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**STATE WATER RESOURCES CONTROL BOARD
BOARD MEETING SESSION - DIVISION OF WATER QUALITY
DATE: TO BE DETERMINED**

ITEM

SUBJECT

CONSIDERATION OF A RESOLUTION APPROVING AMENDMENTS TO THE WATER QUALITY CONTROL PLAN FOR THE NORTH COAST REGION (BASIN PLAN) TO ESTABLISH: (1) SITE SPECIFIC WATER QUALITY OBJECTIVES FOR DISSOLVED OXYGEN IN THE KLAMATH RIVER; (2) AN ACTION PLAN FOR THE KLAMATH RIVER TOTAL MAXIMUM DAILY LOADS ADDRESSING TEMPERATURE, DISSOLVED OXYGEN, NUTRIENT, AND MICROCYSTIN IMPAIRMENTS IN THE KLAMATH RIVER; AND (3) AN IMPLEMENTATION PLAN FOR THE KLAMATH AND LOST RIVER BASINS.

DISCUSSION

On March 24, 2010, the North Coast Regional Water Quality Control Board (North Coast Water Board) adopted Resolution No. R1-2010-0025 ([Attachment I](#)) and Resolution No. R1-2010-0026 ([Attachment II](#)) amending the Basin Plan to establish: (1) site specific water quality objectives (SSOs) for dissolved oxygen (DO) in the Klamath River; (2) an action plan for the Klamath River Total Maximum Daily Loads (TMDLs) addressing temperature, DO, nutrient, and microcystin impairments in the Klamath River; and (3) an implementation plan for the Klamath and Lost River Basins.

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 Lost River TMDL applies to the portion of the Lost River in the Mount Dome Hydrologic Subarea and the Tule Lake Hydrologic Subarea, together known as the Lower Lost River. As part of the Klamath River TMDLs, 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.

The Klamath River originates in southern Oregon and flows through northern California to meet the Pacific Ocean at Requa in Del Norte County, California. Forty-four percent of the basin lies within the boundaries of Oregon, while the remaining fifty-six percent of the basin lies within the boundaries of California. Oregon and California have formed a technical team in conjunction with the U.S. EPA and its contractor, Tetra Tech, Inc., to develop a uniform water quality model of the basin and conduct joint analyses to ensure compatible TMDLs. However, the States will independently establish the TMDLs for those portions of the basin within their respective jurisdictions. As a result, the TMDLs under consideration will address the Klamath River beginning at the California-Oregon border (Stateline), which is designated as a compliance point in the Klamath River TMDLs.

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Site Specific Objective for DO

Resolution No. R1-2010-0025 removes six separate SSOs for DO for the mainstem Klamath River from Table 3-1 in the Basin Plan and replaces them with Table 3.1a (Attachment I). The existing SSOs are expressed as instantaneous minimum and 50% lower limit numeric criteria for DO. The recalculated SSOs are expressed as percent saturation based on daily minima. The existing DO objectives in the Klamath River were developed based on grab sample data collected during the 1950s and 1960s and represent the elevated, sometime supersaturated, DO conditions typically found during the day when photosynthesis is active, but do not reflect the night time minima. The recalculated SSOs are based on site specific barometric pressure, site specific salinity, and natural receiving water temperatures as estimated by a peer-reviewed Klamath TMDL model that was calibrated and then validated for 365 24-hour days.

Impairment

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, organic enrichment/low DO, and nutrients. The reach of the Klamath River that includes the Copco and Iron Gate Reservoirs was also listed for the blue-green algae toxin microcystin impairment. Because the Klamath River is included on the List, CWA section 303(d) requires the establishment of a TMDL to address the 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. Since these TMDLs are being established as a Basin Plan amendment, State law requires an implementation plan and schedule to ensure that the TMDLs are achieved.

The TMDLs address the impairments of: temperature, low DO, nutrient and organic matter, and microcystin. They are designed to ensure that water quality standards will be achieved, and that beneficial uses in the Klamath River will be protected. The beneficial uses that are impaired include: cold freshwater habitat (COLD); rare, threatened, and endangered species (RARE); migration of aquatic organisms (MIGR); spawning, reproduction, and/or early development of fish (SPWN); commercial and sport fishing (COMM); Native American cultural use (CUL); subsistence fishing (FISH); and contact and non-contact water recreation (REC-1 and REC-2).

Temperature TMDL

The Klamath River temperature TMDL addresses the heat loads that arise from seven sources:

1. Conditions of Klamath River water crossing the Stateline border.
2. Thermal discharges from Copco 2 and Iron Gate Reservoirs.
3. The impoundment of water in the Copco 1, Copco 2, and Iron Gate Reservoirs.
4. Temperature effects of Iron Gate Hatchery;
5. Temperature effects of major tributaries on Klamath River temperatures;
6. Effects of excess solar radiation;
7. Effects of excess (anthropogenic) sediment loads.

The Basin Plan specifies narrative water quality objectives for temperature which prohibit the alteration of the natural receiving water temperature unless such alteration does not adversely affect beneficial uses. The loading capacity of the Klamath River is zero temperature increase over natural background. Therefore, this TMDL allocates no temperature increases year-round.

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As a result, the load and waste load allocations are zero. However, this allocation is expressed differently, depending on the temperature source. For the temperature sources from excess solar radiation, the allocation is expressed in terms of effective shade. For the temperature sources from reservoirs, a dual allocation is assigned where natural background temperature conditions must coincide with the SSOs for DO condition compliance. The temperature TMDL relies on an implicit margin of safety.

DO, Nutrient and Organic Matter, and Microcystin TMDLs

The Klamath River DO, nutrient and organic matter, and microcystin TMDLs rely on a single source-analysis. Pollutant loads were quantified from fourteen geographic areas or entities (source areas) within the California portion of the Klamath River Basin. Each source area has a different combination of source categories/processes at work which contribute to the load from that area. The major land use source categories contributing to the impairments include: wetland conversion, grazing, irrigated agriculture, timber harvest, and roads. Other source contributions include the PacifiCorp hydroelectric facilities in California, Iron Gate Hatchery, and suction dredging.

The TMDLs addressing DO and nutrient-related water quality impairments, including microcystin, are closely interrelated because of the strong relationship between biostimulatory conditions, decomposition of organic matter, and resulting DO conditions. The Klamath River TMDLs are calculated to attain and maintain the new SSOs for DO in the Klamath River. Stateline and tributary allocations for the nutrients [total nitrogen (TN) and total phosphorus (TP)] and organic matter were set to ensure that the new site-specific DO objectives are met. Achievement of the Klamath River Nutrient and Organic Matter TMDLs constitutes achievement of the Klamath River DO TMDL, except in Copco 1 and 2 and Iron Gate Reservoirs (Reservoirs). The loading capacity and associated load and waste load allocations for total phosphorus, total nitrogen, and organic matter for the Klamath River in California, including the Reservoirs, are expressed in pounds per day (lbs/day), and are presented in Table 4-16 (Attachment II).

Achievement of the Stateline, Iron Gate Hatchery, and tributary nutrient and organic matter allocations, however, will not by themselves result in compliance with the DO, temperature, and microcystin target conditions within the Reservoirs. Therefore, they are assigned additional temperature/DO and nutrient load allocations. The temperature and DO allocations assigned to the Reservoirs are dual allocations, wherein achievement of the water quality objective for temperature must coincide with DO conditions compliant with the SSOs for DO, and vice versa. Allocations for DO and temperature equate to a “compliance lens” where both DO and temperature conditions meet objectives for water temperature and DO. The allocation applies annually during the period of May 1 through October 31 and requires that DO concentrations be consistent with the SSOs for DO included in Table 3-1a (Attachment I) and overlap temperatures consistent with natural water temperatures at the point of entry to the reservoirs within a lens throughout the reservoir, or comply with an alternative in-reservoir temperature and DO condition that provides equal or better protection of COLD and MIGR beneficial uses as approved by the North Coast Water Board.

In addition, to address the microcystin impairment, TP, TN, and carbonaceous biological oxygen demand allocations or alternative pollutant load reductions and/or alternative management measures or offsets (approved by the North Coast Water Board) are assigned to the owner(s) or operator(s) of the Reservoirs. These allocations equate to annual load reductions of 61 lbs/day of TP and 330 lbs/day of TN and must be achieved upstream of the Copco 1 Reservoir.

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The DO, nutrient and organic matter, and microcystin TMDLs rely on an implicit margin of safety which takes into account seasonal variations and critical conditions.

Implementation

This implementation plan describes the specific actions that the North Coast Water Board and other responsible parties must implement to achieve the Klamath River and Lower Lost River TMDLs in order to meet temperature, DO, biostimulatory, and toxicity water quality standards in the Klamath River Basin. The implementation plan addresses sources of impairment throughout the Klamath River Basin, which includes the Lost River, the Shasta River, the Scott River, the Salmon River, the Trinity River, and all other tributary basins. The implementation plan gives consideration to the existing TMDL implementation plans in the Salmon, Scott, and Shasta River basins. The implementation plan includes a prohibition on unauthorized discharges that violate water quality objectives, guidance on the control of sediment waste discharges, a Thermal Refugia Protection Policy, and implementation actions that are assigned to specific responsible parties as presented in Table 4-18 (Attachment II). Some of the parties that are responsible for implementation include: the North Coast Water Board, the State Water Board, the Oregon Department of Environmental Quality (ODEQ), the U.S. Environmental Protection Agency (U.S. EPA), the U.S. Bureau of Reclamation (USBR), U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Game, the California Department of Transportation, Pacificorp, Tulelake Irrigation District (TID), and the Counties of Del Norte, Humboldt, Siskiyou, and Trinity.

The implementation plan is comprised of both new and existing actions. One of the most significant ongoing activities is the coordination among the North Coast Water Board, the ODEQ, and U.S. EPA Regions IX and X, which has resulted in a signed Memorandum of Agreement (MOA) for implementing the TMDLs. This process will accommodate short-term measures working in concert with longer-term programs to achieve full compliance. Another significant implementation activity is the development and implementation of a Management Agency Agreement (MAA) between the USBR, the USFWS, the TID, and the North Coast Water Board. This MAA will focus on meeting the Lower Lost River and Klamath River TMDL allocations and targets. As a regulatory backstop, the North Coast Water Board has adopted a prohibition of discharges in violation of water quality objectives in the Klamath River Basin. The North Coast Water Board has also committed to develop at least two new conditional waivers of waste discharge requirements (WDRs). The conditional waivers will address agricultural activities on non-federal lands and all activities on U.S. Forest Service lands. The North Coast Water Board will use WDRs or conditional waivers thereof to address timber harvest activities on non-federal lands and road construction and maintenance on county lands. Other actions include revisions of existing permits to incorporate TMDL allocations. To address TMDL compliance within the reservoirs, Pacificorp is required to submit for approval a proposed implementation plan that includes timelines and contingencies for implementation measures.

Monitoring and Evaluation

There are two general categories of monitoring as part of the action plan for the Klamath River TMDLs: compliance monitoring and basin-wide monitoring. Compliance monitoring will specifically address the parties who are responsible for implementation of the TMDLs and must be conducted by them upon request by the North Coast Water Board's Executive Officer. Basin-wide monitoring will be complementary to existing monitoring efforts in the basin such as the Klamath Basin Monitoring Program and the Klamath Hydroelectric Settlement Agreement Interim Measure 12 Water Quality Monitoring Plan. Basin-wide monitoring will include

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compliance and trend water quality monitoring, public health monitoring, implementation monitoring, project effectiveness monitoring, and special studies.

North Coast Water Board staff has committed to report to its Board at least annually on the status and progress of implementation activities as well as progress toward attainment of the Klamath River TMDLs. Every five years, North Coast Water Board staff has committed to conduct a comprehensive and formal assessment of the effectiveness of the implementation plan. During reassessment, the North Coast Water Board staff intends to consider how effective the requirements of the TMDL implementation plan are at meeting the TMDLs, achieving water quality objectives, and protecting the beneficial uses of water in the Klamath River Basin.

POLICY ISSUE

Should the State Water Board approve the amendment to the Basin Plan to establish: (1) SSOs for DO in the Klamath River; (2) an action plan for the Klamath River Total Maximum Daily Loads (TMDLs) addressing temperature, DO, nutrient, and microcystin impairments in the Klamath River; and (3) an implementation plan for the Klamath and Lost River Basins?

FISCAL IMPACT

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.

REGIONAL WATER BOARD IMPACT

Yes, approval of this resolution will amend the North Coast Water Board's Basin Plan.

STAFF RECOMMENDATION

That the State Water Board:

1. Approves the amendments to the Basin Plan adopted under North Coast Water Board Resolution Nos. R1-2010-0025 and R1-2010-0026.
2. Authorizes the Executive Director or designee to submit the amendments adopted under North Coast Water Board Resolution Nos. R1-2010-0025 and R1-2010-0026, as approved, and the administrative record for these actions to the Office of Administrative Law and the TMDLs and water quality objectives to the U.S. Environmental Protection Agency for approval.

State Water Board action on this item will assist the Water Boards in reaching Goal 1 of the Strategic Plan Update: 2008-2012 to implement strategies to fully support the beneficial uses for all 2006-listed water bodies by 2030. In particular, approval of this item will assist in fulfilling Action 1 to prepare, adopt, and take steps to carry out Total Maximum Daily Loads (TMDLs), designed to meet water quality standards, for all impaired water bodies on the 2006 list.

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STATE WATER RESOURCES CONTROL BOARD RESOLUTION NO. 2010-

APPROVING AMENDMENTS TO THE WATER QUALITY CONTROL PLAN FOR THE NORTH COAST REGION (BASIN PLAN) TO ESTABLISH: (1) SITE SPECIFIC WATER QUALITY OBJECTIVES FOR DISSOLVED OXYGEN IN THE KLAMATH RIVER; (2) AN ACTION PLAN FOR THE KLAMATH RIVER TOTAL MAXIMUM DAILY LOADS ADDRESSING TEMPERATURE, DISSOLVED OXYGEN, NUTRIENT, AND MICROCYSTIN IMPAIRMENTS IN THE KLAMATH RIVER; AND (3) AN IMPLEMENTATION PLAN FOR THE KLAMATH AND LOST RIVER BASINS.

WHEREAS:

1. On March 24, 2010, the North Coast Regional Water Quality Control Board (North Coast Water Board) adopted Resolution Nos. R1-2010-0025 ([Attachment I](#)) and R1-2010-0026 ([Attachment II](#)) amending the Basin Plan to establish: (1) site specific water quality objectives (SSOs) for dissolved oxygen (DO) in the Klamath River; (2) an action plan for the Klamath River Total Maximum Daily Loads (TMDLs) addressing temperature, DO, nutrient, and microcystin impairments in the Klamath River; and (3) an implementation plan for the Klamath and Lost River Basins.
2. The North Coast Water Board found that the Basin Plan amendments were consistent with the provisions of State Water Resources Control Board (State Water Board) [Resolution No. 68-16](#), "Statement of Policy with Respect to Maintaining High Quality of Waters in California" and 40 CFR section 131.12.
3. The North Coast Water Board has the authority, pursuant to California Water Code section 13243, to specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted (i.e., prohibitions). The Implementation Plan for the TMDLs for the Klamath River requires compliance with the prohibition of discharges in violation of water quality objectives in the Klamath River Basin. Supporting documentation for the above-named prohibition is provided in the Final Staff Report for the Klamath River TMDLs addressing temperature, DO, nutrient, and microcystin impairments in California. Consistent with California Water Code section 13244, the North Coast Water Board complied with public notice and hearing requirements for the prohibition.
4. The elements of a TMDL are described in 40 CFR sections 130.2 and 130.7 and section 303(d) of the CWA, and U.S. Environmental Protection Agency guidance documents. A TMDL is defined as "the sum of individual waste load allocations for point sources and load allocations for nonpoint sources and natural background." (40 CFR §130.2). The North Coast Water Board has determined that the TMDLs addressing the impairments of: temperature, DO, nutrient, and microcystins are set at levels necessary to attain and maintain the applicable water quality standards taking into account seasonal variations and a margin of safety.
5. The North Coast Water Board found that the analysis contained in the Final Staff Report, the California Environmental Quality Act (CEQA) substitute documentation for the proposed Basin Plan amendment, including the CEQA Checklist, the staff report, and the responses to comments complies with the requirements of the State Water Board's

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certified regulatory CEQA process, as set forth in the California Code of Regulations, Title 23, section 3775 et seq.

6. The State Water Board finds that the Basin Plan amendments are in conformance with Water Code section 13240, which specifies that Regional Water Quality Control Boards may revise Basin Plans; section 13241, which authorizes Regional Water Quality Control Boards to establish water quality objectives, section 13242, which requires a program of implementation to achieve water quality objectives; and section 13243 which authorizes Regional Water Quality Control Boards to specify certain conditions or areas where the discharges of certain types of waste will not be permitted. The State Water Board also finds that the TMDLs, as reflected in the Basin Plan amendment, are consistent with the requirements of federal CWA section 303(d).
7. The regulatory action meets the "Necessity" standard of the Administrative Procedures Act, Government Code, section 11353, subd. (b). The necessity of developing a TMDL is established in the TMDLs staff report, the CWA section 303(d) List of Water Quality Limited Segments, and the data contained in the administrative record documenting the impairments of the Klamath River.
8. A Basin Plan amendment does not become effective until approved by the State Water Board and until the regulatory provisions are approved by the Office of Administrative Law. The TMDLs and water quality objectives must also receive approval from the U.S. Environmental Protection Agency.

THEREFORE BE IT RESOLVED THAT:

The State Water Board:

1. Approves the amendments to the Basin Plan adopted under North Coast Water Board Resolution Nos. R1-2010-0025 and R1-2010-0026.
2. Authorizes the Executive Director or designee to submit the amendments adopted under North Coast Water Board Resolution Nos. R1-2010-0025 and R1-2010-0026, as approved, and the administrative record for these action to the Office of Administrative Law and the TMDLs and water quality objectives to the U.S. Environmental Protection Agency for approval.

CERTIFICATION

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on _____ TBA _____.

Jeanine Townsend
Clerk to the Board