

Final Staff Report
for the
2018
Triennial Review
of the
WATER QUALITY CONTROL PLAN
for the
NORTH COAST REGION

September 2018



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GLOSSARY OF TERMS

This resource offers a general understanding of the many terms and abbreviations used by the North Coast Regional Water Quality Control Board (Regional Water Board). The definitions herein do not constitute the Regional Water Boards' official use of terms and phrases for regulatory purposes, and nothing in these documents should be construed to alter or supplant the meaning of any other Regional Water Board document.

Acre-foot - The amount of water needed to cover one acre of land one foot deep (equal to 325,851 gallons). An acre foot can support the annual indoor and outdoor needs of one to two urban households.

Anti-degradation Clause - Part of federal and state water quality standard requiring a balancing of the public's interest before allowing water quality to be degraded. The State's Water Board policy on anti-degradation is often referred to as 68-16, after the resolution that first adopted it.

Basin Plan - The plan for the protection of water quality prepared by the Regional Water Quality Control Board in response to the Porter-Cologne Water Quality Control Act. The Basin Plan for the North Coast Region is also known as the Water Quality Control Plan for the North Coast Region and contains Water Quality Standards for the federal Clean Water Act.

Beneficial Uses - "Beneficial uses" of the waters of the state that may be protected against water quality degradation include, but are not necessarily limited to, domestic, municipal, agricultural, and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

Best Management Practices (BMPs) - The practice or combination of practices that are determined to be the most effective, practicable means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals (including technological, economic, and institutional considerations).

California Environmental Protection Agency (Cal/EPA) - The umbrella agency responsible for protecting environmental quality throughout the state. Cal/EPA acts at the agency level for the five state boards, departments and office within it. These are the Department of Toxic Substances Control, Department of Pesticide Regulation, Office of Environmental Health Hazard Assessment, Air Resources Board, and the California Water Boards.

California Environmental Quality Act (CEQA) - The established state policy of environmental protection. CEQA requires the review, identification, and mitigation of potential adverse effects of proposed projects on the environment.

California Water Code (CWC) - Compilation of state statutes related to water resources. California Water Code, Division 7 is known as Porter-Cologne Water Quality Control Act.

California Water Plan - The plan is required by California Water Code Section 10004. It contains information about the coordinated control, protection, development, and utilization of water in California, and provides a framework for water managers, legislators, and the public to consider options and make decisions regarding California's water future. The Department of Water Resources updates the plan every five years.

Calwater Classification System - A set of standardized watershed boundaries for California nested into larger previously standardized watersheds, which meet standardized delineation criteria. The system was developed by a state and federal interagency committee in 1997. The number follows the format:

Hydrologic Region + Basin/ HU + HA + HAS. See Hydrologic Unit (HU), Hydrologic Area (HA), and Hydrologic Subarea (HSA).

Clean Water Act (CWA) - Also known as the Federal Water Pollution Control Act. Federal legislation enacted in 1972 to restore and maintain the chemical, physical and biological integrity of the surface waters of the United States. The stated goals of the CWA are that all waters be fishable and swimmable.

Code of Federal Regulations (CFR) - Compilation of federal statutes. The Clean Water Act and many other water program statutes are contained in Title 40, Protection of Environment (40 CFR).

Department of Water Resources (DWR) – The DWR built and maintains the California State Water Project (SWP) and developed and updates the California Water Plan (Bulletin 160 series). The DWR, in cooperation with other agencies, manage the water resources of California.

Discharger - Any person who proposes to discharge or discharges waste that could affect the quality of California waters. The term includes any person who owns, or is responsible for the operation of, a waste management unit.

Environmental Impact Report (EIR) - A document required by the California Environmental Quality Act (CEQA) that assesses the environmental effects of a project proposed to be approved or carried out by a state or local agency.

Environmental Protection Agency (U.S. EPA) - Federal regulatory agency responsible for protecting environmental quality throughout the nation. It acts in an oversight role to state environmental agencies that carry out federal laws.

Hydrologic Area (HA) - Major subdivisions of hydrologic units. Best described as major tributaries of a river, large valley groundwater basin, or a component of a stream or desert basin group.

Hydrologic Subarea (HSA) - Consist of a major segment of a hydrologic area having significant geographical characteristics of hydrological homogeneity.

Hydrologic Unit (HU) - Each hydrologic region is divided into hydrologic units, which are defined by surface drainage as well as topographic and geographic conditions. A hydrologic unit may encompass a major river watershed or a major groundwater basin, contiguous watersheds with similar hydrogeologic characteristics, or a closed drainage area, such as a desert basin or group of such basins.

Impaired Waters - A waterbody that has been determined under state and federal law as not meeting water quality standards. Impaired waters are included on 303(d) List of Water Quality Limited Segments, also known as the List of Impaired Waters.

Implementation Monitoring - Monitoring used to assess whether activities and control practices were carried out as planned.

Mitigation - Steps taken that will eliminate, avoid, rectify, compensate for or reduce adverse environmental impacts.

Municipal Discharge - Discharge of effluent from treatment plants that receive wastewater from households, commercial establishments, and industries.

Narrative Objectives - Non-numeric, qualitative guidelines that describe a desired water quality goal.

National Pollutant Discharge Elimination System (NPDES) - A provision of the Clean Water Act that prohibits discharge of pollutants into waters of the United States unless a permit is issued that complies with the Clean Water Act. The State and Regional Boards issue Waste Discharge Requirements (WDR) that serve as NPDES permits in California.

Natural Background Levels - Chemical, physical, and biological levels representing conditions that would result from natural processes, such as weathering and dissolution.

Negative Declaration - A statement that must be prepared when a project is not exempt from CEQA and will not have a significant adverse effect upon the environment. The negative declaration is an informational document that describes the reasons why the project will not have a significant effect and proposes measures to completely mitigate or avoid any possible effects.

Nonpoint Sources - Refers to pollutants from diffuse sources that reach water through means other than a discernable, confined, and discrete conveyance.

Point Sources - This refers to pollutants discharged to water through any discernable, confined, and discrete conveyance, such as a pipe.

Porter-Cologne Water Quality Control Act (Porter-Cologne Act) - Also known as California Water Code, Division 7. Anti-pollution legislation enacted by the California Legislature in 1970. It provides a framework for the regulation of waste discharges to both surface and ground waters of the state. It further provides for the adoption of water quality control plans and the implementation of these plans by adopting waste discharge requirements for individual dischargers or classes of dischargers.

Public Notice - A notice which describes the activity for which approval is being sought or the action that is being proposed. It identifies the person, business, or local government seeking approval of a specific course of action, and the statutory authority involved. Additionally, it usually states the location and time where the proposed activity or action will be considered and how public comments may be submitted.

Regional Water Quality Control Boards (Regional Boards) - The nine Regional Boards located throughout California that are responsible for enforcing water quality standards within their regional boundaries.

State Water Resources Control Board (State Water Board) - The state agency responsible for protecting water quality in California under the Porter-Cologne Act. The State Water Board protects water quality by setting statewide policy, coordinating and supporting the Regional Boards' efforts, and reviewing petitions that contest Regional Board actions. The State Water Board is solely responsible for allocating surface water rights.

Statewide Plan - A water quality control plan adopted by the State Water Resources Control Board in accordance with the provisions of Water Code § 13240 through 13244, for waters where water quality standards are required by the Federal Water Pollution Control Act. Such plans supersede regional water quality control plans for the same waters to the extent of a conflict. California Water Code § 13170

Total Maximum Daily Load (TMDL) - The term TMDL is used in two ways. 1) It is the total maximum daily load of a pollutant that a waterbody can handle and still achieve acceptable water quality (this is also known as the loading capacity). If the TMDL is exceeded and the water quality is insufficient to support beneficial uses, then that waterbody is listed on the 303(d) List of Impaired Waterbodies. Listing triggers the establishment of a schedule for developing a control plan to address the impairment. 2) A TMDL is a control plan that is intended to identify, quantify, and control the sources of pollution within a given waterbody, such that water quality objectives are achieved and the beneficial uses of water are fully protected.

Triennial Review Process - A process with its origins in the Clean Water Act of reviewing the efficacy and currency of the provisions in Basin Plans and statewide plans on a three year cycle, and updating as appropriate.

Underground Storage Tank (UST) - A tank located at least partially underground and designed to hold gasoline or other petroleum products or chemicals.

Waste Discharge Requirements (WDR) - The order adopted by the regional boards that regulates discharges of waste to surface water and discharges of waste to land. WDRs are often synonymous with "permits."

Water Quality Certification - State certification required by Section 401 of the federal Clean Water Act that a federally permitted activity meets state water quality standards.

303 (d) List - Also known as the List of Impaired Waterbodies. Section 303(d) of the federal Clean Water Act and 40 CFR §130.7 require states to identify waterbodies that do not meet water quality standards and are not supporting their beneficial uses.

Section 13243 – The section of the Porter-Cologne Water Quality Control Act that authorizes the Regional Water Board, in a water quality control plan or in waste discharge requirements, to specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted.

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1.0 INTRODUCTION

The 2018 triennial review of the *Water Quality Control Plan for the North Coast Region* (Basin Plan) was initiated in late 2017 and will conclude in a hearing before the North Coast Regional Water Quality Control Board (Regional Water Board). During the hearing, the Regional Water Board will decide whether or not to adopt a proposed Planning Program Workplan, which identifies priority planning projects and the staff resources estimated to complete them. The proposed Planning Program Workplan covers the period of Fiscal Year (FY) 2018-19 (beginning July 1, 2018) through FY 2020-21 (ending June 30, 2021). The proposed Planning Program Workplan is a refinement to past triennial reviews, in which the Regional Water Board approved a prioritized list of planning projects, but staff resources were not estimated.

This report documents the 2018 triennial review of the Basin Plan, and describes the basis for staff's recommendations to the Board with respect to the proposed Planning Program Workplans (Section 5.0). A description of each of the potential Basin Plan Amendment projects is provided in Section 2 (2014 high priority projects), Section 3 (2014 medium and low priority projects), and Section 4 (2018 new proposed projects). This report, including staff's draft recommendations, ~~will be was~~ circulated for public review in a 45-day comment period, during which a public workshop ~~will was~~ also ~~be~~ offered.

Staff's ~~will~~ response ~~ed~~ to comments ~~in a document is attached to be distributed with~~ the 2018 Triennial Review of the Basin Plan and Proposed Planning Program Workplan ~~released prior to a duly noticed hearing during a regularly scheduled Regional Water Board meeting~~. The Regional Water Board will adopt a resolution and a Planning Program Workplan, after considering the recommendations of staff and public input, and in accordance with its own deliberations and vote. As a general matter, high ranking Basin Plan Amendment projects not yet completed from the previous triennial review list remain high ranking, unless otherwise indicated. Due to the fact that the majority of the high priority projects identified in the 2014 Triennial Review are still underway and staff resources are committed to complete those projects, staff is only proposing to make minor modifications to the priority list of projects for 2018.

1.1 The Water Quality Control Plan (Basin Plan)

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains the regulations adopted by the North Coast Regional Water Quality Control Board (Regional Water Board) to control the discharge of waste and other factors¹ affecting the quality of waters of the state² within the boundaries of the North Coast Region. It is amended from time to time to incorporate new beneficial uses, water quality objectives, and programs of implementation including monitoring programs and to conduct substantive and non-substantive revisions of existing

¹ As described in the State Water Board's Policy for the Implementation and Enforcement of the Nonpoint Source Pollution Control Program, 2004 (Nonpoint Source Policy), factors that affect water quality include not only waste discharges, but also saline intrusion, reduction of waste assimilative capacity caused by reduction in water quantity, hydrogeologic modifications, watershed management projects, and land use.

² CWC § 13050(e) defines "Waters of the state" to mean any surface water or groundwater, including saline waters, within the boundaries of the state.

language. The Regional Water Board approves a prioritized list of basin plan amendment projects through its triennial review of the Basin Plan, generally every three years.

1.2 Triennial Review Process

Section 13240 of the Porter-Cologne Water Quality Control Act and Section 303 (c)(1) of the federal Clean Water Act require a review of basin plans t once each three-year period to keep pace with changes in regulation, new technologies, policies, and physical changes within the region.

The Regional Water Board is responsible for reviewing the Basin Plan, and is required to: 1) identify those portions of the Basin Plan which are in need of modification or new additions; 2) adopt standards as appropriate; and 3) recognize those portions of the Basin Plan which are appropriate as written. The Regional Water Board solicits written and oral public input which it considers prior to adopting by resolution a prioritized list of basin planning projects. The highest priority projects are included on the short list which establishes the workplan of the Regional Water Board's Planning Unit for the next three-year period.

In 2015, the U.S. Environmental Protection Agency updated 40 CFR 131.20(s) to require in a regional board's triennial review an explanation for any new or revised criteria promulgated by U.S. EPA under Section 304(a) of the Clean Water Act that the state does not incorporate into its basin plan. Section 4.2 identifies those constituents for which the U.S. EPA has promulgated new or revised criteria under Section 304(a) of the Clean Water Act. Section 4.2 also provides staff's proposed recommendations.

1.3 Planning Program Workplan

The Planning Unit includes both TMDL staff and Basin Planning staff. TMDL staff are experts in the Total Maximum Daily Load (TMDL) program, including watershed assessment, pollutant source control, and watershed restoration. There are two dedicated TMDL staff in the Planning Unit, for a total of 2 PYs. The Watershed Stewardship Coordinator consults on the development of TMDL Action Plans, which incorporate the principles of watershed stewardship and adaptive management. Contract assistance is often necessary to support more complex technical analyses.

Basin Planning staff are experts in water quality standards, scientific analysis, policy development and regulation. There are three dedicated Planning staff in the Planning Unit, for a total of 2.7 PYs. Also, the agency's Specialists are available to lead planning projects relevant to their specialized area of expertise, for example groundwater protection or flow assessment. Contract assistance is sometimes necessary to support more complex technical analyses.

Up until 2016, the Planning Unit had two Scientific Aids, who were available to assist the Planning Unit with tasks such as monitoring, data analysis, report development, etc. Since early 2017, the Planning Unit has been without any Scientific Aids, though funds have been identified to hire 1 Scientific Aid in 2018. Scientific Aids are restricted to a total of 1600 hours per year, for a total of 0.75 PYs.

TMDL projects are identified, assessed and ranked separately from non-TMDL projects, with staff assignments made in accordance with individual duty statements and expertise. It is not uncommon for the project lead on one project to also serve as a consultant or assistant on other projects. Similarly, it is not uncommon for project teams to include staff from other programs in the office (e.g., Timber staff or NPDES permit staff).

The proposed ranking of projects identified during the triennial review is based on best professional judgement, but includes consideration of several factors. Those factors are:

- Relevance to human health protection
- Relevance to threatened and endangered species protection
- Importance to the implementation of other Regional Water Board programs
- Stated priorities of the Regional Water Board, State Water Resources Control Board, or the U.S. Environmental Protection Agency
- Requests of stakeholders, including tribal governments, cities and counties, other state or federal agencies, non-governmental organizations, and individuals
- Availability of necessary expertise, funding, and other resources

For the purpose of the triennial review exercise, TMDL projects are ranked as the number 1 priority. Individual TMDL projects receive a sub-ranking of a, b, c, etc. Non-TMDL projects are ranked beginning with the rank of 2, followed by 3, 4, 5, etc. A workplan for the Planning Program is developed by assessing the amount of time each highly ranked project is estimated to take and the staff resources available during the next triennial period (FY 2018-19 through 2020-21). Some projects that are included on the workplan may not begin until other higher ranked projects are completed and staff become available. The workplan is developed with as much care as possible. But, projects are sometimes delayed due to unforeseen circumstances such as: loss or illness of staff, diversion of staff to other office priorities, lack of funds for needed contract assistance, stakeholder concerns, or legal issues, as examples.

2.0 STATUS OF 2014 TRIENNIAL REVIEW HIGH PRIORITY PROJECTS AND RECOMMENDATIONS FOR 2018 TRIENNIAL REVIEW

A triennial review of the Basin Plan was last conducted in FY 2014-15, resulting in the Regional Water Board's adoption of Resolution No. R1-2015-0012 on March 12, 2015. The Resolution included as an attachment, the *2014 Triennial Review of the Water Quality Control Plan for the North Coast Region Proposed Basin Planning Project Priorities*. A status update for the 2014 list of high priority projects can be found below. These are the projects to which there have been Planning staff assigned for at least a portion of the triennial review period between FY 2014-15 and FY 2017-18. With few exceptions, these projects are proposed to remain on the 2018 Planning Program Workplan until completed.

2.1 TMDL Projects

The 2014 Triennial Review identified 3 TMDL projects as high priority projects. At the time of the 2014 triennial review adoption, staff in the Planning Unit were also working on the Upper Elk River Sediment TMDL. This project was omitted from the 2014 triennial review, because it was intended to be implemented through a single watershed waste discharge requirement (WWDR), rather than an amendment to the basin plan. However, the proposed approach to implementing the Upper Elk River Sediment TMDL was altered during the FY 2014-15 to 2017-18 period, such that a basin plan amendment was ultimately sought and adopted by action of the Regional Water Board in May of 2016, the State Water Board in August 2017, and the Office of Administrative Law in March 2018. This explanation is necessary to alert readers to the diversion of Planning staff from other high priority projects on the 2014 triennial review list of priorities to completion and adoption of the Upper Elk River Sediment TMDL Action Plan, a difficult and controversial project that required an unusual amount of staff resources.

Also in the FY 2014-15 to 2017-18 period, the U.S. EPA announced its new nationwide vision for the TMDL program. EPA's Vision is a response to many years of TMDL development, which in numerous places across the country has resulted in technical TMDLs, with no accompanying implementation. In California, the *Porter-Cologne Water Quality Control Act* (Porter Cologne) not only provides authority to the waterboards to implement TMDLs; but, it also requires implementation of adopted water quality objectives. It is under this authority that TMDL Action Plans are developed and implemented and amended into the Basin Plan as regulation.

U.S.EPA's TMDL Vision requires that states' identify Vision Projects, which apply to a given geographic area and can be completed by 2022. Similarly, U.S. EPA's Vision allows for alternatives to the standard TMDL as the mechanism to address water quality impairments. Such an alternative is sometimes referred to in U.S. EPA literature as a TMDL Alternative or an Alternative Restoration Plan. A TMDL Alternative or Alternative Restoration Plan is an alternative to a standard TMDL in which the implementation measures presumed necessary to restore an impaired waterbody are identified, scientifically supported, and codified for implementation. But, a wasteload allocation, load allocation, and TMDL equation are not strictly required. Porter-Cologne provides authority to the waterboards to include geographically-based Action Plans in the Basin Plan. Under Porter-Cologne, Action Plans need not be preceded by a TMDL; but, can be developed based on any robust science that supports a set of actions as likely to lead to the

achievement of water quality standards. A TMDL Alternative does not replace the Regional Water Board's obligation to complete a TMDL to address a 303(d) listing. But, if an Alternative Restoration Plan shows water quality improvement, with an anticipated achievement of objectives, then the 303(d) listing can be resolved by this means.

The TMDL projects identified in the 2014 triennial review of the Basin Plan include:

- Priority 1a** Russian River Pathogen TMDL Action Plan³
- Priority 1b** Laguna de Santa Rosa Nutrient, Dissolved Oxygen, Temperature and Sediment TMDL Action Plan
- Priority 1c** Ocean Beaches and Freshwater Streams Pathogen TMDL Action Plan

The Laguna de Santa Rosa Nutrient, Dissolved Oxygen, Temperature and Sediment TMDL is identified as the North Coast Region's Vision Project.

2.1.1 Russian River Pathogen TMDL Action Plan

Reaches of the Russian River watershed are listed on the Clean Water Act 303(d) list of impaired waters due to the presence of fecal indicator bacteria (FIB). High concentrations of FIBs may indicate the presence of pathogenic organisms that are found in warm blooded animal waste, including human waste. Pathogens pose a potential health risk to people who recreate in contaminated waters. Water quality monitoring conducted as part of the development of a pathogen TMDL for the Russian River watershed confirmed the presence of FIB in locations throughout the watershed.

Development of a Russian River Pathogen TMDL ranked high on the 2011 triennial review list and again on the 2014 triennial review list of priority projects. The Regional Water Board directed staff to pursue the development of a pathogen TMDL for the Russian River on the basis that human health protection is a high priority of the Board. The Russian River watershed also was implicated in the Onsite Waste Treatment System (OWTS) Policy adopted by the State Water Board in June 2012. The OWTS Policy allowed an exemption for the Russian River from the requirements of State's OWTS Policy until the development of the Pathogen TMDL. In its place, the Regional Water Board has implemented the regional OWTS Policy that otherwise applied to all of the North Coast Region up until the adoption of the statewide policy.

A draft Action Plan for the Russian River Pathogen TMDL was released for public review in August 2017, with comments due in October 2017. A hearing was scheduled for December 2017, but was postponed as a result of the October 2017 fires in Mendocino and Sonoma counties. The hearing will be rescheduled following clarity on the State Water Resources Control Board's adoption schedule for a new statewide bacteria objective, anticipated in 2018. The draft TMDL Action Plan relies on new, innovative analytical protocols by which specific animal sources (e.g., human, dog, bovine, etc.) of pathogenic contamination are distinguished through genetic markers. Implementation of the TMDL Action Plan will reduce risk of illness to users of the Russian River by reducing sources of pathogenic contamination and meeting recommended recreational criteria

³ When appropriate, a proposed TMDL adoption is sometimes accompanied by a proposed water quality standard action, as well. This is the case when through development of the TMDL project, staff determine that water quality objectives also need updating or beneficial uses designated. Similarly, TMDLs sometimes rely on statewide water quality standards, where those supersede standards contained in the basin plan. When the State Water Board is in the process of updating statewide standards, the schedule and outcome of a TMDL project can be affected.

established by USEPA and proposed for adoption by planning staff at the State Water Resources Control Board (State Water Board).

The staffing needs to complete this project are minimal and are strictly related to the TMDL approval process, including Regional Water Board adoption hearing, State Water Board approval hearing, Office of Administrative Law (OAL) approval, and EPA approval. Staff are currently completing a response to comments document and revisions to the staff report and action plan to address public comments. This work will be finalized and set aside until a hearing date can be identified.

Status: Near completion

Recommendation: Retain on the 2018 Planning Program Workplan, until such time as the TMDL is adopted

Staffing: Apply 0.1 PY to support the TMDL adoption and approval process in FY 2018-19, only

Hearing Date Projection: Within FY 2018-19, pending the State Water Board's adoption of statewide bacteria objectives.

2.1.2 Laguna de Santa Rosa Nutrient, Dissolved Oxygen, Temperature and Sediment TMDL Action Plan

The Laguna de Santa Rosa is a subwatershed of the larger Russian River watershed. It is listed on the Clean Water Act 303(d) list of impaired waterbodies due to water quality impairments associated with nutrients, low dissolved oxygen, elevated temperature and excess sediment. Development of a Laguna de Santa Rosa TMDL Action Plan ranked high in the 2011 triennial review and again in the 2014 triennial review of the Basin Plan.

Over the past several years, staff have been working on two distinct tracts in the Laguna de Santa Rosa: 1) technical TMDL development and 2) advance implementation of source control, restoration, and adaptive management initiatives, where opportunities for such have arisen. The latter has consisted of a number of successful efforts by staff to develop partnerships with watershed stakeholders and to secure grant and contract funding from a variety of sources. As a result, many important collaborative initiatives are now underway in the Laguna de Santa Rosa, including but not limited to: the development of a regional monitoring program, the development of historical ecology data and a master restoration plan, and the development of a water quality trading framework for nutrients – one of California's first. On the technical TMDL development tract, staff's early monitoring and modeling work has most recently been supplemented by contract support. To date, the USEPA has provided two phases of expert contract support, yielding sediment and nutrient budgets. A pending request for additional contract support represents the third and final phase of work that must be done to complete the technical elements of the Laguna de Santa Rosa TMDLs.

As stated above, the North Coast Region has identified the Laguna de Santa Rosa project as its EPA Vision Project, with a commitment to finish it by 2022. Further, it is anticipated that the third and final phase of technical work described above may best be codified in an Alternative Restoration Plan, rather than a standard TMDL. An Alternative Restoration Plan would identify a number of implementation actions, which are predicted to return the Laguna de Santa Rosa system to a trajectory of recovery. An Alternative Restoration Plan for the Laguna de Santa Rosa

likely would include the array of source control, restoration, and adaptive management initiatives described above, at a minimum. It may also include waste load allocations for nutrients, sediment or a surrogate parameter, should a waste load allocation be found necessary to support point source permitting needs and/or a water quality credit trading program as a compliance option, which can fund restoration projects.

Finally, the Sonoma County wildfires in October 2017 affected numerous locations throughout the Russian River watershed and elsewhere. But, much of the damage was focused in the Laguna de Santa Rosa watershed. It is as yet unknown what long-term consequences for water quality there may be from the wildfires. But, it is anticipated that the loss of cover may result in elevated peak flows, large scale erosion, and debris flows. Further, any toxics that enter the fluvial system as a result of runoff from the burned over developed landscape, may accumulate in downstream sediments.

Status: Underway

Recommendation: Retain in the 2018 Planning Program Workplan

Staffing: Apply 1.0 PY as Project Lead, 0.15 PY for technical support, and 0.10 PY to support development of adaptive management initiatives for each year until adoption.

Hearing Date Projection: December 2021 (next triennial review period).

2.1.3 Ocean Beaches & Freshwater Streams Bacteria TMDL (Coastal Pathogen Project)

The Coastal Pathogen Project was newly adopted as a high priority TMDL project during the 2014 triennial review of the Basin Plan. Since being identified as a high priority, staff has been collecting dry and wet season ambient water quality data from listed ocean beaches and freshwater streams over two calendar years. These datasets are now complete and staff have begun statistical analysis. Staff also has collected dry and wet season samples over the same two years at reference streams and reference beaches. The reference streams study assesses bacteria concentrations in minimally disturbed waterbodies across a range of freshwater streams. The reference beach study is in collaboration with the San Francisco Bay and Central Coast Regional Water Quality Control Boards. These reference data will help inform the analysis of impairment status and compliance with the natural background requirements of the Region's bacteria objective.

Simultaneously, fecal waste sources have been evaluated, by collecting water quality data at locations immediately downstream from suspected fecal waste source landuse categories, including: dairies, developed rural areas (e.g., onsite wastewater treatment systems), developed urban areas (e.g., sewers), and wildlife areas. These data will help inform the range of control measures that will be necessary address pathogen contamination in the various impaired freshwater streams and ocean beaches.

The Ocean Beaches and Freshwater Streams Bacteria project will result in a pollutant control strategy designed to control fecal waste contamination and reduce the risk of illness to recreational use in watersheds now impaired. A pollutant control strategy may take the form of a TMDL Action Plan, other Action Plan, or policy proposed for adoption into the Basin Plan. It may be an alternative TMDL and rely on mechanisms other than a Basin Plan Amendment to accomplish fecal waste discharge control. For example, the proposed control strategy may rely

on Local Area Management Plans (LAMPs), depending on their status at the time this project concludes. In any event, implementation of a pollutant control strategy will require close collaboration with local planning, permitting, and public health agencies to ensure the repair and installation of appropriate waste treatment and control measures.

Status: Underway

Recommendation: Retain on the 2018 Planning Program Workplan

Staffing: Apply 0.75 PY for a Project Lead for each year until adoption.

Hearing Date Projection: December 2020

2.2 Non-TMDL Projects

The 2014 Triennial Review identified 6 non-TMDL projects as high priority projects. As described above, staff in the Planning Unit were also working on the Upper Elk River Sediment TMDL at the time of the 2014 triennial review of the Basin Plan. This project was omitted from the 2014 triennial review, because it was anticipated to be implemented through a watershed waste discharge requirement (WWDR), rather than an amendment to the basin plan. However, the proposed approach to implementing the Upper Elk River Sediment TMDL was altered during the FY 2014-15 to 2017-18 period, such that a basin plan amendment was ultimately sought and adopted. As stated above, Planning staff were diverted to completion of the Upper Elk River Sediment TMDL and the adoption process, which required multiple workshops and hearings of both the Regional and State waterboards in 2016 and 2017.

The non-TMDL projects identified in the 2014 triennial review of the Basin Plan include:

- Priority 2** *Water Quality Objective Update Amendment* to update chemical constituent objectives, add a groundwater toxicity objective, update DO objectives for free-flowing streams, update the surface water toxicity objective, and to provide editorial corrections and clarifications to Chapters 3 and 6.
- Priority 3** *Develop criteria for exemption from seasonal discharge prohibition on point source waste discharge to Eel River* to consider potential benefits of summer flow augmentation from the discharge of highly treated wastewater and to evaluate the potential applicability to the Mad and Russian rivers, as appropriate.
- Priority 4** *Designate Outstanding National Resource Waters (ONRWs)* with an initial focus on the Smith River.
- Priority 5** *Develop a Groundwater Protection Policy* to identify ways to promote groundwater recharge; develop a programmatic approach to managing salts and nutrients in groundwater, as per the Statewide Recycled Water Policy; update Table 2-1 to include beneficial uses for individual groundwater basins, where appropriate; and provide editorial corrections and clarifications to Chapter 4.
- Priority 6** *Develop instream flow criteria/objectives for the Navarro River.* Also, evaluate other rivers as candidates for future flow criteria development, as warranted and consider the development of a regional narrative flow objective and corresponding implementation methodology.

Priority 7 *Develop a policy to address the effects of climate change on water quality*

2.2.1 Update Water Quality Objectives

The *Water Quality Objective Update Amendment* to the Basin Plan was adopted by the Regional Water Board in July 2015 and became effective upon OAL approval in July 2016. It included a number of actions relative to updating water quality objectives for both surface waters and groundwaters in the North Coast Region.

The goals of the WQO Update Amendment were to:

- 1) Make clear and transparent the process that staff uses when translating narrative water quality objectives into numeric values protective of beneficial uses, particularly with respect to chemical constituents; and
- 2) Amend the Basin Plan’s water quality objectives to support the protection of human health and aquatic ecosystems. To accomplish these goals the adopted amendment ensures that:
 - The objectives for chemical constituents for surface water and groundwater were updated to reflect current scientific understanding and to more clearly apply to the protection of all beneficial uses;
 - A toxicity objective for groundwater was created, using the toxicity objective for surface water as a model for the explicit protection of human health;
 - The DO objectives were revised to: a) better protect sensitive aquatic organisms from depressed DO; b) better ensure that the natural pattern and range of DO variation is maintained in those waterbodies unable to meet the aquatic life-based objectives due to natural conditions; and c) reduce the possibility that natural variation in DO is erroneously identified as DO impairment leading to improper 303(d) listings; and
 - Language was added to Section 3 to clarify how numeric values can be identified to implement narrative water quality objectives in accordance with the specific circumstances of a project and the specific controlling statute and regulations.

Status: This amendment was approved by Office of Administrative Law (OAL) and U.S. EPA in 2016 and is in effect.

Recommendation: Remove from the 2018 Planning Program Workplan as completed.

Staffing: Not applicable.

Hearing Date Projection: Not applicable.

2.2.2 Develop Eel River Seasonal Discharge Prohibition Exemption

The Basin Plan includes a point source discharge prohibition, which applies to all surface waters in the North Coast Region, except the Mad, Eel and Russian rivers to which point source discharges during winter months is allowed under certain circumstances. The City of Fortuna requested that the Regional Water Board consider developing criteria to allow an exemption from the seasonal discharge prohibition on point source waste discharge to the Eel River, which still applies. The City’s request was to develop a mechanism to allow for discharge of treated wastewater to the Eel during all months of the year. The Regional Water Board included the suggested basin

planning project on the 2014 triennial review, with direction that flow augmentation benefits resulting from discharge may be reason to allow summer discharges, assuming wastewater treatment otherwise eliminates the risk of pollution. This was a new triennial review project in 2014.

This project was ranked as priority number 4 on the 2014 triennial review list. It considers the growing appreciation for the relationship between water quality and water quantity by evaluating the potential benefits to beneficial uses that could be derived from flow augmentation during the low flow season, especially as a response to the ecological pressures associated with climate change. It also considers the improvements in wastewater treatment technology and effluent quality, as compared to that of the 1970s when the prohibition was first designed.

Embedded in the project is a risk analysis, by which the benefits of flow augmentation are weighed against the potential risks associated with effluent discharge. So, while the project promotes a healthy watershed, it is not without compromise. But, exemption criteria can provide a very effective way of evaluating the risks and benefits, and considering the interests of multiple stakeholders, including resources agencies, city service entities, regulatory agencies, and the public.

Staff were assigned to the project during the 2014-2017 triennial review period. In that time, staff conducted some of its own background research and worked with the City of Fortuna and its consultants to develop the project. Staff compared wastewater discharge rates from all of the wastewater treatment plant discharges in the Eel River to determine the potential for flow augmentation during critical low flow summer months. Calculations indicate that even if all the wastewater treatment plants in the basin were allowed to discharge during the summer, the flow augmentation benefit would be negligible; in fact, there would be no discernable change in riffle crest height as a result.

Nonetheless, staff pursued the project to explore what other environmental benefits might be derived from an exemption from the seasonal discharge prohibition. The City of Fortuna currently discharges to a percolation pond in the gravels beside the Eel River, from which there is evidence that an existing discharge to the Eel River via subsurface migration already occurs. Staff worked with the City and its consultants to develop a conceptual model of the existing conditions and a monitoring plan by which to assess the existing discharge flow pathways. A dye study was developed and implemented, based on the conceptual model. This effort was to affirmatively establish the flow pathways to support the development of a thoughtful ambient water quality monitoring plan. Through carefully directed ambient water quality monitoring, staff hoped to determine the extent to which the existing subsurface summer discharge to the Eel is associated with impacts to water quality conditions and beneficial uses with a further analysis of the degree to which improved wastewater treatment and other related projects might benefit the environment.

The City is pursuing multiple mechanisms for managing the risk associated with potential violation of its NPDES permit. It has been slow to pursue with planning staff the activities associated with development of an exemption, presumably in lieu of other potential compliance options. The dye study was conducted on November 2, 2017 and Planning staff continue to await a report of the results.

Status: Staff have been redirected to other priority work, while awaiting response from the City.

Recommendation: The point source discharge prohibition contained in the Basin Plan is the cornerstone of water quality protection in the North Coast Region. Given the lack of flow augmentation benefit to be derived from the proposed project and the City's waning interest in the work, staff recommend that this project be put on hold for the 2018-2021 triennial review period and be removed from the 2018 Planning Program Workplan.

Staffing: Staff recommend that this project no longer be staffed.

Hearing Date Projection: Staff recommend that no hearing be planned.

2.2.3 Designate Outstanding Natural Resource Waters with an initial focus on the Smith River

An Outstanding National Resource Water (ONRW) is a designation under the Clean Water Act, which restricts the degradation of high quality waters or waters of exceptional recreational or ecological value. The two ONRWs in California include Mono Lake and Lake Tahoe, both in the Lahontan Region. As part of an effort to think ahead to the potential water quality impacts associated with climate change, one potentially important tool to protect high quality waters and promote ecosystem resilience will be the designation of ONRWs. A heightened protected status may improve our ability to restore and protect ecologically or recreationally exceptional waterbodies.

In 2007, the Environmental Law Foundation and several environmental organizations formally requested, in the form of a petition, that a number of Regional Water Boards designate several river segments as ONRWs. The request for ONRW designation included those river segments currently designated as "Wild and Scenic" under California's Wild and Scenic River Act (Public Resources Code § 5093.50 - .70). In a letter, dated May 8, 2007, State Water Board staff on behalf of the petitioned regions stated that these requests will be evaluated individually during the region's triennial review process. Stakeholders again requested the designation of ONRWs in the North Coast Region during the 2014 triennial review process, specifically highlighting the Smith River as an example of a potential ONRW candidate. A large proportion of the Smith River watershed already benefits from federal and state protected status under several other laws and regulations (e.g., Wild and Scenic River, Wilderness Area), which could be complemented with ONRW status, too.

During the 2014-2017 triennial review period, an ONRW team was assembled, with an initial focus on the Smith River. At the time, the USFS in Oregon and the Oregon Department of Environmental Quality (ODEQ) was assessing a proposal to permit a mining operation in the North Fork Smith River in Oregon. The Regional Water Board's interest in designating the Smith River as an ONRW in California was made all the more potent by the possibility that such a designation could better assure that any potential mining operation in Oregon would not degrade California waters.

The Regional Water Board's ONRW team included planning staff and an attorney from the State Board's Office of Chief Counsel (OCC). Because the two ONRWs that currently exist in California were designated as a result of legal action, the team had first to determine what basin planning elements were necessary to support the designation. The conclusion was drawn that Chapter 3 (Water Quality Objectives) of the Basin Plan must be updated to define ONRWs as a concept and associate the term with the limitations under the antidegradation provision of the Clean Water

Act. Similarly, individual ONRW designations can be made and the requirements spelled out in revisions to Chapter 4 (Implementation Plans).

Stakeholder outreach efforts in Del Norte County regarding the potential designation of the Smith River as an ONRW, however, were met with considerable resistance. The Del Norte County Board of Supervisors and other local stakeholders recommended that an objective method for identifying ONRW candidates should be developed, prior to selecting the first designation. Staff restructured the project into a 2-phase project, wherein Chapter 3 revisions would be made as Phase 1, followed by specific designations made as Phase 2 in a revision to Chapter 4. A landscape risk-assessment tool, to be developed to support the Climate Change Adaptation Strategy, is anticipated to provide the objective basis for identifying ONRW-eligible waters whose designation would improve climate resilience. The Planning Unit lost the lead staff on this project in late 2016 and has been unable to refill the position, due to a lack of funding.

Status: Staff conducted significant desktop research, coordinated an internal working group, and conducted stakeholder outreach during the FY 2014-15 and FY 2015-16. The project has been dormant since the loss of staff in 2016.

Recommendation: Staff recommend that this project be retained in the 2018-2021 Planning Program Workplan. Phase 1 is to revise the antidegradation policy section of Chapter 3 of the Basin Plan to include mention of the term “ONRW” and a description of its purpose. Phase 2 is to add a section to Chapter 4 of the Basin Plan in which to define the designation criteria and implementation requirements for ONRWs. Chapter 4 of the Basin Plan would also establish a list of designated waters.

Staffing: This project should be staffed by a team of two planners. The assigned lead on the Biostimulatory Substances Revision (See Section 3.1.3) should include in the revisions to Chapter 3 of the Basin Plan an update to the antidegradation policy section to introduce the term Outstanding National Resource Waters and establish it as a tool for protecting high quality waters and waters of ecological or recreational significance. A total of 1.4 PYs is estimated as necessary to develop revisions to Chapter 3, including changes to both the antidegradation section and the biostimulatory substances objective. The assigned lead on the Climate Change Adaptation Strategy (See Section 2.2.6) should include in development of landscape-scale geospatial assessment tools, a tool for objectively identifying locations in the Region where the designation of ONRWs could protect ecological significant waters and/or waters important as refuges or for ecological resilience. A total of 1.0 PYs is estimated as necessary to develop a landscape scale geospatial tool to assess both climate impacts and ONRW eligibility. Following the completion of this tool, planning staff should propose appropriate ONRW designations, including consideration of the Smith River and other waterbodies in the Klamath and Trinity basins and other coastal waters, and initiate the public review and adoption process. A total of 0.7 PYs is estimated to conduct the outreach and public review process and bring a proposed amendment to a hearing before the Regional Water Board.

Hearing Date Projection: In accordance with the Biostimulatory Substances Revision (See Section 3.1.3), Phase 1 of the project (revision of Chapter 3) is anticipated to be ready to go to hearing in 2020. In accordance with the Climate Change Adaptation Strategy (See Section 2.2.6), an objective tool for identifying ONRW-eligible waters is anticipated to be completed in 2020. Adoption of Phase 2 of the project (revision of Chapter 4) is anticipated in Fiscal Year 2021-2022.

2.2.4 Develop a Groundwater Protection Strategy

This project began on the Triennial review in 2007 as a comprehensive and ambitious Basin Plan amendment that included revisions to Chapter 3 (water quality objectives) and Chapter 4 (Implementation Plans). Due to the large scope of work, the project was split into two phases: Phase I was the update of water quality objectives (WQO Update Amendment, # 3, above) and Phase II the development of a groundwater protection policy. Phase I was completed with the adoption of Resolution No. R1-2015-0018 in June 2015. During the adoption of the 2014 Triennial Review of the Basin Plan in March 2015, the Board identified Phase II as priority No. 5 on the 2014 Triennial Review Basin Planning Project Priorities.

Following the development of the North Coast Regional Strategic Priority Teams, the Groundwater Team expanded its vision beyond the basin plan amendment project as described in the 2014 Triennial Review to include other regulatory and non-regulatory elements. To capture these other regulatory and non-regulatory elements, the project has evolved into the North Coast Groundwater Protection Strategy.

The goal of the Groundwater Protection Strategy is to organize with strategic purpose all existing Regional Water Board tools⁴ and developing statewide tools⁵ for the protection of groundwater quality on a basin wide scale to protect ecosystem function, and the human right to clean water now and under future changed climatic conditions. The strategy includes the following five components:

1. Groundwater Protection Programs
2. Groundwater Ambient Monitoring and Assessment (GAMA) Program
3. Statewide Policies and Regional Planning
4. Data Driven Adaptive Management
5. Partnering

Status: As part of the Statewide Policies and Regional Planning component and Phase II of the Basin Plan Amendment project, development of a Groundwater Protection Strategy Action Plan is underway. This task is intended to address potential impacts to the beneficial uses of receiving waters (groundwater) from the discharge of waste by identifying management measures and monitoring program requirements to ensure that all land disposal projects are designed to protect applicable water quality standards (i.e. beneficial uses and water quality objectives). The significant parts of the Basin Plan Amendment include:

- a) Designation of new beneficial uses for groundwater: FRESH, GWR, WILD & RARE;
- b) Action Plan for Discharges of Waste to Land:
 - i. Outline the Designated Level Methodology for discharges of waste;

⁴ Existing regulatory and non-regulatory tools include development or revision of water quality standards, policies, and prohibitions (basin plan amendment); monitoring and assessment; issuance of waste discharge requirements; and enforcement actions.

²Local and statewide activities of importance include: DWR's groundwater management planning; the Sustainable Groundwater Management Act; SWRCB's salt and nutrient management planning under the Recycled Water Policy; groundwater-surface interaction assessments; and statewide efforts to update groundwater monitoring protocols, data assessment and presentation tools.

- ii. A programmatic approach to Salts and Nutrients throughout the 58 groundwater basins in the North Coast in accordance with recommendations from the State Water Board GAMA Program.
- c) Development of a policy to promote groundwater recharge.

Recommendation: Staff recommend that this project be retained in the 2018-2021 Planning Program Workplan. ~~The initial recommendation was to~~In addition, include in the 2018 Triennial Review adopting resolution policy statements on the topics of groundwater protection and chemicals of emerging concern to provide staff guidance in advance of a basin plan amendment. This is now a follow up action.

Staffing: Apply a total of 1.75 PYs for a project lead is estimated as necessary to complete the project.

Hearing Date Projection: The project is predicted to be completed by ~~December 2019, with a hearing to be scheduled prior to~~ the end of the 2019-20 fiscal year.

2.2.5 Develop Instream Flow Criteria

Develop instream flow criteria/objectives for the Navarro River, and evaluate other rivers as candidates for future flow criteria development, as warranted. Consider the development of a regional narrative flow objective and corresponding implementation methodology.

As it relates to the Navarro River, this project consists of three phases:

Phase I:

The Regional Water Board has funded a contractor (R2 Resource Consultants, Inc.) to create work plans for development of instream flow criteria in the Navarro River Watershed. The workplans will define a comprehensive approach to implementing an analytical assessment of in-stream flow needs in the Navarro River watershed. The deliverables include various study plans for individual components of an overall analysis to be used to develop flow criteria.

The study plans will describe procedures and protocols for all field data collection, surveying, mapping, and modeling necessary for implementation, as well as cost estimates for each of the workplan elements.

Phase II:

Following on development of the plans produced in Phase I, staff will seek contract funding to implement the plans. Phase II will result in development of flow criteria, as described in the study plans developed in Phase I. Phase II is likely going to be delayed until 2021 due to the limited capacity of the State Water Board to develop contracts submitted by the Regional Water Boards.

Phase III

Once flow criteria are developed for the Navarro River, a basin plan amendment process will follow to incorporate water quality objectives for flow into the Basin Plan, with an accompanying implementation plan.

With respect to evaluating other rivers as candidates for flow objectives, staff have established a Flow Workgroup, which is developing multiple tools for assessing flow related impacts in the region and determining the highest priorities. The Karuk Tribe has suggested that the Regional Water Board develop flow objectives for the Scott River. With respect to the development of narrative flow objectives, the Flow Workgroup is also evaluating multiple techniques for describing adequate flow conditions to protect cold freshwater habitat and meet other water quality objectives. Projects that the Flow Group is tracking include work required by the California Action Plan to conduct flow studies in the Shasta River, South Fork Eel River, and Mark West Creek. Recommendations from the Flow Workgroup are not yet forthcoming. But, their recommendations will be described in future updates to the Board regarding the progress on planning projects and allow for reconsideration of planning priorities, as appropriate.

Status: Underway.

Recommendation: Staff recommend retaining this project in the 2018-2021 Planning Program Workplan. The initial recommendation was to~~in addition,~~ include in the 2018 Triennial Review adopting resolution policy statements regarding water conservation so as to provide staff guidance prior to a basin plan amendment. This is now a follow up action.

Staffing: Leadership of this project is estimated to require 1.4 PYs through the triennial period. The project also requires an additional 0.3 PYs of technical support during the triennial period, to review and comment on contractor deliverables.

Projected Hearing Date: The project is not expected to be complete until 2024, in the next triennial review period.

2.2.6 Develop A Climate Change Adaptation Policy

The North Coast Region constitutes about 12% of the state's geographic area including approximately 340 miles of scenic coastline. Historically, it has also accounted for about 41% of its annual runoff. The North Coast Region straddles the Southern Oregon/Northern California and Central California ecologically significant units for coho salmon. It also has two major bays: Humboldt Bay and Bodega Bay, both of which support significant development, including roads, treatment facilities, structures, homes, and industry. Dairy farming and other agricultural pursuits are common in the region's low-lying estuaries. And, many of the region's watersheds are groundwater-fed during summer months, requiring adequate wet weather infiltration. The incidences of toxic algae blooms in the North Coast have increased notably over the last several years, as well as water shortages during the dry season.

The 2014 Triennial Review planning priorities adopted by the Regional Water Board included as a high priority, the development of a Climate Change Adaptation Policy. Staff was hired with experience in climate change modeling to begin the development of a landscape scale geospatial tool to assess the potential water quality impacts arising as a result of various climate change scenarios, including: impacts due to sea level rise, more intense winter storm events punctuated with longer periods of drought, alterations in the pH of ocean and bay waters, alteration in floral and faunal species composition and extent, etc. This geospatial tool is intended to link with various climate change scenarios to allow assessment of the water quality issues of most concern and the locations in the region most vulnerable, so as to prioritize efforts accordingly. Basin

Planning efforts that could result from this evaluation include the development of: seasonal beneficial uses and objectives, natural conditions clause, policy for the protection of groundwater recharge areas, policy for the sustainable management of floodplain and riparian function, designation of Outstanding National Resource Waters, and others.

Status: Staff with climate change modeling experience was hired in 2015 to begin development of a geospatial tool; but, was diverted to help complete the Upper Elk River Sediment TMDL, which required more staff resources than anticipated. As such, development of a landscape scale tool has yet to be initiated. Also in 2015, an introductory workshop on climate change was held before the Regional Water Board. Planning staff have conducted initial outreach with Regional Water Board program staff to identify key issues of concern. A subcommittee of the statewide Basin Planning Roundtable has been formed to provide feedback on regional planning efforts with respect to climate change. Planning staff have provided technical input on projects evaluating drought, flow habitat needs, and flow-water quality needs. Finally, planning staff have compiled a significant library of resources relating to climate science, water quality issues, and existing analytical tools.

The State Water Board adopted a climate change resolution in 2016, which describes the activities State Water Board staff will take to assess, prepare and mitigate for climate change impacts. It also provides recommendations to the regional water boards for activities its staff should undertake.

Staff Recommendations: Staff recommend retaining this project in the 2018-2021 Planning Program ~~Workplan~~Workplan but reconsider the project as a Climate Change Adaptation Strategy, rather than a Climate Change Adaptation Policy. The development of a Climate Change Adaptation Strategy may or may not result in an amendment to the Basin Plan. It may simply build a series of tools and guidance materials to better support staff in its effort to address the issue of climate change and climate resilience in outreach, permits, and enforcement. Further development of the project through outreach and scoping will allow staff to better identify the project outcome.

~~The initial recommendation was to include in~~In addition, staff recommend that the 2018 Triennial Review adopting resolution ~~include~~ policy statements that reflect the recommendations made by the State Water Board to the regional water boards on climate change. Similarly, staff recommended that the adopting resolution ~~should~~ make policy statements on the related topics of water conservation, groundwater protection, and chemicals of emerging concern. The development of policy statements is now a follow up action.

Staffing: Apply 0.5 PY per year over two years to the development of a landscape scale geospatial tool to assess current and future conditions in the North Coast Region, water quality issues of highest priority, and locations in the region of greatest vulnerability and/or potential resilience. Following completion of the landscape scale assessment tool development, staff will assess climate change and adaptation scenarios and based on the results propose next steps for the Board's consideration.

Projected Hearing Date: The development of an analytical tool is estimated to be completed in 2020. Thereafter, next steps will be proposed to the Regional Water Board, including the potential amendment of the basin plan to include a Climate Change Adaptation Policy. A schedule to accomplish the recommended next steps will be developed at that time.

3.0 STATUS OF 2014 TRIENNIAL REVIEW MEDIUM AND LOW PRIORITY PROJECTS AND RECOMMENDATIONS FOR 2018 TRIENNIAL REVIEW

3.1 Medium Priority Projects

The medium priority projects are a collection of projects, which though important, rank lower than the projects identified above. Given the limited staff resources, there is no immediate ability to initiate these projects, except for the Biostimulatory Substances Objective project once all of the high priority projects are completed. Please see (Section XXXX-3.1.3) and Update Beneficial Uses project (Section 3.2.1) and XXXX for descriptions of projects, which staff recommend should be elevated as a high priorities for FY 2018-2021 initiated once staff have completed any of the projects above.

3.1.1 Develop a Mixing Zone Policy for Human Health-based Constituents

A mixing zone is a specified zone within the influence of a point source discharge where effluent is allowed to mix with receiving water prior to being monitored for compliance with effluent limitations. For a mixing zone to be allowed as a compliance tool in a discharge permit, the Basin Plan must contain a mixing zone policy which describes the limitations and parameters of its application. The Basin Plan does not currently contain such a policy. The State Implementation Plan for the California Toxics Rule (CTR); however, allows a mixing zone for constituents identified in CTR.

Over the years, several Publicly Owned Treatment Works (POTWs) have requested through the triennial review process that the Regional Water Board develop and adopt a mixing zone policy. In support of this request, the City of Santa Rosa hired Merritt Smith Consulting to evaluate the feasibility and appropriate conditions of a mixing zone policy for the North Coast Region. In January 2011, Merritt Smith Consulting submitted a report of their findings, which is found on the Regional Water Board website entitled *Evaluation of a Mixing Zone Policy for Health-Related Constituents* containing the following elements:

- A description of the existing regulations and policies
- Basin Plan Amendment Alternatives
- Environmental Analysis
- References
- Appendices

The City of Santa Rosa later determined that it did not need a mixing zone to be able to comply with effluent limitations and so staff were reassigned to other projects. In 2007, and again as part of the 2014 triennial review of the Basin Plan, the City of Ukiah requested the development of a mixing zone policy to support its calculated need for a mixing zone so as to be able to comply with effluent limits, in the absence of improved treatment. The City of Ukiah has specifically requested a policy which applies to the pollutant limits established to protect human-health (e.g. nitrates, chlorine break-down products, etc.). Ukiah completed an expensive (multimillion dollar) treatment plant upgrade project in the early 2000's and constructed the project through 2009. Unfortunately, the need to address nutrients was not on the radar, so the upgrade project did not address the need for nutrient removal. Ukiah uses trickling filters for biological treatment, and these filters are not amenable to modification to achieve consistent nitrification and cannot

achieve denitrification (conversion of nitrate to nitrogen gas to remove it from the waste stream). Since 2014, Permitting staff have concluded that the City of Ukiah can achieve compliance with its nutrient limits via other mechanisms. However, permitting staff also conclude that there are other facilities with compliance issues that could be addressed using a mixing zone approach. Permitting staff recommend this project be retained on the 2018 Triennial Review as a medium priority, with the potential to remove it in the next triennial review.

Status: This project was identified as medium priority project during the 2011 and 2014 triennial reviews; therefore, no staff resources were assigned.

Recommendation: Retain on the 2018 triennial review list as a medium priority. There is no immediate need to establish a mixing zone policy.

3.1.2 Develop a Stream and Wetland System Protection Policy

In 2005, Regional Water Board staff began working on the Stream and Wetlands System Protection Policy (SWSP) after USEPA awarded grant funding to both the North Coast and the San Francisco Bay Regional Water Quality Control Boards to develop a comprehensive SWSP as a Basin Plan amendment for consideration separately by the two Boards. However, due to loss of resources (loss of planning staff) and higher priorities (adoption of the Klamath TMDL) no work on this project has been undertaken by staff from the North Coast Region since 2008. Staff from the San Francisco Bay Regional Water Board continued as the lead on development of the joint work product through 2011.

A draft basin plan amendment and staff report have been developed and reviewed by scientific peer reviewers. Responses to peer review comments were made, as were revisions to the draft policy and staff report. The resulting proposed SWSP policy, drafted in 2011, includes the following components:

- Three wetland beneficial uses (similar to the wetland beneficial uses adopted by the North Coast Board in 2003).
- Three new objectives designed to protect stream and wetland beneficial uses, including objectives to protect:
 - Stream process and dynamic equilibrium;
 - Stream and wetland system habitat integrity; and
 - Watershed hydrology. (The watershed hydrology objective was included, in part, by staff to address the issues contained in Task 10 regarding instream flows).
- An implementation program based on achieving water quality objectives to protect and restore the physical integrity and associated functionality of stream and wetland systems, including perennial, intermittent, and ephemeral streams and wetlands and their associated riparian areas.

During the 2014 triennial review, a number of other wetland-related planning projects were combined together with the Stream and Wetland Protection Policy, including: DO objectives for wetlands, pH objectives for wetlands, and designation of the 3 wetland beneficial uses (e.g., WET, WQE, and FLD) and identified as a medium priority.

In 2007, the State Water Resources Control Board (State Water Board) initiated development of a statewide Wetland and Riparian Area Protection Policy to address issues of clarity in the existing regulatory framework, statewide consistency in the definition of wetlands and riparian areas, and beneficial uses for wetland and riparian area functions. Over an intervening 10-year period involving outreach, technical studies, interagency coordination, and public input, the State Water Board developed *proposed State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (Procedures), for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The proposed Procedures consist of four major elements: 1) a wetland definition; 2) a framework for determining if a feature that meets the wetland delineation is a water of the state; 3) wetland delineation Procedures; and 4) procedures for application submittal, and the review and approval of Water Quality Certifications and Waste Discharge Requirements for dredged or fill activities. The draft Procedures were released on July 21, 2017 for a public comment and review period, which ended on September 18, 2017. The State Water Board received 6,150 comments on the July 2017 draft, with a majority of those comments made in form letters. A revised draft is expected later in 2018. Additional phases of this project remain unfinished.

Status: This project was identified as a medium priority during the 2011 and 2014 triennial reviews. There have been no staff assigned to the project during this time. However, the Regional Water Board has recognized the importance of riparian protection in other actions of the Board, including adoption of the Temperature Implementation Policy and the cannabis order, as examples.

It should be noted that Basin Plan already contains the 3 wetland beneficial uses proposed in the draft Stream and Wetland Protection Policy developed by Region 2. As such, this element of the project is already accomplished. Similarly, during the 2014 Triennial Review adoption hearing, public testimony on the Instream Flow Criteria development project (See Section 2.2.5) convinced the Regional Board to include consideration of a narrative flow objective (i.e., watershed hydrology objective) as part of that project. The Instream Flow Criteria development project was ranked as the Regional Board's number 6 priority in 2014 and is recommended to remain on the Planning Program Workplan for 2018-2021.

Recommendation: To complete the Stream and Wetland Protection Policy as originally conceived, staff would have to finalize the stream process and dynamic equilibrium objective, the stream and wetland system habitat integrity objective, and implementation program to ready it for public review, public workshop and adoption hearing. To complete the other wetland-related planning projects (e.g., DO, pH, designations) would require considerable planning resources. Staff recommend that this project be retained on the 2018 triennial review list of medium priorities. Further, staff recommend that the proposed objectives and program of implementation be considered in the context of the climate change project as one of the potential recommended outcomes of the landscape scale geospatial analysis. (See Section 2.2.6).

3.1.3 Review Biostimulatory Substances Objective

Section 3.4.2 of the Basin Plan currently contains the following narrative objective for biostimulatory substances: "Water shall not contain substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses." Nuisance aquatic growth includes excessive algae growth generally and harmful algal

blooms that produce toxins, such as microcystin. Current scientific understanding indicates that there are complex linkages amongst many controllable factors that promote nuisance aquatic growth. These factors include biostimulatory substances such as nitrogen and phosphorus; but, they also include physical habitat, light availability, hydromodification, temperature, and other conditions. This proposed triennial review project would evaluate the implications of amending the existing biostimulatory substances objective in the Basin Plan to redefine it as a biostimulatory conditions objective. This change will better support the effort of program staff to require relevant control of controllable factors associated with biostimulatory conditions, especially harmful algal blooms. The increase in incidences of toxic algae blooms, especially during drought years, highlights the need for additional tools to address this growing issue.

The State Water Resources Control Board (State Water Board) has been working for several years on the development of a statewide biostimulatory substances amendment, as well as a biological integrity assessment implementation plan. As of 2017, these efforts have been combined, with the goal of amending the Water Quality Control Plan for the Inland Surface Waters, Enclosed Bays and Estuaries of California (ISWEBE Plan) in three phases. The Biostimulatory Substances Amendment could include a statewide numeric objective (with a numeric translator), and various regulatory control options for point and non-point sources. The completion date for the statewide project is unknown.

Status: Staff resources were applied to this issue as part of the Klamath TMDL development process leading up to TMDL adoption in 2010. Since that time, staff resources have been applied to collaboration with the State Water Board in development of nutrient objectives, specifically the CA Nutrient Numeric Endpoint objective. No staff resources have been applied specifically to revision of the biostimulatory substances objective for Region 1 during the 2014 triennial review period.

Recommendation: Update from medium priority to high priority on the 2018 Triennial Review list. Evaluate the implications of amending the existing biostimulatory substances objective contained in the Chapter 3 of the Basin Plan to be revised as a biostimulatory conditions objective, instead. In accordance with Section 2.2.3 above, also propose revisions to Chapter 3 of the Basin Plan to incorporate the term “Outstanding National Resource Waters” and define its meaning, consistent with the Clean Water Act.

Staffing: Redirect staff from the Eel River Seasonal Discharge Prohibition Exemption project. Apply 0.70 PY per year for two years to develop proposed revisions to Chapter 3 of the Basin Plan (e.g., biostimulatory conditions objective and ONRW definition) and initiate the public review and adoption process. Apply 0.30 PYs per year to further assessing incidences of toxic algae blooms, coordinating with partners to protect public health, and promoting water conservation to reduce the potential for blooms that are otherwise associated with summer low flows.

Projected Hearing Date: A hearing is anticipated in 2020.

3.1.4 Update the Humboldt Bay Action Plan to Include Consideration of Dioxin and PCB Listings and Sediment Listings in Tributaries

Humboldt Bay is the largest protected water on the west coast between San Francisco Bay and Coos Bay, Oregon. It provides numerous and diverse beneficial uses including: navigation, subsistence and recreational shellfish harvesting; aquaculture; commercial and sport fishing;

contact and non-contact water recreation; cold freshwater habitat; wildlife habitat; rare, threatened, and endangered species; migration and spawning habitat; Native American culture; and estuarine habitat. Humboldt Bay is listed as impaired under Section 303(d) of the Clean Water Act for dioxin and PCBs. Tributaries to the bay are listed as impaired for sediment (i.e., Jacoby Creek, Elk River, and Freshwater Creek) and indicator bacteria (i.e., Jolly Giant Creek, Gannon Slough, and Elk River).

The Action Plan for Humboldt Bay was last updated in 1994. It particularly highlights concerns related to bacterial contamination, primarily resulting from pastures and rangelands, and requiring shellfish harvest closures upon any storm producing rainfall in excess of ½ inch in 24 hours. The action plan is general in nature and indicates the agency's intention to:

1. Conduct discharger surveillance and monitoring;
2. Review and assess land use activities, by:
 - a. Reviewing and monitoring agricultural impacts,
 - b. Scrutinizing forestry activities to avoid individual and cumulative impacts,
 - c. Implementing NPDES regulations to control urban runoff,
 - d. Requiring cleanup of contaminated soils, runoff, and groundwater from urban sites,
 - e. Utilizing cleanup and abatement practices to clean up contaminated groundwater from past spills and leaks, particularly those with discharges to the bay, and
 - f. Assisting small business owners in preventing discharges of polluting chemicals; and
3. Continue coordination with other state and local agencies with various responsibilities with regards to Humboldt Bay.

Similarly, Elk River, Freshwater Creek and Jacoby Creek are listed as impaired due to excess sediment and sedimentation. A TMDL for Elk River was adopted by the Regional Water Board in 2016. No staff have been assigned to work on TMDLs for either Freshwater Creek or Jacoby Creek during the 2014-2017 Triennial Review period. However, a sediment and hydrodynamic model has been developed for the Elk River to assist in sediment remediation and restoration planning. A sea level rise model has been developed to predict the impacts of sea level rise in Humboldt Bay. Also, discretionary contract funding for phase 1 of a 3-phase project has been approved for fiscal year 2018-19, which in phase 2 would connect climate change assessment in the Elk River to sea level rise assessment in Humboldt Bay and in phase 3 would expand assessment to Freshwater and Jacoby Creeks to support implementation recommendations.

The Humboldt Bay Action Plan, similar to a TMDL Action Plan, allows for the development of a broad array of coordinated implementation measures or actions by which, in collaboration with others, to address a variety of controllable factors, including waste discharge. Its update could precipitate the expansion of the agency's larger efforts in watershed stewardship to more formally develop partnerships and identify opportunities to more efficiently use the authorities and funds of multiple stakeholders to address common concerns in a coordinated manner. As an example, the Ocean Protection Council has contributed funds to the cities of Arcata and Eureka, and has proposed funding to Humboldt County, to assess vulnerability of infrastructure to sea level rise and to update the county plan to address such issues.

Status: Staff resources were not applied to this project during the 2011-2017 triennial review periods. Up through 2010, Regional Water Board staff were involved in the Humboldt Bay Dioxin Workgroup. With the loss of staff to retirement in that year, the Regional Water Board's involvement in the effort came to an end. Dredging needs have combined with interest in levy repair and wetland restoration recently precipitating a discussion about the suitability of bay sediment for restoration work, an issue which is being addressed in the Enforcement, Grants, and Solid Waste Unit. But, as a general matter, there have been no staff resources applied to the dioxin toxic equivalents and PCB issue in Humboldt Bay during the 2011-2017 triennial review periods. Similarly, there have been no staff resources applied to assessing either Freshwater or Jacoby creeks. It is worth noting that the Sediment TMDL Implementation Policy nonetheless directs staff to use existing tools to implement the sediment discharge prohibition and ensure compliance with antidegradation requirements.

Recommendation: Retain this project on the 2018 as a medium priority. Implement phase 1 of the discretionary contract project for the Elk River during the 2018-2021 period. Prepare for implementation of phases 2 and 3, if funding is acquired. Upgrade this project, including consideration of climate change adaptation and sediment discharge control in Humboldt Bay tributaries, as a high priority project in the 2021 Triennial Review, should discretionary contract funding be made available to support it.

3.1.5 Develop Freshwater Creek, Jacoby Creek and Lower Elk River Sediment TMDLs

The Lower Elk River, Freshwater Creek and Jacoby Creek are listed as impaired due to sediment and sedimentation. The development of the Lower Elk River and Freshwater Creek sediment TMDLs was included on the 2011 triennial review as high priority projects. The Jacoby Creek sediment TMDL was included in an "other" impaired waters category.

Status: TMDL staff have been focused on completion of the Upper Elk River Sediment TMDL and development of bacteria TMDLs for protection of human health during the 2014-2017 triennial period. Staff resources have been insufficient to address these other watersheds, as well.

Staff Recommendation: Eureka's MS4 permit should incorporate requirements sufficient to address sediment discharges and sedimentation in the Lower Elk River. WDRs for timberland owners in Jacoby Creek and Freshwater Creek should implement the Sediment TMDL Implementation Policy to ensure control of all controllable sediment sources in these impaired waters, until such time as TMDLs or TMDL alternatives can be developed. Retain these projects on the 2018 Triennial Review as a medium priority. As described in Section 3.1.4 above, consider updating the Humboldt Bay Action Plan to include actions that address sediment discharges from its tributaries, if discretionary contract funds are made available to fund phase 2 and 3, as described above.

3.2 Low Priority Projects

3.2.1 Update Beneficial Uses Chapter (Table 2-1)

The designated uses of a water body are an expression of goals for the water, such as supporting aquatic life and human activities, including recreation and use as a public water supply.

Designated uses are those beneficial uses specified in the Basin Plan for each waterbody or segment whether or not they are being attained. Table 2-1 of the Basin Plan identifies the beneficial uses that have been designated for individual hydrologic units, areas, subunits, or drainages in the North Coast Region.

In 1972, the State Water Board adopted a uniform list of beneficial uses to be applied throughout the state. This list was updated in 1996. In 2003, the Regional Water Board adopted definitions for five additional beneficial uses. New definitions included three wetland beneficial uses, recognizing the value of protecting these unique waterbodies: Wetland Habitat (WET); Water Quality Enhancement (WQE); as well as Flood Peak Attenuation/ Flood Water Storage (FLD). In addition, two definitions were created recognizing the traditional and cultural uses of waters within the North Coast Region: the Native American Cultural (CUL) use and the Subsistence Fishing (FISH) use.

Establishment of a beneficial use definition in the Basin Plan does not directly designate any waterbodies with a particular use. Rather, the Regional Water Board must designate specific waterbodies within the region where the use applies. Beneficial use designation occurs through the basin planning process in accordance with Water Code requirements. When adopting the beneficial use definitions in 2003, the Regional Water Board also took action to designate both saline and freshwater wetlands as general drainage features/waterbodies with either existing or potential use for WET, WQE, and FLD, however no wetlands were delineated for waterbody specific designation at that time. Further refinement to designate specific wetland areas for addition to Table 2-1 as well as designate beneficial uses to the specific groundwater basins is still needed. The status and recommendations for tasks associated with wetlands and groundwater protections and designations can be found in this Staff Report under sections 3.1.2 and 2.2.4 respectively.

As part of the 2003 Basin Plan update process, the Regional Water Board designated twenty-eight specific Hydrologic Areas (HAs) and Hydrologic Sub-areas (HSAs) with the North Coast defined CUL beneficial use. These twenty-eight waterbodies represent those for which information was readily available at the time, but by no means represent an exhaustive accounting, of North Coast waters where these beneficial uses apply. Though considerable anecdotal information would indicate widespread subsistence fishing among various North Coast populations, the FISH beneficial use was not designated for any North Coast waters as part of the previous amendment.

Status: Of the nine Regional Water Boards, only the North Coast Regional Water Board's Basin Plan currently contains a beneficial use pertaining to the cultural and traditional rights of indigenous people and a subsistence fishing beneficial use. In response to input from California Native American tribes and representatives of tribal interests regarding the frequent use of water unique to tribal culture, tradition, ceremonies, and lifeways, on February 16, 2016, the State Water Board adopted Resolution No. 2016-0011, which recognized the importance of identifying and describing beneficial uses unique to California Native American tribes, in addition to subsistence fishing by other cultures or individuals. Resolution No. 2016-0011 directed staff to develop proposed beneficial uses pertaining to tribal traditional and cultural use, tribal subsistence fishing use, and subsistence fishing use by other cultures or individuals. Part 2 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California—Tribal And Subsistence Fishing Beneficial Uses and Mercury Provisions (Provisions) were

subsequently adopted by the State Water Board in May 2017, fulfilling direction provided under Resolution No. 2016-0011. These Provisions newly defined three beneficial uses applicable to Tribal Tradition and Culture, Tribal Subsistence Fishing and Subsistence Fishing. The Provisions require that Regional Water Boards use the beneficial uses and abbreviations listed below, to the extent such activities are defined in a water quality control plan after June 28, 2017.

1) Tribal Tradition and Culture (CUL):

Uses of water that support the cultural, spiritual, ceremonial, or traditional rights or LIFEWAYS of CALIFORNIA NATIVE AMERICAN TRIBES, including, but not limited to: navigation, ceremonies, or fishing, gathering, or consumption of natural aquatic resources, including fish, shellfish, vegetation, and materials.

2) Tribal Subsistence Fishing (T-SUB):

Uses of water involving the non-commercial catching or gathering of natural aquatic resources, including fish and shellfish, for consumption by individuals, households, or communities of California Native American Tribes to meet needs for sustenance.

3) Subsistence Fishing (SUB):

Uses of water involving the non-commercial catching or gathering of natural aquatic resources, including fish and shellfish, for consumption by individuals, households, or communities, to meet needs for sustenance.

Under supervision of Basin Planning staff, in 2013 graduate students from the Yale School of Forestry and Environmental Studies conducted a telephone and email research effort to collect information from Northern California tribes, Rancherias, and other entities in an effort to support designation of additional waters in the North Coast Region with CUL and FISH beneficial uses. While the effort produced some additional information, further study is necessary to support region wide application of the statewide definitions for the CUL, T-SUB, and SUB beneficial uses and incorporation of these designations into Table 2-1. Importantly, in order for the State Water Board or the Regional Water Boards to designate the Tribal Tradition and Culture or Tribal Subsistence Fishing beneficial uses in a water quality control plan for a particular waterbody segment and time(s) of year, a California Native American Tribe must confirm the designation is appropriate.

Recommendation: Following completion of other high priority projects and availability of staff, beginning in fiscal year 2019-2020, update Table 2-1 to incorporate North Coast waterbody designations applicable to Statewide Tribal CUL, TSUB, and SUB as a high priority project. This high priority project will be conducted in conjunction with recommendations under section 4.2.2 to replace and update Region 1 Native American Culture (CUL) and Subsistence Fishing (FISH) Beneficial Uses with Statewide Tribal CUL, TSUB, and SUB.

Staffing: Establish a project lead with 0.90 PYs and technical support with 0.50 PYs to solicit information supporting designation of CUL, TSUB, and SUB and conduct the outreach, public review, and adoption process.

Projected Hearing Date: Staff is estimated to be available to begin this project in FY 2019-20. A hearing to consider proposed designations is anticipated for by late 2021.

3.2.2 Develop a Natural Conditions Clause

The natural water quality conditions present in some locations exceed the applicable water quality objectives. For example, the native geology of a watershed may produce ambient water that is naturally high in certain constituents, including trace elements, total dissolved solids (TDS) or nutrients (e.g., phosphorus). As an example, where volcanic geology, such as in the Upper Klamath Basin, results in phosphorus rich waters, the natural diel cycle for dissolved oxygen (DO) may extend outside the range of DO concentrations generally recognized as supportive of cold water fisheries, where nutrient enrichment results in abundant algae growth. Similarly, where sediments are high in aluminum or manganese, ambient water quality may also be elevated with respect to those constituents.

A natural conditions clause simply allows the Regional Water Board to distinguish between receiving water exceedances that are the result of natural conditions versus the discharge of waste or other controllable factor. Such a clause could be useful when assessing ambient water quality data for the purpose of identifying impaired waters under Section 303(d) of the Clean Water Act. Such a clause could also be useful when determining the compliance status of a discharger.

Status: No staff resources were applied to this issue during the 2011-2017 triennial review periods.

Recommendation: Retain on the 2018 triennial review list as a low priority. For the purposes of compliance with receiving water limitations, many of the permits issued by the Regional Water Board require upstream and downstream monitoring. When downstream monitoring indicates a worsening of water quality as compared to upstream conditions, an assessment of the discharger's compliance status may be undertaken. With respect to 303(d) listing, a preliminary investigation into the degree to which elevated pollutant concentrations are attributable to natural conditions is necessary prior to be able to exercise any allowances provided by a natural conditions clause. Highlighting the exceedances on the 303(d) list, may help develop funding to pursue such an investigation.

3.2.3 Revise Ammonia Objective to Incorporate USEPA's Ammonia Criteria.

USEPA has published final national recommended water quality criteria for the protection of aquatic life from the toxic effects of ammonia in freshwater. USEPA's 2013 ammonia criteria reflect new data on sensitive freshwater mussels and snails, incorporate scientific views USEPA received on its draft 2009 criteria, and supersede USEPA's previously recommended 1999 ammonia criteria. In addition to the criteria document, USEPA has also published supporting information to assist states, territories, and authorized tribes considering adoption of the new recommended criteria into their water quality standards.

Permitting staff currently implement USEPA's ammonia criteria through its application of the Basin Plan's toxicity objective and chemical constituents' objectives, including footnote 2 to Table 3-2. Amendment of the Basin Plan to include the updated ammonia criteria is not viewed as critical.

Status: No staff were assigned to this project during the 2014-2017 triennial review period.

Staff Recommendation Combine ammonia with other Clean Water Act Section 304(a) criteria (See Section 4.2.1) and retain on the 2018 Triennial Review as a low priority due to 1) use of the

toxicity objective to establish effluent limits and cleanup requirements consistent with EPA criteria where warranted, 2) reliance on State Water Board to develop objectives consistent with these criteria for specific pollutants, and 3) lack of staff to develop objectives consistent with these criteria for those pollutants the State Board is not addressing.

3.2.4 Develop Numeric Flow Objectives to Address Low Flow Conditions in Impaired Waters

(See Section 2.2.5)

3.2.5 Update DO Objectives for Lakes and Estuaries

The dissolved oxygen objectives for bays in the North Coast Region are site specific daily minimums for Humboldt Bay and Bodega Bay. The daily minimum DO objectives are based on day-time grab samples collected during the 1950s and 1960s and do not represent the true minimum DO concentrations which fluctuate with salinity, temperature, atmospheric pressure. As a response variable, DO also fluctuates as a result of the condition of the water delivered from the upgradient drainage, including nutrient concentrations, temperature, and organic material. It also varies as a result of changes in nutrient and organic matter loading from the estuary itself as a result of natural and anthropogenically altered estuarine habitat.

Status: As part of the development of Site Specific Objectives for the Klamath River in 2010, staff adapted the narrative water quality objective for dissolved oxygen in Newport Bay as a recommendation for the Klamath River estuary. Staff have not been assigned in the 2011 through 2014 triennial review period to assess the DO objectives as they apply in other estuaries in the Region and recommend revised objectives.

Recommendation: While it is clear that the DO objectives for Humboldt Bay and Bodega Bay require updating, Planning staff have no indication that the existing DO objectives are causing difficulty with respect to permitting or implementation of water quality protection programs. As such, given the other Basin planning priorities, staff recommend that revision of the DO objectives for estuaries be retained on the 2018 triennial review list as a low priority.

3.2.6 Develop Water Quality Objectives for Endocrine Disrupters.

Contaminants of emerging concern (CECs) is a broad term that encompasses pharmaceuticals and personal care products (PPCPs), including endocrine-disrupting chemicals (EDCs) that can interfere with the endocrine (or hormone) system in mammals and aquatic species. Additionally, CECs include chemical compounds derived from flame-retardants, plastics, pesticides, and other unregulated chemicals that can adversely affect human health and the environment.

Following the adoption of the Recycled Water Policy in 2009, the State Water Board convened a blue-ribbon panel of scientists (Panel) to provide recommendations on how current knowledge of CECs should influence regulatory activities. The Panel produced a 2010 report titled Monitoring Strategies for Chemicals of Emerging Concern (CECs) in Recycled Water – Recommendations of a Science Advisory Panel, which presented recommendations for monitoring CECs in municipal recycled water used for groundwater recharge. The State Water Board amended the Recycled Water Policy in 2013 to include the 2010 recommended monitoring and reporting program for recycled water projects.

Status: In 2016, the State Water Board adopted Resolution No. 2016-0061 directing staff to revise the Recycled Water Policy and to reconvene the Panel to update their recommended monitoring

strategies and future action related to CECs. The reconvened Panel is charge with review of the conceptual framework developed in the 2010 report and evaluation of the scientific literature published since the Panel met last. Additionally, the State Water Board Division of Water Quality and Office of Information Management and Analysis kicked off the CEC Initiative, a three-phase project intended to develop a statewide CEC management strategy. Among other objectives, the CEC Initiative is designed to enhance coordination between Regional Water Boards and Division of Drinking Water, leverage existing knowledge and data, initiate and advance a framework for a statewide CEC management and monitoring strategy, and culminate in 2020 with a strategy for CEC control (standards, thresholds for interpreting narrative objectives, treatment technologies).

Recommendation: Retain this task on the 2018 triennial review list as a low priority. Adopt a policy statement via the triennial review adopting resolution, which encourages staff to require CEC monitoring of dischargers as appropriate and pursue funding for special CEC studies, as possible.

3.2.7 Revise Scott TMDL Action Plan

See Shasta below (Section 3.2.8).

3.2.8 Revise Shasta TMDL Action Plan

The Scott and Shasta TMDLs were adopted over 8 years ago. Commenters previously expressed concerns about the adequacy of the TMDL Action Plans.

Status: Significant staff resources have been applied to scientific study, stakeholder outreach, land management planning, implementation of the Scott and Shasta River conditional waivers, and collaboration with other public and non-profit entities in the service of water quality protection and habitat enhancement in both the Scott and the Shasta rivers.

Recommendation: Consider revisions to the Scott and Shasta TMDLs as part of the high priority project to conduct a TMDL Program Retrospective Review. (See Section 4.1.1 below).

3.2.9 Revise Specific Conductance and Total Dissolved Solids Site Specific Objectives for the Upper Russian River

In 2011, the City of Healdsburg requested that as part of the 2011 Triennial Review process staff make a high priority of relaxing the site specific total dissolved solids (TDS) and specific conductance (SC) objectives for the Upper Russian River, as listed in Table 3-1. The most recent revision of the Healdsburg's NPDES permit, adopted in June 2016, does not include specific TDS and specific conductance limits, as was the case in the previous NPDES permit. The previous NPDES permit required that the City conduct a special study to determine natural background levels for these constituents in Basalt Pond and the Upper Russian River, as is necessary to assess whether or not the objectives can reasonably be relaxed. The study was completed between October 2012 and May 2013. The monitoring data showed that the upgradient pond SC and TDS complies with the Basin Plan objectives while Basalt Pond TDS and SC are elevated above the water quality objectives. Effluent TDS and SC is higher than the concentrations in Basalt Pond. The data points to Healdsburg's effluent discharge as the cause of elevated TDS and SC in Basalt Pond. The City's current argument is that Basalt Pond is a wetland, dissimilar to the river and that water quality standards appropriate to wetland protection should be applied.

Status: In the absence of a definitive outcome from the original special study, the City of Healdsburg’s NPDES permit continues to exclude TDS and SC limitations as well as monitoring requirements for these parameters otherwise applicable to the Upper Russian River in accordance with Basin Plan Table 3-1. No planning staff resources were assigned to this project during the 2011-2017 triennial review periods.

Staff Recommendation: Retain this task on the 2018 triennial review list as a low priority. Consider requiring the City of Healdsburg to conduct a special study for the evaluation of Basalt Pond using wetland delineation procedures and incorporating monitoring requirements to enhance the existing dataset for further consideration of Basalt Pond designation as a wetland. Should Basalt Pond be delineated as a wetland, update Table 2-1 accordingly.

3.2.10 Revise pH Objective to be Consistent with USEPA Criteria.

As described in the 2011 staff report, the Regional Water Board was asked to relax the Basin Plan standard for pH from 6.5 to the USEPA standard of 6.0. Section 301(b)(1)(c) of the Clean Water Act (CWA) and section 122.44(d) of the federal regulations requires that NPDES permits to specify effluent limitations more stringent than technology-based effluent limitations, if necessary to achieve water quality standards set forth in the Basin Plan. In addition, sections 402(o)(2) and 303(d)(4) of the CWA and section 122.44(l) of the federal regulations prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. In 2011, staff concluded that the information and/or circumstances necessary to satisfy requirements for consideration of relaxed limitations had not been provided, as part of the requested revision.

Status: No staff resources were assigned to this task during the 2011 to 2017 triennial review periods. During the 2014-2017 triennial period, the State Water Board had staff assigned to development of revised pH objectives. Staff have since been reassigned to other higher priority projects.

Staff Recommendations: Remove this task on the 2018 triennial review list. Rely on the State Water Board to develop revised pH objectives, as appropriate.

3.2.11 Develop TMDL Action Plans for Other 303(d) Listed Waterbodies

The 2014-2016 303(d) listing resulted in the identification of 73 unique potential water quality impairments in the North Coast Region. These include:

- ✓ 26 listings due to indicator bacteria
- ✓ 1 listing due to invasive species
- ✓ 8 listings due to nutrients
- ✓ 40 listings due to sediment and sedimentation
- ✓ 1 listing due to turbidity
- ✓ 4 listings due to cyanobacteria
- ✓ 13 listings due to mercury
- ✓ 36 listings due to elevated temperature
- ✓ 13 listings due to depressed dissolved oxygen
- ✓ 12 listings due to aluminum

- ✓ 1 listing due to dioxin
- ✓ 1 listing due to PCBs
- ✓ 2 listings due to elevated pH
- ✓ 1 listing due to biostimulatory substances
- ✓ 1 listing due to specific conductance
- ✓ 1 listing due to diazinon
- ✓ 1 listing due to manganese

Status: In addition to individual watershed sediment TMDLs, the Regional Water Board adopted a Sediment TMDL Implementation Policy in 2004 that directs staff to use existing tools to address conditions of turbidity, sediment and sedimentation. Similarly, the Regional Water Board adopted a Temperature Implementation Policy in 2014 that identifies flow, sediment, and riparian vegetation as controllable factors influencing stream temperature, which should be addressed using existing tools, as possible, including coordination with other state and federal agencies. A statewide Mercury TMDL is currently underway to address mercury in reservoirs, including reservoirs in the North Coast Region. Pathogen contamination as evidenced by elevated indicator bacteria is being addressed via TMDL projects currently under development, including the Russian River Pathogen TMDL and the Ocean Beaches and Freshwater Streams Pathogen TMDL (see Sections 2.1.1 and 2.1.3). Cyanobacteria contamination is being addressed through the Klamath River TMDLs adopted in 2010, as is the biostimulatory substances listing.

Recommendation: Implement watershed stewardship principles in impaired watersheds for which a TMDL has not yet been developed. Encourage program staff to implement programs (e.g., timber, dairy, discharge of waste to land, NPDES, 401 certification, resolution, etc.) in a coordinated manner, which considers cumulative impacts and draws maximum analytical value from the monitoring data required by each program. Following completion of the TMDLs currently under development, consider in the 2021 Triennial Review the next highest priorities for TMDL development.

3.2.12 Revise Copper Objective to Consider the Biotic Ligand Model.

As a result of public request, updating the Basin Plan’s water quality objective for copper was put on the 2011 Triennial Review list and ranked as a low priority. The specific request was to update the aquatic life criteria for copper to incorporate the “latest recommended USEPA national criteria for copper.” Since that time, staff have come to understand the request specifically to refer to the Biotic Ligand Model and its use to develop site specific objectives for copper that take into account water chemistry and hardness.

Status: Water quality objectives may be stated in either numeric or narrative form. The existing Basin Plan surface water toxicity objective, applicable to copper, is narrative and states:

“Waters shall not contain toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life...”

Regional Water Board staff implements narrative water quality objectives through the selection of a numeric threshold using values from other sources as appropriate. In selection of the numeric threshold, other plans and policies must be considered, including the 2005 State Water Board

Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP). The SIP describes the statewide application of the National Toxics Rule (NTR) and California Toxic Rule (CTR) for the protection of human and aquatic life receptors in surface water within National Pollutant Discharge Elimination System (NPDES) Permits. Traditional metals criteria contained in the CTR and NTR do not account for natural organic matter or pH effects and may result in overly stringent or under protective copper criterion. When more refined site-specific limits are needed, the SIP authorizes use of Water Effects Ratio (WER) procedures (EPA-823-B-94-001) or (EPA-822-R-01-005) during development of NPDES permits. The WER procedures consider local water chemistry applicable to metal toxicity for aquatic species.

The biotic ligand model (BLM) is another tool that can account for variations in metal toxicity using local water chemistry information. The BLM is a metal bioavailability model that uses receiving water body characteristics and monitoring data to develop site-specific water quality criteria. USEPA's Aquatic Life Ambient Freshwater Criteria – Copper 2007 Revision (EPA-822-R-07-001) is based on the BLM. In addition, USEPA is currently completing work on two BLM associated technical documents that will inform future USEPA copper criteria updates.

Nothing in the existing Basin Plan narrative objective prevents Regional Water Board staff from considering the BLM or using USEPA's 2007 aquatic life freshwater quality criteria when developing site specific objectives for copper outside of an NPDES permit. NPDES permit development however, remains subject to the SIP. Modifications to the SIP are beyond the scope of this Triennial Review.

Recommendation: Remove this task from the 2018 triennial review list. Regional Water Board staff will continue to translate the narrative surface water toxicity objective using applicable plans and policies.

3.2.13 Location of Estuary, Harbors, Enclosed Bay Boundaries

Identification of estuary, harbor, and enclosed bay boundary locations in the North Coast Region first begins with the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California, which defines estuaries, in part, as waters at the mouths of streams that serve as mixing zones for fresh and ocean waters during a major portion of the year. Each estuary displays unique characteristics; one estuary may be enclosed by marshes and sand bars, while others have a coastline or reef border. As sea levels rise, the salt front (location of the freshwater-saltwater line) may progress further upstream. This encroachment may be further exacerbated by drought, reduced rainfall or changes in water use and demand. Conversely, rainfall of increased frequency and intensities may push the zone of mixing for fresh and ocean waters further out to sea. Because estuaries are heterogeneous, ranging from tiny coastal salt marshes to huge marine bays and river deltas, each estuary will experience localized differences in trends of climate and human activities leading to further variation among the predicted boundaries of these systems. The complexity of estuarine boundaries under a changing climate regime will be addressed under the Triennial Review climate change project.

Status: This project was identified as a low priority in the 2014 Triennial Review. As such, no staff resources were applied to the project.

Staff Recommendation: Retain the project on the 2018 Triennial Review, but address the issue, as necessary, in the context of other climate-related issues that emerge from the Climate Change project (See Section 2.2.6).

4.0 NEW PROPOSED PROJECTS FOR 2018 TRIENNIAL REVIEW

4.1 TMDL Projects

4.1.1 TMDL Program Retrospective Review

Since its inception in the 1980s, the TMDL Program in the North Coast Region has produced dozens of TMDLs addressing multiple pollutants, but primarily focused on sediment, temperature, and nutrients. In addition to these “technical” TMDLs, the Basin Plan includes the following TMDL Action Plans and implementation policies.

- Action Plan for the Garcia River Sediment TMDL
- Action Plan for the Shasta River Temperature and Dissolved Oxygen TMDLs
- Action Plan for the Scott River Sediment and Temperature TMDLs
- Action Plan for the Klamath River Temperature, Dissolved Oxygen, Nutrient, and Microcystin TMDLs
- Action Plan for the Upper Elk River Sediment TMDL
- Sediment TMDL Implementation Policy
- Temperature Implementation Policy

The Sediment TMDL Implementation Policy and Temperature Implementation Policy direct staff to use existing tools to control the discharge of sediment and protect stream flows and riparian shade so as to restore water quality conditions in impaired waters.

The Regional Water Board has also developed a Watershed Stewardship Program, which endeavors to extend the Regional Water Board’s usual tools by coordinating with watershed partners and applying all available natural resource protection tools towards the attainment of common goals. A complimentary principle to watershed stewardship is adaptive management, in which monitoring and assessment is used to inform modifications to implementation plans.

The North Coast’s TMDL Program has matured to such a degree that it is time to assess its success not just on the individual watershed scale, but on a programmatic scale. A TMDL Program Retrospective Review is intended to assess the requirements of each TMDL, evaluate how those requirements have been implemented, assess existing data to determine if implementation is showing success, and develop recommendations to inform the future of the TMDL program. Some of the questions this review should be designed to answer include:

- Are TMDL Action Plans being implemented as designed? If not, why not?
- Are TMDL Action Plans resulting in improvements in water quality conditions? If not, why not?
- Is the Sediment TMDL Implementation Policy being implemented in all of the sediment impaired waters? If not, why not?
- What are the mechanisms by which the Sediment TMDL Implementation Policy is being implemented? Are those mechanisms resulting in improvements in water quality conditions? If not, why not?

- Is the Temperature Implementation Policy being implemented in all of the temperature impaired waters? If not, why not?
- What are the mechanisms by which the Temperature Implementation Policy is being implemented? Are those mechanisms resulting in improvements in water quality conditions? If not, why not?
- Should these policies and plans be implemented differently to improve their potential to result in water quality improvements?
- Should policies and plans be designed differently to improve their potential to result in water quality improvements?
- Should TMDLs be developed differently to support policies and plans with greater potential to result in water quality improvements?

Status: This is a new planning project. But, it responds to public concerns as raised in previous triennial reviews that TMDL Action Plans are outdated and imperfectly implemented.

Recommendation: Staff recommend this project be included in the 2018 Planning Program Workplan as a high priority.

Staffing: Assign the agency's two Watershed Stewards as leads of this project, to work part time (e.g., 0.1 and 0.25 PYs respectively) over a two years period. Establish a working group, which consists of staff from all programs, to assist in the review, with an estimated total of 0.9 PYs for each of the two years. Apply a total of 1.25 PYs (Watershed Stewards and Working Group) per year for two years.

Hearing Date Project: It is anticipated that the result of this project will be a series of recommendations relevant to TMDLs, TMDL alternatives, TMDL Action Plans, TMDL Implementation Policies, and implementation of other water quality protection programs. Any recommendations with basin planning implications, including revisions to existing plans and policies, will be incorporated into the 2021 Triennial Review for the Regional Water Board's consideration.

4.1.2 Russian River Watershed TMDL Alternative

The Russian River Watershed recently has gained the attention of multiple agencies and entities, with the purpose of establishing a shared, watershed-scale resource protection plan. Such enterprises include but are not limited to:

- Russian River Confluence
- Department of Water Resources Russian River Watershed Pilot
- Russian River Science Forum
- Vital Lands Initiative
- Russian River Regional Monitoring Program
- Russian River Pathogen TMDL

In addition, the Russian River is the focus of a biological opinion influencing flow regulation for the protection of endangered salmonids. The Russian River is listed under Section 303(d) of the Clean Water Act as impaired due to sediment, sedimentation, and elevated temperature. There

are locations in the watershed with elevated pesticide concentrations, as well. Several tributaries of the Russian River were subjected to water right curtailments during the most recent drought.

The wildfires of October 2017 also brought attention to the Russian River, with concerns about its recovery from those fires and the potential long-term effects on water quality for both habitat and human uses. The fires also brought local and state partners to the table, first to address immediate fire recovery actions and now to consider long-term assessment and management needs. Now is the ideal time to join with the larger Russian River Watershed community to establish a watershed plan, which addresses the myriad of water quality concerns, including both long-developing water quality impairments, as well as the elevated water quality risks resulting from the recent fires. The time is ripe to apply watershed stewardship principles and consider the development of a TMDL alternative, which is derived from collaboration with our many currently active partners.

Status: Regional Water Board staff were vitally important to fire recovery efforts during and immediately after the fires. And, as staff return to their regular work assignments, there continues to be a need for Regional Water Board leadership in the larger Russian River watershed assessment and planning arena. Executive Management, Senior leadership, and watershed stewardship and monitoring staff have continued to participate in the multiple initiatives, including an effort to collapse the multiple efforts into a commonly held watershed planning and recovery endeavor. There currently is no single person in the Regional Water Board office identified as the Russian River Watershed Steward, who can take responsibility for leading the Regional Water Board's effort in the larger Russian River Watershed planning and recovery endeavor, however. This missing position hinders the agency's ability to fully accomplish vital water quality protections.

Recommendation: Staff ~~recommend request~~ that the Regional Water Board support pursuing funding for the development of a Russian River Watershed Steward position ~~within the Regional Water Board and funding. Without in the absence of~~ a dedicated Russian River Watershed Steward position, the Regional Water Board runs several risks, including: sub-optimal results in our Russian River efforts, the burning out of hard working staff who have added this work to their normal workload, and impacts to the quantity and quality~~poor performance in of~~ staffs' other assigned work.

Staffing: Staff recommend that a full-time position and funding be secured to hire a Russian River Watershed Steward beginning in FY 2018-19 and lasting for a minimum of 5 years.

Projected Hearing Date: The result of our collaborative planning effort in the Russian River could be a TMDL alternative that addresses sediment, temperature, and pesticide impairments, as well as other issues of concern. Projecting a hearing date is not possible, until a Russian River Watershed Steward is funded and a strategy with our collaborating partners is finalized.

4.2 Non-TMDL Projects

4.2.1 Water Quality Criteria Promulgated by US EPA under Section 304(a) of the Clean Water Act

In 2015, U.S. EPA promulgated revisions to 40 CFR 131.20(a), which relate to water quality standards and state triennial review. States are required to provide an explanation as part of their triennial review for any U.S. EPA new or revised criteria developed under Section 304(a) of the Clean Water Act, which the state does not adopt. The following Clean Water Act 304(a) recommended water quality criteria are new or have been updated since May 30, 2000 which is the cutoff date cited in the preamble of the U.S.EPA 2015 Regulatory Revisions Rule.

- Acrolein
- Carbaryl
- Copper
- Diazinon
- Nonylphenol
- Tributyltin
- Cadmium
- Selenium
- Bacteria
- Updates to human health-based concentrations for 94 constituents

Status: The State Water Board is responsible for establishing water quality objectives that apply statewide. During the 2014-2017 triennial period, the State Water Board has had staff assigned to developing objectives for the following pollutants:

- Mercury (completed)
- Toxicity (completed)
- Bacteria
- Selenium
- Cadmium
- Nutrients
- Biointegrity
- Hardness

The Regional Water Board relies on the State Water Board to develop statewide objectives, rather than apply staff resources to do duplicate work. However, in 2015, the North Coast Regional Water Board adopted the Water Quality Objective Update Basin Plan Amendment (See Section 2.2.1). This amendment revised the toxicity objective to ensure that the Regional Water Board could apply the “Marshack method” using the Compilation of Water Quality Goals⁶ database to establish discharge requirements for protection of human health and aquatic life relying on the most updated science, including U.S.EPA’s aquatic life and human health criteria as described above and ammonia as described in Section 3.2.3.

⁶ https://www.waterboards.ca.gov/water_issues/programs/water_quality_goals/

Recommendation: Remove this project from the 2018 Triennial Review