Changes Prior to November 8, 2013:

Changes to *Staff Report Supporting the Policy for the Implementation of the Water Quality Objectives for Temperature and Action Plan to Address Temperature Impairment in the Mattole River Watershed, Action Plan to Address Temperature Impairment in the Navarro River Watershed, and Action Plan to Address Temperature Impairment in the Eel River Watershed; Public Review Draft ,August 30,2013*

Pg 4, last sentence of section 2.1: replace "reduce" with "increase".

Pg. 24, first paragraph: delete last sentence.

Pg. 26, second to last sentence: replace "tress" with "trees".

Pg.27, following Figure 4.2, insert the following paragraph:

> "Many timber companies have adopted additional standard management practices that they implement as a matter of practice, and that are considered during the timber harvest plan review process. For example, the Green Diamond Resource Company has developed an aquatic habitat conservation plan (AHCP) that defines operation rules and management practices that address habitat concerns related to sensitive and threatened aquatic species, including rules and practices to address habitat needs of temperature-sensitive species that in some cases go beyond the levels of protection afforded by the Forest Practice Rules, and are consistent with this Policy. The Regional Water Board relies on the implementation of the AHCP's water quality protection practices as a part of the timber regulatory program."

Pg. 29, first sentence of section 4.6: delete "other types."

Pg. 33, last paragraph, insert before sentence beginning with "Shade loss caused by…":

> "A study of changes in primary productivity and fish biomass associated with increased exposure to solar radiation documented an instance where temperatures increased by 1.5 ^{o}C over a 100 meter reach due to canopy removal (Wilzbach et al. 2005). "

Pg. 34, insert the following after the second paragraph that begins with "Shade":

> A review of the scientific literature prepared for the California Board of Forestry and Fire Protection (Board of Forestry) supports the principles regarding riparian shade and water temperature that this Policy incorporates (Sound Watershed Consulting 2008). For instance, the opening sentences of the report's section titled "Inferences for Forest Management" states:

"The literature on riparian heat exchange tells us that shade from riparian timber stands is a key factor controlling heat input to streams. Therefore, maintaining riparian vegetation to block direct solar radiation (i.e., shade) is the intent of forest practice prescriptions for protecting stream temperature during the summer. However, water temperature is a function of a host of physical factors that control heat transfer between air, water, and the streambed. Consequently, the relative importance of riparian vegetation to influence stream temperature varies by location (geographic province) and by site specific conditions (stream width, depth, flow, groundwater inflow, streambed substrate composition, valley orientation, topographic shading and watershed position). This spatial variability indicates that a simple fixed-width buffer or canopy closure prescription (e.g., minimum 50% canopy cover as required in CA) will probably not achieve management goals in all cases." (Sound Watershed Consulting 2008, page 29).

The report goes on to discuss the potential of watershed scale analyses to identify stream reaches most sensitive to temperature changes, and combining rankings of temperature sensitivity with assessments of site-specific conditions to identify specific shade requirements to protect individual reaches from temperature increases, buffering class II streams to prevent temperature increases in class I receiving waters, and the need to consider the temperature needs of salmonids. The section of the report ends with the following:

"Finally, riparian stand effectiveness for shading is a function of the forest canopy density, height, and species composition, which is related to stand type and age. Because stand type and age may vary by geographic province and disturbance history the buffer width that is adequate for shading will vary as well. This fact undermines the one-size-fits-all (i.e., fixed width) prescription that is commonly applied in forest management. Research shows that effective shading can be provided by buffer widths ranging from 10 m to 30 m (30 to 100 ft) depending on stand type, age, and location. However, quantitative relationships between buffer width and shade for typical forest types and stand age classes in California are not reported in the literature. Potential quantitative relationships between stand density and shade or basal area and shade are lacking. Consequently a riparian stand metric that may function as a reliable surrogate for shade has not been
developed." (Sound Watershed Consulting 2008, page 31)

The Sound Watershed Consulting literature review supports the principles that management of shade is paramount for control of elevated water temperatures, that a fixed-width buffer or canopy closure prescription is not likely to achieve management goals in all cases, and that site-specific considerations need to be made on a case-by-case basis.

A similar summary of current understandings of thermal processes in forested environments was prepared by a technical advisory committee for consideration by the Board of Forestry (CBOF-TAC 2007). This summary relied on a published review of forest management effects on water temperature and microclimate by R.D. Moore, D.L. Spittlehouse, and A. Story (Moore et al. 2005). The conclusions of the review and summary are also consistent with the principles of this Policy."

Changes to *Policy for the Implementation Of The Water Quality Objectives For Temperature*

Pg. 4-1.00, second paragraph, make the following changes:

"The water quality objectives for temperature shall be implemented through a combination of riparian management and other temperature controls as appropriate in nonpoint source control programs; ~~individual and general permitting~~ permits and waivers, grants and loans, and enforcement actions; support of restoration projects; and coordination with other agencies with jurisdiction over controllable factors that influence water temperature.[1] Controllable water quality factors affecting water temperature include, but are not limited to, any anthropogenic activity which results in the removal of riparian vegetation that provides shade to a waterbody, sediment discharges, impoundments~~,~~ and other ~~engineered~~ channel alterations, the reduction of instream summer flows, and the reduction of cold water sources."

Pg. 4-1.00, last paragraph, make the following changes:

"~~Staff~~ The Regional Water Board shall take the following actions to achieve temperature objectives and implement temperature TMDLs, including EPA-established TMDLs:

1. Restore and maintain site potential effective shade conditions through nonpoint source control programs; ~~individual and general~~ permits and waivers, grants and loans, and enforcement actions; support of restoration projects; and coordination with other agencies with jurisdiction over controllable factors that influence water temperature, as appropriate."

Pg 4-2.00, bullet point 3, make the following changes:

"Examine and address temperature impacts when developing permits or programs for nonpoint source activities. Consider and implement, where applicable, all available measures to prevent and control the elevation of water temperatures in permit or program development. Such measures shall include, but are not limited to, sediment Best Management Practices

[1] Section 13247 of the Porter-Cologne Water Quality Control Act requires other state offices, departments, and boards to carry out their activities in a manner that complies with water quality control plans approved or adopted by the state board.

and cleanups, memoranda of understanding or agreement with other agencies, prohibitions against waste discharges, management of riparian areas to retain shade, and control and mitigation of tailwater and impoundments. Where appropriate, include monitoring requirements for incorporation into permits, programs, and other orders to confirm management actions required to prevent or reduce elevated temperatures are implemented and effective."

Pg 4-2.00, bullet point 7, make the following changes:

"Continue to coordinate with the Division of Water Rights by participating in the water right application and petition process, providing monitoring recommendations, conducting joint compliance inspections, submittal ~~submittal~~ submitting~~of~~ data in support of 401 certifications related to water diversions and/or facilities regulated by the Federal Energy Regulatory Commission, and any other appropriate means to help ensure that the terms of water right permits and licenses are consistent with the water quality objectives for temperature.

Pg 4-2.00, bullet point 9, make the following changes:

"Provide cities, counties, ~~and~~ state, and federal agencies guidance and recommendations on compliance with the water quality objectives for temperature. 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."

Changes to *Action Plans to Address Elevated Water Temperatures in the Mattole, Navarro, and Eel River Watersheds:*

Pg 4-1.00, first paragraph, make the following changes:

"The USEPA has established Total Maximum Daily Loads (TMDL) for elevated temperature in the Upper Main Eel, Middle Main Eel, Lower Main Eel, South Fork Eel, North Fork Eel, and Middle Fork Eel River Watersheds . All of those temperature TMDLs have assigned temperature load allocations corresponding to solar radiation loads that occur when the riparian vegetation is at full potential growth conditions, with allowances for the effects of natural factors that act to reduce those potential growth conditions. The goal of this Action Plan is to establish actions that achieve those TMDL load allocations. The following actions constitute the program of implementation to achieve the Eel River Watershed Temperature TMDLs and are consistent with the *Policy ~~to~~ for the Implementation of the Water Quality Objectives for Temperature*."

Pg. 4-2.00, Action by the Regional Water Board for All Activities in USFS Lands, make the following change:

"Implement Order No. 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, and any future revisions, ~~the~~(USFS Waiver of WDRs) as a mechanism for compliance with the water quality objectives for temperature."

Pg. 4-2.00, Action by the USFS for All Activities on Lands Managed by the USFS, make the following changes:

"Conduct land management activities in compliance with the USFS ~~w~~Waiver of WDRs and in accordance with project-level recommendations.

Timeline
As required in the USFS ~~w~~Waiver of WDRs."

Pg. 4-3.00, Action by the Regional Water Board for Road Construction and Associated Maintenance on County Lands, make the following changes:

Implement ~~the~~ Order No. R1-2013-0004, *Waiver of Waste Discharge Requirements and General Water Quality Certification for County Road Management and Activities Conducted ~~under~~ Under the Five Counties Salmonid Conservation Program In the Counties of Del Norte, Humboldt, Mendocino, Siskiyou, and Trinity in The North Coast Region* (5C Waiver of WDRs), and any future revisions.

Action
In the event that a county does not show intent to implement the 5C ~~Program~~Waiver of WDRs, develop WDRs or a conditional waiver of WDRs for that county."

Pg. 4-3.00, Action by the Humboldt, Mendocino, and Trinity Counties for Road Construction and Associated Maintenance on County Lands, make the following changes:

Action
Conduct road construction and maintenance in compliance with the 5C Waiver of WDRs.

Timeline
Pursuant to the 5C Waiver of WDRs ~~Program~~timelines.

Pg. 4-3.00, Action by the Regional Water Board for Dairy Operations, make the following changes:

"Action

Implement temperature allocations through the Water Quality Compliance Program for Dairies & Concentrated Animal Feeding Operations (Dairy Program), and any future revisions."

Pg. 4-4.00, Action by the Regional Water Board for the Waste Discharge Requirement Program, make the following changes:

"Incorporate measures to meet the temperature allocations and water quality objectives for temperature in ~~individual~~ Waste Discharge Requirements and Waivers thereof."

Pg. 4-4.00, first Action by the Regional Water Board and State Water Resources Control Board, Division of Water Rights, on Water Use, make the following changes:

"Action

Work with other agencies and non-governmental organizations to support off-stream storage projects for water diverters currently diverting directly from streams during summer. Work with other agencies and non-governmental organizations to streamline the permitting process for conversion of on-stream to off-stream storage."

Pg. 4-4.00, third Action by the Regional Water Board and State Water Resources Control Board, Division of Water Rights, on Water Use, make the following changes:

Action

Pursue instream flow studies, including the following actions:

- Work with other agencies and non-governmental organizations to support instream flow studies to~~;~~: (1) quantify flows necessary for beneficial use support, (2) quantify flow impacts to assist outreach and education efforts, or (3) identify opportunities to increase summer low flows.