

# ACTION PLAN FOR THE RUSSIAN RIVER WATERSHED PATHOGEN TOTAL MAXIMUM DAILY LOAD (TMDL)

*The following text is to be inserted into the Water Quality Control Plan for the North Coast Region (Basin Plan) following the Navarro, Eel, and Mattole Temperature TMDL Action Plans:*

The Russian River Watershed encompasses 1,484 square miles in Sonoma and Mendocino counties, California. Major incorporated cities within the watershed include Ukiah, Cloverdale, Healdsburg, Windsor, Rohnert Park, Santa Rosa, and Sebastopol. The watershed also includes numerous unincorporated communities such as Calpella, Hopland, Forestville, Guerneville, and Monte Rio. The 110-mile mainstem channel of the Russian River originates in the Redwood Valley of central Mendocino County about 15 miles north of Ukiah and enters the Pacific Ocean in Sonoma County at Jenner. The Russian River serves as the primary water source for more than 500,000 residents in Mendocino, Sonoma and Marin counties and for agricultural production in Mendocino and Sonoma counties. It provides multiple water-based recreational opportunities important to the economies of the watershed and well-being of residents and visitors.

The *Action Plan for the Russian River Watershed Pathogen Total Maximum Daily Load*, hereinafter known as the Russian River Pathogen TMDL Action Plan, or Action Plan, is based on the authorities and requirements of both the federal Clean Water Act and the state Porter-Cologne Water Quality Control Act (Porter Cologne) and applies to the entire Russian River Watershed. This Action Plan: 1) summarizes the elements of a TMDL; 2) summarizes findings relative to pollution assessment; and 3) describes the Program of Implementation designed to control fecal waste pollution, achieve bacteria water quality objectives (bacteria objectives), and restore the water contact recreation (REC-1) beneficial use to protect public health. The overall goal of the Action Plan is to minimize human exposure to waterborne disease-causing pathogens and to protect uses of water for recreational activities such as wading, swimming, fishing, and boating. To accomplish this goal, the Action Plan includes a Fecal Waste Discharge Prohibition that applies to all surface waters of the Russian River Watershed. Compliance with the prohibition will be achieved by either preventing the discharge of fecal waste; complying with a relevant NPDES permit, WDRs, or waiver of WDRs; or through the Regional Water Board’s implementation of MOUs and development and implementation of a non-dairy livestock program. The geographic area within which special provisions apply to Onsite Waste Treatment Systems (OWTS) are limited to those areas identified as impaired<sup>1</sup> and polluted<sup>2</sup> based on assessment of ambient water quality data, where a sufficient number of data existed.

## I. PROBLEM STATEMENT

Several surface waters in the Russian River Watershed are identified on the 2012 Clean Water Act Section 303(d) List of Impaired Waters due to fecal indicator bacteria (FIB) concentrations that do not support the REC-1 beneficial use nor attain the bacteria objectives. Water quality monitoring studies have been conducted using multiple FIB, which provide evidence of seasonal and episodic fecal waste pollution at locations throughout the watershed. These data have been assessed based on subwatershed boundaries defined by the U.S. Geological Survey as hydrologic unit code 12, also known as HUC-12 subwatersheds. The Russian River Watershed is divided into 43 HUC-12 subwatersheds as outlined in Table 1.

**Table 1. Russian River HUC-12 Subwatersheds**

Hydrologic Area	Hydrologic Sub Area	Hydrologic Unit Code 12 (HUC-12) Subwatersheds
Upper Russian River	Coyote Valley	Burright Creek-East Fork Russian River
		Cold Creek

<sup>1</sup> Consistent with the Clean Water Act, the Porter-Cologne Water Quality Control Act, and the Water Quality Control Policy for Addressing Impaired Waters (Resolution 2005-0050), the term “impaired” refers to waters that do not meet ambient water quality standards.

<sup>2</sup> California Water Code section 13050 subdivision (l) defines “pollution” to mean: an alteration of waters of the state by waste to a degree, which unreasonably affects either of the following: (A) the waters for beneficial uses; or (B) facilities which serve these beneficial uses.

Hydrologic Area	Hydrologic Sub Area	Hydrologic Unit Code 12 (HUC-12) Subwatersheds
	Forsythe Creek Ukiah	Lake Mendocino-East Fork Russian River
		Forsythe Creek
		Salt Hollow Creek-Russian River
		East Fork Russian River-Russian River
	Sulphur Creek	Little Sulphur Creek
		Alder Creek-Big Sulphur Creek
	Ukiah	Ackerman Creek
		Mill Creek
		Orrs Creek-Russian River
		Robinson Creek
		Morrison Creek-Russian River
		Dooley Creek
		McNab Creek-Russian River
		Feliz Creek
		Pieta Creek
Cummiskey Creek-Russian River		
Middle Russian River	Geyserville	Oat Valley Creek-Russian River
		Gill Creek-Russian River
		Sausal Creek-Russian River
		Franz Creek
		Maacama Creek
		Brooks Creek-Russian River
	Warm Springs	Galloway Creek
		Soda Spring Creek-Dry Creek
		Warm Springs Creek
		Lake Sonoma-Dry Creek
		Pena Creek
		Mill Creek
		West Slough-Dry Creek
	Laguna	Upper Laguna de Santa Rosa
		Lower Laguna De Santa Rosa
	Santa Rosa	Upper Santa Rosa Creek
		Lower Santa Rosa Creek
	Mark West	Windsor Creek
		Porter Creek-Mark West Creek
	Lower Russian River	Guerneville
Ward Creek-Austin Creek		
Green Valley Creek		
Porter Creek-Russian River		
Dutch Bill Creek-Russian River		
Willow Creek-Russian River		

REC-1 is a year-round beneficial use of the Russian River Watershed. Statewide bacteria objectives for the protection of REC-1 are established using *E. coli* fecal indicator bacteria for freshwater and enterococci fecal indicator bacteria for saline water. The *E. coli* and enterococci bacteria objectives are set at allowable rates of illness deemed acceptable for the protection of public health (e.g., 32 gastrointestinal illness per 1,000 recreators). U.S. EPA has established national criteria for the protection of REC-1 based on enterococci fecal indicator bacteria in freshwater. Human and bovine *Bacteroides* bacteria measurements detect the presence of fecal waste and allow an assessment of the animal source of the waste detected. Microbial source identification (e.g., PhyloChip™ phylogenetic DNA microarray) also allows an assessment of animal source by measuring the percentage of sample DNA that matches known DNA fecal waste profiles. Public health advisories, such as beach closures, represent direct adverse impact to the REC-1 beneficial use.

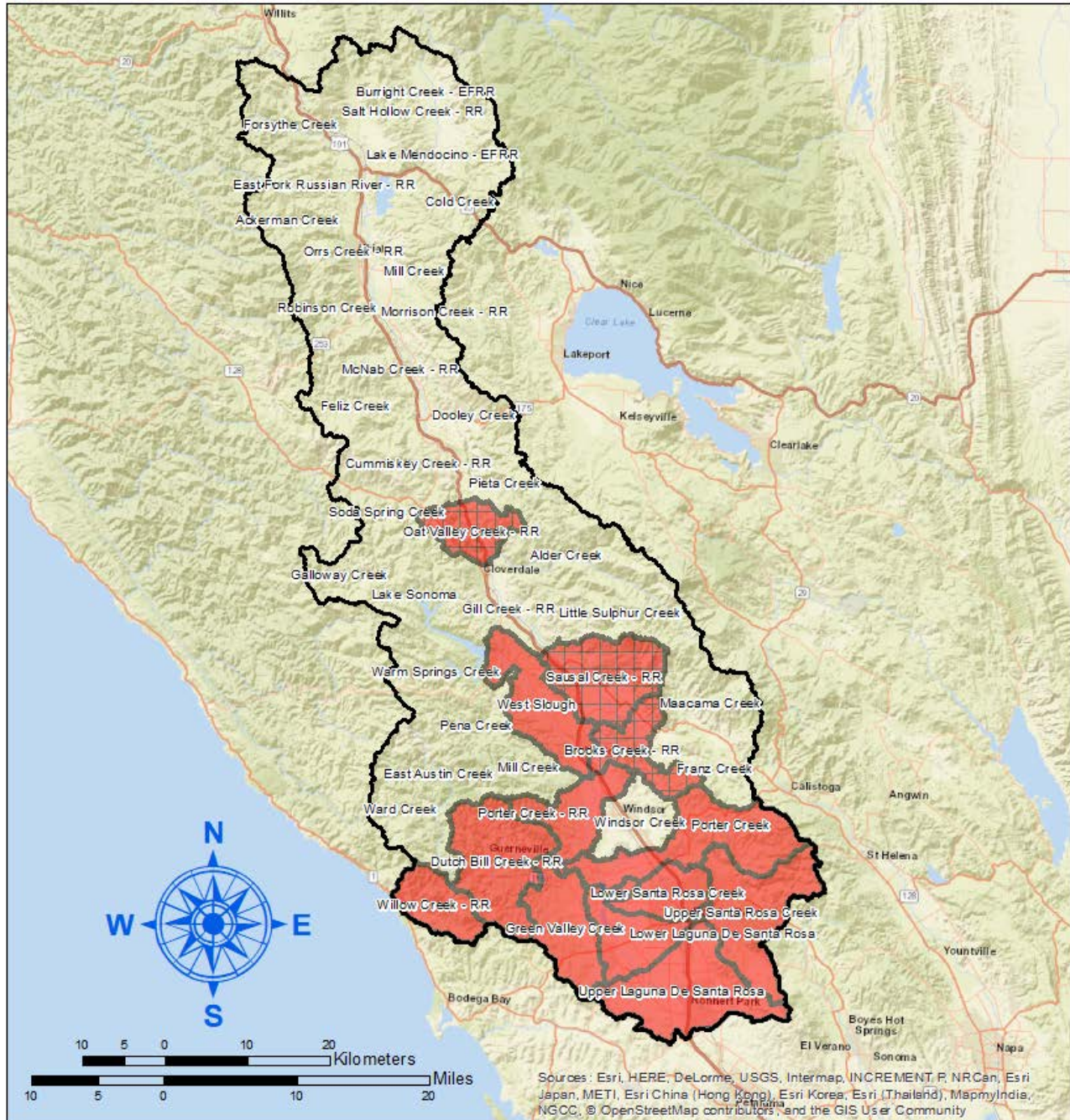
For the purpose of this TMDL, a HUC-12 subwatershed was identified as polluted and impaired if: 1) data exceeded the statewide bacteria objective for *E. coli* in freshwater or enterococci in saline water; or 2) data exceeded the U.S. EPA criteria for enterococci in freshwater and there was a public health advisory anytime since 2012. Water quality data were collected in approximately 50% of the HUC-12 subwatersheds, so the pollution and impairment status of unmeasured HUC-12 subwatersheds is unknown. The source assessment (see Section II, Sources of Fecal Waste) identifies all known sources of fecal waste discharge in the Russian River Watershed and describes special studies that identify associations between season, land cover category, and Onsite Wastewater Treatment System (OWTS) density with water quality outcomes, extending the area of concern to the whole watershed.



HUC-12 subwatersheds with direct evidence of pollution and impairment are depicted in Figure 1 and include:

- Oat Valley Creek-Russian River
- Sausal Creek-Russian River
- Brooks Creek-Russian River
- West Slough- Dry Creek
- Upper Laguna de Santa Rosa
- Lower Laguna de Santa Rosa
- Upper Santa Rosa Creek
- Lower Santa Rosa Creek
- Porter Creek-Mark West Creek
- Green Valley Creek
- Porter Creek-Russian River
- Dutch Bill Creek-Russian River
- Willow Creek-Russian River

*Bacteroides* and DNA data, where collected, provide strong evidence of human fecal waste as sources of concern in Orrs Creek-Russian River, Lower Santa Rosa Creek, Green Valley Creek, and Porter Creek-Russian River HUC-12 subwatersheds. *Bacteroides* and DNA data provide strong evidence of bovine/grazer fecal waste as sources of concern in Upper Laguna de Santa Rosa and Porter Creek-Russian River HUC-12 subwatersheds.

**Figure 1: HUC-12 Subwatersheds with Direct Evidence of Impairment and Pollution**



-  Impairment/Pollution based on Exceedance of Statewide Bacteria Objectives
-  Impairment/Pollution based on Exceedance of U.S. EPA Bacteria Objective for Enterococci + Public Health Advisories

**Russian River Watershed Pathogen TMDL (2019)**

**HUC-12 Subwatershed with Direct Evidence of Impairment/Pollution**



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## II. SOURCES OF FECAL WASTE

Water quality monitoring studies in the Russian River Watershed (studies) find that FIB concentrations (e.g., *E. coli*, enterococci, and *Bacteroides*) in surface waters are significantly higher during wet weather periods, than during dry periods, indicating that storm water runoff has a strong influence on the delivery of fecal waste to the Russian River and its tributaries. Studies also find that regardless of the time of year, *E. coli* and enterococci concentrations in surface waters are significantly higher in developed areas (both sewered and non-sewered), than other areas (e.g., shrubland, forestland, and agricultural lands). Human-specific *Bacteroides* bacteria concentrations in the wet period indicate a widespread human fecal waste signature in all land cover types, except forestland. Bovine-specific *Bacteroides* bacteria concentrations in the wet period indicate a widespread bovine fecal waste signature in shrubland, agricultural lands, and developed onsite septic (rural residential) areas. Focused assessments find that: 1) FIB concentrations correlate with parcel density in those areas with OWTS; and 2) higher concentrations of both *Bacteroides* and *E. coli* bacteria are associated with periods of high use at beach recreational areas. These studies indicate the widespread presence of fecal waste sources within the Russian River Watershed.

The following specific source categories are determined to have potential to discharge fecal waste to surface waters in the Russian River Watershed:

### Sources of Human Fecal Waste Material

- Treated Municipal Wastewater to Surface Waters, including discharges from holding ponds;
- Untreated Sewage from Sanitary Sewer Systems;
- Wastewater from Percolation Ponds and through Spray Irrigation;
- Runoff from Land Application of Municipal Biosolids and Biosolids Storage Areas;
- Runoff from Water Recycling Projects;
- Runoff from sites that receive discharges of waste to land;
- Onsite Wastewater Treatment Systems, both large and small, commercial and domestic;
- Recreational Water Uses and Users;
- Homeless and Illegal Camping; and
- Storm Water to Municipal Separate Storm Sewer System (MS4s) and Areas Outside MS4 Boundaries.

### Sources of Domestic Animal and Farm Animal Waste

- Pet Waste;
- Manure from Non-Dairy Livestock and Farm Animals; and
- Manure from Dairy Cows.

Section V, Program of Implementation is applicable to the entire Russian River Watershed and describes the regulatory mechanisms for controlling each potential fecal waste source category.

## III. NUMERIC TARGETS

Numeric targets are developed for metrics that help assess progress towards attainment of the water quality objective. This TMDL is based on the statewide *E. coli* bacteria objective for the protection of REC-1 in freshwater and enterococci in saline water, which are given as concentrations. The numeric targets established for this TMDL are identical to the TMDL and statewide bacteria objectives<sup>3</sup>. The numeric targets for *E. coli* for freshwater and enterococci for saline water are expressed as six-week rolling geometric means (GM) calculated weekly and statistical threshold values (STV) not to be exceeded more than 10 percent of the time, calculated monthly. The numeric targets are based on colony forming units (cfu) of bacteria per 100 mL water sample. For the purpose of this TMDL and consistent with the statewide bacteria objectives for REC-1 protection, saline waters are those waters in which salinity exceeds 1 part per thousand more than 5% of the time during the calendar year.

<sup>3</sup> The State Water Resources Control Board established statewide bacteria objectives applicable to both inland surface waters and ocean waters in *Part 3 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays and Estuaries of California- Bacteria Provisions and a Water Quality Variance Policy and Amendment to the Water Quality Control plan for Ocean Waters of California-Bacteria Provisions and a Water Quality Standards Variance Policy* and are available at: <https://www.waterboards.ca.gov/bacterialobjectives/>

E. coli Bacteria Numeric Targets:

- ≤ 100 cfu/100 mL as a GM
- ≤ 320 cfu/100 mL as a STV

Enterococci Bacteria Numeric Targets:

- ≤ 30 cfu/100 mL as a GM
- ≤ 110 cfu/100 mL as a STV

#### **IV. TMDL, ALLOCATIONS, MARGIN OF SAFETY, AND SEASONAL VARIATION**

The TMDL, waste load allocations (WLAs) for point sources, and load allocations (LAs) for nonpoint sources are expressed as receiving water concentrations of *E. coli* in freshwater and enterococci in saline waters identical to the statewide bacteria objective for protection of REC-1. As with the numeric targets, the WLAs and LAs are expressed as six-week rolling geometric means (GM) calculated weekly and statistical threshold values (STV) not to be exceeded more than 10 percent of the time, calculated monthly. The WLAs and LAs are based on colony forming units (cfu) of bacteria per 100 mL water sample. For the purpose of this TMDL and consistent with the statewide bacteria objectives for REC-1 protection, saline waters are those waters in which salinity exceeds 1 part per thousand more than 5% of the time during the calendar year. Table 2 identifies the WLAs and LAs for each source category.

E. coli Bacteria WLAs and LAs:

- ≤ 100 cfu/100 mL as a GM
- ≤ 320 cfu/100 mL as a STV

Enterococci Bacteria WLAs and LAs:

- ≤ 30 cfu/100 mL as a GM
- ≤ 110 cfu/100 mL as a STV

**Table 2. Wasteload and Load Allocations**

Source Category	Type of Allocation	Allocation
Municipal wastewater discharge to surface water (NPDES)	WLA	GM and STV for <i>E. coli</i> or enterococci depending on salinity
Municipal wastewater discharge to land (WDR)	WLA/LA	0
Sanitary Sewer Systems	LA	0
Land Application of Biosolids	LA	0
Recycled Water Irrigation Runoff	LA	0
Municipal Stormwater (NPDES)	WLA	GM and STV for <i>E. coli</i> or enterococci depending on salinity
CalTrans Stormwater (NPDES)	WLA	GM and STV for <i>E. coli</i> or enterococci depending on salinity
Large OWTS	LA	0
Individual OWTS	LA	0
Recreational Water Use and Users	LA	0
Homeless Encampments and Illegal Camping	LA	0
Non-dairy Livestock and Farm Animal Waste	LA	GM and STV for <i>E. coli</i> or enterococci depending on salinity
Dairies and CAFOs subject to NPDES permit	WLA	GM and STV for <i>E. coli</i> or enterococci depending on salinity

Source Category	Type of Allocation	Allocation
Dairies and CAFOs not subject to NPDES permit	LA	GM and STV for <i>E. coli</i> or enterococci depending on salinity

For fecal waste discharges already controlled by a prohibition or effluent limitations related to disinfection requirements, the more stringent requirement applies.

Uncertainty regarding the relationship between source loading and ambient water quality outcome is eliminated when the TMDL is based on concentration limits identical to the statewide bacteria objectives for REC-1 protection. The statewide bacteria objectives for REC-1 protection incorporate an implicit margin of safety by establishing limitations based on the lower of two acceptable illness rates (i.e., 32 gastrointestinal illnesses versus 36).

There is no seasonal variation of the TMDL required because the TMDL is set at the maximum allowable concentrations of *E. coli* and enterococci necessary to protect public health during all times of the year.

## V. PROGRAM OF IMPLEMENTATION

### A. FECAL WASTE DISCHARGE PROHIBITION

In accordance with Water Code section 13243 and to achieve the water quality objective for bacteria, to protect present and future beneficial uses of water, to protect public health, and prevent nuisance, this TMDL sets forth the following:

#### Fecal Waste Discharge Prohibition

*Discharges of waste containing fecal waste material from humans or domestic animals to waters of the state within the Russian River Watershed are prohibited. Compliance with this prohibition can be achieved in the following manner:*

1. Implement adequate treatment and best management practices to prevent the discharge of fecal waste material from humans or domestic animals from entering a water of the state either directly, or indirectly as a result of stormwater runoff.
2. Comply with all fecal waste/pathogen-related provisions of an applicable NPDES permit.
3. Comply with all fecal waste/pathogen-related provisions of an applicable WDR.
4. Comply with all fecal waste/pathogen-related provisions of an applicable general WDR or waiver of WDRs (e.g., the conditional waiver included in the OWTS Policy<sup>4</sup>).
5. Implement the terms of the Memorandum of Understanding between the North Coast Regional Water Quality Control Board and relevant local agencies to address fecal waste discharge from homeless encampments and recreational water users.<sup>5</sup>
6. For non-dairy livestock, implement best management practices to achieve the assigned load allocation within 2 years of the effective date of this TMDL and, if required by the Executive Officer, develop and implement a Ranch Management Plan. Once adopted by the North Coast Regional Water Quality Control Board, non-dairy livestock operations comply with the prohibition if dischargers are in compliance with all fecal waste/pathogen-related provisions of an applicable WDR or waiver of WDRs.

Examples of domestic animals include, but are not limited to cows, horses, cattle, goats, swine, fowl, sheep, dogs, cats, or any other animal(s) in the care of any person(s).

<sup>4</sup> [https://www.waterboards.ca.gov/water\\_issues/programs/owts/docs/owts\\_policy.pdf](https://www.waterboards.ca.gov/water_issues/programs/owts/docs/owts_policy.pdf)

<sup>5</sup> [https://www.waterboards.ca.gov/northcoast/water\\_issues/programs/tmdls/russian\\_river/pdf/170420/Russian\\_River\\_TM\\_DL\\_MOU\\_Redacted.pdf](https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/russian_river/pdf/170420/Russian_River_TM_DL_MOU_Redacted.pdf)

## **B. IMPLEMENTATION ACTIONS**

The actions described in Section V.B. implement the Fecal Waste Discharge Prohibition in Section V.A. and are consistent with the California Water Code and the *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program*.<sup>6</sup>

This Action Plan builds upon management measures required by existing regional and statewide regulations and orders designed to reduce or eliminate fecal waste discharges from wastewater treatment facilities, sanitary sewer systems, recycled water, land application of biosolids, municipal storm water runoff, onsite wastewater treatment systems, and dairies. Where existing state-issued waste discharge requirements and actions undertaken by local regulatory agencies have been inadequate to ensure consistent achievement of bacteria objectives, this Action Plan identifies implementing parties and sets forth specific implementation actions that shall be taken to control fecal waste pollution, achieve wasteload and load allocations, attain bacteria objectives, and protect public health in the Russian River Watershed. The implementing parties and the specific implementation actions are identified in Table 4 and Table 5. Requirements for Onsite Wastewater Treatment Systems (OWTS) are specified in section V.C and Table 3.

In conformance with the *Policy for the Implementation and Enforcement of the Nonpoint Source Pollution Control Program*, violation of the Fecal Waste Discharge Prohibition is subject to direct enforcement.

## **C. IMPLEMENTATION ACTIONS FOR ONSITE WASTEWATER TREATMENT SYSTEMS**

On June 19, 2012, the State Water Resources Control Board (State Water Board) adopted the Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy).<sup>7</sup> The OWTS Policy took effect on May 13, 2013. The Regional Water Board, in accordance with the statewide OWTS Policy, amended the Basin Plan on June 18, 2015, to incorporate requirements of the OWTS Policy into the Basin Plan for the North Coast Region. The Basin Plan amendment was approved by the Office of Administrative Law on July 18, 2016.

Section 3.2 of the OWTS Policy allows the Regional Water Board to approve individual Local Agency Management Programs (LAMPs) allowing local agencies to provide alternative minimum standards to those specified in the OWTS Policy. Individual OWTS within the Russian River Watershed are regulated by the Sonoma County Permit and Resource Management Department (Permit Sonoma) in Sonoma County and by the County of Mendocino Health & Human Services Agency, Division of Environmental Health (DEH), in Mendocino County. These local agencies review development proposals that rely on individual OWTS for domestic waste treatment and disposal. Local agency staff also review permit applications and project plans for OWTS repairs and upgrades and issue repair permits as necessary in accordance with local policies. To ensure compliance with local regulations and technical standards for OWTS, local agency staff also conducts inspections at the time of OWTS construction and in response to complaints and reports of OWTS failures. For OWTS utilizing supplemental treatment components or enhanced effluent dispersal systems, both Permit Sonoma and Mendocino County DEH implement permit programs that include periodic inspections of the OWTS by County staff and/or a service provider and self-monitoring requirements imposed on OWTS owners. The LAMP for the County of Mendocino was determined to be consistent with the OWTS Policy and approved by the Regional Water Board on November 4, 2018. The LAMP for the County of Sonoma is under development.

## **D. ADVANCED PROTECTION MANAGEMENT PROGRAM FOR OWTS**

### **1. Objectives**

The OWTS Policy establishes Advanced Protection Management Program (APMP) requirements for OWTS near impaired waterways and provides that APMP requirements may be met through a TMDL or special provisions established in a LAMP. The APMP measures will:

<sup>6</sup> [https://www.waterboards.ca.gov/water\\_issues/programs/nps/plans\\_policies.html](https://www.waterboards.ca.gov/water_issues/programs/nps/plans_policies.html)

<sup>7</sup> [https://www.waterboards.ca.gov/water\\_issues/programs/owts/docs/owts\\_policy.pdf](https://www.waterboards.ca.gov/water_issues/programs/owts/docs/owts_policy.pdf)



- Ensure that OWTS in the Russian River Watershed are properly sited, designed, operated, and maintained to provide adequate removal of pathogenic organisms, comply with the Fecal Waste Discharge Prohibition, and attain numeric targets, waste load allocations and load allocations.
- Provide a framework for identifying and upgrading existing OWTS that are failing, substandard, or in need of repair and establish minimum inspection requirements to ensure proper operation and maintenance of OWTS within the boundaries of the APMP.
- Establish minimum requirements for OWTS that are fair, affordable, and implementable, while at the same time, meeting the objectives for the TMDL, which is to return the Russian River Watershed to consistent compliance with bacterial water quality objectives.

## **2. Basis**

Based on the TMDL assessment, many surface waters within the Russian River Watershed contain concentrations of FIB that exceed water quality objectives or indicate fecal waste pollution. Given their proximity to surface waterbodies, OWTS discharging to the subsurface near an impaired waterbody may contribute to the impairment by direct discharge (i.e., surfacing effluent from an improperly designed or located OWTS) or through contamination of groundwater in the vicinity of the OWTS as a result of incomplete soil treatment of the OWTS effluent and the migration of the contaminated groundwater to surface water. The likelihood that surface water will be adversely impacted by OWTS is increased significantly in areas with a high density of OWTS, particularly those areas with small parcel sizes and where there is a high percentage of existing OWTS that predate adopted local standards for the design and siting of OWTS.

## **3. Applicability**

The APMP applies to any OWTS located on a parcel that is partially or fully contained within the APMP boundary described in section V.D.4 below. Owners of existing, new and replacement OWTS whose OWTS are located entirely outside the boundaries of the APMP are not subject to the APMP requirements but must still comply with relevant requirements of the OWTS Policy, any approved Local Agency Management Program (LAMP), and if applicable, individual and/or general WDR or waiver of WDRs.

The APMP applies to OWTS, which are defined as individual disposal systems, community collection and disposal systems, and alternative collection and disposal systems that use subsurface disposal. OWTS do not include “graywater” systems pursuant to Health and Safety Code Section 17922.12. Compliance with the APMP minimum requirements and all applicable local requirements is a necessary condition for owners of OWTS to qualify for coverage under the OWTS Policy’s Conditional Waiver of Waste Discharge Requirements. Failure to comply with conditions of the Conditional Waiver of Waste Discharge Requirements may result in revocation of waiver coverage or enforcement.

## **4. Geographic Area**

The Action Plan defines the Russian River Watershed APMP boundary<sup>8</sup> as consisting of parcels that are at least partially within 600 linear feet from the centerline in the horizontal (map) direction on either side of blue line streams depicted on the USGS 1:100,000 scale topographic map and parcels that are at least within 200 linear feet of the centerline of waterways derived using LIDAR datasets in the following HUC-12 subwatersheds. These are HUC-12 subwatersheds with direct evidence of pollution and impairment as described in section I and depicted in Figure 1:

- Oat Valley Creek-Russian River
- Sausal Creek-Russian River
- Brooks Creek-Russian River
- West Slough-Dry Creek
- Upper Laguna de Santa Rosa

<sup>8</sup> A map of the Russian River APMP Boundary is provided on the Regional Water Board website at [http://www.waterboards.ca.gov/northcoast/water\\_issues/programs/tmdls/russian\\_river/](http://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/russian_river/)

- Lower Laguna de Santa Rosa
- Upper Santa Rosa Creek
- Lower Santa Rosa Creek
- Porter Creek-Mark West Creek
- Green Valley Creek-Russian River
- Porter Creek-Russian River
- Dutch Bill Creek-Russian River
- Willow Creek-Russian River

## 5. Requirements

Owners of OWTS within the boundaries of the APMP shall comply with the following minimum requirements as a condition of the OWTS Policy's Conditional Waiver, or, if applicable, any waste discharge requirements or waiver of waste discharge requirements issued by the Regional Water Board:

### a. **General Operation and Maintenance Requirements**

In accordance with section 2.5 of the OWTS Policy, owners of OWTS shall maintain their OWTS in good working condition, including inspections and pumping of solids, as necessary, or as required by local ordinances and requirements established in an approved LAMP, to maintain proper function and assure adequate treatment and disposal.

### b. **Basic Operational Inspection**

To facilitate timely identification and resolution of maintenance and operational issues, all owners of OWTS within the APMP shall obtain a basic operational inspection of the septic tank, effluent dispersal area(s), and related appurtenances of the OWTS by a qualified professional<sup>9</sup> once every five years. Satisfaction of operational inspection requirements may occur in conjunction with pumping of the septic tank, a property transaction, issuance of a local building permit, an in-field performance verification performed by a Service Provider certified by an OWTS manufacturer, or an inspection otherwise required by the local agency or Regional Water Board. If directed by the Regional Water Board Executive Officer or the local agency, a report of the inspection shall be created and submitted to the Regional Water Board and/or local agency within 30 days after the inspection.

At a minimum, a basic operational inspection shall include the following evaluations:

#### i. **Septic Tank and Pump Systems**

1. Observations to detect leaks, cracks, excessive corrosion, root intrusion, odors
2. Presence and proper operation of liquid high-level alarm
3. Assessment of liquid levels in relation to tank outlet
4. Evidence of lack of water tightness
5. Evidence of problems in downstream OWTS components, where they have been installed (e.g., distribution box, effluent filter, dosing tank)
6. Proper settings and operation of pumping system(s), where they have been installed

#### ii. **Effluent Dispersal Area(s)**

1. Evidence of odors or surfacing effluent (e.g., excessive vegetation)
2. Evidence of unequal effluent distribution
3. Observations of inspection ports

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<sup>9</sup> Qualified Professional is an individual licensed or certified by a State of California agency to design OWTS and practice as professionals for other associated reports, as allowed under their license or registration. Depending on the work to be performed and various licensing and registration requirements, this may include an individual who possesses a registered environmental health specialist certificate or is currently licensed as a professional engineer or professional geologist. For the purposes of performing site evaluations, Soil Scientists certified by the Soil Science Society of America are considered qualified professionals. A local agency may modify this definition as part of its Local Agency Management Program.

The minimum requirements of a basic inspection for OWTS utilizing supplemental treatment components and/or enhanced effluent distribution systems will depend on the type of individual OWTS and will be specified in a Water Code section 13267 Order<sup>10</sup> issued by the Regional Water Board Executive Officer, or in a LAMP.

**c. Corrective Action Criteria**

In addition to conditions requiring corrective action set forth in section 11.0 of the OWTS Policy, OWTS meeting any of the following criteria are also deemed to be in need of corrective action and must be replaced, repaired, or modified so as to comply with Tier 1 of the OWTS Policy, an approved LAMP, waste discharge requirements, or a waiver of waste discharge requirements:

- i. OWTS discharging to the ground surface or surface waters
- ii. OWTS that do not include a septic tank and an effluent dispersal system that complies with the OWTS Policy
- iii. OWTS with projected wastewater flow exceeding the capacity of one or more components of the treatment and disposal system

**d. Corrective Action Process**

Property owners with OWTS within the boundaries of the APMP that require corrective action or otherwise do not meet minimum requirements established in this Action Plan may be required to contact the applicable local agency for a permit to repair or replace the OWTS or, where applicable, offered an opportunity to participate in the planning and completion of a community wastewater treatment and disposal system or equivalent alternative. Property owners that are required to upgrade, repair, or replace an existing OWTS or acquire a new OWTS must obtain the appropriate county permit in accordance with county ordinances and policies, and must obtain from the Regional Water Board waste discharge requirements or a waiver of waste discharge requirements, if applicable. The local agency will be the lead organization for plan review, local permit issuance, construction inspection and monitoring of new OWTS and upgrades, and repairs or replacement of existing OWTS.

**e. Regional Water Board OWTS Assessment Program**

i. Assessment Program Description

The objective of the Regional Water Board's OWTS assessment is to identify OWTS that are failing and/or in need of corrective action. All OWTS within the boundaries of the APMP shall be assessed by the Regional Water Board to determine whether the OWTS is failing and in need of corrective action. The assessment may include a desktop assessment or local record review, results of a sanitary survey, public survey, questionnaire, or, upon determination by the Regional Water Board Executive Officer, a physical site inspection or evaluation. Information that may be used to ascertain the performance of an existing OWTS includes, but is not limited to: the OWTS type, age, approved variances, repair history, monitoring and inspection results, septic tank pumping records, maintenance records, peak hydraulic loading, and record of complaints received. When an assessment includes a physical site inspection or performance evaluation by the owners, the inspection or evaluation shall be conducted by a qualified professional.

ii. Assessment Program Implementation

The Regional Water Board will notify each property owner of the need to submit this assessment information. The notification will describe the required information and the due date to submit the information to the Regional Water Board or the local agency.

**f. Supplemental Treatment Requirements**

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<sup>10</sup> Water Code section 13267 Orders allow the Regional Water Board to request technical reports and information to investigate the quality of any waters within the Region.

All OWTS within the boundary of the APMP must meet all requirements specified in an approved LAMP, or if there is no approved LAMP, all the requirements in Tier 1 of the OWTS Policy. In addition, supplemental treatment<sup>11</sup> components for OWTS to remove pathogens and/or enhanced effluent dispersal<sup>12</sup> systems are required under the following circumstances:

- i. New<sup>13</sup> OWTS
  - a) When the OWTS has an effluent dispersal system within 600 feet<sup>14</sup> from the top of the bank<sup>15</sup> of any mapped stream within the APMP boundary
- ii. Replacement<sup>16</sup> OWTS and OWTS Requiring Major Repair<sup>17</sup>
  - a) When the OWTS is designed to treat or dispose of a wastewater flow greater than the OWTS being replaced
  - b) When the OWTS has a projected flow of 3,500 gallons per day or greater, where the projected flow is the amount of wastewater flow into the OWTS as determined in accordance with an approved LAMP
  - c) When the OWTS is for a developed parcel permitted by the local agency for replacement of an existing OWTS that has been unutilized for five consecutive years or more prior to receipt of a building permit application by the local agency
  - d) When the OWTS is less than or equal to 600 feet from the top of the bank of any mapped stream within the APMP boundary, except when the replacement OWTS meets the conditions in Table 3
- iii. Seepage Pits
  - a) Seepage pits permitted or for which a construction permit by a local agency has been issued after May 13, 2016 are prohibited.
  - b) Seepage pits permitted or for which a construction permit has been issued by a local agency prior to May 13, 2016 are prohibited unless the seepage pit includes supplemental treatment components to remove pathogens.
  - c) Seepage pits may be authorized as replacement OWTS for existing cesspools only if the other options to comply with the Action Plan are infeasible.

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<sup>11</sup> OWTS Policy (2013), section 1.0, defines supplemental treatment to mean any OWTS or component of an OWTS, except a septic tank or dosing tank, which performs additional treatment of domestic wastewater to decrease the constituents of concern before they reach primary treatment components or the final effluent dispersal field

<sup>12</sup> Enhanced effluent dispersal system means any effluent distribution system that provides improved effluent dispersal to promote enhanced soil treatment compared to a gravity trench distribution system.

<sup>13</sup> New OWTS means an OWTS permitted or approved after the effective date of the TMDL Action Plan

<sup>14</sup> The 600-foot distance is based on a microbial contamination zone recommended by the California Department of Public Health (CDPH, 1999) to protect water supply from viral, microbial and direct chemical contamination.

<sup>15</sup> The term "top of bank" is used to refer to the location where the land transitions from stream channel to floodplain or upslope area and is often the vertical point along a stream bank where an abrupt change in slope (from steeper to flatter) is evident. For streams in wider valleys it is the point where the stream is able to overflow the banks and spill into its floodplain. For steep and narrow valleys, it will generally be the same as the top of the slope that forms the bank.

<sup>16</sup> OWTS Policy (2013), section 1.0, defines replacement OWTS to mean an OWTS that has its treatment capacity expanded, or its dispersal system replaced or added to.

<sup>17</sup> OWTS Policy (2013), section 1.0, defines major repair to mean either: (1) for a dispersal system, repairs required for an OWTS dispersal system due to surfacing wastewater effluent from the dispersal field and/or wastewater backed up into plumbing fixtures because the dispersal system is not able to percolate the design flow of wastewater associated with the structure served, or (2) for a septic tank, repairs required to the tank for a compartment baffle failure or tank structural integrity failure such that either wastewater is exfiltrating or groundwater is infiltrating.

**Table 3. Minimum Conditions for an Exception to Supplemental Treatment Requirements**

<b>OWTS Distance from Waterbody</b>	<b>Minimum Separation to Groundwater</b>	<b>Acceptable Percolation Rate</b>	<b>Acceptable Wastewater Application Rate</b>
< 200 feet	36 inches	30-120 minutes per inch	Not to exceed application rate set forth in Table 3 of OWTS Policy <sup>18</sup> for determined percolation rate
200-600 feet	24 inches	30-120 minutes per inch	
> 600 feet	In accordance with Tier 2 requirements of on approved LAMP or, if there is no approved LAMP, Tier 1 of the OWTS Policy		

Where a local agency establishes more restrictive requirements, the more restrictive standards shall govern.

### **6. Planning for Community-based OWTS**

In areas subject to the APMP where there are significant numbers of existing OWTS that meet the criteria for which corrective action is required, as set forth in section D.5.e of the Action Plan, and where replacement of individual OWTS to meet minimum standards are infeasible or cost prohibitive, the development of a community-based OWTS management plan or Onsite Wastewater Management Authority, where authorized by a local agency, may be appropriate. The formation of community advisory groups to provide local stakeholder input to local agencies is essential for the successful development and implementation of community-based solutions. It is the intent of the Regional Water Board to provide adequate time, through the use of time schedules or equivalent orders, consistent with section 11.6 of the OWTS Policy, for owners of failing and substandard OWTS to comply with this Action Plan and for local agencies to seek and obtain funding assistance for the planning and construction of community-based wastewater treatment and disposal systems, as necessary. Additionally, the Regional Water Board intends to coordinate with local agencies to provide technical assistance in efforts to identify and seek funding for community-based solutions as well as to facilitate community outreach.

## **VI. MONITORING**

1. Monitoring will be conducted to provide information regarding the effectiveness of the Action Plan, including: 1) compliance with the Fecal Waste Discharge Prohibition; 2) achievement of WLAs and LAs; 3) attainment of the numeric targets; and 4) attainment of bacteria objectives and protection of beneficial uses.
2. Monitoring activities include: project monitoring, special studies, receiving water trend monitoring, and ambient monitoring of public recreational beaches during the summer recreation period. Monitoring activities for the OWTS fecal waste source category will focus on areas of high parcel density to assess the success of implementation actions and to identify new subwatersheds where fecal waste pollution is attributable to OWTS. Monitoring and reporting requirements may also include additional metrics (e.g., human and bovine *Bacteroides* bacteria) and analyses, which support accurate, defensible conclusions and provide a reasonable basis for the adaptive management of fecal waste pollution and public health water quality issues in the Russian River Watershed.
3. Individual monitoring requirements will be specified in the controlling regulatory mechanism developed for each of the potential fecal waste source categories, as described in Table 4 and Table 5. The Regional Water Board or Executive Officer may require specific monitoring or special studies under separate Water Code section 13267 or 13383 orders. All monitoring results will be reviewed and assessed periodically to inform potential revisions of individual permits, orders, or other regulatory mechanisms or revisions to the TMDL Action Plan.

<sup>18</sup> [https://www.waterboards.ca.gov/water\\_issues/programs/owts/docs/owts\\_policy.pdf](https://www.waterboards.ca.gov/water_issues/programs/owts/docs/owts_policy.pdf)

4. The Regional Water Board is participating with the Russian River Watershed Association and other partners in the development of a regional monitoring program for the Russian River Watershed called the Russian River Regional Monitoring Program (R3MP). As appropriate, implementing parties under this Action Plan are encouraged to participate in the R3MP once it is developed. The goal of the R3MP is to ensure that all publicly and privately funded environmental monitoring conducted in the watershed and related to the implementation of public policy and regulatory requirements is adequately standardized, coordinated, accessible, and designed to cost-effectively answer watershed management questions.

## **VII. SCHEDULE**

1. To implement requirements set forth in this Action Plan, the Regional Water Board will rely on existing regulatory tools (individual and general National Pollutant Discharge Elimination System (NPDES) permits, individual and general Waste Discharge Requirements (WDRs), individual and general Waivers of WDRs), direct enforcement of the fecal waste discharge prohibition, and through implementation of MOUs with local agencies.
2. Table 4 and Table 5 specify the implementation actions to be undertaken by implementing parties and the compliance dates by which the implementation actions must be completed. Implementation actions include compliance with existing WDRs or Waivers, the issuance of new WDRs or Waivers for previously unregulated or under-regulated sources of fecal waste material, and the development and implementation of new management plans and practices to control the discharge of fecal waste to surface waters.
3. For OWTS, the TMDL Action Plan establishes an APMP, which includes 1) an assessment of the adequacy of existing OWTS; 2) the requirements under which OWTS in need of major repair or replacement can be upgraded to return them to proper function; and 3) a requirement that all OWTS within the APMP boundary obtain a basic inspection every five years to ensure that the OWTS is functioning as designed and to identify OWTS that are in need of correction action.
4. The Regional Water Board will periodically review and assess the effectiveness of the Action Plan. The assessment will consider permit compliance, effectiveness of best management practices, and trends in water quality improvement as demonstrated by the R3MP or other equivalent monitoring efforts. Regional Water Board staff will coordinate with local agencies to enter into and implement MOUs and similar agreements and revise the agreements as necessary. The Regional Water Board anticipates full attainment of the bacteria water quality objective in 20 years from the effective date of this Action Plan.

**Table 4. Implementation Actions for Source Categories - Load/Wasteload Allocation = Statewide E. coli Objective**

Fecal Waste Source Category	Implementing Parties (Source)	Implementation Actions and Compliance Date(s)
Municipal Wastewater Discharges	City of Ukiah, City of Healdsburg, City of Santa Rosa, Russian River CSD, Occidental CSD, City of Cloverdale	Compliance with the applicable NPDES permits - Immediate
Wastewater Holding Pond Discharges to Surface Water	Town of Windsor, City of Santa Rosa, Graton CSD, Forestville WD, Russian River CSD, other entities with storage pond discharges to surface water.	1. <b>Within seven years after the effective date of this Action Plan</b> , the Regional Water Board will begin to conduct reasonable potential analyses (RPAs) for entities that discharge wastewater from wastewater holding ponds to surface water. For discharges with reasonable potential to cause or contribute to an exceedance of the WLAs, water quality-based effluent limitations will be established in the applicable waste discharge requirements that will ensure compliance with WLAs for bacteria.
Municipal Storm Water Runoff	Sonoma County, Sonoma County Water Agency, City of Cloverdale, City of Cotati, City of Healdsburg, City of Rohnert Park, City of Santa Rosa, City of Sebastopol, City of Ukiah, Town of Windsor, County of Mendocino, Sonoma State University, and other entities enrolled under the Phase I and Phase II MS4 permits Regional Water Board	1. Compliance with the applicable NPDES permits, including implementation of approved Pathogen Reduction Plans – Immediate 2. <b>Within two years after the effective date of this Action Plan</b> , Phase I and II MS4 enrollees without an approved Pathogen Reduction Plan shall implement a Pathogen Reduction Plan approved by the Regional Water Board Executive Officer. 3. For Phase I and II MS4 Permittees without approved Pathogen Reduction Plans on the effective date of the Action Plan, the Regional Water Board will require submission of the Pathogen Reduction Plans under authority of section 13383/ 13267 subdivision (b) of the Water Code.
California Department of Transportation (Caltrans) Storm Water	Caltrans	Compliance with the applicable NPDES permits – Immediate
Non-dairy Livestock and Farm Animal Waste	Owners and operators of animal facilities, inclusive of animal husbandry, livestock production, other similar agriculture operations, and commercial animal boarding facilities Regional Water Board	1. <b>Within two years after the effective date of this Action Plan</b> , owners and operators of non-dairy livestock and farm animal facilities shall implement BMPs to achieve the assigned load allocation and, if required by the Executive Officer, develop and implement a Ranch Management Plan. Comply with all provisions of a WDR or waiver of WDRs upon adoption by the Regional Water Board to control discharges of waste from non-dairy livestock and farm animal operations. 2. The Regional Water Board will develop and adopt waste discharge requirements or waivers of WDRS for non-dairy livestock and farm animal waste to control the discharges of waste from these and other similar operations.
Dairies and CAFOs	Owners and Operators of Cow Dairies and CAFOs not subject to NPDES permits	Compliance with the applicable WDRs or Waivers – Immediate
Dairies and CAFOs	Owners and Operators of Cow Dairies and CAFOs subject to NPDES permits	1. Compliance with the applicable NPDES permits - Immediate 2. <b>Within two years after the effective date of this Action Plan</b> , enrollees under NPDES permits shall update their permit-required management plans to address sources of bacteria.

**Table 5. Implementation Actions for Source Categories - Load/Wasteload Allocation = Zero**

Fecal Waste Source Category	Implementing Parties (Source)	Implementation Actions and Compliance Date(s)
Percolation Pond and Irrigation Discharges	Calpella CWD, Hopland PUD, City of Cloverdale, City of Ukiah, Geyserville SZ, Airport-Larkfield-Wikiup SZ, Russian River CSD, other publicly and privately-owned wastewater treatment facilities in the Russian River Watershed that collect, treat, and dispose of or recycle treated effluent to land via percolation ponds or by irrigation	Compliance with the applicable WDRs - Immediate
Sanitary Sewer Systems	City of Ukiah, Ukiah SD, Calpella CWD, Hopland PUD, City of Cloverdale, Geyserville SZ, City of Healdsburg , Town of Windsor, Airport-Larkfield-Wikiup SZ, City of Santa Rosa , South Park CSD, City of Cotati, City of Rohnert Park, City of Sebastopol, Sonoma State University, Graton CSD, Forestville WD, Russian River CSD, Occidental CSD, and other public entities that own or operate sanitary sewer systems	Compliance with the applicable WDRs - Immediate
Land Application of Treated Municipal Sewage Sludge (Biosolids)	City of Santa Rosa, other public and private entities applying biosolids as a soil amendment	Compliance with the applicable WDRs - Immediate
Recycled Water Irrigation Runoff	Entities permitted to beneficially reuse treated wastewater through irrigation to land, Regional Water Board	<ol style="list-style-type: none"> <li>1. Compliance with the applicable WDRs, Master Reclamation Permit, Water Recycling Requirements - immediate</li> <li>2. <b>Within three months after the effective date of this Action Plan</b>, each entity that is permitted to beneficially reuse treated wastewater and is implementing a Recycled Water BMP Plan or equivalent BMP Plan shall submit to the Executive Officer written certification that its existing BMP Plan adequately prevents and/or minimizes overspray, spills, and incidental runoff.</li> <li>3. <b>Within two years after the effective date of this Action Plan</b>, each entity that currently recycles water without a Recycled Water BMP Plan or equivalent BMP plan shall develop and implement a Recycled Water BMP Plan. Where the entity is the producer and user of recycled water, the entity shall also submit to the Regional Water Board Executive Officer a Title 22 Engineering Report approved by the State Water Board Division of Drinking Water.</li> <li>4. The Regional Water Board will require submission of the certification statement and, where necessary, notices to update existing Recycled Water BMP Plans under authority of Water code section 13267 subdivision (b) of the Water Code. New Recycled Water BMP Plans, or equivalent BMP Plans, shall be submitted as part of a Notice of Intent for coverage under general WDRs or in conjunction with a report of waste discharge.</li> </ol>



**Table 5. Implementation Actions for Source Categories - Load/Wasteload Allocation = Zero**

Fecal Waste Source Category	Implementing Parties (Source)	Implementation Actions and Compliance Date(s)
Recreational Water Uses and Users	Regional Water Board, Sonoma County, Sonoma County Community Development Commission (CDC), Mendocino County	<ol style="list-style-type: none"> <li>1. In accordance with a Memorandum of Understanding, Sonoma County, the Sonoma County CDC, and the Regional Water Board will work with local entities and private parties along the Russian River to address water quality impacts relative to recreational water uses, and to promote the installation and location of sanitary facilities along the Russian River for use by recreational water users – Immediate</li> <li>2. Mendocino County and the Regional Water Board will develop a Memorandum of Understanding or equivalent agreement to address water quality impacts relative to recreational water uses - Ongoing</li> </ol>
Homeless Encampments; Illegal Camping	Regional Water Board, Sonoma County, Sonoma County CDC, Mendocino County	<ol style="list-style-type: none"> <li>1. In accordance with a Memorandum of Understanding, Sonoma County, the Sonoma County CDC, and the Regional Water Board will implement a Joint Protocol to address water quality impacts relative to homeless encampments and illegal camping - Ongoing</li> <li>2. Mendocino County and the Regional Water Board will develop a Memorandum of Understanding or equivalent agreement to address water quality impacts relative to homeless encampments and illegal camping - Ongoing</li> <li>3. The Regional Water Board will prioritize permitting for homeless-dedicated and affordable housing projects in the Russian River area for which Regional Water Board permits are required - Immediate</li> </ol>
Large Onsite Wastewater Treatment Systems	Owners and operators of all OWTS with individual or combined projected flows greater than 10,000 gpd or owners of OWTS with individual or combined projected flows greater than set forth in an approved LAMP, Regional Water Board	<ol style="list-style-type: none"> <li>1. <b>Within three months after the effective date of this Action Plan</b>, owners and operators of OWTS with projected flow of over 10,000 gpd shall submit a Report of Waste Discharge (ROWD), or equivalent, to the Regional Water Board.</li> <li>2. <b>Within one year after the effective date of this Action Plan</b>, based on the ROWDs received the Regional Water Board may issue WDRs or Waivers of WDRs for Large OWTS located in the Russian River Watershed.</li> </ol>
Existing, New and Replacement Onsite Wastewater Treatment Systems	Owners of Onsite Wastewater Treatment Systems	<p>Owners and operators of Existing, New, and Replacement OWTS shall:</p> <ol style="list-style-type: none"> <li>1. <b>At least every five years beginning after the effective date of the TMDL Action Plan</b>, obtain required inspections and reports and submit to the Regional Water Board, or as directed by the Regional Water Board Executive Officer, the results of inspections, corrective actions, and other required information.</li> <li>2. <b>No later than 5 years after the effective date of the TMDL Action Plan</b>, submit information about individual OWTS as required by the Regional Water Board and the local management agency.</li> <li>3. <b>No later than 15 years after the effective date of the TMDL Action Plan</b>, complete all corrective actions required by the Regional Water Board and the local agency to comply with the TMDL Action Plan. This Compliance date may be <b>extended to 20 years</b> for OWTS owners participating in the planning and construction of community-based wastewater treatment and disposal systems.</li> </ol>