Public Workshops

2008 Integrated Report for the 305(b) Surface Water Assessment & 303(d) List of Impaired Waters

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North Coast Regional Water Quality Control Board
February 17, 18, & 19, 2009

Presentation Outline

1. Overview of the 2008 Integrated Report
2. History
3. Assessment Process
4. Staff Recommendations
5. Waterbody-Specific Recommendations
6. Questions & Comments

What is the 2008 Integrated Report?

Combination of the:

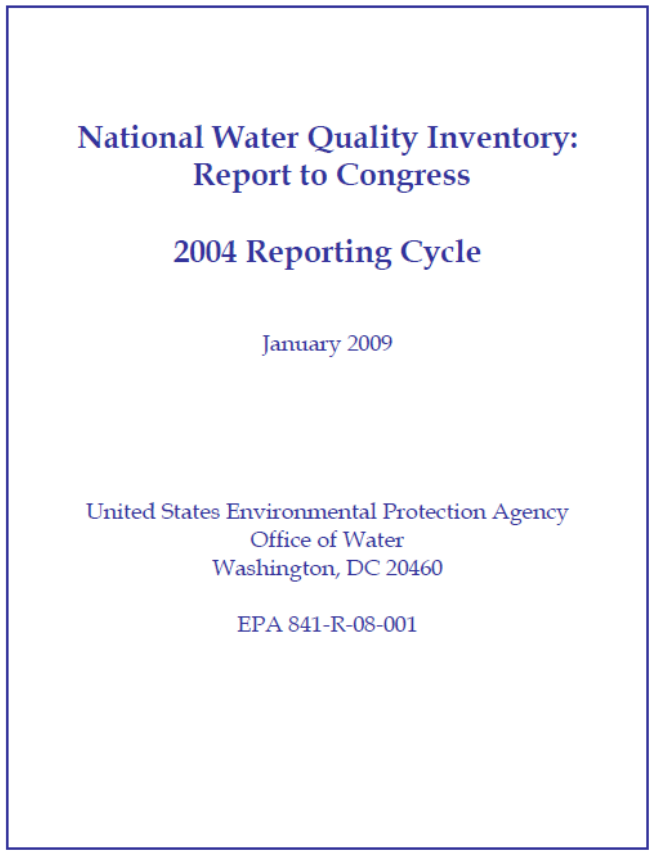
- **CWA Section 305(b)**
  Surface Water Quality Assessment Report
  (includes impaired & non-impaired waters)
- **CWA Section 303(d)**
  List of Impaired Waters

Requirements of the federal Clean Water Act (CWA)

What is the 2008 Integrated Report?

305(b) Report:

- Biennial assessment of surface waters
- Compiled by US EPA into the "*National Water Quality Inventory Report to Congress*"


National Water Quality Inventory:
Report to Congress

2004 Reporting Cycle

January 2009

United States Environmental Protection Agency
Office of Water
Washington, DC 20460

EPA 841-R-08-001

What is the 2008 Integrated Report?

303(d) List:

- Identifies waters not meeting water quality standards
- Identifies pollutant(s) – but does not ID sources
- Includes a priority ranking
- A total maximum daily load (TMDL) is generally developed for waters on the 303(d) List

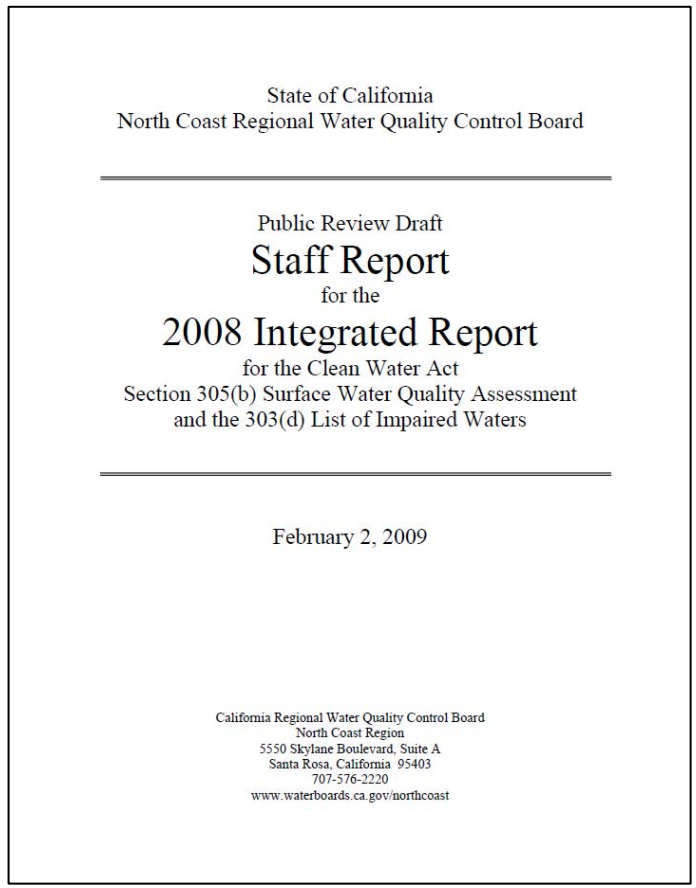
Process

Regional Water Board staff develops 2008 Integrated Report

Regional Water Board considers adoption

State Water Board considers adoption

US EPA considers approval



State of California
North Coast Regional Water Quality Control Board

Public Review Draft

Staff Report
for the
2008 Integrated Report
for the Clean Water Act
Section 305(b) Surface Water Quality Assessment
and the 303(d) List of Impaired Waters

February 2, 2009

California Regional Water Quality Control Board
North Coast Region
5550 Skylane Boulevard, Suite A
Santa Rosa, California 95403
707-576-2220
www.waterboards.ca.gov/northcoast

History

1976 to 2002: 303(d) List updates developed by Regional Water Board

2004: No 303(d) List Update

2006: 303(d) & 305(b) developed by State Water Board

2008: 303(d) & 305(b) developed by Regional Water Board again

Definitions

Listing Policy:

- **The "Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List"**
- **Adopted by the State Water Board in September 2004**

Waterbody-Pollutant Pair:

- **A stretch of a waterbody plus the pollutant (e.g., Eel River for sediment, or Eel River for temperature)**

Fact Sheet:

- **Developed for each waterbody-pollutant pair**
- **Includes a decision and all supporting lines of evidence**

To Find a Fact Sheet

http://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/303d/2008_integrated_report.shtml

Assessment Process

Step 1: Obtain data

Step 2: Analyze data according to rules of the Listing Policy

Step 3: Develop Line(s) of Evidence

Step 4: Make Decision (aka: staff recommendations)

Assessment Process
Step 1: Obtain Data

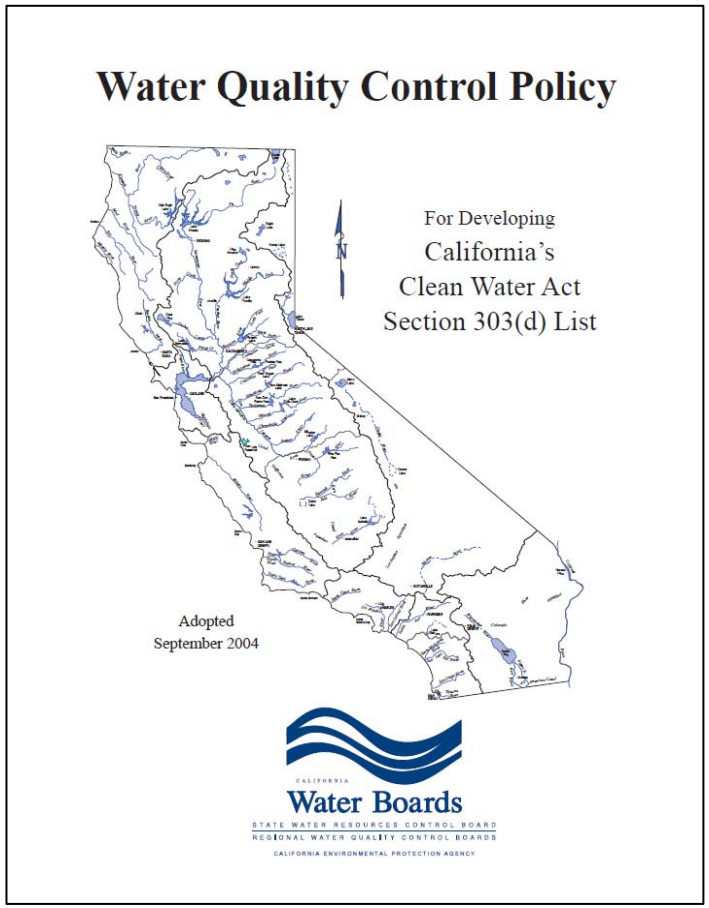
Data Sources:

- Data submitted by the public during solicitation period (12/4/06 to 2/28/07)
- Data from the 2006 List
- Data from SWAMP (the Surface Water Ambient Monitoring Program)
- Counties' ocean beach monitoring data under AB411
- Data collected by staff, other agencies, tribes, citizen monitoring groups, dischargers, and academic institutions

Assessment Process
Step 2: Analyze Data

- Staff determined if the data were useable. We needed to know:
  - Who collected the data
  - What pollutants were measured
  - When were the samples collected
  - Where were the samples collected
  - How were the samples collected and how were the samples analyzed in the laboratory (QA/QC, QAPP)
- Data were analyzed in accordance with the rules of the Listing Policy

Listing Policy



- Includes rules on what data are useable
- Includes listing and delisting rules
- Allows for weight of evidence approach
- Available at: http://www.waterboards.ca.gov/water_issues/programs/tmdl/303d_listing.shtml

Assessment Process
Step 3: Develop Line of Evidence

- Staff input useable data into a line of evidence (LOE)
- LOEs were input into the California Water Quality Assessment Database
- LOEs summarize the who, what, where, when, and how for each data set and for each waterbody
- LOEs highlight the number of samples
- LOEs highlight the number of exceedances
- Almost 800 LOEs were developed

Example LOE for Pudding Creek Beach

LOE ID:	**25323**
Pollutant:	**Total Coliform**
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	Total
Beneficial Use:	Water Contact Recreation
Number of Samples:	21
Number of Exceedances:	6
Data and Information Type:	Pathogen Monitoring
Data Used to Assess Water Quality:	Three of the 85 single samples of total coliform collected at Pudding Creek Beach exceed the objective. Additionally, six of the 21 30-day geomean values exceed the objective. The single sample and geomean values are two different matrices used Mendocino County Division of Environmental Health in accordance with AB411 (Chapter 765, Statutes of 1997) requirements. Data is maintained by the State Water Board's Beach Watch program. Data is summarized by the North Coast Regional Water Board (North Coast RWQCB 2007).
Data Reference:	North Coast Beach Watch Data. Bacteria data collected by Del Norte County, Humboldt County, Mendocino County Environmental Health Division, Sonoma County Division of Environmental Health, and Marin County in accordance with AB411. Data managed by the State Water Resources Control Board's Beach Watch program at beachwatch.waterboards.ca.gov. Includes data from 2004 to 2006
Water Quality Objective/Criterion:	Per the Ocean Plan (SWRCB 2005): The following bacterial objectives shall be maintained throughout the water column. The following standard is based on the 30-day geometric mean of the five most recent samples from each site: Total coliform density shall not exceed 1,000 MPN per 100 ml. The following standard is for the single sample maximum: (i) Total coliform density shall not exceed 10,000 per 100 ml; and (ii) Total coliform density shall not exceed 1,000 per 100 ml when the fecal coliform/total coliform ratio exceeds 0.1. *Note: MPN is the most probable number of coliform units.
Objective/Criterion Reference:	Water Quality Control Plan Ocean Waters of California. California Ocean Plan 2005. Sacramento, CA: State Water Resources Control Board, California Environmental Protection Agency
Evaluation Guideline:	
Guideline Reference:	
Spatial Representation:	Samples were collected at Pudding Creek Beach.
Temporal Representation:	Samples were collected weekly from April to October 2005 and April to October 2006.
Environmental Conditions:	Samples were collected during the dry season. Otherwise, there are no known environmental conditions (e.g., land use practices, fire events, storms, etc.) that are related to these data.
QAPP Information:	Samples were collected and analyzed in accordance with the Sampling and Analysis Plan and the Laboratories and Laboratory Analyses procedures described in the "Draft Guidance for Salt Water Beaches" (DHS 2006).
QAPP Information Reference(s):	Draft Guidance for Salt Water Beaches. Last Update: April 10, 2006. Initial Draft: November 1997. Division of Drinking Water and Environmental Management, California Department of Health Services

Assessment Process
Step 3: Develop Line of Evidence

Staff compared data to water quality objectives or evaluation guidelines to get number of exceedances

Water Quality Objectives:

- Limits on pollutants to protect beneficial uses of water
- Primarily found in water quality regulations

Evaluation Guidelines:

- A numeric threshold used to interpret a narrative objective

Assessment Process
Step 4: Make Decision

Staff developed a decision for each waterbody-pollutant pair using the information in the LOEs.

Example Decision for Pudding Creek Beach

WATER BODY NAME:	**PUDDING CREEK BEACH**
Water Body ID:	CAC113200502008101322460 4
Water Body Type:	Coastal & Bay Shoreline
DECISION ID	12178
Pollutant:	**INDICATOR BACTERIA**
Final Listing Decision:	List on 303(d) list (TMDL required list)
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Revised
Sources:	Source Unknown
Expected TMDL Completion Date:	2021
Pollutant or Pollution:	Pollutant
Weight of Evidence:	Indicator bacteria (which includes enterococcus, fecal coliform, and total coliform) is being considered for placement on the Section 303(d) list under Section 3.3 of the Listing Policy. Under this section a single line of evidence is necessary to assess listing status. Three lines of evidence are available in the administrative record to assess indicator bacteria. Data assessed for the 2008 Integrated Report include ocean beach bacteria data collected by the Mendocino County Environmental Health Division in accordance with AB411 (Chapter 765, Statutes of 1997) requirements. In accordance with Section 3.3 of the Listing Policy, a 4% exceedance percentage shall be used to add waters to the List. This equates to no more than 3 exceedance each for enterococcus, fecal coliform, and total coliform single sample values. This also equates to no more than 1 exceedance each for enterococcus, fecal coliform, and total coliform 30-day geomean values. Two of the 21 enterococcus geomean values exceed the objective. Six of the 21 total coliform geomean values exceed the objective. Based on the readily available data and information, the weight of evidence indicates that there is sufficient justification for adding this water segment-pollutant combination to the Section 303(d) list (i.e., sufficient justification to list). This conclusion is based on the staff findings that: (1) The data used satisfies the data quality requirements of Section 6.1.4 of the Policy. (2) The data used satisfies the data quantity requirements of Section 6.1.5 of the Policy. (3) Enterococcus and total coliform geomean values exceed the objective more than the 4% allowable frequency identified in Section 3.3 of the Listing Policy. (4) Pursuant to Section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are met.
RWQCB Staff Recommendation:	After review of the available data and information, North Coast RWQCB staff concludes that the water body-pollutant combination should be placed on the Section 303(d) List because applicable water quality standards are exceeded and a pollutant contributes to or causes the problem.
SWRCB Board Decision / Staff Recommendation:	
USEPA Decision:	

Assessment Process
Step 4: Make Decision

What decisions did staff make?

1. Do List
2. Do Not List
3. Do Delist
4. Do Not Delist

Step 4: Make Decision

Waterbody/Pollutant IS NOT on the 2006 303(d) List:

List (impaired)	**or**	**Do Not List** (not impaired or not enough data)

Waterbody/Pollutant IS on the 2006 303(d) List:

Do Not Delist (impaired)	**or**	**Delist** (not impaired)

Assessment Process
Step 4: Make Decision

How did staff determine impairment?

Staff applied the rules of the Listing Policy:

- **Exceedance Frequency**
  (e.g., impairment ≥ 2 exceedances out of 20 samples)
- **Weight of Evidence**
  (objective clearly not attained)

Assessment Process
Step 4: Make Decision

- Staff determined the beneficial use support category for each waterbody
- 305(b) Water Quality Assessment requirement

Beneficial Use Support Rating Categories

Category	Description
1	All core uses are supported.
2	Some core uses are supported.
3	Insufficient information is available to make use support determinations.
4A	At least one use is not supported and a TMDL has been developed.
4B	At least one use is not supported and a TMDL is not needed because an existing regulatory program will address impairment.
5	At least one use is not supported and a TMDL is needed.

Note: Category 4C is not used in California.

Recommendations

- 550 waterbody-pollutant pair recommendations
- 6 new delistings
- 14 new listings

Delisting Recommendations
(see your handout)

Waterbody Hydrologic Unit	Waterbody Name	Pollutant
Bodega HU	Doran Regional Park	Indicator Bacteria
Bodega HU	Salmon Creek Park (South)	Indicator Bacteria
Eel River HU	Middle Fork Eel River, Wilderness HSA & Black Butte River HSA	Sediment/Siltation
Eel River HU	North Fork Eel River, Upper North Fork Eel River Watershed (area north of the Six Rivers National Forest)	Sediment/Siltation
Klamath River HU	Salmon River HA, Wooley Creek	Temperature, water
Russian River HU	Guerneville HSA, Pocket Canyon Creek	pH

Listing Recommendations
(see your handout)

Waterbody Hydrologic Unit	Waterbody Name	Pollutant
Eel River HU	Lower Eel River HA, Eel River Delta	Dissolved Oxygen
Klamath River HU	Middle & Lower Klamath River HAs, Iron Gate Dam to Scott River Reach, mainstem Klamath River	Microcystin
Klamath River HU	Middle Klamath River HA, Scott River to Trinity River Reach, mainstem Klamath River	Microcystin
Klamath River HU	Middle & Lower Klamath River HAs, Iron Gate Dam to Scott River Reach, Selected Areas	Sediment
Klamath River HU	Middle Klamath River HA, Scott River to Trinity River Reach, Selected Areas	Sediment
Klamath River HU	Shasta River HA, Lake Shastina	Mercury
Mad River HU	Mad River	DDE
Mendocino Coast HU	Hare Creek Beach	Indicator Bacteria
Mendocino Coast HU	Pudding Creek Beach	Indicator Bacteria
Russian River HU	Geyserville HSA, Unnamed Tributary (Stream 1) at Fitch Mountain	Indicator Bacteria
Russian River HU	Green Valley Creek Watershed	Indicator Bacteria
Russian River HU	Green Valley Creek Watershed	Dissolved Oxygen
Russian River HU	Guerneville HSA	DDT
Russian River HU	Laguna de Santa Rosa	Indicator Bacteria

To Find a Fact Sheet

http://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/303d/2008_integrated_report.shtml

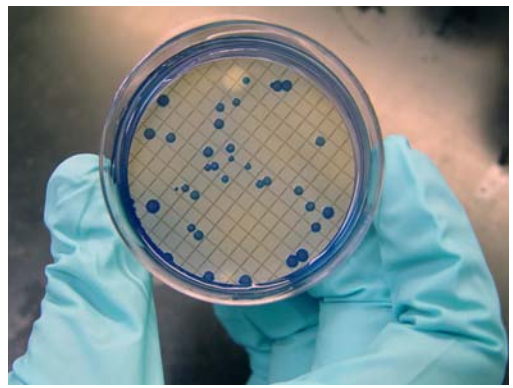
Specific Recommendations

- Russian River for Indicator Bacteria
- Humboldt Bay for Dioxin
- Klamath River for Sediment
- Klamath River for Microcystin Toxin
- Lake Shastina for Mercury

Russian River Indicator Bacteria

What are Indicator Bacteria?

- Total Coliform
- Fecal Coliform
- *Escherichia coli* (*E. coli*)
- Enterococcus



Indicate presence of pathogens

Russian River Indicator Bacteria

Staff Recommendation:

Do Not Delist and keep as impaired:

- Russian River mainstem at Healdsburg Memorial Beach
- Russian River mainstem from Fife Creek to Dutch Bill Creek
- Santa Rosa Creek and tributaries

List as impaired:

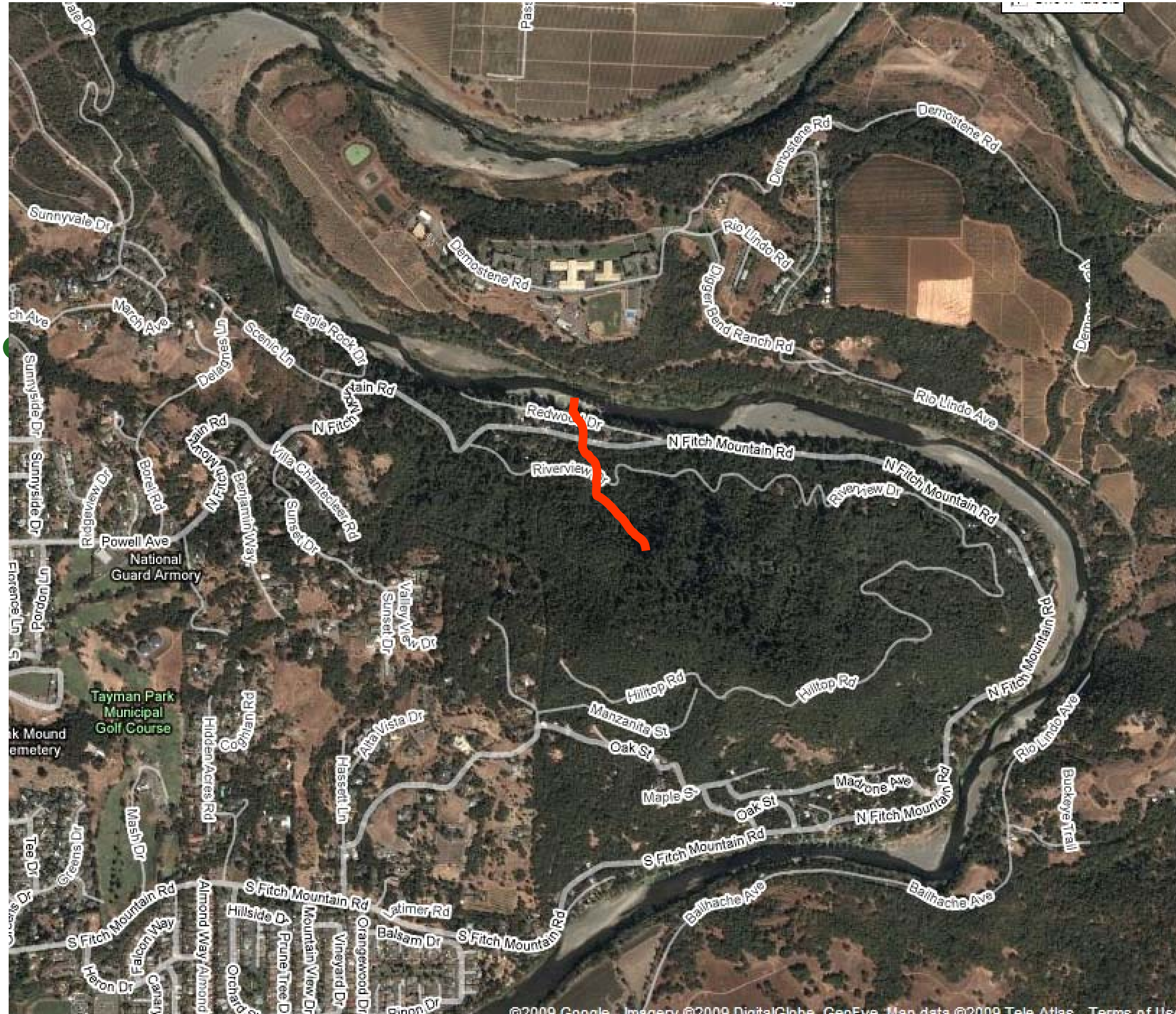
- Laguna de Santa Rosa
- Green Valley Creek and tributaries
- Unnamed tributary to mainstem at Fitch Mountain

Do Not List:

- Rest of the Russian River Watershed

Russian River Watershed

Russian River Indicator Bacteria Listings



Demostene Rd
Rio Lindo Rd
Digger Bend Ranch Rd
Rio Lindo Ave
Sunnyvale Dr
March Ave
Scenic Ln
Eagle Rock Dr
Delagnes Ln
Redwood Dr
N Fitch Mountain Rd
Riverview Dr
Villa Chanteclaer Rd
Benjamin Way
Sunset Dr
Borel Rd
Ridgeview Dr
Sunnyside Dr
Powell Ave
National Guard Armory
Florence Ln
Pordon Ln
Valley View Dr
Tayman Park Municipal Golf Course
Hilltop Rd
Manzanita St
Oak St
Maple St
Madrone Ave
S Fitch Mountain Rd
Alta Vista Dr
Coughlan Rd
Hidden Acres Rd
Hassett Ln
Latimer Rd
Hillside Dr
Almond Way
Mountain View Dr
Vineyard Dr
Orangewood Dr
Prune Tree Dr
Orchard St
Balsam Dr
Pinon Dr
Falcon Way
Heron Dr
Mash Dr
Tee Dr
Greens Dr
Bailhache Ave
Buckeye Trail
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Russian River Indicator Bacteria

Staff Analyzed Data Collected By:

- Community Clean Water Institute
- First Flush
- Sonoma County Water Agency
- City of Santa Rosa & Sonoma Co Environmental Health Division
- Regional Water Board staff

Russian River Indicator Bacteria Monitoring Locations

Russian River Mainstem

- East Fork
- West Fork
- Geyserville
- Camp Rose Beach
- Healdsburg Memorial Beach
- Forestville Access Beach
- Steelhead Beach
- Oddfellows Bridge
- Midway Beach
- Johnson's Beach
- Vacation Beach
- Monte Rio Beach

Tributaries

- Gibson Creek (Ukiah)
- Fitch Mountain Tributaries
- Foss Creek (Healdsburg)
- Laguna de Santa Rosa
  - Mark West Creek
  - Santa Rosa Creek & Matanzas Creek
  - 5 other tributaries
- Green Valley Creek (Forestville)
- Fife Creek (Guerneville)
- Dutch Bill Creek (Monte Rio)

Russian River Indicator Bacteria

What is the relationship to current TMDLs?

- TMDLs currently being developed will include newly listed waters.
- Assumes new listings are adopted.

Russian River Indicator Bacteria

How do new listings apply to the draft regulations for on-site wastewater treatment systems (OWTS)?

It is unknown

- Draft regulations are to be re-written
- Russian River Indicator Bacteria TMDL is still being developed

Russian River Indicator Bacteria

How do new listings apply to the draft regulations for on-site wastewater treatment systems (OWTS)?

Under Current Proposal:

- **IF** an indicator bacteria or pathogen TMDL determines that OWTS (e.g., septic systems) are contributing to impaired conditions . . .
- **THEN** there are requirements for the inspection of those systems within 600' of an impaired waterbody. Based on the inspection, there might be requirements to repair or upgrade the system or connect to a municipal sewer system.

Russian River Indicator Bacteria

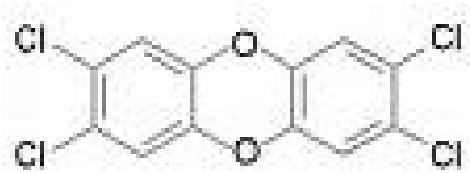
To Receive Future Notices on OWTS:

Subscribe online at:

www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.shtml

Humboldt Bay Dioxin

What are dioxins?



- Group of chlorinated chemicals
- By-products of pesticides, wood preservatives, and other organochlorides
- Concerns:
  - In Humans: Probable Cancer-Cause
  - In Animals: Causes cancer, birth defects, mutations, and malfunctions to the liver, immune, nervous, and reproductive systems
  - High potential for bioaccumulation
  - Long lasting in the environment

Humboldt Bay Dioxin

What is the Dioxin Toxic Equivalent?

- Developed to describe the cumulative toxicity of complex mixtures of dioxins
- Compares the toxicity of many dioxins to the most toxic dioxin: 2,3,7,8-tetracholorodibenzodioxin (2,3,7,8-TCDD)
- Other dioxin congeners are given a toxicity factor that relates (as a percent) to the toxicity of 2,3,7,8-TCDD
- The TCDD Equivalent = Sum of all dioxins and furans concentrations after they have been multiplies by their respective toxicity factors

Humboldt Bay Dioxin

Staff Recommendation:

- Do Not Delist and keep as impaired

Humboldt Bay Dioxin

Staff Analyzed Data Collected By:

- Regional Water Board staff – mussel tissue
- CA Dept of Health Services – shellfish tissue
- EnviroNet and ENVIRON on behalf of Sierra Pacific Industries – shellfish tissue
- Geomatrix on behalf of Sierra Pacific Industries – fish tissue
- Toxscan Inc. and Kinnetic Laboratories Inc. on behalf of US Army Corps of Engineers – sediment
- Soil/Water/Air Protection Enterprise – sediment

Humboldt Bay Dioxin

Evaluation Guidelines

- **Fish & Shellfish Tissue**
  - Developed by OEHHA and used by the State Water Board for the 2006 List
  - Protective of human consumption. Based on consumption of 21 g/day by an average-weight adult (154 lbs)
  - Tissue concentration ≥ 0.3 ng/kg. Compare to the 2,3,7,8-TCDD Toxic Equivalent Concentration for mammals.
- **Sediment**
  - Developed by the Canadian Counsel of Ministers of the Environment
  - Protective of aquatic life.
  - Sediment concentration ≥ 0.85 ng/kg. Compare to the 2,3,7,8-TCDD Toxic Equivalent Concentration for fish.

Humboldt Bay Dioxin

Next Steps

- Continue to work with stakeholders
- Develop the TMDL

Klamath River Sediment

Staff Recommendation:

Do Not Delist and keep as impaired:

- **Klamath Glen Hydrologic Subarea**
- **Scott River Watershed**
- **Trinity River Watershed**

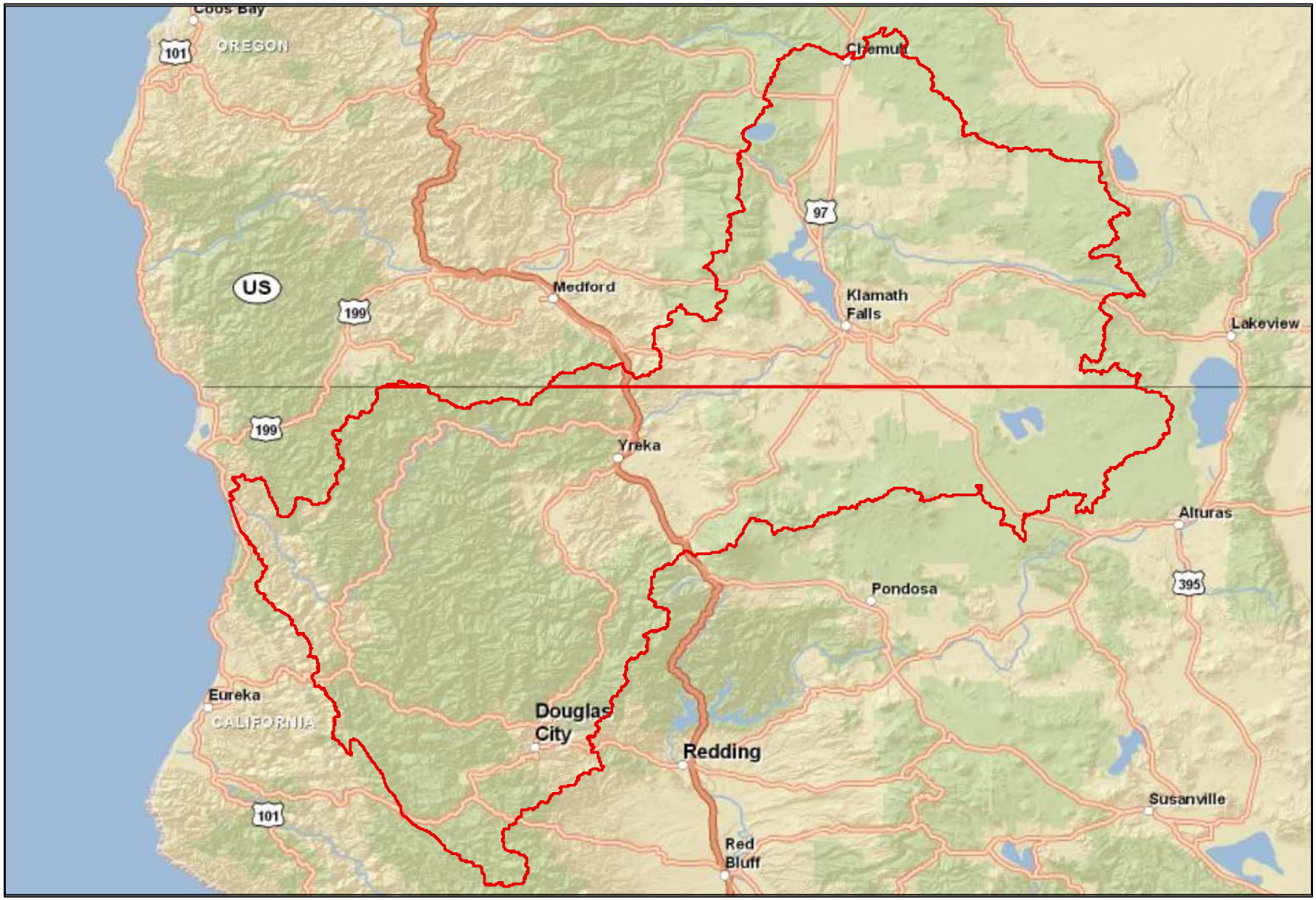
List as impaired:

- **Iron Gate Dam to Scott R. Reach:**
  - Mainstem Klamath R. from the confluence of Beaver Ck to the confluence of the Salmon R.
  - Beaver Ck, Collins Ck, Cove Gulch, Doggett Ck, Dona Ck, Everill Ck, Horse Ck, Howard's Gulch, Kinsman Ck, Kohl Ck, Lime Gulch, Sambo Ck, and Smith Gulch watersheds
- **Scott R. to Trinity R. Reach:**
  - Mainstem Klamath R. from the confluence of O'Neil Creek to the confluence of Elk Creek
  - Cade Ck, Caroline Ck, China Ck, Elk Ck, Fryingpan Ck, Fort Goff Ck, Grider Ck, Horse Ck, Indian Ck, Joe Miles Ck, O'Neil Ck, Portuguese Ck, Ranch Gulch, Schutts Gulch, Seiad Ck, Thompson Ck, Walker Ck, and Walker Gulch watersheds

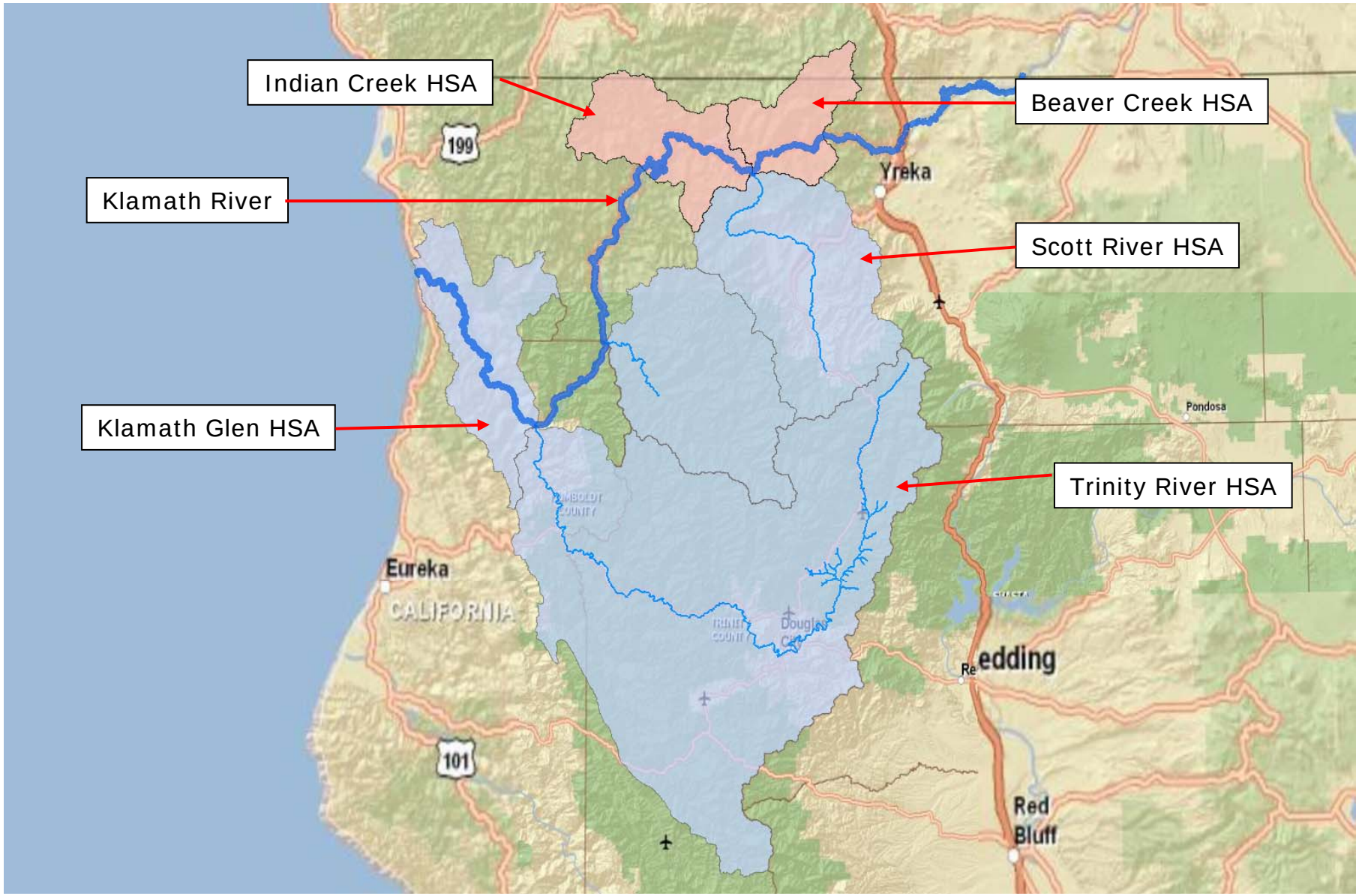
Do Not List:

- **Rest of the Klamath River Watershed**

Klamath River Watershed

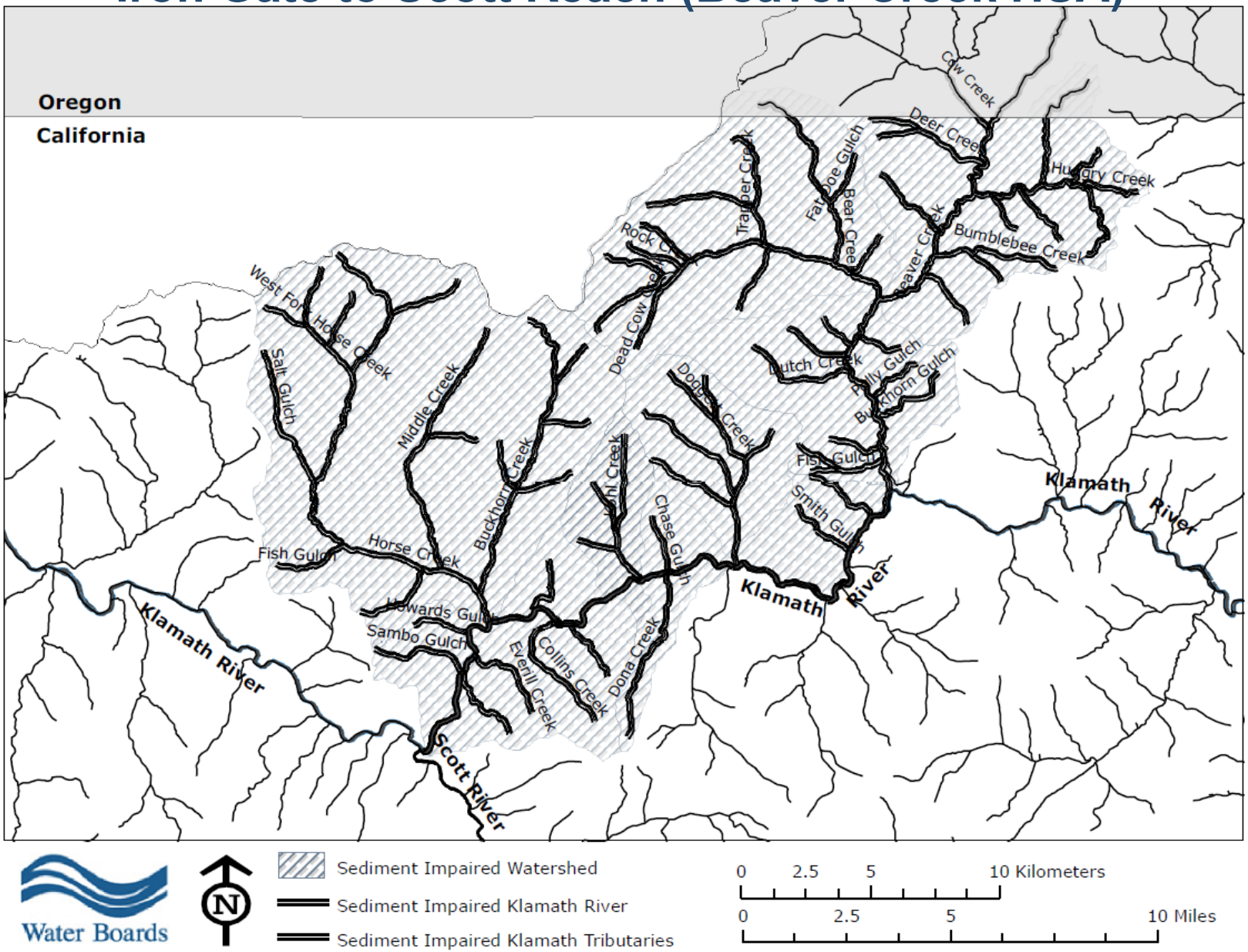


Klamath River Sediment Listing



Klamath River Sediment Listing

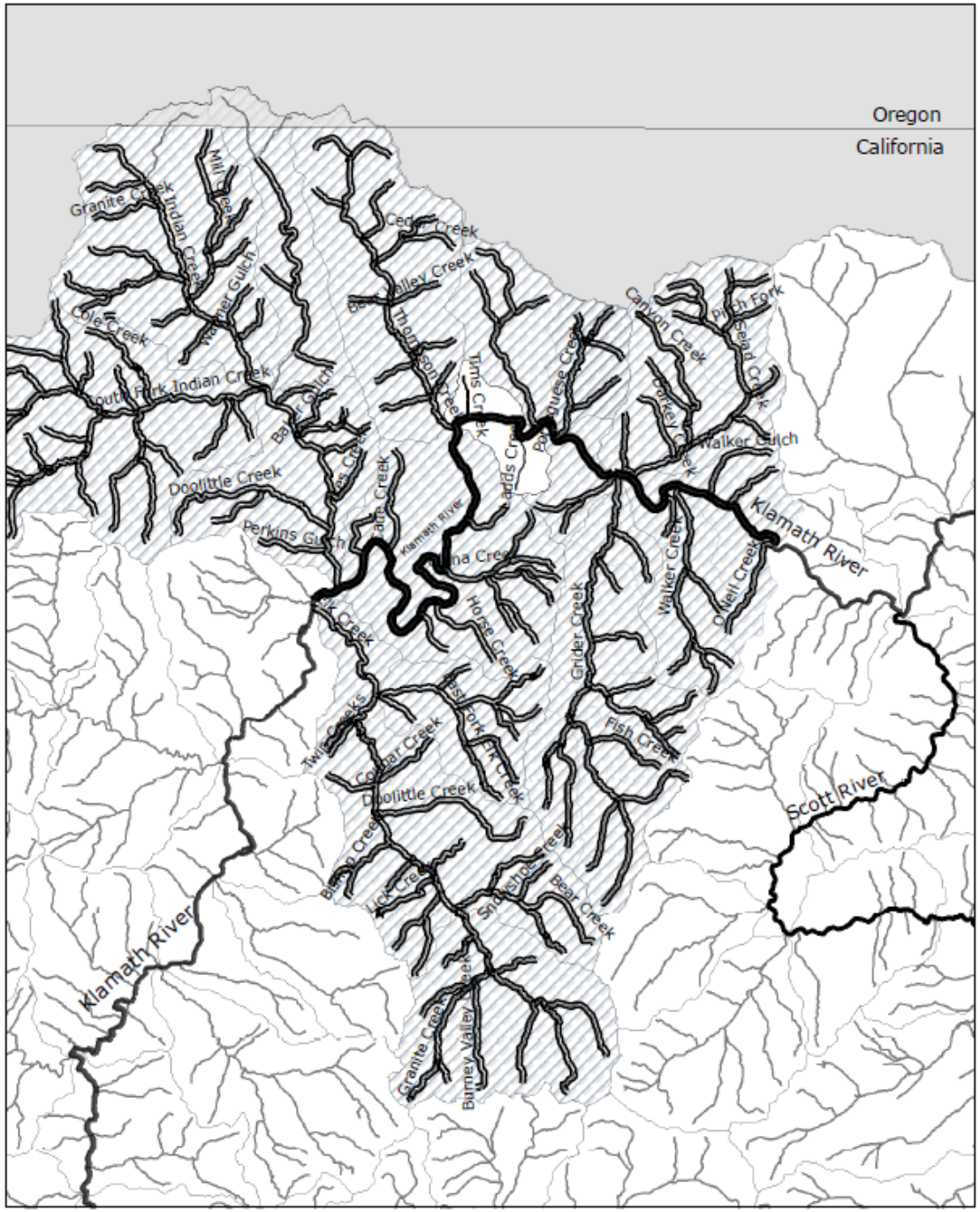
Iron Gate to Scott Reach (Beaver Creek HSA)



Klamath River Sediment Listing

Scott to Trinity Reach

(Indian Creek HSA)



Klamath River Sediment

Staff Analyzed Data Collected By:

- US Forest Service, Klamath National Forest

Data Included:

- road density
- landslide volume
- surface erosion
- equivalent roaded area to threshold of concern (ERA/TOC) ratio
- percent fines
- embeddedness
- pool reduction
- cumulative impacts

Klamath River Sediment

What is the relationship to current TMDLs?

- TMDLs currently being developed for temperature, dissolved oxygen, and nutrients.
- Temperature TMDL establishes linkages between sediment source loads and altered temperature regimes
- Implementation Plan will include sediment control measures

For more Klamath River TMDL Info:
www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/klamath_river/

Klamath River Microcystin

What are microcystin toxins?

- Toxic chemicals produced by some strains of the cyanobacteria (blue-green algae) *Microcystis aeruginosa*

Human Health Risks:

- skin rashes
- sore throat
- oral blistering
- nausea
- liver toxicity (hepatotoxic)
- gastroenteritis
- fever

Human Exposure Through:

- skin contact
- drinking the water
- eating contaminated fish or shellfish

Also toxic to animals

Klamath River Microcystin

Staff Recommendation:

Do Not Delist and keep as impaired:

- Copco I and II Reservoirs
- Iron Gate Reservoir
- Klamath River mainstem between the reservoirs

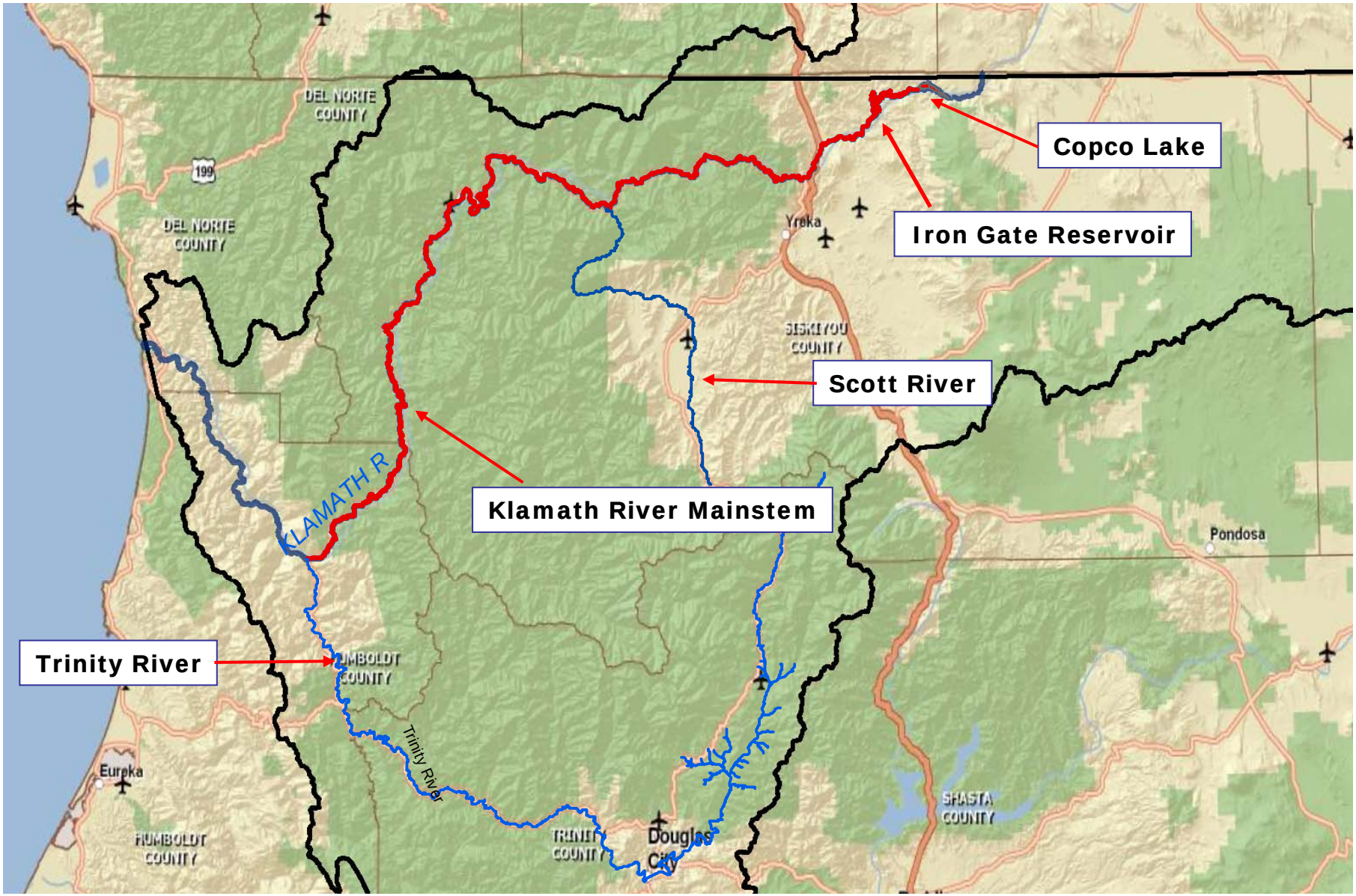
List as impaired:

- Klamath River mainstem from Iron Gate Dam to Trinity River confluence

Do Not List:

- Rest of the Klamath River Watershed

Klamath River Microcystin Listing



Klamath River Microcystin

Staff Analyzed Data Collected By:

- CA Dept. of Fish and Game – Fish Tissue
- PacifiCorp – Water Column Microcystin Toxin
- Karuk Tribe – Water Column Microcystin Toxin & *Microcystis aeruginosa* Cell Counts
- Yurok Tribe – Water Column Microcystin Toxin & *M. aeruginosa* Cell Counts

Klamath River Microcystin

Evaluation Guidelines

- **Microcystin Toxin & *Microcystis* Cells**
  - **Developed by the Blue-Green Algae Workgroup in September 2008**
  - **Numeric criteria to protect the recreational exposure of a child**
  - **Microcystin Toxins ≥ 8 ug/L**
  - ***Microcystis* Cells ≥ 40,000 cells/mL**

- **Fish & Shellfish Tissue**
  - **Developed by OEHHA in August 2008**
  - **Based on 1 serving per week**
  - **Tissue Concentrations ≥ 26 ng/g**

Klamath River Microcystin

What is the relationship to current TMDLs?

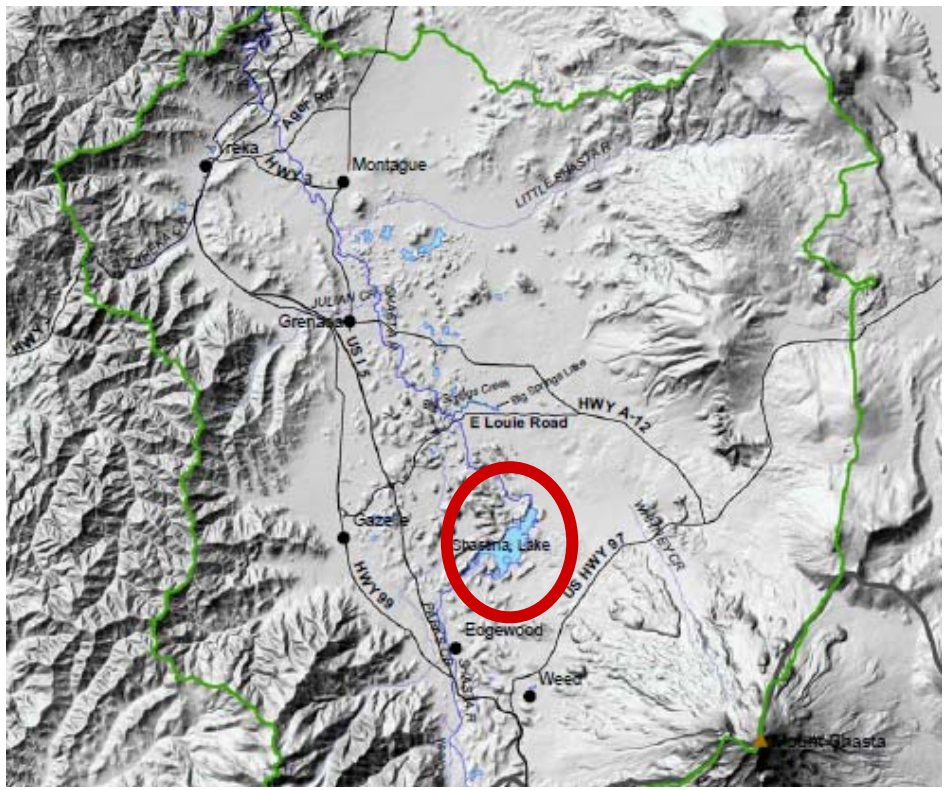
- TMDLs currently being developed for temperature, dissolved oxygen, and nutrients
- TMDLs will address the root causes on microcystin listings
- Implementation Plan may include microcystin control measures

For more Klamath River TMDL Info:
www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/klamath_river/

Lake Shastina Mercury

Staff Recommendation:

- List as impaired



Lake Shastina Mercury

Data

- Fish tissue samples collected by the Dept. of Water Resources in 2001
- 2 out of 3 composite tissue samples exceeded the Evaluation Guideline

Evaluation Guideline

- Developed by the USEPA for the protection of human health
- Tissue concentration ≥ 0.3 mg/kg

Timeline

Public Review Draft available . . . . . February 2, 2009

Public Workshops:

- Santa Rosa . . . . . February 17, 2009
- Eureka . . . . . February 18, 2009
- Yreka . . . . . February 19, 2009
- Santa Rosa . . . . . March 12, 2009

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