 145, 146, 147, 148, 149, 150, 152, and 155 in Appendix 10) do not adequately address PacifiCorp's comments on this matter. In response to PacifiCorp's comments, the Regional Water Board claims the TMDL provides a "balanced presentation of the issues" (i.e., Responses 146, 148, 150, and 155). But rather than balance, the Regional Water Board's responses are parsed in a manner that only confounds the matter. For example, in Response 155, the Regional Water Board first acknowledges that "The mass amounts retained are large on an absolute basis", but then goes on to state "When Regional Water Board staff state that the retention is "small" and "limited" we are referring to the percent retained, which is a small fraction of the total and is limited relative to other reservoirs of similar size". As another example, the Regional Water Board acknowledges that reservoir retention lessens event-driven spikes of nutrients loads from upstream (notably from Upper Klamath Lake), but then states "however, this is not necessarily a good thing in regard to algal response in the lower river" (page 4-26 of TMDL Staff Report). Rather than confound and discount the matter of reservoir nutrient retention, the TMDL needs to state the simple facts that the reservoirs retain inflowing nutrient loads equivalent to an <i>annual reduction</i> to the Klamath River of about 40,000 pounds of TP, about 500,000 pounds of TN, and about 8,000,000 pounds of CBOD (using the TMDL's own annual load estimates in Table 4.2 on page 4-11 of TMDL Staff Report).	PacifiCorp's comment cites various North Coast Water Board staff responses and sections of the staff report out of context. A large fraction of the retained nutrients occur during high winter and early spring flows when the material would pass through the system with little or no impact on water quality or beneficial uses. State Water Board staff has reviewed the staff report and responses to comments on this issue and agree with the North Coast Water Board's analyses. The North Coast Water Board description of nutrient dynamics is consistent with the current state of scientific understanding.
6.25	Robert Donlan	The Regional Water Board's responses do not address PacifiCorp's comment that the implications of increased nutrient loads under the "without dams" condition on river reaches and the	State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses. North Coast Water Board staff adequately

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		<p>estuary needs to be more comprehensively and accurately assessed to determine the implications for implementation of TMDL actions (i.e., comment related to Response 155). The TMDL only provides the vague statement that "Given the recent developments regarding dam removal (see Klamath Hydroelectric Settlement Agreement) it is unclear whether it will be necessary for the Regional Water Board to balance any potential benefits of the nutrient retention provided by the reservoirs versus the negative water quality impacts created by the reservoirs" (page 4-26 of TMDL Staff Report). The recent report by Asarian (2010) confirms PacifiCorp's findings (PacifiCorp 2006, 2008) that nutrients will be substantially higher in the Klamath River when Project dams are removed.</p>	<p>addresses the issues related to downstream impacts in response to other similar comments made by PacifiCorp on this issue. Those responses include but are not limited to: "B20, K1, A6, A33, A37, A38, C3, C10, and C13".</p> <p>Please also see response to comment 0.1</p>
6.26	Robert Donlan	<p>PacifiCorp's previous comments showed that the TMDL's use of natural, "predisturbance" conditions as the "starting point" for the Klamath River TMDL is unrealistic. For example, regarding the Upper Klamath Lake TMDL, the National Research Council (2004) concluded that "[c]urrent proposals for improvement of water quality in Upper Klamath Lake, even if implemented fully, cannot be counted on to achieve the desired improvements in water quality". The Regional Water Board responded that "The NRC comment is on proposals that were current in 2004 and is not relevant to a very different set of options that are potentially available today" (Response 106). Yet, no further mention is made as to what the Board considers to be the "very different set of options that are potentially available today" that were not available in 2004. PacifiCorp is unaware of significant changes in potentially available water quality control options since 2004.</p>	<p>TMDL targets and allocations were not set to "pre-disturbance conditions" as suggested in PacifiCorp's comment. The TMDL uses a natural conditions baseline to evaluate temperature, DO, pH and other parameters under natural background loading, resulting in the updated site-specific water quality objective for dissolved oxygen. Several modeling scenarios were used to determine TMDL allocations, and loads were added to the natural conditions baseline until water quality standards were exceeded.</p> <p>The NRC conclusion was made before the proposed network of treatment wetlands, treatment facilities, sediment nutrient immobilization, or the wide range of BMPs that are expected under the emerging Agricultural Waiver program were assembled. In addition, PacifiCorp has proposed several water quality improvements in its Reservoir Management Plan and interim water quality measures contained in the KHSAs. PacifiCorp is funding and participating with the North Coast Water Board and other agencies in a water quality conference scheduled for early 2011 to further develop a feasibility plan for a</p>

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			network of water quality projects that were not envisioned in the NRC 2004 report. It is likely that the water quality conference will identify yet additional opportunities for water quality improvement.
6.27	Robert Donlan	The Regional Water Board's responses do not adequately address a key concern of PacifiCorp's comments that the TMDL allocations are based on desired water quality outcomes rather than on an assessment of what load allocations are appropriately attributed to sources and what load reductions are reasonably achievable and enforceable. A TMDL must be based on reasonable estimates of technically and economically achievable pollutant load reductions. The Regional Water Board's responses (including Responses A4, A25, B13, 01, 02, 04, 010, 012, K54, L26, 4, 21, 24, 107, 109, 111, 170, 171, 172, 205, 238, 248, and 301 in Appendix 10) provide only general and vague responses, and include no details supporting the technical and economic achievability of the load reductions required by the TMDL. Instead, the Regional Water Board responds that "Comments regarding achievability are speculative and premature" (Response A4). Regarding potential technical approaches to achieving load reductions, the Regional Water Board responses offer only generalized descriptions, such as "a wide range of innovative landscape engineering approaches" (Response A4), "centralized treatment options"(e.g., Response K54), "alternative treatment options" (e.g., Response 18), "a combination of traditional BMPs, wetlands restoration, and innovative treatment technologies" (Response 02), and "a water quality tracking and accounting system that will facilitate the purchase of nutrient reduction credits to fund the innovative treatments" (Response 4). Without a more detailed and rigorous assessment of the technical and economic means of achieving the load reductions, the TMDL lacks credibility and is based only on desired outcome and aspiration, rather than realistic and attainable load reductions.	<p>State Water Board staff has carefully reviewed the Staff Report and the responses to comments, including response to "Comment K53 and K54", which addresses this and other arguments raised by PacifiCorp regarding achievability. We find the responses more than adequate, particularly read in context with response to "Comment K39" (detailing Klamath Hydroelectric Project implementation).</p> <p>The purpose of a TMDL is "to establish a level necessary to implement the applicable water quality standard" CWA 303(d)(1)(c). The implementation program is sufficiently flexible to allow time to study and implement a range of compliance measures. PacifiCorp is in the best position to develop a plan and timeline to bring its facilities into compliance and its participation is essential. The implementation framework accommodates various parallel processes occurring, and also places PacifiCorp in a leadership role.</p>
6.28	Robert Donlan	The Regional Water Board's responses do not adequately address a key concern of PacifiCorp's comments, namely that temperature	The North Coast Water Board has already addressed this comment in its responses to "Comment K39, K40, and

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		TMDL was not established consistent with the Clean Water Act which requires the Board to determine and establish the thermal load limits required to ensure a balanced indigenous population of aquatic life (BIP).	K41". State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses.
6.29	Robert Donlan	The Regional Water Board summarized the comments made by PacifiCorp regarding BIP in Appendix 10 rather than repeat them (Response to K40). The Board mischaracterized the concern raised by the comment and misinterpreted PacifiCorp's comments on this topic on both drafts.	State Water Board staff disagrees that the North Coast Water Board's summary of their comment mischaracterizes their concern, and no explanation is given why PacifiCorp believes that their concerns were mischaracterized.
6.30	Robert Donlan	The Board disagrees with PacifiCorp's stated position that the CWA requires the thermal load to be established by determining the thermal loads required to support a BIP. Regardless, the Regional Water Board's responses acknowledge that the Board did not perform a BIP analysis. PacifiCorp's comments were asserting that the only appropriate way to establish thermal loads is to determine which are protective of BIP. In addition, PacifiCorp submitted comments that the temperature effects of the Project are consistent with the protection and propagation of a BIP in the Klamath River. The Board did not adequately address this in its response.	The North Coast Water Board has already addressed this comment in its responses to "Comment K39, K40, and K41". State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses. State Water Board staff finds the North Coast Water Board's response clearly demonstrates that a balanced indigenous population is not currently supported in the Klamath River.
6.31	Robert Donlan	Chapter 2 Problem Statement The Regional Water Board's Response 26 inadequately addresses PacifiCorp's comment. The Regional Water Board's response states that "the goal is not to establish a particular trophic status". The Regional Water Board's response also indicates that PacifiCorp's comment reference to the TMDL's reference to "predisturbance" conditions was "a characterization not provided by the Regional Water Board". However, on page 2-17, the Revised Draft TMDL states that "Reducing pollutant loading in the upper basin is critical to restoring conditions in the upper Klamath River, currently eutrophic and hypereutrophic, to a range more consistent with pre-disturbance conditions, that is mesotrophic to eutrophic". On one hand, the Regional Water Board argues that a shift to a	The entire North Coast Water Board response provides: "The goal is not to establish a particular trophic status; <i>the goal is to restore water quality conditions to their formerly beneficial use-supporting status. The TMDL staff report provides sound scientific evidence of a shift in productivity, species composition, and nutrient concentrations, all associated with the current degraded water quality conditions.</i> " The omitted information (in italics) provides the correct context and meaning of the North Coast Water Board staff response. In addition, the response explains the use of trophic status as a communication tool to summarize and simplify complex relationships related to productivity. State Water Board

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		"pre-disturbance" trophic state is not the TMDL's goal. However, the targets and allocations required by the TMDL, and the rationale given in the TMDL for these targets and allocations (such as in the quote above) certainly ends up requiring a shift in trophic status to "predisturbance" conditions (that is, conditions without and before human development and disturbance activities over at least the last century).	staff review of Chapter 2 confirms the emphasis on reestablishing conditions supporting beneficial uses of the Klamath River, which existed in the past prior to large scale land disturbances and other human caused impacts to the Klamath River.
6.32	Robert Donlan	Chapter 2 Problem Statement The Regional Water Board's Response 28 inadequately addresses PacifiCorp's comment. PacifiCorp requested citations and documentation of the TMDL's boundary target as it pertains specifically to the Klamath River. The Tetra Tech (2006) reference cited in Response 28 is generic to California and has no information or analysis specific to the Klamath River.	PacifiCorp's original comment requested NNE references as it pertains to the Klamath River. Relevant references were adequately provided since the NNE applies to all waterbodies in California. The NNE is a decision framework that provides guidance for the development of nutrient numeric endpoints for individual waterbodies. Also, the TMDL staff report contains additional information in Appendix 2: Nutrient Numeric Endpoint Analysis for the Klamath River, CA.
6.33	Robert Donlan	Chapter 2 Problem Statement PacifiCorp's previous comments questioning the appropriateness of the TMDL's benthic chlorophyll a target of 150 mg/m2 are not fully addressed by the Regional Water Board's responses (Responses 31, 32, 33, 34). The references to additional sampling and sampling protocols partially address PacifiCorp's comments. However, the responses do not address the issues of aquatic macrophytes, the determination of the relationship of chlorophyll a to plant biomass, the highly variable nature of benthic algal distribution, the lack of sensitivity analysis, and the inappropriate application of a eutrophic target to a hypereutrophic river. The Regional Water Board's responses do not directly address the comment that the target of 150 mg/m2 is not practical because it would be exceeded even under "natural" (pre-disturbance) conditions (i.e., Response 31). Recently published estimates that nitrogen and phosphorus concentrations would rise substantially in the Klamath River under a dam removal scenario (Asarian et al. 2010) make it even more unlikely that the TMDL target could ever be achieved.	State Water Board staff has reviewed: North Coast Water Board responses cited by PacifiCorp; the North Coast Water Board staff report Chapters 2, 4, and 5; and North Coast Water Board staff report Appendix 2 – Nutrient Numeric Endpoint for Klamath River, CA. State Water Board staff agrees that there is uncertainty associated with the benthic algal biomass target, but the development and use of the target is consistent with the current state of the science. In addition, benthic algal biomass measurements are one of several lines of evidence used in the impairment assessment and one of a suite of targets designed to ensure supporting water quality conditions. Assessment of diurnal DO patterns in the river, visual surveys of periphyton coverage and density are also supporting lines evidence regarding benthic algal biomass. State Water Board staff is unaware of any assessment protocol or metric for evaluating the impact of aquatic macrophytes on water quality. State Water Board staff confirmed with North

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			<p>Coast Water Board staff that their interpretation of findings in the Nutrient Numeric Endpoint analysis for the Klamath River (Appendix 2) differs from the understanding presented by PacifiCorp in their comment. For the recommended Nutrient Numeric Endpoint benthic algal biomass tool evaluation (Revised QUAL2K with Accrual Adjustment) estimates range from 109 mg/m² at Seiad to 157 mg/m² just below Iron Gate Dam. Given this range of estimates provided through the Nutrient Numeric Endpoint scoping analysis that at two locations estimates are marginally above the TMDL target and others below, State Water Board staff are confident that the values are consistent with natural conditions baseline and achievable in the context of the TMDL implementation Plan. In addition, the TMDL model estimates under the final compliance run demonstrate that the benthic algal biomass target is met at all locations.</p> <p>PacifiCorp’s interpretation of Asarian et al. 2010 is not entirely correct. The study shows no net retention of phosphorous during the peak summer growth period. The study does show a net increase of total nitrogen during the summer peak growth period. The final TMDL model compliance run with dams out shows no large increase in nutrients or periphyton below Iron Gate Dam. In addition there are many other density limiting factors acting on periphyton not mentioned in the PacifiCorp comment that are discussed in North Coast Water Board responses to “Comments B19, C17, and D4.”</p>
6.34	Robert Donlan	Chapter 2 Problem Statement PacifiCorp's previous comments questioning the appropriateness of the TMDL's suspended algae chlorophyll a target of 10 ug/L are not adequately addressed by the Regional Water Board's responses (Responses 35, 38, 39). The responses provide no	State Water Board staff have reviewed section 2.3.2.2 <i>Suspended Algae Chlorophyll-a, Microcystis aeruginosa, and Microcystin Toxin</i> ; and all responses to comments related to the TMDL target for chlorophyll a (10 ug/L), which included (in addition to those responses cited by

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		<p>additional information to explain why the chlorophyll a standard for Klamath reservoirs in California should be only two-thirds of the chlorophyll a standard in Oregon. Nor do they address the substantial number of authorities (some cited in PacifiCorp's comments) who disagree with the Regional Board's contention that a chlorophyll a concentration greater than 10 ug/L constitutes a hypereutrophic condition. The Regional Board did respond to PacifiCorp's comment regarding the lack of protocols for target measurement, but the protocols they cite are inappropriate to measure compliance with a reservoir-wide chlorophyll a concentration, on which the CA NNE framework is based.</p>	<p>PacifiCorp): A6, B6, B10, B11, B14, B15, C3, D12, Hemstreet 80-85, and 185. Additional relevant background information is contained in the TMDL staff report, Appendix 2 – Nutrient Numeric Endpoint Analysis for the Klamath river, CA. State Water Board staff finds that these materials provide the technical background information and rationale for the target value selected by the North Coast Water Board. In addition, sampling guidelines for the chlorophyll a target are provided in chapter 7 of the TMDL staff report.</p>
6.35	Robert Donlan	<p>Chapter 2 Problem Statement PacifiCorp's previous comments questioning the relationship between the chlorophyll a target and the corresponding abundance of <i>Microcystis aeruginosa</i> and questioning the validity of the chlorophyll a target of 10 ug/L, the microcystin target of 4 ppb, and the 20,000 cells/mL <i>Microcystis aeruginosa</i> abundance target are not adequately addressed by the Regional Water Board's responses (Responses 36, 40, 41, and 42). Rather than address PacifiCorp's comments that the World Health Organization (WHO) guidelines are misrepresented, that the target values are unnecessarily restrictive and that the WHO guidelines do not support the target values of 4 ug/L microcystin and 20,000 cells/mL of <i>Microcystis</i> to protect public health from microcystin toxin, the Regional Board merely asserts that their choice is correct.</p>	<p>North Coast Water Board staff addressed specific technical questions and issues raised in the PacifiCorp comment. References to the technical approach and technical analysis specific to the Klamath reservoirs are provided (Kann and Smith, 1999; Kann and Corum 2009). Response to "Comment B6" is also responsive. To reiterate, the TMDL uses the World Health Organization low health effects threshold of 4 ppb, and the 20,000 cells/mL <i>Microcystis aeruginosa</i> abundance target, which are correctly represented, because targets must be set at levels below where beneficial uses are negatively impacted. State Water Board staff confirmed these values from the 2003 World Health Organization Guidelines for Safe Recreational Waters, Volume 1; Guidelines for Safe Practice In Managing Recreational Waters, and agrees with this position.</p>
6.36	Robert Donlan	<p>Chapter 2 Problem Statement PacifiCorp's previous comments that the proposed chlorophyll a target of 10 ug/L cannot be achieved are not adequately addressed by the Regional Water Board's responses (Response 43). Rather than address the evidence presented in PacifiCorp's comment that the natural nutrient concentration in the Klamath River precludes the possibility of meeting the target value, the Regional Board merely asserts that the target is achievable.</p>	<p>State Water Board staff reviewed the following materials to evaluate the adequacy of North Coast Water Board 's response to the concern expressed by PacifiCorp in "Comment Hemstreet 43": Section 2.3.2.2 of the TMDL staff report; peer review comment responses regarding TMDL targets (Appendix 8 – TMDL staff report); Appendix 2 – Nutrient Numeric Endpoint analysis for the Klamath River, CA; and North Coast Water Board staff</p>

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			responses to issues raised regarding chlorophyll a target of 10 ug/L (relevant responses to “Comments A6, B6, B10, B11, B14, B15, C3, D12, Hemstreet 80-85, and 185”). It is clear from the review of this information that the chlorophyll a target has been set at a level that could be met at natural background conditions and is appropriate to protect water quality standards and beneficial uses. Response to “Comment K53” contains additional analyses on the concept of “achievability” generally in a TMDL. State Water Board staff finds that the issue has been adequately addressed.
6.37	Robert Donlan	Chapter 2 Problem Statement PacifiCorp's previous comments that the Staff Report continues to make inappropriate comparisons between the chlorophyll a target in the reservoirs to the chlorophyll a measured in the flowing river sections are not adequately addressed (Responses 39, 79). The Staff Report repeatedly compares the 10 ug/mL target for suspended algae in the reservoirs to the values for suspended algae in the river (for example, see Figure 2.23). This is an inappropriate comparison, as the Staff Report clearly recognizes, because it presents a completely different chlorophyll a target for the river reaches based on benthic (attached) chlorophyll a. Contrary to the incorrect assertion in the responses that the comparison "demonstrates" that the impoundments promote nuisance algal blooms, the correct comparison of the trophic state (hypereutrophic) indicated by the suspended algae in the reservoirs and the attached algae in the river would demonstrate that the trophic state of the Klamath River system is determined by the abundant nutrients transported from upstream sources.	The target is not being applied to the river; rather, North Coast Water Board staff is responding to PacifiCorp's contention that the chlorophyll a is transported to the reservoirs from upstream sources. The comparison demonstrates that chlorophyll a levels above the reservoir are significantly below levels found in the reservoirs and that chlorophyll a levels immediately below the reservoirs are significantly higher than above the reservoirs. This comparison effectively demonstrates that the phytoplankton biomass is created within the reservoirs rather than transported to the reservoirs.
6.38	Robert Donlan	Chapter 2 Problem Statement The Regional Water Board's Responses 44 and 48 inadequately addresses PacifiCorp's comments that the TMDL does not describe or consider important uncertainties in the hypothesized causal connections between nutrient loads and fish disease. The Regional Water Board's response simply defends the "conceptual	State Water Board staff agrees that the linkage between water quality and fish disease is an active and ongoing area of research. However, the TMDL peer reviewers were asked to make the sections describing the relationship between water quality and fish disease an area of special interest. Each peer reviewer responded

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		model" as "peer reviewed" and "the state of the science understanding of these processes". PacifiCorp's point is missed and not addressed - that is, the "conceptual model" on this important issue is hypothesized with important uncertainties and unknowns that the TMDL does not describe or take into account.	that the TMDL staff report represented the existing state of the science on this topic. The model is also based on much of what is known and published by many experts in the field. The model served as an assessment framework where each one of the endpoints was evaluated. State Water Board staff finds the Staff Report and North Coast Water Board's responses adequate on this topic. Inevitably there will be some uncertainty in the TMDL process which is why the TMDL implementation process provides for adaptive management as new information becomes available.
6.39	Robert Donlan	Chapter 2 Problem Statement The Regional Water Board's Response 45 does not adequately address PacifiCorp's comment. There is little or no quantitative information on fine particulate organic matter (FPOM). The model does not represent FPOM, nor is the relationship between organic matter and FPOM known.	State Water Board staff has reviewed the response provided by North Coast Water Board staff and find that the input provided by Mr. Stocking provides sufficient basis for supporting the analysis in the Staff Report.
6.40	Robert Donlan	Chapter 2 Problem Statement The Regional Water Board's Response 76 does not adequately address PacifiCorp's comment. The model does not account for "all boundary inputs sources, and instream processes affecting fate and transport of phosphorus in the river." Not all tributaries are presented, non-point source inputs are neglected, hyporheic function is omitted, food web impacts are not modeled, and benthic plant growth is grossly simplified with many processes absent. No mention of historical conditions is presented in Response 76. Phosphorus as a limiting nutrient is not addressed (under natural conditions simulations).	State Water Board staff reviewed the North Coast Water Board's response to "Comment Hemstreet 76" and agrees with the response. As stated in the response to Comment 6.10, State Water Board staff acknowledges the high level of complexity in modeling the Klamath River under both current and predicted conditions. Though no mention of historical conditions is presented in Response 76, the North Coast Board provides extensive discussion of historical conditions in the final Staff Report. Furthermore, the North Coast Board discusses phosphorus and nutrient limitation in various responses to comments, including "Comments A74, C40, Hemstreet 8 and Hemstreet 55".
6.41	Robert Donlan	Chapter 2 Problem Statement PacifiCorp's previous comments concerning the Staff Report's assertions about the effect of the Klamath reservoirs on the presence and abundance of algae and particulate matter in the Klamath River below Iron Gate dam have not been adequately	State Water Board staff finds that the interpretation by North Coast Water Board staff regarding the contribution of reservoirs to the abundance of algae and particulate matter in the Klamath River below Iron Gate is well supported by the information provided in the Staff Report

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		addressed (Responses 80-85). The Staff Report has been appropriately modified to recognize that assertions about the contribution of particulate matter to the lower river caused by the reservoirs cannot be supported. Similar assertions regarding the effect of the reservoirs on algal biomass remain in the staff report, however. The Staff Report reinterprets data from selected years to show that algal biomass at a site below Iron Gate dam is greater than at a site above Iron Gate dam, but does not demonstrate that the increase is caused by the reservoirs, or that it would not have occurred in the absence of the reservoirs.	and responses to "Hemstreet Comments 80-86"..
6.42	Robert Donlan	Chapter 2 Problem Statement PacifiCorp (Hemstreet) comments 17, 27, 32, 37, 41, 42, 47, 52, 53, 58, 63, 70, 77, and 78 regarding the Revised Draft TMDL Chapter 2 (Problem Statement) were not directly addressed. The responses to these comments (Responses 17, 27, 32, 37, 41, 42, 47, 52, 53, 58, 63, 70, 77, and 78) were either "Comment Noted" or only references to other comment numbers.	State Water Board staff reviewed the North Coast Water Board's responses to these comments and finds that all comments requiring a response were addressed, and two comments that didn't require a response were noted. Please also see response to comment 0.1
6.43	Robert Donlan	Chapter 3 Analytical Approach PacifiCorp (Hemstreet) comments 88, 89, 90, 93, 95, 97, 98, and 99 regarding the Revised Draft TMDL Chapter 3 (Analytical Approach) were not directly addressed. The responses to these comments (Responses 88, 89, 90, 93, 95, 97, 98, and 99) were either "Comment Noted" or only references to other comment numbers.	State Water Board staff reviewed the North Coast Water Board's responses to these comments and finds that all comments requiring a response were addressed. Please also see response to comment 0.1
6.44	Robert Donlan	Chapter 4 Pollutant Source Analysis PacifiCorp's previous comments concerning the unaccounted gains and losses of nitrogen, phosphorus, and CBOD in Figures 4.1, 4.2, and 4.3 have not been adequately addressed (Responses 116, 117, 118, and 153-Chapter 5). PacifiCorp noted that it was not possible to evaluate the source analysis because of numerous instances where substantial gains and losses were missing from the tables and diagrams, and pointed out that the inputs and outputs depicted in load diagrams did not balance. Rather than address these comments, the response asserted that figures were not intended to add up and the TMDL was adequate as presented.	State Water Board staff has reviewed the sections that include the referenced diagrams, and the North Coast Water Board responses to PacifiCorp's original comment. The diagrams are a useful component of the source analysis and presentation of TMDL compliance loads (in chapter 5). The description provided by the North Coast Water Board in the text makes clear that the figures and tables were not constructed to provide a mass balance that can be summed from the representation of individual source areas. State Water Board staff support the use of the figures and supporting text as they are currently

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		PacifiCorp reiterates that the unaccounted-for gains and losses must be provided to permit an adequate assessment of the TMDL source analysis.	configured.
6.45	Robert Donlan	Chapter 4 Pollutant Source Analysis The Regional Water Board's Response 119 does not adequately address PacifiCorp's comment. The response does not address the Shasta, Scott or Salmon Rivers.	Table 4.2 presents the annual nutrient (Total Phosphorus and Total Nitrogen) and organic matter (CBOD) loads under current and predicted natural conditions baseline at various Klamath River mainstem and tributary mouth locations including the Shasta, Scott or Salmon Rivers. The assumptions applied in deriving the natural conditions baseline loads are documented in the final Staff Report, and State Water Board staff believes the level of documentation provided is sufficient. Further, State Water Board staff agrees with North Coast Water Board staff responses provided elsewhere (e.g. responses to Comments 6.26 and 6.33) regarding the suitability of predicted natural conditions baseline conditions.
6.46	Robert Donlan	Chapter 4 Pollutant Source Analysis PacifiCorp's previous comment regarding the export of organic matter from the reservoirs has not been adequately addressed (Response 139). The Staff Report has been amended to suggest that no data exist to support statements concerning export of organic matter from the reservoirs. The Staff Report presents a figure of selected data (Figure 2.25) in support of the contention that the reservoirs are a source of algae to the lower river, but presents no evidence to demonstrate that the algal biomass is not generated by algae growing between the dam and the sample point or that the algal biomass at the sampling point would be different in the absence of the reservoirs.	Please refer to comment 6.41. State Water Board staff finds that the interpretation by North Coast Water Board staff regarding the contribution of reservoirs to the abundance of algae and particulate matter in the Klamath River below Iron Gate is well supported by the information provided.
6.47	Robert Donlan	Chapter 4 Pollutant Source Analysis PacifiCorp's previous comment (comment 142) regarding the lack of evidence for an effect on periphyton from the presumed export of nutrients from the reservoirs has been addressed. The Staff Report now recognizes that the reservoirs provide a significant net retention of nutrients (pg 4-25 and following).	Thank you for the acknowledgment that the North Coast Water Board adequately responded to a comment. Please note that the TMDL staff report discusses more than the net annual nutrient retention of the reservoirs, including the multiple factors affecting periphyton growth and densities, in order to provide a comprehensive

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			assessment of the role of the reservoirs for Klamath River nutrient dynamics.
6.48	Robert Donlan	Chapter 4 Pollutant Source Analysis PacifiCorp (Hemstreet) comments 101, 102, 114, 123, 124, 127, 128, 129, 130, 131, 132, 136, 137, 140, 153, 157, 158, 159, 160, 161, 162, 163, 165, 166, and 168 regarding the Revised Draft TMDL Chapter 4 (Pollutant Source Analysis) were not directly addressed. The responses to these comments (Responses 101, 102, 114, 123, 124, 127, 128, 129, 130, 131, 132, 136, 137, 140, 153, 157, 158, 159, 160, 161, 162, 163, 165, 166, and 168) were either "Comment Noted" or only references to other comment numbers.	State Water Board staff reviewed the North Coast Water Board's responses to these comments and finds that all comments requiring a response were addressed.
6.49	Robert Donlan	Chapter 5 Allocation and Targets PacifiCorp's previous comment concerning the validity of the Microcystis target has not been addressed (Response 179). The Staff Report proposes target values for chlorophyll a and Microcystis abundance that are five times lower than the WHO guidelines. PacifiCorp has repeatedly requested that some justification for this choice be provided. No such justification has been provided other than the assertion that the chosen target is protective of beneficial uses. What is needed is some evidence that the WHO guideline value of 50 ug/L is not protective of beneficial uses.	State Water Board staff finds that the information provided in the TMDL staff report and response to "Comment Hemstreet 179" adequately addresses the issues raised in the PacifiCorp's comment. Also see response to comment 6.33-6.35 above. It is within the discretion of the North Coast Water Board to require a more conservative level of protection. In this case choosing a relatively low probability of adverse health effects in comparison to the commenter's argument to set the level of protection at the moderate probability of adverse health effects.
6.50	Robert Donlan	Chapter 5 Allocation and Targets The Regional Water Board's Response 190 does not adequately address PacifiCorp's comment. Conservative assumptions are insufficient to arrive at a conservative estimate. Quantification of these assumptions should be determined so that meaningless assumptions (those which have little or no measurable impacts) are not included. Median conditions at Upper Klamath Lake are still misrepresented (either by concentration or load). Nutrient levels assumed in the TMDL modeling are unrealistically low.	State Water Board staff finds that the assumptions in the Klamath TMDL are reasonable, and that the relevant sections of the TMDL staff report and North Coast Water Board staff responses adequately address the issues in this comment.
6.51	Robert Donlan	Chapter 5 Allocation and Targets Response 203 addresses PacifiCorp's comment. However, it does	Thank you for the acknowledgment that the North Coast Water Board adequately responded to the comment.

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		not appear that the Staff Report text was changed to reflect the content of the response.	The explanation of how the dissolved oxygen (DO) concentration corresponding to the percent DO saturation requirement is calculated can be found in various locations with in Appendix 1 of the Staff Report, including for example in section 6.2.1 and 7.4.
6.52	Robert Donlan	Chapter 5 Allocation and Targets PacifiCorp (Hemstreet) comments 170, 171, 175, 178, 181, 186, 188, 193, 195, 197, 198, 199, 200, 201, 202, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, and 214 regarding the Revised Draft TMDL Chapter 5 (Allocation and Targets) were not directly addressed. The responses to these comments (Responses 170, 171, 175, 178, 181, 186, 188, 193, 195, 197, 198, 199, 200, 201, 202, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, and 214) were either "Comment Noted" or only references to other comment numbers.	State Water Board staff reviewed the North Coast Water Board's responses to these comments and finds that all comments requiring a response were addressed. Please also see response to comment 0.1
6.53	Robert Donlan	Chapter 6 Implementation Plan PacifiCorp (Hemstreet) comments 215, 219, and 221 regarding the Revised Draft TMDL Chapter 6 (Implementation Plan) were not directly addressed. The responses to these comments (Responses 215, 219, and 221) were either "Comment Noted" or only references to other comment numbers.	"Comments Hemstreet 215 and 221" were previously submitted to the North Coast Water Board. The North Coast Water Board's response to these comments, which is to refer to the response to the originally submitted comments, is appropriate. A repeat response is not necessary. "Comment Hemstreet 219" is a statement that does not require a response.
6.54	Robert Donlan	Chapter 7 Monitoring Program Response 224 says that comment 224 has been addressed, but the Final Staff Report shows that the units for chlorophyll a are still wrong - mg/L not ug/L.	Comment noted, this edit will be included in the Executive Officer's Correction Memo.
6.55	Robert Donlan	Chapter 7 Monitoring Program Response 225 addresses PacifiCorp's comment, but there was no corresponding change in the text of the Staff Report.	Thank you for the acknowledgment that the North Coast Water Board adequately responded to a comment. State Water Board staff agrees with the North Coast Water Board staff that a change in text is unnecessary.
6.56	Robert Donlan	Chapter 7 Monitoring Program PacifiCorp's previous comment regarding the proposed compliance monitoring program (Response 231) has been inadequately addressed. PacifiCorp noted that the plan suffers from a lack of objectives, lack of rationale for the constituents chosen, lack of	State Water Board staff has reviewed Chapter 7 of the North Coast Water Board staff TMDL report and find the description of the TMDL monitoring program complete and adequate to inform the TMDL adaptive management program. The overview states that the monitoring

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		<p>clear decision criteria, lack of congruence between the targets and the sampling sites, dates, and frequency, and lack of any apparent consideration of cost.</p> <p>The response suggests that all these attributes are in fact present in the Staff Report, but further inspection reveals little in the way of sufficient detail that would provide confidence that the results of the monitoring program would in fact allow decisions to be made with regard to compliance with the targets or to guide adaptive management decisions.</p>	<p>program is the result of a larger and ongoing workgroup process to develop a basin-wide monitoring program (PacifiCorp is a member of the KBMP workgroup) that is subject to updates and modification. The description of program goals in section 7.4.3 provides a clear framework for the TMDL monitoring program. Table 7.4 provides detailed rationale and objectives for each monitoring station and parameter. TMDL implementation and water quality recovery will occur over a long period of time. State Water Board encourages PacifiCorp to bring specific study ideas and enhancement recommendations to the KBMP workgroup for consideration.</p>
6.57	Robert Donlan	<p>Chapter 7 Monitoring Program Response 234 clarifies the intent of the study of temperature in the Scott River, but it does not address the relevance of that study to the Klamath River TMDL.</p>	<p>The North Coast Water Board's response clearly identifies the Scott River as being in the Klamath River Basin, thus its relevance to the Klamath River is as tributary water within the Basin.</p>
6.58	Robert Donlan	<p>Chapter 7 Monitoring Program PacifiCorp's previous comment regarding the necessity for additional monitoring to develop a nutrient mass balance has been partially addressed (Response 235). PacifiCorp remains skeptical concerning the value of additional sampling, or of the value of continued fixation on developing a detailed mass balance. No explanation of the value of such an effort is provided in the Staff Report. PacifiCorp, however, remains hopeful that through coordination with the Klamath Basin Water Quality Monitoring Coordination Group an understanding of these issues can be developed.</p>	<p>Comment noted.</p>
6.59	Robert Donlan	<p>Chapter 7 Monitoring Program PacifiCorp (Hemstreet) comments 222, 223, 226, 227, 228, 230, 232, 233, and 236 regarding the Revised Draft TMDL Chapter 7 (Monitoring Plan) were not directly addressed. The responses to these comments (Responses 222, 223, 226, 227, 228, 230, 232, 233, and 236) were only references to other comment numbers.</p>	<p>The comments identified were previously submitted. The North Coast Water Board's response to these comments, which is to refer to the response to the originally submitted comment, is appropriate. A repeat response is not necessary.</p>
6.60	Robert Donlan	<p>Chapter 9 CEQA Analysis Response to 237. The Regional Water Board inadequately</p>	<p>State Water Board staff reviewed the North Coast Water Board's response to these comments and finds the</p>

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		<p>responded to PacifiCorp's concern that the status of review on the CEQA document and the ability to comment on the revision was made uncertain and difficult by circulating the entire document but requesting comments on only the revised portions, while simultaneously failing to provide a redline version of the revised environmental analysis. The Board's response simply agrees that it was intended to be a recirculated environmental analysis and notes that a summary of changes was provided. However, the summary document only noted that the Board added a discussion of impacts of dam removal, but provided minimal detail and did not mention any other changes in the environmental analysis chapter, so it did not resolve the difficulty of commenting on the revisions without a redline, as noted in the comment.</p>	<p>response adequate. The Summary of Changes document provided sufficient detail regarding the substantive changes to the document. The commenter does not address any legal requirement with which the North Coast Water Board did not comply.</p>
6.61	Robert Donlan	<p>Chapter 9 CEQA Analysis Response to 238. The Regional Water Board's response refuses to add a discussion of the feasibility of meeting the load allocations. However, CEQA requires that alternatives be feasible and requires discussion of alternatives in a manner to foster meaningful public participation. The Board puts feasibility considerations off to a later date, after adoption of the TMDL. But CEQA requires an analysis of feasible alternatives prior to approval of the project.</p>	<p>State Water Board staff reviewed the North Coast Water Board's response to this comment and finds the response adequate. For a project definition under CEQA, load allocations must be viewed in context of the implementation plan. The implementation plan is clear that the North Coast Water Board must review and approve any plan for final compliance in light of detailed environmental studies. Because a load allocation is not independently enforceable without additional approvals and permits, it is reasonable for the North Coast Water Board to provide a programmatic overview and wait for additional studies, which will include more in-depth analyses of feasibility. This is particularly so in the case of PacifiCorp's project, which is regulated by the Federal Energy Regulatory Commission. The TMDL implementation plan requires and allows for additional studies, which themselves do not have any environmental impacts, before any major project can be approved. Prior to approval, any major project will be subject to a detailed environmental analysis under CEQA. (See e.g. <i>San Joaquin River Exchange Contractors Water Authority v. State Water Resources</i></p>

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			<p><i>Control Board</i> (2010) 183 Cal. App. 4th 1110, 1132.) Moreover, the TMDL contains additional flexibility and adaptive management components to respond to additional information accordingly. The North Coast Water Board response to “Comment K53” provides additional information regarding the force and effect of Klamath Hydroelectric Project load allocations: “[T]he TMDL load allocations are...flexible enough to allow opportunities to explore various options for achieving compliance, including time schedules to accommodate various contingencies.”</p> <p>Feasibility is defined in CEQA as “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors. (Cal. Code Regs., tit. 15, § 15364.) State Water Board staff has reviewed the TMDL Staff Report and response to “Comment K54” on relevant factors. State Water Board staff is satisfied that the North Coast Water Board considered these feasibility factors to the extent possible, in light of the various parallel processes occurring regarding the Klamath Hydroelectric Project. It is also important to note that the functional equivalent CEQA analysis here is not site-specific to PacifiCorp’s project; rather, it is intended to cover the entire TMDL. State Water Board staff finds the CEQA analyses, including its alternatives analysis, sufficient for its intended and required purpose.</p>
6.62	Robert Donlan	Chapter 9 CEQA Analysis Response to 239. The comment requested discussion of the interaction of reduced nutrients and salmonid rearing. The Regional Water Board’s response again postpones discussion required by CEQA of potential adverse impacts to post-approval of the project.	State Water Board staff reviewed the North Coast Water Board’s response to this comment and finds the response adequate. PacifiCorp misunderstands the project definition to only include the load allocations, when the actual CEQA project is the implementation plan.
6.63	Robert	Chapter 9 CEQA Analysis	State Water Board staff reviewed the North Coast Water

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	Donlan	<p>Response to 240. The comment requested discussion of additional reasonably foreseeable potentially adverse environmental effects of dam removal and an identification of potential mitigation or avoidance measures; again the Regional Water Board's response delays an adequate discussion of environmental impacts to post-approval of the project.</p>	<p>Board's response to these comments and finds the response adequate. The implementation plan is clear that the North Coast Water Board must review and approve any plan for final compliance in light of detailed environmental studies. Because a load allocation is not independently enforceable without additional approvals and permits, it is reasonable for the North Coast Water Board to provide a programmatic overview and wait for additional studies, which will include more in-depth analyses of environmental impacts.</p> <p><i>Sundstrom v. County of Mendocino</i> (1988) 202 Cal. App. 3d 296 is distinguishable on several points. That case involved a permit to construct a private sewage treatment plant that the county approved based on a negative declaration finding no significant impacts. The court found that "the initial study in fact displayed only a token observance of regulatory requirements." (<i>Id.</i> at 305.) Additional evidence existed, including comments from various state agencies, that the project would in fact have environmental impacts. The county attempted to cure this by requiring a study that would ensure no impacts, after it had already adopted the negative declaration. The court found this impermissible. (<i>Id.</i> at 307-307.) Further, the court found that deferring environmental assessment to a future date while adopting a negative declaration violates the requirement to conduct "environmental review at the earliest feasible stage in the planning process." (<i>Id.</i>)</p> <p>Rather than the site-specific determination at issue in <i>Sundstrum</i>, a TMDL and basin planning process is certified as "functionally equivalent" to CEQA, and programmatic in nature. Also, unlike <i>Sundstrum</i> where the environmental documentation concluded that there would be no significant impacts from the project, the</p>
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			environmental documentation for the Klamath TMDLs discloses potentially significant impacts from various Klamath Hydroelectric Project compliance scenarios, including dam removal, to the extent that the information is currently available. Finally, in <i>Sundstrum</i> , the county was at its final approval stage with no opportunity to change course in the event that additional studies revealed potentially significant impacts. In contrast, the adoption of the TMDL does not commit the agency or PacifiCorp to any one final compliance measure. In fact, it explicitly requires additional environmental review before any approval of a final project can move forward, regardless of the decision on dam removal.
6.64	Robert Donlan	Chapter 9 CEQA Analysis Response to 241. The comment requests a discussion of alternative means of compliance, which CEQA requires for an adequate programmatic environmental analysis. See Pub. Res. Code § 21159. The Regional Water Board's response addresses the selection of individual compliance measures rather than a discussion of reasonably foreseeable alternative means of compliance that is required by CEQA.	State Water Board staff reviewed the North Coast Water Board's response to this comment and finds the response adequate. In its response, the North Coast Water Board staff does state that that alternatives analysis was conducted on a programmatic scale rather than each individual responsible party, which State Water Board staff finds appropriate. State Water Board staff also notes that the CEQA document contains satisfactory analyses of the environmental impacts of reasonably foreseeable individual compliance measures for the purpose and requirements of this CEQA documentation as required by Public Resources Code section 21159.
6.65	Robert Donlan	Chapter 9 CEQA Analysis Response to 242. The Regional Water Board's response does not clarify what is required by this prohibition. The prohibition against unauthorized discharges was added to the revised draft, yet the environmental analysis did not change substantively at all. The Board's response claims that the compliance measures for the prohibition were already discussed in the previous draft.	State Water Board staff reviewed the North Coast Water Board's response to these comments and finds the response adequate. The prohibition prohibits any unauthorized discharge of waste that violates water quality standards. It does not add any new requirements. State Water Board staff is satisfied that the CEQA document analyzed a robust set of reasonably foreseeable compliance measures specific to all the identified land use activities in the Basin. The suite of foreseeable compliance measures included in the Staff

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			Report provides the public and the decision makers with the level of information needed to identify potential significant effects on the environment, to identify alternatives to the project and to indicate the manner in which those effects can be mitigated or avoided. In the event that a landowner and operator has a more serious and significant water quality violation for which a remedy would rise above the compliance measures identified and addressed in the TMDL CEQA document, such a scenario will be subject to individual cleanup orders or other action that would, in all likelihood, require its own site-specific CEQA analysis.
6.66	Robert Donlan	Chapter 9 CEQA Analysis Response to 243. The Regional Board declined to recirculate the CEQA document, claiming the public had sufficient opportunity to provide comments on previous drafts. However, the need for recirculation arises not from inadequate opportunity to participate in scoping and commenting on previous drafts, but from inadequate analysis in the document itself. Recirculation is also needed as a result of last minute changes in the TMDL that were not adequately described or analyzed in this or previous drafts.	State Water Board staff reviewed the North Coast Water Board's response to these comments and finds the response adequate. State Water Board staff disagrees with PacifiCorp's comment that the CEQA documentation is flawed. The changes in the TMDL were minor and/or did not change the project description or the reasonable range of foreseeable compliance measures, and therefore recirculation was unnecessary.
6.67	Robert Donlan	Response to 244a. The comment requested copies of all referenced reports that are not publicly available. The Regional Water Board's response is that some of these references are "only one line of evidence" or that the staff's conclusions were drawn "long before the draft final" report was released. These responses raise more concerns about the evidence that the Board is relying upon and do not change the fact that not all of these referenced documents are available for public review.	State Water Board staff reviewed the North Coast Water Board's response to this comment and finds that it was fully addressed. State Water Board staff agrees that information received in personal communications with acknowledged experts is appropriate as a line of evidence. State Water Board staff finds that the quotes in this comment are taken out of context. As addressed in response to "Comment Hemstreet 244a" only publicly available documents have been cited and relied upon in the final draft Staff Report. Reference to personal communications is only one line of evidence used as part of the North Coast Water Boards evidence presented in the Staff Report. Where appropriate, documentation from published reports or proceedings is provided. All

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			references, information, and studies utilized in the development of the Klamath River TMDLs are part of the administrative record and are available to the public.
6.68	Robert Donlan	Response to 244b. The Regional Water Board's response does not address PacifiCorp's stated concern that the tables frustrate public review. The fact that PacifiCorp was provided all of the model-related files does not address the fact that the Staff Report contains a misleading presentation of data to the public.	State Water Board staff has reviewed the relevant sections of the staff report and North Coast Water Board staff response to "Comment Hemstreet 244b" and find no basis for the claim made by PacifiCorp that the analysis "frustrates public review." It appears that the North Coast Water Board went to great lengths to ensure that this complex body of information was accessible to the general public.
6.69	Robert Donlan	Response to 245. The Regional Water Board is required by its own regulations to respond to written comments submitted up to 15 days before the hearing and to oral and written comments thereafter in writing, if feasible, or otherwise orally at the hearing. The Board's response invents alternative legal requirements that are not codified.	State Water Board staff reviewed the North Coast Water Board's response to these comments and finds the response adequate. In addition, State Water Board staff has reviewed the hearing record and find that North Coast Water Board staff responded orally to all comments received after the close of the public comment period (February 9, 2010). No written comments submitted after the deadline raised any new issues not already addressed in the written responses to comments.
6.70	Robert Donlan	Response to 246. While PacifiCorp did not need to test this point, the Regional Water Board's response is inadequate because it describes the opportunities PacifiCorp has had to review previous model applications. The comment addressed the time available to review and comment on revised model applications, not previous ones.	State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with the response. State Water Board staff agrees with the North Coast Water Board's response to "Comments T8a, T8b, and T8c" with respect to the adequacy of noticing and public review periods.
6.71	Robert Donlan	Appendix 1. Proposed DO Objective The SSO did not adequately address annual variability because it was based on only one year of data (247, 255)	State and North Coast Water Board staffs agree with PacifiCorp that annual variability is one of the important factors to be considered in establishing natural conditions as a water quality objective. PacifiCorp contends that the SSOs for DO do not adequately address annual variability because they are based on only one year of data. Staff presumes this contention is derived from the

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			<p>fact that T1BSR (the natural conditions run of the water quality and hydrodynamic models—Klamath TMDL models-- upon which the SSOs for DO are based) was run using flow data from the year 2000.</p> <p><i>Klamath TMDL Model</i></p> <p>It is worthwhile pointing out that the Klamath TMDL models were calibrated using data from both the year 2000 as well as 2002 and thus confirm the relationship among variables for multiple years, not just one. It is also worthwhile pointing out that while flow data for T1BSR came from the year 2000 (a normal water year), the boundary conditions for water quality inputs from Upper Klamath Lake were based on the year 1995 representing a median year with respect to water quality conditions (See Appendices 6 and 7 of the TMDL Staff Report). These data were chosen as representative of normal background conditions, not influenced by extreme weather or extreme water quality events. The Klamath TMDL models do not produce estimates of natural conditions under multiple climate scenarios, such as the commenter may be suggesting. But, the model output does represent normal water quality conditions and is expected to be applicable to the majority of years.</p> <p>It is further worthwhile pointing out that the Klamath TMDL models are based on PacifiCorp's own water quality and hydrodynamic models, modified to better serve the needs of the TMDL and associated SSO development. They have been peer reviewed multiple times with many modifications and improvements made over the course of a several year development process. Though, as with all water quality and hydrodynamic models, there are limitations associated with use of the model output, State and North Coast Water Board staff</p>
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			<p>are nonetheless confident that the Klamath TMDL models are adequate for use in developing the TMDL.</p> <p>State Water Board staff has reviewed the North Coast Water Board data and methodology and believes that North Coast Water Board staff has more than adequately considered and addressed the issue of annual variability.</p> <p>North Coast Water Board staff has employed the best available modeling tools for the assessment of natural DO conditions. North Coast Water Board staff chose the least variable metric for describing natural DO conditions. North Coast Water Board staff derived DO criteria in a manner which allows for a reasonable amount of variation from estimated natural conditions, particularly in cold and/or wet months when cold aquatic organisms are not otherwise stressed. And, the amendment allows for modification of the criteria through re-evaluation of natural temperatures, as new data, data analysis, or analytical methods are available.</p>
6.72	Robert Donlan	<p>Appendix 1. Proposed DO Objective The SSO levels are not related to the protection of beneficial uses, and are unlikely to be achieved because they are based on "natural conditions" that are unrealistic given the geology, hydrology, meteorology, and land use in the basin (248, 253)</p>	<p>The SSOs for DO are directly related to the protection of beneficial uses. They are based on simulated natural DO conditions—the conditions under which salmonids, the most DO sensitive of the beneficial uses—historically thrived. Further, while the simulation of natural DO conditions indicates DO concentrations less than the ideal life cycle requirements of salmonids, it also indicates that the Klamath River naturally achieves the minimum DO requirements necessary for salmonid success.</p> <p>The simulation of natural DO conditions takes into account the site specific characteristics of the Klamath River, including its geology, hydrology, and meteorology. It is true that no point sources of pollution were included</p>

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			<p>in the simulation of natural DO conditions. But, TMDL compliant conditions were established as the boundary conditions for Upper Klamath Lake and the major tributaries in California. Thus, the simulation of natural DO conditions includes consideration of carefully managed lands.</p>
6.73	Robert Donlan	<p>Appendix 1. Proposed DO Objective The contention that DO concentration in the river is reduced simply because of the presence of the darns ignores many of the physical processes that contribute to DO concentration; insufficient evidence is presented to support the assertion that impoundments perpetuate exacerbated DO fluctuations downstream (250, 252)</p>	<p>The commenter is referring to a paragraph on page 5-11 of the DO Staff Report but misrepresents the contention. North Coast Water Board staff explains in this section that the environmental conditions present in the low gradient wetlands of the upper basin naturally feed episodic algae blooms downstream in the Klamath River mainstem which in the absence of anthropogenic influences would slowly dissipate as the valley narrows and steepens.</p> <p>The point is that some of the DO fluctuation in the upper reaches of Klamath River (fluctuation which is otherwise viewed as a water quality problem) can be considered natural, due to the river’s origins in the wetlands complex now known as Upper Klamath Lake. Another point is that the riverine character of the Klamath downstream of Upper Klamath Lake modifies the water quality dynamics as they are expressed downstream of Upper Klamath Lake by concentrating flow and increasing gradient. This modification, at least with respect to DO, is an improvement to water quality.</p> <p>The DO Staff Report goes on to say that “Under existing conditions, though, the fluctuation of DO (emanating from Upper Klamath Lake) is exacerbated and perpetuated further downstream (then would naturally be the case) by impoundments, agricultural return flows, water diversions, reduction in stream bank stability, reduction in stream side shade, and increase in sediment delivery.”</p>

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			<p>(page 5-11) North Coast Water Board staff makes the point that anthropogenic modifications have reduced the naturally-derived water quality benefits associated with free-flowing water. Unlike the language as described in the comment, however, North Coast Water Board staff is clearly not laying the blame on dams alone.</p> <p>The TMDL Staff Report contains ample evidence of the water quality impairments associated with the dams, including impairments to dissolved oxygen. For a succinct description and depiction of the effects on dissolved oxygen of various anthropogenic activities, including dams, North Coast Water Board staff has included U.S. EPA's CADDIS model in Chapter 4 of the DO Staff Report.</p>
6.74	Robert Donlan	<p>Appendix 1. Proposed DO Objective The use of the CADDIS model has little relevance to the Klamath SSO for DO (249, 251)</p>	<p>The CADDIS model identifies the many land management and environmental factors typically influencing the concentration of DO, a question of great importance to the proposed DO objectives and TMDLs. See the response to comment 6.73.</p>
6.75	Robert Donlan	<p>Appendix 1. Proposed DO Objective Responses 247 and 255 concerning the lack of consideration of inter-annual variability are inadequate in that they do not demonstrate that inter-annual variability was considered, but merely assert that the TMDL model accounts for variability "in a number of ways" with no description of what those ways might be. It appears that the authors confuse "data" (i.e. measurements) with "calculations" when they assert that the model output of "every hour of every day" for 2000 provides a more comprehensive data set than data "covering many months and years" during numerous climatic conditions for the existing SSOs.</p>	<p>Please see response to comment 6.71 above.</p> <p>Staff appreciates the commenter's point with respect to the use of the term "data" to describe the model output. North Coast Water Board staff is comparing the value of the Klamath TMDL model output for the purpose of deriving DO objectives to the monthly grab sample data collected in the 1950s and 1960s during daylight hours. The point North Coast Water Board staff is trying to make is that the model output depicts the fluctuation in DO conditions in a manner something akin to a movie. Monthly grab sample data collected during daylight hours, on the other hand, does not depict the fluctuation in DO conditions, but is more like a series of individual snapshots. For the purpose of establishing natural DO</p>

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			conditions, particularly for comparison to data collected using continuous data loggers (e.g., datasondes), the hourly output from the Klamath TMDL model is far superior.
6.76	Robert Donlan	Appendix 1. Proposed DO Objective PacifiCorp's observation that the "natural conditions" on which the SSOs are based are unlikely to ever be met because of existing conditions of geology and other factors was dealt with by simply asserting that the model says they will be met. Given the many deficiencies in the model and its assumptions described throughout the comments, this is an inadequate response. Finally, in response to PacifiCorp's suggestion that some quantitative evidence is required to support the statements that simply by existing the impoundments reduce DO concentration and exacerbate fluctuations in DO in the river, the staff simply disagrees and provides no support for the statements in the Staff Report Appendix.	Please see responses to comments 6.71 and 6.73 above.
6.77	Robert Donlan	Appendix 6 Modeling Configuration and Results The Regional Water Board's Response 257 does not adequately address PacifiCorp's comment. Link River dam boundary conditions were not correctly represented, although data were available to provide a markedly better representation of partitioning among species and seasonal concerns. Differences in partitioning in the natural baselines case is still unrealistic (i.e., less than what would occur under a trophic shift at Upper Klamath Lake).	This comment addresses the difficulties in deriving boundary conditions for model scenarios. As described by the North Coast Water Board, the Link River boundary conditions for the natural conditions baseline and TMDL allocations scenarios were based on the Upper Klamath Lake TMDL, which according to the Oregon Department of Environmental Quality are based on the best available information and methods to represent restored Upper Klamath Lake conditions.
6.78	Robert Donlan	Appendix 6 Modeling Configuration and Results The Regional Water Board's Response 262 does not adequately address PacifiCorp's comment. The Regional Water Board identifies how little data there are to represent buoyant blue "green algae settling rates, yet they readily adopted a completely untested, and unknown two box model representation for algal mortality in Keno reservoir. Sufficient literature information is known to complete a more appropriate representation of algal settling, particularly given the extensive species data in the system.	As noted in the North Coast Water Board's original response, a more detailed representation of algae species is limited by the availability of local monitoring data to fully represent conditions. Species-specific boundary condition data, at a minimum, would be necessary at a high temporal and spatial resolution to confidently predict multiple species. These data simply are not available. The commenter refers to available literature information but does not specify the data source

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			<p>or any details regarding the literature. Presumably these data were not collected for Keno Reservoir and its boundaries, and are thus likely of limited use given the unique nature of the system.</p> <p>Additionally, as noted in the original response, the TMDL model considerably improved predictions of algae loss compared to the previous PacifiCorp model, however loss is still somewhat underestimated. Representing blue-green algae buoyancy speculated by the commenter would result in further underestimation of losses, which is not observed in the monitoring data. Algae settling velocity was set during the calibration process to most accurately represent observed conditions. Furthermore, representation of blue-green algae and its vertical mobility is inconsequential with regard to the TMDL scenario analysis since it was assumed that under natural conditions Upper Klamath Lake would not be dominated by blue-green algae.</p>
6.79	Robert Donlan	<p>Appendix 6 Modeling Configuration and Results PacifiCorp (Hemstreet) comments 265, 266, 269, 270, 271, 273, 274, 275, 276, 277, 278, 279,281,282,284,286,288,292,293, and 294 regarding the Revised Draft TMDL Appendix 6 (Modeling Configuration and Results) were not directly addressed. The responses to these comments (Responses 265, 266, 269, 270, 271, 273, 274, 275, 276, 277,278,279,281,282,284,286,288,292,293, and 294) were only references to other comment numbers.</p>	<p>“Comments Hemstreet 265, 266, 269, 270, 271, 275, 276, 277, 278, 281, 282, 284, 286, 292, and 294” were previously submitted. The North Coast Water Board’s response to these comments, which is to refer to the response to the originally submitted comments, is appropriate. A repeat response is not necessary. State Water Board staff finds the North Coast Water Board’s responses to “Comment Hemstreet 273, 274, 279, 288, and 293” address the comments appropriately.</p> <p>Please also see response to comment 0.1</p>
6.80	Robert Donlan	<p>Appendix 7 Modeling Scenarios PacifiCorp (Hemstreet) comments 303, 315, 322, and 325 regarding the Revised Draft TMDL Appendix 7 (Modeling Scenarios) were not directly addressed. The responses to these comments (Responses 303, 315, 322, and 325) were either</p>	<p>State Water Board staff reviewed the North Coast Water Board’s responses to these comments and finds that all comments requiring a response were addressed.</p>

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		"Comment Noted" or only references to other comment numbers.	Please also see response to comment 0.1
6.81	Robert Donlan	<p>Comment Category A – TMDL Model Comments</p> <p>The Regional Water Board's Response A10e (page A-18, Appendix 10) is incorrect. The discussions were limited to general conditions of reaeration below Iron Gate dam. Watercourse Engineering, Inc. did not suggest introducing the computer code logic associated with the FTURB parameter.</p>	<p>Comment acknowledged.</p> <p>State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with the response.</p> <p>Please also see response to Comments 0.1 and 6.10.</p>
6.82	Robert Donlan	<p>Comment Category A – TMDL Model Comments</p> <p>The Regional Water Board's Response A108 (page A-SO, Appendix 10) is incorrect. Watercourse Engineering, Inc. completed some modest exploration of the concept of algal mortality associated with low dissolved oxygen by modifying the code of CEQUAL-W2. While it is true there is a Lagrangian element to assessing such a hypothesized problem, the real issue is there was absolutely no proof to support such a representation in a numerical model. When M. Deas of Watercourse Engineering, Inc. inquired about the parameterization of this logic (e.g., the mortality rates, respiration rates, rate of shifting from the healthy box to the unhealthy box) with the Tetra Tech modeler, the modeler stated that he simply made them up because there was no literature on the topic (Rui Zou, pers. comm.). As a result this logic is simply a black box used for calibration that has no supporting basis in scientific or gray literature. This clarification is also pertinent to Response DI (page 20, Appendix 10).</p>	<p>Based on the available observation data and the inability of the previous PacifiCorp model to properly characterize conditions, implementation of the hypothesis through model code updates was deemed the most acceptable approach. The hypothesis is scientifically rooted, as noted in the previous North Coast Water Board's response, and the model updates and calibration resulted in better representation of observations.</p> <p>The commenter's personal communication with Rui Zou is incorrectly characterized. In communication with M. Deas, Rui Zou discussed that parameterization was derived through the calibration process because no previous literature were available to directly specify parameter values. Indeed literature values for many parameters used in water quality modeling vary by orders of magnitude. Calibration is the best available (and accepted) technique to determine appropriate parameter values to represent the unique characteristics of a system.</p> <p>Given that the model code was made available to the public, the model representation and logic are far from being a black box, as noted by the commenter.</p>
6.83	Robert Donlan	<p>Comment Category A – TMDL Model Comments</p> <p>The Regional Water Board's Responses A118, A119, A120, A121,</p>	Comment acknowledged.

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		and A122 do not adequately address PacifiCorp's comments. PacifiCorp reiterates that calibrating with modified boundary conditions is an inappropriate approach, which masks model uncertainty, particularly when the natural conditions baseline is far from the calibration condition (that is, dramatically different water quality is assumed).	State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with the response. Please also see responses to Comments 0.1 and 6.10.
6.84	Robert Donlan	Comment Category A – TMDL Model Comments The Regional Water Board's Response A129 does not adequately address PacifiCorp's comment. Formal recalibration was not undertaken.	The North Coast Water Board's original response to "Comment A129" explains that local conditions drive selection of calibration parameters. Available monitoring data were used to support designation of values. The commenter's reference to an expectation of "formal recalibration" is unfounded.
6.85	Robert Donlan	Comment Category A – TMDL Model Comments The Regional Water Board's Response A130 does not adequately address PacifiCorp's comment. Organic matter partitioning is still not properly addressed.	Comment acknowledged. State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with the response. Please also see responses to Comments 0.1 and 6.10.
6.86	Robert Donlan	Comment Category A – TMDL Model Comments The Regional Water Board's Response A131 does not adequately address PacifiCorp's comment. SOD can change reach to reach, but such information is lacking in the Klamath River. Identified values are speculative.	Comment acknowledged. State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with the response. Please also see responses to Comments 0.1 and 6.10.
6.87	Robert Donlan	Comment Category A – TMDL Model Comments The Regional Water Board's Response A132 does not adequately address PacifiCorp's comment. The Regional Water Board's rationale for changing these values without sufficient data is not explained.	State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with the response. Please also see responses to Comments 0.1 and 6.10.
6.88	Robert Donlan	Comment Category A – TMDL Model Comments The Regional Water Board's Response A133 does not adequately address PacifiCorp's comment. Judging model performance	State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with the response. State Water Board staff agrees with the North

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		without sensitivity analysis and quantified uncertainty is speculative.	Coast Board's approach to evaluating model uncertainty, as described in responses to "Comments A2" and "Comment Category A Attachment 1 comment E1". Please also see responses to Comments 0.1 and 6.10.
6.89	Robert Donlan	Comment Category A – TMDL Model Comments The Regional Water Board's Response A138 does not adequately address PacifiCorp's comment. Nitrate and ammonium values at Keno reservoir are not realistically represented in the model. These upstream model locations are pivotal in the results generated from the model for downstream reaches.	State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with the response. Please also see response to Comments 0.1 and 6.10.
6.90	Robert Donlan	Comment Category A – TMDL Model Comments The Regional Water Board's Response A141 does not adequately address PacifiCorp's comment. The type of data discussed in the response was available for 2000 data in Keno reservoir and at selected other locations in the Klamath Basin to represent error bars.	State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with the response. Further, State Water Board staff point out that presentation of error bars, regardless of the availability of the necessary data, is not required. Please also see responses to Comments 0.1 and 6.10.
6.91	Robert Donlan	Comment Category A – TMDL Model Comments The Regional Water Board's Responses A142, A147, A150, A151, and A154 do not adequately address PacifiCorp's comments. There is no formal uncertainty analysis identifying the TMDL model accuracy.	Comment acknowledged. Please also see response to comment 6.88.
6.92	Robert Donlan	Comment Category A – TMDL Model Comments The Regional Water Board's Responses A144, A149, and A158 do not adequately address PacifiCorp's comments. PacifiCorp has continued concerns about calibrating the model based on only a single year. Including the estuary calculation of 2004 (a different year than used to calibrate the model) is misleading to the reader that multiple years were used in calibration.	Comment acknowledged. Please also see responses to Comment 6.10.
6.93	Robert Donlan	Comment Category A – TMDL Model Comments The Regional Water Board's Response A148 does not adequately address PacifiCorp's comment. Adjusting boundary conditions as done in the TMDL modeling is not typical modeling practice.	Comment acknowledged. State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with the

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			response. Please also see responses to Comments 0.1 and 6.10.
6.94	Robert Donlan	Comment Category A – TMDL Model Comments The Regional Water Board's Response A155 does not adequately address PacifiCorp's comment. Solar reduction by 20% in river models without recalibrating the model leads to systematic underprediction of simulated temperatures.	Comment acknowledged. State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with the response. Please also see responses to Comments 0.1, 6.10, and 6.5.
6.95	Robert Donlan	Comment Category A – TMDL Model Comments: Attachment 1-USGS Model Review With regard to Responses A4 and E3 in Attachment 1, the data used in the TMDL calibration are not representative of actual conditions. Bureau of Reclamation collected this data in 2000 and in 2001 found different conditions. Working with Watercourse Engineering, this issue was explored. After comparing several years of data, the 2000 data for NO3 and NH4 at Miller Island and Keno has been identified as being incorrect.	Comment acknowledged. State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with the response. Please also see responses to Comments 0.1 and 6.10.
6.96	Robert Donlan	Comment Category A – TMDL Model Comments: Attachment 1-USGS Model Review With regard to Responses A5 and F4 in Attachment 1, Regional Water Board staff response is inadequate. Extensive work on this topic over the past several years has provided key insight into organic matter (OM) partitioning and seasonal variations. Proposed OM concentrations under natural conditions are untenable. Modification to partitioning does not address the comment.	Comment acknowledged. State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with the response. Please also see responses to Comments 0.1, 6.1, 6.7, 6.8, 6.10, and 6.77.
6.97	Robert Donlan	Comment Category A – TMDL Model Comments: Attachment 1-USGS Model Review With regard to Response C3 in Attachment 1, version control has been a serious concern in this TMDL. PacifiCorp experienced considerable setback in review of the TMDL due to version control issues. Such issues lead to lack of confidence in models, when	It is State Water Board staff's understanding that the North Coast Water Board made consistent efforts to provide PacifiCorp with all relevant TMDL model files during the North Coast Water Board's public comment periods. State Water Board staff has confirmed that the administrative record provided by the North Coast Water

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		Regional Water Board staff cannot produce the version of the model used in the simulations for the TMDL. In the end, it appears that most of the version control issues were worked out, but there are still model files and simulations that were not checked due to time constraints - leaving a lingering doubt about reproducibility of TMDL modeling results.	Board is complete and this record is available for review. State Water Board staff is pleased to hear the commenter's characterization that "most of the version control issues were worked out".
6.98	Robert Donlan	<p>Comment Category A – TMDL Model Comments: Attachment 1-USGS Model Review</p> <p>With regard to Response C4 in Attachment 1, although the SC10 error has been remedied in the reservoir models (CE-QUAL-W2), this error remains in the river models. The undocumented (both in the code and in the model documentation) nature and potential implications of this coding change are unsettling.</p>	<p>State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with the response. The North Coast Water Board's original response to "Comment Category A Attachment 1 comment C4" documents the assumptions in sufficient detail.</p> <p>Please also see responses to Comments 0.1 and 6.10.</p>
6.99	Robert Donlan	<p>Comment Category A – TMDL Model Comments: Attachment 1-USGS Model Review</p> <p>With regard to Responses C6 and F2 in Attachment 1, the reef spillway issue, although resolved in regards to the USGS comment, was also identified as problematic in the Oregon TMDL. The weir representation and outlet representation in CE-QUAL-W2 produce notably different results. This affects temperature and dissolved oxygen concentrations below the dam, and thus appears to be an error in the CE-QUAL-W2 logic. The "natural conditions baseline" and "with dam" model scenarios are not comparable until this logic error is remedied.</p>	<p>The weir representation and outlet representation in CE-QUAL-W2 definitely produce different results, and should produce different results, because they represent different conditions. The former condition represents an uncontrolled (i.e., natural) condition while the latter represents a controlled condition (i.e., when the dam is present).</p> <p>Please also see responses to Comments 0.1 and 6.10.</p>
6.100	Robert Donlan	<p>Comment Category A – TMDL Model Comments: Attachment 1-USGS Model Review</p> <p>With regard to Response D1 in Attachment 1, USGS identifies in great detail issues associated with algal representation, including the two-compartment representation. Regional Water Board response identifies that "in the absence of additional data or research, the team used best professional judgment to proceed with code modifications related to algae representation" (page 24). There are no scientific studies on this approach and no literature on this approach, and thus little basis. This logic is simply a black</p>	<p>State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with the response.</p> <p>Please also see responses to Comments 0.1, 6.10, and 6.78.</p>

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		box that may make calibration look better, but may have no physical basis in reality (and no way to refute or confirm model performance with regards to this particular process).	
6.101	Robert Donlan	<p>Comment Category A – TMDL Model Comments: Attachment 1-USGS Model Review</p> <p>With regard to Response D2 in Attachment 1, representation of SOD is an important element in Keno reservoir. Regional Water Board staff did not adequately address the points made by USGS regarding the rate multiplier function values.</p>	<p>State Water Board staff reviewed the North Coast Water Board’s response to this comment and agrees with the response.</p> <p>Please also see responses to Comments 0.1 and 6.10.</p>
6.102	Robert Donlan	<p>Comment Category A – TMDL Model Comments: Attachment 1-USGS Model Review</p> <p>With regard to Response E1 in Attachment 1, USGS identifies the importance of independent periods for calibration and validation, but that the validation period had different parameter values. This casts doubt on independent check of model performance.</p>	<p>State Water Board staff reviewed the North Coast Water Board’s response to this comment and agrees with the response. In particular, State Water Board staff point out the following response to Comment Category A Attachment 1 comment D3: “The inconsistent values noted have been corrected and documented in the final Model Report, and these corrections did not result in major changes in model predictions.”</p> <p>Please also see responses to Comments 0.1 and 6.10.</p>
6.103	Robert Donlan	<p>Comment Category A – TMDL Model Comments: Attachment 1-USGS Model Review</p> <p>With regard to Response E2 in Attachment 1, USGS identifies, and PacifiCorp concurs, that error statistics are an integral element of assessing model performance and quantifying uncertainty. Regional Water Board staff suggest that the Klamath Basin is "different" and thus these approaches are less appropriate than visual (graphical) assessment. Both measures are useful, but for quantification, model performance statistics are required.</p>	<p>State Water Board staff reviewed the North Coast Water Board’s response to this comment and agrees with the response. State Water Board staff agrees with the North Coast Board’s approach to evaluating model uncertainty, as described in responses to “Comments A2” and “Comment Category A Attachment 1 comment E1”, and point out that the final Staff Report does include a representative set of error statistics.</p> <p>Please also see responses to Comments 0.1 and 6.10.</p>
6.104	Robert Donlan	<p>Comment Category A – TMDL Model Comments: Attachment 1-USGS Model Review</p> <p>With regard to Response F5 in Attachment 1, the USGS comment noted that N and P values are too low in the natural conditions baseline, providing extensive supporting documentation and</p>	<p>State Water Board staff reviewed the North Coast Water Board’s response to this comment and agrees with the response.</p> <p>Please also see responses to Comments 0.1 and 6.10.</p>

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		references. Regional Water Board response does not adequately address this point.	
6.105	Robert Donlan	<p>Comment Category B – Impairment Assessment</p> <p>In previous comments, PacifiCorp has raised a number of questions concerning the validity of the 10 ug/L chlorophyll a target, the analysis used to support that target, and the likelihood that the target could ever be achieved. PacifiCorp has pointed out that statements used to support concepts such as chlorophyll a is a response variable to impoundment or that high chlorophyll a concentration is harmful to aquatic life are presented without supporting data or relevant citation. PacifiCorp submits that the chlorophyll a target was not chosen to protect any particular beneficial use, but was selected to conform to a hypothetical "natural" condition that there is no reasonable expectation will ever be achieved. The chlorophyll a target is arbitrarily low with respect to protecting the REC1 beneficial use, resulting in a target for cyanobacteria toxin that is five times lower than widely recognized targets that are protective of human health (WHO 2003). The Regional Water Board's responses to these concerns are inadequate, consisting largely of brief, unsupported statements that Staff disagrees with the comment and that the TMDL model results support the target value (Responses B2 through B19). There responses are not reassuring given the serious concerns raised elsewhere in these comments about the validity of the TMDL model.</p>	<p>State Water Board staff support the results of the North Coast Water Board analysis provided in the TMDL staff report and Appendices for the chlorophyll a target. In addition, this comment has been addressed in several previous responses, some but not all are referenced in this current comment. In addition to those comment responses identified by PacifiCorp, other responses that also address the issues raised here by PacifiCorp include: "Comment A6, D4, C3, D12, Hemstreet 80-85, and 185.</p>
6.106	Robert Donlan	<p>Comment Category C – Source Analysis</p> <p>With regard to Response C3, an important note in the application of both RMA and CE-QUAL-W2 models is that they are "off the shelf models" (response to comment C3, page 14 Appendix 10). They are generic models that can be "fit" or "applied" to a basin based on river specific information such as system geometry, elevation, tributaries inflows, particular water quantity and quality inflows, or withdrawals, among other factors. For a specific application, it is the calibration parameter set that defines the model "version" for a particular river system, Le., an RMA or CE-</p>	<p>Comment acknowledged.</p> <p>State Water Board staff agrees with the comments about "off the shelf models" and that the model parameters applied for a specific application represent a "version" of this model. Regardless, State Water Board staff point out, as documented in the final Staff Report, that the models were calibrated and error statistics are presented in the final Staff Report for the final version of the models applied for TMDL development. State Water Board staff</p>

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		<p>QUALW2 application to a river or reservoir in another system is not the "same" model application as the one used in the Klamath Basin. Thus, when the model parameters changed notably between the Draft TMDL (June 2009) and Revised Draft TMDL (December 2009), PacifiCorp commented that the latter model was notably "different," while the Regional Water Board identified the models as "the same." PacifiCorp believes the models are sufficiently different - producing notably different results - that the newer version needs to be recalibrated and model performance (e.g., sensitivity and uncertainty) reassessed. Similarly, given the significant differences in the models, the models should again be submitted for peer review.</p>	<p>does not agree, however, that a separate peer review is required of this final "version" of the model application.</p>
6.107	Robert Donlan	<p>Comment Category D – Targets and Allocations In a number of previous comments (D1, D2, D3, D4, D9, D12) PacifiCorp has pointed out that the proposed chlorophyll a target of 10ug/L is inappropriate and cannot be achieved without such drastic reductions in nutrient loads as are not possible to accomplish. PacifiCorp repeatedly requested the Regional Board to provide suggestions describing any legal or practicable means of achieving the necessary reductions. The response to these requests was wholly inadequate, consisting mainly of assertions that the largely were appropriate and that the board "believes" that the reductions will be met with "full implementation of the Upper Klamath Lake TMDL, the Lost River TMDL and the Klamath River TMDL. No suggestions addressing practicable means of achieving the reductions have been supplied.</p>	<p>State Water Board staff finds that the PacifiCorp comment unnecessarily dismisses the framework described for achieving TMDL goals described in Chapter 6 – Implementation. In addition, PacifiCorp has been given implementation flexibility by either achieving the TMDL load reduction allocations or demonstrating in-reservoir management practices that achieve the chlorophyll a target. The North Coast Water Board staff responses to "Comments K39, K53 and K54" adequately address PacifiCorp's comments about achievability and practicability. Load allocations and targets must be viewed in context of the implementation program provided, and not viewed as an effluent limit. While the load allocations and targets assigned to PacifiCorp are stringent, State Water Board staff finds that the implementation plan provides a very reasonable approach for PacifiCorp to be on a pathway toward compliance. The Klamath River TMDL implementation framework provides sufficient measures and detail to support management activities that will restore supporting conditions for beneficial uses.</p>
6.108	Robert Donlan	<p>Comment Category D – Targets and Allocations PacifiCorp's previous comment (D20) requesting the Regional</p>	<p>State Water Board staff has reviewed the relevant TMDL staff report sections and comment response to</p>

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		Board to provide any evidence that nutrient releases from the reservoir sediments has any effect at all on algal growth in the reservoirs or in the river downstream has not been adequately addressed. Rather than produce evidence of an effect the response referred to "simple logic" situations that N may occur", and "fundamental concepts". While logic, hypothetical situations, and fundamental concepts may provide a framework for speculation, they do not provide evidence that particular process is occurring.	"Comment D20" and finds that the response adequately addresses the issues raised by PacifiCorp. The response provides a detailed explanation for nutrient fluxes and their transport into the water column that is in documented scientific literature for which references are provided.
6.109	Robert Donlan	Comment Category S – Economics and Environmental Analysis The Regional Water Board's responses do not adequately respond to PacifiCorp's comments regarding an appropriate analysis of potential compliance methods and their environmental impacts as required to be performed at the programmatic level by CEQA. See Pub. Res. Code § 21159.	State Water Board staff reviewed the North Coast Water Board's responses, including "Comment S23 and S24" and finds the response adequate.
6.110	Robert Donlan	Comment Category S – Economics and Environmental Analysis Response to S23. PacifiCorp's comments on the June Draft regarding a discussion of the impacts of dam removal as a reasonably foreseeable method of compliance with the TMDL's load allocations were only partially and inadequately addressed by the Regional Water Board. Although the Regional Water Board added a discussion of some environmental and economic impacts of dam removal, that analysis was inadequate, as discussed in PacifiCorp's comments on the December Draft (see comments 238-246).	State Water Board staff reviewed the North Coast Water Board's responses, including "Comment S23 and S24" and finds the responses adequate. In general, the North Coast Water Board's approach in its environmental analyses is adequate and sound, particularly in addressing the challenging procedural circumstances surrounding the Klamath Hydroelectric Project. The TMDL Staff Report and responses to comments explain in detail the two potential regulatory pathways for the Klamath Hydroelectric Project, both driven by other issues in addition the water quality, and both subject to final decisions that will not made by the North Coast Water Board. The North Coast Water Board will only decide whether dam removal or modification meets the TMDL, and nothing more, and that decision must be made at a later date. The TMDL CEQA documentation discloses impacts of various Klamath Hydroelectric Project compliance measures to the extent practicable at this juncture.

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			<p>In Resolution No. 2010-0024, the State Water Board granted the request of KHSA parties, including PacifiCorp, to hold the Klamath Hydroelectric Project water quality certification process in abeyance to allow time for the Settlement to move forward. That Resolution recognizes that under the KHSA, the Department of the Interior will conduct further analysis of the environmental impacts and economics of dam removal. The Department of Fish and Game will be the lead agency for analyzing removal of the Klamath Hydroelectric Project mainstream facilities under CEQA. Additional analysis by the North Coast Water Board at this time would be inefficient and not particularly useful in light of the detailed studies we know will be forthcoming. Nor would additional analysis by the North Coast Water Board at this time better aid decision-makers as the TMDL document already clearly discloses potential impacts. Agencies are well aware that dam removal or other infrastructure modification will require additional site-specific analysis and the State Water Board is satisfied that the TMDL implementation plan provides for this review before committing or approving any additional actions.</p>
6.111	Robert Donlan	<p>Comment Category S – Economics and Environmental Analysis Response to S24. The Regional Water Board's response to PacifiCorp's comments regarding its insufficient analysis of alternative means of compliance is inadequate because it is not on point. Stating that the Board is prohibited from requiring specific means of compliance is not an answer to CEQA's requirement of an analysis of reasonably foreseeable alternative methods of compliance, at the programmatic level, whenever an agency adopts a performance standard. The Board does not need to require specific means of compliance in order to comply with CEQA. Further, claiming that more CEQA review will occur in the future is not appropriate where CEQA requires an analysis here, at the programmatic level. Pub. Res. Code § 21159.</p>	<p>State Water Board staff reviewed the North Coast Water Board's response to "Comment S24" and associated economic analysis, and finds the response adequate. The environmental analyses, including the range of alternatives, provide a sufficient level of information and detail of the scope of potential impacts.</p>

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6.112	Robert Donlan	Comment Category T – Stakeholder Participation Responses to T8a, T8b, and T8c. The Regional Water Board's responses to PacifiCorp's comments regarding the basis for their decision and the length of the public comment period is inadequate because it noted that the Regional Water Board met all public noticing requirements. Distributing a public notice or agenda is not the same as providing sufficient time for the public to understand and participate in agency rule making through a public comment period. The Regional Water Board's response that the public comment period on the December Draft was 47 days did not respond to PacifiCorp's concern with the adequacy of the public comment period on the June Draft	State Water Board staff finds that the public's opportunity to review the Klamath TMDL and supporting information and provide comments was adequate to meet all requirements.
6.113	Robert Donlan	Comment Category T – Stakeholder Participation Response to T16. The Regional Water Board's response to PacifiCorp's comment that public participation was hindered by lack of information and delayed release of documents was a reference to the response to PacifiCorp's comments regarding the length of the public comment period. The availability of information on which to comment is a different concern than the length of the public comment period (the subject of PacifiCorp's comments TSa-c) and also a different concern than the notice (addressed by the Board's referenced response).	The North Coast Water Board provided all requested information, and also opened a second 47-day comment period. PacifiCorp's assertion that the availability of information and comment period were inadequate is unsupported.
6.114	Robert Donlan	Comment Category U – Peer Review Response to U4. The Regional Water Board's response to PacifiCorp's comments that it did not adequately respond to peer reviewers who noted the need for an analysis of model uncertainty is to point to its responses to A2, A 51, A142, and A147. The Board's response is inadequate for the same reasons those responses are inadequate to address PacifiCorp's concerns with the accuracy of the model.	State Water Board staff finds the North Coast Water Board's responses to PacifiCorp's original comments are adequate. Please see response to comment 0.1
6.115	Robert Donlan	Comment Category U – Peer Review Response to U6. The Regional Water Board's response to PacifiCorp's comments on its responses to peer reviewers concerns with the efficacy of the compliance lens is inadequate. It simply refers to an adaptive management approach without	State Water Board staff finds the North Coast Water Board's response to PacifiCorp's original comment is adequate. Please see response to comment 0.1

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		providing a discussion of the efficacy of the compliance lens concept.	
6.116	Robert Donlan	Comment Category U – Peer Review Response to U9. The Regional Water Board's response does not address PacifiCorp's concern that the Board ignored the questions raised by a peer reviewer regarding achievability of temperature reductions in Copco and Iron Gate.	State Water Board staff finds the North Coast Water Board's response to PacifiCorp's original comment is adequate. Please see response to comment 0.1
6.117	Robert Donlan	Comment Category U – Peer Review Responses to U17 and U18. In response to PacifiCorp's comments regarding the availability of extensive research on thermal refugia in the Klamath River, the Regional Water Board staff state that they did in fact consider this literature although it is not cited in their list of references. This response is not adequate. The public would not know what sources provide the data and support for the Regional Water Board's conclusions if they are not listed in the Board's reference list. Furthermore, this literature is relevant to the issue and informative on the topic and should be discussed.	State Water Board staff finds the North Coast Water Board's original response adequately explains that the references were considered and why the references submitted were not relevant and thus not relied on.
6.118	Robert Donlan	Comment Category U – Peer Review Response to U20. The Regional Water board's response is inadequate to address why Chapters 6 and 7 do not contain provisions premised upon or derived from scientific findings and conclusions.	State Water Board staff finds the North Coast Water Board's original response adequately explains why Chapters 6 and 7 were not submitted for scientific peer review.
6.119	Robert Donlan	Comment Category V – Data and QA/QC Response to V11. The Regional Water Board's response was inadequate to PacifiCorp's comment regarding the unavailability of the data or criteria used for the Board's conclusion that TMDL allocations and targets, and thereby water quality objectives and beneficial uses, will be achieved upon dam removal. Neither the Regional Water Board's response to V11 nor the response to K56 (referenced within the response to V11) reveal the data or criteria used to decide that allocations and targets will be achieved upon dam removal.	The TMDL model was used for the dams out analysis and the compliance criteria was the same criteria used for the dams in compliance analysis. The TMDL model and data output from all modeling scenarios was provided to PacifiCorp. The TMDL does not rely on any conclusion that water quality objectives will be achieved if dams are removed. North Coast Water Board staff is not prohibited from acknowledging difficulties of Klamath Hydroelectric Project compliance with the Clean Water Act. It is logical to presume that if facilities are removed, load allocations and targets assigned to those facilities will be met, or will no longer apply, as the allocations and targets are measures of the facilities' contribution to the

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			impairment. The implementation plan provides for additional review of the issue of TMDL compliance if facilities are to be removed based on additional, detailed studies.
6.120	Robert Donlan	Oral Comments Made at March 24 Hearing In response to PacifiCorp's oral comments regarding achievability of the load allocations, the Regional Water Board's response was a conclusory statement that Staff believes they are achievable.	State Water Board staff finds that the North Coast Water Board adequately addressed the issue of "achievability" in its written and oral responses.
6.121	Robert Donlan	Oral Comments Made at March 24 Hearing In response to PacifiCorp's concerns regarding achievability and fairness of the load allocations when the upstream water quality issues are the cause, the Regional Water Board's response was another conclusory statement that the allocations are only for PacifiCorp's contributions.	State Water Board staff finds that the North Coast Water Board adequately addressed the issue of "achievability" and "fairness" of PacifiCorp's load allocations in its written and oral responses.
6.122	Robert Donlan	Oral Comments Made at March 24 Hearing On CEQA issues, the Board's oral responses were inadequate for the same reasons its written responses to comments 238-241 were inadequate. CEQA requires an analysis of reasonably foreseeable means of compliance and alternative means of compliance now, at the programmatic level, taking into consideration all applicable factors. See Pub. Res. Code § 21159.	State Water Board staff has reviewed the North Coast Water Board's responses and find that the North Coast Water Board adequately addressed CEQA issues raised by PacifiCorp in its written and oral responses. The North Coast Water Board performed the environmental review in good faith based on the readily available information submitted by PacifiCorp as part of the FERC relicensing proposal, on other dam decommissioning studies both in the Klamath River and on other regulated stream systems and on best professional judgment. The PacifiCorp FERC proposal included much information relative to how the project could meet existing water quality standards.
6.123	Robert Donlan	Chapter 2 Problem Statement The Regional Water Board's Responses 49, 52, and 58 inadequately address PacifiCorp's comments. The Regional Water Board continues to fundamentally misunderstand or inaccurately speculate on the effects of the reservoirs on flows. The Regional Water Board does not seem to understand and does not accurately explain the factors controlling flows in the Klamath River. Flow conditions in the Klamath River in the vicinity of	State Water Board staff has reviewed the relevant sections in Chapter 2 and the comments and responses noted by PacifiCorp in this current comment. PacifiCorp's comment seems out of scale with the references made by North Coast Water Board staff regarding an increased incidence of scouring flows in a dams out (that is without JC Boyle, Copco 1, Copco 2, and Iron Gate) scenario. The point made by North Coast

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		PacifiCorp's facilities are dictated by releases from Link River dam (the outflow from Upper Klamath Lake) and from Iron Gate dam. These flow releases are provided as required by Biological Opinions (issued by NMFS and USFWS) on Bureau of Reclamation's Klamath Project. The Regional Water Board's various assumptions regarding "attenuation", "scouring flows", and "important effects at lower flows" are incorrect.	Water Board staff is that flows would be more dynamic (increased sediment load, increased daily average and increased daily peak that could impact the accrual period for periphyton) by increasing the average number of scour inducing flows during a typical year. The statement is qualitative and is based on the sound assumption that the four dams combined do have some effect on the flow regime of the Klamath River in the reach from above JC Boyle to below Iron Gate. PacifiCorp does not present any data to counter this reasonable qualitative description. State Water Board staff finds that the point of the discussion was not to provide a detailed description of flows with and without dams. Rather the point, which is adequately supported, was that altered flow dynamics are likely to be a contributing factor regarding increased periphyton density.
6.124	Robert Donlan	Chapter 2 Problem Statement The Regional Water Board's Response 69 does not adequately address PacifiCorp's comment. Tributary temperatures are still not appropriately discussed. Many of the tributaries form valuable thermal refugia at their confluences with the Klamath River. These refugia provide much existing cool water habitat. Thus, upstream temperatures cannot be as adverse as the TMDL concludes.	The PacifiCorp comment appears to miss the point made in the North Coast Water Board's response (i.e. that given the temperature of the streams, no additional heat can be accommodated). State Water Board staff note that the presence of salmonids does not indicate the conditions present are not adverse to salmonids. See the North Coast Water Board's response to "Comment K43" for further discussion on the topic.
7.1	James Foley	Regulations must be reasonable. Any regulation that is prohibitive is unreasonable.	The North Coast Water Board has already addressed this comment in its response to "Comment N17a". State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with its response. Please see response to comment 0.1.
7.2	James Foley	This paragraph also mentions "excess sediment". Material that is processed through a suction dredge produces no "excess" sediment or any other substance that was not already in the river.	The North Coast Water Board has already addressed this comment in its response to "Comment N17b".

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		The dredge adds nothing.	State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with its response. Please see response to comment 0.1.
7.3	James Foley	To regulate for potential for harm, where no harm has been shown to exist is unjustifiable and must be challenged. (U.S. Army Corps of Engineers) This precaution is unreasonable, arbitrary and capricious. It amounts to a private property "taking" by the agency on nothing more than supposition.	The North Coast Water Board has already addressed this comment in its response to "Comment N18 and N24". State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses. Please see response to comment 0.1.
7.4	James Foley	Who are the biologists that made this recommendation? The only fisheries biologists that were consulted by the agency were those that have written unfavorably regarding suction dredge mining. Much that these biologists said was nothing more than opinion, not science. Regulations must be based on the best available science, not opinion. I have personally seen to it that the water boards have been the recipient of many peer reviewed studies that show that suction dredging has "de-minimus" or "inconsequential" effects on fisheries and aquatic environment, none were used. State DFG regulations provide that no suction dredge mining be allowed during spawning periods. The mining community has made these arguments and many others ad-nauseum. The various agencies simply disregard what they don't want to hear in favor of implementing their own pre-determined agenda.	The North Coast Water Board has already addressed this comment in its response to "Comment N19 and N20". State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses. Please see response to comment 0.1.
7.5	James Foley	They propose to take people's livelihood and property and prohibit them from making a living on mere assumption.	The North Coast Water Board has already addressed this comment in its response to "Comment N22". State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with its response.

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			Please see response to comment 0.1.
7.6	James Foley	You can't prove that something is NOT harmful. This is like trying to prove a negative, it cannot be done.	<p>The North Coast Water Board has already addressed this comment in its response to "Comment N23".</p> <p>State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with its response.</p> <p>Please see response to comment 0.1.</p>
7.7	James Foley	<p>In 1866 the 39th Congress of the United States enacted a law that still stands today. It is commonly referred to as the Mineral Estate Grant of 1866. Its federal register designation is: HR 365. One excerpt from this document states: "That the mineral lands of the public domain, both surveyed and unsurveyed, are hereby declared to be free and open to exploration and occupation by all citizens of the United States"</p> <p>This document makes mining claims "private property" in the truest sense. It grants the actual minerals and land to the claimant and severs ownership from the Federal Government.</p> <p>Since the congress has declared that the mineral lands are free and open, and this is the supreme law of the land, it follows that no state or agency can prohibit what Congress has enacted.</p> <p>The Supremacy Clause of the US constitution provides that no rule or regulation imposed by any state agency is valid if it conflicts with Federal Law.</p> <p>The State Attorney General must be consulted by Water Boards. The question to ask counsel is: "Can Water Boards regulate mining on Federal Public Domain Lands"? For Water Boards staff to answer this question is unethical, it must be answered by the AG.</p>	<p>The North Coast Water Board has already addressed this comment in its response to ""Comment N24".</p> <p>State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with its response.</p> <p>Please see response to comment 0.1.</p>
8.1	James R.	The action plan for the "...Klamath River Total Maximum..." does	The Staff Report states, "The purpose of this report is to

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	Finses	not state clearly the plans for accepting impaired waters at the California-Oregon border.	present the Total Maximum Daily Loads (TMDLs) calculated by California to protect and restore beneficial uses of water in the Klamath River downstream of the Oregon border and in portions of the Klamath River watershed in California. "Chapter 6 also discusses in detail the coordination between California and Oregon and the resulting allocations and targets. Please also see North Coast Water Board's response to "Comment ZZ14.
8.2	James R. Finses	One only has to read the numerous water quality studies at the Keno area races to know that water containing unacceptable levels of nutrients and microcystin impairments are flushed into the California watersheds. Although efforts to address water quality are noteworthy, one cannot be more than marginally successful without taking on some of the major sources of pollution coming from Oregon.	The North Coast Water Board has already addressed this comment in its response to "Comment D1". State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with its response. Please see response to comment 0.1.
8.3	James R. Finses	No additional funding or studying needs to be done. Utilize the multitude of studies already published, some as recent as 2009, governing the water quality of the upper Klamath River.	Comment acknowledged.
8.4	James R. Finses	As part of any future measurement plan, an absolute "MUST", must be that water samples will be taken at the California-Oregon border and that the results of these studies be made available to the general public.	Allocation and target water sampling monitoring for Stateline compliance is a component of the implementation plan. For more information regarding sampling and locations please see chapter 7 of the Staff Report.
9.1	Mark Chestnut	Comments: What "fisheries biologists" are you referring to? It is obvious that you <i>have</i> chosen to use biologists who <i>have</i> written against suction dredging activities in reports they have authored. In my opinion that would make these biologists "biased" against dredging. These same biologists <i>have</i> only proposed a "hypothesis" of a "possibility" that there "may be harm" from suction dredging. That is all they <i>have</i> done. They <i>have</i> done this in disregard for regulations that are already in place that afford protections against known possible harm, and <i>have</i> failed to	The North Coast Water Board has already addressed this comment in its response to ""Comment N19 and N20". State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses. Please see response to comment 0.1.

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		<p>recognize the <i>volumes</i> of studies done to date that show the impacts of suction dredging are so small they can barely be measured. <i>Have</i> these "biologists" you <i>have</i> chosen to <i>give</i> credit to performed one single scientific study based on proper scientific method that would withstand peer review to uphold one single "hypothesis" of potential harm that they have voiced to you or that you have personally chosen to believe? If not, this makes those statements nothing more than personal opinion. Because those opinions are in direct conflict with the multiple scientific studies done to date on dredging that were in fact performed using proper scientific methods and do stand up to peer review, in my view those opinions should not even be given the credit of being called a "professional opinion". Therefore, for the water board to use those biologist's personal opinions as proper scientific direction and enough legal reason for implementing regulations against suction dredging is in my opinion itself unethical, illegal, criminal, unreasonable, arbitrary and capricious.</p>	
9.2	Mark Chestnut	<p>Suction dredge mining is currently regulated under the Federal Clean Water Act by the section 404 permits under the Authority of the United States Army Corps of Engineers (USACE). The recent United States Supreme Court ruling in Coeur-Alaska, specifically stated that 404 activities are not to be held to any other part of the clean water act, "even if the USACE chooses not to require a permit for the activity. Currently, the USACE has determined that suction dredges that have an intake four inches or smaller do not create a discharge of dredged or fill material that requires a permit at all because the environmental impact is so small that it can barely be measured.</p>	<p>Comment acknowledged.</p>
9.3	Mark Chestnut	<p>Suction dredging is currently regulated under the endangered species act by the California Dept. of Fish & Game. This state agency has performed an extensive EIR in 1994, and implemented regulations based on all potential harms found in that very <i>extensive</i> study. They are currently <i>involved</i> in a CEQA review of those regulations and are in the current process of completing an updated EIR on suction dredging. For this water board to</p>	<p>The North Coast Water Board has already addressed this comment in its response to ""Bowman Comment 36".</p> <p>State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with its response.</p>

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		implement regulations against suction dredging for water quality or endangered species protection when-suction dredging is already regulated for both of those issues by the above agencies to me suggests that the water board believes it has a superior scientific knowledge of these subjects, even though this water board has not performed one single scientific study using proper (scientific method on the issue of suction dredging. This is egotistical, unethical, and illegal. It also shows that you failed to recognize as stated in the above comment made by this water board, that suction dredging is already regulated through existing permit or waver.	Please see response to comment 0.1.
9.4	Mark Chestnut	Potential means nothing. Every aspect of human life along the Klamath river has the "potential" of causing direct impacts that could alter the function of thermal refugia as you have been lead to believe that those thermal refugia do indeed function. In my opinion, for this board to implement regulations against suction dredging based on environmental puffery and biased fishery biologists instead of scientific fact and study will result in a "taking" of private property as currently defined by legal precedence. For this water board to assume that it knows the true function of thermal refugia shows nothing more than the true obtuse nature of this water board.	The North Coast Water Board has already addressed this comment in its response to “Comment N19, N20, N22, and N24”. State Water Board staff reviewed the North Coast Water Board’s responses to these comments and agrees with its responses. Please see response to comment 0.1.
9.5	Mark Chestnut	There has not been one single scientific study ever performed using proper scientific method that shows there is any reason to believe that there is a negative impact on thermal refugia from suction dredging in any way, including "sediment discharge". Actually to the contrary, a turbidity plume flowing through a thermal refugia may in fact offer increased protection for fish rather than cause any harm to those same fish, and in fact increases the dissolved oxygen content of the water, and the water coming off the back of a suction dredge is in fact cooler than it was before going through a dredge. I dare this water board to produce any scientific evidence to disprove this claim of benefit rather than harm to fish in thermal refugia. Also, there is no reason for any member	The North Coast Water Board has already addressed this comment in its response to “Comment N19, N20”, and N21”. State Water Board staff reviewed the North Coast Water Board’s responses to these comments and agrees with its responses. Please see response to comment 0.1.

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		of this board to give one single bit of credence to the issue that a suction dredge operating in a thermal refugia disturbs resting fish. The visual facts observed from thousands of suction dredgers for over forty years is that fish of all types are in no way disturbed by a running suction dredge as they in no way view the dredge or the operator as a threat to their life. It is common knowledge that fish are not threatened and do not react like they feel they are threatened by suction dredgers or dredges, and for this water board to bow down to the "hypothesis" that the presence of an operating suction dredge in a thermal refugia disturbs resting fish goes against all common sense and current observed information on this subject, and does so without one single scientific study that would uphold the reversal of currently accepted scientific facts on this subject.	
10.1	Tom Chambers	This precaution is unreasonable, arbitrary and capricious. It amounts to a private property "taking" by the agency on nothing more than supposition. Who are the biologists that made this recommendation? I understand that the only fisheries biologists that were consulted by the agency were those that have an unfavorably bias regarding suction dredge mining. What these biologists have said is nothing more than opinion, not science. Regulations must be based on the best available science, not opinion.	<p>The North Coast Water Board has already addressed this comment in its response to "Comment N18, N19, N20, and N24".</p> <p>State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses.</p> <p>Please see response to comment 0.1.</p>
10.2	Tom Chambers	Identified by whom & in who's OPINION? The biased biologist's? Furthermore..."To regulate for potential for harm, where no harm has been shown to exist is unjustifiable and must be challenged."(U.S. Army Corps of Engineers).	<p>The North Coast Water Board has already addressed this comment in its response to "Comment N19 and N20".</p> <p>State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses.</p> <p>Please see response to comment 0.1.</p>
10.3	Tom Chambers	Regulations must be reasonable. Any regulation that is prohibitive is unreasonable.	<p>The North Coast Water Board has already addressed this comment in its response to "Comment N17a".</p> <p>State Water Board staff reviewed the North Coast Water</p>

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			<p>Board’s response to this comment and agrees with its response.</p> <p>Please see response to comment 0.1.</p>
10.4	Tom Chambers	<p>This paragraph also mentions "excess sediment". Material that is processed through a suction dredge produces no "excess" sediment or any other substance that was not already in the river. The dredge adds nothing. There is no "excess" from a suction dredge. And the California Dept. of Fish and Game already regulates suction dredging and that no suction dredge mining be allowed during salmon spawning periods.</p>	<p>The North Coast Water Board has already addressed this comment in its response to “Comment N17b”.</p> <p>State Water Board staff reviewed the North Coast Water Board’s response to this comment and agrees with its response.</p> <p>Please see response to comment 0.1.</p>
10.5	Tom Chambers	<p>In 1866 the 39th Congress of the United States enacted a law that still stands today. It is commonly referred to as the Mineral Estate Grant of 1866. Its federal register designation is: HR 36S. One excerpt from this document states: "That the mineral lands of the public domain, both surveyed and unsurveyed, are hereby declared to be free and open to exploration and occupation by all citizens of the United States". This document makes mining claims "private property" in the truest sense. It grants the actual minerals and land to the claimant and severs ownership from the Federal Government. Since the congress has declared that the mineral lands are free and open, and this is the supreme law of the land, it follows that no state or agency can prohibit what Congress has enacted.</p> <p>The Supremacy Clause of the US constitution provides that no rule or regulation imposed by any state agency is valid if it conflicts with Federal Law. The State Attorney General must be consulted by Water Boards. The question to ask counsel is: "Can Water Boards regulate mining on Federal Public Domain Lands"? For Water Boards staff to answer this question is unethical, it must be answered by the AG.</p>	<p>The North Coast Water Board has already addressed this comment in its response to “Comment N24”.</p> <p>State Water Board staff reviewed the North Coast Water Board’s response to this comment and agrees with its response.</p> <p>Please see response to comment 0.1.</p>
11.1	Tom Connick	<p>At last count there were over 1200 diversions listed for the Klamath River watershed. Of those, a number are adjudicated and/or Pre-</p>	<p>The North Coast Water Board has already addressed this comment in its response to “Comment X1”.</p>

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		1914 water rights that have beneficial uses dedicated for domestic water, irrigation, and stock water. Any reduction or re-dedication of these water uses will adversely impact property values, the economic viability of agricultural, and the ability of state, counties and schools to operate effectively with reduced revenues from property and income taxes. Look at the central valley or the Klamath basin to see the impact. Without us who provide the values that the government can extract by taxes and fees -- which in turn provides you with a job.	State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with its response. Please see response to comment 0.1.
11.2	Tom Connick	The other concern is that SWRCB has not shown how their proposed measures for TMDLs will work in conjunction with the federal government's plans for the very same watershed. Will this simply be another layer of regulations by government on the populous?	State Water Board staff is unable to discern what the author is referring to in regards to "the federal government's plans". The North Coast Water Board, Oregon Department of Environmental Quality, and U.S. EPA Regions IX and X are working collaboratively and have signed a Memorandum of Agreement for implementing the Klamath River Basin TMDLs.
12.1	Leaf Hillman	According to 6.5.4.4 of the implementation plan for the Klamath TMDL, staff changed the December 2009 draft recommendations for closing suction dredge mining from June 15-September 15 to April 15-September 15. They added "two months on the front end to ensure that the impacts of suction dredge mining during these two months do not compromise the function of the refugia during the critical period". While the increased protection will help protect fisheries, it is not fully protective of the cold water fisheries beneficial use. Closing off the refugia for only part of the year (June 15-Sept 15) is not adequate to protect the refugia. With the proposed Action Plan, a miner could be destabilizing, destroying, or altering critical refugia as long as it is not between April 15-September 15. It would still have a negative impact on the refugia even though the fish are not present at that time. Since the habitat defines how effective (size, capacity, etc) the thermal refugia will be, it should not be impacted	The North Coast Water Board has already addressed this comment in its response to "Comment Boman 32" and "Comment Hillman 2". State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses. Please see response to comment 0.1. State Water Board staff disagree that this implementation plan undermines current protections for the Klamath River in regards to sediment discharge because per the Staff Report, these TMDLs do not explicitly address the sedimentation/siltation impairments in the Lower Hydrologic Area, Klamath Glen Hydrologic Sub-Area. The North Coast Water Board staff did not undertake a

¹ North Coast Regional Water Quality Control Board Basin Plan, 4-1.00.

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		<p>at all throughout the year. For example, suction dredge mining could occur in the spring in a tributary that is supposed to be protected by the policy. The mining shifts substrates and destabilizes the stream channel. When the rain on snow event occurs in the late spring, the channel morphology changes and excessive sediment is washed to the mouth of the creek. This could fill or alter the habitat at the mouth of the creek to eliminate thermal refugia for the following summer. The refugia that was supposed to be protected could essentially be destroyed.</p> <p>The implementation plan and action plan undermines current protections for the Klamath River in regards to sediment discharge, Pursuant to Section 13243 of the Porter-Cologne Water Quality Control Act, the existing Basin Plan correctly bans waste discharges into the Klamath River in order "to achieve water quality objectives, protect present and future beneficial water uses, protect public health, and prevent nuisance..."¹ In addition, it should be noted that the Klamath River is listed under the Clean Water Act section 303d as impaired by sediment.</p>	<p>sediment TMDL as part of this process. A sediment source analysis was determined to be inappropriate because they are not establishing a sediment TMDL. Control of sediment as part of this action is being done in order to achieve compliance with the temperature objective and the State non-point source policy.</p> <p>Although the North Coast Water Board's Basin Plan states that point source waste discharges are prohibited in the Klamath River Basin, it allows for exemptions as stipulated by the Thermal Plan, the Ocean Plan, and the action plans and policies contained in the Point Source Measures section of this Water Quality Control Plan, which would include the action plan of this amendment. The North Coast Water Board specifically allowed for such flexibility when creating this prohibition.</p>
12.2	Leaf Hillman	<p>In Section 6.5.4.5 of the draft TMDL. Staff essentially postulates that suction dredge miners may be required at a future date to procure NPDES permits in order to comply with the Clean Water [Act]. Indeed, given the precedents set in other states, this is true. However, then the document goes on to say that if NPDES permits for dredging are issued, dredging will be excluded from thermal refugia but will be allowed in other areas.</p> <p>We fail to understand why the Regional Board feels compelled to "accommodate this scenario" by amending the existing basin plan which already "accommodates this scenario." In other words, our position is that since the Klamath is 303d listed for sediment and in order "to achieve water quality objectives, protect present and future beneficial water uses, protect public health, and prevent nuisance..." the Regional Board currently prohibits activities that are legally defined as a point source, any activity that may in the</p>	<p>The North Coast Water Board has already addressed this comment in its response to "Comment Boman 32, 36" and "Comment Hillman 2".</p> <p>State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses.</p> <p>Please see responses to comment 0.1 and 12.1.</p>

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		<p>future be legally defined by the State Water Board as a point source should be prohibited as well. Certainly, saying that dredging would be permitted by an NPDES permit as in the draft section 6.5.4.5 is predecisional, Any development of NPDES permits must go through the appropriate rule making procedures and comply with existing environmental laws as applicable before any regulatory body can determine where and when dredging may occur.</p> <p>An example of this may be seen with suction dredge mining and freshwater mussels, Washington has decided to ban suction dredge mining within 200' of freshwater mussels due to negative impacts on mussels. In the Klamath River, mussels are considered a bioindicator and a Karuk subsistence food. Mussel beds would not be protected under the proposed thermal refugia protection policy. Suction mining should not be given blanket approval in areas other than those specified in the policy. Therefore, changes need to be made to the implementation plan and action plan to not be predecisional and make general statements on where suction dredge mining be allowed.</p>	
12.3	Leaf Hillman	To adequately protect thermal refugia, close all areas listed in the policy for the entire year, not just 3 months.	<p>The North Coast Water Board has already addressed this comment in its response to “Comment Boman 32” and “Comment Hillman 2”.</p> <p>State Water Board staff reviewed the North Coast Water Board’s responses to these comments and agrees with its responses.</p> <p>Please see response to comment 0.1.</p>
12.4	Leaf Hillman	Strike section 6.5.4.5 from the public review draft. Alternate: strike section 6.5.4.5 from "To accommodate" to the end.	The North Coast Water Board has already addressed this comment in its response to “Comment Boman 32, 36” and “Comment Hillman 2”.

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			<p>State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses.</p> <p>Please see response to comment 0.1.</p>
12.5	Leaf Hillman	<p>Strike #5 from p.11 of the TMDL Action Plan, Thermal Refugia Protection Policy, Policy Directives and Recommendations.</p> <p>5. In the event that suction dredge mining is determined to be a point source discharge to the Klamath River shall not apply to suction dredge activities except within the instream buffer lengths designated by this policy.</p>	<p>State Water Board staff assumes the commenter is referring to 2.e on page 11 of the Action Plan rather than #5. The North Coast Water Board has already addressed this comment in its response to "Comment Boman 32, 36" and "Comment Hillman 2".</p> <p>State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses.</p> <p>Please see response to comment 0.1.</p>
12.6	Leaf Hillman	<p>When the Department of Fish and Game (DFG) starts the CEQA process in California for suction dredge mining, we request that SWRCB be an active participant in that process to ensure that water quality issues are adequately addressed and beneficial uses are fully protected.</p>	<p>Comment acknowledged.</p>
12.7	Leaf Hillman	<p>The Karuk Tribe is very concerned about the proposed Agricultural (Ag) Waiver and lack of interim requirements for agriculture. If all goes well, the waiver will be ready the end of 2012. The process could easily get delayed, taking over three years for any action to occur. Therefore, interim measures need to be implemented until the Ag Waiver is in effect. A minimum level of restoration needs to occur in the mid-Klamath Basin in the next three years.</p>	<p>The North Coast Water Board has already addressed this comment in its response to "Comment Hillman 5" and "Comment Bowman 8".</p> <p>State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses.</p> <p>Please see response to comment 0.1.</p>
12.8	Leaf Hillman	<p>The development of the agricultural waiver needs to be inclusive and transparent. The details on the development of the ag waiver are not included in either the implementation plan or the action plan. Tribes have been excluded from ag-related processes in the</p>	<p>The North Coast Water Board has already addressed this comment in its response to "Comment Hillman 6".</p> <p>State Water Board staff reviewed the North Coast Water</p>

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		<p>Scott River, so there is great concern that ag interests will dominate and exclude in future processes.</p> <p>The Regional Board should facilitate the development of the ag waiver. A diverse group of interests should participate in developing the ag waiver including Tribes, local community groups, and NGOs.</p>	<p>Board’s response to this comment and agrees with its response.</p> <p>Please see response to comment 0.1.</p>
12.9	Leaf Hillman	<p>Reinstate interim measures for all responsible agricultural interests. Require the restoration of riparian areas by fencing, exclusion, etc. Alternate: if interim measures are not reinstated, then step-up the timeline to have the waiver in place by 12/2011.</p> <p>Reinstate earlier requirements for ag, including a management plan</p>	<p>The North Coast Water Board has already addressed this comment in its response to “Comment Hillman 7”.</p> <p>State Water Board staff reviewed the North Coast Water Board’s response to this comment and agrees with its response.</p> <p>Please see response to comment 0.1.</p>
12.10	Leaf Hillman	<p>Roll the Scott and Shasta ag waivers into the new Klamath waiver.</p>	<p>The North Coast Water Board has already addressed this comment in its response to “Comment Hillman 8”.</p> <p>State Water Board staff reviewed the North Coast Water Board’s response to this comment and agrees with its response.</p> <p>Please see response to comment 0.1.</p>
13.1	Petey Brucker	<p>We acknowledge the good work that the North Coast Regional Water Quality Control Board has put into this document to date. There are various improvements to water quality that is impaired by nutrients, temperature, dissolved oxygen, and Microcystis / microcystin in the Klamath River that will likely result from the implementation of the proposed Klamath TMDL which is under review and proposed for adoption.</p>	<p>State Water Board staff appreciates your comment and affirms its own acknowledgement of the good work done by the North Coast Water Board and its staff. We also agree that improvements will be made to water quality as a result of these TMDLs and their implementation measures.</p>
13.2	Petey Brucker	<p>The State Water Board has the responsibility to implement the Klamath TMDL in a reasonable manner to comply with the prescribed water quality standards in the Basin Plan.</p>	<p>The North Coast Water Board is the lead agency for implementation of the Klamath River TMDLs. State Water Board staff agrees that they have a responsibility to implement the Klamath TMDLs in a reasonable</p>

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			manner to comply with the prescribed water quality standards in the Basin Plan and its action plan will facilitate this.
13.3	Petey Brucker	The proposed Klamath TMDL does provide benchmarks to be achieved by the pollutant dischargers to come into compliance with the water quality standards. Adequate monitoring is necessary to determine the level of compliance by the pollutant dischargers, Although it is most helpful to achieve a willing compliance from the pollutant dischargers, it is also imperative for measures to be prescribed in the Klamath TMDL that articulate how adequate enforcement will occur, if non-compliance by the pollutant discharger still exists once benchmarks are arrived at. The State Water Board should ensure that compliance monitoring and enforcement is adequately addressed in the Klamath TMDL.	Although the North Coast Water Board will be the lead agency for enforcement and compliance monitoring regarding the TMDLs for the Klamath River, State Water Board staff agrees with the author's comments that the TMDLs provide benchmarks to be achieved by the pollutant dischargers to come into compliance with the water quality standards and that adequate monitoring is necessary to determine the level of compliance by the pollutant dischargers. State Water Board staff also agrees that enforcement is very important and the North Coast Water Board have committed to take enforcement actions for violations of the implementation plan that occur. Also see North Coast Water Board responses to "Comment R1, R36, R38, R40", and "Comment Bowman 5".
13.4	Petey Brucker	The State Water Board should adequately fund the staff that is needed to implement the Klamath TMDL to achieve compliance.	North Coast Water Board and State Water Board staff work associated with or resulting from this action will be addressed with existing and future budgeted resources.
13.5	Petey Brucker	Interim Discretionary Compliance to Address Pending Agricultural Waivers Is Not Adequate. The State Water Board is currently in the process of developing a Waiver for the agricultural water users. The discretionary compliance measure for agricultural water users to be applied in the interim period will not likely achieve compliance with Klamath TMDL and Implementation Plan. This is supported by the failure to achieve adequate results from discretionary measures offered by the State Water Board in the Shasta and Scott rivers for their TMDL's and Implementation Plans. The State Water Board should not adopt discretionary measures as an amendment to the Basin Plan for agricultural water users. Instead we ask that the Board develop specific measures for the agricultural water users to	State Water Board staff assumes the commenter is referring to the North Coast Water Board in his comments rather than the State Water Board. State Water Board staff agrees with the North Coast Water Boards response to "Comment Bowman 2" and "Comment Q1" that the approach of short term discretionary measures will allow more staff time for development of the waiver and allow for more stakeholder input. In addition, removing the administration of an interim program focuses staff resources on development of the waiver. It is North Coast Water Board staff's intention that this process will lead to

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		<p>take to ensure that there is adequate compliance with the applied water quality standards in the basin Plan and the Klamath TMDL and Implementation Plan.</p>	<p>a sensible agricultural program that has buy-in from the regulated community and all interested stakeholders. Although separate from the Klamath TMDL implementation plan, the waiver program will incorporate the load allocations and targets established by the Klamath TMDL as well as other TMDLs.</p> <p>The development of the future agricultural waiver will have ample opportunities for public involvement and specific comments can be appropriately raised in that process. North Coast Water Board staff has not yet decided on the appropriate recommendations concerning the specific requirements of the waiver program and will base those recommendations on the outcome of the stakeholder process. All of the items mentioned by the commenters will be considered in developing the waiver. In general, the agricultural waiver would accommodate locally driven landowner efforts to control sources of pollution and include reporting requirements to demonstrate effectiveness of management practices and track progress toward meeting water quality standards and existing TMDLs. The commenter’s conclusion of failure of the adequate results from discretionary measures in Scott and Shasta River TMDLs and Implementation Plan is premature at this time. The North Coast Water Board will assess the effectiveness of the Scott and Shasta River waivers upon their expiration.</p>
13.6	Petey Brucker	<p>Seasonal Protection of Cold Water Fish Refugia Needs to Be Expanded to Year Round Protection We recognize the benefits provided by the proposed Klamath TMDL for fish by the seasonal protection of cold water refugia in the Klamath River from mining. Mining in these cold water refugia areas during the rest of the year can significantly alter the size and quality of these important habitats for fish survival. We recommend that you change the seasonal closure for mining in these cold water refugia areas for</p>	<p>The North Coast Water Board has already addressed this comment in its response to “Comment Boman 32” and “Comment Hillman 2”.</p> <p>State Water Board staff reviewed the North Coast Water Board’s responses to these comments and agrees with its responses.</p>

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		fish to a year round closure for mining. This is needed in order to provide necessary protection to fish and these cold water areas.	Please see response to comment 0.1.
14.1	Greg Addington	As discussed with State Board staff, KWUA did not become aware of the pending comment period for the proposed Basin Plan Amendment until two days before the deadline. In the meantime, the proposed Basin Plan is substantial and complex, and of significant importance to KWUA. Especially in light of the numerous activities and challenges currently pending in the Klamath Basin and the resulting demands on KWUA staff and counsel this Week, we are disappointed that the State Board rejected our request for a short extension of time to complete comments.	State Water Board staff is regretful that they were unable to extend the comment period to the author. Unfortunately due to the significant length of the comment period, the number of comments received, and the current schedule for the Board Meeting extending the deadline for the author would jeopardize the ability of staff to meet current deadlines. Staff did extend the instructions that the author is more than welcome to attend the Board Meeting and voice their comments to the Board Members at that time. The Notice of the Opportunity for public comment was mailed to all addresses on the North Coast Water Board's Klamath River TMDLs mailing list. It was also emailed to the North Coast Water Board's electronic mailing list. Additionally, it was emailed to all subscribers of the State Water Board's "Board Workshops" electronic mailing list. We appreciate the honesty of the commenter that this was not an error on the part of the Water Boards.
14.2	Greg Addington	KWUA submitted three separate comment letters during the North Coast Regional Water Quality Control Board's (Regional Board) development and consideration of the proposed Basin Plan Amendment, which are attached and incorporated herein by this reference.	State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with the responses. Please see response to comment 0.1.
14.3	Greg Addington	As explained in detail in the prior KWUA comments to the Regional Board (attached), KWUA's constituent districts and irrigators operate within the Klamath Project in Oregon and California. No land within the Klamath Project discharges to the Klamath River in California. As such, the CA Klamath River TMDL cannot impose requirements on the Klamath Project. Rather, Klamath Project discharges are subject to EPA's previously adopted Lost River, California Total Maximum Daily Loads, Nitrogen and Biochemical Oxygen Demand to address Dissolved Oxygen and pH Impairments (EPA Lost River TMDL). In response to KWUA's	State Water Board staff cannot recommend such a change. State Water Board staff agrees with the North Coast Water Board's response to "Comment H1". The State and North Coast Water Boards both recognize the Lost River, California TMDLs for nitrogen and biochemical oxygen demand that address dissolved oxygen and pH impairments which were promulgated by the U.S. EPA in December 2008. This TMDL in no way limits the ability of the North Coast Water Board from imposing requirements on the Klamath Project Area that

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	<p>request that the Regional Board clarify that the CA Klamath River TMDL does not apply to the Klamath Project, the Regional Board suggests that application of the CA Klamath River TMDL to the Klamath Project is appropriate because there are "pollutant loadings identified in the Lost River TMDL, promulgated by the USEPA in 2008, that contribute to the Klamath River water quality impairments." (Responses to Comments, Response H1.) The response fails to provide any reasonable basis for denying KWUA's request and in fact acknowledges that there is another TMDL in existence to address Klamath Project discharges in California. KWUA urges the State Board to consider KWUA's request that the CA Klamath River TMDL clarify that the CA Klamath River TMDL, including the Stateline load allocation set forth therein, does not apply to the Klamath Project.</p>	<p>discharges within California. The U.S. EPA promulgated TMDL has no implementation measures so the North Coast Water Board has included within this amendment an implementation plan for the Lost and Klamath River TMDLs. The North Coast Water Board has also clarified in response to "Comment H2" that Watershed-wide allocations and targets are assigned to the Klamath River Middle and Lower Hydrologic Areas. Major tributaries are not assigned temperature allocations because the Scott, Shasta and Salmon River watershed already have assigned allocations, and the Lost and Trinity are not listed as impaired for temperature. However, the Basin Plan water temperature objective applies region wide and still must be met.</p> <p>State Water Board staff agrees with the North Coast Water Board on responses to "Comment G3, G5, G6, and G8" that the Stateline load allocation is important information for California to understand and communicate how it expects Oregon to implement its TMDLs. The Klamath TMDL does not attempt to "predetermine" Oregon Department of Environmental Quality's regulatory efforts in Oregon. The text is explanatory in nature as to how Oregon typically implements TMDLs. North Water Board staff worked closely with Oregon Department of Environmental Quality staff throughout the development of the Klamath River TMDLs, in accordance with the Memorandum of Agreement on the development of the Klamath River TMDLs signed by the North Coast Water Board, Oregon Department of Environmental Quality, and U.S. EPA Regions 9 and 10. The targets and load allocations at Stateline are based on the Oregon allocation scenario and are consistent with Oregon Department of Environmental Quality's TMDL and water quality standards. A load allocation is not directly</p>
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			<p>enforceable and must be viewed in context with the accompanying implementation plan. California’s implementation plan makes it clear that load allocations measured at the California/Oregon Border are assigned to sources within the State of Oregon, and will be allocated pursuant to the TMDLs being developed by the State of Oregon. Oregon is the implementing authority for Oregon sources. The only implementation action specified is for the North Coast Water Board, Oregon Department of Environmental Quality and U.S. EPA to work together as specified in the Klamath River/Lost River TMDL Implementation Memorandum of Agreement developed to implement and monitor measures that will achieve compliance with the Klamath and Lost River TMDLs in Oregon and California.</p> <p>State Water Board staff reviewed the North Coast Water Board’s responses to these comments and agrees with its responses.</p> <p>Please see response to comment 0.1.</p>
14.4	Greg Addington	<p>Similarly, the final staff report accepted by the Regional Board before taking action on the CA Klamath River TMDL (Staff Report) contains various statements suggesting that the load allocations assigned to "Stateline" are intended to address discharges to the Klamath River in Oregon and to the Lost River in California. As such, the Staff Report encourages the Regional Board and State Board to overstep their authority and create additional and conflicting requirements for Klamath Project irrigators. KWUA continues to strongly object to such action.</p>	<p>State Water Board staff disagree that load allocations assigned at "Stateline" encourages the North Coast Water Board and State Water Board to overstep their authority and create additional and conflicting requirements for Klamath Project irrigators. See response to comment 14.3 and North Coast Water Board response to “Comment Addington & Danosky 2”.</p> <p>State Water Board staff reviewed the North Coast Water Board’s response to this comment and agrees with its response.</p> <p>Please see response to comment 0.1.</p>
14.5	Greg	<p>As acknowledged by the Regional Board in the Responses to</p>	<p>While the commenter is correct that the site specific</p>

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	Addington	<p>Comments, the two TMDLs apply different water quality standards, address different constituents, and establish different load allocations. For example, the DO objective applicable to the Lost River is not subject to the DO objective amendment for the Klamath River mainstem considered along with the CA Klamath River TMDL. Further, the CA Klamath River TMDL establishes load allocations related to temperature, for which the Lost River system has been delisted. The Responses to Comments suggest that the Lost River temperature delisting is irrelevant since discharges to the Lost River system must still adhere to water quality standards for temperature. Such response entirely misses the point repeatedly raised by KWUA-that is, the Clean Water Act only authorizes the creation of load allocations for constituents (such as temperature) that have been identified as causing impairment to a given water body on the respective Clean Water Act section 303(d) list of impaired water bodies. Moreover, Regional Board authority to adopt implementation plans for a given impaired water body does not extend beyond measures needed to address the 303(d) listed constituents for said water body.</p>	<p>objectives for dissolved oxygen only apply to the mainstem Klamath River the author is incorrect regarding his assertions of the Clean Water Act and the authority of the Water Boards.</p> <p>The Klamath River was listed on the 2006 Clean Water Act (CWA) section 303(d) List of Water Quality Limited Segments (List) because it did not meet water quality standards for the pollutant/stressors of temperature. Because the Klamath River is included on the List, CWA section 303(d) requires the establishment of a TMDL to address the temperature impairments. A TMDL specifies load allocations for nonpoint sources and wasteload allocations for point sources that, when implemented, are expected to result in attainment of applicable water quality standards. Because the Lost River is not listed on the 303(d) List as impaired for temperature a TMDL is not required to be established under the CWA. However, TMDLs are also authorized under CWA section 303(d)(3) for waters not included on the List, and a TMDL can constitute a plan of implementation under Water Code section 13242. Applicable water quality standards in the Basin Plan are required to be met for all discharges regardless of whether a waterbody is impaired. A Regional Water Quality Control Board has the authority and is actually required under section 13240 to formulate and adopt water quality control plans for the region. Section 13050(j)(3) defines water quality control plans to include a program of implementation needed for achieving water quality objectives.</p>
14.6	Greg Addington	<p>The Implementation Plan inappropriately segregates the development and consideration of the EPA Lost River TMDL allocations from the proposed implementation measures. As noted in the attached comments to EPA, EPA's technical TMDL for Lost River has significant shortcomings. Relevant here is the fact that</p>	<p>State Water Board staff is unclear about the author's comment regarding the segregation of the U.S. EPA Lost River TMDL allocation and the implementation measures. The Lost River TMDL allocations were established by U.S. EPA in December 2008. An implementation plan</p>

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		<p>EPA developed that TMDL without any consideration of the requirements of the Porter Cologne Water Quality Control Act, Water Code section 13000 et seq. (porter-Cologne). The Implementation Plan, however, attempts to "implement" the EPA Lost River TMDL with only a bare reference to the load allocations set forth therein. In response to KWUA comments to that effect, the Regional Board points to one table in the Implementation Plan that lists the applicable loads set forth in the EPA Lost River TMDL. (Responses to Comments, Response H5; see also <i>id</i>, Responses T15 [relying on table and designation of responsible parties as sufficient to address how implementation plan implements Lost River TMDL], KWUA#4 [including additional discussion of measures identified to address Lost River TMDL without any explanation of the relation of those measures and their anticipated ability to satisfy the EPA Lost River TMDL load allocations to the technical analysis within said TMDL].) This mere table cannot replace the requisite analysis and discussion required to explain how a given TMDL will be implemented. (See <i>id</i>; see also Responses to Comments, Response F1 [failing to even acknowledge the EPA Lost River TMDL in response to KWUA comment that the Regional Board did not adequately link the pertinent TMDL analysis to the requirements in the implementation plan].)</p>	<p>was not part of that action.</p> <p>State Water Board staff disagree that there is any relevance to U.S. EPA establishment of the TMDL without consideration of the Porter Cologne Water Quality Control Act because the State is required to incorporate those allocations into the Water Quality Control Plan. U.S. EPA established a TMDL for the Lost River and those loads were set at the level necessary to implement the applicable water quality standards in the North Coast Region with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.</p> <p>The Lost River, California TMDLs allocations by segment are included in Table 6.3 of the Staff Report. Section 6.4.3 of the Staff Report contains a detailed description of the implementation measures and the parties responsible for implementing the water quality control measures that will meet the Lost River and Klamath River TMDL allocations in California. The staff report also includes a time schedule for those actions to be taken as well as a description of the monitoring program. The North Coast Water Board implementation plan for the Lost River TMDLs is adequate and complies with the Water Code section 13242.</p>
14.7	Greg Addington	<p>In sum, the Regional Board failed to address KWUA's legitimate concern that the Implementation Plan and Staff Report provide no analysis of how the Implementation Plan will actually achieve compliance with the load allocations in the EPA Lost River TMDL in a reasonable manner. The proposed Implementation Plan for the Lost River segment in California remains wholly inadequate and fails to satisfy California Water Code requirements to analyze TMDL allocations, implementation measures, and water quality</p>	<p>State Water Board staff disagrees that the North Coast Water Board has failed to address the author's concern. The technical analysis for the Lost River TMDLs was done by U.S. EPA when they established those TMDLs. The commenter has failed to provide any evidence or reasoning behind his assertion that the North Coast Water Board has failed to meets its obligations under those Water Code sections. The North Coast Water</p>

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		levels that can be reasonably achieved. (See, e.g., Wat. Code, §§ 13000,13001,13241,13263.) KWUA urges the State Board to consider KWUA's comments and ensure that any Implementation Plan incorporated into the Basin Plan provides substantive analysis, in conformance with Porter-Cologne requirements, of its ability to ensure compliance with the TMDLs it attempts to implement.	Board has responded to the authors previous comments regarding these issues and the author fails to point out how the North Coast Water Board staffs; responses are deficient. The Staff Report contains detailed analysis supporting the Basin Plan amendment and has also been peer reviewed. See response to comment 14.6 regarding Water Code section 13242.
14.8	Greg Addington	KWUA provided detailed comments to the Regional Board (attached) related to the Klamath River TMDL's inappropriate attempts to regulate in Oregon despite the fact that such authority lies with the Oregon Department of Environmental Quality (ODEQ). In response to these comments, the Regional Board suggests that California must explain in the CA Klamath River TDML how it "expects" Oregon to ensure compliance with California water quality standards at the Stateline. (Response to Comments, Response G3.) Such a response fails to address KWUA's comments and rather reinforces the false notion that the Regional Board somehow has authority to regulate discharges that occur wholly in Oregon. As noted above, since the Klamath Project does not result in any discharges to the Klamath River in California, the Regional Board has no regulatory authority related to any Klamath Project discharges to the Klamath River.	State Water Board staff echoes the North Coast Water Board in the acknowledgement that the North Coast Water Board does not have the authority to regulate discharges in Oregon. State Water Board staff agrees with North Coast Water Board response to "Comment G3" and would like to also refer the commenter to responses to "Comment G5, G6, and G8". State Water Board staff cannot discern how the North Coast Water Board's responses do not address the author's concern. State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses. Please see response to comment 0.1.
14.9	Greg Addington	The primary way in which the Basin Plan Amendment attempts to regulate discharges in Oregon is through the assignment of a load allocation to the Oregon California Stateline and the identification of implementation measures to achieve that allocation. In response to KWUA's comments that assigning a load allocation to the Stateline is inappropriate, the Regional Board actually acknowledges that the Regional Board does not have authority to regulate a river segment, such as that at the Stateline, like a source. However, the response then goes on to explain that the Regional Board can establish a load allocation at that point and require Oregon "to implement that load allocation in the way it deems appropriate." (Responses to Comments, Response G1.) As such, the Regional Board readily admits that the CA Klamath River	State Water Board staff does not recommend those changes. Per the Staff report: The Oregon Department of Environmental Quality has identified the Klamath River in Oregon on its CWA section 303(d) list as failing to meet certain Oregon water quality standards. Accordingly in 2010, Oregon Department of Environmental Quality intends to issue and implement TMDLs addressing chlorophyll-a, dissolved oxygen, and pH impairments for the Klamath River in the state of Oregon. These Oregon-issued TMDLs will be based on the Oregon allocation scenario (see Appendix 7), which is designed to meet Oregon's

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	<p>TMDL imposes a load allocation on Oregon and "requires" Oregon to find a way to implement that load allocation. As explained in great detail in the attached KWUA comments, California does not have authority to set load allocations for Oregon segments of the Klamath River. Further, in response to KWUA's related comment requesting that the Regional Board remove the load allocation for the Stateline from the TMDL since it constitutes inappropriate regulation of discharges to Oregon segments of the Klamath River, the Regional Board merely restates the implementation measures associated with the inappropriate load allocation at Stateline. (Responses to Comments, Response 02.) Such response completely fails to address the comment and provides no explanation of how the implementation measures associated with Stateline discharges are relevant to the CA Klamath River TMDL or how they implement the EPA Lost River TMDL. As such, KWUA urges the State Board to consider KWUA's comments and remove the Stateline load allocations and related implementation measures from the CA Klamath River TMDL and the Implementation Plan.</p>	<p>water quality standards. Because these TMDLs (and their anticipated load allocations and waste load allocations) are being developed by Oregon as part of a comprehensive multistate analysis of pollutant loadings to the Klamath River, they are also being designed to meet California water quality standards at the Oregon/California border. It is appropriate for the North Coast Water Board to account for these anticipated upstream load reductions in Oregon when developing the TMDLs for the segments of the Klamath River that are downstream in California. For ease of reference, these anticipated reductions in Oregon-source loads are identified in this TMDL as load allocations at Stateline that reflect anticipated water quality at the Oregon /California border once the Oregon TMDLs are fully implemented. Thus, the load allocations and numeric targets at Stateline reflect an understanding and acknowledgement that improvements in water quality upstream are critical in meeting water quality objectives in California.</p> <p>State Water Board staff agrees with the Staff Report. State Water Board staff would like to emphasize that the targets and load allocations at Stateline are based on the Oregon allocation scenario and are consistent with Oregon Department of Environmental Quality's Draft Klamath River TMDL and water quality standards relegating the author's objections on the Stateline allocation. Despite the good working relationship and the coordinated approach the North Coast Water Board would still be within its authority to develop and assign an allocation at Stateline. TMDL allocations are not water quality objectives and are not directly enforceable. The North Coast Water Board could not directly make Oregon Department of Environmental Quality implement that load</p>
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			allocation. However, there are certain remedies the North Coast Water Board could pursue as noted in response to “Comment G10”.
14.10	Greg Addington	In response to KWUA's comments, the Regional Board also attempts to rely on the Draft Klamath River TMDL for Oregon as support for the Stateline load assumptions in the CA Klamath River TMDL. (See Regional Board Staff Report, Appendix 10, at p. S-27, Response A25.) However, as explained in KWUA's responses to said Draft Klamath River TMDL for Oregon (attached), the Draft Klamath River TMDL for Oregon suffers from its own inconsistencies and shortcomings. It assumes, for example, immediate compliance with the Upper Klamath Lake TMDL in simulating background water quality in the Klamath River. However, the load allocations assigned therein do not use the same assumption in calculating appropriate load allocations for features within the Klamath Project in Oregon. To the extent that quantitative load allocations for these features are adopted, they should be applicable only after Upper Klamath Lake water in fact is compliant with the Upper Klamath Lake TMDL, or they should be adjusted such that allowable loading includes only "additions" to compliant incoming water quality. Particularly since the Draft Klamath River TMDL for Oregon is still subject to public review and ODEQ consideration, it is entirely inappropriate for the California Basin Plan Amendment to assume compliance with draft load allocations discussed therein.	<p>State Water Board staff agrees with the comment that both the Oregon and California Klamath River TMDLs support the same load allocation at Stateline. As addressed by the North Coast Water Board in their response to “Comment Addington & Danosky 12” The TMDL describes ultimate compliance, and does not anticipate immediate compliance. For additional information see response to “Comment C49”.</p> <p>State Water Board staff reviewed the North Coast Water Board’s responses to these comments and agrees with its responses.</p> <p>Please see response to comment 0.1.</p>
14.11	Greg Addington	The Staff Report and Responses to Comments suggest that the CA Klamath River TMDL can somehow regulate Oregon discharges since discharges to the Lost River system occur in California and subsequently enter into the Klamath River mainstem in Oregon. This working assumption is illogical and will result in inconsistent and redundant regulation of Lost River discharges, which are subject to the EPA Lost River TMDL for the California reach of the Lost River. As noted above and explained in prior KWUA comments (attached), the subject Implementation Plan attempts to regulate the Lost River discharges without adequately	Discharges to the Lost River that occur in California must be regulated by the North Coast Water Board. The North Coast Water Board does not have any intention or authority to regulate discharges in Oregon. Similarly Oregon does not have authority to regulate discharges in California. North Coast Water Board staff has been very clear on this issue. Therefore, State Water Board staff is unclear on the assertion of redundant regulation since both the Oregon and California Klamath River TMDLs were developed under a cooperative Memorandum of

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		recognizing and considering the controlling TMDL. In so doing, the CA Klamath River TMDL, the Implementation Plan, and the Staff Report fail to provide sufficient evidence to justify implementation measures applicable to the Lost River discharges and inject considerable confusion as to the applicability of the CA Klamath River TMDL to the Lost River segment in California.	Agreement. On December 30, 2008, the United States Environmental Protection Agency (U.S. EPA) established Total Maximum Daily Loads (TMDLs) for nitrogen and biochemical oxygen demand to address DO and pH impairments in the Lower Lost River. The North Coast Water Board has adopted TMDLs addressing temperature, DO, nutrient, and microcystin impairments in the Klamath River On March 24, 2010. As part of the this basin plan amendment, the North Coast Water Board has included an implementation plan in the California portion of the Lost River Basin in order to meet the Klamath River TMDL nutrient and organic matter allocations assigned to the Lost River Basin at its discharge points to the Klamath River.
14.12	Greg Addington	As expressed in the attached prior comments, KWUA is concerned with the CA Klamath River TMDL and Implementation Plan's assignment of responsibility to irrigation districts. As an irrigation district formed and operating under California Irrigation District Law, Water Code section 20500 et seq., Tulelake Irrigation District has no authority to enforce water quality standards and cannot regulate activities of constituent irrigators. KWUA appreciates the Regional Board's attempt to clarify that irrigation districts are only responsible for actual discharges resulting from district activities unrelated to pollutants originating as a result of farming and land management practices within their district. (See Response to Comment, H7.) However, KWUA urges the State Board to amend the Basin Plan Amendment to ensure that the CA Klamath River TMDL and the Implementation Plan clearly acknowledge the narrow responsibility of districts and clarify any confusion as to the responsibility associated with discharges resulting from farming and land management practices on non-district owned lands.	State Water Board staff does not find this change is necessary. As noted in North Coast Water Board's response to "Comment H7", The Tulelake Irrigation District is responsible for discharges of waste associated with their drainage network. They are not responsible for pollutants originating on the fields Comments - June 2009 Public Review Draft H-4 Klamath River TMDL Staff Report or in drains they do not own. The Tulelake Irrigation District is also not responsible for organizing group compliance with the TMDL or future agricultural waiver; group compliance with the waiver is optional.
14.13	Greg Addington	The Regional Board's development of the CA Klamath River TMDL and the Implementation Plan must be reasonable and take into	State Water Board staff agrees with the North Coast Water Board's response to "Comment O22". Chapter 10

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		<p>consideration economics, water quality levels that can be reasonably achieved, and other public interest factors. (Wat. Code, §§ 13000, 13001, 13241, 13263.) As detailed in prior KWUA comments (attached), the Regional Board's superficial analysis of economic factors does not satisfy this standard and completely fails to acknowledge that the assigned loads are impossible to meet in the reasonably foreseeable future. Bare references to analysis of feasibility and probability of success do not suffice to satisfy the stringent requirements of Porter Cologne. (See e.g., Responses to Comments, Response 022 [dismissing comments about reasonableness without addressing ability of implementation measures to satisfy water quality standards or load allocations], Response 024 [suggesting without any basis that Regional Board need not consider reasonableness of the costs associated with implementation of the TMDL].) Moreover, the Regional Board's bare conclusions of reasonableness are simply counterintuitive given that the Klamath TMDL establishes <i>negative</i> load allocations for a number of sources. In response to KWUA comments in this regard, the Regional Board acknowledges that achievement of the load allocations "will require a great amount of time and a lot of effort" but that they "disagree that achieving the load allocations is impossible." (See e.g., Responses to Comments, Response C49.) However, the Regional Board has provided no justification to explain how these negative load allocations will actually be met, taking into consideration economics, water quality levels that can be reasonably achieved, and other public interest factors. As such, the response is wholly inadequate.</p>	<p>of the Staff Report contains the economic analysis for this amendment. State Water Board staff agrees with the North Coast Water Board that they have fulfilled their obligations to consider economics. The North Coast Water Board has provided reasonable foreseeable means of compliance. The North Coast Water Board has explained in detail the reasonableness of the implementation plan. The author has provided no evidence to support otherwise.</p> <p>Negative load allocations are very common and simply imply that a reduction in the current loading is necessary to meet the loading capacity or TMDL for the water body. State Water Board staff note the author's disagreement with the possibility of achieving the load allocations but defer to the North Coast Water Board and the numerous body of scientific knowledge that was relied upon and the backing of the scientific peer reviews that were conducted as part of the amendment process as well as its previous responses to this comment.</p>
14.14	Greg Addington	<p>As discussed in prior KWUA comments (attached), the real root of this problem is the fact that the underlying water quality objectives are not attainable. In response to KWUA's comments to this effect, the Regional Board acknowledges that the current Upper Klamath Lake water quality precludes achieving downstream water quality objectives but then goes on to state that the "water quality objective for temperature refers to natural temperatures, thus natural temperatures are by definition compliant with the objective."</p>	<p>The North Coast Water Board agreed that current Basin Plan dissolved oxygen (DO) water quality objectives in the Klamath were unattainable which is why they have adopted new site specific objectives for DO in the Klamath River. The prospective analysis of future attainability of the designated uses did not provide the demonstration necessary to support a use change. Actually, the technical scientific analysis conducted as</p>

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		(Responses to Comments, Response C52.) KWUA fails to see how this response addresses the comment and urges the State Board to consider the attainability of the underlying water quality objectives forming the basis for the impossible load allocations in the Klamath River TMDL.	part of this Basin Plan amendment process supports the conclusion that both the new site specific DO objectives and the temperature objectives are achievable.
14.15	Greg Addington	KWUA appreciates the Regional Board staff's attempt to recognize recent studies showing that the Klamath Project is a "nutrient sink." However, KWUA disagrees with the conclusions and characterization of the concentration levels resulting from the Klamath Project set forth in the Staff Report and Responses to Comments. (See e.g., Responses to Comments, Response C21.) As explained in prior comments, to the extent the analysis relies on surrogate data, the Regional Board must explain the origin of the surrogate numbers, the canals to which the data was applied, and the rationale supporting such use. Further, flow data for one single month (August 2002) does not provide an objective or reasonable estimation of impacts. The Staff Report and Responses to Comments do not provide the requested explanation and rather continue to make conclusions without the requisite support and without providing any justification for use of the surrogate data or reliance solely on 2002 flow data. (See Responses to Comments, Responses C21, KWUA#15, and KWUA #16.) KWUA urges the State Board to ensure that assumptions informing the Basin Plan Amendment are reasonable and based upon credible, objective, and relevant data.	<p>The North Coast Water Board has already addressed this comment in its response to "Comment Addington & Danosky 15 and 16".</p> <p>State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses.</p> <p>Please see response to comment 0.1.</p> <p>The North Coast Water Board has explained the origin of the surrogate data saying it used Oregon Department of Environmental Quality data to supplement the USBR dataset. When concentration data were not available for a specific canal, a nearby river concentration was used as a surrogate. The rationale for using a nearby river is the assumption of similar concentrations. As explained by the North Coast Water Board the flow data was not intended to be used to estimate impacts but rather the potential for it to be a source of pollutants. State Water Board staff believes the Basin Plan Amendment is reasonable and based upon credible, objective, and relevant data.</p>
14.16	Greg Addington	KWUA requested that the Regional Board consider the National Research Council conclusions related to the 2002 fish mortality near the mouth of the Klamath River rather than solely relying on information within the California Department of Fish and Game's hypotheses related thereto. The Regional Board completely dismissed the comment and suggested that such consideration was unnecessary because of alleged "peer review" of said	State Water Board staff agrees with the North Coast Water Board response to "Comment B25". The North Coast Water Board relied upon two heavily reviewed scientific documents. Staff agrees that peer review is not a reason to ignore credible evidence. Staff also does not believe that the North Coast Water Board staff ignored credible evidence. In this case the National Research

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		hypotheses, which review the Regional Board fails to explain or summarize in the document. The existence of peer review is not a legitimate reason to wholly ignore credible evidence within the National Research Council on potential causes for this occurrence. (See Responses to Comments, Response B25.)	Council utilized the conclusions and hypotheses of the CDFG report in their discussion of the 2002 fish kill. So the North Coast Water Board staff decided to rely on what it concluded was the best scientific report.
14.17	Greg Addington	KWUA commented that the Staff Report provided no evidence to support the Regional Board's inference that the Klamath Straits Drain and Lost River Diversion Channel (which flow into the Klamath River mainstem in Oregon) increase the temperature in the Klamath mainstem. In response to this comment, the Regional Board restates that Klamath Straits Drain and Lost River Diversion Channel are "upstream sources of heating" but provides no evidence to support that statement. This response is wholly inadequate. To the extent that characterization of Oregon water bodies is deemed necessary in documents related to the CA Klamath River TMDL in California (which KWUA does not believe to be appropriate), such characterizations must be supported by actual evidence. (See Responses to Comments, Response C42 and C98.)	State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with the response. As the North Coast Board states in responses to "Comments C42 and C98": "The staff report does not state that the Klamath Straits Drain and the Lost River Diversion Channel are primarily responsible for a 9 degree Fahrenheit increase in temperature, but merely identifies them as upstream sources of heating." Please see response to comment 0.1
14.18	Greg Addington	In response to comments pertaining to the CA Klamath River TMDL's characterization of the Klamath Straits Drain and Lost River Diversion Channel (which the EPA Lost River TMDL defines as impaired water bodies) as "sources" of pollution, the Regional Board simply dismisses the comment suggesting that KWUA provided no "basis" for these assertions. KWUA disagrees with the response and urges the State Board to consider KWUA's comments and ensure that any TMDL adopted by the State does not attempt to regulate impaired water bodies as "sources" of pollution. (Response to Comment, Response H-2.)	The North Coast Water Board has already addressed this comment in its response to "Comment H3". State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with its response. Please see response to comment 0.1. A waterbody may indeed be a receiving water and at the same time have an allocation assigned to it - as all other major tributaries do; i.e. the Trinity, Salmon, Scott and Shasta Rivers. These tributary allocations serve as boundary conditions in the shared model analysis. They are indeed sources of pollution when evaluating the Klamath River mainstem.

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<p>14.19</p>	<p>Greg Addington</p>	<p>As explained in the attached prior comments, KWUA is concerned with the proposal to adopt a broad, general prohibition of any "violations" of water quality objectives through the Basin Plan Amendment. The legislature included prohibition provisions in Porter-Cologne to authorize Regional Boards to prohibit discharge of specific types of waste or discharge into certain areas to protect water quality. (See Wat. Code, § 13243.) The legislature has not authorized broad, general prohibitions against any unlawful discharges and should not be used to replace development of regulatory programs to implement water quality objectives or to circumvent notification requirements for bringing enforcement actions against non-compliant individuals. All persons should be afforded appropriate due process rights, including notification regarding non-compliance before being subject to enforcement. As such, KWUA objects to the inclusion of the proposed general prohibition in the Basin Plan Amendment.</p> <p>As explained in the attached prior comments, KWUA is concerned with the proposal to adopt a broad, general prohibition of any "violations" of water quality objectives through the Basin Plan Amendment. The legislature included prohibition provisions in Porter-Cologne to authorize Regional Boards to prohibit discharge of specific types of waste or discharge into certain areas to protect water quality. (See Wat. Code, § 13243.) The legislature has not authorized broad, general prohibitions against any unlawful discharges and should not be used to replace development of regulatory programs to implement water quality objectives or to circumvent notification requirements for bringing enforcement actions against non-compliant individuals. All persons should be afforded appropriate due process rights, including notification regarding non-compliance before being subject to enforcement. As such, KWUA objects to the inclusion of the proposed general prohibition in the Basin Plan Amendment. Response KWUA #17.). The proposed prohibition is not within the intent of the legislature and does not provide regulated parties any reasonable indication of</p>	<p>State Water Board staff agrees with the North Coast Water Board's response to "Comment Addington & Danosky 17" that it is within the authority of their Board, consistent with the intent of the legislature, and does not negate any due process for violators.</p> <p>State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with its response.</p> <p>Please see response to comment 0.1.</p>
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		what types of activities will result in enforcement actions by the Regional Board. KWUA urges the State Board to ensure that any prohibition included within the Basin Plan Amendment relate to specific types of discharges that are known to result in violations of water quality standards.	
14.20	Greg Addington	KWUA's comments to the Regional Board (attached) raised specific concerns with the Regional Board's CEQA analysis for the Basin Plan Amendment, including the following: (1) the CEQA analysis fails to consider the environmental setting and regulatory setting associated with the Klamath Project,...	<p>The North Coast Water Board has already addressed this comment in its response to "Comment Addington & Danosky 18".</p> <p>State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with its response.</p> <p>Please see response to comment 0.1.</p> <p>The State Water Board staff found environmental and regulatory setting analysis in Chapter 9 of the Staff Report.</p>
14.21	Greg Addington	(2) the CEQA analysis does not meaningfully analyze the potential impacts or provide any explanation of how the mitigation measures will actually ensure that no significant impacts occur;	<p>State Water Board staff disagrees with the comment and refer the author to section 9.5 Analysis of Compliance Measures, Potential Environmental Impacts, and Possible Mitigation Measures in the Staff Report.</p>
14.22	Greg Addington	(3) the CEQA analysis inappropriately dismisses any likelihood of impacts to agricultural resources resulting from the proposed actions despite its express recognition of likely loss of some prime farmland as a result of the subject actions;	<p>The North Coast Water Board has already addressed this comment in its response to "Comment Addington & Danosky 21".</p> <p>State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with its response.</p> <p>Please see response to comment 0.1.</p>
14.23	Greg Addington	(4) the CEQA analysis fails to discuss the possibility of any economic impacts that would ultimately result in the conversion of farmland (or other associated environmental impacts);	<p>This comment fails to provide any detailed information to support the contention that a potentially significant adverse impact to agricultural resources would result from the adoption of the Klamath River TMDL. Staff did</p>

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			<p>not identify any compliance measures that would result in the conversion of agricultural lands to other uses. The CEQA analysis determined this to be a less than significant impact. The North Coast Water Board staff determined that there may be incidental loss of agricultural use in lands mapped as Prime Farmland, Unique Farmland or Farmland of Statewide Importance. These losses, however, would be less than significant because not only do they affect a very narrow band of land on either side of the watercourse. But, as derived from the readily accessible information from the Farmland Mapping and Monitoring Program, no more than 5% of the Klamath River basin is mapped as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance.</p> <p>In addition, economic impacts do not constitute significant adverse environmental impacts, unless the commenter or some evidence in the record demonstrates that the economic impacts will lead to significant physical change in the environment. 14 California Code of Regulations section 15064(e). As stated above, neither the record nor the commenter so demonstrate.</p>
14.24	Greg Addington	(5) the CEQA analysis does not consider the potential climate change and greenhouse gas emissions resulting from the cumulative loss of agricultural lands (which offset carbon emissions) resulting from the proposed actions and other reasonably foreseeable projects affecting agricultural resources in the Klamath Basin;	<p>The North Coast Water Board has already addressed this comment in its response to “Comment Addington & Danosky 22”.</p> <p>State Water Board staff reviewed the North Coast Water Board’s response to this comment and agrees with its response.</p> <p>Please see response to comment 0.1.</p>
14.25	Greg Addington	(6) the CEQA analysis inappropriately defers analysis of potential impacts and mitigation measures associated with compliance measures (related to TMDLs and the Proposed DO Objective) at	The North Coast Water Board has already addressed this comment in its response to “Comment Hemstreet 238”.

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		Stateline; and	State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with its response. Please see response to comment 0.1.
14.26	Greg Addington	(7) the CEQA analysis inappropriately relies on the "short-term" nature of impacts in making significance determinations. The Regional Board wholly ignored these comments and, as such, the CEQA analysis for the proposed actions remains indefensible.	The North Coast Water Board has already addressed this comment in its response to "Comment Addington & Danosky 24". State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with its response. Please see response to comment 0.1.
14.27	Greg Addington	(See e.g., Responses to Comments, Responses SI6, SI9, TIS, KWUA# 19, KWUA#20, KWUA#21, Hamstreet-238 [collectively dismissing CEQA comments and deferring actual analysis to a later time suggesting that the Implementation Plan provides flexibility to study alternatives and treatment options and sets up a "process" for future impact evaluation]; cf., e.g., CEQA Guidelines § 15187 [requiring analysis associated with reasonably foreseeable means of compliance associated with a Basin Plan Amendment].) KWUA urges the State Board to consider KWUA's CEQA comments and ensure that appropriate environmental review is circulated for public review prior to adoption of the Basin Plan Amendment.	State Water Board staff reviewed the comments and responses for the CEQA analysis and believes that the analysis is sufficient. The North Coast Water Board analyzed the reasonably foreseeable means of compliance, potential environmental impacts, and possible mitigation measures.
15.1	Crystal Bowman	This Comment Letter is identical to comments submitted in the Comment Letter by Leaf Hillman of the Karuk Tribe	Please refer to comments and responses 12.1-12.10.
16.1	Blythe Reis	In general I would recommend that the state board adopt the mainstem Klamath TMDL .It seems like a lot of thoughtful, scientific study has gone into it and it will help to restore the Klamath's resiliency and water quality.	State Water Board staff agrees with the author and appreciates its comment and support.
16.2	Blythe Reis	I would like to see an expansion of the thermal refugia protection policy by extending it to a year round policy. I am on the Board of the Mid Klamath Watershed Council and have personally	Please see response to comment 12.1.

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		witnessed the incredible increase in both juvenile and spring chinook numbers after thermal refugia expansion and believe it offers one of the best protections for the salmon and steelhead continued survival in the Klamath River.	
16.3	Blythe Reis	I have also witnessed the plummeting populations of Salmon and Steelhead over the last 18 years and think it is imperative to compel agricultural polluters to comply with water quality standards in the interim between TMDL adoption and development of a basin-wide agricultural waiver. Voluntary pollution reductions have had little success in other parts of the basin, such as the Scott and Shasta, so it is time to go one step further and mandate this action.	<p>Please see responses to “Comment Hillman 5, 6”, and “Comment Bowman 8”.</p> <p>State Water Board staff reviewed the North Coast Water Board’s responses to these comments and agrees with its responses.</p> <p>Please see response to comment 0.1.</p>
17.1	Dave McCracken	It looks as though your proposal lists nearly every side tributary to the Klamath River as a refugia and creates a 1,000 foot restricted area (to suction dredging) for each location. Some of the side tributaries are quite small during the warm summer months, and the associated refugia may be very small or nonexistent altogether. Just because a side tributary exists there, does not mean that there is a viable holding area being used by fish during the warmer months of the year. But 1,000 feet is nearly the full length of a mining claim. So you are proposing to eliminate productive economic activity in many, many places along the Klamath River (your list is very long) over very long stretches where you may not provide any benefit to fish.	<p>As stated in Staff Report section 6.5.4.1 Identification of Thermal Refugia in the Klamath River Basin in California: In order to identify the locations of known thermal refugia in the basin, North Coast Water Board staff solicited information from fisheries biologists working in the Klamath River basin through a formal request in April 2009. Based on the information staff received, as well as review of the available reports on the topic, staff compiled a list of the known thermal refugia in the Klamath River basin in California (Table 6.4). References consulted to compile the list of tributaries are listed in this section.</p> <p>North Coast Water Board staff analyzed the location of 28 New 49ers mining claims in the Klamath Basin and compared them with the areas for protection of thermal refugia. The documentation of the claims was found on the New 49ers’ website. Only seven claims overlapped the thermal protection areas, and among most of those, the claim area is significantly larger than the proposed restricted area. North Coast Water Board staff included maps that can be found in response to “Comment N24” showing an example of three of the seven where the</p>

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			<p>thermal refugia and mining claims would overlap. They give an example of a small, medium, and large amount of overlap. The proposed protection does not deprive miners the ability to mine the majority of their claims using suction dredges, and is necessary for the reasonable protection of water quality.</p>
<p>17.2</p>	<p>Dave McCracken</p>	<p>We do not understand or agree with your proposed dredging restriction to begin in April. Please adjust the restriction to the warm months when the refugias are actually being used by the fish. Otherwise, you are restricting much-needed economic activity during several months of the year when small-scale miners could be active, while providing little or no benefit to fish. On this note, we have spent thousands of hours along the bottoms of these California rivers, and there is no doubt that the fish consider the work that we do as an improvement. The holes that we make, and the piles of rocks along the bottom of the river, create diversity that the fish will appreciate within the established refugias during the warm months. If you want to help the fish, you should be encouraging the activity (dredging) during the spring and early summer months.</p>	<p>As explained in the Staff Report in section 6.5.4.4, the December 2009 draft recommended that the discharges be restricted from June 15 – September 15 based on data that shows this as the critical time period when thermal refugia are needed to support the cold water fishery in the Klamath basin. Staff added two months on the front end to ensure that the impacts of suction dredging during these two months do not compromise the function of the refugia during the critical period. Studies cited in section 4.2.4 of the staff report show that suction dredging can have short term impacts on channel structure and benthic macroinvertebrates populations that are a food source for salmonid using the refugia. The two month period provides time for the channel to readjust and invertebrate populations to recover in time for the June 15-September 15 critical period when the refugia are needed to support the fishery. The discharge restriction during the April 15 – September 15 time period would not apply to other activities where discharges are already regulated by a separate regulatory mechanism such as WDRs, waiver(s) of WDRs, and/or a 401 water quality certification.</p> <p>North Coast Water Board staff have responded to comments on the impacts from suction dredging in responses to “Comment N19, N20, and N23”.</p> <p>State Water Board staff reviewed the North Coast Water Board’s responses to these comments and agrees with</p>

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			its responses. Please see response to comment 0.1.
17.3	Dave McCracken	<p>While we understand the proposed 500 foot restriction below the mouth of a tributary (because that's where the fish hold), we do not understand or agree with the proposed 500 foot restriction above the tributaries (where the fish do not hold). We believe a 200 foot restriction above the tributaries would be plenty to protect the refugias from any meaningful negative impacts from suction dredging activity.</p> <p>We request that you please carefully review the study literature concerning the (very) localized impacts which result downstream of suction dredges. Once again, we are concerned that your 500 foot proposal (upstream from a tributary) is removing 300 feet of potential productive economic opportunity in many, many sections of the Klamath River while not providing any viable benefit for fish.</p>	As explained in the Staff Report in section 6.5.4.2, to protect the refugia from activities upstream of the tributary confluence, the buffer needs to be large enough so that instream activities such as suction dredging have a negligible impact on the function of the refugia downstream. Suction dredging can create plumes of sediment that usually settle out downstream within 300 ft. Adding a margin of safety to this distance, North Coast Water Board staff recommend a buffer area of 500 feet where discharges from suction dredging would be prohibited in the Klamath River upstream of tributary confluences where known refugia exist.
17.4	Dave McCracken	<p>We do not understand or agree with your proposal to restrict suction dredging activity across the full width of the Klamath River within the vicinity of a side tributary. Most of the tributaries are quite small in comparison the size of the Klamath River, creating just a narrow band of cooler water alongside the edge of the river just downstream from the source of cooler water. Even the largest tributaries (Scott and Salmon Rivers) do not create refugias that extend to the center of the river!</p> <p>Because your proposal suggests removing large sections of the Klamath River from potential productive economic activity (the sections of river that are on the opposite side of the river from the refugias), without providing any meaningful benefit to fish, we encourage you to please revise your proposed restriction to only extend out to the center of the waterway on the side where the tributary is located.</p>	State Water Board staff defers to the discretion of the North Coast Water Board who chose to implement a more protective approach in the Thermal Refugia Policy.
17.5	Dave McCracken	On this note, we ask that you review the scientific literature concerning suction dredging. Clearly, studies have shown that	The North Coast Water Board has already addressed this comment in its response to "Comment N19", N20, and

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		<p>suction dredging provides a temporary source of food for fish that are holding within the area. If you are trying to protect cool water pools within the river because so many fish are holding there, an additional source of food nearby during the warm summer months should be a <u>very</u> good thing. All those fish have to be hungry, right? Therefore, officials should be encouraging suction dredging activity during the warmer months nearby, but outside, of established refugias. This would apply to the areas alongside refugias, the areas upstream from refugias, and the areas downstream.</p>	<p>N23".</p> <p>State Water Board staff reviewed the North Coast Water Board's responses to these comments and agrees with its responses.</p> <p>Please see response to comment 0.1.</p>
17.6	Dave McCracken	<p>Respectfully, we do <u>not</u> agree with your language that suction dredgers need to be prevented from "discharging waste in and around known thermal refugia..." We are not sucking up and discharging anything that is not already present along the bottom of the Klamath River. The scientific literature on this subject has very clearly defined what that is, and what its impacts are. Perhaps of most importance to the refugias is the discharge of an immediate source of food. The literature clearly states that the insect population disturbed by suction dredging repopulates itself rather quickly.</p>	<p>The North Coast Water Board has already addressed this comment in its response to "Comment N17b".</p> <p>State Water Board staff reviewed the North Coast Water Board's response to this comment and agrees with its response.</p> <p>Please see response to comment 0.1.</p>
17.7	Dave McCracken	<p>While we are not prepared to comment concerning the many other side tributaries listed within your proposal, we believe our comments above should generally apply to those areas, as well.</p> <p>The following tributaries are located either on or adjacent to mining properties along the Klamath River which we make available to the members of our organization. We are very familiar with the Klamath River where the following tributaries are located. These sections of the Klamath River are potentially very economically productive. We agree that active suction dredge activity should stop in the associated refugia, but only during the warm periods of the late summer while fish congregate in them (August and September). Being very familiar with these sections of river, along with potential for refugia, we believe the following recommendations will provide ample protection for fish, while</p>	<p>State Water Board staff appreciates the submission of this data it and recommends that the author submit this to the North Coast Water Board for evaluation. These recommendations are not consistent with the margin of safety adopted by the North Coast Water Board. However, if appropriate, the North Coast Water Board could draft a permit that would be conducive to these requests.</p>

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	<p>allowing potential economic activity to continue:</p> <p>A) Each restricted area only to the center of the waterway on the side of the river where the tributary enters.</p> <p>B) Portuguese Creek: 200 feet above the confluence. We do not own or lease the mineral rights downstream of the creek.</p> <p>C) Independence Creek: 200 feet above the confluence. We do not own or lease the mineral rights downstream of the creek.</p> <p>D) Thompson Creek: 300 feet below the confluence. This is very small refugia. But the section of river is very productive, especially on the opposite side of the river. We do not own or lease the mineral rights upstream of the creek.</p> <p>E) Coon Creek: 200 feet on upstream and downstream. This is very small refugia.</p> <p>F) Little Grider Creek: 200 feet on upstream and downstream. This is very small refugia.</p> <p>G) Elk Creek: 200 feet upstream and 500 feet downstream. This section of river is very productive on both sides of the river and the middle.</p> <p>H) Negro Creek: 200 feet above the confluence. We do not own or lease the mineral rights downstream of the creek.</p> <p>I) Oak Flat Creek: 300 feet below the confluence. This is very small refugia. This section of river is very productive on both sides of the river and the middle. We do not own or lease the mineral rights upstream of the creek.</p> <p>J) O'Neil Creek: 200 feet above and 300 feet downstream of the confluence. This is very small refugia. This section of river is very productive on both sides of the river and the middle. Our agreement with the Karuk Tribe and U.S. Forest Service is that we can dredge below the raids which exist around 300 feet downstream of the tributary (very productive area).</p> <p>K) Clear Creek: 200 feet above the confluence. We do not own or lease the mineral rights downstream of the creek.</p> <p>L) Grider Creek: 200 feet on upstream and downstream. This is a very small refugia.</p> <p>M) Indian Creek: 200 feet upstream and 1,000 feet downstream.</p>	
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		<p>This section of river is very productive on both sides of the river and the middle.</p> <p>N) Swillup Creek: 200 feet above the confluence. We do not own or lease the mineral rights downstream of the creek.</p> <p>O) Ukonom Creek: 200 feet upstream and 1,500 feet downstream.</p> <p>This section of river is very productive on both sides of the river and the middle.</p>	
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