Public Workshop

2012 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
April 9, 2014
Redding

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Presentation Outline

1. Overview of the 2012 Integrated Report
2. 305(b) & 303(d) Updates Timeline
3. 2012 Assessment Process
4. Staff Recommendations
5. Water Body-Specific Recommendations
6. Questions & Comments

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Overview of the 2012 Integrated Report

Requirements of the federal Clean Water Act (CWA)

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

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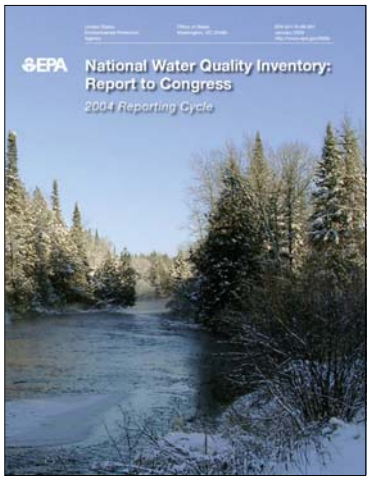
Overview of the 2012 Integrated Report

305(b) Report:

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



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Overview of the 2012 Integrated Report

303(d) List:

- Identifies waters not meeting water quality standards
  - Objectives
  - Beneficial Uses (for example: Agricultural Supply, Cold Freshwater Habitat, Municipal & Domestic Supply)
- Identifies pollutant(s) – but does not identify sources
- Includes a priority ranking
- A total maximum daily load (TMDL) is generally developed for waters on the 303(d) List

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Overview of the 2012 Integrated Report

- Staff Report available at:

http://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/303d/140313/FINAL2012IR_PublicReviewDraft_StaffReport_March10_2014.pdf


State of California
Regional Water Quality Control Board
North Coast Region

Public Review Draft
Staff Report
for the
2012 Integrated Report
for the Clean Water Act
Section 305(b) Surface Water Quality Assessment
and the 303(d) List of Impaired Waters

March 14, 2014

Water Boards

California Regional Water Quality Control Board
North Coast Region
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Santa Rosa, California 95403
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305(b) & 303(d) Updates Timeline

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
2010 & 2012:	303(d) & 305(b) developed by Regional Water Board
Likely 2018:	Next Integrated Report Cycle for the North Coast Region

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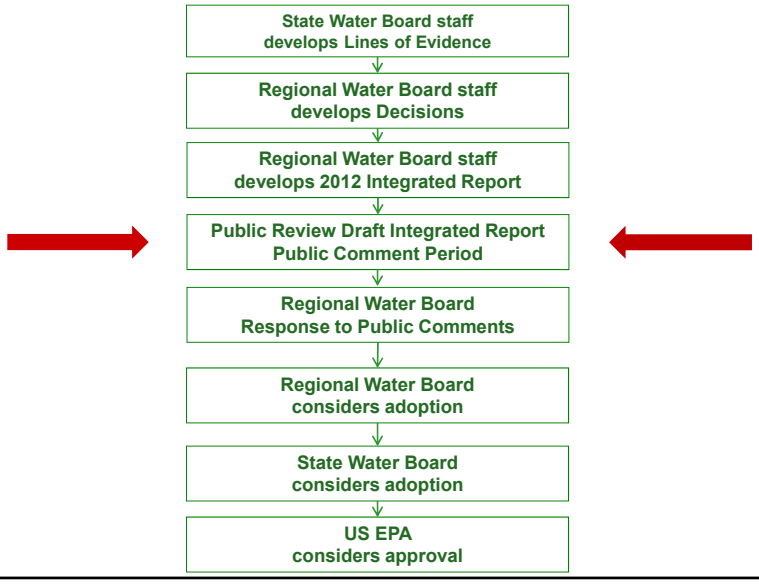
2012 Assessment Process



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Definitions

Listing Policy:

- The "Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List"

Water body-Pollutant Pair:

- A reach of a water body plus the pollutant (e.g., Klamath River for sediment, or Eel River for temperature)

Fact Sheet:

- Includes a "Decision" and all supporting "Lines Of Evidence"
- Developed for each water body-pollutant pair

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2012 Assessment Process

Step 1: Obtain data

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

Step 3: Develop Line(s) of Evidence (LOEs)

Step 4: Make Decision (aka: staff recommendations)

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2012 Assessment Process
Step 1: Obtain Data

Data Sources:

- Data submitted by the public during solicitation period (1/14/10 to 8/30/10)
- Data from the 2010 List
- Data from SWAMP (the Surface Water Ambient Monitoring Program)
- Counties' ocean beach monitoring data under AB411
- Data collected by Regional Water Board staff, state and federal agencies, counties, tribes, citizen monitoring groups, and academic institutions

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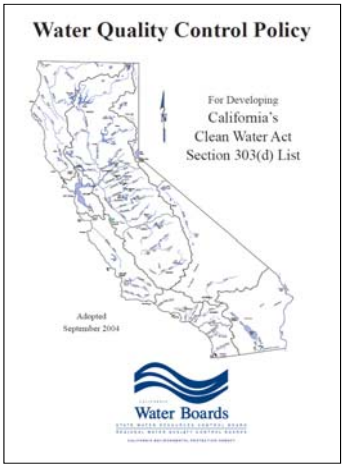
2012 Assessment Process
Step 2: Analyze Data

Data were analyzed according to the rules of the Listing Policy

- Includes a data quality and quantity assessment process
- Data compared to Basin Plan objectives, USEPA criteria, or numeric evaluation guidelines

Listing Policy available at:
http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/ffed_303d_listingpolicy093004.pdf



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2012 Assessment Process

Fact Sheets available at:

http://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/303d/140313/FactSheets/table_of_contents.shtml

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2012 Assessment Process
Step 3: Develop Line(s) of Evidence

- **LOEs summarize: who, what, where, when, and how**
- **LOEs highlight the number of samples & number of exceedances**
- **LOEs were input into the California Water Quality Assessment Database (CalWQA)**
- **Over 4,700 LOEs were developed**

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2012 Assessment Process

Step 3: Develop Lines of Evidence

Example

Lower Eel River

LOE ID:	25541
Pollutant: LOE Subgroup: Matrix: Fraction:	Sulfates Pollutant-Water Water Not Recorded
Beneficial Use:	Municipal & Domestic Supply
Number of Samples: Number of Exceedances:	15 0
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Assess Water Quality:	None of the 15 sulfate samples collected in the Lower Mainstem Eel River watershed exceed the evaluation guideline. The samples were collected as part of the Surface Water Ambient Water Monitoring Program (SWAMP). The data are found in the 5-Year Monitoring Report (NCRWQCB 2008).
Data Reference:	Surface Water Ambient Monitoring Program (SWAMP). Summary Report for the North Coast Region (RWQCB-1) for years 2000-2006. North Coast Regional Water Quality Control Board. March 2008
SWAMP Data:	SWAMP
Water Quality Objective/Criterion:	Per the Basin Plan (NCRWQCB 2007, p. 3-3.00): Waters shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance or adversely affect beneficial uses.
Objective/Criterion Reference:	Water Quality Control Plan (Basin Plan) - North Coast Region (Region 1)
Evaluation Guideline: Guideline Reference:	Per 22 CCR 64449 (Table 64449-B): The recommended secondary maximum contaminant level for sulfate is 250 mg/L. Title 22, Division 4, Chapter 15, Sections 64400 et seq. California Code of Regulations
Spatial Representation:	Samples were collected from the Lower Mainstem Eel River at Holmes (SWAMP Station ID 111EELHOL). Samples were collected from well-mixed flows in glides or riffles.
Temporal Representation:	Samples were collected from 15 site visits from February 2002 to June 2005. Most of the site visits corresponded to fall, winter, spring and early summer seasonal conditions.
Environmental Conditions:	There are no known environmental conditions (e.g., seasonality, land use practices, fire events, storms, etc.) that are related to these data.
QAPP Information:	Quality control was conducted in accordance with the SWAMP Quality Assurance Management Plan (SWAMP 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. SWAMP. December 2002

2012 Assessment Process

Step 4: Make Decision

Example

Lower Eel River

DECISION ID 26844 Region 1
Eel River HU, Lower Eel River HA (includes the Eel River Delta)

Pollutant:	**Sulfates**
Final Listing Decision:	**Do Not List on 303(d) list (TMDL required list)**
Last Listing Cycle's Final Listing Decision:	Do Not List on 303(d) list (TMDL required list)(2010)
Revision Status	Revised
Impairment from Pollutant or Pollution:	Pollutant
Regional Board Staff Conclusion:	This pollutant is being considered for placement on the Section 303(d) List under Section 3.2 of the Listing Policy. Under Section 3.2, a single line of evidence is necessary to assess listing status. One line of evidence is available to assess protection of the municipal and domestic supply (MUN) beneficial use in the lower mainstem Eel River (LOE 25541), and one line of evidence is available to assess protection of the MUN beneficial use in Larabee Creek (LOE 44052). Based on the readily available data and information, the weight of evidence indicates that there is sufficient justification against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category (i.e., sufficient justification to not 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) Zero of 15 samples from the lower mainstem Eel River and zero of one sample from Larabee Creek exceed the objective, however these sample sizes are insufficient to determine with the power and confidence of the Listing Policy if standards are not met, as a minimum of either (1) 26 samples, or (2) greater than or equal to 5 exceedances of the objective with less than 26 samples is needed for application of Table 3.2. (4) Pursuant to Section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.
Regional Board Staff Decision Recommendation:	After review of the available data and information, RWQCB staff concludes that the water body-pollutant combination should not be placed on the section 303(d) list because it cannot be determined if applicable water quality standards are not being exceeded.

2012 Assessment Process
Step 4: Make Decision

How did staff determine impairment?

Staff applied the rules of the Listing Policy:

- **Exceedance Frequency**
  For example: ≥ 2 exceedances out of 20 samples = List
- **Weight of Evidence**

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2012 Assessment Process
Step 4: Make Decision

What decisions did staff make?

Water Body-Pollutant IS NOT on the 2010 303(d) List:

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

Water Body-Pollutant IS on the 2010 303(d) List:

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

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2012 Assessment Process

Step 4: Make Decision

Staff determined the beneficial use support category for each water body

Integrated Report Categories	
Category	**Description**
1	Evidence shows all core uses are supported.
2	Evidence shows some core uses are supported (at least one use is supported).
3	Evidence is insufficient to make use support determinations.
4a	Evidence shows at least one use is not supported, a TMDL has been developed and is reasonably expected to result in the attainment of the water quality standard within a reasonable, specified time frame, and the TMDL has been approved by the USEPA.
4b	Evidence shows at least one use is not supported, but a TMDL is not needed as an existing regulatory program is reasonably expected to result in the attainment of the water quality standard within a reasonable, specified time frame.
4c	Evidence shows at least one use is not supported, but a TMDL is not needed as the impairment is caused by non-pollutant sources.
5	Evidence shows at least one use is not supported and a TMDL is needed.

Categories 4a, 4b, 4c, and 5 make up the California 303(d) List

No water bodies in Category 1, 4b, or 4c.

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Staff Recommendations

2012 Proposed Listing & Delisting Summary

- **991 water body – pollutant pair recommendations (Decisions)**

Listings **(# water body – pollutant pairs)**

- **New Listings: 29**
- **Increase in geographic extent of listing: 1**
- **Recommendation for USEPA to list: 2 (Native American Reservation)**

Delistings **(# water body – pollutant pairs)**

- **New delistings: 14**
- **Reductions in geographic extent of listing: 20**

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Specific Recommendations

- **Ocean Beaches & Freshwater Indicator Bacteria**
  -listings & delistings
- **Scott River Biostimulatory Conditions, Dissolved Oxygen, and pH**
  -listings
- **Copco 1 & Iron Gate Reservoirs Mercury**
  -listings
- **Requests to List for Flow**
- **Klamath Basin Temperature & Sediment Reference Streams**
  -delistings

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Specific Recommendations
Indicator Bacteria Overview

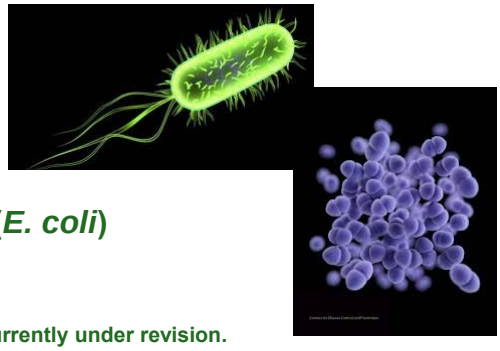
Use of Indicator Bacteria in 2012 Integrated Report Assessment

Saltwater:

- **Enterococcus**
- **Fecal Coliform***

Freshwater:

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



***Basin Plan bacteria objective currently under revision.**
Fecal coliform numeric objective utilized until objective is revised.

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Specific Recommendations
Saltwater Indicator Bacteria Delistings

Hydrologic Unit	Water Body
Delist (New delisting in 2012)	
Mendocino Coast HU	Hare Creek Beach
	Pudding Creek Beach
Trinidad HU	Luffenholtz Beach
	Moonstone County Park
	Trinidad State Beach
Do Not Delist (keep listed as impaired)	
Bodega HU	Campbell Cove
Trinidad HU	Clam Beach

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Specific Recommendations
Freshwater Indicator Bacteria Listings & Delistings

Hydrologic Unit	Water Body
List as Impaired (New listing in 2012)	
Eureka Plain HU	Lower Mainstem Elk River and Martin Slough*
	Campbell Creek*
	Jolly Giant Creek*
Mad River HU	Widow White Creek*
Mendocino Coast HU	Noyo River HA, Pudding Creek Lagoon*
Trinidad HU	Mainstem Little River and Bullwinkle Creek*
Russian River HU	Mainstem Dutch Bill Creek
Do Not Delist (keep listed as impaired)	
Russian River HU	Mainstem Russian River at Healdsburg Memorial Beach*
	Mainstem Russian River from Fife Creek to Dutch Bill Creek*
	Mainstem Atascadero Creek
	"Stream 1" on Fitch Mountain*
	Mainstem Santa Rosa Creek
Delist (New delisting in 2012)	
Russian River HU	Mainstem Laguna de Santa Rosa & Tributaries to the Laguna de Santa Rosa**
	Tributaries to Santa Rosa Creek**

*** = Listing based solely upon fecal coliform data.**

**** = Delisting due to insufficient number of samples**

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Specific Recommendations

Freshwater Indicator Bacteria Listings & Delistings

Staff recommend USEPA List the portion of the following water bodies that lie within the Quartz Valley Indian Reservation*

Scott River HA:

- **Shackleford Creek**
- **Sniktaw Creek**

***Regional and State Water Boards do not have the authority to list or delist water bodies within the boundaries of Native American Reservations.**

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Specific Recommendations

Scott River Biostimulatory Conditions Listings

- **Biostumulatory Conditions: stream conditions that promote aquatic growth causing nuisance and/or adversely affecting beneficial uses**
- **Generally, nutrients alone do not cause impairment**
- **Biostimulatory Conditions assessment**
  - **Primary Indicators: dissolved oxygen, pH, chlorophyll-a**
  - **Secondary Indicators: Total Nitrogen & Phosphorus**

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Specific Recommendations
Scott River Biostimulatory Conditions Listings

- Data from the Scott River at the USGS Gauge
- Collected by the Tribal Environmental Department of the Quartz Valley Indian Reservation
- Dissolved Oxygen & pH data
  (primary indicators)
  - Continuous data: 2007-2009
- Total Nitrogen and Total Phosphorus data
  (secondary indicators)
  - Grab samples: 2008-2009
- Grab Sample Chlorophyll-a (ug/L)
  - Not used in assessment as benthic algal biomass needed (mg chl-a/m^2)

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Specific Recommendations
Scott River Biostimulatory Conditions Listings

- Basin Plan objectives & Klamath TMDL Targets used for assessment

	Dissolved Oxygen (mg/L)	pH	Monthly Mean Total Nitrogen (mg/L)	Monthly Mean Total Phosphorus (mg/L)
Basin Plan Objective	Min = 7.0	Min = 7.0 Max = 8.5		
Klamath TMDL Target			May-Oct = 0.310 Nov-April = 0.325	May-Oct = 0.028 Nov-April = 0.019

- Diel pattern of the Dissolved Oxygen & pH

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Specific Recommendations
Scott River Biostimulatory Conditions Listings

- **Situation-specific weight of evidence**
  (Listing Policy Section 3.11)
- **Lines of evidence supporting listing**
  - **170 of 726 Dissolved Oxygen (DO) subseedances**
  - **224 of 781 pH exceedances**
  - **Extremely high DO values**
  - **Large diel swing in the continuous DO & pH data**
  - **9 of 24 Total Nitrogen violations**
- **Staff Recommendation→ LIST**
- **Staff also recommending listing for DO and pH**
  (Listing Policy Section 3.2)

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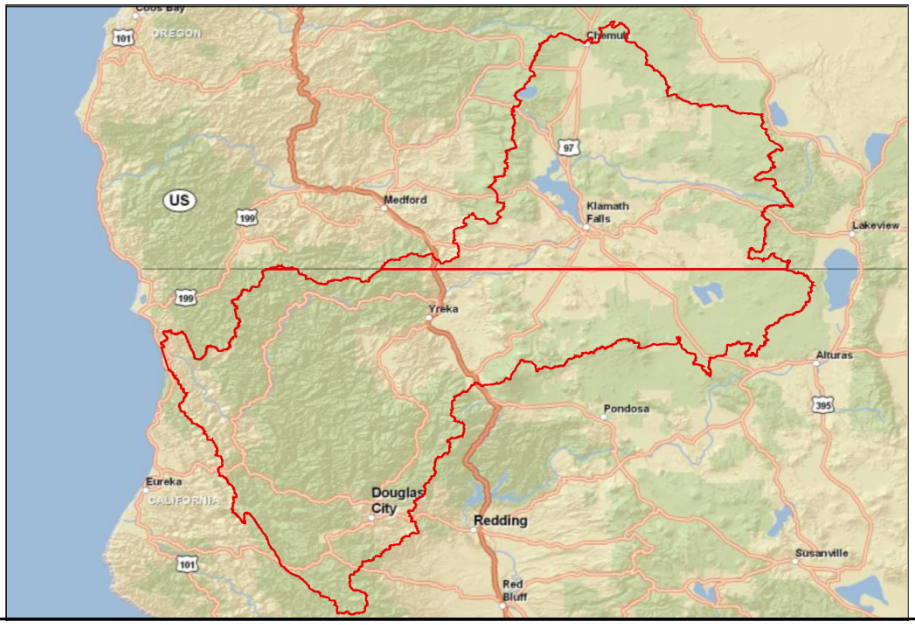
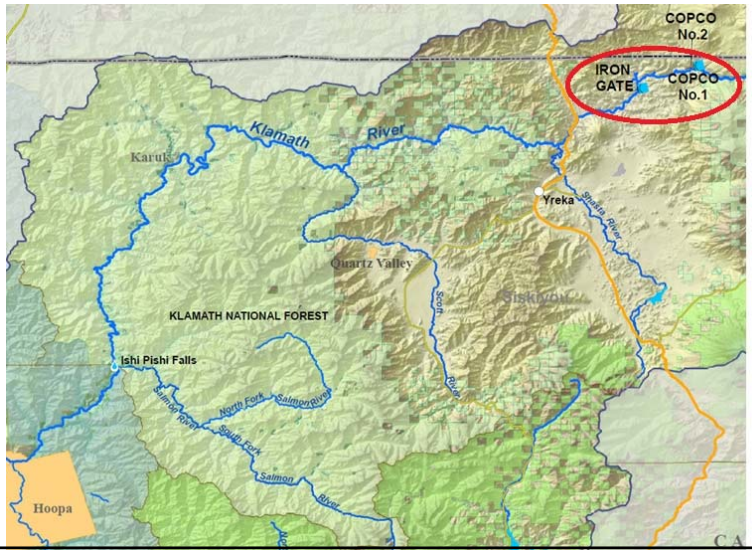
Specific Recommendations
Klamath River Watershed



Specific Recommendations

Copco 1 & Iron Gate Reservoirs Mercury Listings



Specific Recommendations

Copco 1 & Iron Gate Reservoirs Mercury Listings

- Fish tissue data
  - Copco 1: CA Department of Water Resources, PacifiCorp, & SWAMP
  - Iron Gate: PacifiCorp & SWAMP
- Data compared to the USEPA criteria: 0.20 mg/kg
- Per Listing Policy Table 3.1
  - ≥ 2 exceedances of criteria out of 2-24 samples = List
- Actual Exceedances of Criteria
  - Copco: 2 out of 3 samples exceed criteria
  - Iron Gate: 2 out of 2 samples exceed criteria
- Per Listing Policy → LIST

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Requests to List for Flow

Data submitted for the following waterbodies:

- Eel River
- Gualala River
- Mattole River
- Navarro River
- Russian River Tributaries:
  - Maacama Creek
  - Mark West Creek
  - Redwood Creek
- Scott River
- Shasta River

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Requests to List for Flow

Integrated Report Categories	
Category	**Description**
1	Evidence shows all core uses are supported.
2	Evidence shows some core uses are supported (at least one use is supported).
3	Evidence is insufficient to make use support determinations.
4a	Evidence shows at least one use is not supported, a TMDL has been developed and is reasonably expected to result in the attainment of the water quality standard within a reasonable, specified time frame, and the TMDL has been approved by the USEPA.
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4c	Evidence shows at least one use is not supported, but a TMDL is not needed as the impairment is caused by non-pollutant sources.
5	Evidence shows at least one use is not supported and a TMDL is needed.

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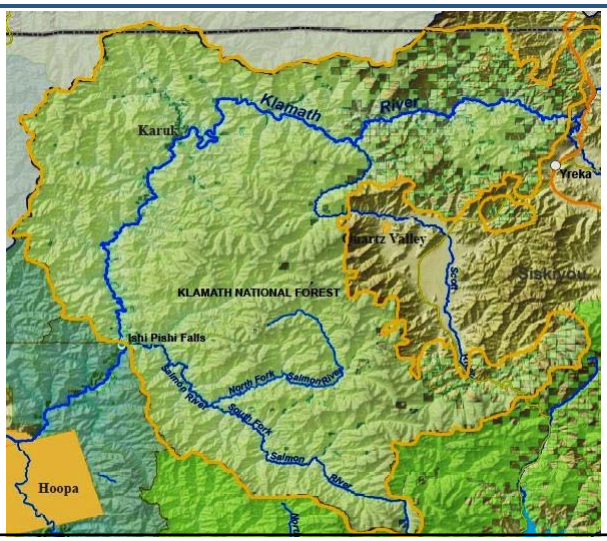
Specific Recommendations
Klamath Sediment & Temperature Delistings



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Specific Recommendations
Klamath Sediment & Temperature Delistings

- All streams within the Klamath National Forest are listed as temperature impaired
- The following streams within the Klamath National Forest listed as sediment impaired
  - Iron Gate Dam to Scott River Reach of Klamath HU:
    - Beaver Creek
    - Cow Creek
    - Deer Creek
    - Hungry Creek
    - West Fork Beaver Creek
  - Scott River to Trinity River Reach of Klamath HU:
    - China Creek
    - Fort Goff Creek
    - Grider Creek
    - Portuguese Creek
    - Thompson Creek

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Specific Recommendations
Klamath Sediment & Temperature Delistings

How can a stream be delisted?

Must meet one of these requirements:

- **Temperature delisting**
  - **No anthropogenic effects / meet natural background**
  - **USEPA Criteria for Salmonids (MWMTs)**
  - **Site-specific potential effective shade**
- **Sediment delisting**
  - **Meet sediment TMDL targets**
  - **Document no anthropogenic effects**

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Specific Recommendations
Klamath Sediment & Temperature Delistings

- **Klamath National Forest staff developed approach for identifying reference streams**
  - **Followed SWAMP guidance**
  - **Regional Water Board staff reviewed and approved approach and criteria for reference streams**

Reference Watershed Criteria

	Disturbance Type	Criteria	
Sediment	Road Density	Less than 0.19 km/km^2 with no significant road failures	Temperature
	Grazing	Less than 10% of the drainage area grazed and there are no BMP violations (most have no grazing)	
	Mining	No significant sediment inputs	
	Natural Disturbance	Included in the reference pool as a component of natural variability in conditions	
	Stream Shade	No human-caused reduction in stream shade	

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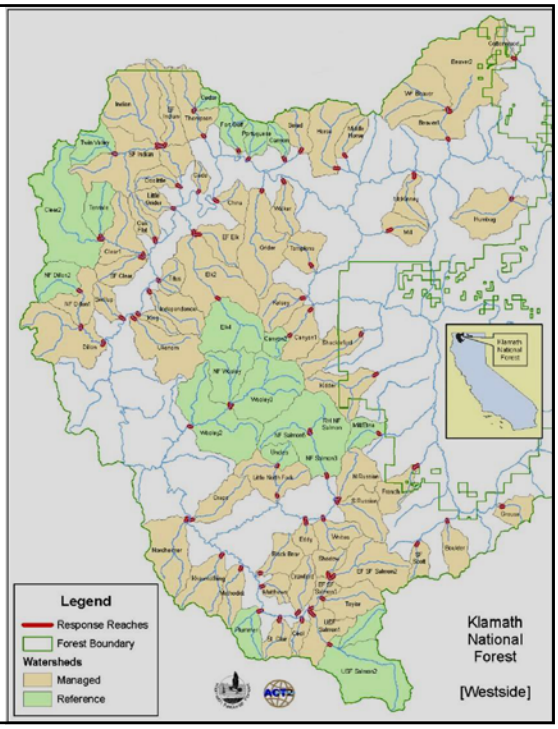
Specific Recommendations

Klamath Sediment & Temperature Delistings

Green = reference
Tan = managed

Staff Propose:

- 2 sediment delistings
- 21 temperature delistings



Timeline

Public Review Draft available . . . . . .March 14, 2014

Public Workshops:

Santa Rosa . . . . . .April 8, 2014

Redding . . . . . April 9, 2014

Close Public Comment Period . . . . . .April 18, 2014

Regional Board Workshop (Fortuna). . . . . May 8, 2014

Regional Board Hearing (Santa Rosa). . . . . .June 19, 2014

State Board . . . . . Late 2014

USEPA . . . . . .Late 2014 / Early 2015

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Binomial Distribution

To List or Not List Toxic Pollutants

TABLE 3.1: MINIMUM NUMBER OF MEASURED EXCEEDANCES NEEDED TO PLACE A WATER SEGMENT ON THE SECTION 303(D) LIST FOR TOXICANTS.

Null Hypothesis: Actual exceedance proportion ≤ 3 percent.
Alternate Hypothesis: Actual exceedance proportion > 18 percent.
The minimum effect size is 15 percent.

Sample Size	List if the number of exceedances equal or is greater than
2 – 24	2*
25 – 36	3
37 – 47	4
48 – 59	5
60 – 71	6
72 – 82	7
83 – 94	8
95 – 106	9
107 – 117	10
118 – 129	11

per p.9 of Listing Policy

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Binomial Distribution

To List or Not List Conventional Pollutants

TABLE 3.2: MINIMUM NUMBER OF MEASURED EXCEEDANCES NEEDED TO PLACE A WATER SEGMENT ON THE SECTION 303(D) LIST FOR CONVENTIONAL OR OTHER POLLUTANTS.

Null Hypothesis: Actual exceedance proportion ≤ 10 percent.
Alternate Hypothesis: Actual proportion > 25 percent.
The minimum effect size is 15 percent.

Sample Size	List if the number of exceedances equal or is greater than
5 – 30	5*
31 – 36	6
37 – 42	7
43 – 48	8
49 – 54	9
55 – 60	10
61 – 66	11
67 – 72	12
73 – 78	13
79 – 84	14
85 – 91	15
92 – 97	16
98 – 103	17
104 – 109	18
110 – 115	19
116 – 121	20

per p.10 of Listing Policy

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Binomial Distribution

To Delist or Not Delist Toxic Pollutants

TABLE 4.1: MAXIMUM NUMBER OF MEASURED EXCEEDANCES ALLOWED TO REMOVE A WATER SEGMENT FROM THE SECTION 303(D) LIST FOR TOXICANTS.

Null Hypothesis: Actual exceedance proportion ≥ 18 percent.
Alternate Hypothesis: Actual proportion < 3 percent of the samples
The minimum effect size is 15 percent.

Sample Size	Delist if the number of exceedances equal or is less than
28 – 36	2
37 – 47	3
48 – 59	4
60 – 71	5
72 – 82	6
83 – 94	7
95 – 106	8
107 – 117	9
118 – 129	10

per p.14 of Listing Policy

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Binomial Distribution

To Delist or Not Delist Conventional Pollutants

TABLE 4.2: MAXIMUM NUMBER OF MEASURED EXCEEDANCES ALLOWED TO REMOVE A WATER SEGMENT FROM THE SECTION 303(D) LIST FOR CONVENTIONAL OR OTHER POLLUTANTS.

Null Hypothesis: Actual exceedance proportion ≥ 25 percent.
Alternate Hypothesis: Actual exceedance proportion < 10 percent.
The minimum effect size is 15 percent.

Sample Size	Delist if the number of exceedances equal or is less than
26 – 30	4
31 – 36	5
37 – 42	6
43 – 48	7
49 – 54	8
55 – 60	9
61 – 66	10
67 – 72	11
73 – 78	12
79 – 84	13
85 – 91	14
92 – 97	15
98 – 103	16
104 – 109	17
110 – 115	18
116 – 121	19

p.15 of 303(d) List Policy

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Recommendations

Indicator Bacteria Overview

Selection of Exceedance Percent (%) (Section 3.3 & 4.3 of Listing Policy)

Listing Consideration

- Data collected April 1 through October 31 only:
  4% exceedance frequency
- Data collected including months outside April 1 through October 31 range :
  10% exceedance frequency (Table 3.2 of Listing Policy)

Delisting Consideration

- 10% exceedance frequency (Table 3.2 of Listing Policy) - OR -
- Site-specific exceedance frequency

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