From: Joe Karkoski
To: Craig J. Wilson; Laura Sharpe
Date: Thu, Jul 25, 2002 12:33 PM
Subject: Review of Data Submitted

Attached is our review of the new data submitted and a response to some comments. The hard copy is in the mail. Please tell us if you need anything else.

Joe

California Regional Water Quality Control Board

Central Valley Region

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TO: Craig J. Wilson, Chief
TMDL Listing Unit
State Water Resources Control Board

FROM: Joe Karkoski
303(d) List Coordinator

DATE: 24 July 2002

SIGNATURE: _____

Craig J. Wilson 24 July 2002

SUBJECT: central valley regional water quality control board staff review of additional data submitted for the 2002 303(d) List update

Central Valley Regional Water Quality Control Board (Regional Board) staff has completed its review of additional data submitted to the State Water Resources Control Board's (State Board) for consideration in the update of the Clean Water Act Section 303(d) List (303(d) list). In addition to data submitted to the State Board, we have also reviewed data submitted to the Regional Board for consideration in the update of the 303(d) list. The additional data available to the Regional Board was for copper in the San Luis Reservoir and dissolved oxygen in the Delta.

We provide a summary of our review of the data below. We have also provided a response to some of the comments that were made on Regional Board recommendations.

Review of New Information Submitted to the State Board

Commenter 5.8 – The commenter submitted documentation related to mercury and other problems in San Carlos Creek due to runoff from the New Idiria mine in San Benito County. The commenter requests that San Carlos Creek be given a higher priority on the 303(d) list. Regional Board staff recommends that the priority for TMDL development for mercury in San Carlos Creek remains **low**.

Regional Board staff has reviewed the data that has been submitted. We have been aware of the New Idria site as a potential mercury source and will investigate loading from the San Carlos Creek and Panoche Creek watersheds as part of our mercury efforts in the Delta and San Joaquin River. The implementation plans for the Delta and San Joaquin River will evaluate the feasibility and benefit of various corrective actions, including mine remediation. It should also be noted that the U.S. Environmental Protection Agency's Superfund Program has conducted a preliminary investigation at the New Idria mine site.

The contractor for the U.S. EPA concluded in the preliminary investigation that the greatest potential hazard associated with the site was as a source of mercury in the Mendota Pool and San Joaquin River. The preliminary investigation, together with other readily available information, indicates that risks to beneficial uses of San Carlos Creek are not great. The creek is not a human drinking water source and does not support a fishery. This contrasts with other waters that are listed for mercury contamination and are a higher priority.

The Regional Board has given higher priority (medium or high) to mercury contaminated water bodies in which consumption of fish can lead to significant human and wildlife exposure. Due to the relatively low exposure risk in San Carlos Creek versus other Central Valley mercury impaired streams, Regional Board staff recommend that TMDL development for mercury in San Carlos Creek be given a low priority.

Commenter 5.9 – The commenter provided water quality information that has already been reviewed by Regional Board staff and that data does not support a change in the current listings for the San Joaquin River.

Commenter 5.10 – Butte Creek: The commenter recommends listing Butte Creek for impairment due

to diazinon and molinate, since Butte Slough is listed. Regional Board staff does not recommend listing Butte Creek for impairment due to diazinon and molinate at this time.

The commenter is correct in stating that portions of Butte Creek are likely to be impaired due to diazinon and molinate, since Butte Creek flows into Butte Slough and can make up most of the flow in Butte Slough. Although the commenter has made a reasonable inference, the Regional Board does not generally recommend listing waters unless data specific to those waters is available.

The commenter also presents draft data from constructed agricultural drains in the Butte Creek watershed that show high levels of diazinon. Since the data is not specific to Butte Creek and the Regional Board does not have diazinon data available for Butte Creek, Regional Board staff does not recommend listing Butte Creek for diazinon impairment.

Dead Horse Slough: Please see the response to this recommendation in the Regional Board's *Final Staff Report on Recommended Changes to California's Clean Water Act Section 303(d) List.*

Commenter 5.11 – San Joaquin River: The commenter recommends a higher priority for the mercury TMDL for the San Joaquin River. The current priority is "Medium". The commenter points out that the San Francisco Bay Board has made mercury a "High" priority and that the Bay is fed in part by the San Joaquin River. The Regional Board has made the Delta mercury TMDL a "High" priority and the Delta is the waterbody immediately upstream of San Francisco Bay. In addition, the State Board is assigning "High" priority to TMDLs to be completed in 2003 or 2004. Since the San Joaquin River mercury TMDL has not been started, it would not be possible to bring a Basin Plan Amendment to our Board in such a short time frame. Additional time is needed to complete other high priority mercury TMDLs and collect additional data in the San Joaquin watershed.

Grassland Marshes: The commenter opposes delisting selenium in the Grassland Marshes. The commenter points out that the Regional Boards TMDL report indicates that the Grassland Marshes will be taken off the 303(d) list pending compliance with water quality objectives. Regional Board staff agrees that the Grassland Marshes should remain on the 303(d) list pending compliance with selenium water quality objectives in wetland supply channels. This would be in conformance with the TMDL approved by US EPA. As indicated in the Regional Board staff report *Selenium TMDL for Grassland Marshes*, revision of this TMDL or additional listings of supply water sources may be necessary if ongoing monitoring indicates that control measures are insufficient to reduce selenium concentrations in wetland supply channels below 2 µg/L. There are currently a number of actions being implemented to prevent discharge of subsurface drainage into wetland supply channels. The efficacy of these efforts will be evaluated to determine if additional efforts are needed to control sources of selenium in wetland supply channels in the Grassland Watershed. The Grassland Marshes TMDL will be revised if these efforts are unsuccessful.

Salt Slough: The commenter opposes delisting selenium in Salt Slough. Regional Board staff believes that Salt Slough should be delisted for non-attainment of selenium standards, since selenium objectives are being met and a TMDL has been completed.

Craig J. Wilson 24 July 2002

Central California Irrigation District Main Canal: The commenter recommends listing the Central California Irrigation District's Main Canal for impairment caused by selenium. Although the Central California Irrigation District Main Canal provides supply water for the wetland supply canals listed in the Basin Plan, it does not directly provide wetland habitat, and is therefore not recommended for listing since no existing beneficial uses are currently impaired. Any impact of the Main Canal and sources to the Main Canal will be addressed through the Mendota Pool TMDL and any necessary revision of the Grassland Marshes TMDL.

Delta-Mendota Canal: The commenter recommends listing the Delta-Mendota Canal for impairment caused by selenium. The Regional Board agrees with the recommended listing and has prepared a fact sheet documenting the basis for that determination (see attached).

Mendota Pool: The commenter recommends listing the Mendota Pool for impairment caused by selenium. The Regional Board agrees with the recommended listing and has prepared a fact sheet documenting the basis for that determination (see attached).

Commenters 5.14 and 5.15: Both commenters provided data on total recoverable aluminum levels in the Mokelumne River. The commenters ask that the Regional Board consider the more recent data in its determination of 303(d) listing. The Regional Board is now recommending that the Mokelumne River not be included on the 303(d) list for non-attainment of standards due to elevated levels of aluminum.

Commenter 5.15 (the East Bay Municipal Utility District-EBMUD) provided the most extensive data set. EBMUD has collected 76 samples from the Mokelumne River just downstream of the Camanche Reservoir since 1994. Regional Board staff evaluated this data in lieu of the older U.S. Fish and Wildlife Service data that was collected prior to the remediation at Penn Mine.

Two of the 76 samples were above U.S. EPA national acute criteria for the protection of aquatic life (750 µg/L). The two samples were also above the MCL (1,000 µg/L). The two samples were collected in January 1997 and February 1997 respectively. No samples taken from 1994 to that time or after have been above the aquatic life or MCL criteria. The average concentration of all samples taken since 1994 is 250 µg/L (see EBMUD comment letter).

The issue that Regional Board staff tried to address is whether the two samples collected were truly outliers (unlikely to occur) or whether the two samples were representative of conditions that may occur again. The significant rainfall that fell during December and January likely triggered the high aluminum levels observed in January and February of 1997. The high and frequent rainfall likely resulted in higher than normal amounts of erosion. In addition, the retention time for water in upstream reservoirs would have been decreased, since higher than normal releases would have been required. The decreased retention time would give less time for suspended sediment, which would be the source of most of the aluminum, to settle.

Regional Board staff reviewed precipitation data from Camp Pardee, which is located upstream of the Camanche reservoir and the lower Mokelumne River. The highest rainfall recorded at Camp Pardee in the last 50 years occurred on January 2, 1997. The frequency of rain-days in December and January 1997 was higher than average (it rained over 51% of the days versus a historic average of 32%) (UC IPM, 2002).

Regional Board staff also reviewed flow records for the Mokelumne River below Camanche Dam. The U.S. Geological Survey's historic monthly mean daily flow records (USGS, 2002) indicate that the monthly mean daily flow in January and February 1997 were the highest and third highest, respectively, on record. (97 years).

Since the storm events that resulted in the high observed aluminum levels are the most severe on record, it is unlikely that the aluminum criteria will be exceeded at a frequency of greater than once every three years on average. The Regional Board, therefore, does not recommend adding the lower Mokelumne River to the 303(d) list due to impairment caused by aluminum.

Commenter 5.16: The commenter indicated to the State Board that they submit data to the Regional Board as part of a regular monitoring program. This information was taken into consideration during the Regional Board's initial assessment.

Commenter 5.17: The commenter submitted data that they believed showed the severe degradation of Deer Creek (in the Grass Valley/Nevada City area) below the Lake Wildwood dam. Regional Board staff has reviewed the data provided, along with data available from the Lake Wildwood Treatment Plant's discharger monitoring report. Regional Board staff does not believe that the available data supports listing Deer Creek for non-attainment of water quality standards.

Synopsis of Data Provided by Friends of Deer Creek

BENTHIC MACROINVERTEBRATE INVESTIGATION

Taxa Richness, EPT Index, Sensitive EPT Index, Percent Intolerant Averages showed significant differences in sites above Nevada City (sites 1 + 2) when compared with sites below Lake Wildwood (8-10). Sensitive mayflies, stoneflies, and caddisflies decreased from approximately 36% to 5% from sites 1, 2,4 to downstream sites 8, 9, and 10. Intolerant organisms are approximately 35% upstream, while intolerants are 1% downstream. Bioassessment data were collected spring and fall starting November 2000. Only the November 2000 data are available and presented in the report. No physical habitat data were provided with the biological data.

Friends of Deer Creek (FODC) provide evidence of benthic macroinvertebrate communities shifting from intolerant to tolerant when comparing sites 1 and 2 against sites 8 – 10. The elevation range of the sampling sites is approximately 660 feet to 3430 feet above sea level. While concurring with FODC on the difference in communities, it is not clear if the change in aquatic communities is due to wastewater treatment plants, hydromodification, elevation changes, habitat quality, water quality, or other aquatic life stressor(s). In this sense, bioassessment data are often difficult to interpret especially without the habitat assessment component of the data, including substrate and reach descriptions from each sampling point. In addition, biological data presented by FODC only represent one sampling event in time and lack temporal confirmation. In summary, there is no clear link between impairment and a water quality pollutant.

Although detecting impairment may be possible, and is a goal of using bioassessment, establishing the

link between the cause(s) of impairment with aquatic communities requires a carefully designed study. Selection of sampling sites, knowledge of potential stressors, and simultaneous use of multiple water quality assessment tools are very important for establishing links between bioassessment data and aquatic ecosystem impairment. FODC has provided a good start to assessing the relative health of Deer Creek Watershed and has provided data that provides direction for future monitoring work. For example, between sites 4 and 5 a shift in aquatic communities is evident. Given that these two sites are close together the relative influence of certain stressors (elevation, wastewater treatment plants, etc.) would likely be homogenous and not linked to the community shift. We recommend following up with a more focused multiple stressor evaluation that targets the sources of potential impairment between those two sites, as well as continuing the regular monitoring program. The key issue for Regional Board staff is to identify if there is impairment to beneficial uses, and, if the impairment is due to a pollutant.

HEAVY METALS

The U.S. Geological Survey report referenced by FODC on mercury bioaccumulation in fish has already been used to list segments of certain waterbodies. In addition, the construction site contamination referenced by FDOC is already being investigated by the Private Sites Clean Up Unit at the Central Valley Regional Water Quality Control Board.

STORM WATER DATA

FODC collected data to determine if fall storm water runoff from Nevada City is detrimental to Brown Trout spawning grounds. Looking solely at concentration data provided by FODC there appears to be no violation of water quality objectives for Oil & Grease and TSS. Furthermore, the concentration data provided by FODC do not demonstrate a nuisance or impact to beneficial uses in Deer Creek.

TEMPERATURE/pH STUDY and MONITORING DATA

The instream data collected downstream of the Lake Wildwood Treatment Plant (LWTP) by FODC indicates elevated water quality constituents in Deer Creek. Of particular concern, are the elevated pH levels, which indicate 21 samples exceeding Basin Plan objectives for pH. However, monitoring data collected by LWTP, from the receiving water at points 50 feet upstream from sludge basin #1 and 100 feet downstream of the point of discharge, do not indicate elevated instream pH measurements. Staff reviewed two years of monitoring data collected by LWTP, which overlapped in time with the FODC studies. The LWTP data did not show any exceedances of Basin Plan objectives for pH. It is not clear why there is an inconsistency in the monitoring data collected by FODC and LWTP. Regional Board staff recommends that the data discrepancies be resolved before any action is taken. Regional Board staff also reviewed the nutrient data provided by FDOC, but do not have a standard or criteria for nutrients to use for determining compliance with water quality objectives.

RECOMMENDATIONS

In summary, the information available to Regional Board staff did not indicate that water quality objectives were not attained based on the data submitted by FODC. However, the FODC studies provide a good foundation for a more in-depth investigation. We recommend more detailed and focused analyses on sections of Deer Creek where monitoring data suggests potential problems.

Commenter 5.19: The listing for the Avena Drain is for high ammonia and pathogen levels caused primarily by the unauthorized discharge of dairy waste. These discharges occur in the stormwater or winter season. The listing should remain as described and not be placed on a "watch" list. The listing was made based on data developed by Board staff and data submitted to the Board by independent parties that shows continued violation of water quality objectives.

The commenter raised the issue of the appropriateness of the water quality objectives and beneficial uses for the Avena Drain. We agree with the commenter that there needs to be an evaluation of the nature of the waterbody, the assigned beneficial uses and the water quality objectives. Each of these steps will be carried out as the first part of the development of a TMDL for this waterbody. Unfortunately Board staff cannot, at this time, make a determination of the type of waterbody the Avena Drain is. This waterbody was not considered when the Board conducted a preliminary review to classify waterbody types as part of the Inland Surface Water Plan process (CVRWQCB, 1992).

We applaud the Avena Drainage District for their efforts to assist the Board in correcting the present unauthorized discharges of dairy waste to the Avena Drain. It is partially for this reason that Board staff recommended a "low priority" for development of this TMDL to give these efforts time to succeed. The listing may also assist in this effort by providing a priority designation for the Avena Drain during consideration of grant funding. With these grant funds and the efforts of the Drainage District and the dairy operators, the water quality violations may be corrected prior to the next listing cycle. If they were able to accomplish this, Board staff would recommend removing the Avena Drain from the 303(d) list in the next listing cycle.

Review of Other Information made Available to the Regional Board

Dissolved Oxygen in the Middle and Old Rivers: The Regional Board was made aware of dissolved oxygen sensors that are deployed in Middle and Old Rivers in the Delta. An evaluation of this data indicates that reaches of both Middle and Old Rivers are not attaining dissolved oxygen water quality objectives. The fact sheets to support these determinations are attached.

Copper in the San Luis Reservoir: The Regional Board received data from the California Department of Water Resources (CDWR) on levels of copper in the San Luis Reservoir as part of the initial solicitation. Some of the data submitted was received after the initial May 15, 2001 deadline. The data now available to the Regional Board indicates that copper levels exceeded California Toxics Rule criteria frequently from October 1999 to September 2000 (7 out of 10 samples exceeded the chronic criteria, 3 out of 10 exceeded the acute). Since there was only one minor exceedance (0.1 ppb above the criteria) prior to October 1999 and no exceedances since September 2000, the exceedances may have been due to conditions unique to the October 1999- September 2000 time period. Regional Board staff received data from CDWR that included copper results through June 2002 (CDWR, 2002). All samples collected since September 2000 have copper levels well below the CTR criteria.

Regional Board staff has discussed with CDWR staff the time period in which CTR criteria were exceeded and it is not clear why those exceedances occurred at that time and not before or since. Regional Board staff reviewed data available on CDWR's web site (http://wwwomwq.water.ca.gov/wqmon.html) to determine whether sites upstream and downstream of

the San Luis Reservoir showed elevated levels of copper. A review of data on copper levels at the pumping plants in the Delta, in the Delta-Mendota Canal, and in the O'Neil Forebay, indicates that copper levels were well below CTR criteria even when the observed exceedances in the San Luis Reservoir occurred.

Regional Board staff does not recommend listing the San Luis Reservoir for non-attainment of copper standards at this time. The combination of the finite time period of the excursions, the relatively low levels of copper since the excursions occurred, and the lack of elevated levels downstream and upstream of the reservoir indicate that the excursions may not occur again (i.e. the evidence suggests that standards are currently attained).

Regional Board staff would recommend that sampling and analysis for copper continues and that factors that could affect copper analytical results be carefully tracked (e.g. timing of application of copper based pesticides, sampling location, reservoir levels, etc.).

Craig J. Wilson **Attachment A** 24 July 2002

Fact Sheet Summaries

Mendota Pool

Water Body	Mendota Pool
Stressor/Media/Beneficial Use	Selenium/water/wildlife
Data quality assessment. Extent to which data quality requirements met.	Limited consideration to those organizations that conduct monitoring using documented QA/QC procedures.
Linkage between measurement endpoint and beneficial use or standard	Selenium linked to WILD (wildlife) beneficial use.
Utility of measure for judging if standards or uses are not attained	Selenium objective (2 ppb monthly mean) applicable to nearby wetlands used to evaluate impact to wetland habitat associated with Mendota Pool.
Water Body-specific Information	The Mendota Pool includes the San Joaquin River 3 miles upstream of the Mendota Dam and Fresno Slough 8 miles upstream of the Mendota Dam.
Data used to assess water quality	Data from 3 years from the Mendota Pool and 2 years just downstream of the Mendota Pool. Seven of 26 samples from the Mendota Pool and 4 of 20 just downstream of the Pool were greater than 2 ppb.
Spatial representation	Data analyzed is from one site within the Mendota Pool and one site just downstream of the Mendota Pool.
Temporal Representation	Samples were collected over a several years period.
Data Type	Numeric water column concentration data.
Use of standard method	Regional Board sample collection and analytical protocols for selenium were used.
Potential Source(s) of Pollutant	Ground water pumping into the pool and the source water (Delta-Mendota Canal)
Alternative Enforceable Program	N/A
RWQCB Recommendation	List
SWRCB Staff Recommendation	

Craig J. Wilson Attachment A 24 July 2002

Fact Sheet Summaries

Middle River

Water Body	Middle River
Stressor/Media/Beneficial Use	Dissolved Oxygen/Water/Aquatic Life
Data quality assessment. Extent to which data quality requirements met.	Data comes from real-time sensors operated by the California Department of Water Resources as part of the Interagency Ecological Program.
Linkage between measurement endpoint and beneficial use or standard	Dissolved oxygen linked to various aquatic life uses (WARM/COLD/MIGR/SPWN)
Utility of measure for judging if standards or uses are not attained	Regional Board dissolved oxygen water quality objective.
Water Body-specific Information	10 months of data from one site. (January 2001-October 2001)
Data used to assess water quality	22,000 data points. DO analyzed about every 15 minutes. Range 2.7 mg/L to saturation. 4.5 % of samples below 5.0 mg/L. More frequent violations in June & July.
Spatial representation	Data collected from the approximate mid-point of the identified impaired reach. No major inflows in the reach identified.
Temporal Representation	One year of 15-minute interval data available for the critical time period (June/July).
Data Type	Numerical data
Use of standard method	
Potential Source(s) of Pollutant	Unknown
Alternative Enforceable Program	N/A
RWQCB Recommendation	List Middle River from the San Joaquin River to the Victoria Canal.
SWRCB Staff Recommendation	

Craig J. Wilson Attachment A 24 July 2002

Fact Sheet Summaries

Old River

Water Body	Old River
Stressor/Media/Beneficial Use	Dissolved Oxygen/Water/Aquatic Life
Data quality assessment. Extent to which data quality requirements met.	Data comes from real-time sensors operated by the California Department of Water Resources as part of the Interagency Ecological Program.
Linkage between measurement endpoint and beneficial use or standard	Dissolved oxygen linked to various aquatic life uses (WARM/COLD/MIGR/SPWN)
Utility of measure for judging if standards or uses are not attained	Regional Board dissolved oxygen water quality objective.
Water Body-specific Information	10 months of data from three sites. (January 2001-October 2001)
Data used to assess water quality	55,000 data points. DO analyzed about every 15 minutes. Range 1.0 mg/L to saturation. 13 % of samples below 5.0 mg/L. More frequent violations during June-September.
Spatial representation	Data collected from the near to San Joaquin River to near the Delta-Mendota Canal and midway between.
Temporal Representation	Two years of data available for the critical time period (June-September).
Data Type	Numerical data
Use of standard method	
Potential Source(s) of Pollutant	Unknown
Alternative Enforceable Program	N/A
RWQCB Recommendation	List Old River from the San Joaquin River to the Delta-Mendota Canal.
SWRCB Staff Recommendation	

Craig J. Wilson Attachment A 24 July 2002

Fact Sheet Summaries

Delta-Mendota Canal

Water Body	Delta-Mendota Canal (DMC)
Stressor/Media/Beneficial Use	Selenium/water/aquatic life
Data quality assessment. Extent to which data quality requirements met.	Limited consideration to those organizations that conduct monitoring using documented QA/QC procedures.
Linkage between measurement endpoint and beneficial use or standard	Selenium linked to WARM (warm fresh water habitat) beneficial use.
Utility of measure for judging if standards or uses are not attained	Selenium California Toxic Rule criterion of 5 ppb as a four-day average applies to waters of the U.S. with aquatic life beneficial uses.
Water Body-specific Information	Four years of data from two sites.
Data used to assess water quality	92 data points from sites in the DMC upstream and downstream of agricultural tile drainage sumps. 19 samples were above the criterion.
Spatial representation	Data collected upstream of tile drainage sumps represents DMC from O'Neil Forebay to mile post 100.85. Downstream site represents reach to Mendota Pool.
Temporal Representation	Four years of data reviewed.
Data Type	Numerical data.
Use of standard method	
Potential Source(s) of Pollutant	Ground water inflow and tile drainage discharge
Alternative Enforceable Program	N/A
RWQCB Recommendation	List
SWRCB Staff Recommendation	

Craig J. Wilson **Attachment B** 24 July 2002
Detailed Fact Sheets

Delta-Mendota Canal, Selenium

Summary of Proposed Action
The California Regional Water Quality Control Board, Central Valley Region, (Regional Board) recommends the addition of the Delta-Mendota Canal from the O'Neill Forebay to the Mendota Pool to California's Clean Water Act Section 303(d) list due to impairment by selenium. The United States Environmental Protection Agency California Toxic Rule criteria for selenium are not being attained.

Table B-1. 303(d) Listing/TMDL Information

Waterbody Name	Delta-Mendota Canal	**Pollutants/Stressors**	Selenium
Hydrologic Unit	541.20	**Sources**	Shallow groundwater pumping and seepage, stormwater runoff, agricultural return flows, and other potential unknown sources
Total Length	116.5 Miles	**TMDL Priority**	Medium
Size Affected	46.47 Miles		
Extent of Impairment	Milepost 70.01 to milepost 116.48		

Watershed Characteristics
The Delta-Mendota Canal (DMC) is a 116-mile long canal that is owned by the United States Bureau of Reclamation (Bureau) and operated by the San Luis and Delta Mendota Water Authority. The canal runs north to south along the eastern slope of the Coast Range from the Delta (near Tracy) to the Mendota Pool (near Mendota). The canal provides Central Valley Project water for irrigated agriculture, municipal water supply, and wildlife refuges in the San Joaquin Valley. This recommended addition pertains to the 46.47-mile section of the DMC from check 13 at the O'Neill Forebay at milepost (MP) 70.01 to the Mendota Pool at MP 116.48.

The DMC is lined with concrete from the Headworks (near Tracy) to MP 98.64. The remaining 18 miles of the canal are earth-lined. In order to prevent accumulation of shallow groundwater on the up-slope side of the earth-lined portion of the canal, a subsurface drainage system and six sumps were installed in this reach (USBR, 2002). The six sumps discharge shallow groundwater directly to the DMC. In addition to the six sumps, there are a 93 check drains between the MP 70.01 and MP 116.48, which allow surface and subsurface drainage to enter the DMC (Pierson et. al, 1987).

Water Quality Objectives Not Attained
The Basin Plan (RWQCB, 1998) lists the following existing beneficial uses for the Delta Mendota Canal: Municipal and domestic supply, irrigation, stock watering, contact recreation, other non-contact recreation, warm freshwater habitat, and wildlife habitat.

The United States Environmental Protection Agency (USEPA) California Toxic Rule (CTR) criterion for selenium is not being attained. The California Toxics Rule (CTR) lists a criterion of 5 micrograms per liter (µg/L, or parts per billion [ppb]) 4-day running average of selenium for aquatic life protection (40 CFR § 131.38 et seq). Warm freshwater habitat is an aquatic life beneficial use.

Evidence of Impairment
Selenium concentrations in the DMC are monitored in the discharge from the six sumps, as well as in the DMC upstream and downstream of the six sumps. The highest selenium concentrations are generally detected between the months of December and April when pumping from the Delta to the DMC ceases or is reduced. During these low flow periods, selenium discharged by the sumps may have a more pronounced impact on selenium concentrations in the DMC both upstream and downstream of the sumps. Elevated selenium concentrations of 24 µg/L in March, 7.5 µg/L in April, 11 µg/L in May, and 5.2 µg/L in June 1998, however, were recorded (Chilcott, 2000, and Eppinger and Chilcott, 2002). Such sustained elevated

selenium concentrations of selenium over several months suggest excursion above the four-day average criteria of 5 µg/L. A summary of the number and percent of samples exceeding the 5 µg/L criterion is shown in table B-2. In particular, the 67% percent rate of exceeding the criteria in the downstream site, and the 33% percent rate of exceeding the criteria in the upstream site in water year 1998, are evidence of impairment.

Table B-2. Summary of Selenium Concentrations in the Delta Mendota Canal[a]

Data Source	Sample Water Years	Location[b]	Number of Sample Dates	Number of Sample Dates Equal to or Above 5 µg/L	Percent Sample Dates Equal to or Above Criterion
Chilcott, 2000	1997	Upstream	11	1	9%
		Downstream	15	4	27%
Chilcott, 2000	1998	Upstream	9	3	33%
		Downstream	9	6	67%
Eppinger et. al, 2002	1999	Upstream	12	2	17%
		Downstream	12	1	8%
Eppinger et. al, 2002	2000	Upstream	12	0	0%
		Downstream	12	2	17%
Summary		Upstream	44	6	14%
		Downstream	48	13	27%

[a] USBR, 2002
[b] Upstream and downstream locations are at MP 100.85 and MP 110.12, respectively

Extent of Impairment
The Delta Mendota Canal is impaired from the O'Neill Forebay at milepost (MP) 70.01 to the Mendota Pool at MP 116.48.

Potential Sources
The sources of the selenium in the DMC are shallow groundwater pumping and seepage, agricultural return flows which may include surface or subsurface return flows, stormwater runoff, and other potential unknown sources.

Craig J. Wilson **Attachment B** 24 July 2002
Detailed Fact Sheets

Mendota Pool, Selenium

Summary of Proposed Action
The California Regional Water Quality Control Board, Central Valley Region, (Regional Board) recommends the addition of Mendota Pool to California's Clean Water Act Section 303(d) list due to impairment by selenium. Information available to the Regional Board on selenium levels in water samples indicates that selenium concentrations in the Pool, and in water diverted from the Pool for wetland use, exceed Water Quality Objectives adopted to protect wetland water supply channels within the Grassland Watershed. The description of the basis for this determination is given below.

Table B-1. 303(d) Listing/TMDL Information

Waterbody Name	Mendota Pool	**Pollutants/Stressors**	Selenium
Hydrologic Unit	541.20, 551.20, 545.10	**Sources**	Delta-Mendota Canal, groundwater seepage, groundwater pumping, flood flows, and unknown
Total Waterbody Size	1,200 acres	**TMDL Priority**	Medium
Size Affected	1,200 acres		
Extent of Impairment	All of Mendota Pool		

Watershed Characteristics
Mendota Pool is a 1,200-acre reservoir on the San Joaquin River that is owned and operated by the Central California Irrigation District (DWR, 1993). The dam forming the Pool is located just downstream of the confluence of the San Joaquin River and Fresno Slough. The Pool is generally less than 10 feet deep, and averages about 400-feet wide. The Pool is generally considered to extend through the Fresno Slough to the south past the Mendota Wildlife Area to the terminus of the James Bypass (approximately 8-mailes to the south-east of Mendota Dam). In the San Joaquin River branch, the pool extends almost to San Mateo Avenue (approximately 3-miles east of Mendota Dam). The total capacity of the Pool is about 8,500 acre-feet (USBR, 2001). The Pool receives water from the Delta Mendota Canal, the San Joaquin River, groundwater pumping adjacent to the Pool, and natural groundwater seepage. The Pool can receive water from the Kings River during wet water years. The Pool is the direct source of water for the immediately adjacent Mendota Wildlife Area, and is the major source of supply water for the Grassland Marshes and irrigated agriculture along the westside of the River.

Water Quality Objectives Not Attained
The narrative objective for toxicity is not being attained in the Mendota Pool. The narrative toxicity objective in the Basin Plan states, in part, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." The narrative toxicity objective further states that "The Regional Water Board will also consider ... numerical criteria and guidelines for toxic substances developed by the State Water Board, the California Office of Environmental Health Hazard Assessment, the California Department of Health Services (OEHHA), the U.S. Food and Drug Administration, the National Academy of Sciences, the U.S. Environmental Protection Agency, and other appropriate organizations to evaluate compliance with this objective" (CRWQCB-CVR, 1998; http://www.swrcb.ca.gov/~rwqcb5/bsnplnab.pdf).

The Regional Board has established a 2 µg/L monthly mean selenium water quality objective for wetland supply channels in the Grassland Marshes (just north of the Mendota Pool). The 2 µg/L monthly mean selenium criteria is also appropriate to use to evaluate compliance with the narrative toxicity objective in the Mendota Pool, since the Pool includes wetland habitat. Selenium concentrations in the Pool and in the water supply diverted from the Pool for wetland uses in the Grassland Marshes have exceeded 2 µg/L.

Evidence of Impairment
Data from water years (WY's) 1997, 1999, and 2000 shows that seven out of 26 grab samples collected in the Pool at Mowry Bridge exceeded 2 µg/L. Four out of 20 samples collected in WY's 1999 and 2000 just below the diversion from the Pool to

the CCID Main Canal exceeded 2 µg/L (Chilcott, 2000, Eppinger and Chilcott, 2002). Though these are grab samples, selenium concentration have exceeded 2 ug/L over consecutive months (in April, May, and July 1997 selenium concentrations of 4.0, 4.8, and 2.2 µg/L respectively). This suggests a water quality impairment that is persistent for over a one-month duration.

Extent of Impairment
The entire waterbody is impaired by selenium.

Potential Sources
Potential sources of selenium to the Pool include the DMC, groundwater pumping, groundwater seepage, flood flows from Panoche-Silver Creek, and other unknown sources.

Craig J. Wilson **Attachment B** 24 July 2002
Detailed Fact Sheets

Middle River, Dissolved Oxygen

Watershed Characteristics

The Middle River is located within the San Joaquin Delta Hydrologic Unit. It branches from the San Joaquin River downstream of Mossdale and flows north and west to rejoin the San Joaquin River again near Medford Island.

Water Quality Objectives Not Attained

The Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins contains a numeric objective applicable to the Middle River which requires dissolved oxygen (DO) not be reduced below 5 milligrams per liter (mg/l). (CRWQCB-CVR, 1998; http://www.swrcb.ca.gov/~rwqcb5/bsnplnab.pdf).

Evidence of Impairment

The California Department of Water Resources (DWR) maintains continuous multi-parameter water quality monitors at several locations in the South Delta to monitoring the effects of river barrier operations. Data indicating violations of the Basin Plan DO water quality objective from these monitoring stations was brought to the attention of the Regional Board in the fall of 2001. Further investigation of the 15 minute average DO measurements from the monitoring station located on Middle River at Howard Blvd. indicated regular violations of the 5.0 mg/l objective, particularly in the months of May through October. Overall, dissolved oxygen is below the 5.0 mg/l objective 4.5% of the time. In June 2001 and July 2001, DO was depressed below the objective 10% and 7.5% of the time respectively. This DO measurement data is available to the public from the Interagency Environmental Project at 916-227-7554 or through their website at http://www.iep.ca.gov The extent of the impairment is difficult to ascertain from one sampling location and will need to be further investigated during the TMDL process. The impairment is assumed to begin where the Middle River branches from the San Joaquin River downstream of Mossdale. Based on cross-flows through the South Delta towards the State and Federal pumping projects near Tracy, CA, which may flow down Victoria Canal, it is possible that the extent of this low DO impairment would end at Victoria Canal.

Table 1. Dissolved Oxygen Concentrations in Water Samples Collected from the Middle River

Data Source	Sample Years	Number of Samples	Range of DO Concentration	Number of Samples Below Criteria
DWR-IEP, 2001	January 2001 to October 2001	22,000	2.7 mg/l to saturation	1,000

Conclusion. DO concentrations in the Middle River have been documented to fall below the Basin Plan objective of 5 mg/l as demonstrated by the DWR data discussed above. Based on this evidence the Middle River, between the the San Joaquin River and the Victoria Canal is being 303(d) listed due to low DO.

Table 2. 303(d) Listing/TMDL Information

Waterbody Name	Middle River	Pollutants/ Stressors	Low Dissolved Oxygen
Hydrologic Unit	544.00	Sources	Unknown
Total Waterbody Size	40 river miles; 450 acres	TMDL Priority	Medium
Size Affected	180 acres		
Extent of Impairment	Between the San Joaquin River and the Victoria Canal.		

Craig J. Wilson **Attachment B** 24 July 2002
Detailed Fact Sheets

Old River, Dissolved Oxygen

Watershed Characteristics
The Old River is located within the San Joaquin Delta Hydrologic Unit. It branches from the San Joaquin River near Mossdale, flows past Tracy, CA and rejoins the San Joaquin River near Prisoners Point.

Water Quality Objectives Not Attained
The Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins contains a numeric objective applicable to the Old River which requires dissolved oxygen (DO) not be reduced below 5 milligrams per liter (mg/l). (CRWQCB-CVR, 1998; http://www.swrcb.ca.gov/~rwqcb5/bsnplnab.pdf).

Evidence of Impairment
The California Department of Water Resources (DWR) maintains continuous multi-parameter water quality monitors at several locations in the South Delta as part of their operating and monitoring the effects of river barrier operations. Data indicating violations of the Basin Plan DO water quality objective from these monitoring stations was brought to the attention of the Regional Board in the fall of 2001. Further investigation of the 15 minute average DO measurements from three monitoring stations located on Old River (near the Head Barrier, Tracy Blvd. Bridge and near the Delta Mendota Canal) all indicated regular violations of the 5.0 mg/l objective, particularly in the months of May through October. Overall, DO in Old River is below the objective 13% of the time. Between June 2001 and September 2001, DO was below 5.0 mg/L 31.5% of the time at the Tracy and Delta-Mendota Canal stations. From mid-July to September 2001, DO was depressed less frequently at the Head Barrier station (2.1% of the time). This DO measurement data is available to the public from the Interagency Environmental Project at 916-227-7554 or through their website at http://www.iep.ca.gov The extent of the impairment is difficult to ascertain from the sampling locations available and will need to be further investigated during the TMDL process. The impairment is assumed to begin where the Old River branches from the San Joaquin River near Mossdale. It is assumed to end where the Old River meets the pumping station at the head of the Delta Mendota Canal.

Table 1. Dissolved Oxygen Concentrations in Water Samples Collected from the Old River

Data Source	Sample Years	Number of Samples	Range of DO Concentration	Number of Samples Below Criteria
DWR-IEP, 2001	January 2001 to October 2001	55,000	1.0 mg/L to saturation	7,300

Conclusion. DO concentrations in the Old River in Stockton, CA have been documented to fall below the Basin Plan objective of 5 mg/l as demonstrated by the DWR data discussed above. Based on this evidence the Old River, between the the San Joaquin River and the Delta Mendota Canal is being 303(d) listed due to low DO.

Table 2. 303(d) Listing/TMDL Information

Waterbody Name	Old River	Pollutants/ Stressors	Low Dissolved Oxygen
Hydrologic Unit	544.00	Sources	Unknown
Total Waterbody Size	50 river miles.600 acres	TMDL Priority	Medium
Size Affected	250 acres		
Extent of Impairment	Between the San Joaquin River and the Delta Mendota Canal.		

Craig J. Wilson

Attachment B
Detailed Fact Sheets

24 July 2002

Information Sources

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TO: Craig J. Wilson, Chief
TMDL Listing Unit
State Water Resources Control Board

FROM: Joe Karkoski
303(d) List Coordinator

DATE: 24 July 2002

SIGNATURE:

SUBJECT: CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD STAFF REVIEW OF ADDITIONAL DATA SUBMITTED FOR THE 2002 303(D) LIST UPDATE

Central Valley Regional Water Quality Control Board (Regional Board) staff has completed its review of additional data submitted to the State Water Resources Control Board's (State Board) for consideration in the update of the Clean Water Act Section 303(d) List (303(d) list). In addition to data submitted to the State Board, we have also reviewed data submitted to the Regional Board for consideration in the update of the 303(d) list. The additional data available to the Regional Board was for copper in the San Luis Reservoir and dissolved oxygen in the Delta.

We provide a summary of our review of the data below. We have also provided a response to some of the comments that were made on Regional Board recommendations.

Review of New Information Submitted to the State Board

Commenter 5.8 – The commenter submitted documentation related to mercury and other problems in San Carlos Creek due to runoff from the New Idiria mine in San Benito County. The commenter requests that San Carlos Creek be given a higher priority on the 303(d) list. Regional Board staff recommends that the priority for TMDL development for mercury in San Carlos Creek remains **low**.

Regional Board staff has reviewed the data that has been submitted. We have been aware of the New Idria site as a potential mercury source and will investigate loading from the San Carlos Creek and Panoche Creek watersheds as part of our mercury efforts in the Delta and San Joaquin River. The implementation plans for the Delta and San Joaquin River will evaluate the feasibility and benefit of various corrective actions, including mine remediation. It should also be noted that the U.S. Environmental Protection Agency's Superfund Program has conducted a preliminary investigation at the New Idria mine site.

The contractor for the U.S. EPA concluded in the preliminary investigation that the greatest potential hazard associated with the site was as a source of mercury in the Mendota Pool and San Joaquin River. The preliminary investigation, together with other readily available information, indicates that risks to

beneficial uses of San Carlos Creek are not great. The creek is not a human drinking water source and does not support a fishery. This contrasts with other waters that are listed for mercury contamination and are a higher priority.

The Regional Board has given higher priority (medium or high) to mercury contaminated water bodies in which consumption of fish can lead to significant human and wildlife exposure. Due to the relatively low exposure risk in San Carlos Creek versus other Central Valley mercury impaired streams, Regional Board staff recommend that TMDL development for mercury in San Carlos Creek be given a low priority.

Commenter 5.9 – The commenter provided water quality information that has already been reviewed by Regional Board staff and that data does not support a change in the current listings for the San Joaquin River.

Commenter 5.10 – Butte Creek: The commenter recommends listing Butte Creek for impairment due to diazinon and molinate, since Butte Slough is listed. Regional Board staff does not recommend listing Butte Creek for impairment due to diazinon and molinate at this time.

The commenter is correct in stating that portions of Butte Creek are likely to be impaired due to diazinon and molinate, since Butte Creek flows into Butte Slough and can make up most of the flow in Butte Slough. Although the commenter has made a reasonable inference, the Regional Board does not generally recommend listing waters unless data specific to those waters is available.

The commenter also presents draft data from constructed agricultural drains in the Butte Creek watershed that show high levels of diazinon. Since the data is not specific to Butte Creek and the Regional Board does not have diazinon data available for Butte Creek, Regional Board staff does not recommend listing Butte Creek for diazinon impairment.

Dead Horse Slough: Please see the response to this recommendation in the Regional Board's *Final Staff Report on Recommended Changes to California's Clean Water Act Section 303(d) List.*

Commenter 5.11 – San Joaquin River: The commenter recommends a higher priority for the mercury TMDL for the San Joaquin River. The current priority is "Medium". The commenter points out that the San Francisco Bay Board has made mercury a "High" priority and that the Bay is fed in part by the San Joaquin River. The Regional Board has made the Delta mercury TMDL a "High" priority and the Delta is the waterbody immediately upstream of San Francisco Bay. In addition, the State Board is assigning "High" priority to TMDLs to be completed in 2003 or 2004. Since the San Joaquin River mercury TMDL has not been started, it would not be possible to bring a Basin Plan Amendment to our Board in such a short time frame. Additional time is needed to complete other high priority mercury TMDLs and collect additional data in the San Joaquin watershed.

Grassland Marshes: The commenter opposes delisting selenium in the Grassland Marshes. The commenter points out that the Regional Boards TMDL report indicates that the Grassland Marshes will be taken off the 303(d) list pending compliance with water quality objectives. Regional Board staff

agrees that the Grassland Marshes should remain on the 303(d) list pending compliance with selenium water quality objectives in wetland supply channels. This would be in conformance with the TMDL approved by US EPA. As indicated in the Regional Board staff report *Selenium TMDL for Grassland Marshes*, revision of this TMDL or additional listings of supply water sources may be necessary if ongoing monitoring indicates that control measures are insufficient to reduce selenium concentrations in wetland supply channels below 2 µg/L. There are currently a number of actions being implemented to prevent discharge of subsurface drainage into wetland supply channels. The efficacy of these efforts will be evaluated to determine if additional efforts are needed to control sources of selenium in wetland supply channels in the Grassland Watershed. The Grassland Marshes TMDL will be revised if these efforts are unsuccessful.

Salt Slough: The commenter opposes delisting selenium in Salt Slough. Regional Board staff believes that Salt Slough should be delisted for non-attainment of selenium standards, since selenium objectives are being met and a TMDL has been completed.

Central California Irrigation District Main Canal: The commenter recommends listing the Central California Irrigation District's Main Canal for impairment caused by selenium. Although the Central California Irrigation District Main Canal provides supply water for the wetland supply canals listed in the Basin Plan, it does not directly provide wetland habitat, and is therefore not recommended for listing since no existing beneficial uses are currently impaired. Any impact of the Main Canal and sources to the Main Canal will be addressed through the Mendota Pool TMDL and any necessary revision of the Grassland Marshes TMDL.

Delta-Mendota Canal: The commenter recommends listing the Delta-Mendota Canal for impairment caused by selenium. The Regional Board agrees with the recommended listing and has prepared a fact sheet documenting the basis for that determination (see attached).

Mendota Pool: The commenter recommends listing the Mendota Pool for impairment caused by selenium. The Regional Board agrees with the recommended listing and has prepared a fact sheet documenting the basis for that determination (see attached).

Commenters 5.14 and 5.15: Both commenters provided data on total recoverable aluminum levels in the Mokelumne River. The commenters ask that the Regional Board consider the more recent data in its determination of 303(d) listing. The Regional Board is now recommending that the Mokelumne River not be included on the 303(d) list for non-attainment of standards due to elevated levels of aluminum.

Commenter 5.15 (the East Bay Municipal Utility District-EBMUD) provided the most extensive data set. EBMUD has collected 76 samples from the Mokelumne River just downstream of the Camanche Reservoir since 1994. Regional Board staff evaluated this data in lieu of the older U.S. Fish and Wildlife Service data that was collected prior to the remediation at Penn Mine.

Two of the 76 samples were above U.S. EPA national acute criteria for the protection of aquatic life (750 µg/L). The two samples were also above the MCL (1,000 µg/L). The two samples were collected in January 1997 and February 1997 respectively. No samples taken from 1994 to that time or after have been above the aquatic life or MCL criteria. The average concentration of all samples taken since 1994 is 250 µg/L (see EBMUD comment letter).

The issue that Regional Board staff tried to address is whether the two samples collected were truly outliers (unlikely to occur) or whether the two samples were representative of conditions that may occur again. The significant rainfall that fell during December and January likely triggered the high aluminum levels observed in January and February of 1997. The high and frequent rainfall likely resulted in higher than normal amounts of erosion. In addition, the retention time for water in upstream reservoirs would have been decreased, since higher than normal releases would have been required. The decreased retention time would give less time for suspended sediment, which would be the source of most of the aluminum, to settle.

Regional Board staff reviewed precipitation data from Camp Pardee, which is located upstream of the Camanche reservoir and the lower Mokelumne River. The highest rainfall recorded at Camp Pardee in the last 50 years occurred on January 2, 1997. The frequency of rain-days in December and January 1997 was higher than average (it rained over 51% of the days versus a historic average of 32%) (UC IPM, 2002).

Regional Board staff also reviewed flow records for the Mokelumne River below Camanche Dam. The U.S. Geological Survey's historic monthly mean daily flow records (USGS, 2002) indicate that the monthly mean daily flow in January and February 1997 were the highest and third highest, respectively, on record. (97 years).

Since the storm events that resulted in the high observed aluminum levels are the most severe on record, it is unlikely that the aluminum criteria will be exceeded at a frequency of greater than once every three years on average. The Regional Board, therefore, does not recommend adding the lower Mokelumne River to the 303(d) list due to impairment caused by aluminum.

Commenter 5.16: The commenter indicated to the State Board that they submit data to the Regional Board as part of a regular monitoring program. This information was taken into consideration during the Regional Board's initial assessment.

Commenter 5.17: The commenter submitted data that they believed showed the severe degradation of Deer Creek (in the Grass Valley/Nevada City area) below the Lake Wildwood dam. Regional Board staff has reviewed the data provided, along with data available from the Lake Wildwood Treatment Plant's discharger monitoring report. Regional Board staff does not believe that the available data supports listing Deer Creek for non-attainment of water quality standards.

Synopsis of Data Provided by Friends of Deer Creek

BENTHIC MACROINVERTEBRATE INVESTIGATION

Taxa Richness, EPT Index, Sensitive EPT Index, Percent Intolerant Averages showed significant differences in sites above Nevada City (sites 1 + 2) when compared with sites below Lake Wildwood (8-10). Sensitive mayflies, stoneflies, and caddisflies decreased from approximately 36% to 5% from sites 1, 2,4 to downstream sites 8, 9, and 10. Intolerant organisms are approximately 35% upstream, while intolerants are 1% downstream. Bioassessment data were collected spring and fall starting November

2000. Only the November 2000 data are available and presented in the report. No physical habitat data were provided with the biological data.

Friends of Deer Creek (FODC) provide evidence of benthic macroinvertebrate communities shifting from intolerant to tolerant when comparing sites 1 and 2 against sites 8 – 10. The elevation range of the sampling sites is approximately 660 feet to 3430 feet above sea level. While concurring with FODC on the difference in communities, it is not clear if the change in aquatic communities is due to wastewater treatment plants, hydromodification, elevation changes, habitat quality, water quality, or other aquatic life stressor(s). In this sense, bioassessment data are often difficult to interpret especially without the habitat assessment component of the data, including substrate and reach descriptions from each sampling point. In addition, biological data presented by FODC only represent one sampling event in time and lack temporal confirmation. In summary, there is no clear link between impairment and a water quality pollutant.

Although detecting impairment may be possible, and is a goal of using bioassessment, establishing the link between the cause(s) of impairment with aquatic communities requires a carefully designed study. Selection of sampling sites, knowledge of potential stressors, and simultaneous use of multiple water quality assessment tools are very important for establishing links between bioassessment data and aquatic ecosystem impairment. FODC has provided a good start to assessing the relative health of Deer Creek Watershed and has provided data that provides direction for future monitoring work. For example, between sites 4 and 5 a shift in aquatic communities is evident. Given that these two sites are close together the relative influence of certain stressors (elevation, wastewater treatment plants, etc.) would likely be homogenous and not linked to the community shift. We recommend following up with a more focused multiple stressor evaluation that targets the sources of potential impairment between those two sites, as well as continuing the regular monitoring program. The key issue for Regional Board staff is to identify if there is impairment to beneficial uses, and, if the impairment is due to a pollutant.

HEAVY METALS

The U.S. Geological Survey report referenced by FODC on mercury bioaccumulation in fish has already been used to list segments of certain waterbodies. In addition, the construction site contamination referenced by FDOC is already being investigated by the Private Sites Clean Up Unit at the Central Valley Regional Water Quality Control Board.

STORM WATER DATA

FODC collected data to determine if fall storm water runoff from Nevada City is detrimental to Brown Trout spawning grounds. Looking solely at concentration data provided by FODC there appears to be no violation of water quality objectives for Oil & Grease and TSS. Furthermore, the concentration data provided by FODC do not demonstrate a nuisance or impact to beneficial uses in Deer Creek.

TEMPERATURE/pH STUDY and MONITORING DATA

The instream data collected downstream of the Lake Wildwood Treatment Plant (LWTP) by FODC indicates elevated water quality constituents in Deer Creek. Of particular concern, are the elevated pH levels, which indicate 21 samples exceeding Basin Plan objectives for pH. However, monitoring data

collected by LWTP, from the receiving water at points 50 feet upstream from sludge basin #1 and 100 feet downstream of the point of discharge, do not indicate elevated instream pH measurements. Staff reviewed two years of monitoring data collected by LWTP, which overlapped in time with the FODC studies. The LWTP data did not show any exceedances of Basin Plan objectives for pH. It is not clear why there is an inconsistency in the monitoring data collected by FODC and LWTP. Regional Board staff recommends that the data discrepancies be resolved before any action is taken. Regional Board staff also reviewed the nutrient data provided by FDOC, but do not have a standard or criteria for nutrients to use for determining compliance with water quality objectives.

RECOMMENDATIONS
In summary, the information available to Regional Board staff did not indicate that water quality objectives were not attained based on the data submitted by FODC. However, the FODC studies provide a good foundation for a more in-depth investigation. We recommend more detailed and focused analyses on sections of Deer Creek where monitoring data suggests potential problems.

Commenter 5.19: The listing for the Avena Drain is for high ammonia and pathogen levels caused primarily by the unauthorized discharge of dairy waste. These discharges occur in the stormwater or winter season. The listing should remain as described and not be placed on a "watch" list. The listing was made based on data developed by Board staff and data submitted to the Board by independent parties that shows continued violation of water quality objectives.

The commenter raised the issue of the appropriateness of the water quality objectives and beneficial uses for the Avena Drain. We agree with the commenter that there needs to be an evaluation of the nature of the waterbody, the assigned beneficial uses and the water quality objectives. Each of these steps will be carried out as the first part of the development of a TMDL for this waterbody. Unfortunately Board staff cannot, at this time, make a determination of the type of waterbody the Avena Drain is. This waterbody was not considered when the Board conducted a preliminary review to classify waterbody types as part of the Inland Surface Water Plan process (CVRWQCB, 1992).

We applaud the Avena Drainage District for their efforts to assist the Board in correcting the present unauthorized discharges of dairy waste to the Avena Drain. It is partially for this reason that Board staff recommended a "low priority" for development of this TMDL to give these efforts time to succeed. The listing may also assist in this effort by providing a priority designation for the Avena Drain during consideration of grant funding. With these grant funds and the efforts of the Drainage District and the dairy operators, the water quality violations may be corrected prior to the next listing cycle. If they were able to accomplish this, Board staff would recommend removing the Avena Drain from the 303(d) list in the next listing cycle.

Review of Other Information made Available to the Regional Board

Dissolved Oxygen in the Middle and Old Rivers: The Regional Board was made aware of dissolved oxygen sensors that are deployed in Middle and Old Rivers in the Delta. An evaluation of this data indicates that reaches of both Middle and Old Rivers are not attaining dissolved oxygen water quality objectives. The fact sheets to support these determinations are attached.

Copper in the San Luis Reservoir: The Regional Board received data from the California Department of Water Resources (CDWR) on levels of copper in the San Luis Reservoir as part of the initial solicitation. Some of the data submitted was received after the initial May 15, 2001 deadline. The data now available to the Regional Board indicates that copper levels exceeded California Toxics Rule criteria frequently from October 1999 to September 2000 (7 out of 10 samples exceeded the chronic criteria, 3 out of 10 exceeded the acute). Since there was only one minor exceedance (0.1 ppb above the criteria) prior to October 1999 and no exceedances since September 2000, the exceedances may have been due to conditions unique to the October 1999- September 2000 time period. Regional Board staff received data from CDWR that included copper results through June 2002 (CDWR, 2002). All samples collected since September 2000 have copper levels well below the CTR criteria.

Regional Board staff has discussed with CDWR staff the time period in which CTR criteria were exceeded and it is not clear why those exceedances occurred at that time and not before or since. Regional Board staff reviewed data available on CDWR's web site (http://wwwomwq.water.ca.gov/wqmon.html) to determine whether sites upstream and downstream of the San Luis Reservoir showed elevated levels of copper. A review of data on copper levels at the pumping plants in the Delta, in the Delta-Mendota Canal, and in the O'Neil Forebay, indicates that copper levels were well below CTR criteria even when the observed exceedances in the San Luis Reservoir occurred.

Regional Board staff does not recommend listing the San Luis Reservoir for non-attainment of copper standards at this time. The combination of the finite time period of the excursions, the relatively low levels of copper since the excursions occurred, and the lack of elevated levels downstream and upstream of the reservoir indicate that the excursions may not occur again (i.e. the evidence suggests that standards are currently attained).

Regional Board staff would recommend that sampling and analysis for copper continues and that factors that could affect copper analytical results be carefully tracked (e.g. timing of application of copper based pesticides, sampling location, reservoir levels, etc.).

Mendota Pool

Water Body	Mendota Pool
Stressor/Media/Beneficial Use	Selenium/water/wildlife
Data quality assessment. Extent to which data quality requirements met.	Limited consideration to those organizations that conduct monitoring using documented QA/QC procedures.
Linkage between measurement endpoint and beneficial use or standard	Selenium linked to WILD (wildlife) beneficial use.
Utility of measure for judging if standards or uses are not attained	Selenium objective (2 ppb monthly mean) applicable to nearby wetlands used to evaluate impact to wetland habitat associated with Mendota Pool.
Water Body-specific Information	The Mendota Pool includes the San Joaquin River 3 miles upstream of the Mendota Dam and Fresno Slough 8 miles upstream of the Mendota Dam.
Data used to assess water quality	Data from 3 years from the Mendota Pool and 2 years just downstream of the Mendota Pool. Seven of 26 samples from the Mendota Pool and 4 of 20 just downstream of the Pool were greater than 2 ppb.
Spatial representation	Data analyzed is from one site within the Mendota Pool and one site just downstream of the Mendota Pool.
Temporal Representation	Samples were collected over a several years period.
Data Type	Numeric water column concentration data.
Use of standard method	Regional Board sample collection and analytical protocols for selenium were used.
Potential Source(s) of Pollutant	Ground water pumping into the pool and the source water (Delta-Mendota Canal)
Alternative Enforceable Program	N/A
RWQCB Recommendation	List
SWRCB Staff Recommendation	

Fact Sheet Summaries

Middle River

Water Body	Middle River
Stressor/Media/Beneficial Use	Dissolved Oxygen/Water/Aquatic Life
Data quality assessment. Extent to which data quality requirements met.	Data comes from real-time sensors operated by the California Department of Water Resources as part of the Interagency Ecological Program.
Linkage between measurement endpoint and beneficial use or standard	Dissolved oxygen linked to various aquatic life uses (WARM/COLD/MIGR/SPWN)
Utility of measure for judging if standards or uses are not attained	Regional Board dissolved oxygen water quality objective.
Water Body-specific Information	10 months of data from one site. (January 2001-October 2001)
Data used to assess water quality	22,000 data points. DO analyzed about every 15 minutes. Range 2.7 mg/L to saturation. 4.5 % of samples below 5.0 mg/L. More frequent violations in June & July.
Spatial representation	Data collected from the approximate mid-point of the identified impaired reach. No major inflows in the reach identified.
Temporal Representation	One year of 15-minute interval data available for the critical time period (June/July).
Data Type	Numerical data
Use of standard method	
Potential Source(s) of Pollutant	Unknown
Alternative Enforceable Program	N/A
RWQCB Recommendation	List Middle River from the San Joaquin River to the Victoria Canal.
SWRCB Staff Recommendation	

Fact Sheet Summaries

Old River

Water Body	Old River
Stressor/Media/Beneficial Use	Dissolved Oxygen/Water/Aquatic Life
Data quality assessment. Extent to which data quality requirements met.	Data comes from real-time sensors operated by the California Department of Water Resources as part of the Interagency Ecological Program.
Linkage between measurement endpoint and beneficial use or standard	Dissolved oxygen linked to various aquatic life uses (WARM/COLD/MIGR/SPWN)
Utility of measure for judging if standards or uses are not attained	Regional Board dissolved oxygen water quality objective.
Water Body-specific Information	10 months of data from three sites. (January 2001-October 2001)
Data used to assess water quality	55,000 data points. DO analyzed about every 15 minutes. Range 1.0 mg/L to saturation. 13 % of samples below 5.0 mg/L. More frequent violations during June-September.
Spatial representation	Data collected from the near to San Joaquin River to near the Delta-Mendota Canal and midway between.
Temporal Representation	Two years of data available for the critical time period (June-September).
Data Type	Numerical data
Use of standard method	
Potential Source(s) of Pollutant	Unknown
Alternative Enforceable Program	N/A
RWQCB Recommendation	List Old River from the San Joaquin River to the Delta-Mendota Canal.
SWRCB Staff Recommendation	

Fact Sheet Summaries

Delta-Mendota Canal

Water Body	Delta-Mendota Canal (DMC)
Stressor/Media/Beneficial Use	Selenium/water/aquatic life
Data quality assessment. Extent to which data quality requirements met.	Limited consideration to those organizations that conduct monitoring using documented QA/QC procedures.
Linkage between measurement endpoint and beneficial use or standard	Selenium linked to WARM (warm fresh water habitat) beneficial use.
Utility of measure for judging if standards or uses are not attained	Selenium California Toxic Rule criterion of 5 ppb as a four-day average applies to waters of the U.S. with aquatic life beneficial uses.
Water Body-specific Information	Four years of data from two sites.
Data used to assess water quality	92 data points from sites in the DMC upstream and downstream of agricultural tile drainage sumps. 19 samples were above the criterion.
Spatial representation	Data collected upstream of tile drainage sumps represents DMC from O'Neil Forebay to mile post 100.85. Downstream site represents reach to Mendota Pool.
Temporal Representation	Four years of data reviewed.
Data Type	Numerical data.
Use of standard method	
Potential Source(s) of Pollutant	Ground water inflow and tile drainage discharge
Alternative Enforceable Program	N/A
RWQCB Recommendation	List
SWRCB Staff Recommendation	

Delta-Mendota Canal, Selenium

Summary of Proposed Action

The California Regional Water Quality Control Board, Central Valley Region, (Regional Board) recommends the addition of the Delta-Mendota Canal from the O'Neill Forebay to the Mendota Pool to California's Clean Water Act Section 303(d) list due to impairment by selenium. The United States Environmental Protection Agency California Toxic Rule criteria for selenium are not being attained.

Table B-1. 303(d) Listing/TMDL Information

Waterbody Name	Delta-Mendota Canal	**Pollutants/Stressors**	Selenium
Hydrologic Unit	541.20	**Sources**	Shallow groundwater pumping and seepage, stormwater runoff, agricultural return flows, and other potential unknown sources
Total Length	116.5 Miles	**TMDL Priority**	Medium
Size Affected	46.47 Miles		
Extent of Impairment	Milepost 70.01 to milepost 116.48		

Watershed Characteristics

The Delta-Mendota Canal (DMC) is a 116-mile long canal that is owned by the United States Bureau of Reclamation (Bureau) and operated by the San Luis and Delta Mendota Water Authority. The canal runs north to south along the eastern slope of the Coast Range from the Delta (near Tracy) to the Mendota Pool (near Mendota). The canal provides Central Valley Project water for irrigated agriculture, municipal water supply, and wildlife refuges in the San Joaquin Valley. This recommended addition pertains to the 46.47-mile section of the DMC from check 13 at the O'Neill Forebay at milepost (MP) 70.01 to the Mendota Pool at MP 116.48.

The DMC is lined with concrete from the Headworks (near Tracy) to MP 98.64. The remaining 18 miles of the canal are earth-lined. In order to prevent accumulation of shallow groundwater on the up-slope side of the earth-lined portion of the canal, a subsurface drainage system and six sumps were installed in this reach (USBR, 2002). The six sumps discharge shallow groundwater directly to the DMC. In addition to the six sumps, there are a 93 check drains between the MP 70.01 and MP 116.48, which allow surface and subsurface drainage to enter the DMC (Pierson et. al, 1987).

Water Quality Objectives Not Attained

The Basin Plan (RWQCB, 1998) lists the following existing beneficial uses for the Delta Mendota Canal: Municipal and domestic supply, irrigation, stock watering, contact recreation, other non-contact recreation, warm freshwater habitat, and wildlife habitat.

The United States Environmental Protection Agency (USEPA) California Toxic Rule (CTR) criterion for selenium is not being attained. The California Toxics Rule (CTR) lists a criterion of 5 micrograms per liter (µg/L, or parts per billion [ppb]) 4-day running average of selenium for aquatic life protection (40 CFR § 131.38 et seq). Warm freshwater habitat is an aquatic life beneficial use.

Evidence of Impairment

Selenium concentrations in the DMC are monitored in the discharge from the six sumps, as well as in the DMC upstream and downstream of the six sumps. The highest selenium concentrations are generally detected between the months of December and April when pumping from the Delta to the DMC ceases or is reduced. During these low flow periods, selenium discharged by the sumps may have a more pronounced impact on selenium concentrations in the DMC both upstream and downstream of the sumps. Elevated selenium concentrations of 24 µg/L in March, 7.5 µg/L in April, 11 µg/L in May, and 5.2 µg/L in June 1998, however, were recorded (Chilcott, 2000, and Eppinger and Chilcott, 2002). Such sustained elevated

selenium concentrations of selenium over several months suggest excursion above the four-day average criteria of 5 µg/L. A summary of the number and percent of samples exceeding the 5 µg/L criterion is shown in table B-2. In particular, the 67% percent rate of exceeding the criteria in the downstream site, and the 33% percent rate of exceeding the criteria in the upstream site in water year 1998, are evidence of impairment.

Table B-2. Summary of Selenium Concentrations in the Delta Mendota Canal[a]

Data Source	Sample Water Years	Location[b]	Number of Sample Dates	Number of Sample Dates Equal to or Above 5 µg/L	Percent Sample Dates Equal to or Above Criterion
Chilcott, 2000	1997	Upstream	11	1	9%
		Downstream	15	4	27%
Chilcott, 2000	1998	Upstream	9	3	33%
		Downstream	9	6	67%
Eppinger et. al, 2002	1999	Upstream	12	2	17%
		Downstream	12	1	8%
Eppinger et. al, 2002	2000	Upstream	12	0	0%
		Downstream	12	2	17%
Summary		Upstream	44	6	14%
		Downstream	48	13	27%

[a] USBR, 2002
[b] Upstream and downstream locations are at MP 100.85 and MP 110.12, respectively

Extent of Impairment
The Delta Mendota Canal is impaired from the O'Neill Forebay at milepost (MP) 70.01 to the Mendota Pool at MP 116.48.

Potential Sources
The sources of the selenium in the DMC are shallow groundwater pumping and seepage, agricultural return flows which may include surface or subsurface return flows, stormwater runoff, and other potential unknown sources.

Mendota Pool, Selenium

Summary of Proposed Action

The California Regional Water Quality Control Board, Central Valley Region, (Regional Board) recommends the addition of Mendota Pool to California's Clean Water Act Section 303(d) list due to impairment by selenium. Information available to the Regional Board on selenium levels in water samples indicates that selenium concentrations in the Pool, and in water diverted from the Pool for wetland use, exceed Water Quality Objectives adopted to protect wetland water supply channels within the Grassland Watershed. The description of the basis for this determination is given below.

Table B-1. 303(d) Listing/TMDL Information

Waterbody Name	Mendota Pool	Pollutants/Stressors	Selenium
Hydrologic Unit	541.20, 551.20, 545.10	**Sources**	Delta-Mendota Canal, groundwater seepage, groundwater pumping, flood flows, and unknown
Total Waterbody Size	1,200 acres	**TMDL Priority**	Medium
Size Affected	1,200 acres		
Extent of Impairment	All of Mendota Pool		

Watershed Characteristics

Mendota Pool is a 1,200-acre reservoir on the San Joaquin River that is owned and operated by the Central California Irrigation District (DWR, 1993). The dam forming the Pool is located just downstream of the confluence of the San Joaquin River and Fresno Slough. The Pool is generally less than 10 feet deep, and averages about 400-feet wide. The Pool is generally considered to extend through the Fresno Slough to the south past the Mendota Wildlife Area to the terminus of the James Bypass (approximately 8-mailes to the south-east of Mendota Dam). In the San Joaquin River branch, the pool extends almost to San Mateo Avenue (approximately 3-miles east of Mendota Dam). The total capacity of the Pool is about 8,500 acre-feet (USBR, 2001). The Pool receives water from the Delta Mendota Canal, the San Joaquin River, groundwater pumping adjacent to the Pool, and natural groundwater seepage. The Pool can receive water from the Kings River during wet water years. The Pool is the direct source of water for the immediately adjacent Mendota Wildlife Area, and is the major source of supply water for the Grassland Marshes and irrigated agriculture along the westside of the River.

Water Quality Objectives Not Attained

The narrative objective for toxicity is not being attained in the Mendota Pool. The narrative toxicity objective in the Basin Plan states, in part, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." The narrative toxicity objective further states that "The Regional Water Board will also consider ... numerical criteria and guidelines for toxic substances developed by the State Water Board, the California Office of Environmental Health Hazard Assessment, the California Department of Health Services (OEHHA), the U.S. Food and Drug Administration, the National Academy of Sciences, the U.S. Environmental Protection Agency, and other appropriate organizations to evaluate compliance with this objective" (CRWQCB-CVR, 1998: http://www.swrcb.ca.gov/~rwqcb5/bsnplnab.pdf).

The Regional Board has established a 2 µg/L monthly mean selenium water quality objective for wetland supply channels in the Grassland Marshes (just north of the Mendota Pool). The 2 µg/L monthly mean selenium criteria is also appropriate to use to evaluate compliance with the narrative toxicity objective in the Mendota Pool, since the Pool includes wetland habitat. Selenium concentrations in the Pool and in the water supply diverted from the Pool for wetland uses in the Grassland Marshes have exceeded 2 µg/L.

Evidence of Impairment

Data from water years (WY's) 1997, 1999, and 2000 shows that seven out of 26 grab samples collected in the Pool at Mowry Bridge exceeded 2 µg/L. Four out of 20 samples collected in WY's 1999 and 2000 just below the diversion from the Pool to the CCID Main Canal exceeded 2 µg/L (Chilcott, 2000, Eppinger and Chilcott, 2002). Though these are grab samples. selenium concentration have exceeded 2 ug/L over consecutive months (in April, May, and July 1997 selenium concentrations of 4.0, 4.8, and 2.2 µg/L respectively). This suggests a water quality impairment that is persistent for over a one-month duration.

Extent of Impairment

The entire waterbody is impaired by selenium.

Potential Sources

Potential sources of selenium to the Pool include the DMC, groundwater pumping, groundwater seepage, flood flows from Panoche-Silver Creek, and other unknown sources.

Middle River, Dissolved Oxygen

Watershed Characteristics

The Middle River is located within the San Joaquin Delta Hydrologic Unit. It branches from the San Joaquin River downstream of Mossdale and flows north and west to rejoin the San Joaquin River again near Medford Island.

Water Quality Objectives Not Attained

The Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins contains a numeric objective applicable to the Middle River which requires dissolved oxygen (DO) not be reduced below 5 milligrams per liter (mg/l). (CRWQCB-CVR, 1998; http://www.swrcb.ca.gov/~rwqcb5/bsnplnab.pdf).

Evidence of Impairment

The California Department of Water Resources (DWR) maintains continuous multi-parameter water quality monitors at several locations in the South Delta to monitoring the effects of river barrier operations. Data indicating violations of the Basin Plan DO water quality objective from these monitoring stations was brought to the attention of the Regional Board in the fall of 2001. Further investigation of the 15 minute average DO measurements from the monitoring station located on Middle River at Howard Blvd. indicated regular violations of the 5.0 mg/l objective, particularly in the months of May through October. Overall, dissolved oxygen is below the 5.0 mg/l objective 4.5% of the time. In June 2001 and July 2001, DO was depressed below the objective 10% and 7.5% of the time respectively. This DO measurement data is available to the public from the Interagency Environmental Project at 916-227-7554 or through their website at http://www.iep.ca.gov The extent of the impairment is difficult to ascertain from one sampling location and will need to be further investigated during the TMDL process. The impairment is assumed to begin where the Middle River branches from the San Joaquin River downstream of Mossdale. Based on cross-flows through the South Delta towards the State and Federal pumping projects near Tracy, CA, which may flow down Victoria Canal, it is possible that the extent of this low DO impairment would end at Victoria Canal.

Table 1. Dissolved Oxygen Concentrations in Water Samples Collected from the Middle River

Data Source	Sample Years	Number of Samples	Range of DO Concentration	Number of Samples Below Criteria
DWR-IEP, 2001	January 2001 to October 2001	22,000	2.7 mg/l to saturation	1,000

Conclusion. DO concentrations in the Middle River have been documented to fall below the Basin Plan objective of 5 mg/l as demonstrated by the DWR data discussed above. Based on this evidence the Middle River, between the the San Joaquin River and the Victoria Canal is being 303(d) listed due to low DO.

Table 2. 303(d) Listing/TMDL Information

Waterbody Name	Middle River	Pollutants/ Stressors	Low Dissolved Oxygen
Hydrologic Unit	544.00	Sources	Unknown
Total Waterbody Size	40 river miles; 450 acres	TMDL Priority	Medium
Size Affected	180 acres		
Extent of Impairment	Between the San Joaquin River and the Victoria Canal.		

Old River, Dissolved Oxygen

Watershed Characteristics

The Old River is located within the San Joaquin Delta Hydrologic Unit. It branches from the San Joaquin River near Mossdale, flows past Tracy, CA and rejoins the San Joaquin River near Prisoners Point.

Water Quality Objectives Not Attained

The Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins contains a numeric objective applicable to the Old River which requires dissolved oxygen (DO) not be reduced below 5 milligrams per liter (mg/l). (CRWQCB-CVR, 1998; http://www.swrcb.ca.gov/~rwqcb5/bsnplnab.pdf).

Evidence of Impairment

The California Department of Water Resources (DWR) maintains continuous multi-parameter water quality monitors at several locations in the South Delta as part of their operating and monitoring the effects of river barrier operations. Data indicating violations of the Basin Plan DO water quality objective from these monitoring stations was brought to the attention of the Regional Board in the fall of 2001. Further investigation of the 15 minute average DO measurements from three monitoring stations located on Old River (near the Head Barrier, Tracy Blvd. Bridge and near the Delta Mendota Canal) all indicated regular violations of the 5.0 mg/l objective, particularly in the months of May through October. Overall, DO in Old River is below the objective 13% of the time. Between June 2001 and September 2001, DO was below 5.0 mg/L 31.5% of the time at the Tracy and Delta-Mendota Canal stations. From mid-July to September 2001, DO was depressed less frequently at the Head Barrier station (2.1% of the time). This DO measurement data is available to the public from the Interagency Environmental Project at 916-227-7554 or through their website at http://www.iep.ca.gov The extent of the impairment is difficult to ascertain from the sampling locations available and will need to be further investigated during the TMDL process. The impairment is assumed to begin where the Old River branches from the San Joaquin River near Mossdale. It is assumed to end where the Old River meets the pumping station at the head of the Delta Mendota Canal.

Table 1. Dissolved Oxygen Concentrations in Water Samples Collected from the Old River

Data Source	Sample Years	Number of Samples	Range of DO Concentration	Number of Samples Below Criteria
DWR-IEP, 2001	January 2001 to October 2001	55,000	1.0 mg/L to saturation	7,300

Conclusion. DO concentrations in the Old River in Stockton, CA have been documented to fall below the Basin Plan objective of 5 mg/l as demonstrated by the DWR data discussed above. Based on this evidence the Old River, between the the San Joaquin River and the Delta Mendota Canal is being 303(d) listed due to low DO.

Table 2. 303(d) Listing/TMDL Information

Waterbody Name	Old River	Pollutants/ Stressors	Low Dissolved Oxygen
Hydrologic Unit	544.00	Sources	Unknown
Total Waterbody Size	50 river miles.600 acres	TMDL Priority	Medium
Size Affected	250 acres		
Extent of Impairment	Between the San Joaquin River and the Delta Mendota Canal.		

Information Sources

CDWR (California Department of Water Resources), 2002. Unpublished water quality assessment data provided to the Regional Board on 7/18/2002.

CDWR. 2001. Unpublished water quality assessment data provided to the Regional Board on 9/6/2001.

CRWQCB-CVR (California Regional Water Quality Control Board, Central Valley Region). 1992. *Agenda Item #11 for Meeting of California Regional Water Quality Control Board, Central Valley Region.* September 25, 1992. Fresno, CA. Staff Report on Consideration of Water Body Designations to Comply with Provisions of the Water Quality Control Plan for Inland Surface Waters of California.

CRWQCB-CVR (California Regional Water Quality Control Board, Central Valley Region). *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley Region — The Sacramento River Basin and The San Joaquin River Basin.* Fourth Edition. 1998.

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Pierson, F.W., Thomasson, R.R., and Chilcott, J. E. 1987. *Investigation of Check Drains Discharging into the Delta-Mendota Canal.*

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USGS (United States Geological Survey), 2002. Surface Water data for USA: Monthly Streamflow Statistics. Query for Mokelumne (site name) in California for the period of 1/1/1900 to 7/17/2002. Accessed 7/17/2002 from http://waterdata.usgs.gov/nwis/ .

STATE WATER RESOURCES CONTROL BOARD			Date: 9/4/02
From: Joe Karkoski		Division/Region: 5 SAC	Phone: 916 255 3368

TO:

Executive Office (EXEC)	Labor Relations	Health & Safety	Div. of Administrative Services (DAS)
Office of Employee Assistance (OEA)	Div. of Water Rights (DWR)	Information Technology (OIT)	Personnel Servic
Office of Statewide Consistency (SC)	Div. of Water Quality (DWQ) Craig J. Wilson	Business Services	Contracts Office
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ACTION

Appropriate Action	Signature	Review and Return	Informatic
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COMMENTS

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California Regional Water Quality Control Board

Central Valley Region

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17

TO: Craig J. Wilson, Chief
TMDL Listing Unit
State Water Resources Control Board

FROM: Joe Karkoski
303(d) List Coordinator

DATE: 4 September 2002

SIGNATURE:

SUBJECT: SUPPLEMENTAL INFORMATION FOR WATER BODIES AND POLLUTANTS IN TABLE 2 OF THE *FINAL STAFF REPORT ON RECOMMENDED CHANGES TO CALIFORNIA'S CLEAN WATER ACT SECTION 303(D) LIST, 14 DECEMBER 2001* (TABLE 2)

In response to your request, Central Valley Regional Water Quality Control Board (Regional Board) staff has reviewed the rationale for placing water bodies and pollutants in Table 2. Many of the waters and pollutants identified in Table 2 would require further assessment to determine whether water quality standards are attained. For other waters, available information strongly indicates that standards are attained for the particular pollutants identified. We are providing you with further information as to why the data was not sufficient to either list or de-list the waters identified in Table 2 or why we believe that the data indicates that standards are attained. My memo to you of 24 July 2002 provides the rationale for further assessing copper in the San Luis Reservoir.

Nutrients/Pathogens – The following streams and lakes are identified in Table 2 for further assessment: Fresno River, Hensley Lake, Kaweah River, Kern River, Lake Isabella, Lake Kaweah, Lake Success, Ten Mile Creek (South Fork of the Kings River), and Tule River. Regional Board staff is suggesting further assessment based on largely anecdotal information on the water quality in these streams and lakes. Regional Board staff has been made aware of algal die offs, which could be a result of nutrient water quality problems. Regional Board staff has been made aware of cattle in or near these streams and lakes, which could result in pathogen water quality problems. Regional Board staff has at most one or two water quality data points from these streams and lakes. The data and information available to Regional Board staff indicates a potential water quality problem, but is not sufficient to determine whether applicable standards are being attained or not. Regional Board staff will try to pursue funding to monitor these waters to determine whether nutrient and or pathogen related water quality problems exist.

Group A Pesticides/DDT – The Delta waterways are currently on the 303(d) list for DDT and Group A pesticides. The Feather River is currently on the 303(d) list for Group A pesticides. Fish tissue data from earlier studies (1980's and early 1990's) had indicated that National Academy of Sciences and/or U.S. Food and Drug Administration guidelines were not being met. More recent studies had indicated substantial reductions in these contaminants in fish tissue. The sampling design and fish collected in the

earlier and later studies were not directly comparable (especially in terms of percent lipid content). Regional Board staff, therefore, recommends that additional fish tissue samples be collected and analyzed to determine whether applicable criteria and guidelines are currently being met.

Mercury - Staff calculated the weighted-average fish tissue mercury concentration for trophic level 4 (TL4) fish species at each location where at least three composite samples were available. Staff compared the weighted averages to the USEPA criterion of 0.3 ppm methylmercury in the edible portions of fish. The USEPA promulgated this criterion in 2001 for the protection of human health.

Staff recommended two waterbodies, the Merced River and Tuolumne River, for further assessment rather than recommending them for listing. The table below provides a summary of the TL4 fish tissue data for these waterbodies. Staff is recommending these rivers for further assessment because:

- The weighted-average TL4 fish tissue mercury concentration for each waterbody closely approached the USEPA criterion of 0.3 ppm.
- The weighted-average mercury concentrations for the bass and white catfish samples from both waterbodies exceeded USEPA criterion.
- The channel catfish concentrations were consistently lower than the other TL4 species. For widespread comparisons between waterbodies throughout the Central Valley, staff considered channel catfish to be a trophic level 4 species because usually channel catfish fish measuring more than 300-380 mm in length are pisciverous (Moyle, 2002). However, staff observed that channel catfish from several waterbodies have average mercury concentrations that are lower than mercury concentrations in white catfish and bass samples. Staff believes that additional information about which fish species humans are catching and eating from the Merced and Tuolumne Rivers is needed. Staff can then calculate the average fish tissue concentration based on distribution of species being caught by humans, rather than basing the calculation on species sampled.

Table 1. Summary of Trophic Level 4 Fish Data for "Mercury Watch List"

Waterbody	TL4 Weighted Average Mercury Concentration	# of Samples (a)			# of Fish Sampled			Species Weighted Average Mercury Concentration		
		Bass	White Catfish	Channel Catfish	Bass	White Catfish	Channel Catfish	Bass	White Catfish	Channel Catfish
Merced River	0.26	2	1	5	10	8	22	0.39	0.31	0.18
Tuolumne River	0.28	1	1	4	5	6	20	0.43	0.31	0.23

1. All samples were composite samples with two to seven fish included in each composite.

Currently Registered Pesticides - a number of waters are recommended for further assessment for currently registered pesticides. The available data and rationale for conducting further assessment are provided below. In general, the data reported is taken from the Department of Pesticide Regulation's Surface Water Database.

Arcade Creek- Malathion:
A USGS NAWQA study conducted from 1996 and 1998 analyzed 31 ambient water samples in Arcade Creek. Of the 31 samples collected and analyzed, 3 out of 31 (about 10%) exceeded the USEPA recommended criterion of 0.1 µg/l. Samples collected in 4/97, 5/97, and 6/97 had concentrations of

µg/l) respectively. The data indicates that carbaryl may be a problem in May. Since the data was collected about a decade ago and the elevated levels only occurred in one month, Regional Board staff recommends further assessment to determine whether cabaryl levels are currently elevated.

Mormon Slough- Diazinon:
In February 1994 toxicity tests were performed on two ambient water samples collected from Mormon Slough. The samples were collected on consecutive days. Diazinon levels were analyzed for both samples. Both samples were above the CDFG acute and chronic criteria of 0.08 µg/l and 0.05 µg/l, respectively. Both of the samples caused toxicity to *Ceriodaphnia dubia*. The addition of PBO to the samples eliminated the toxicity (data as reported in Lee and Jones-Lee, 2001). Regional Board staff recommends further assessment of diazinon levels in Mormon Slough, since the current data set only includes two data points from samples collected on consecutive days. The available data set is not sufficient to determine that elevated diazinon levels recur in Mormon Slough.

Orestimba Creek- Methidathion:
Between 1996 and 2000, multiple studies analyzed a total of 1050 ambient water samples collected in Orestimba Creek for methidathion. Two of 1050 (about .2%) exceeded the USEPA Integrated IRIS Reference Dose of 0.7 µg/l. The two samples were collected in 1993 (2.14 µg/l) and 2000 (1.74 µg/l). Since only 2 out of 1050 samples were above the reference dose and there were seven years between detections of elevated levels, the frequency of occurrence of elevated levels of methidathion is relatively low. In addition, IRIS reference doses are for the protection of human health from consumption of drinking water. Regional Board staff is not aware of any drinking water intakes within Orestimba Creek. The low frequency of exceedance of the IRIS reference dose combined with the low likelihood of exposure suggests that water quality objectives relevant to methidathion are being met.

Salt Slough- Malathion:
Between 1991 and 1993, a total of 46 ambient water samples collected in Salt Slough were analyzed for malathion. Overall, 2 of 46 samples contained malathion concentrations above the USEPA recommended criterion of 0.1 µg/l. The two samples above the criterion were collected in March 1992 (0.16 µg/l) and March 1993 (0.39 µg/l). Since the data was collected about a decade ago and the elevated levels only occurred in one month, Regional Board staff recommends further assessment to determine whether malathion levels are currently elevated.

Walker Slough- Diazinon:
Between 1994 and 1998, 6 samples were collected from Walker Slough and toxicity tests were performed on them (as summarized in Lee and Jones-Lee, 2001). Diazinon levels were measured in three of those samples. Most of these samples were collected during wet weather events in the winter. Of the 6 samples, 2 resulted in 100% mortality within 7 days to *Ceriodaphnia dubia*. The two samples exhibiting 100% mortality had diazinon concentrations of 0.273 µg/l and 0.170 µg/l. PBO was added to one of the toxic samples and eliminated the toxicity. Regional Board staff recommends further assessment of diazinon levels in Walker Slough due to the limited data set currently available.

Pathogens – A number of waters were suggested for further assessment of pathogens. The rationale for each water is presented below.

The **Lower American River** was placed on the watch list for 303d based on a single beach closure (in 2000) and occasional high fecal coliform bacteria measurements. The Regional Board fecal coliform

objectives specifically allow the maximum (400 MPN/ml) to be exceeded 10% of the time. The available data indicates that the fecal coliform number is not exceeded more than 10% of the time. Other pathogen measurements, including *E. coli*, cryptosporidium, giardia, and virus measurements, indicate that these indicators are below applicable guidelines. The lower river has a high recreation value and with increased urbanization and increasing use should be monitored to ensure that the pathogen levels in the river do not rise above standards.

Data was available from the DeltaKeeper for a large number of sites throughout the **Delta**. The data was generally limited in time, with a relatively few sampling events. None of the sites appeared to exceed the Department of Health Services 30 day log mean *E. coli* guidelines. A few sites had a single exceedance of *E. coli* single sample guidelines. Due to the limited number of sampling events, it was difficult to determine whether the few observed exceedances of Department of Health Services *E. coli* guidelines are due to a chronic condition of pollution (likely to occur again) or an acute condition (not likely to occur again). More data, both temporal and spatial, is needed before determining whether or not the Delta is attaining water quality standards with respect to pathogens.

There was limited data for **French Camp Slough** (4 data points over 2 months from a single sample location). Two out of four samples (one each month) were above the single sample value. The geometric mean for the four data points is well below the guidelines. The extremely limited sample set made it difficult to determine whether the elevated *E. coli* levels are likely to be observed again. Further assessment of French Camp Slough is recommended.

The **Yuba River** received much press coverage last summer concerning high levels of bacteria in the river and for beach closures. There has been ongoing concern with possible interference in test methods used at the river. The river was tested for both e.coli and enterococci. The e. coli levels remained low while the enterococci levels were high. Additionally, the county and a citizens monitoring group have been attempting to determine if the sampling indicates impairment or if it was due to a single, non-recurring incident of pollution. Confirmation sampling and method evaluation for the Yuba River is being conducted this summer. Due to the contradictory information regarding the pathogen indicators, Regional Board staff believes further assessment is necessary to determine if water quality standards are attained with respect to pathogens.

Information Sources:

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Lee, G.F. and A. Jones-Lee, 2000. *Review of the City of Stockton Urban Stormwater Runoff Aquatic Life Toxicity Studies Conducted by the Central Valley Regional Water Quality Control Board, DeltaKeeper, and the University of California, Davis, Aquatic Toxicology Laboratory between 1994 and 1999*. Draft Report. November 2001. G. Fred Lee & Associates. El Macero, CA. (Prepared for DeltaKeeper).

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If you have any questions, please give me a call at (916) 255-3368.

0.634, 0.144, and 0.135 µg/l, respectively. The study did not include sampling during April through June in 1996 or 1998. Regional Board staff believes further assessment is needed to confirm that the exceedances recur.

Butte Slough- Malathion:
Between 1995 and 1998, a total of 70 ambient water samples collected in the Butte Slough were analyzed for malathion. Overall, 2 of 70 samples contained malathion concentrations above the USEPA recommended criterion of 0.1 µg/l. These two samples above the criteria have the same sample date, as reported in the Department of Pesticide Regulation's Surface Water Database. The samples are, therefore, likely duplicates. Since only one sample date indicates malathion levels above the criterion, there is no indication that elevated levels of malathion are recurring in Butte Slough.

Butte Slough- Thiobencarb:
Between 1995 and 1998, a total of 77 ambient water samples collected in the Butte Slough were analyzed for thiobencarb. Overall, 1 of 77 samples contained thiobencarb concentrations above the CDFG recommended criterion of 3.1 µg/l. Since only one sample was above the criterion, there is no indication that elevated levels of thiobencarb are recurring in Butte Slough.

Colusa Basin Drain (CBD)- Chlorpyrifos:
Between 1994 and 1998, multiple studies analyzed a total of 24 ambient water samples collected in the CBD for chlorpyrifos. Overall, 3 of 24 samples contained chlorpyrifos concentrations at or above CDFG chronic (4-day average) water quality criterion of .014 µg/l and 0 of 24 samples exceeded CDFG acute water quality criterion of .02 µg/l. The 3 sample dates on which chlorpyrifos concentrations were above the chronic criteria were relatively minor exceedances (0.019, .0164, .0149 µg/l). In addition, there was no evidence that the 4-day average concentration would have been above 0.014 µg/l. Therefore, Regional Board staff recommends that further assessment of chlorpyrifos levels in Colusa Basin Drain take place.

CBD- Dicamba:
Between 1992 and 1998, multiple studies analyzed a total of 38 ambient water samples collected in the CBD for dicamba. Two of 38 samples exceeded the Canadian Environmental Quality Guidelines of 0.006 µg/l. The two samples that were above the Canadian guidelines were collected in 1992. Samples analyzed from 1996-1998 did not have detectable levels of dicamba, so there is no indication that current levels of dicamba are above applicable guidelines.

Del Puerto- Malathion:
Between 1991 and 1993, a total of 33 ambient water samples collected in Del Puerto Creek were analyzed for malathion. Overall, 2 of 33 samples contained malathion concentrations above the USEPA recommended criterion of 0.1 µg/l. An apparent duplicate of one of the samples above the criterion had non-detectable levels of malathion. When the duplicates are averaged, the concentration for that day is below the criterion. Since only one sample date had malathion concentrations above the criterion, there is no indication that current levels of malathion are above applicable guidelines.

Ingram/Hospital Creek- Carbaryl:
Between 1991 and 1993, a total of 26 ambient water samples collected in Ingram/Hospital Creek were analyzed for carbaryl. Two of the 26 samples contained carbaryl concentrations above the CDFG criterion of 2.53 µg/l. Those two samples were collected in May 1991 (8.4 µg/l) and May 1992 (2.8

From: Joe Karkoski
To: Craig J. Wilson
Date: Fri, Nov 1, 2002 12:04 PM
Subject: Revised Fact Sheet for Deer Creek Listing

Craig,
I have had further discussions of the proposed listing of Deer Creek with experts within our office. Based on those discussions, I believe it would be most appropriate to list Deer Creek for non-attainment of the pH standard only. Nutrients are likely a significant contributor to excessive algal growth, but may not be the primary contributor. Since the problem of excessive algal growth may not be solved solely through control of nutrient inputs, it would not be appropriate to list nutrients as causing non-attainment of standards at this time. I have revised the Fact Sheet to support the listing of pH.

Joe

CC: Gene Davis; jshild@sbcglobal.net; Laura Sharpe

Deer Creek (Yuba River), pH

Summary of Proposed Action

The California Regional Water Quality Control Board, Central Valley Region staff (Regional Board), recommends the addition of Deer Creek to California's Clean Water Act Section 303(d) list due to impairment by pH. Information available to the Regional Board on pH levels in Deer Creek indicates that water quality objectives are not being attained in Deer Creek. The description for the basis for this determination is given below.

303(d) Listing/TMDL Information

Waterbody Name	Deer Creek	**Pollutants/Stressors**	pH
Hydrologic Unit	517.2	**Sources**	
Total Waterbody Size	40 miles	**Original 303(d) Listing Year**	2002
Size Affected	4 miles	**Extent of Impairment**	From Lake Wildwood to confluence with the Yuba River.
Upstream Extent Latitude	39° 14' 03"	**Upstream Extent Longitude**	121° 13' 18"
Downstream Extent Latitude	39° 13' 47"	**Downstream Extent Longitude**	121° 16' 47"

Watershed Characteristics

Deer Creek is located in Nevada and Yuba counties. It flows for approximately 40 miles, passing through Nevada City and Lake Wildwood before joining the Yuba River. The Lake Wildwood Treatment Plant is located approximately four miles above the confluence with the Yuba River.

Water Quality Objectives Not Attained

The numeric objective for pH is not being attained in Deer Creek. The Basin Plan lists the pH criterion range for the protection of sensitive uses, including freshwater aquatic life protection, as 6.5 to 8.5 (CRWQCB-CVR, 1998; http://www.swrcb.ca.gov/~rwqcb5/bsnplnab.pdf). The secondary United States Environmental Protection Agency (USEPA) maximum contaminant level (MCL) to protect drinking water for pH ranges from 6.5 to 8.5 (Marshack, 2000).

The pH objective was evaluated for Deer Creek by comparing pH values measured in Deer Creek to the Basin Plan numeric objective range and the secondary MCL (pH between 6.5 and 8.5).

Evidence of Impairment

Friends of Deer Creek (2002) measured pH monthly (up to 18 measurements) and nutrient (phosphate [PO_4^{-}] and nitrate [NO_3^{-}]) levels quarterly (up to 6 measurements) at 6 sites upstream from Lake Wildwood and at four sites downstream of Lake Wildwood between December 2000 and May 2002. Temperature measurements were also taken. pH levels exceeded the Basin Plan numeric criteria (i.e., were greater than 8.5) at several sites downstream from the Lake Wildwood Dam between May and October 2001 (Table 1).

Table 1 – Summary of pH and Nutrient Levels in Deer Creek Between Dec. 2000 and May 2002

PH measurement site	Range of pH Values	Median pH Value	Number (percent) of samples pH measurements exceeded objective (8.5)	Range of Phosphate ($PO_4^{=}$) Levels	Median Phosphate ($PO_4^{=}$) Level	Range of Nitrate (NO_3^{-}) Levels	Median Nitrate (NO_3^{-}) Level
Sites 1 – 6 (upstream from Lake Wildwood)	6.03 – 8.30	7.33	1 (1%)	<1 - 1	<1	<1 – 2.5	<0.25
Site 7 (< 0.5 miles downstream from Lake Wildwood)	7.03 – 8.83 (11.47 possible outlier)	7.75	1 (8%; excluding possible outlier)	<1 – 9.50	4.16	<0.25 – 10.00	4.25
Site 8 (approx. 1.5 miles downstream from Lake Wildwood)	7.13 – 9.67	8.58	9 (50%)	<1 – 5.00	2.16	<0.25 – 4.00	0.88
Site 9 (approx. 2 miles downstream from Lake Wildwood)	7.67 – 9.52	8.06	5 (45%)	<1 – 2.75	1.88	<1 – 2.33	1.66
Site 10 (approx. 3 miles downstream from Lake Wildwood)	6.87 – 9.50	8.00	4 (33%)	<1 – 4.00	2.5	<0.5 – 4.00	0.75

Deer Creek is impaired during late spring and summer months by pH levels above 8.5. The high pH levels occur primarily in the reach of Deer Creek downstream some distance from Lake Wildwood. Phosphate, nitrate, and temperature levels are generally higher in this reach than upstream of Lake Wildwood. Monitoring data collected by the Lake Wildwood Treatment Plant 100 feet downstream from their point of discharge do not indicate high pH levels.

Higher spring and summer temperatures, increased hours of sunlight, and increased nutrients (e.g., phosphate and nitrate) likely promote algal growth in Deer Creek. As the algal mass increases it consumes carbon dioxide, displacing the carbonate system in the creek by removing carbonic acid, causing the pH to increase (Masters, 1991).

Friends of Deer Creek conducted a diurnal study at two sites – a 'control' site upstream of Lake Wildwood and an 'experimental' site downstream of Lake Wildwood. pH and other parameters were measured at 6-hour intervals during four days within a one-week period. Temperatures at the 'control' site ranged from 9.20°C to 14.55°C and pH during the same period ranged from 6.53 to 7.13. The pH measurements at the 'control' site generally increased or decreased as the temperature increased or decreased. Temperatures at the 'experimental' site were generally higher than at the 'control' site and ranged from 20.22°C to 29.88°C. pH measurements at the 'experimental' site during the same period were generally higher and ranged more widely from 7.2 to 9.9. The pH measurements at the 'experimental' site fluctuated more widely to temperature diurnal variations than at the 'control' site.

Extent of Impairment

Approximately four miles of Deer Creek, from below the Lake Wildwood Dam to the confluence with the Yuba River, are recommended to be listed as impaired by high pH levels.

Potential Sources

The most likely source of the elevated pH is algal respiration stimulated by warmer temperatures, greater exposure to sunlight, and nutrients downstream from Lake Wildwood.

From: Joe Karkoski
To: Adam Morrill; Craig J. Wilson; Laura Sharpe; Nancy Richard
Date: Fri, Oct 18, 2002 12:35 PM
Subject: Re: 303(d) List Corrections

Laura, et al,
I think Laura has captured the gist of our discussion as best as I can remember. My concern is that what we discussed is not reflected in the print out of the 303(d) list. Laura's response will address the concerns that I raised in #2 and #5.

My suggestion for not splitting up the Delta is based on the significant errors that were introduced by splitting it. If you still feel it is necessary to split up the Delta, please send us a copy of the new print out before distributing it.

I believe that there are still a number of discrepancies between what we provided and what GeoWBS has calculated that are not "small" discrepancies.

Comment #1 - The entire impaired area of the Delta is 750,000 acres according to GeoWBS (Delta Waterways + Southern Delta + Stockton Ship Channel). This reflects **land** area and not **surface water** area. This really should be corrected. Also it is unclear whether the Delta Waterways refers to the whole Delta or the part of the Delta not included in "Southern Delta" or "Stockton Ship Channel".

Comment #3- I would suggest that the comment field for the waters that I referred to have the miles impaired removed, but leave the description of the extent of impairment (e.g. from Clear Lake Dam to Cache Creek settling basin). It is very confusing to have (as in the case of Cache Creek) the comment field say the extent of impairment is 81 miles and the estimated size affected is 84 miles.

Comment #4 - In a number of cases there are more than small discrepancies between the information we provided and what GeoWBS is showing as extent of impairment. For example, GeoWBS has 26 miles of the Colusa Basin Drain as impaired and the information we provided says 70 Miles. The Sacramento River (Red Bluff to Delta) gives the extent of impairment for diazinon and mercury as 274 miles and we provided information that says it is 30 miles. I agreed previously to defer to GeoWBS when there where small discrepancies (e.g. we said a stream size is 18 miles and GeoWBS says it is 21 miles). Some of the descriptions of the extent of impairment from GeoWBS are so significantly different from the information provided, that they can not be supported.

We will be happy to work with you on getting these issues resolved.

Joe

Original Message that I sent:

I strongly recommend that the Delta Waterways listing be done in the same manner that it was done previously - i.e. have one data record for Delta Waterways with different extents of impairment identified as needed for each pollutant. The attempt to break up the Delta into 3 sections has introduced significant errors.

1. The estimated size affected is not consistent with the information we provided. It is off by an order of magnitude. My guess is this is because you are including land area + water area in size affected and we provided you with water area. The size affected should just be the water area. Please refer to the fact sheets that we have provided.

2. Only diazinon, chlorpyrifos and mercury are shown as impacting all of the Delta. DDT, Group A pesticides and Unknown Toxicity also should be listed as impairing all of the Delta.

3. The text in many of the comment fields is not consistent with the numbers in the Estimated Size Affected column. See Cache Creek, Five Mile Slough, Mormon Slough, Mosher Slough, and Panoche Creek.

4. There are significant differences between the extent of impairment that we provided to you and the estimated size affected. Please contact Gene on Monday to resolve those issues.

5. I believe we are just providing TMDL schedules for High priority waters. Please remove the comments provided for all of our Low priority waters regarding TMDL end date: after 2015.

Thanks for your help.

Joe
>>> Laura Sharpe 10/18/02 11:00AM >>>
Good Morning Joe,

Thanks for the email. We thought we had worked out most of these issues. On 10/3/02 we (Nancy Richard, Adam Morrill, Joe Karkoski, and Laura Sharpe) discussed the discrepancies in Water Body Sizes and it was decided that it would be handled by leaving the smaller discrepancies to the GeoWBS sizes. This was decided because previously SWRCB staff, (Nancy Richard and Adam Morrill), spent time with the RWQCB staff in accurately mapping the Water Bodies for the 303(d) List, and entered those sizes into GeoWBS. The extent of impairment that was provided to us is reflected in the comment field for the water bodies in GeoWBS, (see Mosher Slough, Mormon Slough, Five Mile Slough, Cache Creek, Panoche Creek). This decision was discussed during the 10/3/02 phone conversation.

It was also agreed upon during the phone conversation that the Delta will remain split into three pieces. The agreement was that the proportion of the RWQCB's recommended change in size to 48,000 acres will be taken for each segment and written into the comment field for each pollutant in the Delta Waterways as listed in GeoWBS.

We agreed on the phone that these changes would be made by the SWRCB staff to the 2002 GeoWBS print out of the CWA section 303(d) List.

In regard to your requested corrections, it has been decided that some changes need to be made to the GeoWBS print out. Please find those changes that we will make to GeoWBS after the November 6, 2002 Board Workshop. Craig will discuss these changes at the workshop to the members of the public and the State Board. We can not make any changes to the document right now, we must wait until after the Board Workshop, which will be held on 11/6/02.

Changes:
1. DDT, Group A pesticides and Unknown toxicity as well as diazinon, chlorpyrifos and mercury will be listed in GeoWBS as impairing all of the Delta.

2. The comments provided by the RWQCB for all of the Low Priority waters listed, "TMDL end date: after 2015" will be removed from GeoWBS entirely for Region 5 for all Low Priority Listings.

If you have any questions regarding these changes, please email us to discuss them. We need to work out the solutions for the changes to the GeoWBS print out. Please contact us via email to discuss these issues further. Thanks for your help.

Respectfully,
Laura Sharpe

CC: Gene Davis

From: Joe Karkoski
To: Adam Morrill; Craig J. Wilson; Laura Sharpe; Nancy Richard
Date: Thu, Oct 17, 2002 4:48 PM
Subject: 303(d) List Corrections

Sorry for the distribution to all of you, I was not sure who needed to get this message.

The print out from GeoWBS has a number of errors that we would like corrected.

I strongly recommend that the Delta Waterways listing be done in the same manner that it was done previously - i.e. have one data record for Delta Waterways with different extents of impairment identified as needed for each pollutant. The attempt to break up the Delta into 3 sections has introduced significant errors.

1. The estimated size affected is not consistent with the information we provided. It is off by an order of magnitude. My guess is this is because you are including land area + water area in size affected and we provided you with water area. The size affected should just be the water area. Please refer to the fact sheets that we have provided.

2. Only diazinon, chlorpyrifos and mercury are shown as impacting all of the Delta. DDT, Group A pesticides and Unknown Toxicity also should be listed as impairing all of the Delta.

3. The text in many of the comment fields is not consistent with the numbers in the Estimated Size Affected column. See Cache Creek, Five Mile Slough, Mormon Slough, Mosher Slough, and Panoche Creek.

4. There are significant differences between the extent of impairment that we provided to you and the estimated size affected. Please contact Gene on Monday to resolve those issues.

5. I believe we are just providing TMDL schedules for High priority waters. Please remove the comments provided for all of our Low priority waters regarding TMDL end date: after 2015.

Thanks for your help.

Joe

CC: Gene Davis

From: Joe Karkoski
To: Laura Sharpe
Date: Thu, Sep 19, 2002 3:33 PM
Subject: Re: TMDL Dates

Laura,
Thanks for your prompt response. Given your answers, the TMDL start and end dates should remain blank. One point to clarify - we have **completed** our selenium TMDL for the San Joaquin River from the Merced River to the South Delta. The listing that remains is selenium for the San Joaquin River from Mud Slough to the Merced River (this is about a 3 mile stretch). Gene is working on the other information that you need - i.e. the quad maps.

Joe

>>> Laura Sharpe 09/19/02 01:23PM >>>
Joe,
I'm happy to. Clarifications from discussions this morning after we sent you this e-mail...
1) No and No
2) No
3) 1. San Joaquin river, Merced to the South Delta Boundary**: Selenium**
2. Lower San Joaquin River**: Mercury**
Adam still needs the End Dates for the TMDLs.

1. San Joaquin river, Merced to the South Delta Boundary
2. Lower San Joaquin River
3. Old River
4. Middle River
5. Mendota Pool
6. Delta-Mendota Canal (DMC)

Thanks Joe, for all of your help.
Respectfully,
Laura

>>> Joe Karkoski 09/19/02 10:27AM >>>
Laura,
A couple of things I need to clarify before we send a response. 1) Are we providing EPA with TMDL completion dates beyond 2004? If we are not, then do we need to provide an end date that is past 2004? 2) Are the TMDL start dates a "required" field for GeoWBS? I would hate to hazard a guess as to when we would start some of these TMDLs. 3) For waters 1 & 2, what pollutants are you asking about?

Thanks for your help in clarifying these issues.

Joe
>>> Laura Sharpe 09/19/02 08:38AM >>>
Good Morning Joe and Gene,
One more request from Adam, he needs the Start and End Dates for the TMDLs for the following water bodies...

1. San Joaquin river, Merced to the South Delta Boundary
2. Lower San Joaquin River
3. Old River
4. Middle River
5. Mendota Pool
6. Delta-Mendota Canal (DMC)

If you have any questions, please contact Adam Morrill at 341-5548 or via e-mail.
Thanks in advance for your help in this matter.

Respectfully,
Laura Sharpe

CC: Adam Morrill; Craig J. Wilson; Gene Davis; Nancy Richard

From: Joe Karkoski
To: Craig J. Wilson; Laura Sharpe
Date: Tue, Sep 10, 2002 9:26 AM
Subject: New Listing Recommendation

Craig,
As we discussed, during our review of "watch" list waters, we came across additional diazinon data for the lower Calaveras River. This data, together with data we had previously, suggests that the lower Calaveras River should be listed.

Joe

CC: Gene Davis

California Regional Water Quality Control Board

Central Valley Region

Robert Schneider, Chair

Winston H. Hickox
Secretary for Environmental Protection

Sacramento Main Office
Internet Address: http://www.swrcb.ca.gov/rwqcb5
3443 Routier Road, Suite A, Sacramento, California 95827-3003
Phone (916) 255-3000 • FAX (916) 255-3015

Gray Davis
Governor

TO: Craig J. Wilson, Chief
TMDL Listing Unit
State Water Resources Control Board

FROM: Joe Karkoski
303(d) List Coordinator

DATE: 10 September 2002

SIGNATURE: _____

Craig J. Wilson 2

SUBJECT: recommendation to list the lower calaveras river for impairment due to diazinon

In response to your request, Central Valley Regional Water Quality Control Board (Regional Board) staff has reviewed the rationale for placing waters on a "Watch" list. In performing that review, we became aware of additional data on diazinon levels in the lower Calaveras River. This additional data, together with the data that the Regional Board had previously reviewed, suggests that water quality objectives are not attained due to elevated levels of diazinon in the lower Calaveras River. The additional data was available to the Regional Board before 15 May 2001. A fact sheet that summarizes the available data is attached.

California Regional Water Quality Control Board
Central Valley Region
Robert Schneider, Chair

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

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Lower Calaveras River, Diazinon

Summary of Proposed Action

The California Regional Water Quality Control Board-Central Valley Region staff (Regional Board) recommends the addition of the lower Calaveras River to California's Clean Water Act Section 303(d) list due to impairment by diazinon. Information available to the Regional Board on diazinon levels in the lower Calaveras River indicates that water quality objectives are not being attained. A description of the basis for this determination is given below.

Table B-1. 303(d) Listing/TMDL Information

Waterbody Name	Lower Calaveras River	**Pollutants/Stressors**	Diazinon
Hydrologic Unit	531.30	**Sources**	Urban Runoff/Storm Sewers
Total Waterbody Size	50 river miles	**TMDL Priority**	
Size Affected	5 miles	**TMDL Start Date (Mo Yr)**	
Extent of Impairment	Between the Stockton Diversion Canal and the San Joaquin River	**TMDL End Date (Mo Yr)**	
Upstream Extent Latitude	37° 59' 38"	**Upstream Extent Longitude**	121° 16' 48"
Downstream Extent Latitude	37° 58' 00"	**Downstream Extent Longitude**	121° 22' 05"

Watershed Characteristics

The lower Calaveras River is located within the San Joaquin Delta Hydrologic Unit, flows through central Stockton, California, and joins the San Joaquin River near Rough and Ready Island.

Water Quality Objectives Not Attained

The narrative objectives for pesticides and toxicity are not being attained for diazinon in the lower Calaveras River. The narrative objective for pesticides states "No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses." The narrative toxicity objective in the Basin Plan states, in part, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." The narrative toxicity objective further states that "The Regional Water Board will also consider ... numerical criteria and guidelines for toxic substances developed by the State Water Board, the California Office of Environmental Health Hazard Assessment, the California Department of Health Services, the U.S. Food and Drug Administration, the National Academy of Sciences, the U.S. Environmental Protection Agency, and other appropriate organizations to evaluate compliance with this objective." (CRWQCB-CVR, 1998; http://www.swrcb.ca.gov/~rwqcb5/bsnplnab.pdf) The California Department of Fish and Game (CDFG) has established freshwater numeric acute (1-hour average) and chronic (4-day average) criteria for diazinon of 80 ng/L and 50 ng/L, respectively, for the protection of aquatic life (Siepmann and Finlayson, 2000).

Evidence of Impairment

Available data summarized by Lee and Jones-Lee (2001) and data reported in the Department of Pesticide Regulation's Surface Water Database (SWDB-2000) were reviewed. Diazinon data summarized by Lee and Jones-Lee were taken in conjunction with toxicity testing. All four samples collected in 1994 had diazinon levels above CDFG criteria (199 ng/L to 450 ng/L). The sample collected in 1996 had a diazinon concentration of 36 ng/L.

The data used from the SWDB were from a report prepared for the city of Stockton's storm water program. Three of six samples collected in 1996 had samples greater than CDFG criteria (130 ng/L, 1,300 ng/L and 1,700 ng/L). Two of the

samples (1,300 ng/L and 1,700 ng/L) were taken at two different sites on the same day.

In summary, of the 11 data points available, seven are above CDFG criteria.

Extent of Impairment

Data for the lower Calaveras River includes two sites in the Stockton urban area. Additionally, storm water discharge into the lower Calaveras River from the Stockton urban area is frequently measured at levels above CDFG criteria (Lee and Jones-Lee, 2001). It is unknown whether the extent of impairment extends upstream of the Stockton urban area. The Regional Board is therefore recommending listing the lower Calaveras River for diazinon between the Stockton Diversion Canal and the San Joaquin River.

Potential Sources

The identified impaired reach of the lower Calaveras River is wholly within the Stockton urban area. The most likely source of diazinon is from storm water runoff from the urban area.

From: Joe Karkoski
To: Craig J. Wilson; Laura Sharpe
Date: Fri, Sep 6, 2002 2:01 PM
Subject: Watch List Rationale

Attached is a further explanation of our assessment of waters on the "Watch" list. As we discussed on the phone, I will likely send you a recommendation to list the Calaveras River for diazinon. I should be able to get you a fact sheet Monday or Tuesday of next week.

Joe

CC: Gene Davis

California Regional Water Quality Control Board

Central Valley Region

Robert Schneider, Chair

Winston H. Hickox
Secretary for Environmental Protection

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Gray Davis
Governor

TO: Craig J. Wilson, Chief
TMDL Listing Unit
State Water Resources Control Board

FROM: Joe Karkoski
303(d) List Coordinator

DATE: 4 September 2002

SIGNATURE: _____

SUBJECT: supplemental information for water bodies and pollutants in table 2 of the *final staff report on recommended changes to california's clean water act section 303(d) list, 14 december 2001* (TABLE 2)

In response to your request, Central Valley Regional Water Quality Control Board (Regional Board) staff has reviewed the rationale for placing water bodies and pollutants in Table 2. Many of the waters and pollutants identified in Table 2 would require further assessment to determine whether water quality standards are attained. For other waters, available information strongly indicates that standards are attained for the particular pollutants identified. We are providing you with further information as to why the data was not sufficient to either list or de-list the waters identified in Table 2 or why we believe that the data indicates that standards are attained. My memo to you of 24 July 2002 provides the rationale for further assessing copper in the San Luis Reservoir.

Nutrients/Pathogens – The following streams and lakes are identified in Table 2 for further assessment: Fresno River, Hensley Lake, Kaweah River, Kern River, Lake Isabella, Lake Kaweah, Lake Success, Ten Mile Creek (South Fork of the Kings River), and Tule River. Regional Board staff is suggesting further assessment based on largely anecdotal information on the water quality in these streams and lakes. Regional Board staff has been made aware of algal die offs, which could be a result of nutrient water quality problems. Regional Board staff has been made aware of cattle in or near these streams and lakes, which could result in pathogen water quality problems. Regional Board staff has at most one or two water quality data points from these streams and lakes. The data and information available to Regional Board staff indicates a potential water quality problem, but is not sufficient to determine whether applicable standards are being attained or not. Regional Board staff will try to pursue funding to monitor these waters to determine whether nutrient and or pathogen related water quality problems exist.

Group A Pesticides/DDT – The Delta waterways are currently on the 303(d) list for DDT and Group A pesticides. The Feather River is currently on the 303(d) list for Group A pesticides. Fish tissue data from earlier studies (1980's and early 1990's) had indicated that National Academy of Sciences and/or U.S. Food and Drug Administration guidelines were not being met. More recent studies had indicated substantial reductions in these contaminants in fish tissue. The sampling design and fish collected in the earlier and later studies were not directly comparable (especially in terms of percent lipid content). Regional Board staff, therefore, recommends that additional fish tissue samples be collected and analyzed to determine whether applicable criteria and guidelines are currently being met.

Mercury - Staff calculated the weighted-average fish tissue mercury concentration for trophic level 4 (TL4) fish species at each location where at least three composite samples were available. Staff compared the weighted averages to the USEPA criterion of 0.3 ppm methylmercury in the edible portions of fish. The USEPA promulgated this criterion in 2001 for the protection of human health.

Staff recommended two waterbodies, the Merced River and Tuolumne River, for further assessment rather than recommending them for listing. The table below provides a summary of the TL4 fish tissue data for these waterbodies. Staff is recommending these rivers for further assessment because:

- The weighted-average TL4 fish tissue mercury concentration for each waterbody closely approached the USEPA criterion of 0.3 ppm.
- The weighted-average mercury concentrations for the bass and white catfish samples from both

waterbodies exceeded USEPA criterion.

- The channel catfish concentrations were consistently lower than the other TL4 species. For widespread comparisons between waterbodies throughout the Central Valley, staff considered channel catfish to be a trophic level 4 species because usually channel catfish fish measuring more than 300-380 mm in length are pisciverous (Moyle, 2002). However, staff observed that channel catfish from several waterbodies have average mercury concentrations that are lower than mercury concentrations in white catfish and bass samples. Staff believes that additional information about which fish species humans are catching and eating from the Merced and Tuolumne Rivers is needed. Staff can then calculate the average fish tissue concentration based on distribution of species being caught by humans, rather than basing the calculation on species sampled.

Table 1. Summary of Trophic Level 4 Fish Data for "Mercury Watch List"

Waterbody	TL4 Weighted Average Mercury Concentration	# of Samples (a)			# of Fish Sampled			Species Weighted Average Mercury Concentration		
		Bass	White Catfish	Channel Catfish	Bass	White Catfish	Channel Catfish	Bass	White Catfish	Channel Catfish
Merced River	0.26	2	1	5	10	8	22	0.39	0.31	0.18
Tuolumne River	0.28	1	1	4	5	6	20	0.43	0.31	0.23

1. All samples were composite samples with two to seven fish included in each composite.

Currently Registered Pesticides - a number of waters are recommended for further assessment for currently registered pesticides. The available data and rationale for conducting further assessment are provided below. In general, the data reported is taken from the Department of Pesticide Regulation's Surface Water Database.

Arcade Creek- Malathion:
A USGS NAWQA study conducted from 1996 and 1998 analyzed 31 ambient water samples in Arcade Creek. Of the 31 samples collected and analyzed, 3 out of 31 (about 10%) exceeded the USEPA recommended criterion of 0.1 µg/l. Samples collected in 4/97, 5/97, and 6/97 had concentrations of 0.634, 0.144, and 0.135 µg/l, respectively. The study did not include sampling during April through June in 1996 or 1998. Regional Board staff believes further assessment is needed to confirm that the exceedances recur.

Butte Slough- Malathion:
Between 1995 and 1998, a total of 70 ambient water samples collected in the Butte Slough were analyzed for malathion. Overall, 2 of 70 samples contained malathion concentrations above the USEPA recommended criterion of 0.1 µg/l. These two samples above the criteria have the same sample date, as reported in the Department of Pesticide Regulation's Surface Water Database. The samples are, therefore, likely duplicates. Since only one sample date indicates malathion levels above the criterion, there is no indication that elevated levels of malathion are recurring in Butte Slough.

Butte Slough- Thiobencarb:
Between 1995 and 1998, a total of 77 ambient water samples collected in the Butte Slough were analyzed for thiobencarb. Overall, 1 of 77 samples contained thiobencarb concentrations above the CDFG recommended criterion of 3.1 µg/l. Since only one sample was above the criterion, there is no

indication that elevated levels of thiobencarb are recurring in Butte Slough.

Colusa Basin Drain (CBD)- Chlorpyrifos:
Between 1994 and 1998, multiple studies analyzed a total of 24 ambient water samples collected in the CBD for chlorpyrifos. Overall, 3 of 24 samples contained chlorpyrifos concentrations at or above CDFG chronic (4-day average) water quality criterion of .014 µg/l and 0 of 24 samples exceeded CDFG acute water quality criterion of .02 µg/l. The 3 sample dates on which chlorpyrifos concentrations were above the chronic criteria were relatively minor exceedances (0.019, .0164, .0149 µg/l). In addition, there was no evidence that the 4-day average concentration would have been above 0.014 µg/l. Therefore, Regional Board staff recommends that further assessment of chlorpyrifos levels in Colusa Basin Drain take place.

CBD- Dicamba:
Between 1992 and 1998, multiple studies analyzed a total of 38 ambient water samples collected in the CBD for dicamba. Two of 38 samples exceeded the Canadian Environmental Quality Guidelines of 0.006 µg/l. The two samples that were above the Canadian guidelines were collected in 1992. Samples analyzed from 1996-1998 did not have detectable levels of dicamba, so there is no indication that current levels of dicamba are above applicable guidelines.

Del Puerto- Malathion:
Between 1991 and 1993, a total of 33 ambient water samples collected in Del Puerto Creek were analyzed for malathion. Overall, 2 of 33 samples contained malathion concentrations above the USEPA recommended criterion of 0.1 µg/l. An apparent duplicate of one of the samples above the criterion had non-detectable levels of malathion. When the duplicates are averaged, the concentration for that day is below the criterion. Since only one sample date had malathion concentrations above the criterion, there is no indication that current levels of malathion are above applicable guidelines.

Ingram/Hospital Creek- Carbaryl:
Between 1991 and 1993, a total of 26 ambient water samples collected in Ingram/Hospital Creek were analyzed for carbaryl. Two of the 26 samples contained carbaryl concentrations above the CDFG criterion of 2.53 µg/l. Those two samples were collected in May 1991 (8.4 µg/l) and May 1992 (2.8 µg/l) respectively. The data indicates that carbaryl may be a problem in May. Since the data was collected about a decade ago and the elevated levels only occurred in one month, Regional Board staff recommends further assessment to determine whether cabaryl levels are currently elevated.

Mormon Slough- Diazinon:
In February 1994 toxicity tests were performed on two ambient water samples collected from Mormon Slough. The samples were collected on consecutive days. Diazinon levels were analyzed for both samples. Both samples were above the CDFG acute and chronic criteria of 0.08 µg/l and 0.05 µg/l, respectively. Both of the samples caused toxicity to *Ceriodaphnia dubia*. The addition of PBO to the samples eliminated the toxicity (data as reported in Lee and Jones-Lee, 2001). Regional Board staff recommends further assessment of diazinon levels in Mormon Slough, since the current data set only includes two data points from samples collected on consecutive days. The available data set is not sufficient to determine that elevated diazinon levels recur in Mormon Slough.

Orestimba Creek- Methidathion:
Between 1996 and 2000, multiple studies analyzed a total of 1050 ambient water samples collected in

Orestimba Creek for methidathion. Two of 1050 (about .2%) exceeded the USEPA Integrated IRIS Reference Dose of 0.7 µg/l. The two samples were collected in 1993 (2.14 µg/l) and 2000 (1.74 µg/l). Since only 2 out of 1050 samples were above the reference dose and there were seven years between detections of elevated levels, the frequency of occurrence of elevated levels of methidathion is relatively low. In addition, IRIS reference doses are for the protection of human health from consumption of drinking water. Regional Board staff is not aware of any drinking water intakes within Orestimba Creek. The low frequency of exceedance of the IRIS reference dose combined with the low likelihood of exposure suggests that water quality objectives relevant to methidathion are being met.

Salt Slough- Malathion:
Between 1991 and 1993, a total of 46 ambient water samples collected in Salt Slough were analyzed for malathion. Overall, 2 of 46 samples contained malathion concentrations above the USEPA recommended criterion of 0.1 µg/l. The two samples above the criterion were collected in March 1992 (0.16 µg/l) and March 1993 (0.39 µg/l). Since the data was collected about a decade ago and the elevated levels only occurred in one month, Regional Board staff recommends further assessment to determine whether malathion levels are currently elevated.

Walker Slough- Diazinon:
Between 1994 and 1998, 6 samples were collected from Walker Slough and toxicity tests were performed on them (as summarized in Lee and Jones-Lee, 2001). Diazinon levels were measured in three of those samples. Most of these samples were collected during wet weather events in the winter. Of the 6 samples, 2 resulted in 100% mortality within 7 days to *Ceriodaphnia dubia*. The two samples exhibiting 100% mortality had diazinon concentrations of 0.273 µg/l and 0.170 µg/l. PBO was added to one of the toxic samples and eliminated the toxicity. Regional Board staff recommends further assessment of diazinon levels in Walker Slough due to the limited data set currently available.

Pathogens – A number of waters were suggested for further assessment of pathogens. The rationale for each water is presented below.

The **Lower American River** was placed on the watch list for 303d based on a single beach closure (in 2000) and occasional high fecal coliform bacteria measurements. The Regional Board fecal coliform objectives specifically allow the maximum (400 MPN/ml) to be exceeded 10% of the time. The available data indicates that the fecal coliform number is not exceeded more than 10% of the time. Other pathogen measurements, including *E. coli*, cryptosporidium, giardia, and virus measurements, indicate that these indicators are below applicable guidelines. The lower river has a high recreation value and with increased urbanization and increasing use should be monitored to ensure that the pathogen levels in the river do not rise above standards.

Data was available from the DeltaKeeper for a large number of sites throughout the **Delta**. The data was generally limited in time, with a relatively few sampling events. None of the sites appeared to exceed the Department of Health Services 30 day log mean *E. coli* guidelines. A few sites had a single exceedance of *E. coli* single sample guidelines. Due to the limited number of sampling events, it was difficult to determine whether the few observed exceedances of Department of Health Services *E. coli* guidelines are due to a chronic condition of pollution (likely to occur again) or an acute condition (not likely to occur again). More data, both temporal and spatial, is needed before determining whether or not the Delta is attaining water quality standards with respect to pathogens.

There was limited data for **French Camp Slough** (4 data points over 2 months from a single sample

location). Two out of four samples (one each month) were above the single sample value. The geometric mean for the four data points is well below the guidelines. The extremely limited sample set made it difficult to determine whether the elevated *E. coli* levels are likely to be observed again. Further assessment of French Camp Slough is recommended.

The **Yuba River** received much press coverage last summer concerning high levels of bacteria in the river and for beach closures. There has been ongoing concern with possible interference in test methods used at the river. The river was tested for both e.coli and enterococci. The e. coli levels remained low while the enterococci levels were high. Additionally, the county and a citizens monitoring group have been attempting to determine if the sampling indicates impairment or if it was due to a single, non-recurring incident of pollution. Confirmation sampling and method evaluation for the Yuba River is being conducted this summer. Due to the contradictory information regarding the pathogen indicators, Regional Board staff believes further assessment is necessary to determine if water quality standards are attained with respect to pathogens.

Information Sources:

California Department of Pesticide Regulation, 2000. Surface Water Database, as of July 15, 2000.

Lee, G.F. and A. Jones-Lee, 2000. *Review of the City of Stockton Urban Stormwater Runoff Aquatic Life Toxicity Studies Conducted by the Central Valley Regional Water Quality Control Board, DeltaKeeper, and the University of California, Davis, Aquatic Toxicology Laboratory between 1994 and 1999*. Draft Report. November 2001. G. Fred Lee & Associates. El Macero, CA. (Prepared for DeltaKeeper).

Moyle, P.B. 2002. Inland Fishes of California. Berkeley: University of California Press.

If you have any questions, please give me a call at (916) 255-3368.

From: Joe Karkoski
To: Craig J. Wilson; Laura Sharpe
Date: Wed, May 15, 2002 12:49 PM
Subject: Our Official 303(d) List Comments

The signed copy is on its way. Attached is the "e" version. Some of the specific comments have changed since the draft that we sent to you. Give me a call if you have any questions.

Joe

California Regional Water Quality Control Board
Central Valley Region
Robert Schneider, Chair

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

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TO: Stan Martinson, Chief
Division of Water Quality
State Water Resources Control Board

FROM: Kenneth Landau
Assistant Executive Officer

DATE: 13 May 2002 **SIGNATURE:** _____

SUBJECT: central valley regional water quality control board staff Comments on the revision OF THE CLEAN WATER ACT SECTION 303(d)
LIST OF WATER QUALITY LIMITED SEGMENTS

Central Valley Regional Water Quality Control Board (Regional Board) staff has completed its review of the State Water Resources Control Board's (State Board) draft staff report *Revision of the Clean Water Act 303(d) List of Water Quality Limited Segments* (Staff Report). We would like to complement your staff for their work on the Staff Report. Your staff did an excellent job in reviewing and compiling the recommendations from the nine Regional Boards. Our review includes general comments on the approach proposed by State Board staff to update the 303(d) list, as well as specific comments on listings in the Central Valley Region.

Priorities and Schedules

We understand that State Board staff used the schedule we provided for the report to the legislature as the basis for the schedule and priorities. Please note that the schedule we provided for the legislative report was for the 1998 303(d) list and did not include the waters and pollutants we are recommending to add as part of the 2002 303(d) list. We request that you amend your recommendations for priorities and schedules to reflect these additional waters. Attachment A includes our high and medium priority waters and pollutants for Total Maximum Daily Load (TMDL) development. We have changed some of our high priority waters to medium priority to provide consistency with your definition of high priority.

TMDLs Completed List

We request that you change the heading of Table 6 from "TMDLs Completed List" to "Approved TMDLs List". The definition of a "complete" TMDL given in the "TMDLs Completed List" section of the staff report conflicts with the definition that the Regional Boards have been instructed to use for work planning purposes. In Regional Board work plans, "TMDL Completion Date" means the date by which a TMDL will be before the Regional Board for approval. This standard definition is used since it has been acknowledged that the Regional Boards have little influence over the time it takes for State Board, Office of Administrative Law (OAL) and U.S. Environmental Protection Agency (US EPA)

approval. If the State Board does not change this definition, then we request that the State Board establish a reasonable standard (e.g. at least one to two years) for completing the TMDL approval process after Regional Board approval. The schedules for TMDL completion identified in Table 5 should then be adjusted accordingly.

We would also like to request that the water bodies and associated pollutants for which we have completed TMDLs be removed from the 303(d) list. As reflected in Table 6, the US EPA has approved TMDLs for selenium in Salt Slough (1999) and the Grassland Marshes (2000). The federal regulations require the State to "...identify those water quality-limited segments still requiring TMDLs..." (40 CFR § 130.7(b)(1). If these waters and associated pollutants remain on the 303(d) list, the State Board would be indicating that TMDLs are still required. We suggest that the 305(b) report be used to track any continuing non-attainment of beneficial uses or water quality standards.

Watch List

Regional Board staff provided a table of "Suggested Sites and Parameters for Further Assessment" as part of our *Final Staff Report on Recommended Changes to California's Clean Water Act Section 303(d) List* (see Table 2). This table is very similar to the "Watch List" identified in the Staff Report in Table 4. We would request that the information from our Table 2 be incorporated into the State Board's "Watch List". With the addition of our Table 2, we would request the description of the "Watch List" be revised to note that waters on the "Watch List" need further assessment prior to making a determination to list (for waters and pollutants not on the list) or making a determination to delist (for waters and pollutants on the list).

Comments on Fact Sheets and Tables

We have a number of comments on the fact sheets and tables that we would like you to consider (see Attachment B). In general, the comments relate to apparent transcription errors.

Your staff can contact Joe Karkoski at (916) 255-3368 or you may call me at (916) 255-3026.

cc: Central Valley Regional Board Members
Craig J. Wilson, Division of Water Quality
Joe Karkoski, Central Valley Regional Board
Gene Davis, Central Valley Regional Board
Regional Board 303(d) List Coordinators

Stan Martinson Attachment A-3 13 May 2002

California Regional Water Quality Control Board, Central Valley Region Staff Recommended Priorities for Central Valley Waters identified in the State Board's staff report - *Revision of the Clean Water Act 303(d) List of Water Quality Limited Segments*

Water body	Pollutant/Stressor	Priority	TMDL End Date (Year)[1]
Arcade Creek	Chlorpyrifos	High	2003
	Diazinon	High	2003
Bear Creek	**Mercury**	Medium	
Bear River, Lower	**Diazinon**	Medium	
Bear River, Upper	**Mercury**	Medium	
Black Butte Reservoir	**Mercury**	Medium	
Butte Slough	**Diazinon**	Medium	
Cache Creek	Mercury	High	2004
Camp Far West Reservoir	**Mercury**	Medium	
Chicken Ranch Slough	Chlorpyrifos	High	2003
	Diazinon	High	2003
Clear Lake	Mercury	High	2002
	Nutrients	Medium	
Colusa Drain	**Azinphos-methyl**	Medium	
	Diazinon	Medium	
Delta Waterways	Chlorpyrifos	High	2004
	Diazinon	High	2004
	Electrical Conductivity	Medium	
	Mercury	High	2004
	Organic Enrichment/ Low DO	High	2004
Elder Creek	Chlorpyrifos	High	2003
	Diazinon	High	2003
Elk Grove Creek	Diazinon	High	2003
Feather River, Lower	Diazinon	High	2003
	Mercury	Medium	
Five Mile Slough	Chlorpyrifos	Medium	
	Diazinon	Medium	
Harley Gulch	Mercury	Medium	

Jack Slough	**Diazinon**	Medium	
Lake Combie	**Mercury**	Medium	
Lake Englebright	**Mercury**	Medium	
Little Grizzly Creek	Copper	Medium	
	Zinc	Medium	
Merced River, Lower	Chlorpyrifos	Medium	
	Diazinon	Medium	
Morrison Creek	Diazinon	High	2003
Mormon Slough	**Pathogens**	Medium	
Mosher Slough	Chlorpyrifos	Medium	
Mud Slough	Selenium	Medium	
Natomas East Main Drain	Diazinon	Medium	
Orestimba Creek	**Azinphos Methyl**	Medium	
	Chlorpyrifos	Medium	
	Diazinon	Medium	
Rollins Reservoir	**Mercury**	Medium	
Sacramento River (Red Bluff to Delta)	Diazinon	High	2003
	Mercury	Medium	
Sacramento River (Shasta Dam to Red Bluff)	Cadmium	High	2002
	Copper	High	2002
	Zinc	High	2002
Sacramento Slough	Diazinon	Medium	
San Joaquin River	Boron	High	2002
	Chlorpyrifos	High	2003
	Diazinon	High	2003
	Electrical Conductivity	High	2002
	Mercury	Medium	
Scotts Flat Reservoir	**Mercury**	Medium	
Smith Canal	**Organo-phosphorus Pesticides**	Medium	
Stanislaus River, Lower	Diazinon	High	2004
	Pathogens	Medium	

Strong Ranch Slough	Chlorpyrifos	High	2003
	Diazinon	High	2003
Sulfur Creek	Mercury	High	2004
Sutter Bypass	**Diazinon**	Medium	
Tuolumne River, Lower	Diazinon	Medium	
Walker Slough	**Pathogens**	Medium	

[1]TMDL End Date = the date by which the TMDL and associated program of implementation are expected to be considered by the Regional Board, generally as part of a Basin Plan Amendment.

New listings are in **bold**.

Stan Martinson Attachment B-6 13 May 2002

Recommended Changes to Tables and Fact Sheets

- TMDL Priorities and Completion Dates (Table 5):

The following waterbodies have 2 different TMDL completion priorities and completion dates: Clear Lake, Feather River, San Joaquin River, Sulfur Creek.

The Stanislaus and Tuolumne Rivers are listed for both diazinon and chlorpyrifos in Table 5. Those rivers should only be listed for diazinon.

The comments below are specific to the Fact Sheets for the Central Valley Region.

Waterbody-Pollutant	**Data Presented in Staff Report:**	**Should be changed to:**
Avena Drain- Pathogens	Linkage: Pathogens linked to Aquatic Life	Linkage: Pathogens linked to Recreation-1 beneficial uses.
Bear Creek- Mercury	Linkage: Mercury linked to Aquatic Life	Linkage: Mercury linked to Fish Consumption
Lower Calaveras River-Pathogens	Data: "However, all of the Downstream samples individually exceed the USEPA 'single' sample criteria for E. coli levels."	Data: "However, some of the Downstream samples individually exceed the CDHS 'single' sample criteria for E. coli levels."
Colusa Basin Drain-Diazinon	1. Data=6 years (1994-2000). 2. Data were collected for 6 years from 1994-2000.	1. Data= 5 years (between 1994 and 2000). 2. Data were collected for 5 years between 1994 and 2000.
Ingram/Hospital-Chlorpyrifos	"...14 total of 26 (54%)..."	(incorrect statement... delete)
Ingram/Hospital-Diazinon	"...27 total of 32 (84%)..."	(incorrect statement... delete)
Lake Combie-Mercury	Potential Source(s) of Pollutant: Unknown	Potential Source(s) of Pollutant Resource Extraction (Abandoned Mines)
Little Deer Crk- Mercury	9 trophic level 3 fish	6 trophic level 3 fish
Mokelumne River-Aluminum	13 exceeded the MCL criterion	24 exceeded the MCL criterion
Mormon Slough -Pathogens	Utility of measurement for judging if standards or uses are not attained: Basin Plan WQO	Utility of measurement for judging if standards or uses are not attained: CDHS and U.S. EPA criteria.

Mosher Slough-Pathogens	1. Utility of measure for judging if standards or uses are not attained: Basin Plan WQO 2. Data= 1 Year (2001) 3. The data was collected during 2001 from May-February	1. Utility of measure for judging if standards or uses are not attained: CDHS and U.S. EPA criteria. 2. Data= 10 months (in 2000 and 2001) 3. The data was collected from May 2000-February 2001
Newman Wasteway-Chlorpyrifos	"...4 total of 10 (40%)..."	(incorrect statement... delete)
Newman Wasteway-Diazinon	"...7 total of 10 (70%)..."	(incorrect statement... delete)
Lower Putah Creek-Mercury	The trophic level 3 fish had 6 fish exceeding the 0.3 ppm USEPA criteria.	Four of seven trophic level 4 fish species had mean mercury concentrations exceeding the 0.3 ppm USEPA criteria.
Lower Putah Creek-Unknown Toxicity	1. impaired reproduction and mortality. Further TIE test were run and the tests failed to pinpoint the cause, while ammonia and pathogenicity were <u>illuminated</u> as causes. 2. Data type: Numerical data.	1. impaired reproduction and/or mortality. Further TIE test were run and the tests failed to pinpoint the cause. However, ammonia and pathogenicity were <u>eliminated</u> as causes. 2. Data type: Toxicity, TIE, and Numerical data for diuron, ammonia, and pathogens.
Upper Putah Creek-Unknown Toxicity	1. The results showed an unknown toxicant that suggests that a non-polar, organic chemical... 2. Overall approximately 20% of the samples resulted in unknown toxicity. 3. Data type: Numerical data.	1. The results indicate a non-polar, organic chemical may be partially responsible for the toxicity. 2. Overall 5 out of 12 (42%) of the samples resulted in toxicity or impairments. 3. Data type: Toxicity, TIE data, and Numerical data for metals.

Stan Martinson Attachment B-8 13 May 2002

San Joaquin River- Mercury	SWRCB Staff Recommendation: List: List Lower SJR for Mercury.	SWRCB Staff Recommendation: List Lower SJR for Mercury from its confluence with Bear Creek to Vernalis.
Smith Canal- OPs	1. 4/8 samples showed survival impairment on the first day and 8/8 samples showed 100% mortality to Ceriodaphnia within 7 days. 2. Diazinon and Chlorpyrifos were ruled out.	1. 4/8 samples showed survival impairments, indicated by 100% mortality to Ceriodaphnia within 7 days. 2. Diazinon and Chlorpyrifos were present but did not account for all organo-phosphorus pesticide toxicity.
Smith Canal-Pathogens	1. Data= 1 Year (2001) 2. Temporal representation: "The data were collected during one year (2001)." 3. "The locations all exceeded the USEPA criteria for E. coli." 4. Linkage: "Basin Plan WQO for toxicity for pathogens."	1. Data= 10 months (May 2000 to Feb 2001) 2. Temporal representation: "The data were collected during10 months (May 2000 to Feb 2001)." 3. Two of three sampling locations exceeded the USEPA criteria for E. coli. 4. Linkage: : "Basin Plan WQO for toxicity."
Sutter Bypass-Diazinon	"...24 total exceedances of 78 samples..."	(incorrect statement... delete)
Walker Slough-Pathogens	Some exceeded by up to 14 times the criteria level.	The geometric mean was 4-8 times higher than the criteria level.
American River- GAP	1. "3 out of those 15 samples had an average concentration of 56.2 ppb..." 2. Potential Source(s) of Pollutant: Unknown	1. 3 out of those 15 samples were above 100 ppb. The 15 samples had an average concentration of 56.2 ppb." 2. Potential Source(s) of Pollutant: Urban Runoff/ Storm Sewers.

Delta Waterways-Chlor et al	1. Stressor/Media/BU: Chlorpyrifos, ..., UTX. 2. Data: (no statement on size affected.)	1. Stressor/Media/BU: Chlorpyrifos, ..., UTX, and EC. 2. In data, add "The affected size should be changed from 480,000 acres to 48,000 acres for Chlorpyrifos , DDT, Diazinon, GAP, Mercury, and UTX. EC is impaired for 16,000 acres."
Fall River- Sediment and Silt	Water Body-specific Information: Change listing from the *total* length of 25 miles to 9.5 miles.	Water Body-specific Information: Change listing from the *impaired* length of 25 miles to 9.5 miles.
Horse Creek- Metals	Water Body-specific Information: Change listing from the *total* length of 2 miles to 1 mile.	Water Body-specific Information: Change listing from the *impaired* length of 2 miles to 1 mile.
Marsh Creek- Mercury	1. "Marsh Creek from Dunn Creek to Marsh Creek Reservoir." 2. RWQCB/SWRCB Staff Recommendation: "Change in Total Size and Size affected"	1. "Marsh Creek from Dunn Creek to the Delta." 2. RWQCB/SWRCB Staff Recommendation: Change in Size affected
Marsh Creek- Metals	1. Change listing from the total length of 24 miles to 8.5 miles. 2. RWQCB/SWRCB Staff Recommendation: Change in Total Size and Size affected.	1. Change listing from the impaired length of 24 miles to 8.5 miles. 2. RWQCB/SWRCB Staff Recommendation: Change in Size affected.
San Carlos Creek- Mercury	Data: includes no information on the location of the mine	Add: The New Idria Mine is located approximately 4 miles upstream from San Carlos Creek's confluence with Silver Creek.
Lower Toulumne River- Diazinon and GAP, UTX	Lower Toulumne River	Lower Tuolumne River

From: Joe Karkoski
To: Craig J. Wilson; Laura Sharpe
Date: Mon, Mar 4, 2002 1:03 PM
Subject: New 303(d) Listings for Unknown Toxicity in Putah Creek

Craig,
I talked to Jerry about the recommended new listings for upper and lower Putah Creek for unknown toxicity. We would understand if you felt, based on the requirements in the federal regulations, that you could not concur with our recommendations.

As we discussed, the information that we had available to us did not allow us to identify the specific pollutants causing toxicity, and, therefore, non-attainment of our narrative toxicity objective. We do feel that the upper and lower Putah Creek should be given a high priority on a watch list to identify the cause of the toxicity.

I appreciate your giving me a call to discuss this issue.

Joe

CC: Gene Davis; Jerry Bruns

December 13, 2002

Summary of Corrections to 303(d) List Information in GeoWBS

These corrections were based on all the Region 5 comments (emails) on the October 15, 2002 draft 303(d) list and were made by CVRWQCB and SWRCB DWQ staff.

NOTE: the water body name in bold type is the name shown on the October 15, 2002 draft 303(d) list.

American River, Lower (mercury, unknown toxicity):
Name change: Inserted a clarifying description to the water body name that impaired extent is from Nimbus Dam to the confluence with the Sacramento River.
Size change: No change was made to the mapped impaired extent of the water body.

Cache Creek, Lower (mercury, unknown toxicity):
Name change: Inserted a clarifying description to the water body name that impaired extent is from Clear Lake Dam to the Cache Creek Settling Basin near the Yolo Bypass.
Size change: The mapped impaired extent was changed from 84 miles to 96 miles.

Colusa Basin Drainage Canal (all pollutants):
Name change: The name was changed to Colusa Basin Drain
Size change: The mapped impaired extent was changed from 26 miles to 49 miles.

Delta Waterways (chlorpyrifos, DDT, diazinon, Group A pesticides, mercury, and unknown toxicity--area of Delta not impacted by electrical conductivity and organic enrichment/low DO):
Name change: Created a distinct "water only", eastern portion of the Delta. The name was revised to be "Delta Waterways (eastern portion)".
Size change: The mapped impaired extent was changed from 577,089 acres to 20,135 acres.

Delta Waterways (Southern Delta)(chlorpyrifos, DDT, diazinon, group A pesticides, mercury, unknown toxicity, and electrical conductivity):
Name change: Created a distinct "water only", western portion of the Delta. The name was revised to be "Delta Waterways (western portion)".
Size change: The mapped impaired extent was changed from 180,568 acres to 22,904 miles

Delta Waterways (Stockton Ship Channel) (chlorpyrifos, DDT, diazinon, group A pesticides, mercury, unknown toxicity, and organic enrichment/low DO):
Name change: No change to the name of the water body
Size change: Created a distinct "water only"portion of the Delta following the Stockton Deep Water Channel. The mapped impaired extent was changed from 1751 acres to 952 acres.

Delta Mendota Canal (DMC) (selenium):
Name change: Inserted a clarifying description to the water body name that the impaired extent is from O'Neill Forebay to the Mendota Pool.
Size change: No change was made to the mapped impaired extent of the water body.

Dunn Creek (mercury, metals):
Name change: Inserted a clarifying description to the water body name that the impaired extent is below Mt. Diablo Mine to Marsh Creek.
Size change: The mapped impaired extent was changed from 2 miles to 0.7 miles

Englebright Lake (mercury):
Comment change: For clarification, revised comment to read "All resource extraction is from abandoned mines."

Feather River, Lower (diazinon, Group A pesticides, mercury, unknown toxicity):
Name change: : Inserted a clarifying description to the water body name that the impaired extent is from Lake Oroville Dam to the confluence with the Sacramento River.
Size change: The mapped impaired extent was changed from 86 miles to 42 miles

Five Mile Slough (chlorpyrifos, diazinon, low DO, pathogens):
Name change: : Inserted a clarifying description to the water body name that the impaired extent is from Alexandria Place to Fourteen Miles Slough.
Comments change: Removed comments describing impaired extent because they are now part of the water body name.
Size change: The mapped impaired extent was changed from 3.8 miles to 1.6 miles.

Harding Drain (Turlock Irr Dist Lateral #5)(ammonia, chlorpyrifos, diazinon, unknown toxicity):
Name change: Spelled out the abbreviated words in the water body name to read Harding Drain (Turlock Irrigation District Lateral #5).
Size change: The mapped impaired extent was changed from 16 miles to 8.3 miles

Horse Creek (cadmium, copper, lead, zinc):
Name change: Inserted a clarifying description to the water body name that the impaired extent is from Rising Star Mine to Shasta Lake.
Size change: The mapped impaired extent was changed from 1.7 miles to 0.52 miles

Keswick Reservoir (cadmium, copper, zinc):
Name change: Inserted a clarifying description to the water body name that the impaired extent is the portion downstream from Spring Creek.
Size change: The mapped impaired extent was changed from 555 acres to 135 acres.

Kings River, Lower (electrical conductivity, molybdenum, toxaphene):
Name change: Inserted a clarifying description to the water body name that the impaired

extent is from Island Weir to Stinson and Empire Weirs.
Size change: The mapped impaired extent was changed from 52 to 36 miles

Little Cow Creek (cadmium, copper, zinc):
Name change: Inserted a clarifying description to the water body name that the impaired extent is downstream from the Afterthought Mine.
Size change: The mapped impaired extent was changed from 2.7 miles to 1.1 miles.

Lone Tree Creek (ammonia, BOD, EC):
Size change: The mapped impaired extent was changed from 25 miles to 15 miles

Marsh Creek (mercury, metals):
Split water body: Split Marsh Creek into a 10 mile section from Marsh Creek Reservior to the San Joaquin River for mercury and metals and a second 11 mile section from Dunn Creek to Marsh Creek Reservoir for metals only.
Comment change: The comment "Upper 12.7 miles (above Marsh Creek Reservior) is impacted for metals" was deleted because this impacted area is now represented in the water body Marsh Creek (Dunn Creek to Marsh Creek Reservior)

Marsh Creek Reservoir (mercury):
Size change: The mapped extent was changed from 52 acres to 278 acres.

Merced River, Lower (chlorpyrifos, diazinon, Group A pesticides):
Name change: Inserted a clarifying description to the water body name that the impaired extent is from McSwain Reservoir to the San Joaquin River.
Size change: The mapped impaired extent was changed from 51 miles to 50 miles.

Mormon Slough (organic enrichment/low D.O. , pathogens):
Split water body: Split Mormon Slough into a 0.93 mile section from Commerce Street to Stockton Deep Water Channel for organic enrichment/low dissolved oxygen and pathogens and a second 5.2 mile section from Stockton Diverting Canal to Commerce Street for pathogens only.
Comment change: Removed comments describing impaired extent because they are now part of the water body name.

Mosher Slough (chlorpyrifos, diazinon, organic enrichment/low DO, pathogens):
Split water body: Split Mosher Slough into a 1.3 mile section downstream of I-5 for chlorpyrifos, diazinon, organic enrichment/low dissolved oxygen impacts and a second 13.5 mile section upstream of I-5 for pathogen impacts.
Comment change: Removed organic enrichment/low dissolved oxygen comments describing impaired extent because they are now part of the water body name.

Natomas East Main Drainage Canal, upper (diazinon, PCBs):
Split water body: Split Natomas East Main Drainage Canal into a 3.5 mile section downstream of the confluence with Arcade Creek for Diazinon and PCBs and a second

12 mile section upstream of the confluence with Arcade Creek for PCBs.
Name change: Added "aka Steelhead Creek" to the water body name to reflect the fact that the city has recently changed Natomas East Main Drainage Canal to Steelhead Creek.

Old River (low dissolved oxygen):
Name change: Inserted a clarifying description to the water body name that the impaired extent is from the San Joaquin River to Delta-Mendota Canal.
Size change: The mapped impaired extent was not changed.

Orestimba Creek (azinphos-methyl, chlorpyrifos, DDE, diazinon, unknown toxicity):
Split water body: Split Orestimba Creek into a 9.1 mile section above Kilburn Road for azinphons-methyl, chlorpyrifos, DDE, and diazinon impacts and a second 2.7 mile section below Kilburn Road for azinphons-methyl, chlorpyrifos, DDE, diazinon, and unknown toxicity.
Comment change: The original comments were confusing and the new mapping now reflects the true impacted areas. The comments have been deleted because they are now part of the water body names.

Panoche Creek (mercury, sedimentation/siltation, selenium):
Name change: Inserted a clarifying description to the water body name that the impaired extent is from Silver Creek to Belmont Avenue.
Comment change: Deleted the incorrect comment for mercury.
Size change: The mapped impaired extent was changed form 46 miles to 18 miles.

Sacramento River (Red Bluff to Delta) (diazinon, mercury, unknown toxicity):
Split water body: Split Sacramento River (Red Bluff to Delta) into an 82 mile section from Red Bluff to Knights Landing for unknown toxicity and a second 16 mile section from Knights Landing to the Delta for diazinon, mercury, and unknown toxicity.

Sacramento River (Shasta Dam to Red Bluff) (unknown toxicity):
Split water body: Split Sacramento River (Shasta Dam to Red Bluff) into a 16 mile section from Cottonwood Creek to Red Bluff for unknown toxicity and a second 15 mile section from Keswick Dam to Cottonwood for unknown toxicity and cadmium, copper, and zinc on the TMDL Completed List.

Salt Slough (boron, chlorpyrifos, diazinon, EC, unknown toxicity):
Name change: Inserted a clarifying description to the water body name that the impaired extent is upstream from the confluence with the San Joaquin River.
Size change: The mapped impaired extent was changed from 33 miles to 17 miles.

San Carlos Creek (mercury):
Name change: : Inserted a clarifying description to the water body name that the impaired extent is downstream from the New Idria Mine.
Size change: The mapped impaired extent was changed from 8.5 miles to 5.1 miles.

San Joaquin River (Mendota Pool to Bear Creek) (boron, chlorpyrifos, DDT, diazinon, EC, Group A pesticides, mercury, and unknown toxicity)
Comment change: Deleted redundant and unnecessary comments under each pollutant.

Shasta Lake (cadmium, copper, zinc):
Name change: Inserted a clarifying description to the water body name that the impaired extent is only approximately 20 acres of the lake, where West Squaw Creek enters.
Size change: The mapped impaired extent was changed from 27,335 acres to 20 acres.

South Cow Creek (fecal coliform):
Size change: The mapped impaired extent was changed from 3.8 miles to 7.9 miles.

Spring Creek, Lower (acid mine drainage, cadmium, copper, zinc):
Name change: Inserted a clarifying description to the water body name that the impaired extent is from Iron Mountain Mine to Keswick Reservoir.
Comment change: Removed comments describing impaired extent because they are now part of the water body name.

Sulphur Creek (mercury):
Name change: The wrong Sulphur Creek (different county) had been mapped. The creek was re-mapped to be the Sulphur Creek in Colusa County.
Size change: Re-mapping the water body created a size change. The mapped impaired extent was changed from 2.1 miles to 14 miles.

Tuolumne River, Lower (diazinon, Group A pesticides, unknown toxicity):
Name change: Inserted a clarifying description to the water body name that the impaired extent is from Don Pedro Reservoir to the San Joaquin River.
Size change: The mapped impaired extent was not changed.
Comment change: Comments were deleted after verifying the mapped area was accurately representing the impacted area.

West Squaw Creek, Upper and Lower (cadmium, copper, lead, and zinc):
Water bodies combined: Upper and Lower West Squaw Creek were combined to be one segment/water body and the impaired extent begins below the Balaklala Mine.
Name change: Inserted a clarifying description to the water body name that the impaired extent is below Balaklala Mine.
Comment change: Comments on lower squaw creek were deleted because they are now part of the water body name
Size change: The mapped impaired extent was changed from 1.3 miles to 2.0 miles.

Willow Creek (Whiskeytown) (acid mine drainage, copper, zinc):
Name change: Inserted a clarifying description to the water body name that the impaired extent is from below the Greenhorn Mine to Clear Creek and that the creek is in Shasta County. "Whiskeytown" was deleted and Shasta County was added to better reflect the

location of the creek.
Size change: The mapped impaired extent was changed from 6.9 miles to 4.0 miles.

Whiskeytown Reservoir (high coliform count):
Name change: Inserted a clarifying description to the water body name that the impaired extent is only for the areas near Oak Bottom, Brandy Creek Campgrounds and Whiskeytown.
Size change: The mapped impaired extent was changed 3,116 acres to 98 acres.

Wolf Creek (fecal coliform):
Size change: The mapped impaired extent was not changed.

✓Changes Made RS

From: Joe Karkoski
To: Adam Morrill; Craig J. Wilson; Laura Sharpe; Nancy Richard
Date: Thu, Oct 17, 2002 4:48 PM
Subject: 303(d) List Corrections

Sorry for the distribution to all of you, I was not sure who needed to get this message.

The print out from GeoWBS has a number of errors that we would like corrected.

I strongly recommend that the Delta Waterways listing be done in the same manner that it was done previously - i.e. have one data record for Delta Waterways with different extents of impairment identified as needed for each pollutant. The attempt to break up the Delta into 3 sections has introduced significant errors.

1. The estimated size affected is not consistent with the information we provided. It is off by an order of magnitude. My guess is this is because you are including land area + water area in size affected and we provided you with water area. The size affected should just be the water area. Please refer to the fact sheets that we have provided.

2. Only diazinon, chlorpyrifos and mercury are shown as impacting all of the Delta. DDT, Group A pesticides and Unknown Toxicity also should be listed as impairing all of the Delta.

3. The text in many of the comment fields is not consistent with the numbers in the Estimated Size Affected column. See Cache Creek, Five Mile Slough, Mormon Slough, Mosher Slough, and Panoche Creek.

4. There are significant differences between the extent of impairment that we provided to you and the estimated size affected. Please contact Gene on Monday to resolve those issues.

5. I believe we are just providing TMDL schedules for High priority waters. Please remove the comments provided for all of our Low priority waters regarding TMDL end date: after 2015.

Thanks for your help.

Joe

CC: Gene Davis

Summary of Corrections to 303(d) List Information in GeoWBS
Region 5 and SWRCB-DWQ staff
11/7/02 and 11/13/02

American River (mercury, unknown toxicity): verified (and inserted comment) that impaired extent is from Nimbus Dam to the confluence with the Sacramento River.

Cache Creek, Lower (mercury, unknown toxicity): revised impaired extent (and inserted comment) that impaired extent is from Clear Lake Dam to the Cache Creek Settling Basin near the Yolo Bypass.

Colusa Basin Drain (all pollutants): renamed (from Colusa Basin Drainage Canal) and extended total and impaired length to approximately 76 miles.

Delta Waterways (all pollutants <u>except</u> electrical conductivity and organic enrichment/low DO): created a distinct, eastern portion of the Delta.

Delta Waterways (electrical conductivity only): created a distinct, western portion of the Delta.

Delta Waterways (organic enrichment/low DO only): created a distinct portion of the Delta following the Stockton Deep Water Channel.

Delta Mendota Canal (selenium): verified that the extent of impairment is from O'Neill Forebay to the Mendota Pool.

Dunn Creek (mercury, metals): shortened impaired section to extend from below Mt. Diablo Mine to Marsh Creek.

Feather River, Lower (diazinon, Group A pesticides, mercury): verified that impaired section extends from Lake Oroville Dam to confluence with the Sacramento River.

Five Mile Slough (chlorpyrifos, diazinon, low DO, pathogens): shortened impaired section to extend from Alexandria Place.

Harding Drain (ammonia, chlorpyrifos, diazinon, unknown toxicity): shortened impaired section to extend for approximately 8 miles to the San Joaquin River.

Horse Creek (cadmium, copper, lead, zinc): shortened impaired section to extend from the Rising Star Mine to Shasta Lake.

Keswick Reservoir (cadmium, copper, zinc): shrank impaired section from entire lake to only the portion downstream f^ om Spring Creek.

Kings River, Lower (EC, molybdenum, toxaphene): re-defined extent of impairment for South and North Forks.

Little Cow Creek (cadmium, copper, zinc): shortened impaired section to extend for approximately 1 mile downstream from the Afterthought Mine.

Lone Tree Creek (ammonia, BOD, EC): shortened impaired section to approximately 15 miles.

Marsh Creek (mercury, metals): "split" Marsh Creek so that the section from Dunn Creek to the San Joaquin River is impaired for mercury, and the section from Dunn Creek to Marsh Creek reservoir is impaired for metals.

Marsh Creek Reservoir (mercury): expanded the size of Marsh Creek reservoir to approximately 375 acres.

Merced River, Lower (chlorpyrifos, diazinon, Group A pesticides): verified extent of impairment and added comment that impaired section is from McSwain Reservoir to the san Joaquin River.

Mosher Slough (chlorpyrifos, diazinon, organic enrichment/low DO, pathogens): verified comments that Mosher Slough is impaired for chlorpyrifos, diazinon, organic enrichment/low DO for approximately 2 miles downstream from I-5, and is impaired for pathogens for approximately 5 miles.

Natomas East Main Drain (diazinon, PCBs): added comments that the NEMD is impaired by diazinon for the lower 5 miles, and is impaired by PCBS for the entire (approximately 12 miles) length.

Old River (low DO): added comment that Old River is impaired between the San Joaquin River and Mendota Pool.

Orestimba Creek (azinphos-methyl, chlorpyrifos, DDE, diazinon, unknown toxicity): verified that the extent of impairment is from the edge of the valley floor to the San Joaquin River.

Panoche Creek (mercury, sedimentation/siltation, selenium): added comment that impaired extent is from Silver Creek to the City of Mendota.

Sacramento River (Red Bluff to Delta) (diazinon, mercury, unknown toxicity): added comment that impaired extent is from Knights Landing to the Delta.

Sacramento River (Shasta Dam to Red Bluff) (unknown toxicity): verified that impaired extent includes Keswick Reservoir portion of the Sacramento River.

Salt Slough (boron, chlorpyrifos, diazinon, EC, unknown toxicity): shortened extent of impairment to lower approximately 17 miles.

San Carlos Creek (mercury): shortened impaired extent to include only that portion downstream from the New Idria Mine.

Shasta Lake (cadmium, copper, zinc): included only approximately 20 acres of the lake, where West Squaw Creek enters.

South Cow Creek (fecal coliform): lengthened impaired section to approximately 8 miles.

Spring Creek, Lower (acid mine drainage, cadmium, copper, zinc): added comment that Spring Creek is impaired from below Iron Mountain Mine to Keswick reservoir.

Sulphur Creek (mercury): re-located mapped creek to correct location.

Tuolumne River, Lower (diazinon, Group A pesticides, unknown toxicity): added comment that impaired extent is from Don Pedro Reservoir to the San Joaquin River.

West Squaw Creek (cadmium, copper, zinc): lengthened impaired extent to begin below the Balaklala Mine.

Willow Creek (Whiskeytown) (acid mine drainage, copper, zinc): [added comment that, and/or shortened, extent of impairment to extend from below the Greenhorn Mine to Clear Creek.]

Whiskeytown Reservoir (high coliform count): revised impaired extent to include only several areas totaling approximately 100 acres.

Wolf Creek (fecal coliform): verified that entire extent of Wolf Creek is impaired.

5.408

From: Jerry Bruns
To: Wilson, Craig J.
Date: 11/22/02 2:33PM
Subject: Revision of TMDL Completion Dates for 303(d) List

Per direction of the State Board, Region 5 staff has updated the FY02/03 TMDL workplan to reflect changes since the workplans were developed in April 2002. As a result of the workplan updates, we are recommending several changes to the 2002 303(d) list for proposed TMDL completion dates. Changes to the 303(d) list will make the list consistent with the current TMDL workplan.

There will be schedule delays for the mercury TMDLs (Cache Creek, Delta, and Sulphur Creek) because we have been unable to process our mercury analytical contracts through the State Board and DGS contract offices. We submitted the mercury contracts to State Board more than 18 months ago, and are still without contracts. Without the mercury data, we are unable to adequately quantify mercury-loading patterns in these watersheds.

Our changes to the 303(d) list Proposed TMDL Completion date table are:

√Cache Creek Mercury 2005 (previously 2004)
√Delta Waterways Mercury 2005 (previously 2004)
√Sulphur Creek Mercury 2005 (previously 2004)

In addition, we have updated the FY 02/03 TMDL workplan to include the following additional TMDL work: complete technical TMDL reports for Bear Creek (mercury) and Harley Gulch (mercury) in 2004. It is anticipated that these TMDLs would be presented to the Regional Board one year after TMDL report completion. Therefore the 303(d) TMDL Completion dates for these would be as follows:

√Bear Creek (mercury) 2005
√Harley Gulch (mercury) 2005

Please update the 303(d) list Proposed TMDL Completion dates to reflect these changes. Thanks.

CC: Mumley, Thomas; Rasmussen, Rik

From: Joe Karkoski
To: Adam Morrill; Craig J. Wilson; Laura Sharpe; Nancy Richard
Date: 10/17/02 4:48PM
Subject: 303(d) List Corrections

Sorry for the distribution to all of you, I was not sure who needed to get this message.

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1. The estimated size affected is not consistent with the information we provided. It is off by an order of magnitude. My guess is this is because you are including land area + water area in size affected and we provided you with water area. The size affected should just be the water area. Please refer to the fact sheets that we have provided.

2. Only diazinon, chlorpyrifos and mercury are shown as impacting all of the Delta. DDT, Group A pesticides and Unknown Toxicity also should be listed as impairing all of the Delta.

3. The text in many of the comment fields is not consistent with the numbers in the Estimated Size Affected column. See Cache Creek, Five Mile Slough, Mormon Slough, Mosher Slough, and Panoche Creek.

4. There are significant differences between the extent of impairment that we provided to you and the estimated size affected. Please contact Gene on Monday to resolve those issues.

5. I believe we are just providing TMDL schedules for High priority waters. Please remove the comments provided for all of our Low priority waters regarding TMDL end date: after 2015.

Thanks for your help.

Joe

CC: Gene Davis

From: Joe Karkoski
To: Craig J. Wilson
Date: 11/1/02 12:04PM
Subject: Revised Fact Sheet for Deer Creek Listing

Craig,
I have had further discussions of the proposed listing of Deer Creek with experts within our office. Based on those discussions, I believe it would be most appropriate to list Deer Creek for non-attainment of the pH standard only. Nutrients are likely a significant contributor to excessive algal growth, but may not be the primary contributor. Since the problem of excessive algal growth may not be solved solely through control of nutrient inputs, it would not be appropriate to list nutrients as causing non-attainment of standards at this time. I have revised the Fact Sheet to support the listing of pH.

Joe

CC: Gene Davis; jshild@sbcglobal.net; Laura Sharpe

Deer Creek (Yuba River), pH

Summary of Proposed Action
The California Regional Water Quality Control Board, Central Valley Region staff (Regional Board), recommends the addition of Deer Creek to California's Clean Water Act Section 303(d) list due to impairment by pH. Information available to the Regional Board on pH levels in Deer Creek indicates that water quality objectives are not being attained in Deer Creek. The description for the basis for this determination is given below.

303(d) Listing/TMDL Information

Waterbody Name	Deer Creek	**Pollutants/Stressors**	pH
Hydrologic Unit	517.2	**Sources**	
Total Waterbody Size	40 miles	**Original 303(d) Listing Year**	2002
Size Affected	4 miles	**Extent of Impairment**	From Lake Wildwood to confluence with the Yuba River.
Upstream Extent Latitude	39° 14' 03"	**Upstream Extent Longitude**	121° 13' 18"
Downstream Extent Latitude	39° 13' 47"	**Downstream Extent Longitude**	121° 16' 47"

Watershed Characteristics
Deer Creek is located in Nevada and Yuba counties. It flows for approximately 40 miles, passing through Nevada City and Lake Wildwood before joining the Yuba River. The Lake Wildwood Treatment Plant is located approximately four miles above the confluence with the Yuba River.

Water Quality Objectives Not Attained
The numeric objective for pH is not being attained in Deer Creek. The Basin Plan lists the pH criterion range for the protection of sensitive uses, including freshwater aquatic life protection, as 6.5 to 8.5 (CRWQCB-CVR, 1998; http://www.swrcb.ca.gov/~rwqcb5/bsnplnab.pdf). The secondary United States Environmental Protection Agency (USEPA) maximum contaminant level (MCL) to protect drinking water for pH ranges from 6.5 to 8.5 (Marshack, 2000).

The pH objective was evaluated for Deer Creek by comparing pH values measured in Deer Creek to the Basin Plan numeric objective range and the secondary MCL (pH between 6.5 and 8.5).

Evidence of Impairment
Friends of Deer Creek (2002) measured pH monthly (up to 18 measurements) and nutrient (phosphate [PO_4^-] and nitrate [NO_3^-]) levels quarterly (up to 6 measurements) at 6 sites upstream from Lake Wildwood and at four sites downstream of Lake Wildwood between December 2000 and May 2002. Temperature measurements were also taken. pH levels exceeded the Basin Plan numeric criteria (i.e., were greater than 8.5) at several sites downstream from the Lake Wildwood Dam between May and October 2001 (Table 1).

Table 1 – Summary of pH and Nutrient Levels in Deer Creek Between Dec. 2000 and May 2002

PH measurement site	Range of pH Values	Median pH Value	Number (percent) of samples pH measurements exceeded objective (8.5)	Range of Phosphate ($PO_4^{=}$) Levels	Median Phosphate ($PO_4^{=}$) Level	Range of Nitrate (NO_3^-) Levels	Median Nitrate (NO_3^-) Level
Sites 1 – 6 (upstream from Lake Wildwood)	6.03 – 8.30	7.33	1 (1%)	<1 - 1	<1	<1 – 2.5	<0.25
Site 7 (< 0.5 miles downstream from Lake Wildwood)	7.03 – 8.83 (11.47 possible outlier)	7.75	1 (8%; excluding possible outlier)	<1 – 9.50	4.16	<0.25 – 10.00	4.25
Site 8 (approx. 1.5 miles downstream from Lake Wildwood)	7.13 – 9.67	8.58	9 (50%)	<1 – 5.00	2.16	<0.25 – 4.00	0.88
Site 9 (approx. 2 miles downstream from Lake Wildwood)	7.67 – 9.52	8.06	5 (45%)	<1 – 2.75	1.88	<1 – 2.33	1.66
Site 10 (approx. 3 miles downstream from Lake Wildwood)	6.87 – 9.50	8.00	4 (33%)	<1 – 4.00	2.5	<0.5 – 4.00	0.75

Deer Creek is impaired during late spring and summer months by pH levels above 8.5. The high pH levels occur primarily in the reach of Deer Creek downstream some distance from Lake Wildwood. Phosphate, nitrate, and temperature levels are generally higher in this reach than upstream of Lake Wildwood. Monitoring data collected by the Lake Wildwood Treatment Plant 100 feet downstream from their point of discharge do not indicate high pH levels.

Higher spring and summer temperatures, increased hours of sunlight, and increased nutrients (e.g., phosphate and nitrate) likely promote algal growth in Deer Creek. As the algal mass increases it consumes carbon dioxide, displacing the carbonate system in the creek by removing carbonic acid, causing the pH to increase (Masters, 1991).

Friends of Deer Creek conducted a diurnal study at two sites – a 'control' site upstream of Lake Wildwood and an 'experimental' site downstream of Lake Wildwood. pH and other parameters were measured at 6-hour intervals during four days within a one-week period. Temperatures at the 'control' site ranged from 9.20°C to 14.55°C and pH during the same period ranged from 6.53 to 7.13. The pH measurements at the 'control' site generally increased or decreased as the temperature increased or decreased. Temperatures at the 'experimental' site were generally higher than at the 'control' site and ranged from 20.22°C to 29.88°C. pH measurements at the 'experimental' site during the same period were generally higher and ranged more widely from 7.2 to 9.9. The pH measurements at the 'experimental' site fluctuated more widely to temperature diurnal variations than at the 'control' site.

Extent of Impairment

Approximately four miles of Deer Creek, from below the Lake Wildwood Dam to the confluence with the Yuba River, are recommended to be listed as impaired by high pH levels.

Potential Sources

The most likely source of the elevated pH is algal respiration stimulated by warmer temperatures, greater exposure to sunlight, and nutrients downstream from Lake Wildwood.

STATE WATER RESOURCES CONTROL BOARD			Date: 9/13/02
From: Joe Karkoski		Division/Region: RB5 Sac	Phone: 2553368

TO:

Executive Office (EXEC)	Labor Relations	Health & Safety	Div. of Administrative Services (DAS)
Office of Employee Assistance (OEA)	Div. of Water Rights (DWR)	Information Technology (OIT)	Personnel Servic
Office of Statewide Consistency (SC)	Div. of Water Quality (DWQ) Craig J. Wilson	Business Services	Contracts Office
Office of Legislative and Public Affairs (OLPA)	Div. of Clean Water Programs (CWP)	Reproduction & Mail	Accounting Offic
Office of Chief Counsel (OCC)	Office of Policy Development		Budgets Office

ACTION

Appropriate Action	Signature	Review and Return	Informatic
Approval	Reply-Copy to Me	Per your Request	File

COMMENTS

U.S. POSTAL SERVICE

EPA San Francisco	Water Quality Control Institute (San Marcos)

REGIONAL WATER QUALITY CONTROL BOARD

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California Regional Water Quality Control Board

Central Valley Region

Robert Schneider, Chair

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Gray Davis
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Sacramento Main Office
Internet Address: http://www.swrcb.ca.gov/rwqcb5
3443 Routier Road, Suite A, Sacramento, California 95827-3003
Phone (916) 255-3000 • FAX (916) 255-3015

TO: Craig J. Wilson, Chief
TMDL Listing Unit
State Water Resources Control Board

FROM: Joe Karkoski
303(d) List Coordinator

DATE: 10 September 2002

SIGNATURE:

SUBJECT: RECOMMENDATION TO LIST THE LOWER CALAVERAS RIVER FOR IMPAIRMENT DUE TO DIAZINON

In response to your request, Central Valley Regional Water Quality Control Board (Regional Board) staff has reviewed the rationale for placing waters on a "Watch" list. In performing that review, we became aware of additional data on diazinon levels in the lower Calaveras River. This additional data, together with the data that the Regional Board had previously reviewed, suggests that water quality objectives are not attained due to elevated levels of diazinon in the lower Calaveras River. The additional data was available to the Regional Board before 15 May 2001. A fact sheet that summarizes the available data is attached.

Lower Calaveras River, Diazinon

Summary of Proposed Action

The California Regional Water Quality Control Board-Central Valley Region staff (Regional Board) recommends the addition of the lower Calaveras River to California's Clean Water Act Section 303(d) list due to impairment by diazinon. Information available to the Regional Board on diazinon levels in the lower Calaveras River indicates that water quality objectives are not being attained. A description of the basis for this determination is given below.

Table B-1. 303(d) Listing/TMDL Information

Waterbody Name	Lower Calaveras River	**Pollutants/Stressors**	Diazinon
Hydrologic Unit	531.30	**Sources**	Urban Runoff/Storm Sewers
Total Waterbody Size	50 river miles	**TMDL Priority**	
Size Affected	5 miles	**TMDL Start Date (Mo Yr)**	
Extent of Impairment	Between the Stockton Diversion Canal and the San Joaquin River	**TMDL End Date (Mo Yr)**	
Upstream Extent Latitude	37° 59' 38"	**Upstream Extent Longitude**	121° 16' 48"
Downstream Extent Latitude	37° 58' 00"	**Downstream Extent Longitude**	121° 22' 05"

Watershed Characteristics

The lower Calaveras River is located within the San Joaquin Delta Hydrologic Unit, flows through central Stockton, California, and joins the San Joaquin River near Rough and Ready Island.

Water Quality Objectives Not Attained

The narrative objectives for pesticides and toxicity are not being attained for diazinon in the lower Calaveras River. The narrative objective for pesticides states "No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses." The narrative toxicity objective in the Basin Plan states, in part, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." The narrative toxicity objective further states that "The Regional Water Board will also consider ... numerical criteria and guidelines for toxic substances developed by the State Water Board, the California Office of Environmental Health Hazard Assessment, the California Department of Health Services, the U.S. Food and Drug Administration, the National Academy of Sciences, the U.S. Environmental Protection Agency, and other appropriate organizations to evaluate compliance with this objective." (CRWQCB-CVR, 1998; http://www.swrcb.ca.gov/~rwqcb5/bsnplnab.pdf) The California Department of Fish and Game (CDFG) has established freshwater numeric acute (1-hour average) and chronic (4-day average) criteria for diazinon of 80 ng/L and 50 ng/L, respectively, for the protection of aquatic life (Siepmann and Finlayson, 2000).

Evidence of Impairment

Available data summarized by Lee and Jones-Lee (2001) and data reported in the Department of Pesticide Regulation's Surface Water Database (SWDB-2000) were reviewed. Diazinon data summarized by Lee and Jones-Lee were taken in conjunction with toxicity testing. All four samples collected in 1994 had diazinon levels above CDFG criteria (199 ng/L to 450 ng/L). The sample collected in 1996 had a diazinon concentration of 36 ng/L.

The data used from the SWDB were from a report prepared for the city of Stockton's storm water program. Three of six samples collected in 1996 had samples greater than CDFG criteria (130 ng/L, 1,300 ng/L and 1,700 ng/L). Two of the samples (1,300 ng/L and 1,700 ng/L) were taken at two different sites on the same day.

In summary, of the 11 data points available, seven are above CDFG criteria.

Extent of Impairment

Data for the lower Calaveras River includes two sites in the Stockton urban area. Additionally, storm water discharge into the lower Calaveras River from the Stockton urban area is frequently measured at levels above CDFG criteria (Lee and Jones-

Lee, 2001). It is unknown whether the extent of impairment extends upstream of the Stockton urban area. The Regional Board is therefore recommending listing the lower Calaveras River for diazinon between the Stockton Diversion Canal and the San Joaquin River.

Potential Sources

The identified impaired reach of the lower Calaveras River is wholly within the Stockton urban area. The most likely source of diazinon is from storm water runoff from the urban area.

ML
Here's the comment.
I need a short response
CJW
9/4/02

Diazinon." The Draft Report recommendation for diazinon indicates that Del Puerto Creek should be listed "for the lower 5 miles .... The data have shown exceedence of the WQO." Similar incongruities are present in the summaries for the Newman Wasteway and Ingram Hospital Creek summaries. The Draft Report thus fails to identify any specific Water Quality objective that has been exceeded, or to establish a link between the CDFG targets and any water quality objective in the Basin Plan. If any water body remains on the list because of diazinon-related concerns, the specific water quality objective which the Board believes has been exceeded should be identified.

Second, circulation of the Draft Report for comment does not meet the applicable public participation requirements at 40 C.F.R. Part 25. Because Section 303(d) listing "provides the means by which states are required to implement [water quality standards]," *American Littoral,* 2002 U.S. Dist. LEXIS at *16, and because "[i]n performing its *regulatory* function of ensuring water quality by establishing water quality objectives, the [State] Board acts in a legislative capacity," *United States v. State Water Resources Control Board*, 182 Cal. App. 3d 82,112 (1986), the Part 25 public participation requirements are applicable to the Section 303(d) listing process. *See* 40 C.F.R. § 25.2(a)(1).

We recognize that the State Board did require the Regional Boards to solicit comments on the Regional Boards proposals and to prepare responsiveness summaries as detailed at Part 25. But this alone is insufficient to meet Part 25 requirements. A "responsiveness summary" is merely one part of the dynamic public participation process the regulations envision. 40 C.F.R. §25.4(b)(2) also requires that the public be provided with "informational materials" which describe the social, economic, and environmental consequences of an agency's proposed course of action. No such material has been made available for review at any level of this Section 303(d) listings process. Without preparing and allowing public comment on those materials, the Draft Report does not meet the applicable public participation requirements.

VII. CONCLUSIONS

MANA has previously has stated its interest in working constructively with the State government to plan and implement scientifically and legally sound, technically and economically feasible approaches to protecting and maintaining the quality of California's waters. *See* Letter to Betty Yee, Central Valley Regional Water Quality Control Board, Re: Triennial Review and Modification of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basin (February 4, 2002); letter to Gary Carlton and Shakoora Azimi-Gaylon, Central Valley Regional Water Quality Control Board, Re: June 21, 2001 Draft Diazinon and Chlorpyrifos Target Analysis (July 30, 2001). MANA reiterates that interest and looks forward to the opportunity to do so.

STATE WATER RESOURCES CONTROL BOARD			Date: 2/2
From: Joe Karkoski		Division/Region: KBS 5	Phone: 916 255 3368

TO:			
Executive Office (EXEC)	Labor Relations	Health & Safety	Div. of Administrative Services (DAS)
Office of Employee Assistance (OEA)	Div. of Water Rights (DWR)	Information Technology (OIT)	Personnel Servic
Office of Statewide Consistency (SC)	Div. of Water Quality (DWQ) Craig J. Wilson	Business Services	Contracts Office
Office of Legislative and Public Affairs (OLPA)	Div. of Clean Water Programs (CWP)	Reproduction & Mail	Accounting Offic
Office of Chief Counsel (OCC)	Office of Policy Development		Budgets Office

ACTION			
Appropriate Action	Signature	Review and Return	Informatic
Approval	Reply-Copy to Me	Per your Request	File

COMMENTS

U.S. POSTAL SERVICE	
EPA San Francisco	Water Quality Control Institute (San Marcos)

REGIONAL WATER QUALITY CONTROL BOARD		
1- Santa Rosa	5- Sacramento	6- Victorville
2- Oakland	5- Fresno	7- Palm Desert
3- San Luis Obispo	5- Redding	8- Riverside
4- Los Angeles	6- South Lake Tahoe	9- San Diego

California Regional Water Quality Control Board

Central Valley Region

Robert Schneider, Chair

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

Sacramento Main Office
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3443 Routier Road, Suite A, Sacramento, California 95827-3003
Phone (916) 255-3000 • FAX (916) 255-3015

TO: Craig J. Wilson, Chief
Monitoring and TMDL Listing Unit
SWRCB, Division of Water Quality

FROM: Joe Karkoski
303(d) List Coordinator

DATE: 1 July 2002

SIGNATURE: Joe Karkoski

SUBJECT: FRAMEWORK FOR DEVELOPING CALIFORNIA'S 303(D) LIST – MAY 15, 2002 DRAFT (DRAFT FRAMEWORK)

Thank you for giving the Regions an opportunity to review your Draft Framework. Developing a framework document as a first step in developing the more comprehensive listing policy is a good approach and will help ensure that we are addressing the key aspects of the listing policy. My comments are based on the Draft Framework document you provided and the accompanying background material, the discussion at our 28 May 2002 advisory group meeting, and our earlier review of the State Board's proposed 2002 listing policy (comment letter dated 22 January 2002).

General Comments

Policy Scope – The listing policy should be broader then the title of the framework indicates. The policy should address how *all* impaired surface waters are going to be identified and how priorities will be established for addressing those impairments. The Clean Water Act § 303(d) only requires a subset of all impaired surface waters be identified (i.e. pollutants in waters of the U.S. needing TMDLs for which BAT/BCT or other pollution control requirements are not sufficient to attain standards). A broader framework will give the State an opportunity to describe how we plan to address surface water quality problems both within and outside of the TMDL framework. The suggested change in the title is: "*Framework for Developing California's List of Impaired Surface Waters and Clean Water Act Section 303(d) List*".

Additional Sections/Discussion – The Draft Framework should include a number of additional topics to completely define the listing policy. There should be a *Definitions* section. Key terms or concepts should be defined in this section – e.g. pollution vs. pollutant; readily available information; enforceable program. There should be a section that clearly describes the *Documentation* that is expected from those submitting data/recommendations, the documentation that the Regional Boards are expected to submit to the State Board, and the documentation that will be considered a part of the administrative record. There should be a discussion of who will be developing responses to comments and at what point(s) a responsiveness summary will be prepared. There should be a section that describes acceptable guidelines/criteria for interpreting narrative water quality objectives (e.g. what specific values can we use to evaluate contaminants in fish tissue, pesticides in the water column, etc.).

Interpretation of Water Quality Objectives – There are a number of areas in the draft framework that touch on interpretation of both narrative and numeric water quality objectives or standards. Some of the options suggest that a uniform method for interpreting objectives can be developed. If applied in a uniform fashion, these options (e.g. the binomial method, a raw score approach with a selected percent exceedance) may be inconsistent with the manner in which the water quality objectives/standards or criteria are expressed and/or with existing Regional Board policies. For example, we have electrical conductivity objectives expressed as a percentile (e.g. the 90th percentile can not exceed 230 micromhos/cm) and maximum concentrations for other constituents expressed over different averaging periods (e.g. 4-day average, monthly mean). When we review information on bioaccumulatives, we will look at the mean tissue levels and compare those to criteria.

The various ways in which standards are expressed is not conducive to choosing a single acceptable exceedance rate. It should be noted that, in general, existing water quality objectives and standards neither state nor imply an allowable frequency of exceedance. Except for the CTR aquatic life standards and aquatic life criteria derived using U.S. EPA's methodology (Stephan, et al, 1985)[1], our objectives are stated as maxima. Allowing a maximum level to be exceeded at a specific frequency would essentially be changing the water quality objective, which is beyond the scope of this policy.

As an alternative to establishing an allowable frequency of exceedance, we would suggest that the policy state that waters will be listed when the water quality problem is recurring (for event-based water quality problems) or chronic (e.g. for bioaccumulatives). We do not believe waters should be listed as impaired based on data from a one-time occurrence. The policy could elaborate on how we make distinctions between recurring, chronic, and one-time surface water quality problems.

We would also note that the Central Valley Region has a rather detailed policy on how to apply water quality objectives in our Basin Plan (*Policy for Application of Water Quality Objectives* – page IV-16.00 of our Sacramento/San Joaquin Basin Plan – our Tulare Lake plan has similar language). In addition, our narrative toxicity objective describes in detail the methods that will be used by the Regional Board to determine compliance with the objective. Any listing policy developed by the State Board must take into consideration existing policies that are binding on the Regional Board.

Schedules to Address Identified Surface Water Quality Impairments – As stated above, we support the development of a comprehensive list of impaired surface waters. We also believe that a comprehensive priority ranking and short-term schedule should be developed. The public should be able to determine what our priorities and schedule are for addressing all identified surface water quality impairments, not just the priorities for those surface waters for which TMDLs will be developed. The comprehensive schedule (for "TMDL" and "non-TMDL" waters) should be consistent in terms of the time frame (e.g. identifying key milestones over the next 2-5 years). Should a comprehensive list be used, tracking of implementation activities will be important. Once the TMDL or other planning action is completed, a water body will still be impaired until implementation takes place and the water body has time to respond to the implementation activities. Implementation actions should be tracked so that we can demonstrate to the public that we are working on fixing identified water quality problems.

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[1] Aquatic life criteria derived using US EPA's methodology allow a once every three years average exceedance rate. Stephan, et al, 1985 – Guidelines for deriving numerical national water quality criteria for the protection of aquatic organisms and their uses. PB85-227049. National Technical Information Service, Springfield, VA.

Level of Effort – As currently outlined, the listing policy could require a significant staff effort. For the 2002 listing update, we budgeted approximately 2 PYs. The current framework could significantly expand the amount of documentation required and therefore the staff effort needed. This must be taken into consideration as the policy is developed. We would suggest that, prior to adoption of the policy, each Regional Board try to implement the policy on a pilot basis. Each Region could go through the process of documenting their decision making for one 303(d) listing, one non-303(d) listing, a decision not to list, and a decision to delist a water and pollutant. We should not adopt the policy until we have a better idea of the level of effort that is implied by the policy. By trying out the policy prior to adoption, we should be able to identify potential problems with application of the policy and make corrections.

Regional Board Staff Participation in Policy Development – Regional Board staff that have responsibility for conducting surface water quality assessments should have a more active role in development of this policy. The Regional Boards will collectively continue to bear the greatest burden in preparation of the list of impaired surface waters and the Regions collectively have the most experience in performing water quality assessments. We believe that the State Board has a primary role in ensuring the policy is completed, but the Regions can contribute substantially to the development of key aspects of the policy. We are concerned that if the Regions are to provide input primarily through written comments on State Board draft documents, the benefits of the experience of the Regions and the creative approaches that we can offer will be lost. We would like to offer our assistance in developing key aspects of the listing policy. We would be happy to work with you and the other Regions to identify those areas of the policy that could benefit most from our participation. In working with you in developing this policy, a clear schedule with specific interim milestones will help us ensure that we stay on track and that we (at the Regions) set aside the time necessary to work on this policy.

Specific Comments

RWQCB Solicitation – either in this section or a definitions section, readily available data and information must be defined. As we discussed at our May meeting, "readily available" can have different meaning even to different Regional Boards. This section should, therefore, not only describe how we will solicit information externally, but how we will gather information internally.

RWQCBs Fact Sheet Preparation – We will need clarification as to whether fact sheets are to be prepared for all waters and pollutants on the list or whether fact sheets are just needed for changes.

Fact Sheets to Support Decisions vs. to Describe Data Evaluated: The type of fact sheet to support a decision to list or delist should be different than a fact sheet describing how we considered data that did not support a listing or delisting. For example, in one USGS report for the Sacramento Valley, 83 pesticides were analyzed at four sites. The current framework suggests that 332 fact sheets would need to be prepared even though very few pesticides were detected at environmentally relevant concentrations. For data not used, we should develop a more succinct fact sheet that would briefly describe why the data did not support a listing (or delisting) decision.

Description of Numeric and Non-numeric Data and Information: The description of numeric and non-numeric data should be limited to information needed to support the listing/delisting decision. Our ability to successfully complete the fact sheets as outlined will depend greatly on the level of detail

expected for each of the bulleted items. This is another area where a "trial run" to test out the listing policy prior to adoption would be beneficial.

RWQCB evaluation of data and information

This section will be the most difficult to define. We believe the Regions and State Board should work together to identify pollutants that will be amenable to using similar evaluation methods across Regions (e.g. CTR pollutants) and pollutants that will need to consider region or site specific conditions (e.g. nutrient or algae problems). For pollutants that should be evaluated in a similar fashion across the State, acceptable numeric criteria and guidelines for interpretation should be identified. For other pollutants or pollution, a more general or narrative description of how to evaluate data should be developed.

Formulating the RWQCB recommendations

As stated above, we support the development of a comprehensive list of impaired surface waters.
Monitoring Priority List: We also support the concept of a monitoring priority list. The monitoring priority list should not be considered a "watch" list, but should comprehensively describe the surface water quality monitoring priorities for each Region. The monitoring priority list would encompass monitoring performed as part of TMDL development, addressing pollution problems, compliance monitoring, and routine ambient monitoring. We do not believe that a water body should automatically be placed on a "Monitoring Priority List", if data is insufficient to assess the water body. There are many water bodies with insufficient data to determine whether impairment exists and it would not be possible to make each one a priority for monitoring.
Provide information on State's 305(b) Report: the type of information to be provided should be clarified. It should be noted that the 305(b) report does not appear to allow one to indicate that a water body has been evaluated but the beneficial use status is indeterminate. When evaluating information on pollutants, we may be able to state that for particular pollutants standards are being met, but we rarely have comprehensive assessment information that would allow us to state that beneficial uses are fully supported.

Priority Ranking

In developing priorities for TMDL development, we should consider the most effective method for describing to the public how we came to our specific priorities. At this point, it can be difficult for the public to determine how we applied the priority ranking factors to each specific water body. A method to score each factor may help make the prioritization process more transparent. In addition, we would like the State Board to consider other factors that the Regions have taken into account (see for example pages 19 and 20 of our recommended changes to the 303(d) list – December 2001).

RWQCB and SWRCB review processes

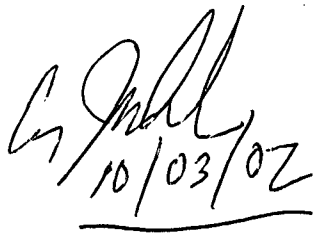
The relative roles and responsibilities will need to be described very clearly. To the extent possible, we should avoid redundant hearing and review processes. For example, public hearings at both the Regional Board and State Board level that will essentially review the same information appears redundant. One possibility is to limit the State Board's review to appeals or comments on specific Regional Board recommendations. Another possibility is to limit State Board's review to the listing or delisting recommendations and not have the State Board review or change prioritization or scheduling matters.

If you have any questions about these comments, please give me a call at (916) 255-3368.

As per conversation with Joe Karkoski on 10/3/02, the discrepancies in Water Body Sizes will be handled by leaving the smaller discrepancies to the GeoWBS sizes. This was decided after SWRCB staff spent time with the RWQCB staff in accurately mapping the Water Bodies for the 303(d) List, and entered those sizes into GeoWBS.

The Delta will remain split into three pieces. The proportion of the RWQCB's recommended change in size to 48,000 acreswill be taken for each segment and written into the comment field for each pollutant in the Delta Waterways as listed in GeoWBS.

These changes will be made by the SWRCb to the 2002 (GeoWBS print out) of the CWA section 303(d) List.



From: Joe Karkoski
To: Adam Morrill; Craig J. Wilson; Laura Sharpe; Nancy Richard
Date: 10/17/02 4:48PM
Subject: 303(d) List Corrections

Sorry for the distribution to all of you, I was not sure who needed to get this message.

The print out from GeoWBS has a number of errors that we would like corrected.

I strongly recommend that the Delta Waterways listing be done in the same manner that it was done previously - i.e. have one data record for Delta Waterways with different extents of impairment identified as needed for each pollutant. The attempt to break up the Delta into 3 sections has introduced significant errors.

1. The estimated size affected is not consistent with the information we provided. It is off by an order of magnitude. My guess is this is because you are including land area + water area in size affected and we provided you with water area. The size affected should just be the water area. Please refer to the fact sheets that we have provided.

2. Only diazinon, chlorpyrifos and mercury are shown as impacting all of the Delta. DDT, Group A pesticides and Unknown Toxicity also should be listed as impairing all of the Delta.

3. The text in many of the comment fields is not consistent with the numbers in the Estimated Size Affected column. See Cache Creek, Five Mile Slough, Mormon Slough, Mosher Slough, and Panoche Creek.

4. There are significant differences between the extent of impairment that we provided to you and the estimated size affected. Please contact Gene on Monday to resolve those issues.

5. I believe we are just providing TMDL schedules for High priority waters. Please remove the comments provided for all of our Low priority waters regarding TMDL end date: after 2015.

Thanks for your help.

Joe

CC: Gene Davis

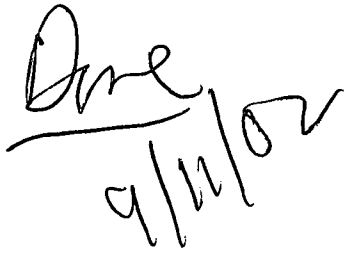
From: Joe Karkoski
To: Craig J. Wilson
Date: 9/11/02 1:48PM
Subject: San Joaquin River Selenium Listing and TMDL

The Central Valley Regional Board completed a TMDL for selenium in the San Joaquin River which was approved by US EPA. The applicable reach for this TMDL is from the confluence with the Merced River to the south Delta boundary. The San Joaquin River from Mud Slough to the confluence with the Merced River should still be listed as not attaining standards for selenium. The reach that is not attaining standards is approximately 3 river miles long.

Please give me or Les Grober a call if you have any questions about this.

Joe Karkoski
Sacramento Watershed TMDL Unit Chief
California Regional Water Quality Control Board
Central Valley Region
3443 Routier Road, Suite A
Sacramento, CA 95827

Phone (916) 255-3368
Fax (916) 255-0752
E-mail karkosj@rb5s.swrcb.ca.gov



CC: Gene Davis; Les Grober

RS

From: Joe Karkoski
To: Laura Sharpe
Date: 4/25/02 2:38PM
Subject: Draft Comments on State Board's 303(d) List Recommendations

Attached are detailed comments on differences we noted between the State Board's staff report and the recommendations that we provided. My assumption is that the majority of the discrepancies or differences are due to transcription errors (taking the information from our fact sheets and putting them into your fact sheets). Also please note that our "Watch List" was not included in the State Board staff report.

There are a couple of substantive issues that we would like to address. One issue is the description of priorities in Table 5. Federal law requires us to establish a priority ranking for all listed waters. At this point it would appear that the priorities from 1998 would be carried over into 2002, unless otherwise described in Table 5. This would change the recommendations that we made to you. Also, none of our added listings have been given priorities. To make the priorities perfectly clear, I would suggest that Table 5 include a list of all listed waters (the 1998 list plus additions - deletions) with the associated priorities.

The other issue is the continued identification of waters/pollutants on the list for which TMDLs have been completed. Federal regulations require us to identify water quality limited segments still requiring TMDLs (130.7). Including waters on the 303(d) list that do not require TMDLs is confusing and appears to be contrary to regulations.

Please give me a call to set up a time to discuss our comments.

Joe

CC: Craig J. Wilson; Debbie Daniels; Gene Davis; Jerry Bruns

Stylistic Issues:

- Many of the sections/tables used difference nomenclature for the waterbodies, thus placing the waterbodies in different alphabetical orders.
    - Example: Lower Bear River: Table 1 lists it in with the L's, with all of the other waterbodies with "Lower" in their name, while the Summary of Recommendations lists it in with the B's, directly below Bear Creek.
- For the summary of recommendations:
    - Not all of the recommendations list criteria.
    - The lexis used was not uniform between waterbody-pollutant pairs.
- For Fact Sheets:
    - The lexis used was not uniform between waterbody-pollutant pairs, especially in the Data and SWRCB Staff Recommendation sections.

Specific issues:

- The BU (based on the criteria used to demonstrate impairment) for the following waterbody-pollutant pairs were incomplete or incorrect:
    - Avena Drain- Pathogens: add Rec1, delete Aquatic Life.
    - Bear Creek- Hg: add MUN and Fish Consumption, delete Aquatic Life.
    - Camanche Res- Al: add MUN.
    - Mokelumne River- Al: add MUN
    - American River- GAP: add Fish Consumption and Wildlife, delete Aquatic Life.
- Upper and Lower Putah Creeks-UTX:
    - These two listings were changed from a recommendation of being added to the 303(d) list to a recommendation of being on the watch list.
- Watch List (Table 4):
    - No other waterbody-pollutant pairs on our watch list (RWB Table 2) were added to their list.
- TMDL Priorities and Completion Dates (Table 5):
    - The following waterbodies have 2 different TMDL completion priorities and completion dates: Clear Lake, Feather River, SJR, Sulfur Creek.
    - Not all TMDLs have a completion date.
    - The following waterbody-pollutant pairs had their TMDL priorities changed by the Regional Boards and/or the State Board:

Waterbody-Pollutant	**1998 303(d) list: TMDL Priority; Due date**	**2002 Regional Board Suggested Change: Priority; Due Date**	**State Board Suggested Change to 1998 303(d) List:**
American River- Hg	Medium; 2011	Low; After 2015	None
American River- UTX	Low; 2011	Low; After 2015	None
Arcade Crk- Diaz and Chlor	Medium; 2011	High; 2003	Adopted RWB suggested Change
Berryessa Lake- Hg	High; 2005	Low; After 2015	None
Cache Creek- Hg	High; 2005	High; 2004	Adopted RWB suggested Change

Cache Creek- UTX	Medium; 2011	Low; After 2015	None
Chicken Ranch Slu- Chlor, Diaz	Medium; 2011	High; 2003	Adopted RWB suggested Change
Clear Lake- Hg	High; 2005	High; 2002	High: 2003 Medium; No date
Clear Lake- Nutrients	Low; 2011	Medium; 2008	None
CBD- Carbofuran/Furadan, GAP, Malathion, UTX	Medium; 2011	Low; After 2015	None
Davis Creek Res-Hg	Medium; 2011	Low; After 2015	None
Delta- Chlor, Diaz, Hg	High; 2005	High; 2004	Sacramento Delta Waterways: Medium; No date
Delta- DDT, EC, GAP	Low; 2011	Low; After 2015	None
Delta- Hg	High; 2005	High; 2004	Sacramento Delta Waterways: State Board Adopted 2 separate listings: High; 2004 Medium; No date
Delta- Low DO	High; 2011	High; 2005	Sacramento Delta Waterways: High; 2004
Delta- UTX	Medium; 2011	Low; After 2015	None
Dolly Crk- Cu, Zn	Medium; 2011	Low; After 2015	None
Dunn Crk- Hg and Metals	Low; 2011	Low; After 2015	None
Elder Crk- Chlor, Diaz	Medium; 2005	High; 2003	Adopted RWB suggested Change
Elk Grove- Diaz	Medium; 2005	High; 2003	Adopted RWB suggested Change
Fall River (Pit)- Sedimentation/Silt	Medium; 2005	Low; After 2015	None
Feather River- Diaz	High; 2005	High; 2003	State Board Adopted 2 separate listings: High; 2003 Medium; No date
Feather River- GAP	Low; 2011	Low; After 2015	None
Feather River- UTX	Medium; 2011	Low; After 2015	None
5 Mile Slu- Chlor and Diaz	Medium; 2011	Medium; 2012	None

French Ravine-Bacteria	Low; 2011	Low; After 2015	None
Grasslands Marshes-EC	Medium; 2011	Low; After 2015	None
TID5- Ammonia	Low; 2011	Low; After 2015	None
TID5- Chlor, Diaz, UTX	Medium; 2011	Low; After 2015	None
Harley Gulch- Hg	Medium; 2011	High; 2005	None
Horse Creek- Metals	Low; 2011	Low; After 2015	None
Humbug Creek- All Pollutants	Low; 2011	Low; After 2015	None
James Creek- Hg, Nickel	Low; 2011	Low; After 2015	None
Kanaka Creek-Arsenic	Low; 2011	Low; 2015	None
Keswick Res-Metals	Medium; 2011	Low; After 2015	None
Kings River, Lower-All Pollutants	Low; 2011	Low; After 2015	None
Little Backbone Crk- AMD, Metals	Medium; 2011	Low; After 2015	None
Little Cow Creek-All Metals	Low; 2011	Low; After 2015	None
Little Grizzly Creek- Cu, Zn	Medium; 2002	High; 2005	None
Lone Tree Creek-All Pollutants	Low; 2011	Low; After 2015	None
Marsh Creek- Hg, Metals	Low; 2011	Low; After 2015	None
Marsh Creek Res-Hg	Medium; 2011	Low; After 2015	None
Merced River, Lower- Diaz, Chlor	High; 2005	Medium; 2006	Medium; No date
Merced River, Lower- GAP	Low; 2011	Low; After 2015	None
Mokelumne River, Lower- Cu, Zn	Low; 2011	Low; After 2015	None
Morrison Creek-Diaz	Medium; 2005	High; 2003	Adopted RWB suggested Change
Mosher Slu- Diaz, Chlor	Medium 2011	Medium 2012	None
Mud Slu- Boron, EC, Pesticides, UTX	Low; 2011	Low; After 2015	None
NEMD- Diaz	Medium; 2011	Medium; After 2015	High; 2003
NEMD- PCBs	Low; 2011	Low; After 2015	None

Orestimba Creek- Chlor, Diaz	Medium; 2011	Medium; 2010	None
Orestimba Crk-UTX	Medium; 2011	Low; After 2015	None
Panoche Creek- All Pollutants	Low; 2011	Low; After 2015	None
Pit River- All Pollutants	Low; 2011	Low; After 2015	None
Sac River (RB to Delta)- Diaz	High; 2005	High; 2003	State Board Adopted 2 separate listings: High; 2003 Medium; No date
Sac River (RB to Delta)- Hg	High; 2005	Medium; 2006	None
Sac River (RB to Delta)- UTX	Medium; 2011	Low; After 2015	None
Sac River (SD to RB)- Cd, Cu, Zn	High; 12/01	High; 2001	High; 2002
Sac River (SD to RB)- UTX	Medium; 2011	Low; After 2015	None
Sac Slu- Diaz	Medium; 2011	Medium; 2009	None
Sac Slu- Hg	Medium; 2011	Low; After 2015	None
Salt Slu- Boron, Chlor, Diaz, EC, UTX	Low; 2011	Low; After 2015	None
San Carlos Creek- Hg	Low; 2011	Low; After 2015	None
SJR, Lower -Boron, EC	High; 1999	High; 2002	High; 2003
SJR, Lower - Chlor, Diaz	High; 2005	High; 2003	State Board Adopted 2 separate listings: High; 2003 Medium; No date
SJR, Lower - DDT, GAP	Low; 2011	Low; After 2015	None
SJR, Lower Selenium	High; 2000	High; 2001	None
SJR, Lower - UTX	Medium; 2011	Low; After 2015	None
Shasta Lake- Metals	Low; 2011	Low; After 2015	None
Spring Creek- AMD, Metals	High; 2011	Low; After 2015	None
Stanislaus River, Lower- Diaz (no Chlorpyrifos)	High; 2000	High; 2004	Stanislaus River- Chlor/Diaz: Medium; No Date
Stanislaus River, Lower- GAP	Low; 2011	Low; After 2015	None

Stanislaus River, Lower- UTX	Medium; 2011	Low; After 2015	None
SDWC- All Pollutants	Medium; No Date	Low; After 2015	None
Strong Ranch Slu- Chlor, Diaz	Medium; 2005	High; 2003	Adopted RWB suggested Change
Sulfur Creek- Hg	High; 2005	No change	State Board Adopted 2 separate listings: High; 2004 Medium; No date
Temple Creek- Ammonia, EC	Low; 2011	Low; After 2015	None
Town Creek- All Metals	Low; 2011	Low; After 2015	None
Tuolumne River, Lower- Diaz (no Chlorpyrifos)	High; 2005	Medium; 2006	Tuolumne River- Chlor/Diaz: Medium; No Date
Tuolumne River, Lower- GAP	Low; 2011	Low; After 2015	None
Tuolumne River, Lower- UTX	Medium; 2011	Low; After 2015	None
West Squaw Creek- Metals	Medium; 2011	Low; After 2015	None
Whiskeytown Res- High Coliform Count	Low; 2011	Low; After 2015	None
Willow Creek (Whiskeytown)- AMD, Cu, Zn	Low; 2011	Low; After 2015	None

Red lettering was used if the SWRCB made a change that was different from the RWBs change or if they added a pollutant, changed the name of the waterbody, did not include a TMDL due date, or included 2 different TMDL priorities.
Green lettering was used if the SWRCB accepted the RWBs change.
Black lettering was used if the SWRCB did not accept the RWBs change and if the change was going to delay the TMDL due date and/or decrease the TMDLs priority.
Sky Blue lettering was used if the SWRCB did not accept the RWBs change and if the change was going to move up the TMDL due date.

TMDL Priority and End Dates for Waterbody-Pollutant/Stressor Pairs that the Regional Board recommends for addition to the 2002 303(d) List:

Waterbody	Pollutant/Stressor	Priority	TMDL End Date (Year)
Arcade Creek	Copper	Low	After 2015
Avena Drain	Ammonia	Low	After 2015
	Pathogens	Low	After 2015
Bear Creek	Mercury	High	2005

Waterbody	Pollutant/Stressor	Priority	TMDL End Date (Year)
Bear River, Lower	Diazinon	Medium	2006
Bear River, Upper	Mercury	Medium	2015
Black Butte Reservoir	Mercury	Medium	2008
Butte Slough	Diazinon	Medium	2009
	Molinate	Low	After 2015
Calaveras River, Lower	Dissolved Oxygen	Low	After 2015
	Pathogens	Low	After 2015
Camanche Reservoir	Aluminum	Low	After 2015
	Copper	Low	After 2015
	Zinc	Low	After 2015
Camp Far West Reservoir	Mercury	Medium	2015
Clover Creek	Fecal Coliform	Low	After 2015
Colusa Drain	Azinphos Methyl	Medium	2015
	Diazinon	Medium	2015
	Molinate	Low	After 2015
Del Puerto Creek	Chlorpyrifos	Low	After 2015
	Diazinon	Low	After 2015
Don Pedro Lake	Mercury	Low	After 2015
Five Mile Slough	Dissolved Oxygen	Low	After 2015
	Pathogens	Low	After 2015
Ingram/ Hospital Creek	Chlropyrifos	Low	After 2015
	Diazinon	Low	After 2015
Jack Slough	Diazinon	Medium	2006
Lake Combie	Mercury	Medium	2012
Lake Englebright	Mercury	Medium	2011
Little Deer Creek	Mercury	Low	After 2015
Mokelumne River, Lower	Aluminum	Low	After 2015
Mormon Slough	Low Dissolved Oxygen	Low	After 2015
	Pathogens	Medium	2012
Mosher Slough	Low Dissolved Oxygen	Low	After 2015
	Pathogens	Low	After 2015
Newman Wasteway	Chlorpyrifos	Low	After 2005
	Diazinon	Low	After 2005
Oak Run Creek	Fecal Coliform	Low	After 2015
Orestimba Creek	Azinphos Methyl	Medium	2010
	DDE	Low	After 2015
Putah Creek, Lower	Mercury	Low	After 2015
	Unknown Toxicity	Low	After 2015
Putah Creek, Upper	Unknown Toxicity	Low	After 2015
Rollins Reservoir	Mercury	Medium	2010

Waterbody	Pollutant/Stressor	Priority	TMDL End Date (Year)
San Joaquin River	Mercury	Medium	2013
Scotts Flat Reservoir	Mercury	Medium	2012
Smith Canal	Low Dissolved Oxygen	Low	After 2015
	Organo-phosphorus Pesticides	Medium	2015
	Pathogens	Low	After 2015
South Cow Creek	Fecal Coliform	Low	After 2015
Stanislaus River, Lower	Mercury	Low	After 2015
Stockton Deep Water Channel	Pathogens	Medium	2014
Sutter Bypass	Diazinon	Medium	2012
Walker Slough	Pathogens	Medium	2014
Wolf Creek	Pathogens	Low	After 2015

- For the fact sheets:
  - Many of the fact sheets counted the number of years for which there was data. But, they used different methods. So, if the data went from 1992 to1996, some would put 4 years and some 5 years. None said "water years."
  - Other, specific data errors appear to have occurred in the following fact sheets:

Waterbody-Pollutant	Data Presented by SWRCB:	Needs to be changed to:
Avena Drain- Pathogens	Linkage: Pathogens linked to Aquatic Life	Linkage: Pathogens linked to Recreation-1 beneficial uses.
Bear Creek- HG	Linkage: Mercury linked to Aquatic Life	Linkage: Mercury linked to Municipal water uses and fish consumption.
Lower Calaveras River-Pathogens	Data: "However, all of the Downstream samples individually exceed the USEPA 'single' sample criteria for E. coli levels."	Data: "However, some of the Downstream samples individually exceed the CDHS 'single' sample criteria for E. coli levels."
CBD- Diazinon	1. Data=6 years (1994-2000). 2. Data were collected for 6 years from 1994-2000.	1. Data= 5 years (between 1994 and 2000). 2. Data were collected for 5 years between 1994 and 2000.
Ingram/Hospital- Chlor	"...14 total of 26 (54%)..."	(incorrect statement... delete)
Ingram/Hospital-Diaz	"...27 total of 32 (84%)..."	(incorrect statement... delete)

Lake Combie-Hg	Potential Source(s) of Pollutant: Unknown	Potential Source(s) of Pollutant Resource Extraction (Abandoned Mines)
Little Deer Crk- Hg	9 trophic level 3 fish	6 trophic level 3 fish
Mokelumne River- Al	13 exceeded the MCL criterion	24 exceeded the MCL criterion
Mormon Slu-Pathogens	Utility of measurement for judging if standards or uses are not attained: Basin Plan WQO	Utility of measurement for judging if standards or uses are not attained: CDHS and U.S. EPA.
Mosher Slu-Pathogens	1. Utility of measure for judging if standards or uses are not attained: Basin Plan WQO 2. Data= 1 Year (2001) 3. The data was collected during 2001 from May-February	1. Utility of measure for judging if standards or uses are not attained: CDHS and U.S. EPA. 2. Data= 10 months (in 2000 and 2001) 3. The data was collected from May 2000-February 2001
Newman Wasteway-Chlor	"...4 total of 10 (40%)..."	(incorrect statement... delete)
Newman Wasteway- Diaz	"...7 total of 10 (70%)..."	(incorrect statement... delete)
Lower Putah Creek-Hg	The trophic level 3 fish had 6 fish exceeding the 0.3 ppm USEPA criteria.	The trophic level 3 fish had 5 of 6 fish (83%) exceeding the 0.3 ppm USEPA criteria.
Lower Putah Creek- UTX	1. impaired reproduction and mortality. Further TIE test were run and the tests failed to pinpoint the cause, while ammonia and pathogenicity were illuminated as causes. 2. Data type: Numerical data.	1. impaired reproduction and/or mortality. Further TIE test were run and the tests failed to pinpoint the cause. However, ammonia and pathogenicity were eliminated as causes. 2. Data type: Toxicity, TIE, and Numerical data for diuron, ammonia, and pathogens.

Upper Putah Creek- UTX	1. The results showed an unknown toxicant that suggests that a non-polar, organic chemical... 2. Overall approximately 20% of the samples resulted in unknown toxicity. 3. Data type: Numerical data.	1. The results indicate a non-polar, organic chemical may be partially responsible for the toxicity. 2. Overall 5 out of 12 (42%) of the samples resulted in toxicity or impairments. 3. Data type: Toxicity, TIE data, and Numerical data for metals.
SJR- Hg	SWRCB Staff Recommendation: List: List Lower SJR for Mercury.	SWRCB Staff Recommendation: List Lower SJR for Mercury from its confluence with Bear Creek to Vernalis.
Smith Canal- OPs	1. 4/8 samples showed survival impairment on the first day and 8/8 samples showed 100% mortality to Ceriodaphnia within 7 days. 2. Diazinon and Chlorpyrifos were ruled out.	1. 4/8 samples showed survival impairments, indicated by 100% mortality to Ceriodaphnia within 7 days. 2. Diazinon and Chlorpyrifos were ruled out as the sole OPs responsible for the toxicity.
Smith Canal-Pathogens	1. Data= 1 Year (2001) 2. Temporal representation: "The data were collected during one year (2001)." 3. "The locations all exceeded the USEPA criteria for E. coli." 4. Linkage: "Basin Plan WQO for toxicity for pathogens."	1. Data= 10 months (May 2000 to Feb 2001) 2. Temporal representation: "The data were collected during10 months (May 2000 to Feb 2001)." 3. Every location exceeded CDHS' single sample criteria (235 MPN) between 20% and 100% of the time. 4. Linkage: Pathogens linked to Recreation-1 WQO for Bacteria (quoted from Oak Run-Fecal Coliform).
Sutter Bypass-Diaz,	"...24 total exceedances of 78 samples..."	(incorrect statement... delete)

Walker Slu-Pathogens	Some exceeded by up to 14 times the criteria level.	Some exceeded by up to 157 times the criteria level.
American River- GAP	1. "3 out of those 15 samples had an average concentration of 56.2 ppb..." 2. Potential Source(s) of Pollutant: Unknown	1. 3 out of those 15 samples were above 100 ppb. The 15 samples had an average concentration of 56.2 ppb." 2. Potential Source(s) of Pollutant: Urban Runoff/ Storm Sewers.
Delta Waterways-Chlor et al	1. Stressor/Media/BU: Chlorpyrifos, ..., UTX. 2. Data: (no statement on size affected.)	1. Stressor/Media/BU: Chlorpyrifos, ..., UTX, and EC. 2. In data, add "The affected size should be changed from 480,000 acres to 48,000 acres for Chlor, DDT, Diaz, GAP, Hg, and UTX. EC is impaired for 16,000 acres."
Fall River- Sed and Silt	Water Body-specific Information: Change listing from the total length of 25 miles to 9.5 miles.	Water Body-specific Information: Change listing from the impaired length of 25 miles to 9.5 miles.
Horse Creek- metals	Water Body-specific Information: Change listing from the total length of 2 miles to 1 mile.	Water Body-specific Information: Change listing from the impaired length of 2 miles to 1 mile.
Marsh Creek- Hg	1. "Marsh Creek from Dunn Creek to Marsh Creek Reservoir." 2. RWQCB/SWRCB Staff Recommendation: "Change in Total Size and Size affected"	1. "Marsh Creek from Dunn Creek to the Delta." 2. RWQCB/SWRCB Staff Recommendation: Change in Size affected
Marsh Creek- Metals	1. Change listing from the total length of 24 miles to 8.5 miles. 2. RWQCB/SWRCB Staff Recommendation: Change in Total Size and Size affected.	1. Change listing from the impaired length of 24 miles to 8.5 miles. 2. RWQCB/SWRCB Staff Recommendation: Change in Size affected.
San Carlos Creek- Hg	Data: includes no information on the location of the mine	Add: The New Idria Mine is located approximately 4 miles upstream from SCC's confluence with Silver Creek.

Lower Toulumne River- Diazinon and GAP, UTX	Lower Toulumne River	Lower Tuolumne River

California Regional Water Quality Control Board

Central Valley Region

Robert Schneider, Chair

Winston H. Hickox
Secretary for Environmental Protection

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TO: **Craig J. Wilson, Chief**
Monitoring & TMDL Listing Unit
State Water Resources Control Board

DATE: 5 March 2002

FROM: Joe Karkoski
Sr. WRCE
303(d) List Coordinator

SIGNATURE:

SUBJECT: TRANSMITTAL OF ERRATA AND REVISED AVENA DRAIN/AMMONIA FACT SHEET WITH ADDITIONAL SUPPORTING INFORMATION FOR THE ADMINISTRATIVE RECORD FOR THE CENTRAL VALLEY REGIONAL BOARD'S "FINAL STAFF REPORT OF RECOMMENDED CHANGES TO CALIFORNIA'S CLEAN WATER ACT SECTION 303(D) LIST"

This memo transmits:

1) Errata for Appendix B of the "Final Staff Report of Recommended Changes to California's Clean Water Act Section 303(d) List"; and,
2) The revised final fact sheet and replacement information supporting the Central Valley Regional Board's recommendation for listing Avena Drain for ammonia.

The errata show revisions to the "Evidence of Impairment" section in underline (corrected value)/strikeout (replaced value) format for seven waterbody/pollutant pairs. Each section was revised so that data values in the text match the correct data values presented in tables B-2 for each waterbody/pollutant pair. The errata also include revisions to tables B-2 for Colusa Basin Drain (diazinon), Del Puerto Creek (chlorpyrifos), and Sutter Bypass (diazinon). The revisions to the data tables do not change our recommendations for the associated additions to the 303(d) list.

The revised final fact sheet for Avena Drain (ammonia) replaces the previously-provided Fact Sheet in Appendix B and Binder 1 of the administrative record. The associated supporting information should replace the previously-provided information in Binder 1 of the administrative record behind the Avena Drain (ammonia) Fact Sheet. The additional information consists of inspection reports that describe flow conditions in Avena Drain when the sampling for ammonia analysis was performed. Although the fact sheet was revised, the data still support the recommendation for adding Avena Drain for ammonia to the 303(d) list.

If you have any questions, please have your staff contact Gene Davis at (916) 255-3387. You can reach me at (916) 255-3368.

cc: Jerry Bruns, Central Valley RB (w/o enclosures)
Gene Davis, Central Valley RB (w/o enclosures)
Debbie Daniels, Central Valley RB (w/o enclosures)
Diane Beaulaurier, SWRCB, DWQ (w/o enclosures)
Laura Sharpe, SWRCB, DWQ (w/o enclosures)

Enclosures
Errata for Appendix B
Revised Fact Sheet and additional supporting documents for Avena Drain (ammonia)

From: Gene Davis
To: Wilson, Craig J.
Date: 2/7/02 8:47AM
Subject: TRANSMITTAL OF PUBLIC COMMENTS TRACKING LIST FOR THE REGIONAL 5'S 303(d) LIST ADMIN. RECORD

This transmittal accompanies a Table of Contents ("Tracking List", as an Excel file) for public comments received on the "Draft Staff Report of Recommended Changes to California's Clean Water Act Section 303(d) List".

Copies of the public comments were forwarded to the State Water Resources Control Board (SWRCB) under separate transmittal letter dated 10 January 2002 and are not included with this missive. The public comments were included in Binder 3 of the Central Valley Regional Board's administrative record for the "Final Staff Report on Recommended Changes to California's Clean Water Act Section 303(d) List." The Table of Contents (tracking table) should be inserted behind the Table of Contents for the administrative record in the front of Binder 3. The Table of Contents (tracking table) for the public comments includes the date each comment was received, the comment author and/or contact name, and the contact information.

If you have any questions, please have your staff contact Gene Davis at (916) 255-3387.

Gene Davis
Sacramento River TMDL Unit
Central Valley Region Water Quality Control Board
3443 Routier Road, Suite A
Sacramento, CA 95827-3003
(916) 255-3387
(916) 255-0752 (FAX)
davisg@rb5s.swrcb.ca.gov

CC: Bruns, Jerry; Daniels, Debbie; Karkoski, Joe

Tracking List of Public Comments to Region 5's 303(d) List Draft Staff Report

Date Comment Received	Comment Source/Agency	Contact Name for Comment/ Acknowledgement (Name of Author(s)*)	Comment Contact Address	Comment Contact Phone No.	Other Contact Method
10/1/01	Minasian, Spruance, Baber, Meith, Soares & Sexton, LLP	Michael Sexton	1681 Bird Street P.O. Box 1679 Oroville, Ca 95965	(530) 533-2885	msexton@minasianlaw.com
10/4/01	U.S. Fish and Wildlife Service	Bill Beckon (Steve Schwarzbach)	2800 Cottage Way, Suite W-2605, Sacramento, CA 95825-1846	(916) 414-6597	Ph.D. Chief, Environmental Contaminants Division Sacramento Fish and Wildlife Office 2800 Cottage Way room W-2605 Sacramento, California 95825-1846 phone: (916) 414-6591 fax :(916)
10/4/01	Westlands Water District	Mark Rhodes, Associate Resources Analyst			mrhodes@westlandswater.org
10/8/01	Westlands Water District	Mark Rhodes, Associate Resources Analyst			mrhodes@westlandswater.org
10/24/01	Minasian, Spruance, Baber, Meith, Soares & Sexton, LLP	Michael Sexton	1681 Bird Street P.O. Box 1679 Oroville, Ca 95965	(530) 533-2885	msexton@minasianlaw.com
11/1/01	Nevada Irrigation District	James P Chatigny, General Manager	P.O. Box 1019 Grass Valley CA 95945	530/273-6185	chatigny@nid.dst.ca.us
11/1/01	Herum Crabtree Brown	Jeanne M. Zolezzi, Attorney at Law	2291 West March Lane Suite B100 Stockton, CA 95207	(209) 472-7700	jzolezzi@herumcrabtree.com
11/1/01	Brown and Caldwell	Cynthia Paulson, Ph.D., P.E., Vice President; Ronda Sandquist, Esq., Baker & Hostetler LLP	201 North Civic Drive Walnut Creek, CA 94596	(925) 210-2477 [Paulson]; (303) 674-4031 [Sandquist]	
11/1/01	Sierra Nevada Alliance	Laurel W. Ames, Executive Director	PO Box 7989 S. Lake Tahoe, CA 96158	(530) 542-4546	www.sierranevadaalliance.org
11/2/01	City of Stockton	Bob Murdoch			Bob.Murdoch@ci.stockton.ca.us
11/2/01	Sacramento Regional County Sanitation District	Robert F. Shanks, District Engineer	10545 Armstrong Avenue, Mather, CA 95655	(916) 876-6000	www.srcsd.com
11/9/01	San Joaquin Farm Bureau Federation	Joe Petersen, Proram Director	P.O. Box 8444 3290 North Ad Art Road, Stockton, CA 95208	(209) 931-4931	

California Regional Water Quality Control Board

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TO: Stan Martinson, Chief
Division of Water Quality
State Water Resources Control Board

FROM: Kenneth Landau
Assistant Executive Officer

DATE: 14 December 2001

SIGNATURE:

SUBJECT: CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD STAFF RECOMMENDED CHANGES TO THE STATE OF CALIFORNIA'S CLEAN WATER ACT SECTION 303(D) LIST (303(D) LIST)

Central Valley Regional Water Quality Control Board (Regional Board) staff has completed its evaluation of readily available information on the quality of surface waters in the Central Valley region. Staff is recommending the addition of 53 pollutant/ water body combinations to the 303(d) list and the removal of 3 pollutant/ water body combinations from the list.

I have included the staff report that summarizes these recommendations and provides the rationale for the recommended changes to the 303(d) list. The staff report and recommended changes were prepared in accordance with the code of federal regulations – 40 CFR 130.7(b). Our understanding is that no Regional Board action is necessary to transmit these recommendations to you, since the State Water Resources Control Board will submit a state-wide 303(d) list to the U.S. Environmental Protection Agency as required under 40 CFR 130.7(d)(1), as amended.

Your staff can contact Joe Karkoski at (916) 255-3368 to make arrangements for the transmittal of the documentation that supports the findings in our staff report. Should you have any questions, please call me at (916) 255-3026.

cc: Central Valley Regional Board Members
Regional Board 303(d) List Coordinators

California Regional Water Quality Control Board

Central Valley Region

Robert Schneider, Chair

Winston H. Hickox
Secretary for Environmental Protection

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TO: Craig J. Wilson, Chief
Monitoring & TMDL Listing Unit
State Water Resources Control Board

FROM: Joe Karkoski
Sr. WRCE
303(d) List Coordinator

DATE: 10 January 2002

SIGNATURE:

SUBJECT: TRANSMITAL OF ADMINISTRATIVE RECORD FOR "THE FINAL STAFF REPORT ON RECOMMENDED CHANGES TO CALIFORNIA'S CLEAN WATER ACT SECTION 303(D) LIST"

Enclosed is the Central Valley Regional Board's administrative record for the "Final Staff Report on Recommended Changes to California's Clean Water Act Section 303(d) List." The administrative record includes documents used for making new listings, to delist waterbody-pollutant pairs that were on the 1998 303(d) list, and for making specific changes in information on the 1998 303(d) list. Comments received on the draft staff report are included. Comments and data received during the public solicitation period were sent earlier to the State Water Resources Control Board and are not included. The maps used and references to specific criteria are not generally included, since this information should be readily available, if needed.

The administrative record is divided into three binders. The binders numbered 1 and 2 include those documents used for making new listings to the 2002 303(d). Binder number 3 includes those documents that were used to delist a waterbody/pollutant combination from the 1998 303(d) list, documents that were used to make changes in the listing on the 1998 303(d) list, and the comments received on the draft report. The record was divided into sections based on listing changes that utilized similar references.

The method for organizing the administrative record is reflected in the Table of Contents section, which includes a list of the waterbodies (in alphabetical order), the pollutants that impair it (alphabetical for each waterbody), each reference used (the fact sheet followed by each reference in alphabetical order for each waterbody-pollutant), and the location of the reference (the binder number and then the section title, the disk the information is on, or NA to denote if the reference was not provided). At the beginning of each section, the fact sheet(s) is/are presented. The fact sheet(s) is/are then followed by the documents that were used. If the document was used in multiple sections, it may be presented in only one of the sections. This is noted on the Table of Contents section. If the data is electronic, it is presented on one of two disks, each of which are labeled and included in binder number 1.

At this time, we are still compiling the documents that support the listing for ammonia in Avena Drain. A review of the files that are available for Avena Drain indicates that the fact sheet will need to be

modified, although the recommendation to list will not change. We will send you a modified fact sheet within two weeks.

If you have any questions regarding the administrative record or require documents that were not provided, please have your staff contact Gene Davis at (916) 255-3387. You can reach me at (916) 255-3368.

cc: Jerry Bruns, Central Valley RB
Gene Davis, Central Valley RB
Debbie Daniels, Central Valley RB

Enclosures
3 Binders of Reference Documents and Public Comments Received
2 Floppy Disks with Data used to Make Recommendations
Table of Contents for Reference Document Binders