Regional Water Quality Control Board

NORTH COAST REGION (1)

SECTION 303 (d) LIST PROPOSALS

Region 1 Summary of Recommendations

Water Body	Pollutant/Medium /Beneficial Use	RWQCB Recommendation	SWRCB Recommendation
Russian River	Pathogens/REC-1	List	List: List for Pathogens. Data has shown these water bodies have exceeded the WQO for pathogens. Monte Rio area from the confluence of Dutch Bill Creek to the confluence of Fife creek. Also Healdsburg Memorial Beach from the Highway 101 crossing to the railroad crossing upstream of the beach.
Gualala River	Temperature/Aquatic Life	Watch List :The Regional Board feels there is insufficient information existing to list. The Maximum Weekly Average Temperature (MWAT) and the Maximum Weekly Maximum Temperature (MWMT) values for the Gualala River Watershed exceed the criteria values (Sullivan, 2000 Published Temperature Thresholds - Peer Reviewed Literature), that were used to translate the narrative Water Quality Objective for Region 1 for Temperature.	Watch List: Place Gualala River on the Watch List.

Water Body	Pollutant/Medium /Beneficial Use	RWQCB Recommendation	SWRCB Recommendation
Big River	Temperature/Water/Aquatic Life	Watch List: The Regional Board feels there is insufficient information existing to list. The MWAT/MWMT values for the Big River Watershed exceed the criteria values (Sullivan, 2000 Published Temperature Thresholds -Peer Reviewed Literature), that were used to translate the narrative Water Quality Objective for Region 1 for Temperature.	Watch List: Place Big River on the Watch List.
Ten Mile River	Temperature/Water/Aquatic Life	Watch List: The Regional Board feels there is insufficient information existing to list. The MWAT/MWMT values for the Ten Mile River Watershed exceed the criteria values (Sullivan, 2000 Published Temperature Thresholds -Peer Reviewed Literature), that were used to translate the narrative Water Quality Objective for Region 1 for Temperature.	Watch List: Place Ten Mile River on the Watch List.
Jacoby Creek	Sediment/Aquatic Life	List	List: List for Sediment. Based on the review of available information the Beneficial Uses of Jacoby Creek are impacted due to sedimentation. The data have exceeded the criteria (Published Sedimentation Thresholds-Peer Reviewed Literature), used to translate the narrative Basin Plan Water Quality Objectives for sediment.

Water Body	Pollutant/Medium /Beneficial Use	RWQCB Recommendation	SWRCB Recommendation
Mad River	Temperature/Water/Aquatic Life	Watch List: The Regional Board feels there is insufficient information existing to list. The MWAT/MWMT values for the Mad River Watershed exceed the criteria values (Sullivan, 2000 Published Temperature Thresholds -Peer Reviewed Literature), that were used to translate the narrative Water Quality Objective for Region 1 for Temperature.	Watch List: Place Mad River on the Watch List.
Redwood Creek	Temperature/Water/Aquatic Life	Watch List :The Regional Board feels there is insufficient information existing to list. The MWAT/MWMT values for the Ten Mile River Watershed exceed the criteria values (Sullivan, 2000 Published Temperature Thresholds -Peer Reviewed Literature), that were used to translate the narrative Water Quality Objective for Region 1 for Temperature.	Watch List: Place Redwood Creek on the Watch List.
Santa Rosa Creek	Pathogens/Water/REC-1	List	List: List based on their pathogen data exceedance using the DHS Guidance. A Swimming Advisory for this waterbody is in effect, based on the use of this Draft CA. DHS Guidance for Fresh Water Beaches, impacting the Beneficial Use. Note: There was not enough data to show exceedances of REC-1 WQO- Bacteria.
Laguna de Santa Rosa	Nutrients/Water/Aquatic Life	List	List : List for Nutrients (Phosphorus and Nitrogen). Data have shown that the WQO linked to nutrients is being exceeded.

Water Body	Pollutant/Medium /Beneficial Use	RWQCB Recommendation	SWRCB Recommendation
Laguna de Santa Rosa	Dissolved Oxygen/Water/Aquatic Life	List	List : List for Dissolved oxygen. The data have shown that the WQO is not being met. Note: A TMDL was completed for Dissolved Oxygen once before and it has been shown that it did not work. When the TMDL was completed the water body was removed from the 303(d) List. Now it must be listed again.
Stemple Creek/Estero de San Antonio	Sediment/Water/Aquatic Life	List	List: List for Sediment. A TMDL was approved in 1997 for this Watershed and Sediment was inadvertently not included as a stressor in the original 303(d) List and it should have been. All the elements for sediment are addressed in the 1997 TMDL, but Sediment wasn't listed as a stressor whereas nutrients were. RB wants to amend the 303(d) list to include Sediment so that the TMDL can be completed. The data have exceeded the criteria, (Published Sedimentation Thresholds- Peer Reviewed Literature), used to translate the narrative Basin Plan Water Quality Objectives for Sediment.
Russian River	Temperature/Water/Aquatic Life	List: The MWAT/MWMT values for the Russian River Watershed exceed the criteria values (Sullivan, 2000 Published Temperature Thresholds- Peer Reviewed Literature) that were used to translate the narrative Water Quality Objective for Region 1 for Temperature.	Watch List: The Regional Board staff wish to list this water body for temperature and put the other 5 rivers impaired for temperature on the Watch List . To be consistent with these RB recommendations, the Russian River should be placed on the Watch List. The amounts and kinds of data are the same for all six rivers.

Water Body	Pollutant/Medium /Beneficial Use	RWQCB Recommendation	SWRCB Recommendation
Tule Lake and the Lower Klamath National Wildlife Refuge	pH/Water/Aquatic Life	List	List: List for pH for the portions of Tule Lake and Lower Klamath Lake National Wildlife Refuge in CA. Data has shown that the pH values exceeded the WQO for pH.

Region 1

Russian River

Water Body	Russian River
Stressor/Media/Beneficial Use	Pathogens/REC-1
Data quality assessment. Extent to which data quality requirements met.	Data with a QA/QC were given the greatest weight.
Linkage between measurement endpoint and benefical use or standard	Pathogens/Bacteria (i.e. Fecal coliform) to REC-1 Beneficial Use.
Utility of measure for judging if standards or uses are not attained	Basin Plan Water Quality Objectives.
Water Body-specific Information	Data = 15 Years (1987-2001), Data measured at site, Species or indicator present at site, Environmental conditions considered at sites.
Data used to assess water quality	Bacterial Data : 72% of the fecal coliform data from1986-1994 at Healdsburg Memorial Beach exceed the WQO. 75% of the fecal coliform data from 1992-1994 at Monte Rio beach exceed the WQO.
Spatial representation	Healdsburg Memorial Beach and Monte Rio Beach areas, sample sites unknown.
Temporal representation	All of the Samples were collected in the summer months.
Data type	Numerical data
Use of standard method	Unknown
Potential Source(s) of Pollutant	Unknown
Alternative Enforceable Program	
RWQCB Recommendation	List
SWRCB Staff Recommendation	List: List for Pathogens. Data has shown these water bodies have exceeded the WQO for pathogens. Monte Rio area from the confluence of Dutch Bill Creek to the confluence of Fife creek. Also Healdsburg Memorial Beach from the Highway 101 crossing to the railroad crossing upstream of the beach.

Region 1

Gualala River

Water Body	Gualala River
Stressor/Media/Beneficial Use	Temperature/Aquatic Life
Data quality assessment. Extent to which data quality requirements met.	Data with a QA/QC were given the greatest weight.
Linkage between measurement endpoint and benefical use or standard	Maximum Weekly Average Temperature (MWAT) linked to Aquatic Life Beneficial Use.
Utility of measure for judging if standards or uses are not attained	Basin Plan Water Quality Objectives/Historic Temperature Ranges/Sullivan 2000 Published Temperature Thresholds- Peer Reviewed Literature.
Water Body-specific Information	Data = 6 Years (1994-2000), Data measured at site, Species or indicator present at site, Environmental conditions considered at site.
Data used to assess water quality	MWAT values exceeded criteria for sub-lethal effects (10 to 20% reduced growth) in the watershed at all or most locations. Maximum temperatures in one year at 15 locations was higher than 24 Degrees = Lethal.
Spatial representation	62 Locations over the 300 square mile area in the Gualala River Watershed
Temporal representation	Data collected over 6 Years, with at least two years at 27 locations.
Data type	Numerical data
Use of standard method	Unknown
Potential Source(s) of Pollutant	Unknown
Alternative Enforceable Program	
RWQCB Recommendation	Watch List :The Regional Board feels there is insufficient information existing to list. The Maximum Weekly Average Temperature (MWAT) and the Maximum Weekly Maximum Temperature (MWMT) values for the Gualala River Watershed exceed the criteria values (Sullivan, 2000 Published Temperature Thresholds -Peer Reviewed Literature), that were used to translate the narrative Water Quality Objective for Region 1 for Temperature.
SWRCB Staff Recommendation	Watch List: Place Gualala River on the Watch List.

Region 1

Big River

Water Body	Big River
Stressor/Media/Beneficial Use	Temperature/Water/Aquatic Life
Data quality assessment. Extent to which data quality requirements met.	Data with a QA/QC were given the greatest weight.
Linkage between measurement endpoint and benefical use or standard	MWAT linked to Aquatic Life Beneficial Use.
Utility of measure for judging if standards or uses are not attained	Basin Plan Water Quality Objectives/Historic Temperature Ranges/Sullivan 2000 Published Temperature Thresholds- Peer Reviewed Literature.
Water Body-specific Information	Data = 4 years (96-2000) , Data measured at site, Species or indicator present at Site, Environmental conditions considered at site.
Data used to assess water quality	Data show that 29 out of 34 locations exceed the criterion of Sullivan, 2000= 14.8 degrees. But 23 locations had MWAT values exceeded for sub-lethal effects (10 and 20 % reduced growth) None of the sites exceeded the 24 degree lethal criteria. 19 locations MWAT values exceeded the MWAT criteria (17 Degrees) for sub-lethal effects (10 % reduced growth). MWAT values at 4 locations exceeded the available MWAT criteria for sub-lethal effects(20% reduced growth).
Spatial representation	34 Locations over the 200 sq. mile area in the Big River watershed.
Temporal representation	Data was collected over 4 years (96-2000), with at least two years of record at 15 locations
Data type	Numerical data
Use of standard method	Unknown
Potential Source(s) of Pollutant	Unknown
Alternative Enforceable Program	
RWQCB Recommendation	Watch List: The Regional Board feels there is insufficient information existing to list. The MWAT/MWMT values for the Big River Watershed exceed the criteria values (Sullivan, 2000 Published Temperature Thresholds -Peer Reviewed Literature), that were used to translate the narrative Water Quality Objective for Region 1 for Temperature.
SWRCB Staff Recommendation	Watch List: Place Big River on the Watch List.

Region 1

Ten Mile River

Water Body	Ten Mile River
Stressor/Media/Beneficial Use	Temperature/Water/Aquatic Life
Data quality assessment. Extent to which data quality requirements met.	Data with a QA/QC were given the greatest weight.
Linkage between measurement endpoint and benefical use or standard	MWAT linked to Aquatic Life Beneficial Use.
Utility of measure for judging if standards or uses are not attained	Basin Plan Water Quality Objectives/Historic Temperature Ranges/Sullivan 2000 Published Temperature Thresholds- Peer Reviewed Literature.
Water Body-specific Information	Data = 7 years (93-2000), Data measured at site, Species or indicator present at Site, Environmental conditions considered at site.
Data used to assess water quality	Maximum recorded temperatures did not exceed 24 degrees at any of the locations…31out of the 37 locations exceeded the 14.8 criteria (Sullivan 2000). MWAT values at 17 locations exceeded the 17 degree MWAT criteria for sub-lethal effects (10 % reduced growth) MWAT values at 3 of the locations exceeded the MWAT criteria for sub-lethal (20% reduced growth).
Spatial representation	Data were available from 37 locations.
Temporal representation	2 years of data were available for all of the 37 locations with the exception of 3 of them. 5 years of data were available from 26 locations.
Data type	Numerical data
Use of standard method	Unknown
Potential Source(s) of Pollutant	Unknown
Alternative Enforceable Program	
RWQCB Recommendation	Watch List: The Regional Board feels there is insufficient information existing to list. The MWAT/MWMT values for the Ten Mile River Watershed exceed the criteria values (Sullivan, 2000 Published Temperature Thresholds -Peer Reviewed Literature), that were used to translate the narrative Water Quality Objective for Region 1 for Temperature.
SWRCB Staff Recommendation	Watch List: Place Ten Mile River on the Watch List.

Region 1

Jacoby Creek

Water Body	Jacoby Creek
Stressor/Media/Beneficial Use	Sediment/Aquatic Life
Data quality assessment. Extent to which data quality requirements met.	Data with a QA/QC were given the greatest weight and a QA Plan was submitted as a reference.
Linkage between measurement endpoint and benefical use or standard	Turbidity linked to Aquatic Life Beneficial Use.
Utility of measure for judging if standards or uses are not attained	Basin Plan Water Quality objectives for Sediment, settable material and turbidity. Published Sedimentation Thresholds- Peer Reviewed Literature.
Water Body-specific Information	Data = 10 Years (1992-2001). Data measured at site, Species or indicator present at Site, Environmental conditions considered at site.
Data used to assess water quality	Turbidity levels throughout the watershed from 1992- 2001, are recorded at levels detrimental to salmonids. Up to 1.6 feet of aggradation from 1992 to 2001 based on cross section surveys.
Spatial representation	Targeted Sites, 10 along the creek
Temporal representation	Data collected over 10 years in 1992- 2001.
Data type	Numerical data
Use of standard method	Protocol/QAPP developed by Salmon Forever using EPA and USGS standard methods.
Potential Source(s) of Pollutant	Unknown
Alternative Enforceable Program	
RWQCB Recommendation	List
SWRCB Staff Recommendation	List: List for Sediment. Based on the review of available information the Beneficial Uses of Jacoby Creek are impacted due to sedimentation. The data have exceeded the criteria (Published Sedimentation Thresholds-Peer Reviewed Literature), used to translate the narrative Basin Plan Water Quality Objectives for sediment.

Region 1

Mad River

Water Body	Mad River
Stressor/Media/Beneficial Use	Temperature/Water/Aquatic Life
Data quality assessment. Extent to which data quality requirements met.	Data with a QA/QC were given the greatest weight.
Linkage between measurement endpoint and benefical use or standard	MWAT linked to Aquatic Life Beneficial Use.
Utility of measure for judging if standards or uses are not attained	Basin Plan Water Quality Objectives/Historic Temperature Ranges/Sullivan 2000 Published Temperature Thresholds- Peer Reviewed Literature.
Water Body-specific Information	Data = 4 years (97-2001), Data measured at site, Species or indicator present at Site, Environmental conditions considered at site.
Data used to assess water quality	MWAT values at all 11 locations exceeded 20 degrees and are higher than the criteria for sub-lethal effects (10 to 20% reduced growth). Maximum temperatures at most of the 11 locations were higher than 24 Degrees (= Lethal) in most years.
Spatial representation	Targeted 11 sites along the 503 sq. miles of the creek
Temporal representation	Data collected over 4 years. Data was available from 11 locations, with at least 2 years of record at most locations.
Data type	Numerical data
Use of standard method	Monitoring was conducted as part of the permitting process from 1997-2000)
Potential Source(s) of Pollutant	Unknown
Alternative Enforceable Program	
RWQCB Recommendation	Watch List: The Regional Board feels there is insufficient information existing to list. The MWAT/MWMT values for the Mad River Watershed exceed the criteria values (Sullivan, 2000 Published Temperature Thresholds -Peer Reviewed Literature), that were used to translate the narrative Water Quality Objective for Region 1 for Temperature.
SWRCB Staff Recommendation	Watch List: Place Mad River on the Watch List.

Region 1

Redwood Creek

Water Body	Redwood Creek
Stressor/Media/Beneficial Use	Temperature/Water/Aquatic Life
Data quality assessment. Extent to which data quality requirements met.	Data with a QA/QC were given the greatest weight.
Linkage between measurement endpoint and benefical use or standard	MWAT linked to Aquatic Life Beneficial Use.
Utility of measure for judging if standards or uses are not attained	Basin Plan Water Quality Objectives/Historic Temperature Ranges/Sullivan 2000 Published Temperature Thresholds- Peer Reviewed Literature.
Water Body-specific Information	Data = 7 years (94-2001), Data measured at site, Species or indicator present at Site, Environmental conditions considered at site.
Data used to assess water quality	MWAT values at 23 of the 31 locations exceeded criteria (Sullivan2000) for 14.8 degrees C. 10 locations exceeded the criteria sub-lethal effects (10% reduced growth) 17 degrees C. 5 locations in the estuary, 3 locations in the mainstem, and 1 on Lacks Creek exceeded the criteria available for (20% reduced growth) sub-lethal effects. Maximum temperatures at 6 locations were higher than 24 Degrees Celsius (= Lethal).
Spatial representation	Targeted sites 31 locations over the 294 sq. miles of the creek
Temporal representation	Data was collected over 7 years (94-2001), with at least two years of record at 20 locations
Data type	Numerical data
Use of standard method	USGS sampling
Potential Source(s) of Pollutant	Landslides in the Redwood Creek Watershed/Floods/Erosion of decommissioned roads.
Alternative Enforceable Program	
RWQCB Recommendation	Watch List :The Regional Board feels there is insufficient information existing to list. The MWAT/MWMT values for the Ten Mile River Watershed exceed the criteria values (Sullivan, 2000 Published Temperature Thresholds -Peer Reviewed Literature), that were used to translate the narrative Water Quality Objective for Region 1 for Temperature.
SWRCB Staff Recommendation	Watch List: Place Redwood Creek on the Watch List.

Region 1

Santa Rosa Creek

Water Body	Santa Rosa Creek
Stressor/Media/Beneficial Use	Pathogens/Water/REC-1
Data quality assessment. Extent to which data quality requirements met.	Data with a QA/QC were given the greatest weight.
Linkage between measurement endpoint and benefical use or standard	Pathogens/Bacteria (i.e. E. coli.) linked to REC-1 Beneficial Use.
Utility of measure for judging if standards or uses are not attained	CA. Draft DHS Guidance for Freshwater Beaches, Swimming Advisory Posting
Water Body-specific Information	Data = 1-23 Years (1979/1980 and 2001), Data measured at site, Species or indicator present at Site, Environmental conditions considered at site.
Data used to assess water quality	Bacterial Data n=38, 19 exceeding draft DHS Guidance standards NOT enough data to show exceedance of REC-1 WQO -Bacteria, but enough to show exceedance of the DHS guidance. The DHS guidance for fresh water beaches, which was used to post a swimming advisory for this water body.
Spatial representation	Targeted Sites, 12 along the creek
Temporal representation	Data collected over 12 days in June/July 2001 and also during 4 separate months in 1979/1980.
Data type	Numerical data
Use of standard method	City of Santa Rosa and Draft CA. State DHS Guidance for Fresh Water Beaches
Potential Source(s) of Pollutant	Unknown
Alternative Enforceable Program	
RWQCB Recommendation	List
SWRCB Staff Recommendation	List: List based on their pathogen data exceedance using the DHS Guidance. A Swimming Advisory for this waterbody is in effect, based on the use of this Draft CA. DHS Guidance for Fresh Water Beaches, impacting the Beneficial Use. Note: There was not enough data to show exceedances of REC-1 WQO- Bacteria.

Region 1

Laguna de Santa Rosa

Water Body	Laguna de Santa Rosa
Stressor/Media/Beneficial Use	Nutrients/Water/Aquatic Life
Data quality assessment. Extent to which data quality requirements met.	Data with a QA/QC were given the greatest weight.
Linkage between measurement endpoint and benefical use or standard	Nitrogen and Phosphorus linked to Aquatic Life Beneficial Use.
Utility of measure for judging if standards or uses are not attained	USEPA Criterion, WQO
Water Body-specific Information	Data = 5-6 Years (1995-2001), Data measured at site, Species or indicator present at Site, Environmental conditions considered at site.
Data used to assess water quality	Water Chemistry Total Samples n=10, 9 exceeding
Spatial representation	Targeted Sites, 10 along the creek
Temporal representation	Data collected over 4 seasons
Data type	Numerical data
Use of standard method	USEPA Standards, and Standard Methods for examination of Wastewater and Water
Potential Source(s) of Pollutant	Unknown
Alternative Enforceable Program	
RWQCB Recommendation	List
SWRCB Staff Recommendation	List : List for Nutrients (Phosphorus and Nitrogen). Data have shown that the WQO linked to nutrients is being exceeded.

Region 1

Laguna de Santa Rosa

Water Body	Laguna de Santa Rosa
Stressor/Media/Beneficial Use	Dissolved Oxygen/Water/Aquatic Life
Data quality assessment. Extent to which data quality requirements met.	Data with a QA/QC were given the greatest weight.
Linkage between measurement endpoint and benefical use or standard	Dissolved Oxygen linked to Aquatic Life Beneficial Use.
Utility of measure for judging if standards or uses are not attained	WQO, Regional Board's Basin Plan Objective for Dissolved Oxygen.
Water Body-specific Information	Data = 5-6 Years (1995-2001), Data measured at site, Species or indicator present at Site, Environmental conditions considered at site.
Data used to assess water quality	Water Chemistry Total Samples n=1792, with 1612 below the 7.0 mg/L Objective.
Spatial representation	Data collected at 4 attainment points along the Water body
Temporal representation	Data collected over 4 seasons
Data type	Numerical data
Use of standard method	City of Santa Rosa Monitoring
Potential Source(s) of Pollutant	Unknown
Alternative Enforceable Program	
RWQCB Recommendation	List
SWRCB Staff Recommendation	List : List for Dissolved oxygen. The data have shown that the WQO is not being met. Note: A TMDL was completed for Dissolved Oxygen once before and it has been shown that it did not work. When the TMDL was completed the water body was removed from the 303(d) List. Now it must be listed again.

Region 1

Stemple Creek/Estero de San Antonio

Water Body	Stemple Creek/Estero de San Antonio
Stressor/Media/Beneficial Use	Sediment/Water/Aquatic Life
Data quality assessment. Extent to which data quality requirements met.	Data with a QA/QC were given the greatest weight.
Linkage between measurement endpoint and benefical use or standard	Turbidity linked to Aquatic Life Beneficial Use.
Utility of measure for judging if standards or uses are not attained	Basin Plan Water Quality objectives for sediment. Published Sedimentation Thresholds- Peer Reviewed Literature.
Water Body-specific Information	Data = 5 Years (1996-2001), Data measured at site, Species or indicator present at Site, Environmental conditions considered at site.
Data used to assess water quality	Have a narrative Objective for Sediment and Turbidity, Have data from 5 years for turbidity measurements. The data have exceeded the criteria (Published Sedimentation Thresholds- Peer Reviewed Literature.) used to translate the narrative Basin Plan Water Quality Objectives for Sediment.
Spatial representation	Targeted stations, 3 sites along creek
Temporal representation	Data collected over 5 sampling years.
Data type	Numerical data
Use of standard method	Dept. Fish and Game
Potential Source(s) of Pollutant	Soil Erosion, Nonpoint Source
Alternative Enforceable Program	
RWQCB Recommendation	List
SWRCB Staff Recommendation	List: List for Sediment. A TMDL was approved in 1997 for this Watershed and Sediment was inadvertently not included as a stressor in the original 303(d) List and it should have been. All the elements for sediment are addressed in the 1997 TMDL, but Sediment wasn't listed as a stressor whereas nutrients were. RB wants to amend the 303(d) list to include Sediment so that the TMDL can be completed. The data have exceeded the criteria, (Published Sedimentation Thresholds- Peer Reviewed Literature), used to translate the narrative Basin Plan Water Quality Objectives for Sediment.

Region 1

Russian River

Water Body	Russian River
Stressor/Media/Beneficial Use	Temperature/Water/Aquatic Life
Data quality assessment. Extent to which data quality requirements met.	Data with a QA/QC were given the greatest weight.
Linkage between measurement endpoint and benefical use or standard	MWAT linked to Aquatic Life Beneficial Use.
Utility of measure for judging if standards or uses are not attained	Basin Plan Water Quality Objectives/Historic Temperature Ranges/Sullivan 2000 Published Temperature Thresholds- Peer Reviewed Literature.
Water Body-specific Information	Data = 5 years (1997-2001), Data measured at site, Species or indicator present at site , Environmental conditions considered at site.
Data used to assess water quality	All 26 locations had MWAT values exceeding the (Sullivan 2000) criteria of 14.8 and 17 Degrees, used to translate the narrative WQO for temperature.
Spatial representation	26 Site locations in the Russian River Watershed.
Temporal representation	More than one Season for 5 years
Data type	Numerical data
Use of standard method	Unknown
Potential Source(s) of Pollutant	Unknown
Alternative Enforceable Program	
RWQCB Recommendation	List: The MWAT/MWMT values for the Russian River Watershed exceed the criteria values (Sullivan, 2000 Published Temperature Thresholds- Peer Reviewed Literature) that were used to translate the narrative Water Quality Objective for Region 1 for Temperature.
SWRCB Staff Recommendation	Watch List: The Regional Board staff wish to list this water body for temperature and put the other 5 rivers impaired for temperature on the Watch List . To be consistent with these RB recommendations, the Russian River should be placed on the Watch List. The amounts and kinds of data are the same for all six rivers.

Region 1

Tule Lake and the Lower Klamath National Wildlife Refuge

Water Body	Tule Lake and the Lower Klamath National Wildlife Refuge
Stressor/Media/Beneficial Use	pH/Water/Aquatic Life
Data quality assessment. Extent to which data quality requirements met.	Data with a QA/QC were given the greatest weight.
Linkage between measurement endpoint and benefical use or standard	pH linked to Aquatic Life Beneficial Use.
Utility of measure for judging if standards or uses are not attained	Basin Plan Water Quality Objectives.
Water Body-specific Information	Data = 6 years (1992-1997), Data measured at site, Species or indicator present at Site, Environmental conditions considered at site.
Data used to assess water quality	For the Klamath Straights Data showed in 1996, 10 pH exceedances out of 15 measurements (7.9- 10 range), 1997 data showed 13 pH exceedances out of 15 measurements (8.1 - 10 Range). The 1992-95 data showed 3 exceedances out of 11 samples (4.6- 9.12 range). For the Tule Lake Data showed in 1996 10 pH exceedances out of 15 measurements (7.5 - 10.0 range). 1997 data showed 13 exceedances out of 15 measurements and the 1992-95 the data showed 7 exceedances out of 11 samples (range 5 - 10.2).
Spatial representation	Klamath Straights- sampling station/Tule Lake … Pump D sampling station
Temporal representation	April through October Data from 1992- 1997 for Klamath and Tule Lake
Data type	Numerical data
Use of standard method	Unknown
Potential Source(s) of Pollutant	Unknown
Alternative Enforceable Program	
RWQCB Recommendation	List
SWRCB Staff Recommendation	List: List for pH for the portions of Tule Lake and Lower Klamath Lake National Wildlife Refuge in CA. Data has shown that the pH values exceeded the WQO for pH.

Water Bodies Proposed for the Watch List by Region 1

Alder Creek	Sediment and Temperature
Beith Creek	Sediment
Brush Creek	Sediment
Casper Creek	Pathogens
Cottaneva Creek	Sediment
Dehaven Creek	Sediment
East Fork Trinity River	Mercury
Elk Creek	Sediment
Greenwood Creek	Sediment and Temperature
Grotzman Creek	Sediment
Hardy Creek	Sediment
Howard Creek	Sediment
Humboldt Bay	PCBs and Dieldrin Sediment
Juan Creek	Sediment
Klamath River	Sediment
Laguna de Santa Rosa	Chromium, Copper, and Zinc Diazinon
Lake Mendocino	Mercury
Lake Sonoma	Mercury

Mad River Slough	
	PCBs
Mallo Pass Creek	
	Sediment
Pudding Creek	
	Pathogens
Russian River	
	Diazinon
Santa Rosa Creek	
	Chromium, Copper, and Zinc
	Diazinon
Schooner Gulch	
	Sediment
Shasta River	
	Sediment and Nutrients
Tule Lake and Lower Klamath Lake National Wildlife Refuge	
	Dissolved Oxygen and Unionized Ammonia
Usal Creek	
	Sediment
Virgin Creek	
	Pathogens
Wages Creek	
	Sediment

Reference List for Region 1

Staff Report

California Regional Water Quality Control Board. North Coast Region. 2001. 303(d) List Update Recommendations. November 16, 2001.

Contacts

Acker, Charles. Elk County Water District, 12/5/1997

Acker, Charles. Elk County Water District, 5/10/2001

Adelman, Brenda. Russian River Watershed Protection Committee, 5/15/2001

Alden, Henry. Gualala Redwoods, Inc., 9/26/2001

Ambrose, Jon. Georgia-Pacific Corporation, 12/11/1997

Blue, Gerry. 5/10/2001

Boland, Margaret J. Department of Agriculture, 5/14/2001

Booth, Lyn. Environmental Health Department, 5/14/2001

Brauner, Ed. City of Santa Rosa, 10/8/2001

Brown, Jon C. Department of Parks and Mendocino, 2/20/2001

Brown, Margaret. private citizen, 12/10/1997

Brucker, Peter. Salmon River Restoration Council, 5/14/2001

Bush, Bernard. Redwood Creek Landowners Assoc., 10/8/2001

Cissne, John M. 4/13/2001

Conner, Kelly. Fruit Growers Supply Company, 5/15/2001

de Vall, Norman. Greenwood Watershed Association, 12/11/1997

Dixon, Rex and Charlotte. 5/10/2001

Elliott, Richard L. Department of Fish and Game - Region 1, 12/1/1997

Euphrat, Fred. Forest, Soil & Water, Inc., 12/11/1997

Farhi, Seth. 5/14/2001

Fenton, Clark. Salmon Forever, 5/14/2001

Finger, Elizabeth. Jacoby Creek Protection Association, 5/14/2001

Friedrichsen, Gary L. 5/10/2001

Gienger, Richard. Sotoyome Resource Conservation District, 5/15/2001

Halstead, Ted. 4/7/2001

Herman, Thomas. Barnum Timber Co., 10/5/2001

Herman, Thomas M. Barnum & Herman, 5/11/2001

Hofstra, Terrence D. USDI, CDPR, Redwood National and State Parks, 5/15/2001

Kelly, Scott. HJW & Associates, Inc., 12/11/1997

Koch, Donald B. Department of Fish and Game - Region 1, 8/31/1998

Koch, Gene.

Koken, Angela. 5/10/2001

Madej, Mary Ann. USDI, USGS, Western Ecological Research Center, 5/11/2001

McEnhill, Don. Friends of the Russian River-RiverKeeper Project, 5/15/2001

McEnhill, Don. Friends of the Russian River-RiverKeeper Project, 5/15/2001

McEnhill, Don. Friends of the Russian River-RiverKeeper Project, 5/15/2001

Oliveri, Mary Jane. City of Santa Rosa Public Works Department, 5/15/2001

Pjerrou, Mary. Redwood Coast Watersheds Alliance, 5/14/2001

Pjerrou, Mary. Redwood Coast Watershed Alliance, 10/9/2001

Quinn, Scott. Karuk Tribe of California, 5/15/2001

Rische, Carol. Humboldt Bay Municipal Water District, 10/29/2001

Rosen, Elyssa. Sierra Club, 12/11/1997

Rosenblum, John. Rosenblum Environmental Engineering, 12/11/1997

Roth, James. Merritt Smith Consulting, 10/5/2001

Schmidt, Erik. 5/10/2001

Shulz, Tom. Louisiana-Pacific, 12/11/1997

Slota, Dennis. Mendocino County Water Agency, 5/15/2001

Small, Lynn M. City of Santa Rosa Utilities Department, 5/14/2001

Stansberry, Bob and Val. 5/12/2001

Starner, Keith. DPR, 4/26/2001

Surfleet, Chris. Mendocino Redwood Company, 10/1/2001

Tarvin, Jay. Humboldt Bay Municipal Water District, 4/12/2001

Wunner, Robert. 5/10/2001

Technical References

Anderson, D. 1983. Status of Summer Steelhead Trout in Redwood Creek, Redwood National Park, California. In S. Viers, J. Stohlgren, and C. Schonewald-Cox, ed. Proceedings of the Fourth Conference on Research in California's National Parks, Transactions and Proceedings Series 9. T, 1-8. U.S. DOI, National Park Service.

Bisson, P., Bilby, R. 1991. Avoidance of Suspended Sediment by Juvenile Coho Salmon. North American Journal of Fisheries Management, 4:371-374.

Brown, L. and Moyle, P. 1991. Status of Coho Salmon in California. Report to the National Marine Fisheries Service. Department of Fisheries and Wildlife - University of California at Davis.

Brungs, J., Jones, B. 1977. Temperature Criteria for Freshwater Fish: Protocol and Procedures. Environmental Research Laboratory - Duluth. US EPA.

Burns, J.W. 1970. Spawning Bed Sedimentation Studies in North California Streams. California Fish and Game 56(4). Pages 253-279.

California Department of Fish and Game. 1995. Stream Inventory Reports for Usal Creek and South Fork Usal Creek.

California Department of Fish and Game. Temperature monitoring data 1999.

California Department of Health Services. July 24, 2001. Draft Guidance for Fresh Water Beaches.

California Department of Pesticide Regulation. December 1997. Temporal Distribution of Insecticide Residue in Four California Rivers. Report No. EH97-06.

California EPA - Office of Environmental Health Hazard Assessment. March 2000. Draft Evaluation of Potential Health Effects of Eating from Black Butte Reservoir (Glenn and Tehama Counties): Guidelines for Sport Fish Consumption.

California State Water Resources Control Board. 1998. Chemical and Biological Measures of Sediment Quality and Tissue Bioaccumulation in the North Coast Region - Final Report. Bay Protection and Toxic Cleanup Program.

California State Water Resources Control Board. 2001. State Mussel Watch Program: Preliminary Summary of 1999-2000 Data.

Campbell Timberland Management, LLC. Gulch 11/South Fork Ten Mile River THP No. 1-00-138 MEN.

Campbell Timberland Management. One Way Truck Road Timber Harvest Plan. # 1-01-080 MEN, submitted 3/22/01.

Campbell Timberland Management. Estimated Aquatic Vertebrate Populations North and South Forks Usal Creek 1993-2000.

Campbell Timberland Management. Scudder Gulch Timber Harvest Plan. #1-01-172 MEN, Submitted 5/15/01.

City of Santa Rosa Utilities Department: Subregional Water Reclamation System. Laguna Subregional Wastewater Collection, Treatment and Disposal Facility Self-monitoring reports for 2000 and 2001.

City of Santa Rosa. June - July 2001. Self-monitoring data.

Department of Fish and Game. December 6, 2000. Marin-Sonoma Counties Agricultural Runoff Influence Investigation: 1999 - 2000 Summary. Appended data 1990 - 1998.

Department of Fish and Game. Marin-Sonoma Counties Agricultural Runoff Influence Investigation: 2001 data.

Department of Forestry and Fire Protection, Coast-Cascade Region.1994-1997. Water Temperatures on Jackson Demonstration State Forest.

Elliot, J. 1981. Some Aspects of Thermal Stress on Freshwater Teleosts. Pages 209-245 in A.D. Pickering, editor. Stress and Fish. Academic Press, London.

Forest, Soil & Water. 1996. Greenwood Creek Stream Survey: Data Analysis and Recommendations.

Georgia Pacific West, Inc. So. Fork Ten Mile River THP No. 1-99-167 MEN.

Gualala Redwoods Inc. 2001. Stream Report. Unpublished report.

Hawthorne Timber Co. North Side Smith THP No. 1-01-206 MEN.

Jobling, M. 1981. Temperature tolerance and the final preferendum - rapid methods for the assessment of optimum growth temperatures. Journal of Fish Biology. 19:439-455.

Jong, B. 1994. Chinook Salmon Spawning Habitat Quality Evaluation Studies: Shasta River and South Fork Trinity River Basins. California Department of Fish and Game.

Klein, R. 2001. Suspended Sediment Concentrations and Fluxes in Redwood Creek Tributaries. Unpublished data.

Knopp, C. 1993. Testing Indices of Cold Water Fish Habitat. North Coast Regional Water

Quality Control Board in cooperation with the California Department of Forestry.

Lewis, T. et al. 2000. Regional Assessment of Stream Temperatures Across Northern California and their Relationship to Various Landscape-Level and Site-Specific Attributes. Forest Science Project. Humboldt State University Foundation, Arcata, CA. 420 pp.

Ligon, F. et al. 1999. Report of the Scientific Review Panel on California Forest Practice Rules and Salmonid Habitat. Prepared for the Resources Agency of California and the National Marine Fisheries Service. Sacramento, California.

Lisle, T. and S. Hilton. 1992. The Volume of Fine Sediment in Pools: An Index of Sediment Supply in Gravel-Bed Streams. Water Resources Bulletin Volume 28, No. 2.

Lisle, T. and S. Hilton. 1999. Fine Bed Material in Pools of Natural Gravel Bed Channels. Water Resources Research. Volume 35, No. 4.

Madej, M. 1984. Recent Changes in Channel-Stored Sediment Redwood Creek, California. Report for Redwood National Park.

Madej, M. 1999. Temporal and Spatial Variability in Thalweg Profiles of a Gravel-Bed River. Earth Surface Processes and Landforms 24, 1153-1169.

Marshack, J. 2000. A Compilation of Water Quality Goals. Regional Water Quality Control Board, Central Valley Region.

Meehan, W. (Editor) 1991. Influences of Forest and Rangeland Management of Salmonid Fishes and Their Habitat. American Fisheries Society Special Publication 19. American Fisheries Society.

Mendocino Redwood Company. THP No. 1-01-316 MEN.

Mendocino Redwood Company. THP No. 1-01-358 MEN.

Mendocino Redwoods Company. Beeside Timber Harvest Plan. #1-01-104 MEN, submitted 5/10/01.

Mendocino Redwoods Company. Section 27 II Timber Harvest Plan. #1-01-072 MEN, submitted 3/15/01.

Natural Resources Management. Temperature monitoring data 1997-1999.

NCRWQCB. 2001. Compilation of reported sediment data from Redwood Creek. Unpublished data.

NCRWQCB. 2001. Database of Redwood Creek information.

NCRWQCB. August 14, 1997. Executive Officer's Summary Report by Peter Otis.

NCRWQCB. August 15, 2001. Gualala River Watershed Technical Support Document for the Total Maximum Daily Load for Sediment.

NCRWQCB. August 15, 2001. Gualala River Watershed Technical Support Document for the Total Maximum Daily Load for Sediment.

NCRWQCB. August 2, 2001. Draft Assessment of Aquatic Conditions in the Mendocino Coast Hydrologic Unit.

NCRWQCB. August 2001. Memo to file. Stemple Creek 303(d) Listing history.

NCRWQCB. February 28, 1996. Draft Report: Sediment Sample Results for Organic Chemicals, Metals, and Nutrients in the Laguna de Santa Rosa/Mark West Creek System and the Russian River 1985-1986 and 1995.

NCRWQCB. May 1996. Water Quality Control Plan for the North Coast Region.

NCRWQCB. Report to File “Russian River Bacteria Levels”. December 6, 2001.

NCRWQCB. Unpublished coliform data. 1979-1980.

NCRWQCB. Unpublished Data. Data collected under a U.S. EPA Clean Water Act 104(b)(3) Water Quality Grant for Monitoring on the Klamath and Lost Rivers. Sampling occurred from April 3, 1996 through October 18, 1996 and from April 2, 1997 through October 24, 1997.

NCRWQCB. Unpublished Laguna de Santa Rosa monitoring data. August/September 2001. Under contract with the Sonoma County Water Agency.

NCRWQCB. Unpublished Russian River and Laguna de Santa Rosa monitoring data. 1997-2000.

NCRWQCB. Unpublished Russian River coliform monitoring data. 1995-2001.

Newcombe, C., Jensen, J. 1996. Channel Suspended Sediment and Fisheries: A Synthesis for Quantitative Assessment of Risk and Impact. North American Journal of Fisheries Management. November 1996.

Ozaki, V. and C. Jones. 1998. Long-Term Channel Stability Monitoring on Redwood Creek, 1995-1997 Progress Report. Report for Redwood National Park.

Ozaki, V., M. Madej and D. Anderson. 1998. Summer Water Temperature Monitoring on Redwood Creek. Progress Report. Redwood Creek National and State Park.

Peterson, N., A. Hendry, and T. Quinnl 1992. Assessment of Cumulative Effects on Salmonid Habitat; Some Suggested Parameters and Target Conditions. Timber/Fish/Wildlife. TFW-F3-92-001.

Rasmussen, D. 1990. Toxic Substances Monitoring Program Ten Year Summary Report 1978-1987. State Water Resources Control Board.

Rasmussen, D. 1995. State Mussel Watch Program, 1987-1993 Data Report. Report No. 94-1 WQ. California State Water Resources Control Board.

Rasmussen, D. 1995. Toxic Substances Monitoring Program 1992-1993 Data Report. State Water Resources Control Board.

Rasmussen, D. 1997. Toxic Substances Monitoring Program 1994-1995 Data Report. State Water Resources Control Board.

Rasmussen, D. 2000. State Mussel Watch Program, 1995-1997 Data Report. California State Water Resources Control Board.

Redwood National and State Park, 2001. Unpublished temperature data.

Redwood National and State Park. June 6, 2001. Unpublished fish survey data.

Redwood National Park. 1999 RNSP Redwood Creek Summer Steelhead Trout Survey.

Ricker, S. 1997. Evaluation of Salmon and Steelhead Spawning Habitat Quality in the Shasta River Basin, 1997. California Department of Fish and Game. Administrative Report No. 97-9.

Santa Rosa Press Democrat, Empire News. August 4, 2001. Creek Pollution Unsolved.

Sigler, J., Bjorunn, T., Everest, F. 1984. Effects of Chronic Turbidity on Density and Growth of Steelheads and Coho Salmon. Transactions of the American Fisheries Society, 113:142-150. American Fisheries Society.

Simpson Timber Co. Timber Harvest Plan 1-00-314-HUM.

Sonoma County Water Agency. Stream temperature-monitoring data 1997- 1998.

Sparkman, M. 2001. Redwood Creek Rotary Screw Trap Downstream Migration Study Redwood Valley, Humboldt County, California. April 4 – August 5, 2000.

Spence, B., Lomnicky, G., Hughes, R., Novitzki, R. 1996. An ecosystem approach to salmonid conservation. Report No. TR-4501-96-6057. ManTech Environmental Research Services Corporation, Corvallis, Oregon.

State Water Resources Control Board. 2001. Toxic Substances Monitoring Program: Preliminary Summary of 1999 Data.

Sullivan, K. et al. 2000. An Analysis of the Effects of Temperature on Salmonids of the Pacific Northwest with Implications for Selecting Temperature Criteria. Sustainable Ecosystem Institute.

Trinity Journal. March 19, 2001. Little Mercury from Mining Found in Trinity Waters.

US EPA. 1998. Redwood Creek Sediment Total Maximum Daily Load. US EPA Region IX.

US EPA. 2001. Water Quality Criterion for the Protection of Human Health: Methylmercury. Report No. EPA-823-R-01-001.

Van Kirk, S. 1994. Historical Information on Redwood Creek. Prepared for Redwood National Park.

Winchester, W., R. Raymond and S. Tickle. 1995. Lost River Watershed Area in California (Tributary to the Klamath River): Water Quality Characteristics. North Coast Regional Water Quality Control Board. September 29, 1995.

Yurok Tribal Fisheries Program. 2000. Lower Klamath River Sub-Basin Watershed Restoration Plan.