



Public Hearing on Resolution No. R1-2019-0038 to consider adoption of an amendment to the *Water Quality Control Plan for the North Coast Region* to include the Action Plan for the Russian River Watershed Pathogen TMDL and Prohibition against the discharge of fecal waste materials

Item 1

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August 14, 2019

# Presentation Outline

- Purpose and Approach of the TMDL
- Brief History and Timeline
- Overview of May 2019 Public Review Draft
  - Summary of OWTS Requirements
- June 2019 Public Comments
  - Responses to Key Comments on the TMDL
  - Responses to Key Comments on the Program of Implementation
- Status of Technical and Financial Assistance
- Staff recommendation





# Hearing Materials

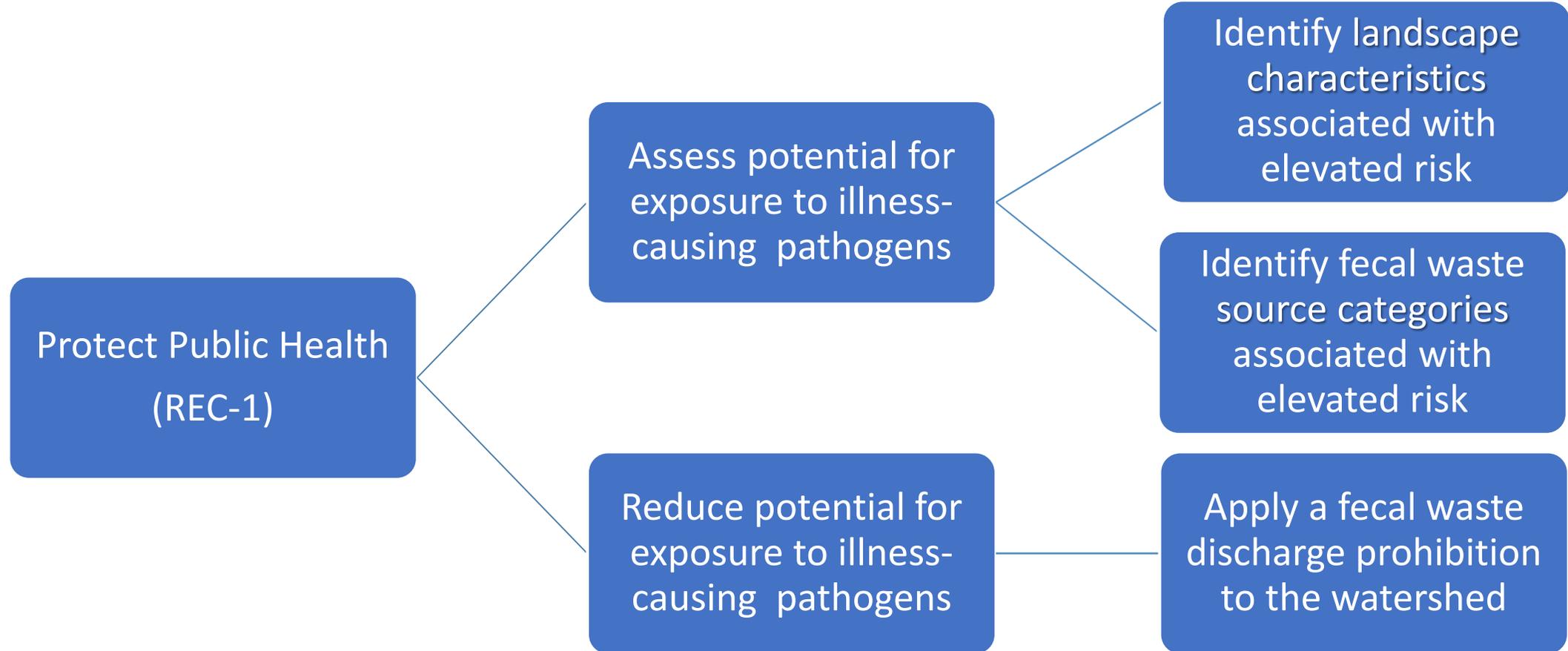
- Executive Officer Summary Report
- Resolution No. R1-2019-0038
- Action Plan for the Russian River Watershed Pathogen TMDL
- Amendment to remove OWTS requirements for the Russian River
- August 2019 Staff Report addendum
- May 2019 Staff Report
- Response to Public Comments: Overview and responses to 2019 comments



# Adoption of Resolution R1-2019-0038

1. Amend the Basin Plan to incorporate the TMDL Action Plan
2. Amend the Basin Plan to remove the OWTS Requirements from Chapter 4
3. Certify the CEQA document

# Purpose and Approach of the TMDL



# Brief History of the Pathogen TMDL Project

## Data Analysis

- Russian River waterbody segments listed as impaired for pathogens
- Russian River Watershed pathogen studies: 2011-2014

## Draft Report

- Scientific Peer Review Draft: January 2015
- First Public Review Draft: August 2015
- Second Public Review Draft: August 2017

## Statewide Bacteria Objective

- State Water Board adoption of statewide bacteria objectives for protection of recreation beneficial use (REC-1): August 2018

## Data Re-analysis

- New findings relative to the impairment-pollution status of subwatersheds
- Third Public Review Draft: May 2019
- Draft “2018” 303(d) List of Impaired Waters: Late 2019

# Timeline for Pathogen TMDL Action Plan



# Timeline for Pathogen TMDL Action Plan (cont'd)





# Overview: TMDL Assessment Approach

## Multiple Tools

- *E. coli*
- Enterococci
- Human-source *Bacteroides*
- Bovine-source *Bacteroides*
- PhyloChip™ phylogenetic DNA microarray

## Multiple Studies

- Ambient water quality monitoring
- Land Cover Study
- Onsite Wastewater Treatment System (OWTS) Study
- Recreation Study

# Russian River Watershed Pathogen TMDL (2019)

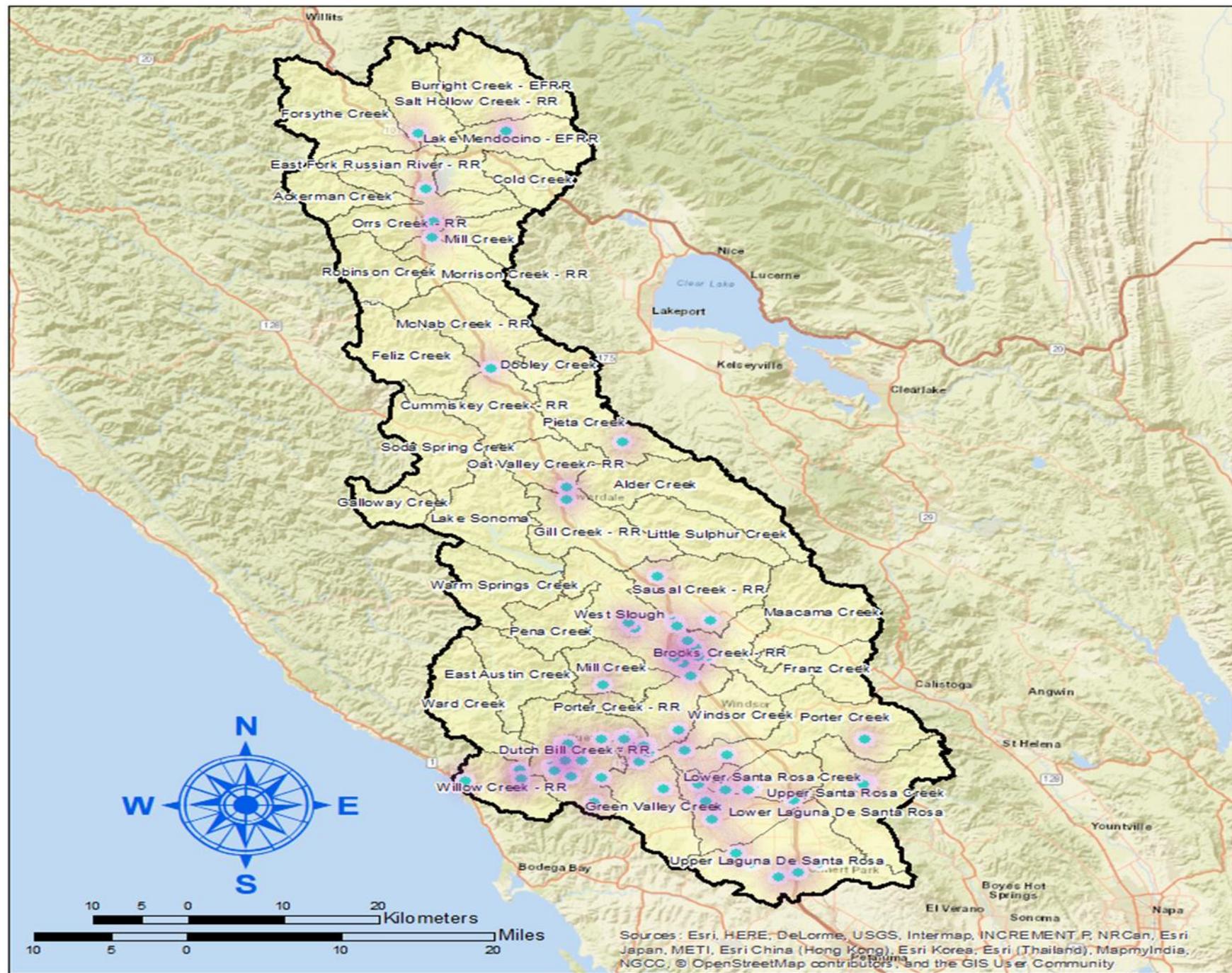
## Fecal Indicator Bacteria Monitoring Locations in the Russian River Watershed

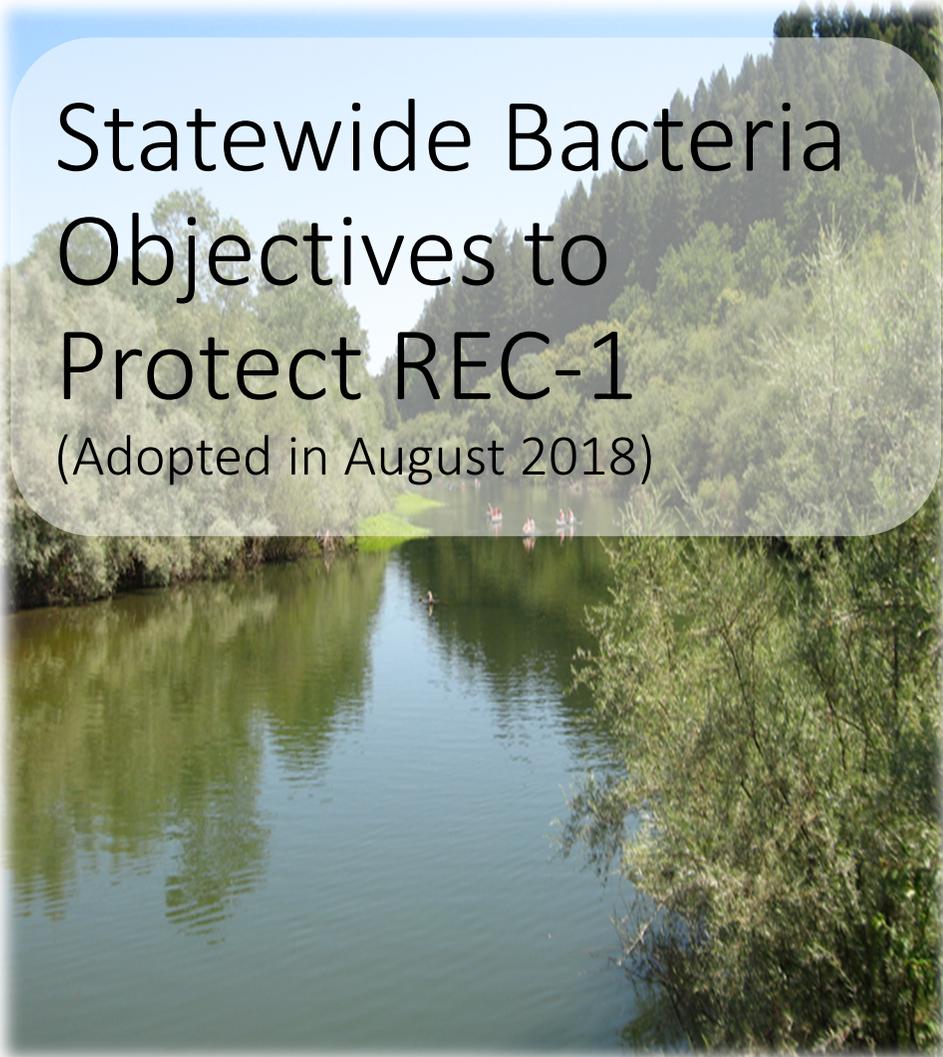


CALIFORNIA  
**Water Boards**  
STATE WATER RESOURCES CONTROL BOARD  
REGIONAL WATER QUALITY CONTROL BOARDS

 Monitoring Locations

 HUC-12 Subwatersheds





# Statewide Bacteria Objectives to Protect REC-1

(Adopted in August 2018)

- **Freshwater objective for *E. coli***
  - Geomean of 100 cfu/100 mL calculated on a rolling 6-week basis
  - Statistical Threshold Value of 320 cfu/100 mL, no more than 10% of the samples to exceed in a calendar month
- **Saline water objective for Enterococci**
  - Geomean of 30 cfu/100 mL calculated on a rolling 6-week basis
  - Statistical Threshold Value of 110 cfu/100 mL, no more than 10% of the samples to exceed in a calendar month
- **Saline water defined by salinity > 1ppt more than 5% of the time in a calendar year**



# Overview: Data Re-Analysis

- Assembled water quality data into 43 HUC-12 subwatersheds
  - The original purpose of these data was to support TMDL studies; not to assess impairment reach by reach
  - Data available in 20 HUC-12 subwatersheds; 15 HUC-12s with sufficient number of data to draw conclusions
- Applied clear criteria to determine impairment/pollution status:
  1. Exceedance of statewide objectives within HUC-12 subwatersheds at a frequency meeting 303(d) Listing Policy
  2. Public health advisories issued in the period of 2013-2018

**PLUS**

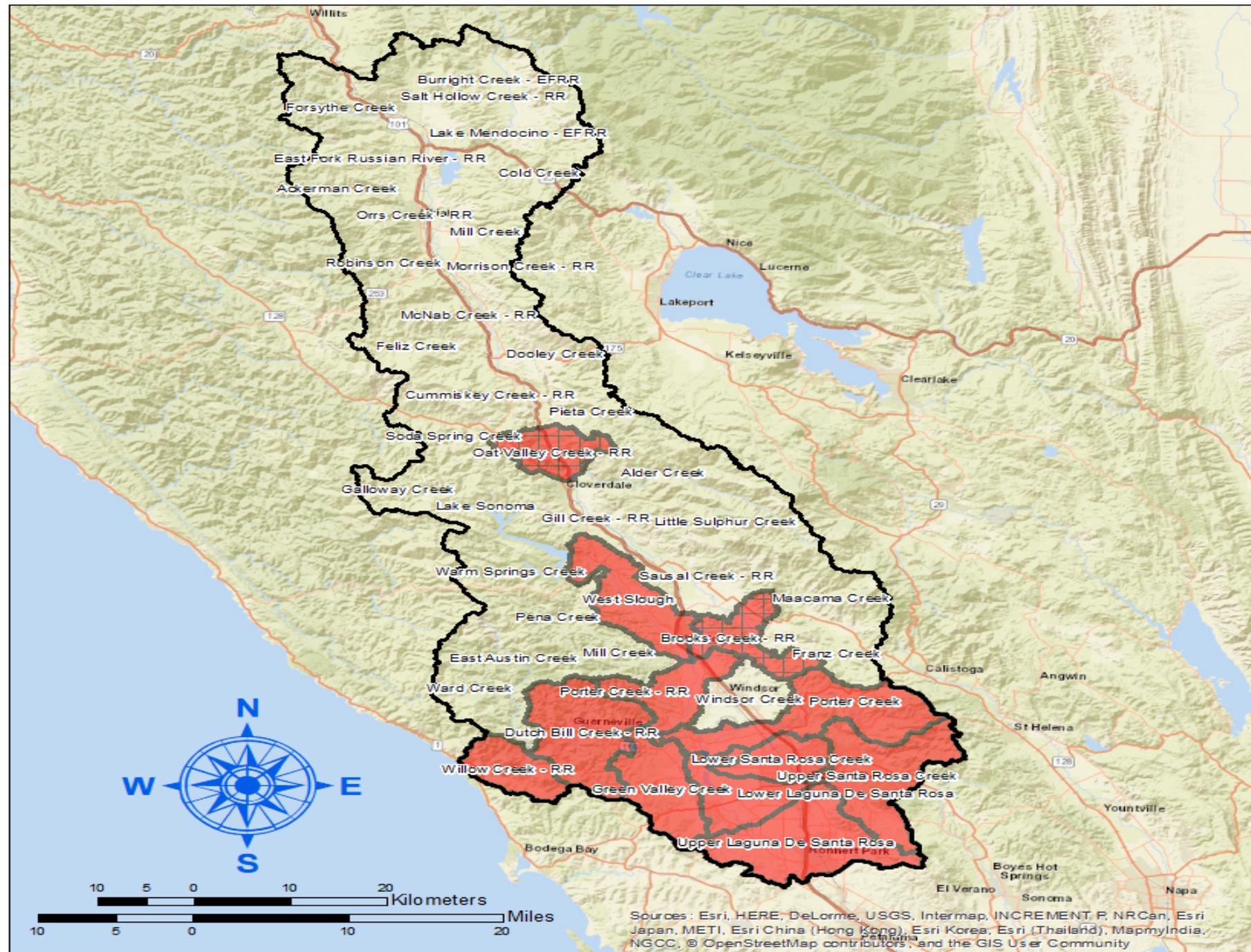
Exceedance of national criteria for enterococci within HUC-12 subwatersheds at a frequency meeting 303(d) Listing Policy
- Identified 12 impaired and polluted HUC-12 subwatersheds

# Russian River Watershed Pathogen TMDL (2019)

HUC-12 Subwatershed  
with Direct Evidence of  
Impairment/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





# Overview: Impaired-Polluted HUC-12 Subwatersheds

## **Based on Exceedance of Statewide Objective**

- 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

## **Based on Public Health Advisories and Exceedance of National Criteria**

- Oat Valley Creek-Russian River
- Brooks Creek-Russian River



# Overview: 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.*

## **Objective**

- Control Sources of Human and Domestic Animal Fecal Waste

## **Implementation**

- Comply with Waste Discharge Requirements
- Implement Best Management Practices
- Implement Local Programs
- Coordinate with Local Partners



# Overview: Load and Wasteload Allocations

## No discharge to surface water allowed

**WLA/LA = 0**

- Municipal wastewater discharges to land
- Sanitary sewer systems
- Land application of biosolids
- Recycled water irrigation runoff
- Large OWTS
- Small OWTS
- Recreational water use and users
- Homeless encampments and illegal camping

## Controlled discharge to surface water allowed

**WLA/LA = WQO**

- Municipal wastewater discharge
- Municipal stormwater discharge
- CalTrans stormwater discharge
- Dairy and CAFO point source discharge
- Dairy and CAFO nonpoint source discharge
- Non-dairy livestock and farm animals nonpoint source discharge



# Overview: Summary of Requirements for Onsite Wastewater Treatment Systems (OWTS)

## **Objective**

- Identify and correct failing and substandard OWTS

## **Applicability**

- OWTS in impaired and polluted HUC-12 Subwatersheds

## **Advanced Protection Management Program**

- Geographic Area
- OWTS Assessment Program
- Requirements for Supplemental Treatment Components

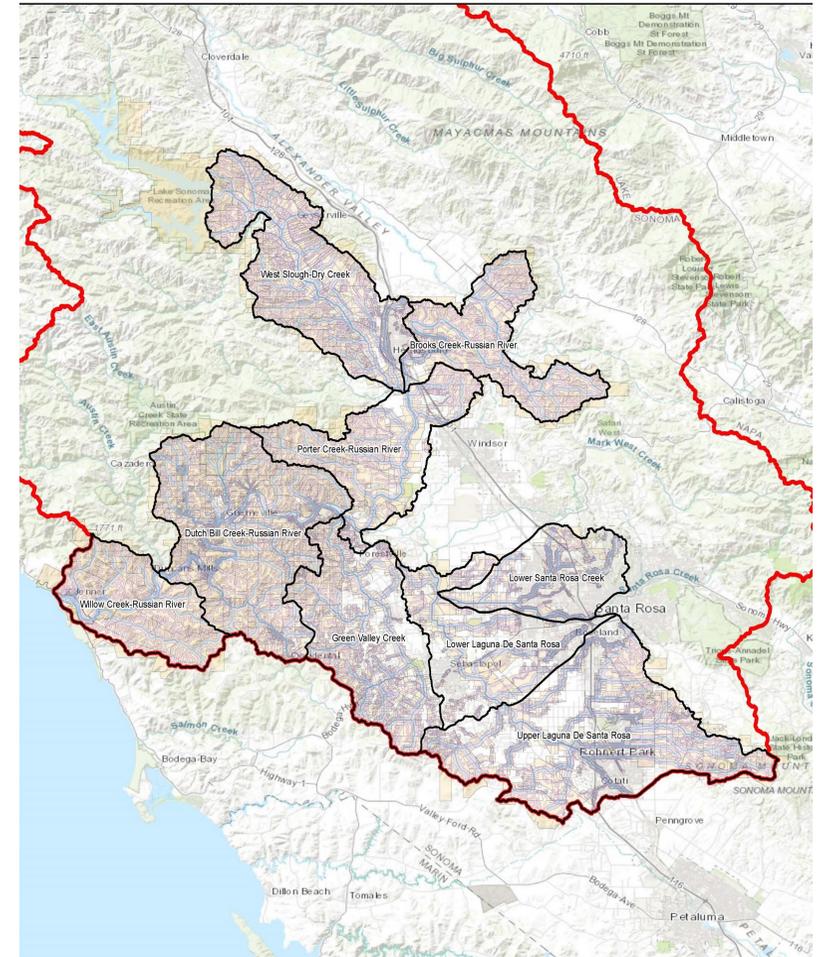
# Geographic Area of the APMP

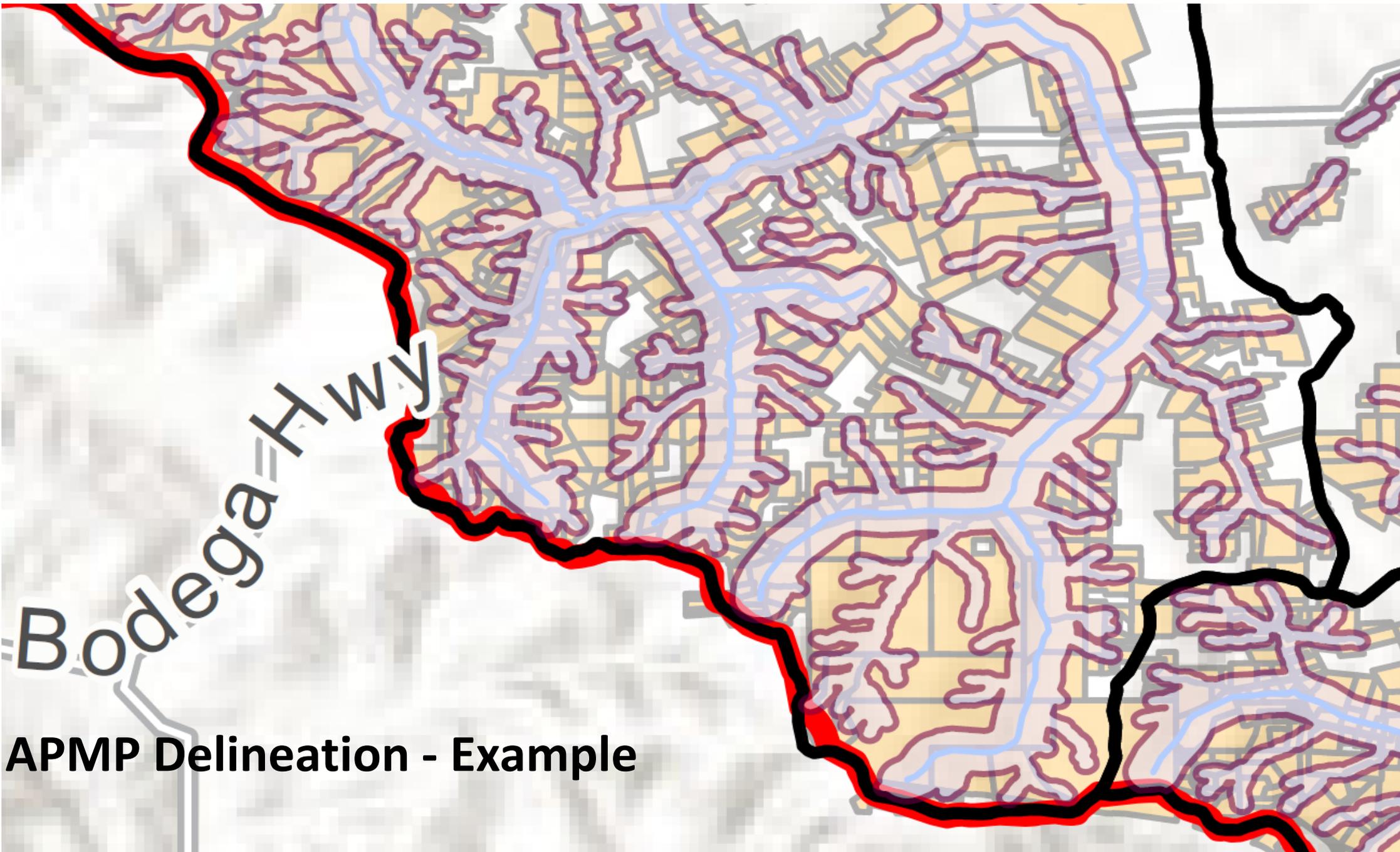
## How was APMP area established?

- (9) HUC 12 Subwatersheds
- Distance of parcels to:
  - Blueline streams (USGS topo map) – 600 feet
  - Intermittent streams (Sonoma County LIDAR) – 200 feet

## How to determine if my parcel is in the APMP?

- Parcel list
- APMP maps
- [https://www.waterboards.ca.gov/northcoast/water\\_issues/programs/tmdls/russian\\_river/#2019](https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/russian_river/#2019)





**APMP Delineation - Example**



# Overview: APMP Requirements

What is required if my parcel is in the APMP?

- Basic Operational Inspection
- Provide Information about OWTS
- Replace Failing, Substandard, Overloaded OWTS
- OWTS Supplemental Treatment



# Supplemental Treatment Components

Required for:

- New OWTS
  - All OWTS within 600 feet of any waterbody in APMP area
- Replacement OWTS
  - Flow increases
  - Large OWTS (projected flow greater than 3,500 gallons per day)
  - Reutilized parcels
  - OWTS less than 600 feet from blueline streams
  - OWS less than 200 feet from small, intermittent streams
  - Existing seepage pits

# Supplemental Treatment Components: Exceptions

OWTS Distance from Waterbody	Minimum Separation to Groundwater	Acceptable Percolation Rate	Acceptable Wastewater Application Rate
< 200 feet	36 inches	30-120 MPI	Not to exceed application rate set forth in Table 3 of OWTS Policy for determined percolation rate
200-600 feet	24 inches	30-120 MPI	
> 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		



# Community Solutions

- Alternatives for OWTS with severe site constraints
- Connection to existing municipal sewer systems, small clustered OWTS
- Formation of Onsite Wastewater Management District(s)
- Secure funding assistance for planning and construction



# Public Comments

- In 2019: 24 individual letters (see Change Sheet)
  - 1 State agency
  - 5 Local agencies
  - 7 Non-governmental organizations and associations
  - 11 Private citizens
- In 2017: 48 individual letters
- In 2015: 78 individual letters



# Key Public Comments in 2019

## TMDL

- Congregating data by HUC-12 subwatershed
- Use of public health advisories
- Use of PhyloChip™ phylogenetic DNA microarray

## Program of Implementation

- Wastewater holding pond discharges
- APMP boundaries
- Qualified Professional for OWTS Inspections
- Cost of Compliance



# Congregating data by HUC-12 Subwatershed

- Previous drafts focused on results of TMDL studies, only
  - Data re-analysis added an assessment of monitoring data directly
  - Staff chose the smallest unit of assessment appropriate given the original purpose of the data
  - 43 HUC-12 subwatersheds based on a national watershed delineation approach
- Some commenters preferred even smaller unit of assessment; no lumping of mainstem with tributaries
  - Called for direct evidence that a given OWTS or neighborhood of OWTS is failing
- TMDL was designed to:
  - Assess 1) risk of exposure to pathogens and 2) landscape characteristics and source categories associated with elevated risk
  - Rely on owners within the APMP to assess the status of their own systems



# Use of Public Health Advisories

- Some commenters viewed the enterococci + public health advisories as “made up”
- Sonoma County issues public health advisories for recreational beaches, when water quality data exceeds national beach action values
  - Public health advisories represent an impact to REC-1 beneficial use
  - Public health advisories are based on instantaneous measurements; since 2013 have used *E. coli* and total coliform thresholds
- Scientific Peer Reviewer recommended use of enterococci in freshwater because of the strength of the epidemiological relationship between the metric and gastrointestinal illness; stronger than *E. coli*
  - Geomean and STV calculations are longer term measurements
- Combination of enterococci + public health advisories is consistent with protection of REC-1 beneficial use, purpose of scientific peer review process, and concept of multiple lines of evidence



# PhyloChip™ phylogenetic DNA microarray

- Some commenters suggested more thorough use of the PhyloChip™ results
- Lawrence Berkeley National Lab was hired to conduct DNA testing in the Russian River.
  - Submitted final report in 2014; published a peer-reviewed journal article on the findings in 2016
  - July 2019 personal communication
- Individual samples were compared to a library of bacteria DNA
  - Identified locations with bacteria that are associated with human and/or grazer fecal waste
  - Identified locations with bacteria associated with specific human illnesses
  - Findings were not well correlated with instantaneous measurements of *E. coli* and enterococci
  - Concluded that some FIB exceedances of instantaneous thresholds may represent elevated bacterial communities from natural sources
- PhyloChip™ results congregated within impaired HUC-12 subwatersheds
  - Combined results with 6-week rolling geomean and monthly STV exceedances of FIBs
  - Refined APMP boundary to exclude impaired HUC-12s with little evidence of human fecal waste discharge



# TMDL Conclusions: APMP Subwatersheds

## **Subwatersheds with exceedances of statewide objective and evidence of human fecal waste**

- 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

## **Subwatersheds with public health advisories, exceedances of national criteria for enterococci and evidence of human fecal waste**

- ~~Oat Valley Creek-Russian River~~
- Brooks Creek-Russian River



# Responses to Key Public Comments on the Program of Implementation

- NPDES Dischargers requested guidance for determining whether discharges from wastewater holding pond contribute to the impairment
  - Response: Provided guidance for Reasonable Potential Analysis
- Some commenters requested reductions in OWTS setback distances to waterbodies in establishing APMP boundaries and requirements for supplement treatment:
  - Response: 1) Reduced supplemental treatment requirement to 200 feet for OWTS near small intermittent waterbodies and 2) conventional OWTS are allowed where there is minimum allowable separation to groundwater and soil with good filtration capability



# Responses to Key Public Comments on the Program of Implementation

- Some commenters requested that the Action Plan explicitly authorize certain certified contractors as eligible Qualified Professionals for OWTS inspections
  - Response: Regional Water Board staff supports expanding the authorized inspector pool. Flexibility for local agency to expand definition of Qualified Professional exists under Action Plan and OWTS Policy and contractor eligibility is best established at local level and approved in Local Agency Management Program (LAMP).
- Some commenters expressed concern about the cost for OWTS inspections and construction of replacement OWTS
  - Response: Action Plan establishes generous compliance schedule and authorizes repairs in substantial conformance with APMP. Staff supports expansion of Qualified Professional definition. Regional Board staff continue to support local agencies in securing public funding for compliance projects.



# Status of Financial and Technical Assistance

## **Engage in Public Outreach for Community Solutions**

- **Monte Rio/Villa Grande Wastewater Project**
  - Feasibility study to evaluate alternatives for OWTS compliance
  - Exploration of funding alternatives (Grants and Loans)
    - State Revolving Fund: Eligible for up to \$500,000 per community for feasibility study and up to \$8 million per community for construction projects including design and environmental review and documentation
    - US Department of Agriculture (USDA): Competitive and favors shovel-ready projects
    - iBank: Private funder, private use limitations, may be useful for septic to sewer projects
    - Others: Water Infrastructure Finance and Innovation Act (WIFIA), Gates Foundation
- Transfer lessons learned to other Russian River communities
- **Facilitate Technical Assistance Contracts**
  - Completing Grant/Loan Applications, Planning, and Community Outreach
  - Formation of Onsite Wastewater Management District



# Summary

- This TMDL is designed to protect public health
- The program of implementation implements the OWTS Policy
- The project is the result of significant public input and responsiveness



# Staff Recommendation

Adopt Resolution No. R1-2019-0038 to amend the Basin Plan to:

1. Incorporate the Action Plan for the Russian River Watershed Pathogen TMDL
2. Amend the OWTS Policy in Chapter 4 to remove special provisions retained for the Russian River Watershed
3. Certify the CEQA document