California Regional Water Quality Control Board
North Coast Region

RESOLUTION No. R1-2011-0069
MONTH DATE, 2011

Policy

For

Implementation of the Water Quality Objective for Temperature
in the North Coast Region

WHEREAS, the California Regional Water Quality Control Board, North Coast Region, (hereinafter the Regional Water Board) finds that:

Introduction

1. Elevated water temperature is the most widespread water quality impairment in the North Coast Region. There is no single water quality parameter more influential in determining which beneficial uses are present in North Coast water bodies. The effects of temperature are far-reaching: impacting growth, feeding, fecundity, incubation, and infection rates of organisms, as well as chemical reaction rates, the oxygen concentration in water, and seasonal migration cues of aquatic species. The alarming decline in populations of the iconic aquatic species of the North Coast - salmon and steelhead - is partly reflective of the shrinking extent of cold water ecosystems in the North Coast Region.

2. Over 60 percent of North Coast watersheds are listed as impaired for temperature, evidence that past implementation of regulatory controls for protection against anthropogenically elevated water temperatures is not adequate to remediate, restore, and protect temperature-impaired water bodies and to control the cumulative impacts of elevated water temperature on such watersheds.

3. The prevention of water quality impacts from temperature related factors has been a high priority in the North Coast Region for many years. The Regional Water Board has ranked the control of temperature impacts as a high priority under the Triennial Review process since 2001. In 2007, this issue was again ranked such that staff was directed to proceed with work that could result in a Basin Plan amendment. The triennial review also included two other high priority issues that are relevant in the development of a regionwide temperature control program; the stream and wetlands system protection policy and instream flow objective.

4. Temperature impairments are predominantly associated with nonpoint source pollution, which is generally defined as pollution that is not a “point source

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discharge" requiring an NPDES permit under the federal Clean Water Act.[1] Under the state Porter-Cologne Water Quality Act, nonpoint source discharges of waste are regulated under waste discharge requirements (WDRs), waivers of WDRs, prohibitions, or a combination thereof. Temperature is also addressed in water quality certifications issued pursuant to section 401 of the Clean Water Act. As explained in more detail below, the Regional Water Board has been implementing temperature controls in its region-wide nonpoint source pollution programs, and in individual permits on a case-by-case basis, often in the context of sediment discharges. Elevated temperature is also caused by factors outside the core regulatory programs of the Regional Water Board that may be addressed by other public agencies, for example water diversions under the jurisdiction of the State Water Resources Control Board (State Water Board), Division of Water Rights. A comprehensive policy is needed to ensure a consistent approach to the control of elevated temperatures to the extent possible, and provide direction to staff developing and implementing permits and evaluating the water quality impacts of proposed actions.

This policy does the following:

- Acknowledges the need for a broad-based approach to temperature control in North Coast waterbodies;
- Reiterates the linkage between elevated water temperatures, solar radiation, and stream shade presented in north coast temperature Total Maximum Daily Loads (TMDLs);
- Affirms the need to address water temperatures on a region-wide basis to reduce impairments and prevent further impairment;
- Directs staff to continue implementing temperature TMDLs through regional nonpoint source programs and individual permits, waivers, and enrollments as appropriate; and
- Directs staff to work with other agencies to address elevated water temperatures.

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[1] The discharge of waste associated with storm water drainage system-related point sources has the potential to increase water temperature in a receiving waterbody. However, storm water discharges predominantly occur during periods of rainfall, when water temperatures generally support beneficial uses. Discharges not associated with rainfall events (non-storm water discharges) are sometimes discharged through storm water conveyance systems, thus the possibility of water temperature impacts associated with storm water systems must be considered. The discharge of waste associated with other point sources also has the potential to increase water temperatures in the receiving waterbody. However, point source discharges are generally not permitted in any North Coast basins except the Russian and Eel River watersheds, where winter time discharges are permitted at high dilution ratios. These discharges do not exceed the water quality objective for temperature, as permitted.

Basin Plan Temperature Standards

5. The Water Quality Control Plan for the North Coast Region (hereinafter the Basin Plan) designates the beneficial uses of waterbodies within the North Coast Region. These uses include, but are not limited to, municipal drinking water use (MUN); cold freshwater habitat (COLD); warm freshwater habitat (WARM); estuarine habitat (EST); migration of aquatic organisms (MIGR); support of habitats necessary, at least in part, for the survival and successful maintenance of rare, threatened, or endangered plant or animal species (RARE); and spawning, reproduction, and early development of fish (SPWN). The Basin Plan also establishes water quality objectives, including water temperature objectives, for the protection of these beneficial uses. The beneficial uses of water bodies, water quality objectives, and anti-degradation policies, together, constitute water quality standards.

6. The Basin Plan defines the cold freshwater habitat (COLD) beneficial use as: "Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates." In the North Coast Region, the iconic cold water species are salmon and steelhead. In addition, there are many other organisms, such as frogs, salamanders, aquatic insects, and resident fish species, that require a cold freshwater ecosystem for survival.

7. The Basin Plan defines the intrastate water quality objective for temperature as:

   “The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses.

   At no time or place shall the temperature of any COLD water be increased by more than 5°F above natural receiving water temperature.

   At no time or place shall the temperature of any WARM water be increased by more than 5°F above natural receiving water temperature.”

   Natural receiving water temperatures are those that result when the factors that drive water temperatures are consistent with natural conditions. The most prominent factors are hydrology, solar radiation (the inverse of shade), air temperature, and channel geometry.

8. The Basin Plan defines the interstate water quality objective for temperature as:

   “Elevated temperature waste discharges into COLD interstate waters are prohibited,” and,

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"Thermal waste discharges having a maximum temperature greater than 5°F above natural receiving water temperature are prohibited," and,

"Elevated temperature wastes shall not cause the temperature of WARM interstate waters to increase by more than 5°F above natural temperature at any time or place."

TMDL Development

9. Section 303(d) of the Clean Water Act requires states to address impaired waters by developing a total maximum daily load (TMDL) or implementing another program that will result in the attainment of water quality standards. TMDLs establish the maximum load of a pollutant that can be assimilated without exceeding the applicable water quality standards. Temperature TMDLs include a source analysis, interpretation of water quality objectives, and load allocations that divide the allowable loading among the sources in a way that results in attainment of the water quality standards when achieved.

10. The Regional Water Board has adopted temperature TMDLs for the Salmon, Scott, Shasta, and Klamath Rivers. The U.S. Environmental Protection Agency (EPA), Region IX, has established temperature TMDLs for the following water bodies in the North Coast Region: the Eel River (six reaches), Mattole River, and Navarro River. Each of these TMDLs includes a temperature source analysis, TMDL calculation, load allocations, and a margin of safety.

11. Temperature TMDL analyses completed to date have consistently found the same factors to be responsible for elevated water temperatures: increased exposure to solar radiation due to loss of stream shade, physical stream channel alteration in response to elevated sediment loads, and in some cases agricultural tail water, impoundments, and water diversions.[2]

12. EPA did not adopt plans of implementation for its TMDLs because it lacks implementation authority over nonpoint source pollution. EPA did include specific implementation recommendations for achieving the temperature load allocations. Those recommendations include the use of the timber harvest permitting process to protect and restore natural shade, implementation of the United States Forest Service (USFS) Northwest Forest Plan and associated standards and guidelines, and the control of sediment to achieve temperature standards.

13. Under Clean Water Act section 303(d)(2), the State must incorporate EPA TMDLs into its Water Quality Management Plan after they are approved. Clean Water Act section 303(e) requires EPA approval of a State's continuing planning process, which includes Basin Plans, regulatory programs, monitoring and quality

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[2] For example, agricultural tail water was identified as a significant contributor to temperature impairment in the Shasta River watershed.

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assurance programs, nonpoint source management programs, and funding assistance programs. Similar to the Sediment TMDL Policy discussed below, this Policy is intended to implement temperature TMDLs, including EPA temperature TMDLs in compliance with Clean Water Act section 303(d)(2). As discussed below, this Resolution directs staff to incorporate the Temperature Policy into the Basin Plan as soon as possible. The proposed Basin Plan amendment shall be submitted to the Regional Water Board for consideration no later than December 31, 2013.

14. Under State law, TMDLs are adopted with programs that implement correction of the impairment. The Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options (Impaired Waters Policy) is a statewide policy that describes the process for developing and adopting TMDLs. TMDLs may be adopted in any of the following ways:

    1. TMDLs and TMDL implementation strategies may be adopted with a Basin Plan amendment or another regulation or policy for water quality control that is designed to guide the Regional Water Board in correcting the impairment.

    2. TMDLs and TMDL implementation strategies may be adopted with a permitting action, enforcement action, or other single regulatory action.

    3. TMDLs and TMDL implementation strategies may be adopted with a resolution that certifies either that (1) a regulatory program has been adopted and is being implemented by another state, regional, local, or federal agency; or (2) a non-regulatory program is being implemented by another entity. (State Water Board Resolution No. 2005-0050, at p.8.)

    If adopted under 2 or 3 above, the TMDLs must be referenced in the relevant Basin Plan before or during the next triennial review. (*Id.* at p. 9.)

15. To date, the Regional Water Board has adopted three peer-reviewed temperature TMDLs as Basin Plan amendments, each with accompanying plans of implementation, generally titled “action plans” that contain various implementation measures. All of the existing temperature TMDL action plans encourage and direct parties responsible for the management of riparian areas to implement riparian management measures that meet the riparian shade allocations and water quality standards. Temperature TMDLs developed in watersheds also impaired by sediment rely on the implementation of sediment TMDLs to achieve sediment reductions that are also necessary to achieve the temperature TMDLs.

16. In addition, action plans may also include specific implementation actions tailored for the watershed. For example, the TMDL action plan for the Shasta River directs parties responsible for managing irrigation tailwater to ensure that their tailwater discharges do not increase the temperature of the receiving water, and establishes

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a goal of temperature reductions from the dedication of 45 cubic feet per second of cold instream water.

17. Implementation of temperature controls in the context of region-wide nonpoint source programs, particularly riparian management, is discussed in more detail below, followed by a discussion of implementation options for sources not within the Regional Water Board's core regulatory jurisdiction.

Riparian Management

18. The removal of vegetation that provides shade to a waterbody is a controllable water quality factor.

19. Temperature TMDL load allocations for solar radiation in North Coast TMDL analyses are expressed in terms of site-potential effective shade. Site-potential effective shade is equal to the shade provided by topography and full potential vegetation conditions at a site, with an allowance for natural disturbances such as floods, wind throw, disease, landslides, and fire.

20. Compliance with the temperature TMDL load allocations for solar radiation is achieved by not removing or hindering vegetation that provides shade to a waterbody. To accomplish this, responsible parties are encouraged to delineate a separate management area for riparian vegetation that has the potential to shade a waterbody, and manage these riparian areas differently than the surrounding land in a manner that promotes site-potential effective shade conditions. These areas are often referred to variously as a riparian management zone, streamside buffer area, or a watercourse and lake protection zone.

21. The establishment of riparian buffers for temperature protection is also an effective and important management measure for the control of some types of sediment discharges. Maintenance of a vegetated buffer provides a control on the discharge of sediment mobilized by surface erosion. Also, the retention of mature trees (and their roots) along a stream bank provides bank stability, reducing the discharge of sediment associated with stream bank landslides and debris flows originating upstream. Maintenance of a vegetated buffer along streams also ensures a supply of large woody debris to the stream channel, which is critical for metering of sediment, channel forming processes, and fish habitat.

Incorporating Riparian Management and other Temperature Controls into Region-Wide Permitting

22. Existing temperature TMDLs have affirmed the need for natural shade conditions for attainment of the intrastate water quality objective for temperature, require site-potential shade conditions, and require the control of anthropogenic sediment discharges. Further, the results of the existing temperature TMDL analyses and the widespread temperature impairment in the North Coast point to the need to

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address the effects of shade removal on elevated water temperature on a region-wide basis. Because riparian management necessary to implement TMDL load allocations is also necessary to achieve the intrastate water quality objective for temperature in the Basin Plan, a consistent region-wide approach will ensure adequate and efficient implementation of both. Previously developed TMDLs serve as foundational technical documents upon which to base implementation actions for other waterbodies along with any other available and pertinent information, data, and analyses.

23. Completed sediment and temperature TMDLs identify and assign load allocations to similar categories of land uses that generate nonpoint source discharges of waste and pollution, such as timber harvest, roads, agriculture, and grazing. Implementation actions taken to achieve load allocations should be consistent with the Porter-Cologne Water Quality Control Act, as described in the *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program*, which requires nonpoint sources be regulated under WDRs, waivers ,of WDRs, a Basin Plan prohibition, or some combination of these tools. Future permits should establish conditions that ensure compliance with TMDL load allocations and the intrastate water quality objective for temperature. This Policy affirms existing requirements that all current and proposed nonpoint source discharges must be regulated under WDRs, waivers of WDRs, a Basin Plan prohibition, or some combination of these tools.

24. Often, the same management measures are needed to address nonpoint source water quality concerns regardless of whether or not the waterbody is impaired. In addition, often several pollutants can be addressed by the same management measure, particularly sediment and temperature, and sometimes nutrients. Where possible, it is sensible to combine water quality requirements under one permitting structure. Incorporating TMDL implementation into a broad-based nonpoint source approach increases efficiency and consistency in regulation. The Regional Water Board enforces TMDL requirements through basin-wide and region-wide programs where possible, rather than piecemeal various requirements in each TMDL action plan.

25. In 2004, the Regional Water Board adopted the *Total Maximum Daily Load Implementation Policy Statement for Sediment Impaired Receiving Waters in the North Coast Region* (Resolution R1-2004-0087) ("Sediment Policy"), which directs staff to use existing authorities to strengthen regulatory controls of nonpoint source discharges of sediment. Implementation of that Policy also partially implements the intrastate water quality objective for temperature insofar as the control of sediment discharges partially addresses elevated water temperatures. Sediment discharges contribute to elevated water temperatures by changing the physical attributes of a stream channel, including width, depth, and sinuosity, and by removing or preventing re-establishment of shade-producing vegetation in and near the stream channel. Therefore, practices implemented to prevent and

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minimize sediment discharges (e.g., vegetated buffers for sediment filtering, avoidance of activities resulting in disturbance of inner gorges and other unstable areas near streams, appropriately designed stream crossings, properly managed road runoff, etc.) are also required for the control of elevated water temperatures. This resolution directs staff to implement the Sediment Policy as a means of addressing elevated water temperature associated with excess sediment discharges.

26. The Regional Water Board has made the most progress to date in implementing comprehensive nonpoint source permit coverage for timber harvest activities. Timber harvest activities can impact water temperature by reducing shade, increasing sediment loads, and altering microclimates. For timber harvest activities on private lands, the Regional Water Board prefers to incorporate the California Board of Forestry's Forest Practice Rules into water quality permits for ease of reference, for consistent terminology, to avoid duplicative processes to the degree possible. The California Department of Forestry and Fire Protection (CAL FIRE), as the agency approving timber harvest activities on private lands, convenes a multi-agency team that includes CAL FIRE, the California Department of Fish and Game, the California Regional Water Quality Control Boards, the California Geological Survey, and other agencies as needed, to conduct a review of a timber harvest plan (THP). Each agency may recommend incorporation of mitigating measures into the plan to reduce adverse impacts of the operation on timberland resources, including the beneficial uses of water. Through this process, Regional Water Board staff have an opportunity to make specific THP recommendations so that the final THP is compliant with the Basin Plan and eligible for the timber WDRs or waivers. Under the Forest Practice Rules, timber operations within designated watercourse and lake protection zones must adhere to canopy retention standards to address stream temperature issues, sediment and nutrient loading, and recruitment of large woody debris. In some instances Regional Water Board permits include canopy retention requirements different from the Forest Practice Rules.

27. In 2004, the Regional Water Board adopted Order R1-2004-0030: General Waste Discharge Requirements for Discharges Related to Timber Harvest Activities on Non-Federal Lands in the North Coast Region (Timber GWDR). The Timber GWDRs contains a requirement that all water quality requirements must be met to qualify for enrollment in the Timber GWDRs. As defined, water quality requirements include water quality objectives (narrative or numeric), prohibitions, TMDL implementation plans, policies, or other requirements contained in a water quality control plan adopted by the Regional Water Board and approved by the State Water Board, and all other applicable plans or policies adopted by the Regional Water Board or State Water Board, including, but not limited to, the State Water Board Resolution No. 68-16: Statement of Policy with Respect to Maintaining High Quality Waters in California. Because TMDL load allocations are established as necessary conditions for achievement of water quality standards

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(i.e., water quality objectives in the context of beneficial uses), load allocations should be incorporated into a THP to qualify for enrollment in the Timber GWDR. Staff should implement temperature load allocations through Timber GWDR enrollments in areas subject to existing temperature TMDLs, including EPA-established temperature TMDLs. Staff should implement similar shade controls through Timber GWDR enrollments in areas listed as impaired for temperature as appropriate. Similar shade controls for Timber GWDR enrollments region-wide will prevent future impairments and ensure compliance with the intrastate water quality objective for temperature.

28. In 2009, the Regional Water Board adopted Order R1-2009-0038: Categorical Waiver of Waste Discharge Requirements for Discharges Related to Timber Harvest Activities On Non-Federal Lands in the North Coast Region (Non-Federal Timber Waiver). The Non-Federal Timber Waiver includes conditions that implement TMDL load allocations and meet the Basin Plan intrastate temperature objective by preserving natural shade where present and restoring it where it is not present. The Non-Federal Timber Waiver requires 85% overhead canopy within 75 feet of a class I stream, 50 feet of a class II stream, and 65% overhead canopy for the remainder of the watercourse and lake protection zone. Order R1-2009-0038 allows the approval of alternatives to these specific requirements if they provide equal or better protection. These particular canopy requirements are currently not required for Non-Industrial Timber Management Plans while they are being reviewed by Regional Water Board staff pursuant to Order R1-2011-0038, *Limited Term Amendment to NTMP Provisions of Order No. R1-2009-0038, Categorical Waiver of Waste Discharge Requirements for Discharges Related to Timber Harvest Activities on Non-Federal Lands in the North Coast Region*.

29. In 2010, the Regional Water Board issued Order R1-2010-0029: *Waiver of Waste Discharge Requirements for Nonpoint Source Discharges Related to Certain Federal Land Management Activities on National Forest System Lands in the North Coast Region* (USFS Waiver), a conditional waiver addressing certain nonpoint source activities on United States Forest Service lands in the region, including timber, roads, and grazing. This permit, by virtue of its conditions, also implements sediment, temperature, and nutrient TMDLs, and meets the Basin Plan intrastate temperature objective. Implementation of the USFS waiver and the temperature TMDL action plans meets temperature TMDL load allocations and achieves compliance with the water quality objective for temperature in over half of the North Coast Region. The USFS Waiver requires the USFS manage and maintain designated riparian zones to ensure retention of adequate vegetative cover that results in natural shade conditions within 300 feet slope distance on each side of fish-bearing streams, 150 feet slope distance on each side of perennial streams, and 100 feet slope distance on each side of ephemeral / intermittent streams, or the site potential tree height distance on each side of the stream, whichever is greatest, consistent with the Northwest Forest Plan. The USFS Waiver provides

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for exceptions to these requirements if it can be demonstrated that the exception will result in a net long-term benefit to water quality and stream temperatures.

30. As identified in the Non-Federal Timber Waiver and USFS Waiver, situations exist in which a short-term reduction in shade associated with efforts to restore and/or protect beneficial uses is appropriate. Examples of such situations are the felling of trees for the purposes of re-introducing large woody debris in streams, removal of unnatural accumulations of vegetation resulting from fire suppression in order to reduce the risk of catastrophic wildfire, and the removal of trees in over-stocked stands in order to achieve old-growth stand characteristics on a shorter time scale. Short-term reductions in shade may be allowed when appropriate. This resolution directs Regional Water Board staff to develop additional guidance on this issue.

31. Staff should examine and address temperature when developing other permits for nonpoint source activities. Regional Water Board staff are actively developing region-wide permits for dairies, county road maintenance, and irrigated lands, and shade control is expected to be a component in each of these programs. At a minimum, any program or permit should implement temperature shade load allocations in areas subject to existing temperature TMDLs, including EPA-established temperature TMDLs. Any program or permit should implement similar shade controls in areas listed as impaired for temperature, and region-wide to prevent future impairments and to comply with the intrastate temperature objective. This Resolution in no way limits the State Water Board or Regional Water Board's authority and discretion to develop riparian management measures as appropriate for a specific land use or geographic area.

32. The use of riparian areas by livestock can lead to impacts that elevate water temperatures. Intensive use of riparian areas by livestock has been demonstrated to impact water temperatures by increasing channel widths, reducing pool depths, increasing sediment discharges, removing vegetation, preventing growth of new vegetation, and reducing effective shade. However, the use of riparian areas by livestock can be conducted without these impacts if managed thoughtfully, with water quality protection in mind. In some cases, the use of livestock as a management tool can be beneficial to riparian growth, and therefore, water temperatures. The intensity, duration, and timing of livestock use are critical considerations that determine whether livestock use is or is not harmful to riparian areas.

33. The USFS Waiver includes adequate temperature controls for livestock grazing. For non-USFS land, Regional Water Board staff is currently participating in a collaborative effort involving the State Water Resource Control Board and multiple regions to develop a grazing regulatory program to address water quality impacts associated with livestock grazing in impaired waters. Given the potential for livestock use of riparian areas to elevate water temperatures, it is important that any program associated with grazing address factors that elevate water

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temperatures. This Resolution directs staff to participate in the grazing regulatory program development process to ensure that factors that elevate water temperatures or impact existing cold water resources are considered and addressed.

34. The excess water diverted for flood irrigation and returned to streams (irrigation tailwater discharge) can elevate the temperature of the receiving stream. Depending on the time of day that the tailwater discharges to the stream, the temperature of the irrigation tailwater discharge can be substantially higher than the receiving water temperature, thus elevating the temperature of the receiving water. In the Shasta River watershed, irrigation tailwater discharge is a prevalent and significant water quality concern. The Shasta TMDL waives waste discharge requirements for parties responsible for tailwater discharges if they are participating in on-going collaborative programs and implement recommended measures identified in the *Action Plan for the Shasta River Temperature and Dissolved Oxygen Total Maximum Daily Loads*, as applicable. The Regional Water Board administers grants that fund a program to identify and prioritize irrigation tailwater discharges for tailwater recovery projects. Irrigation tailwater discharges are not as common in most other North Coast watersheds. However, where they occur they have great potential to elevate water temperatures and discharge pollutants such as nutrients, pathogens, and sediment. Regional Water Board staff are currently developing an irrigated lands water quality program. Elevated water temperatures associated with irrigation tailwater discharges should be addressed through the irrigated lands water quality program and watershed-specific waivers.

Individual and Site-Specific Permitting

35. In the interim time period while region-wide programs are developed, and in the future, as appropriate, the Regional Water Board should continue to employ a range of available regulatory, executive, and enforcement tools to address elevated temperatures on a case-by case basis, as appropriate. These tools include, but are not limited to, investigative orders under Water Code section 13267; cleanup and abatement orders under Water Code section 13304; waste discharge requirements under Water Code section 13263; water quality certifications pursuant to section 401 of the Clean Water Act; time schedule orders under Water Code section 13300; cease and desist orders under Water Code sections 13301-303; administrative civil liabilities under Water Code section 13350 and 13375, and the grants and loans program. This Resolution directs staff to use other regulatory, executive, and enforcement tools, as appropriate, to address elevated water temperatures and preserve existing cold water resources.

36. The alteration of stream bed, banks, and floodplains has potential to elevate water temperatures. Such projects often involve removal of vegetation and/or channel alteration, and have potential to increase sediment loads. Channel alterations that reduce stream depth, reduce the size and depth of pools, cause channels to incise, and/or reduce the interaction of surface and subsurface waters can elevate water

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temperatures. The Regional Water Board regulates these activities through the 401 water quality certification process or WDR program. This resolution directs staff to address factors that contribute to elevated water temperatures when issuing 401 certifications or WDRs for projects that alter the bed, banks, and floodplains of waters of the State. At a minimum, any 401 certification or WDR should implement temperature shade load allocations in areas subject to existing temperature TMDLs, including EPA-established temperature TMDLs. If applicable, any 401 certification, WDR, or order should implement similar shade controls in areas listed as impaired for temperature, and region-wide to prevent future impairments and to comply with the intrastate temperature objective.

37. Restoration is an important tool for achieving water quality conditions sufficient to protect and restore beneficial uses, and may be particularly necessary to address some temperature impairments. Watershed studies conducted to assess water quality and identify appropriate corrective measures in impaired watersheds have found restoration to be a critical component of any water quality attainment program. Staff should consider temperature benefits of restoration projects when reviewing and recommending grant and loan applications, and where appropriate, support implementation of large-scale restoration projects aimed to correct temperature impairments.

Other Agencies with Oversight of Activities Affecting Temperature

38. In some cases, activities contribute to temperature impairments but are outside the jurisdictional authority of the Regional Water Board. The Regional Water Board works with many agencies with jurisdiction or authority to address water quality issues.

39. The diversion and storage of water has great potential to elevate water temperatures. The reduced flows associated with water diversions can lead to elevated water temperatures in streams by reducing thermal mass and stream depth, and increasing travel times and the associated exposure to solar radiation and other heat inputs. The water impounded behind a dam stores heat, which can alter the daily temperature variation and the seasonal pattern of water temperatures downstream. The water temperature alteration caused by impoundments can result in exceedance of the intrastate water quality objective for temperature.

40. The State Water Board's Division of Water Rights (Division of Water Rights) issues water right permits for the diversion of surface waters and Regional Water Board staff often work with Division of Water Rights staff to ensure Basin Plan requirements are reflected in water right permits and other water right orders. The *Policy for Maintaining Instream Flows in Northern California Coastal Streams* (May 4, 2010) specifically calls for involvement by Regional Water Boards as a means of ensuring adequate consideration of water quality concerns. The Division of Water Rights also issues 401 water quality certifications for projects requiring a Federal

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Energy Regulatory Commission (FERC) license. Regional Water Board staff provide recommendations and identify water quality conditions that are necessary to ensure that the activity will comply with water quality standards. This Resolution directs Regional Water Board staff to continue to work with the Division of Water Rights to ensure that temperature and other water quality concerns are identified and addressed in the water right permitting process in all waterbodies, including but not limited to those addressed through the *Policy for Maintaining Instream Flows in Northern California Coastal Streams*.

41. Regional Water Board staff often submit water quality comments to cities and counties during the development of their ordinances and general plans. State guidelines state that local general plans should incorporate water quality policies from Basin Plans to the extent they are relevant. The planning and land use authorities entrusted to cities and counties include the authority to limit impacts to waters of the state and other natural resources from land uses. This Resolution directs staff to continue to provide cities and counties guidance and recommendations on compliance with the Basin Plan, and specifically the intrastate water quality objective for temperature.

42. Programs and activities implemented by other state and federal agencies often address or have the potential to affect conditions that influence water temperatures. The Regional Water Board routinely reviews financial and technical assistance programs, development activities, environmental impact statements, rule making, and monitoring programs developed and/or administered by agencies such as the US Department of Agriculture, Natural Resource Conservation Service, US Army Corps of Engineers, US Bureau of Reclamation, US Forest Service, Federal Energy Regulatory Commission, Department of Defense, National Park Service, CAL FIRE, and Bureau of Land Management. This Resolution directs staff to continue to provide state and federal agencies guidance and recommendations on compliance with the Basin Plan, and specifically the intrastate water quality objective for temperature.

43. The Regional Water Board often supports and coordinates with the Natural Resource Conservation Service, Resource Conservation Districts, and the University of California Cooperative Extension on landowner outreach and agricultural nonpoint source reduction efforts, and relies on their landowner assistance programs for implementation of appropriate nonpoint source management practices on private lands. This Resolution directs staff to continue to work with the Natural Resource Conservation Service, Resource Conservation Districts, and the University of California Cooperative Extension to provide landowners guidance on compliance with the intrastate water quality objective for temperature, and assistance with implementation of actions that support water quality.

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Monitoring

44. Monitoring is an important element of any regulatory program. A robust monitoring plan provides information describing the degree to which management measures are implemented, are effective at a site scale, and whether the water quality is improving downstream as a result of implementation. Implementation and effectiveness monitoring are often incorporated into permits and grant agreements and reported through those processes. Water temperature monitoring results are most often reflective of cumulative effects of upstream conditions. This Resolution directs staff to:
    - incorporate monitoring into permits and grant agreements in order to confirm management actions required to prevent or reduce elevated temperatures are implemented and effective; and
    - develop and implement a region-wide water temperature trend monitoring program to determine if the long-term effectiveness of the Temperature Policy.

Other Findings

47. The extent of cold water resources in the North Coast Region is a critical factor that determines the abundance and diversity of aquatic organisms in the region. A consistent, region-wide approach to temperature control is consistent with the provisions of the State Water Resources Control Board Resolution No. 68-16: the *Statement of Policy with Respect to Maintaining High Quality Waters in California*. Resolution No. 68-16 incorporates the federal Anti-degradation Policy.

48. This policy statement does not constitute a discretionary permit or regulation or other discretionary action constituting a "project" as that term is defined by the California Environmental Quality Act (CEQA). (14 Cal. Code Regs., tit. 14,§15378.) Thus, no environmental review is required under CEQA. Moreover, if this policy statement were construed as a project triggering CEQA review obligations, consistent with the CEQA Guidelines' Class 7 and Class 8 Exemptions, this policy statement is an action taken by a regulatory agency to "assure the maintenance, restoration, or enhancement of a natural resource where the regulatory process involves procedures for protection of the environment." (14 Cal. Code Regs., tit. 14, §§15307 & 15308.)

THEREFORE, BE IT RESOLVED THAT:

1. A Temperature Policy shall be incorporated into the Basin Plan as soon as possible. The proposed Basin Plan amendment shall be submitted to the Regional Water Board for consideration no later than December 31, 2013.

2. The Board has authority to implement temperature TMDLs through a combination of riparian management and other temperature controls as appropriate in nonpoint source control programs; individual permitting, grants and loans, and enforcement

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actions; support of restoration projects; and coordination with other agencies with jurisdiction over controllable factors that influence water temperature.

3. Staff should continue to implement shade load allocations through Timber WDR, Non-Federal Timber Waiver, and USFS Waiver enrollments in areas subject to existing temperature TMDLs, including EPA-established temperature TMDLs based on existing legal authority. Staff should implement similar shade controls through Timber WDR enrollments in areas listed as impaired for temperature but lacking a TMDL, and region-wide to prevent future impairments and to comply with the intrastate temperature objective.

4. Staff should examine and address temperature impacts when developing other permits or programs for nonpoint source activities, including those for dairies, county road maintenance and construction, and irrigated agriculture. Staff should consider all available measures to prevent and control the elevation of water temperatures such as sediment Best Management Practices and cleanups, riparian management including shade, and mitigation of tailwater and impoundments, as appropriate, in permit or program development. It is the intent of the board to address elevated water temperatures associated with irrigation tailwater discharges through existing TMDL action plans and a future region-wide irrigated lands water quality program.

5. Staff should participate in the State Water Resource Control Board's statewide grazing program development process to ensure that factors that elevate water temperatures or preserve existing cold water resources are considered and addressed. Additionally, staff should address the water temperature impacts associated with livestock use in waivers, as appropriate. This Resolution in no way limits the State Water Board or Regional Water Board's authority and discretion to develop riparian management measures as appropriate for a specific land use.

6. Staff should address factors that contribute to elevated water temperatures when issuing 401 certifications or WDRs for individual projects. Any permit should be consistent with the assumptions and requirements of temperature shade load allocations in areas subject to existing temperature TMDLs, including EPA-established temperature TMDLs, as appropriate. If applicable, any permit or order should implement similar shade controls in areas listed as impaired for temperature but lacking a TMDL and region-wide to prevent future impairments and to comply with the intrastate temperature objective.

7. Staff should use other regulatory, executive, and enforcement tools, as appropriate, to address elevated water temperatures and preserve existing cold water resources.

8. The Regional Water Board supports and encourages restoration projects that are designed to eliminate, reduce, or mitigate existing sources of temperature

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impairments. Staff should continue to administer, encourage, and support the use of grant funds to facilitate projects that address elevated water temperature concerns. Staff should pursue non-regulatory actions with organizations and individuals to encourage the control of elevated water temperatures, watershed restoration, and protection activities.

9. Staff should continue to coordinate with State Water Resource Control Board's Division of Water Rights by participating in the water right application and petition process, providing monitoring recommendations, joint compliance inspections, submittal of data in support of 401 certifications related to water diversions and/or facilities regulated by the Federal Energy Regulatory Commission, participation in instream flow studies, and any other appropriate means to ensure that the terms of water right permits and licenses are consistent with the intrastate water quality objective for temperature, and to maintain instream flow levels sufficient to achieve the intrastate water quality objective for temperature. Regional Water Board staff shall coordinate with Division of Water Rights to maintain instream flow levels sufficient to achieve temperature TMDLs through the Division of Water Rights' administration of the requirements of AB 2121, as described in *the Policy for Maintaining Instream Flows in Northern California Coastal Streams* (May 4, 2010). For the Eel River, Regional Water Board staff shall coordinate with the Division of Water Rights to maintain instream flow levels sufficient to achieve the principles of AB 2121, to the extent consistent with its existing legal authority or by any future extension of AB 2121 applicable to the Eel River.

10. Staff should continue to provide cities and counties guidance and recommendations on compliance with the water quality objectives for temperature and work with local governments to develop strategies to address the prevention, reduction, and mitigation of elevated water temperatures, including, but not limited to, riparian ordinances, general plans, and other management policies.

11. Staff should continue to provide local, state, and federal agencies, landowners, and the public guidance and recommendations on compliance with the Basin Plan, and specifically the intrastate water quality objective for temperature.

12. Staff should continue to participate in the development of the stream and wetland system protection policy to ensure that policy and the policy direction provided herein are consistent and support each other.

13. Staff should develop a guidance document to assist the public, landowners, organizations, the Regional Water Board staff, and other agencies with the prevention of elevated water temperatures and preservation of existing cold water resources. The Executive Officer shall periodically update this document to incorporate future research, data, and technologies.

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14. Where appropriate, staff should propose monitoring requirements for incorporation into permits, programs, and other orders in order to confirm management actions required to prevent or reduce elevated temperatures are implemented and effective.

15. Staff should develop and implement a region-wide water temperature trend monitoring program to assist the Regional Water Board in determining whether this Temperature Policy is effectively reducing and preventing elevated temperatures over the long-term.

Certification

I, Catherine Kuhlman, Executive Officer do hereby certify that the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, North Coast Region, on MONTH DATE, 2011

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Catherine Kuhlman
Executive Officer

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