

California Regional Water Quality Control Board  
North Coast Region

**Russian River Pathogen TMDL**

**Supplemental Sampling Plan**

July 2013

## **1.0 INTRODUCTION**

The North Coast Regional Water Quality Control Board (Regional Water Board) staff are developing the Russian River Total Maximum Daily Loads (TMDLs) for pathogen indicators to identify and control bacterial contamination. Potential pathogen contamination has been identified in three areas of the lower and middle Russian River watershed (Hydrologic Units 114.10 and 114.20). This has led to the placement of waters within these areas on the federal Clean Water Act Section 303(d) list of impaired waters. The contamination identified has been linked to impairment of the contact recreation (REC-1) and non-contact recreation (REC-2) designated beneficial uses. Health advisories have been published and/or posted by Sonoma County and the City of Santa Rosa authorities.

To support the development of the Russian River Pathogen TMDL, water quality samples of pathogenic indicator bacteria and other measurements were collected by Regional Water Board staff during 2011-2012. The monitoring study focused on microbial source identification in the middle and lower Russian River watershed that included both dry and wet weather water sample collection and laboratory analyses for pathogenic indicator bacteria (NCRWQCB 2012). Funding has become available to collect additional water samples from the upper Russian River watershed.

## **2.0 KEY QUESTION FOR TMDL DEVELOPMENT**

This Sampling Plan was designed to answer the following management question:

- Are pathogenic indicator bacteria concentrations in the Upper Russian River watershed similar to concentrations measured in the Lower and Middle reaches of the watershed?

## **3.0 SAMPLING PLAN**

This Sampling Plan outlines collection of water samples that Regional Water Board staff plan to complete for developing the Russian River Pathogen TMDL.

### ***3.1 Quality Assurance Project Plan***

Regional Water Board staff developed a *Russian River Pathogen TMDL Quality Assurance Project Plan (QAPP)* (Fadness and Butkus 2011). The QAPP outlines data quality objectives, sampling procedures, equipment calibration and reporting, quality control procedures, and documentation. This Sampling Plan will be conducted by Regional Water Board staff according to the methods specified in the QAPP.

### 3.2 Sampling Locations and Frequency

Samples will be collected at six (6) locations on the Russian River (Table 1). These locations represent reaches where no recent information exists on pathogenic indicator bacterial contamination. Most of these locations have an accompanying stream flow gaging station nearby that will allow a comparison to load duration curves (USEPA 2007). Samples will be collected once each week for the last three (3) weeks of August 2013 (August 13, 20 and 27).

Table 1. Sampling Locations

SWAMP ID	Location	Reach Represents	Latitude	Longitude
114RR9181	Russian River at East School Way	Redwood Valley	39.264964	-123.208231
114EF6320	E.F. Russian River at East Road	Potter Valley	39.270379	-123.100581
14RR8709	Russian River at Lake Mendocino Drive	Northern Ukiah	39.195557	-123.194882
114RR8402	Russian River at Vichy Springs Road	Middle Ukiah	39.155140	-123.184108
114RR8265	Russian River at Talmadge Road	Southern Ukiah	39.134388	-123.186425
114RR6968	Russian River at River Road	Hopland	38.971371	-123.106683

### 3.3 Laboratory Analyses

Analysis of water samples for *E. coli*, total coliform, and *Enterococcus* bacteria concentrations analysis will be conducted at the Regional Water Board Microbiology Laboratory. Total coliform and *E. coli* analyses will be conducted utilizing the IDEXX (2001) Colilert® protocols. *Enterococcus* analysis will be conducted utilizing the IDEXX (2001) Enterolert® protocols. Analysis of water samples for *Bacteroides* bacteria concentrations will be conducted by Sonoma County Public Health Laboratory. Both the total and the human-host *Bacteroides* bacteria concentrations will be analyzed.

#### **4.0 CITATIONS**

IDEXX. 2001. Colilert® and Enterolert® Test Pack Procedures IDEXX Laboratories, Inc., Westbrook, Maine.  
([http://www.idexx.com/view/xhtml/en\\_us/water/water-microbiology.jsf](http://www.idexx.com/view/xhtml/en_us/water/water-microbiology.jsf)).

Fadness, R. and S. Butkus. 2011. Russian River Pathogen Indicator Bacteria TMDL – Quality Assurance Project Plan. Dated May 19, 2011. North Coast Regional Water Quality Control Board, Santa Rosa, CA.

NCRWQCB, 2012. Russian River Pathogen TMDL – 2011-2012 Monitoring Report. North Coast Regional Water Quality Control Board, Santa Rosa, CA.

USEPA 2007. An Approach for Using Load Duration Curves in the Development of TMDLs. EPA 841-B-07-006. U.S. Environmental Protection Agency, Washington DC.