Los Angeles Regional Water Quality Control Board

2002 Water Quality Assessment and Update of 303(d) List of Impaired Waters, Public Comments

Organization	Letter Dated
Calleguas Municipal Water District	September 12, 2001
City of Los Angeles	June 26, 2001
City of Los Angeles	December 12, 2001
County Sanitation Districts of Los Angeles County	May 15, 2001 (Data Extension Request)
County Sanitation Districts of Los Angeles County	May 15, 2001 (San Gabriel River & Coyote Creek)
County Sanitation Districts of Los Angeles County	May 15, 2001 (Valencia & Whittier Narrows WRPs)
County Sanitation Districts of Los Angeles County	May 17, 2001
County Sanitation Districts of Los Angeles County	December 13, 2001
Las Virgenes Municipal Water District	May 2, 2001
Las Virgenes Municipal Water District	June 29, 2001
Las Virgenes Municipal Water District	January 9, 2002
NRDC	December 12, 2001
Port of Los Angeles (email Kathryn Curtis)	April 19, 2001
SCAP	June 8, 2001
SCAP	June 29, 2001
SCAP	October 18, 2001
SCAP	October 19, 2001
SCAP	November 1, 2001
SWRCB (Stefan Lorenzato)	June 30, 2001
City of Thousand Oaks	December 11, 2001
USEPA	May 15, 2001
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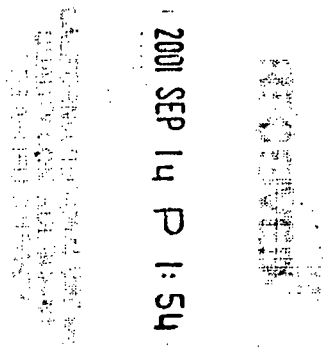
September 12, 2001



Dennis Dickerson
Los Angeles Regional Water Quality Control Board
320 W. 4th St., Suite 200
Los Angeles, California 90013

SUBJECT: CALLEGUAS CREEK 303(D) LISTINGS FOR FISH TISSUE POLLUTANTS

Dear Mr. Dickerson:

In preparation for the 2002 303(d) listing process, the basis for 1998 listings in the Calleguas Creek watershed were reviewed. A number of pollutants have been listed on the 303(d) list in the Calleguas Creek watershed apparently based on fish tissue concentrations that exceed the State Board's Elevated Data Levels (EDLs). As stated in the 1998 listing process, EDLs are "not to be used for listing unless a human risk assessment has been completed." This letter serves to provide a summary of the listings apparently based on EDLs, and as a request to delist these pollutants and waterbodies in the 2002 process. Although this letter is being submitted after the comment period for the requests for data for the 2002 listings, we hope that you will take into consideration this analysis during the listing process.

The Calleguas Creek watershed has fifteen pollutant listings in a number of watershed reaches for pollutants in fish tissue:

- Chlordane
- DDT
- Dieldrin
- Endosulfan
- Toxaphene
- PCBs
- ChemA
- Dacthal
- Chlorpyrifos
- Cadmium
- Chromium
- Nickel
- Selenium
- Silver
- Zinc

Of these fifteen pollutants, only 9 had associated Maximum Tissue Residual Levels (MTRLs), National Academy of Science (NAS) guidelines, or U.S. Food and Drug Administration (FDA) Action Levels in 1997 when these pollutants were listed. An additional 3 had Median International Standards (MIS). Since that time, the adoption of the California Toxics Rule (CTR) has resulted in updated MTRLs to be considered. For the purposes of this letter, the criteria in place at the time of the listing will be presented because these are the basis for the listings. The following table summarizes the criteria for the 15 listed constituents in fish tissue

Table 1. Fish Tissue Comparison Criteria

Constituent	MTRL-Freshwater (ppb)	MTRL-Ocean Waters (ppb)	NAS-Freshwater Whole Fish (ppb)	FDA-Freshwater and Marine Fish Edible Portion (ppb)	MIS-Freshwater Fish (ppb)
Chlordane	1.1	0.1	100	300	
DDT	32	9.1	1000	5000	
Dieldrin	0.65	0.2	100	300	
Endosulfan	250		100		
Toxaphene	8.8	2.75	100	5000	
PCBs	2.2	0.6	500	2000	
ChemA [1]					
Dacthal					
Chlorpyrifos					
Cadmium	640				300
Chromium					1000
Nickel	28,000				
Selenium					2000
Silver					
Zinc					45,000

1. Chemical Group A (ChemA) is the sum of a number of chlorinated pesticides with MTRLs. Although there is no specific criteria for the group, the MTRLs for the constituents in the group can be used for comparison.

As described above, 3 pollutants are listed for which only EDLs are available for comparison to the fish tissue data. The data for each of these pollutants are listed below along with the criteria exceeded and a summary of the listed reaches. Although other criteria were available, 4 constituents only exceeded the EDLs and are also summarized in the table below.

Table 2. Fish Tissue Listings in the Calleguas Creek Watershed Based on EDLs

Constituent	Listed Reach	Fish Tissue Type	Date	Value (ppb)	Criteria Exceeded
Cadmium	Conejo Creek R1, R2	mosquitofish/w	6/19/91	20	None
	Conejo Creek R1, R2	fathead minnow/w	6/2/92	150	EDL 85
	Conejo Creek R1, R2	fathead minnow/w	6/2/92	140	EDL 85
	Conejo Creek R3	Black Bullhead/f	6/23/93	-0.01	None
Chromium	Arroyo Simi R1	fathead minnow/w	6/19/91	340	EDL 85
	Conejo Creek R1, R2	mosquitofish/w	6/19/91	50	None
	Conejo Creek R1, R2	fathead minnow/w	6/2/92	510	EDL 85
	Conejo Creek R1, R2	fathead minnow/w	6/2/92	580	EDL 95
	Conejo Creek R3	Black Bullhead/l	6/23/93	<0.02	None
Nickel	Conejo Creek R1, R2	Mosquitofish/w	6/19/91	<100	None
	Conejo Creek R1, R2	Fathead Minnow/w	6/2/92	500	EDL 85
	Conejo Creek R1, R2	Fathead Minnow/w	6/2/92	500	EDL 85
	Conejo Creek R3	Black Bullhead/F	6/23/93	0.1	EDL 95 (<0.1)
	Arroyo Simi R1	Fathead Minnow/w	6/19/91	200	None
Silver	Arroyo Simi R1	fathead minnow/w	6/19/91	40	equals EDL 95
	Conejo Creek R1, R2	mosquitofish/w	6/19/91	60	EDL 95
	Conejo Creek R1, R2	fathead minnow/w	6/2/92	40	equals EDL 95
	Conejo Creek R1, R2	fathead minnow/w	6/2/92	30	EDL 85
	Conejo Creek R3	black bullhead/l	6/23/93	0.76	equals EDL 95
Zinc	Arroyo Simi R1	fathead minnow/w	6/19/91	44,000	EDL 85
Chlorpyrifos	Revolon Slough and Beardsley	Goldfish /f	4/30/85	<10	equals EDL 85 (<10)
	Revolon Slough and Beardsley	Goldfish /f	4/30/85	<10	equals EDL 85 (<10)
	Revolon Slough and Beardsley	Goldfish /f	5/8/86	<10	equals EDL 85 (<10)
	Revolon Slough and Beardsley	Mosquitofish /w	6/18/87	<10	None
	Revolon Slough and Beardsley	Goldfish /f	6/8/89	<10	equals EDL 85 (<10)
	Revolon Slough and Beardsley	Goldfish /f	6/13/90	<10	equals EDL 85 (<10)
	Revolon Slough and Beardsley	Goldfish /f	6/2/92	<10	equals EDL 85 (<10)
	Revolon Slough and Beardsley	Fathead Minnow /w	6/20/93	100	EDL 95
Dacthal	Calleguas Creek R2	Goldfish /f	4/30/85	16	EDL 85
	Calleguas Creek R2	Goldfish /f	5/8/86	41	EDL 85
	Calleguas Creek R2	Goldfish /f	6/18/87	22	EDL 85
	Calleguas Creek R2	Goldfish /f	6/8/89	110	EDL 85
	Calleguas Creek R2	Goldfish /f	6/13/90	30	EDL 85
	Calleguas Creek R2	Goldfish /f	6/18/91	30	EDL 85
	Calleguas Creek R2	Bullhead /f	4/30/85	14	EDL 85
	Calleguas Creek R2	Goldfish /f	4/30/85	11	None
	Calleguas Creek R2	Goldfish /f	5/19/88	12	Equals EDL 85
	Calleguas Creek R2	Fathead Minnow /w	6/2/92	42	None
	Calleguas Creek R2	Fathead Minnow /w	6/20/93	53	None
	Conejo Creek R1, R2	Mosquitofish /w	6/19/91	120	EDL 85
	Conejo Creek R1, R2	Fathead Minnow /w	6/2/92	27	None
	Conejo Creek R1, R2	Fathead Minnow /w	6/2/92	31	None
	Conejo Creek R3, R4	Black Bullhead /f	6/23/93	<5	None
	Conejo Creek R3, R4	Black Bullhead /f	6/23/94	<5	None
	Mugu Lagoon	Shiner Perch /f	5/18/88	19	EDL 85
	Mugu Lagoon	Longjaw Mudsucker/f	8/17/87	<5	None
	Mugu Lagoon	Gray Smoothhound Shark /f	5/18/88	<5	None
	Mugu Lagoon	Gray Smoothhound Shark /f	6/7/89	<5	None

Constituent	Listed Reach	Fish Tissue Type	Date	Value (ppb)	Criteria Exceeded
	Mugu Lagoon	Gray Smoothhound Shark /f	6/12/90	<5	None
	Mugu Lagoon	Gray Smoothhound Shark /f	6/4/92	<5	None
	Mugu Lagoon	Gray Smoothhound Shark /f	6/23/93	<5	None
	Revolon Slough	Goldfish /f	4/30/85	280	EDL 85
	Revolon Slough	Goldfish /f	4/30/85	340	EDL 95
	Revolon Slough	Goldfish /f	5/8/86	91	EDL 85
	Revolon Slough	Goldfish /f	6/13/90	770	EDL 95
	Revolon Slough	Goldfish /f	6/2/92	120	EDL 85
	Revolon Slough	Fathead Minnow /w	6/20/93	900	EDL 95
	Revolon Slough	Mosquitofish /w	6/18/87	340	EDL 85

In addition to the fish tissue data, water quality data were reviewed for exceedances of water quality criteria for the constituents listed in Table 2. In the 1998 RWQCB Listing guidelines, staff stated that fish tissue listings based solely on EDLs were not delisted if water quality data was also elevated in the waterbody. For this reason, the water quality data for the watershed were reviewed to determine if this provision had impacted the listings of the constituents in Table 2.

The supporting information for the 1996 303(d) list does not have any water quality data for any of the constituents listed above. An electronic database containing data collected by the Los Angeles Regional Water Quality Control Board, NPDES monitoring by the POTWs in the watershed, the Department of Water Resources, the Arroyo Simi Characterization Study, the Thousand Oaks Characterization Study, and the Calleguas Creek Characterization Study (CCCS) was also reviewed. The data were compared with CTR criteria (even though the CTR had not been promulgated when the listings were made).

Based on this review, of the metals only silver exceeded the CTR in the freshwater streams. One sample collected in the Arroyo Simi during the Arroyo Simi Characterization Study exceeded the CTR criteria out of 30 samples in the watershed, 20 of which were collected in the Arroyo Simi. Twenty-seven of the thirty samples were non-detect.

Nickel was found to exceed the CTR in Mugu Lagoon based on CCCS data, but no other fish tissue listed metals exceeded the saltwater criteria. Nickel is listed for the water column, but not fish tissue in the Lagoon.

Chlorpyrifos and dacthal do not currently have water quality standards. The California Department of Fish and Game has established a recommended criteria for chlorpyrifos of 0.041 µg/L. Water quality data were not in the database for dacthal and only two historical data points, both non-detect at 2 µg/L were available for chlorpyrifos. During the CCCS, chlorpyrifos was only detected in 2 of the 48 samples collected in the

watershed at a detection limit of 0.05 µg/L. Both of the detected values exceeded the recommended criteria of 0.041 µg/L.

Based on the information presented above, the continued listing of various reaches of the Calleguas Creek watershed for cadmium, chromium, nickel, silver, zinc, chlorpyrifos, and dacthal based on fish tissue concentrations is inappropriate. These listings are based on the TSMP EDLs and the listings have not been confirmed by a risk assessment for human consumption. EDLs are internal comparative measures developed by SWRCB staff where concentrations of substances are presented as percentile rankings compared to a distribution of previous TSMP data. According to the SWRCB, "EDLs are not directly related to potentially adverse human or animal health effects; they are only a way to compare findings in a particular area with the larger database of finding from all over the state" (TSMP Data Report, 1994-1995). Per the SWRCB 1998 Clean Water Act Section 303(d) Listing Guidelines for California, Regional Boards have been directed by the US EPA and SWRCB to delist waters for specific pollutants if "Faulty data led to the initial listing. Faulty data include, but are not limited to ...Toxic Substances Monitoring or State Mussel Watch EDLs that are not confirmed by risk assessment for human consumption." In 1998, the following constituents were delisted because the listings were solely based on EDLs:

- Mugu Lagoon: Arsenic, Cadmium, Silver
- Revolon Slough: Hexachlorobenzene
- Beardsley Channel: Hexachlorobenzene
- Calleguas Creek Reach 1 (Estuary to Broome): Dacthal
- Conejo Creek Reach 4 (Above Lynn Rd.): Cadmium, Chromium, Nickel, Silver

For consistency, the following listings based on EDLs should be delisted in the 2002 listing process:

- Conejo Creek Reach 1, Reach 2, and Reach 3: Cadmium, Chromium, Nickel, Silver, and Dacthal
- Conejo Creek Reach 4: Dacthal
- Arroyo Simi Reach 1: Chromium, Nickel, Silver, and Zinc
- Revolon Slough Main Branch: Dacthal and chlorpyrifos
- Beardsley Channel: Chlorpyrifos
- Mugu Lagoon: Dacthal
- Calleguas Creek Reach 2: Dacthal

Additionally, the tissue sampling locations do not correspond to the listed reaches on the 303(d) list. Tissue sampling locations are located in the following reaches:

- Conejo Creek Reach 3
- Conejo Creek Reach 1
- Arroyo Conejo North Fork
- Calleguas Creek Reach 2

- Revolon Slough Main Branch
- Oxnard Drainage Ditch 2
- Rio de Santa Clara/Oxnard Drain
- Mugu Lagoon

However, tissue listings are included for Conejo Creek Reach 2, Conejo Creek Reach 4, Calleguas Creek Reach 1, Duck pond agricultural drain, Mugu Drain, and Beardsley Channel. It is inappropriate to extrapolate tissue listings to reaches of the creek system for which samples were not collected. For this reason, the following listings should be delisted until sufficient data are collected in the reaches to determine if impairment exists:

- Conejo Creek Reach 4 (Above Lynn Rd.): DDT, Endosulfan, Toxaphene, Chem A, Dacthal

- Conejo Creek Reach 2 (T.O. City Limit to Santa Rosa Rd.): DDT, Endosulfan, Toxaphene, Cadmium, Chromium, Nickel, Silver, Chem A, Dacthal

- Beardsley Channel: Chlordane, DDT, Dieldrin, Endosulfan, Toxaphene, PCBs, Chlorpyrifos, Chem A

- Calleguas Creek Reach 1 (Broome Rd. to Estuary): Chlordane, DDT, Dieldrin, Endosulfan, Toxaphene, PCBs, Chem A

- Mugu Drain: Chlordane, DDT, Toxaphene, Chem A

The reach issue appears to potentially be a result of a change in the reaches that occurred between the 1996 and 1998 listings. In 1996, there was only one reach defined for each the Conejo, Calleguas, Arroyo Las Posas, and Revolon/Beardsley. In 1998, the one reach was split into four Conejo Creek reaches, three Calleguas reaches, two Arroyo Las Posas reaches, and a separate reach for each Revolon and Beardsley. It appears that when the reaches were split, the 1996 listings were applied to all of the new reaches regardless of whether or not data were available specific to the reaches that supported the listings. As a result, the Regional Board should consider reevaluating the listings in the Calleguas Creek watershed to ensure that the data available for the reach supports the listings.

Finally, the listings for three constituents in fish tissue for which a criteria other than EDLs exist appear to be inconsistent with the available fish tissue data. In Mugu Lagoon, chlordane is listed in fish tissue, however, all of the sample data points were non-detect. Toxaphene is listed for Conejo Creek, but all of the data collected (at a sample point in Conejo R3) were non-detect.

Based on the analysis above, the following table summarizes the tissue listings that should be delisted and the reasons for the delisting. The final table then summarizes the tissue listings that will remain in the Calleguas Creek watershed.

Table 3. Fish Tissue Listings to be Delisted in 2002

		Chlordane	DDT	Dieldrin	Endosulfan	Toxaphene	PCBs	Chlorpyrifos	Cadmium	Chromium	Nickel	Selenium	Silver	Zinc	ChemA	Dacthal
Arroyo Simi R1	Above Brea Canyon															
Arroyo Simi R2	Moorpark Freeway to Brea Canyon									EDL	EDL		EDL	EDL		
Arroyo Las Posas R2	Fox Barranaca to Moorpark Freeway															
Arroyo Las Posas R1	Lewis/ Somis Rd to Fox Barranaca															
Arroyo Conejo NF	North Fork															
Conejo Creek R4	Above Lynn Rd.		ID		ID	ID									ID	ID, EDL
Conejo Creek R3	Lynn Rd. to T.O. City limit					DNS			EDL	EDL	EDL		EDL			EDL
Conejo Creek R2	T.O. City Limit to Santa Rosa Rd.		ID		ID	ID			ID, EDL	ID, EDL	ID, EDL		ID, EDL		ID	ID, EDL
Conejo Creek R1	Santa Rosa Rd. to Calleguas Creek								EDL	EDL	EDL		EDL			EDL
Calleguas Creek R3	Somis to Portrero Rd.															
Calleguas Creek R2	Portrero to Broome Rd.															EDL
Calleguas Creek R1	Broome Rd. to Estuary	ID	ID		ID	ID	ID								ID	
Beardsley Channel	Above Central Ave.	ID	ID	ID	ID	ID	ID	ID, EDL							ID	ID, EDL
Revolon Slough	Central Ave. to Mugu Lagoon							EDL								EDL
Mugu Drain		ID	ID			ID									ID	
Mugu Lagoon		DNS														EDL

EDL = Listing based on exceedance of EDL only.

ID = Data are insufficient to list this reach because tissue samples were not collected in the reach.

DNS = Available data do not support the listing.

Table 4. Summary of Remaining Fish Tissue Listings in Calleguas Creek Watershed for 2002

		Chlordane	DDT	Dieldrin	Endosulfan	Toxaphene	PCBs	Selenium	ChemA
Arroyo Simi R1	Above Brea Canyon								
Arroyo Simi R2	Moorpark Freeway to Brea Canyon							X	
Arroyo Las Posas R2	Fox Barranaca to Moorpark Freeway								
Arroyo Las Posas R1	Lewis/ Somis Rd to Fox Barranaca								
Arroyo Conejo NF	North Fork	X	X						
Conejo Creek R4	Above Lynn Rd.								
Conejo Creek R3	Lynn Rd. to T.O. City limit		X						X
Conejo Creek R2	T.O. City Limit to Santa Rosa Rd.								
Conejo Creek R1	Santa Rosa Rd. to Calleguas Creek		X		X	X			X
Calleguas Creek R3	Somis to Portrero Rd.								
Calleguas Creek R2	Portrero to Broome Rd.	X	X		X	X	X		X
Calleguas Creek R1	Broome Rd. to Estuary								
Beardsley Channel	Above Central Ave.								
Revolon Slough	Central Ave. to Mugu Lagoon	X	X	X	X	X	X		X
Mugu Drain									
Mugu Lagoon			X		X		X		

We appreciate your consideration of these comments during the 2002 303(d) listing process. If you have questions about this letter, please contact Ashli Cooper of Larry Walker Associates at 805-449-0011.

Very truly yours,

Donald R. Kendall
General Manager

ac

cc: Robert Westdyke, Camarillo Sanitation District
Reddy Pakala, VCWWD
John Behjan, City of Simi Valley
Don Nelson, City of Thousand Oaks
Richard Hajas, Camrosa Water District
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June 26, 2001

Mr. Dennis A. Dickerson
Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

2001 JUN 28 P 3:13

COMMENTS ON THE WATER QUALITY ASSESSMENT & DOCUMENTATION FOR THE 2002 305(b) BIENNIAL WATER QUALITY REPORT AND 303(d) LIST OF IMPAIRED WATER BODIES

Dear Mr. Dickerson:

The Bureau of Sanitation, City of Los Angeles (City), appreciates the opportunity to comment on the "Regional Water Quality Control Board, Los Angeles Region 1996 California Water Quality Assessment – 305(b) Report Supporting Documentation for Los Angeles Region", hereafter referred to as the 1996 Guidelines. This assessment is important because of its impact on the 2002 305(b) report and 303(d) list, and subsequent influence over the direction of our efforts and funds within the City's TMDL program. An improper assessment could result in misdirection of resources, causing delays in mitigating true impairments to waterways, and possibly resulting in unnecessary and avoidable health risks to the residents of the City.

At the May 31, 2001, California Regional Water Quality Control Board, Los Angeles Region (Regional Board), meeting held in Pasadena, California, the Regional Board staff gave a presentation on the upcoming 2002 Water Quality Assessment effort and update of the 303(d) list of impaired water bodies. It is our understanding that the Regional Board is utilizing the 1996 Guidelines as the starting point and plans to revise these guidelines based on more recent EPA guidance. The Regional Board has identified an ambitious schedule, with the 305(b) report being completed this summer and the 303(d) list submitted to the State Water Resources Control Board (State Board) this fall. An opportunity to review and comment on any revised assessment guidelines and data analyses should be provided prior to finalizing the 305(b) report or 303(d)

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list. The City concurs with the request made at the May 31st meeting by both the Southern California Alliance of POTW's (SCAP) and the County Sanitation Districts of Los Angeles County (CSDLAC) for scheduling two or more workshops to comment on the guidelines and to evaluate data.

The City applauds the Regional Board's efforts to integrate several types of data sets to make evaluations and agrees that best professional judgment is often required to make the determination. However, after reviewing the 1996 Guidelines, the City has the following comments and questions:

Review of the assessment guidelines: Some differences exist between the assessment guidelines discussed at the May 31, 2001, Regional Board meeting and those used in the 1996 Guidelines. For example, in the 1996 Guidelines, beneficial uses were considered to be "fully supporting" if ≤10% of samples exceeded a conventional water quality standard and "partially supporting" if 11-25% exceeded. In the May 31, 2001 presentation, these ranges were presented as <10% and 10-25%. In the 1996 Guidelines, beneficial uses were considered to be "fully supporting" if there were no more than 2 violations of the chronic criteria for water column toxic substances within a 6-year period, but on May 31, 2001, it was presented as no more than 1 violation within a 3-year period. Arithmetically, these two may appear to be the same, but from operational and regulatory positions they are quite different. The latter is a more stringent regulation than the former. Partially supporting was also reduced from more than two exceedances to more than one. Are these inadvertent misstatements made in preparing the PowerPoint® presentation or are they actually proposed changes? If they are actual changes, the City would like to know the rationale for the changes and be provided an opportunity to comment on more stringent guidelines.

Aquatic Life:

Sediment Toxicity Data: The City is concerned about the "Best Professional Judgment" criteria used on page 11 of the 1996 Guidelines. The Regional Board proposes a "significant toxicity" line be drawn at 60% survival in the amphipod toxicity test because (1) the distribution of survival percentages in amphipod toxicity tests indicate a sharp break at that level, and (2) existing benthic data suggests impairment at sites where sediment samples resulted in <60% amphipod survival were obtained. These criteria seem reasonable; however, the City believes that these data and analyses should be formally presented for review and comment prior to finalization of the 2002 listing procedures. Also, it states in the 1996 Guidelines, "No statistical analyses or comparison to reference sites were done, however." The City agrees with the Regional Board that this is a shortcoming and that comparisons with reference site conditions are necessary to assess and evaluate environmental impacts. The City also believes that scientifically defensible criteria, which may include both toxicity testing and bioassessment data, must be developed to evaluate sediment toxicity. Furthermore, the Regional Board should provide specific translators to bridge the gap from any narrative to a numeric criterion. In

light of this, the City believes an examination of the data and any analyses supporting these criteria by the environmental and regulated communities is warranted.

On page 12, the document states, "For *bioaccumulation in sediment*, 'background' numbers are also utilized (table 5)." How are the background numbers used? Details should be provided to enable others to assess the Regional Board's determinations. Furthermore, the next sentence states, "These may be adjusted up or down depending on the type of waterbody (commercial port vs. coastal lagoon)." This appears to be wide-open. What are the guidelines and justifications for these adjustments, and how will they be utilized?

Fish Tissue Elevated Data Level (EDL): The fish tissue EDL threshold criteria (page 12) seem reasonable to determine that a chemical is elevated. The use of these criteria to conclude that a beneficial use is "fully supporting but threatened" or "partially supporting" is troubling because no connection between the EDL criteria and any kind of "harm" seems to be required. EDLs are based on the 85th and 95th percentiles of chemical concentrations. A risk assessment to determine the connection between elevated levels and impairment instead of arbitrary thresholds would facilitate the management process by providing a scientific basis. If no harm is indicated, perhaps a more neutral designation should be used (e.g., "watch list" instead of not or partially supporting), and research to evaluate potential harm encouraged.

The City supports the CSDLAC comments[1] regarding EDLs and Maximum Tissue Residue Levels (MTRLs) for determining support levels for aquatic life. Tissue levels higher than EDLs, MTRLs, or National Academy of Sciences (NAS) guidelines should be placed on "watch" lists rather than the 303(d) list unless they also exceed FDA Action levels or EPA criteria.

Bioavailability: On pages 13-14 of the 1996 Guidelines, the Regional Board commented on the bioavailability of metals. The City interprets the Regional Board's comments as indicating that a waterbody would not be listed based solely on an exceedance of numeric criterion, but rather would require a second indicator such as sediment toxicity. The City approves of this approach and notes that the Regional Board states, "Ideally, this approach would utilize field-replicated triad data ...". Since matrix effects influence the bioavailability of toxicants, site-specific objectives for each constituent, as well as, evidence for beneficial use impairment need to be utilized during water body impairment decisions. The state of Texas also appears reluctant to list based solely on concentration of specific constituents, at least when biological data does not indicate impairment. In

[1] County Sanitation Districts of Los Angeles County May 17, 2001 letter to Rene DeShazo, Regional Water Quality Control Board, entitled "Comments on the Water Quality Assessment Guidelines for the 2002 Water Quality Assessment".

their 303(d) listing methodology document[2], they state, "When the numeric criteria that are indirect measures of aquatic life use attainment are not supported—for example, dissolved oxygen—and direct measures of the biological community indicate support of the use, water bodies *will not* be listed as impaired for the numeric criteria, or the use. Conversely, when direct measures—for example, biological community assessment—indicate nonsupport, water bodies *will be* listed for nonattainment of aquatic life use." Thus, the methodology highly weights direct evidence of biological impairment, and gives less weight to non-biological evidence of impairment to aquatic life use. Therefore, if numeric criteria are exceeded but biological indicators indicate the waterbody is not adversely impacted, the Regional Board should reassess the situation and take appropriate action.

The City believes that both scientific data and the listing procedures of Texas argue against listing a waterbody as not supporting an aquatic life beneficial use based solely on the concentration of a constituent. Additional data, either from the field or the laboratory, must be a requirement to support the listing. The City believes the Regional Board generally has followed this principle; however, the City is concerned that the Regional Board has not followed it in some cases, especially regarding EDL's. Deviations from the above general principle should be supported on a case-by-case basis.

Potential Interdependency of TMDLs: The City requests that the Regional Board consider the possibility of complications resulting from implementing one TMDL potentially causing delays in implementing other TMDLs. For example, the City and other municipalities have commented on the fact that ammonia removal through nitrification may result in elevated concentrations of nitrate and other pollutants. The Regional Board should allow compliance schedules to address these delays as long as due diligence has been demonstrated. Furthermore, the development of TMDLs should be treated as research projects, from which unexpected complications or questions requiring further study may occur. The City is cognizant of the TMDL time schedule imposed by the consent decree, but argues that the consent decree should not drive the Regional Board and stakeholders to produce scientifically unsupported or ill-supported TMDLs.

Natural Sources of Ammonia: While POTWs are a significant source of ammonia to waterbodies, the Regional Board should consider that natural conditions also are sources of ammonia, e.g. decay of vegetation and animal activity. Once POTWs are in compliance, the waterbody may continue to be impaired by "natural conditions."

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[2] Texas Natural Resources Conservation Commission, "Methodology for Developing the Texas List of Impaired Water Bodies," Review Draft, Version 2, January 16, 2001.

Contact Recreation:

Beach Coliform Data: The verbiage in table 2 on page 7 of the 1996 Guidelines is confusing. It appears that the partially supporting and not supporting criteria may be reversed. The City suggests the following language:

Partially supporting: For entire data set, one of the following is exceeded: wet and dry weather fecal coliform standards exceeded more than 15% of the time on average **or** wet and dry weather total coliform standards exceeded more than 20% times on average.

Not supporting: For entire data set, both of the following are exceeded: wet and dry weather fecal coliform standards exceeded more than 15% of the time on average **and** wet and dry weather total coliform standards exceeded more than 20% times on average.

Primary and Secondary Contact: The Regional Board should standardize the subjective observations for aesthetic stressors (Table 9) in order to determine whether or not a reach or waterbody should be designated as "partially supporting" or "non-supporting." In particular, the algae "observation category" in the table is listed as "significant amount observed." The City believes that, to some observers, a small amount of algae might be construed as significant, while others might consider the same amount to be a natural mesotrophic condition.

The Regional Board should consider that nutrient levels above criteria levels do not cause impairment if the beneficial uses of a reach are not harmed. Furthermore, the indicators of impairment of oligotrophic waterbodies should not be applied to non-oligotrophic waterbodies with the same weight.

The Regional Board listed ammonia as not supporting contact recreation use for some of the reaches of the Los Angeles River. This criterion comes from the secondary drinking water MCLs. We believe that not all of the constituents in table 8, aesthetics/taste and odor standards, are appropriate to Primary Contact Recreation use. Since primary contact usually involves only accidental drinking of water, there is no scientific evidence that all of the table 8 drinking water criteria can be linked to the primary contact beneficial use; a person with primary or secondary contact does not necessarily evaluate the water to the same standards as one who draws the water from a tap.

Drinking Water: The 1996 water quality assessment data summary tables contain several waterbodies where drinking water assessed standards are crossed-out (e.g., Sepulveda Canyon/Channel on page 9 of the other watersheds section). Are these assessed uses no longer applicable to these waterbodies? No explanation of these cross-outs is provided in the explanatory notes for interpreting the tables. This should be corrected.

The City notes that the use of drinking water criteria (table 10) and contact recreation criteria, which use aesthetics/taste and odor standards (table 8) on many of the City's waterbodies makes the goal of the listing process unclear. MCLs are the maximum permissible levels of contaminants in water that is delivered to any user of a public water system. Is the goal to make waters in the City of Los Angeles ready to be piped to homes without further treatment? This scenario is highly unlikely because the Health Department would not approve such a practice. If further treatment is needed prior to residential use, then the RWQCB should specify the ambient water quality that is required in the River prior to this subsequent treatment.

Watch Lists: The Regional Board has indicated that heavy use of "best professional judgment is used to judge aquatic life beneficial use support for coastal areas." The Regional Board further states "what is mostly available are data collected under different programs, measuring different media, at different sites, over a number of years, without good reference sites for statistical purposes." In light of this, the City recommends a stronger emphasis on creating and maintaining "watch lists" in lieu of placing these waterbodies on the 303(d) list. The Regulated Caucus of the AB982 Public Advisory Group (PAG) also recommends this alternative[3]. The caucus noted, "This approach is consistent with the Clean Water Act, which provides that states are to identify all waters not listed as impaired for the purpose of 'developing information.'" The Texas Natural Resource Conservation Commission's (TNRCC) *Guidance for Assessing Texas Surface and Finished Drinking Water Quality Data, 2002* identifies "primary concerns" for waterbodies that had too few samples and/or a small amount of exceedances. These waterbodies would not be placed on the 303(d) list, but would be recommended for additional study. The National Research Council also supports this approach. Their Committee to Assess the Scientific Basis of the Total Maximum Daily Load Approach to Water Pollution Reduction states, "EPA should approve the use of both a preliminary list and an action list instead of one 303d list. Many waters now on state 303d lists were placed there without the benefit of adequate water quality standards, data or waterbody assessment. These potentially erroneous listings contribute to a very large backlog of TMDL segments and foster the perception of a problem that is larger than it may actually be. States should be allowed to move those waters for which there is a lack of adequate water quality standards or data and analysis from the 303d list back to a preliminary list.... This would provide the assurance that listed waters are indeed legitimate and merit the resources required to complete a TMDL."[4]

The Texas Guidance also addresses the number of samples required for assessing a designated use, and addresses specific delisting procedures. The City supports PAG with regards to the development and implementation of a comprehensive and effective statewide Surface Water Ambient Monitoring Program (SWAMP). Once operational, SWAMP data should be utilized to resolve situations where waterbodies were put on the watch list because of inadequate data to assess impairment.

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[3] AB 982 Public Advisory Group Final TMDL Structure and Effectiveness Report, February 2001.
[4] Assessing the TMDL Approach to Water Quality Management, prepublication copy, 2001.

As a final note, the City of Los Angeles would like to again stress the importance of public review and comment and officially request the Regional Board to provide such opportunities on the 305(b) report prior to releasing the 303(d) list for comment. Furthermore, the City suggests stakeholder participation from the inception of the listing process as the preferred method to follow, rather than using staff time to create lists and assessments from scratch, requiring extensive modifications after important issues are addressed during the comment period. The City looks forward to working with the Regional Board in compiling a 303(d) list that adequately reflects the current conditions of the region's waterways, and improving the environmental conditions of the waterbodies within the City of Los Angeles' jurisdiction.

Thank you for your consideration of these comments. If you should have any questions, please contact Dr. Mas Dojiri of my staff at (310) 648-5610.

Sincerely,

Judith A. Wilson

JUDITH A. WILSON, Director
Bureau of Sanitation
Department of Public Works

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c: Ray Kearney/RAD Central File/TMDL
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December 12, 2001

Mr. Dennis A. Dickerson
Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

COMMENTS ON THE WATER QUALITY ASSESSMENT & DOCUMENTATION FOR THE 2002 303(d) LIST OF IMPAIRED WATERBODIES

Dear Mr. Dickerson:

The Bureau of Sanitation, City of Los Angeles (City), appreciates the opportunity to comment on the Regional Water Quality Control Board's staff report, "2002 Update: Clean Water Act Section 303(d) List of Impaired Waters, Los Angeles Region." This staff report contains the assessment guidelines used to determine if a waterbody is impaired. The assessment guidelines are important because of their impact on the 303(d) list, and subsequent influence over the direction of our efforts and funds within the City's TMDL program. An improper assessment could result in misdirection of resources, causing delays in mitigating true impairments to the City's waterways.

At the November 19, 2001, California Regional Water Quality Control Board, Los Angeles Region (Regional Board), meeting held in Los Angeles, California, the Regional Board staff gave a presentation outlining the recent changes in the assessment methodologies and the 303(d) list of impaired water bodies. It is our understanding that the Regional Board is utilizing the 1996 Guidelines as the starting point and has modified these guidelines based on more recent EPA guidance. The Regional Board has identified an ambitious schedule, with the 305(b) report being completed this summer,[1] and the 303(d) list submitted to the State Water Resources Control Board (State Board) this fall.

[1] It is the City's hope that the Regional Board adequately complies with each of the statutory requirements set forth in Clean Water Act §305(b)(1)(A)-(E) prior to submission of its 305(b) Report.

After reviewing the revised listing guidelines presented on November 19, the City has the following comments:

1. At the Regional Board's workshop on November 19, 2001, changes to the 303(d) list (originally distributed on May 31, 2001) were detailed using fact sheets. However, the original list had no fact sheets; if these have not yet been provided, we request this information as soon as possible so we can review the list more thoroughly. Furthermore, we request the CD-ROM with data and metadata (QA/QC information, visual observations, methods of analysis, etc.), which was mentioned at the November 19 workshop.

2. In a federal lawsuit (filed by the County Sanitation Districts of Los Angeles County (LACSD) and the Cities of Los Angeles, Burbank, and Simi Valley against U.S.EPA), the court, on November 5, 2001, ruled that U.S.EPA abused its discretion by approving the Los Angeles Regional Water Quality Control Board's (RWQCB) blanket conditional MUN designation and disapproving of the implementation provision for this conditional designation. While this was a verbal ruling, the written ruling with the court's signature is expected to be signed by the court in December of 2001. The court directed the U.S.EPA to approve or disapprove the 1994 Basin Plan in whole or in part such that waters identified for the MUN use designation in the Basin Plan would not be subject to the stringent MUN criteria without further study. Therefore, the City requests that waterbodies with an asterisk under table 2-1 of the 1994 Basin Plan (MUN or potential MUN beneficial use) be de-listed for this listing cycle for any criteria set to protect the conditional, asterisked MUN use.

3. The Los Angeles River, Reach 1 (from Arroyo Seco to the estuary), is listed on the draft list for aluminum, for the potential MUN beneficial use. According to the fact sheet, the reach is fully supporting but threatened due to greater than 10% exceedance of the primary MCL of 1.0 ppm. More recent data indicates no impairment. The City believes that threatened waterbodies should not be placed on the 303(d) list of impaired waterbodies, but rather, identify threatened waterbodies on a watch list or in the 305(b) assessment in a separate category for public information. This would allow stakeholders to focus time and effort on waters that are truly, rather than potentially, impaired. Following this recommendation will be consistent with the July 2000 TMDL Rule.

4. Two of the criteria used for impairment decisions were advisories and postings for fishing and swimming. The City believes that this information should not be the sole indicator for impairment determinations. Other evidence is required, such as coliform count exceedance data in excess of the Basin Plan's coliform objective. Current litigation (Sacramento Regional County San District v. SWRCB et al.), 98CS01702, June 26, 1998, indicates that it is illegal for the State to set forth fishing and swimming advisory criteria by which waters would be listed on a 303(d) list because they were not promulgated as water quality standards pursuant to the California Administrative Procedure Act. If the U.S. EPA and the SWRCB do utilize Best Professional Judgment[2] (BPJ), the City urges the State Board to develop a framework for BPJ with limitations and clear boundaries. The concept of BPJ may be a

[2] U.S. EPA provides a vague description of BPJ in "Protocol for Development of Nutrient TMDLs," page 4-13.

useful and valid decision-making process, but only if adequately explained and justified. The Regional Board's Staff Report from May 31, 2001 says, "Beneficial uses have been listed as impaired based upon exceedances of the thresholds or guidelines described...heavily influenced by best professional judgment." However, BPJ having not been defined is essentially an "underground regulation." Without a framework or guidance, concepts such as BPJ, "flexibility," "adaptive management," and "weight of evidence approach" can be abused, causing arbitrary, rather than sound, decisions. Perhaps a panel of "professionals" with different backgrounds (e.g., statistical, chemical, biological, environmental, regulated, and regulatory) with rules on how to resolve disagreements is a good idea (e.g., if no consensus, put the waterbody on a watch list). However, we believe it is inappropriate and unlawful to propose listings based on:

a. "It's better to err on the side of caution"
b. "U.S. EPA does it"
c. Accepting small sample sizes because the test "seems" to have low statistical variability,

unless a panel of professionals of appropriate and applicable backgrounds can agree that the use of BPJ is warranted.

5. Another example of the use of improperly promulgated criteria or "underground regulation" is the recent litigation on listing by trophic state index (Docket 98-ALJ-07-0267-CC and –0585-CC) Western Carolina Regional Sewer Authority v. South Carolina Dept. of Health and Environmental Control *et al.*), in which the State attempted, *inter alia*, to implement its narrative water quality criteria to control nutrients by creating a *de facto* water quality standard known as the "trophic state index (TSI)." All waters above the threshold of 250 would be classified as impaired for phosphorous. The Sewer Authority argued that since this threshold was not promulgated in accordance with South Carolina's Administrative Procedure Act as a water quality standard, it was illegal, null and void. The judge agreed that the threshold 1) was a "regulation" by applying the "binding norm" test, i.e., if a State uses a policy like a regulation (little or no discretion in application) then it is a regulation, and 2) the regulation was not properly promulgated (and, therefore considered to be an "underground" regulation).

6. WER and SSO—The City desires that Water Effect Ratios (WERs) be put in TMDL documents so that the WERs will automatically be applied when developed. Furthermore, WERs developed after the 303(d) list should be automatically applied and cause automatic de-listing if the data is below the new site-specific criteria. Putting this provision into the TMDL document alleviates confusion and helps in planning.

7. Some listings (based on alleged fish tissue and sediment impairments) required only 2 data points for impairment decisions. At the November 19, 2001 workshop for the Los Angeles RWQCB, two justifications were given: 1) the U.S. EPA accepts 2 data points as its policy, and 2) the test seemed to be stable with respect to variance. The City believes that these reasons are questionable at best, and recommends that respective waterbodies be placed on a watch list instead of on the 303(d) list. Further, if the listing is based on a narrative water quality objective instead of a numeric standard, such listing is questionable in light of the

prerequisites to using narrative standards. *See e.g.,* 33 U.S.C. §1313(c)(2)(B); 40 C.F.R. §131.11(a)(2).

8. Waterbodies that are tier 3 (as defined under the federal antidegradation policy), which "decline" in water quality but are meeting standards, should not be put on the 303(d) list, but should be handled separately under the antidegradation policy. EPA lacks the statutory authority to require TMDLs for antidegradation Tier 3 waterbodies based solely on a "decline" in water quality. The CWA requires TMDLs only for waterbodies not attaining WQS. The purpose of establishing and implementing TMDLs is to attain those WQS, thereby restoring beneficial uses to impaired waterbodies.

9. The City requests that impaired listings based on symptoms rather than pollutants, such as algae, be de-listed. Once pollutants causing the symptom have been determined (with sufficient data quality and quantity), the waterbodies can be re-listed based on the respective pollutants. Failure to do this will cause some pre-TMDL research to be scheduled under the already tight TMDL development schedule. By listing according to pollutants, the State Board will be consistent with the July 2000 Rule.

10. The City requests a review of applicable water quality criteria for all beneficial uses. Naturally oligotrophic, mesotrophic, and eutrophic waterbodies should have separate criteria. For example, constructed wetlands with exposed surface water cannot be expected to have the same criteria as other waterbodies in the Los Angeles Region, or else the wetland would always be impaired.

11. The SWRCB should give biological data higher priority over pollutant concentrations, when there is conflicting evidence of impairment. However, the use of biological information for determining Water Quality Standards violations is problematic and should be clarified. For example, a biological impairment must be linked to a pollutant source.

12. By requiring states to develop a listing methodology, EPA took an important step forward in the July 2000 rules by providing an opportunity to interface with states on many aspects of the interpretation of different types of water quality data and information. Under the July 2000 rule, permitees for the first time will be able to review and comment on how the state will de-list waters that are in compliance with water quality standards. Recognizing these improvements, the City encourages the State to retain the following aspects of the listing methodology as set forth in the July 2000 rule including:
    - A description of the parameters of Best Professional Judgment (when to use, how many professionals, how to make a decision, how to resolve decisions, justifications, public involvement, etc.)
    - A publicly reviewable document
    - Description of how different types of data will be evaluated
    - Explanation of how the following factors relating to listing will be considered: data quality/age; degree of confidence, and degree of exceedances
    - Description of procedures for collecting and using ambient water quality data
    - Description of method and factors to develop a prioritized schedule

- A description of factors used to de-list waterbodies

13. The State should set out minimum data quality standards for 303(d) listings—The July 2000 rule retained the data standard from the 1992 TMDL regulations that "all existing and readily available water quality-related data and information" should be used for 303(d) listings. The City believes this standard does not distinguish between good data, bad data, new data, or old data. States could have information available that indicates an exceedance of WQS but may not have the underlying QA/QC documents to validate this finding. The National Research Council (NRC) confirms this assessment, noting, "the states use vastly different frameworks for monitoring and assessment, the net result of which is widely divergent estimates of the extent of impaired waters and of the proportion of waters that are fully assessed. This casts a great deal of uncertainty not only about what water quality problems are the most important, but also about the accuracy and completeness of their delineation." (NRC, June 2001). The 1992 TMDL regulations do not provide for the development of a listing methodology, and only require that the state document how the waterbody was listed. These listing problems have led to widespread distrust in state procedures for collecting and analyzing water quality data, and in the extrapolations made from certain types of data. The quality of data and the number of TMDL lawsuits is inversely proportional. Spending resources on data collection and science at the beginning of the process is more effective than expending resources at the end litigating TMDLs in courts across the nation.

14. Under the July 2000 rule, a state can only de-list a waterbody if "new data" shows the waterbody is attaining WQS for the pollutant at issue. Setting a higher bar for de-listing waters means that many improperly listed waters will remain on lists across the nation. There should also be a mechanism to de-list waters that were listed with faulty or inadequate data. Pending development of the 2003 TMDL Rule, the City requests the State identify waters with inadequate or insufficient data and examine the data carefully, reprioritizing them so that resources can be used more appropriately.

15. The City requests that the State ensure that all impaired waterbodies, regardless of the source of impairment-either nonpoint sources only, or blended point and nonpoint sources—are included on 303(d) lists, that load allocation (LAs) are assigned to nonpoint sources and "reasonable assurances" maintained to ensure their implementation, and that states do not impose on point sources portions of the nonpoint source load not eliminated through implementation of LAs.

16. The State should increase the transparency of the listing and delisting process by linking each listing with the requirements in the listing methodology and provide detailed procedures and justifications for any "Best Professional Judgment."

17. The State should develop a process to review and revise water quality standards (WQS) (designated uses and/or water quality criteria) to ensure the foundation of the TMDL program is on solid ground and limited resources are applied effectively.

Thank you for your consideration of these comments. Please convey them to the State Water Resources Control Board along with the 303(d) list and listing methodology.

If you should have any questions, please contact Dr. Mas Dojiri of my staff at (310) 648-5610.

Sincerely,

Judith A. Wilson

JUDITH A. WILSON, Director
Bureau of Sanitation

JAW:TJM:mad:cr

c: Stefan Lorenzo, TMDL Coordinator, State Water Resources Control Board
David Smith, TMDL Coordinator, EPA Region 9
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JAMES F. STAHL
Chief Engineer and General Manager

May 15, 2001
File No.: 31-370.10

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD LOS ANGELES REGION
2001 MAY 17 P 2:42
RECEIVED

Mr. Dennis Dickerson, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Dear Mr. Dickerson:

Response to Public Solicitation of Water Quality Information -
Request for Extension of Data Submission Deadline

The County Sanitation Districts of Los Angeles County (Districts) are writing this letter to request an extension of the deadline for submission of data in response to the Los Angeles Regional Water Quality Control Board's (Regional Board) Public Solicitation of Water Quality Information, dated March 5, 2001. We feel that the timeframe between the receipt of the solicitation and the data submission deadline is insufficient to provide the requested data. Specifically, the response deadline of May 15, 2001 does not allow sufficient time to collect additional data which are subject to seasonal impacts.

For example, this spring the Districts attempted to collect fish samples from the San Gabriel River in order to provide additional data in response to the 303(d) listings for arsenic and silver in fish tissue. However, due to heavy late winter and early spring rains, the fish had been flushed downstream of the San Gabriel River Estuary, and no samples could be obtained. However, within the past few weeks with the passing of spring rain, *Tilapia* have returned to the San Gabriel River Estuary. Unfortunately, there is insufficient time to analyze samples and submit the data to the Regional Board before May 15, 2001.

The State Water Resources Control Board (State Board) and the Regional Board should consider the impact of seasonal factors on the ability to collect and submit certain types of data. The Districts strongly encourage the Regional Board and State Board to either extend the deadline for submission of data, or consider accepting data that requires seasonal collection after May 15, 2001. In addition, the Fall 2000 solicitation letter from the Regional Board also had a very short timeframe (one month) for the submission of data, and requested water quality data for a different time period (1993-present) as requested in the March 2001 solicitation (1997-present). The Fall 2001 solicitation letter also made no mention that there would be a future follow-up solicitation in March.

In order to provide for collection of additional seasonal data in response to future solicitations of

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water quality information, the Regional Board and State Board should establish a process that maximizes the benefits of the solicitation for additional data. We strongly recommend that the State Board and Regional Board notify organizations at least a year in advance, so that seasonal impacts can be planned for in data collection efforts. Furthermore, the Regional Board should provide the locations of current receiving water stations and identify corresponding sampling activities, so that areas requiring additional sampling can be ascertained and augmented.

We thank you for your consideration of these comments in response to the Los Angeles Regional Water Quality Control Board's Public Solicitation of Water Quality Information. If you have any questions regarding this letter or would like to discuss these comments further, please contact Heather Lamberson, extension 2828, or the undersigned at extension 2803.

Very truly yours,

James F. Stahl

Jose A. Saez
Supervising Engineer
Monitoring Section

JAS:HL:drm

cc: Stan Martinson, SWRCB
Debbie Smith, RWQCB - LA Region
Mark Pumford, RWQCB - LA Region

WATER RECLAMATION
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JAMES F. STAHL
Chief Engineer and General Manager

May 15, 2001
File No.: 31-370.10

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD LOS ANGELES REGION
2001 MAY 17 P 2:42
RECEIVED

Mr. Dennis Dickerson, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Dear Mr. Dickerson:

Response to Public Solicitation of Water Quality Information - Comments Regarding 303(d) Listings for Arsenic in Fish Tissue for the San Gabriel River Estuary, and Silver in Fish Tissue for Coyote Creek

The County Sanitation Districts of Los Angeles County (Districts) are providing you with comments and recommendations in response to the Los Angeles Regional Water Quality Control Board's (Regional Board's) Public Solicitation of Water Quality Information. Specifically, the Districts recommend the delisting of the San Gabriel River Estuary as impaired by Arsenic in Fish Tissue, and Coyote Creek as impaired by Silver in Fish Tissue. The Districts' believe there was insufficient basis to list these compounds in these waters initially, and further, that delisting of arsenic in tissue for the San Gabriel River Estuary is necessary due to revisions of the applicable listing criteria. Our detailed comments regarding the two listings are addressed separately below.

Arsenic in Fish Tissue, San Gabriel River Estuary

The San Gabriel River Estuary was initially included on the 1996 303(d) list by the Regional Board based on arsenic levels in fish tissue. According to information provided by the Regional Board on January 16, 1996, in response to the Districts' request for supporting information for the draft 303(d) List dated December 27, 1995, the basis of the arsenic listing was the exceedance of the State Water Resources Control Board's Toxic Substances Monitoring Program (TSMP) Maximum Tissue Residue Level (MTRL) for arsenic in Inland Surface Waters.

1992 Tissue Data Are Questionable and Should Not Have Been Used As the Basis for Listing Arsenic

Table 1 of the supporting data information package cited exceedances of the MTRL for arsenic in 1992 and 1993, from samples taken for the TSMP. TSMP samples were also collected in 1983, 1985, and 1988-91, but these samples could not be compared to MTRLs because liver tissue samples were analyzed, while only edible tissue samples (filet) could be compared to the MTRLs (State Water Resources Control Board, 1992-1993 TSMP Report, pg. 16). In 1992 and 1993, filet composite samples were analyzed, and were compared to the MTRL of 0.2 ppm (200 ng/g) for

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arsenic. These samples both exceeded the MTRL for arsenic. Data from 1992 are questionable, however, because both filet and liver samples were analyzed, and the filet value was about twice as high as the value for the liver sample (filet = 0.30 ppm, liver = 0.14 ppm). These results are suspicious, because bioaccumulative substances concentrate in the liver more so than in the edible tissues, and therefore one would expect the liver results to be higher that the filet results. Filet samples taken for the TSMP in 1994 and 1999 also exceeded the MTRL of 0.2 ppm, measuring 0.430 and 0.290 ppm, respectively, but these data were not available at the time the Regional Board prepared the 1996 303(d) list.

Fish Tissue Samples Taken From the Estuary Should Not Have Been Compared to the MTRL for Arsenic

MTRLs are advisory values (not regulatory criteria) intended to represent concentrations protective for consumption of fish and water. It was inappropriate for the Regional Board to use the MTRL to determine impairment because it was not an adopted water quality objective. Moreover, even if the MTRL was an adopted objective, it was inappropriate to use in determining impairment for brackish waters as discussed below.

The arsenic MTRL for Inland Surface Waters was calculated using the following formula (State Water Resources Control Board, 1992-1993 TSM Report, Table 6):

MTRL = NSRL / (WI / BCF) + FC

Where, NSRL = California's No Significant Risk Level for arsenic = 10 ug/day
WI = Water Intake = 2L/day
FC = Daily Fish Consumption = 0.0065 kg/day
BCF = Bioconcentration Factor = 44L/kg

As shown in the formula above, the calculation of the MTRL for arsenic includes a water intake factor of 2 liters per day. The application of the arsenic MTRL as the basis for impairment in the San Gabriel River Estuary is therefore inappropriate, because the San Gabriel River Estuary cannot be considered a freshwater body. The water in the estuary is brackish, and is subject to tidal influence, and is therefore too salty for consumption. Accordingly, the San Gabriel River Estuary is not designated by the Regional Board as an existing or potential source of drinking water.

There is No Applicable MTRL for Arsenic and No Basis for Continued Listing

The continued listing of the San Gabriel River Estuary as impaired for arsenic in fish tissue is also inappropriate because currently there is no water quality objective or criteria for arsenic. The California Toxics Rule (CTR) does not contain arsenic human health criteria for consumption of water and/or organisms. In addition, arsenic has been removed from the most recent version of the TSMP MTRL table for Carcinogens in Inland Surface Waters (see attached). Per the State Water Resources Control Board's (SWRCB's) 1998 Clean Water Act Section 303(d) Listing Guidelines for California, Regional Boards have been directed by the US EPA and SWRCB to delist waters for specific pollutants if "Objectives are revised, and the exceedance is thereby eliminated." Thus, there is no regulatory value to use for determining impairment, and the estuary should be delisted for arsenic.

Any remaining concerns regarding arsenic should be assuaged by evaluating other tissue-based criteria, such as the National Academy of Sciences (NAS) Guidelines, U.S. Food and Drug Administration (FDA) Action Levels, and Median International Standards (MIS). The FDA Action Levels are based on assumptions of the quantities, and frequency of consumption of food by humans. FDA limits are intended to protect humans from the chronic effects of toxic substances consumed in food. NAS guidelines were established to both protect the organisms containing the compounds, and the species that in turn consume the organisms. MIS are standards that provide an indication of what different nations consider elevated concentrations of trace elements in fish tissues. The FDA levels and NAS guidelines do not contain criteria for arsenic, and samples taken from the San Gabriel River Estuary for the TSMP meet the Median International Standard (MIS) for arsenic.

Silver in Fish Tissue, Coyote Creek

Coyote Creek was initially included on the 1996 303(d) list by the Regional Board based on silver in fish tissue. According to information provided by the Regional Board on January 16, 1996, in response to the Districts' request for supporting information for the draft 303(d) List dated December 27, 1995, the basis of the silver listing was a single exceedance of the TSMP Elevated Data Level (EDL) for silver. Table 1 of the supporting data information package cites an exceedance of the EDL for silver in 1992.

Fish Tissue Data Used as Basis for Listing Silver Was Not Representative of Coyote Creek

The basis of the initial listing of Coyote Creek as being impaired by silver in fish tissue is inappropriate because the "Coyote Creek" TSMP station where the fish were collected is actually located within the San Gabriel River Estuary. The station is located below the confluence of the San Gabriel River and Coyote Creek, where the concrete lining ends (personal communication with Jack Linn, Department of Fish and Game, and TSMP Report, 1992-1993). It is unlikely that samples collected at this location would be representative of Coyote Creek, because the flow mixes with water in the estuary, and is also under tidal influence. The San Gabriel River Estuary was delisted for silver in fish tissue in 1998 (LARWQCB Staff Report, March 24, 1998).

Listing was Based on Exceedance of EDL for Silver Without Risk Assessment for Human Consumption

The continued listing of Coyote Creek as impaired by silver in fish tissue is inappropriate because the listing is based on the TSMP EDL for silver, and such listing was not confirmed by risk assessment for human consumption. EDLs are internal comparative measures developed by SWRCB staff where concentrations of substances are presented as percentile rankings compared to a distribution of previous TSMP data. According to the SWRCB, "EDLs are not directly related to potentially adverse human or animal health effects; they are only a way to compare findings in a particular area with the larger data base of findings from all over the state" (TSMP Data Report, 1994-1995). Per the SWRCB 1998 Clean Water Act Section 303(d) Listing Guidelines for California, Regional Boards have been directed by the US EPA and SWRCB to delist waters for specific pollutants if "Faulty data led to the initial listing. Faulty data include, but are not limited to...Toxic Substances Monitoring or State Mussel Watch EDL's that are not confirmed by risk assessment for human consumption." Consequently, the San Gabriel River Estuary was delisted for chromium, copper, and silver in fish tissue, and Coyote Creek was delisted for chromium and copper in fish tissue, because all of those listings were based on EDLs only. The Regional Board should

be consistent and remove the remaining tissue listing for Coyote Creek, which is also based on an EDL without a risk assessment for human consumption.

Furthermore, other tissue-based criteria such as NAS Guidelines, FDA Action Levels, and MIS, do not contain criteria for silver.

Recommended Actions for the 2002 303(d) Listing Process

- Remove arsenic as a cause of impairment for the San Gabriel River Estuary because there is no evidence of impairment based on an exceedance of a narrative or numeric water quality objective. The listing of the estuary was based on exceedance of the MTRL for arsenic, however currently there is no MTRL for arsenic. In addition, the application of the MTRL for the estuary was inappropriate initially, because the MTRL considers consumption of both water and fish. The water in the estuary is brackish, and undrinkable, and therefore the MTRL was not applicable.

- Remove silver as a cause of impairment for Coyote Creek because the listing was based on exceedance of the TSMP EDL only, and was not confirmed by risk assessment for human consumption.

We appreciate the opportunity to provide comments in response to the Los Angeles Regional Water Quality Control Board's Public Solicitation of Water Quality Information. If you have any questions regarding this letter or would like to discuss these comments further, please contact Heather Lamberson, extension 2828, or the undersigned at extension 2801.

Very truly yours,

James F. Stahl

Victoria O. Conway

Victoria O. Conway
Head, Monitoring Section
Technical Services Department

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Enclosures

cc: Mark Pumford, RWQCB - LA Region
Del Rasmussen - SWRCB
Jon Bishop - RWQCB - LA Region

Toxic Substances Monitoring Program

Maximum Tissue Residue Levels (MTRLs) in Inland Surface Waters

Carcinogens

Chemical	Water Quality Objective [a] (µg/l)	BCF [b] (l/kg)	MTRL [c] (µg/kg, ppb in filet)
Aldrin	0.00013	d	0.05
Chlordane (total)	0.00057	14100	8.0
p,p' DDT	0.00059	53600	32.0
p,p' DDE	0.00059	53600	32.0
p,p' DDD	0.00083	53600	44.5
Dieldrin	0.00014	4670	0.65
Heptachlor	0.00021	11200	2.4
Heptachlor epoxide	0.00010	11200	1.1
Hexachlorobenzene (HCB)	0.00075	8690	6.5
Hexachlorocyclohexane (HCH), alpha	0.0039	130	0.5
Hexachlorocyclohexane (HCH), beta	0.014	130	1.8
Hexachlorocyclohexane (HCH), gamma	0.019	130	2.5
PCBs (total)	0.00017	31200	5.3
Pentachlorophenol (PCP)	0.28	11	3.1
Toxaphene	0.00073	13100	9.6

Non-carcinogens

Chemical	Water Quality Objective [a] (mg/l)	BCF [b] (l/kg)	MTRL [c] (mg/kg, ppm in filet)
endosulfan I	0.110	270	29.7 (29,700 ppb)
endosulfan II	0.110	270	29.7 (29,700 ppb)
endosulfan sulfate	0.110	270	29.7 (29,700 ppb)
Endrin	0.00076	3970	3.02 (3,020 ppb)
Mercury	0.000051	7342 [e]	0.37
Nickel	0.61	47	28.7

a. From the California Toxic Rule (40 CFR Part 131, May 18, 2000) as established in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SWRCB 2000).

b. Bioconcentration Factors taken from the USEPA 1980 Ambient Water Quality Criteria Documents for each substance.

c. MTRLs were calculated by multiplying the Water Quality Objective by the BCF, except for aldrin.

d. Aldrin MTRL is derived from a combination of aldrin and dieldrin risk factors and BCFs as recommended in the USEPA 1980 "*Ambient Water Quality Criteria for Aldrin/Dieldrin*" (USEPA 1980).

e. Weighted Average Practical BCF as calculated in the California Toxic Rule.

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JAMES F. STAHL
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FAX TRANSMITTAL

TECHNICAL SERVICES DEPARTMENT
Fax Machine No. (562) 692-5103

To: Renee DeShazo **Date:** 5-15-01

From: Christian Alarcon **# of pages:** 3
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Comments: Requested Water Quality Data

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JAMES F. STAHL
Chief Engineer and General Manager

May 15, 2001
File No: 31-370.10

Ms. Renee DeShazo, Environmental Specialist III
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Dear Ms. DeShazo:

Data Request for Receiving Water Stations Associated with Long Beach, Los Coyotes, Pomona, San Jose Creek, Saugus, Valencia and Whittier Narrows Water Reclamation Plants (WRPs)

On March 5, 2001, the Districts received a solicitation for water quality information from the Los Angeles Regional Water Quality Control Board. The letter requested water quality data in electronic format from all receiving water stations sampled by the Districts, which include stations in the San Gabriel River, Santa Clara River, San Jose Creek, Coyote Creek, and Rio Hondo River. The data submitted will be used to assess the quality of waters in California in the State Boards' Clean Water Act Section 305(b) Report on Water Quality and to revise the 303(d) list of waters considered to be impaired by the State. Attached is a hard copy of the data requested and a CD containing the data. This information will also be sent via E-mail.

The following are attached:

1. *Data File.xls*: This file contains the receiving water monitoring results.
2. *Sample Location file.xls*: This file lists the locations of the receiving water stations.

Since the Regional Board is revising the 303(d) list, the Districts request that the listing of ammonia and nitrate and nitrite be removed for the Santa Clara River, and that the ammonia listing be removed for the San Gabriel River and San Jose Creek in accordance with guidance provided by EPA. A memorandum dated November 26, 1993 by Geoffrey H. Grubbs, Director of the Assessment and Watershed Protection Division gives guidance for the 1994 Section 303(d) lists. Grubbs states, "the Water Quality Planning and Management regulation (40 CFR Part 130) provides that waters need not be included on a section 303(d) list if other Federal, State, or local requirements have or are expected to result in the attainment or maintenance of applicable water quality standards."

As the Regional Board is aware, in June 1995 the five WRPs discharging to the San Gabriel River watershed and the two WRPs discharging to the Santa Clara River watershed received new NPDES permits containing requirements regarding compliance with the ammonia Basin Plan objectives. All seven of these permits established a compliance date of June 2003 (8 years following adoption of the permits) for the receiving water limitation for ammonia. The Districts believe that this guidance given by EPA justifies the removal of ammonia from the 303(d) list for the San Gabriel River, San Jose Creek, and Santa Clara River

because the NPDES permits have a compliance date for the attainment of ammonia. Since the treatment process chosen to comply with the ammonia objective (nitrification/denitrification process) will also lower the nitrate and nitrite concentrations, the Districts believe that the removal of nitrate and nitrite from the 303(d) list for the Santa Clara River is also warranted.

In addition, research from the nitrification/ denitrification (NDN) process has shown an enhanced removal of MBAS in the final effluent to levels well below the Basin Plan objective of 0.5 mg/L. Although MBAS is currently not listed for impairment in the San Gabriel River or the Santa Clara River, it has been detected in the final effluent of some of the WRPs at levels exceeding the Basin Plan objective. However, since the WRPs will be converted to the NDN process, this will ensure attainment of the Basin Plan's MBAS receiving water objective.

Very truly yours,

James F. Stahl

Victoria O. Conway
Head, Monitoring Section
Technical Services Department

VOC:CA:drm
Enclosures

WATER RECLAMATION
SOLID WASTE MANAGEMENT

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JAMES F. STAHL
Chief Engineer and General Manager

May 17, 2001
File No.: 31-370.10

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Ms. Rene DeShazo, Environmental Specialist III
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angles, CA 90013

Dear Ms. DeShazo:

Comments on the Water Quality Assessment
Guidelines for the 2002 Water Quality Assessment

Enclosed are the County Sanitation Districts of Los Angeles County's (Districts) comments concerning the water quality assessment guidelines for the 2002 Water Quality Assessment and 303(d) listing process. Our comments are provided below.

➢ **The Regional Board should provide a 60-day public review period for the 305(b) Report prior to releasing the 303(d) List for public review**

The Districts believe that the Regional Board should provide a 60-day public review and comment period for the Water Quality Assessment required under Section 305(b) of the Clean Water Act prior to releasing the 303(d) list for public review. In both the 1996 and 1998 303(d) listing processes, no public review period was provided for the 305(b) report, although it was reportedly the basis for those listings. It seems appropriate that the public should be allowed to comment on the 305(b) report. It should be noted that the state of Texas has adopted a public comment period for their 305(b) report. The Texas Natural Resource Conservation Commission (TNRCC, the water quality control authority for the State of Texas) adopted a 305(b) public comment period as discussed in their January 16, 2000 document entitled "Methodology for Developing the Texas List of Impaired Water Bodies." Furthermore, the TNRCC outlines a sequence of events for developing and finalizing a 303(d) list. On page 3 of that document, the TNRCC describes the "Listing" process as follows:

1. Selecting acceptable data and information to develop the 305(b) report;
2. Assessing these data and information to determine which water bodies are impaired;
3. Preparing the draft 305(b) report;
4. Receiving public comment on the 305(b) report;
5. Preparing the draft 303(d) list;
6. Ranking the water bodies for TMDL development;
7. Receiving public comment on the list;

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8. Revising and finalizing the list based on new information and public input; and
9. Developing a schedule for development of TMDLs for listed water bodies.

The TNRCC provides a very logical sequence of events that should occur before a 303(d) list is prepared and a schedule of TMDLs is finalized. Note that most importantly, the 305(b) report must be completed and reviewed by the public before a 303(d) list is even prepared. This approach makes sense being that the 305(b) report is the basis for 303(d) listing decision.

➢ **The 305(b) report needs to comply with all provisions and mandates of the Clean Water Act, Section 305(b)**

The Clean Water Act, Section 305(b) ***mandates*** that the state prepare several analyses in conjunction with the 305(b) report. Section 305(b) includes the following requirements:

> 305(b)(1)(A): a description of the water quality of all navigable waters in such State during the preceding year, with appropriate supplemental descriptions as shall be required to take into account seasonal, tidal and other variations, correlated with the quality of water required by the objective of this chapter (as identified by the Administrator pursuant to criteria published under section 1314(a) of this title) and the water quality described in subparagraph (B) of this paragraph;
>
> 305(b)(1)(B): an analysis of the extent to which all navigable water of such State provide for the protection and propagation of a balanced population of shellfish, fish and wildlife, and allow recreational activities in and on the water;
>
> 305(b)(1)(C): an analysis of the extent to which the elimination of the discharge of pollutants and a level of water quality which provides for the protection and propagation of a balanced population of shellfish, fish and wildlife, and allow recreational activities in and on the water, have been or will be achieved by the requirements of this chapter, together with recommendations as to additional action necessary to achieve such objectives and for what waters such additional action is necessary;
>
> 305(b)(1)(D): an estimate of (I) the environmental impact, (ii) the economic and social costs necessary to achieve the objective of this chapter in such State, (iii) the economic and social benefits of such achievement; and
>
> 305(b)(1)(E): a description of the nature and extent of non-point sources of pollutants, and recommendations as to the programs which must be undertaken to control each category of such sources, including an estimate of the costs of implementing such programs. (33 U.S.C. Sec. 1315(b)) (*emphasis added*)

Historically, the above required analyses have never been conducted by the Regional Board (or by the State Water Resources Control Board on behalf of the Regional Board), and the Districts request that they be completed in full as required by Federal law and also be available for public review prior to the 303(d) listing process.

➢ **Update Water Quality Assessment Guidance to be Consistent with SWRCB 303(d) Listing Guidelines**

In the Regional Board's 1996 Water Quality Assessment and Documentation[1], State Water Resources Control Board Toxic Substances Monitoring Program (TSMP) Elevated Data Levels (EDLs) were used in the assessment as a basis for determining support for the aquatic life use. The document states, "EDLs were used in the assessment as follows: If no other constituents exceed standards, but if one or two constituents were above the EDL85 or EDL95, then those constituents are listed as "fully supporting but threatened." If three or more constituents are above the EDL then those constituents are listed as "partially supporting."" Those waterbodies "partially supporting" the aquatic life use were then placed on the 303(d) list of impaired waterbodies. EDLs are internal comparative measures developed by State Water Resources Control Board (SWRCB) staff where concentrations of substances are presented as percentile rankings compared to a distribution of previous TSMP data. According to the SWRCB, "EDLs are not directly related to potentially adverse human or animal health effects; they are only a way to compare findings in a particular area with the larger data base of findings from all over the state."[2] Per the SWRCB 1998 Clean Water Act Section 303(d) Listing Guidelines for California, Regional Boards have been directed by the US EPA and SWRCB to delist waters for specific pollutants if "Faulty data led to the initial listing. Faulty data include, but are not limited to...Toxic Substances Monitoring or State Mussel Watch EDL's that are not confirmed by risk assessment for human consumption."[3] Accordingly, the Regional Board is required to incorporate this directive into future Water Quality Assessment Guidance, and discontinue the use of TSMP EDLs as a basis for determining impairment.

➢ **Use Only Adopted Water Quality Standards as Basis for 303(d) Listings**

The Regional Board should make clear that only adopted water quality standards will be used as the basis for developing the 305(b) Report and 303(d) list. In the past, informal criteria or factors (such as the presence of a fish tissue advisory) have been used as the basis for listing a water as impaired. However, these informal criteria have not been subject to a formal adoption process subject to the Porter-Cologne Water Quality Act and Administrative Procedures Act, and as such, constitute a "back-door" method of establishing water quality standards. For instance, TSMP Maximum Tissue Residue Levels (MTRLs) are advisory values intended to represent concentrations protective for consumption of fish (in saltwater) or consumption of fish and water (in freshwater bodies). MTRLs are advisory values only and are not standards or regulatory criteria. Therefore, MTRLs should not be used as the basis for the water quality assessment or 303(d) listing.

➢ **Use 25 Percent Criteria Exceedance as Basis for Impairment of Aquatic Life Use Support for Water Column Toxic Substances**

In the US EPA Guidelines for Preparation of the 1996 State Water Quality Assessments (305(b)

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[1] Regional Water Quality Control Board, Los Angeles Region 1996 California Water Quality Assessment- 305(b) Report, Supporting Documentation for Los Angeles Region

[2] State Water Resources Control Board, Toxic Substances Monitoring Program 1994-95 Data Report

[3] State Water Resources Control Board, 1998 Clean Water Act (CWA) Section 303(d) Listing Guidelines for California, August 11, 1997

Reports) and LARWQCB 1996 Water Quality Assessment and Documentation, the assessment guideline for determination of aquatic life use support for water column toxic substances states that for any one pollutant, criteria exceeded in > 10 percent of samples results in an assessment designation of "not supporting." Criteria exceeded more than once within a 3-year period (or two violations within a 6-year period), but in < 10 percent of samples, results in designation as "partially supporting." However, the same guidance states that for aquatic life use support for water column conventional constituents and stressors, criteria exceeded in > 25 percent of measurements results in a "not supporting" assessment designation, and criteria exceeded in 11 to 25 percent of measurements results in a designation as "partially supporting." Waterbodies "partially supporting" the aquatic life use are then placed on the 303(d) list. This difference in percent criteria exceedance between toxic substances and conventional constituents and stressors appears arbitrary and is not supported by scientific evidence. Furthermore, there is no differentiation in how data are evaluated relative to the degree of exceedance (e.g. 1% vs. 100% above the criterion). In the Regional Board Staff Report dated March 23, 1998, Proposed List of Impaired Surface Waters, it was stated that "In order for a water to be listed as impaired, a water quality objective must have been exceeded in at least 25% of the data set." The Regional Board should adhere to this impairment criteria as set forth in the 1998 Proposed List of Impaired Surface Waters. The "10 percent" criteria exceedance for toxic substances is overly protective, because several safety factors have already been incorporated into the water quality objectives themselves to ensure protection of the aquatic life use. In addition, the Regional Board should be cognizant of the potential of Type I and II errors using strict percentages to determine compliance. Type I and II errors are discussed in greater detail below. Finally, the Regional Board needs to determine the minimum number of samples that are necessary to make statistically valid impairment decisions. (Note that the TNRCC required a minimum of 10 samples to make statistically valid impairment decisions) In cases where the minimum data criteria are not, the Regional Board should perform additional monitoring to determine whether impairment truly exists.

➢ **Determine Appropriate Application of Acute and Chronic Criteria for Aquatic Life Use Support**

The Regional Board should consider an approach to determine appropriate application of acute and chronic exposure. In the Regional Board's 1996 WQA documentation[4], the Water Quality Assessment guidelines for the aquatic life use for water column toxic substances refers to violations of chronic criteria, or acute criteria if no chronic criteria are available. EPA guidance, however, considers acute criteria when performing aquatic life assessments for toxicants. The application of chronic criteria to determine impairment automatically assumes chronic exposure, even though studies to investigate transformation of toxic substances in the receiving water and effects of chronic exposure have not been conducted. In particular, we recommend that only acute criteria be utilized when determining aquatic life impairment for concrete-lined urban channels, where flow is continuous and water rapidly moves downstream to estuaries. The Regional Board should consider conducting workshops with stakeholders to determine the appropriate criteria for evaluating impairment or attainment of the aquatic life use.

[4]Regional Water Quality Control Board, Los Angeles Region 1996 California Water Quality Assessment-305(b) Report, Supporting Documentation for Los Angeles Region

➢ **Develop a consistent basis between the origin of numeric water quality objectives and how impairment is subsequently determined.**

In the 303(d) listing process, the linkage between how water quality objectives were originally set and how impairments are determined is crucial and should be examined prior to any listing decisions. An examination of the 1975 and 1994 Water Quality Control Plans (Basin Plans) for the Santa Clara River Watershed (4A), shows that the numerical water quality objectives for chloride, TDS, sulfate, boron, nitrogen and SAR were based on flow-weighted annual averages taken at the end of each reach or segment (typically representing the lowest concentration in the reach). The footnote containing these provisions was inexplicably removed in the 1994 update to the Basin Plan, effectively changing how compliance with these objectives would be determined and disregarding the significant effect that seasonal discharge (flow) variations have on water quality. If numerical objectives were set based on flow-weighted annual averages taken at the furthest end of each reach (where they may represent the lowest concentration within the reach), then it makes sense that compliance with those objectives should also be based on flow-weighted annual averages taken at the furthest end of each reach.

➢ **The Regional Board should consider the impacts of temporary discharges when determining impairments**

The Districts are concerned about how so-called "temporary" permitted discharges will be factored into 303(d) listing decisions for various reaches. As an example, the Districts have two treatment facilities, the Pomona and San Jose Creek WRPs, which discharge into San Jose Creek. This receiving water has a numerical TDS objective of 750 mg/L. For the period between July 1997 and March 2001, the maximum monthly average TDS concentrations for final effluent at Pomona and San Jose Creek WRPs were 576 and 644 mg/L TDS, respectively. However, at receiving water stations SG-RC, SG-RD and SG-C1, which are downstream of the Pomona WRP and upstream of the San Jose Creek WRP, 73%, 80% and 87% of the data set at each respective station exceeded the numerical TDS objective of 750 mg/L. At receiving water station SG-C2, which is downstream of the San Jose Creek WRP, 22% of the historical data exceed the 750 mg/L TDS objective. The exceedances at SG-RC, SG-RD, SG-C1 and SG-C2 are obviously due to other point and/or non-point sources that discharge to San Jose Creek. The sources could very well be from temporary permitted discharges that are allowed by the Regional Board to discharge effluent that exceeds Basin Plan objectives. It is our understanding that one such temporary *permitted* discharger, TRW Inc. (NPDES No. CA0064114), discharges TDS at levels as high as 1100 mg/L TDS. TRW Inc. discharges this treated groundwater between station SG-RD and SG-C1. The Regional Board, in TRW's Waste Discharge Requirements (Regional Board Order No. 97-057), recognizes "that removal of TDS...is not cost-effective" and hence gave no waste discharge limits for TDS. While TRW's flow (72,000 gallons per day) is minor, the Districts are concerned about the combined effect that TRW and potentially many other temporary permitted discharges could have on this waterbody, as it is clear that there are other sources (non-point and other temporary permitted discharges) that are causing the exceedances of the TDS objectives.

The Districts are obviously concerned about the inconsistencies in Regional Board's permitting policy, and the 303(d) listing process as they relate to this situation and potentially many others. In light of the significance that listing a water body on the 303(d) List may have for all potential sources, it seems appropriate that the Regional Board identify all temporary permitted discharges

that were and are allowed to discharge wastewaters that violate Basin Plan objectives and make determinations as to whether the observed water quality exceedances actually constitute water quality impairments warranting inclusion on the 303(d) list and development of a TMDL. In such cases, cessation of the temporary discharge or revision of WDRs may be sufficient to bring the waterbody back into compliance with receiving water standards.

➢ **The Regional Board should use binomial statistical approaches for establishing partial and non-support use designations that minimize Type I and Type II errors**

The 1998 303(d) list was based on the criteria that at least 5 data points existed in 1995-1998 data set and that if at least 25% of the data in the relevant data set exceeded a water quality objective, it would be listed as impaired.[5] This type of impairment determination is also referred to as the "raw score" assessment approach. The Districts recommend that the Regional Board review a recently published article in *Environmental Science and Technology*, entitled "Statistical Assessment of Violations of Water Quality Standards under Section 303(d) of the Clean Water Act."[6] Smith et. al. (2001) discuss some of the deficiencies of the "raw score" assessment approach as it relates to handling Type I and II errors. A Type I error in the context of impairment determinations would be falsely declaring a water body as impaired, while a Type II error would be falsely declaring a water body as un-impaired. In the article, Smith et. al. (2001) advocate using binomial statistical approaches to assess impairment determinations, as these approaches account for Type I and II errors. The article is included as Attachment A for your review. It is important to note that the Texas Natural Resource Conservation Commission (TNRCC) has incorporated binomial statistical approaches for their two January 16, 2001 assessment guidance documents for the 305(b) report entitled, "Methodology for Developing the Texas List of Impaired Water Bodies" and "Guidance for Assessing Texas Surface and Finished Drinking Water Quality Data, 2002."[7], 4 The TRNCC estimated that the "raw score" assessment approach on simple percentage exceedance of 10%, results in a 26.4 to 61.2 percent chance in *falsely* classifying a water body as impaired.[8] In light of the significance that listing a water body on the 303(d) List has for all identified sources, it is appropriate for the Regional Board to minimize Type I errors. The Districts recommend that the Regional Board takes the necessary steps to incorporate binomial statistical approaches as done by the TNRCC and as advocated by Smith et al (2001). The Regional Board should also be cognizant of minimizing Type I errors associated with 25% exceedance rates for appropriate constituents that

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[5] California Regional Water Quality Control Board, Los Angeles Region, "Proposed 1998 List of Impaired Water (The 303(d) List)," March 23, 1998.

[6] Smith, Eric P., Ye, Keying, Hughes, Chris, Shabman, Leonard, "Statistical Assessment of Violations of Water Quality Standards under Section 303(d) of the Clan Water Act," *Environmental Science and Technology*, Vol. 35, No.3, 2001, pp. 606-612.

[7] Texas Natural Resources Conservation Commission, , "Methodology for Developing the Texas List of Impaired Water Bodies," Review Draft, Version 2, January 16, 2001.

[8] Texas Natural Resources Conservation Commission, "Guidance for Assessing Texas Surface and Finished Drinking Water Quality Data, 2002," Review Draft, Version 5, January 16, 2001.

fall under the 25% exceedance threshold for partial and non-support use designations.

➢ **Consider spatial and temporal variations and incorporate trend analyses to account for hydrologic and seasonal changes that affect water quality**

The Regional Board did not consider spatial, temporal, seasonal and/or hydrologic variations and their effects on water quality when preparing the 1998 303(d) list.[9] This was a gross deficiency and oversight in the 1998 303(d) List. For example, streamflow (discharge) is acknowledged as the single largest source of variability in water quality data, and streamflow is dependent on spatial, temporal, seasonal and hydrologic variations. Not accounting for the effects of streamflow on water quality data can bias the data set with respect to making impairment determinations. The importance of streamflow as it relates to how water quality objectives were originally set also must be assessed. Spatial variations need to be also assessed, especially as they relate to effluent-dependent water bodies. Because POTW WRP effluent often comprises the majority of discharge at various freshwater receiving water locations within the Los Angeles Region, the Regional Board should be cognizant of the spatial variations and concentration gradients that exist when assessing whether a water body is truly impaired.

At a minimum, the Districts strongly urge the Regional Board to review TRNCC's , "Guidance for Assessing Texas Surface and Finished Drinking Water Quality Data, 2002," and incorporate the methods used by the TRNCC to account for spatial and temporal variations. For example the TRNCC state "the assessment ***must*** use a sample set that is spatially and temporally representative of conditions in the water body. Sample locations ...should be characteristic of the main water mass or distinct hydrologic areas. At a minimum, samples distributed over at least two seasons (to include inter-seasonal variation) and over two years (to include inter-year variation) ***must*** be utilized. The data should not be biased toward unusual conditions, such as flow, runoff, or ***season.***"

The Regional Board should also consider the use of trend analyses as means to classify concerns for certain chronic exposure constituents (See discussion in next bulleted item). Trend analyses provide a mechanism that would allow the Regional Board to track three-year concentrations (for a water quality assessment period) with respect to long-term seasonal and hydrologic patterns, so that water quality assessment data in any period is not taken out of context with respect to the natural historical variations that occur in any given watershed. Understanding historical patterns will also provide the Regional Board insight into whether beneficial uses were actually impaired during past historical periods where chronic exposure limits had been exceeded. If there had been no documented evidence of prior impairment of beneficial uses due to exceedance of past chronic exposure limits, then the validity of chronic exposure limit to the subject watershed is questionable. Thus, the use of trend analysis techniques can aid the Regional Board in determining whether (1) a waterbody should be placed on the 303(d) list; (2) whether the numerical water quality criteria for chronic exposure is valid for the subject waterbody; or (3) whether trends in the water quality data warrant a "concern" to be addressed with more enhanced monitoring, but that does not warrant placement on the 303(d) list.

[9] It is also evident upon review of the 1975 Basin Plan and the 1978 Amendments to the Basin Plan that spatial, temporary, seasonal and/or hydrologic variations were not taken into consideration when establishing water quality objectives to reflect background conditions.

➢ **The Regional Board needs to address "paper" or "perceived" impairments (i.e. situations where numeric criteria are exceeded and a partial or non-supporting "impairment" is classified, despite there being no evidence that an impairment actually exists)**

The Districts are concerned about the issue of "paper" or "perceived" impairments and encourage the Regional Board to consider developing a mechanism in their guidance to differentiate between real impairments (documented loss/impairment of beneficial use for the waterbody of concern) versus paper or perceived impairments (exceedance of numerical criteria, but direct evidence that beneficial use is not being impaired in the waterbody of concern). With the increasing number of constituents expected to be listed, and the limited amount of Regional Board resources, it makes sense to address real impairments that require Regional Board's immediate action over paper or perceived impairments that are more issues of concern that require additional data and/or studies in order to determine if the water quality objective was appropriately set.

The 1998 303(d) Listing of Reaches 5 and 6 of the Santa Clara for chlorides is an excellent example of the need to differentiate real impairments versus paper impairments. The subject reaches of the Santa Clara River were listed because chloride data in those reaches exceeded an objective of 100 mg/L, which was believed to also be protective of agricultural beneficial uses, specifically avocados. A more thorough review of the agricultural literature shows that 142 mg/L chloride threshold, based on chronic exposure, is protective of avocados. Furthermore, there is documented evidence that avocado yields in the Santa Clara River Watershed have never been affected by chlorides. An April 15, 2001 Los Angeles Times article (see Attachment B) even states that "Ventura County avocado growers say they are harvesting their biggest crops in years," despite that the Santa Clara River watershed is listed as impaired due to chlorides, apparently not supporting the agricultural beneficial use. It is obvious that past and current chloride concentrations in the Santa Clara River are protective of the agricultural uses within the Santa Clara River watershed.

This issue of paper or perceived impairments can be handled outside of the 303(d) list, through 305(b) report in a similar fashion as it is handled by the TRNCC. In the TRNCC's January 16, 2001 document entitled "Methodology for Developing the Texas List of Impaired Water Bodies," it states that "the 305(b) report provides an assessment of all monitored water bodies and identifies not only designated use impairments, *but also water quality concerns that are worthy of note and further investigation, but do not constitute use impairments*." In other words they have created a "watch list" of water concerns. Such a mechanism would allow the Regional Board the flexibility to further study concerns while not placing these concerns needlessly on a 303(d) list.

This mechanism has specific utility for beneficial uses that are affected by chronic exposure criteria, such as avocados, and whereby impairment should be based on long-term statistical trends of the data in conjunction with field studies to determine whether the subject beneficial use is being impaired. In some cases, the data and information gathered may lead to a determination that a numerical objective was inappropriately set. Ultimately, such a mechanism provides the framework for the Regional Board to make determinations about water quality reaches that are of concern, but do not warrant placement on the 303(d) list.

➢ **Removal of "Ammonia" and "Nitrate and Nitrite" from the 303(d) List**

On November 8, 2000 and May 15, 2001, the Districts submitted receiving water quality data to the

Regional Board, which will be used for water quality assessments and in turn identifying impaired water bodies. These receiving water data include all stations monitored by the Districts in the San Gabriel River, Santa Clara River, San Jose Creek, Coyote Creek, and Rio Hondo.

During this update effort of the 303(d) list, the Districts request that the listing of "ammonia" and "nitrate and nitrite" be removed for the Santa Clara River, and that the "ammonia" listing be removed for the San Gabriel River and San Jose Creek in accordance with guidance provided by EPA. A memorandum dated November 26, 1993 by Geoffrey H. Grubbs, Director of the Assessment and Watershed Protection Division gives guidance for the 1994 Section 303(d) lists. Grubbs states, "the Water Quality Planning and Management regulation (40 CFR Part 130) provides that waters need not be included on a section 303(d) list if other Federal, State, or local requirements have or are expected to result in the attainment or maintenance of applicable water quality standards." The Regional Board states in its 1998 303(d) List Staff Report[5] that specific pollutants can be de-listed if "there are control measures in place that will result in protection of beneficial uses. Control measures include permits, clean up and abatement orders, and watershed management plans that are enforceable and include a time schedule for compliance with objectives."

As the Regional Board is aware, in June 1995 the five WRPs discharging to the San Gabriel River watershed and the two WRPs discharging to the Santa Clara River watershed received new NPDES permits containing requirements regarding compliance with the "ammonia" Basin Plan objectives. All seven of these permits established a compliance date of June 2003 (8 years following adoption of the permits) for the receiving water limitation for "ammonia". The Districts believe that this guidance given by EPA justifies the removal of "ammonia" from the 303(d) list for the San Gabriel River, San Jose Creek, and Santa Clara River because the NPDES permits have a compliance date for the attainment of "ammonia". Since the treatment process chosen to comply with the "ammonia" objective (nitrification/ denitrification process) will also lower the "nitrate and nitrite" concentrations, the Districts believe that the removal of "nitrate and nitrite" from the 303(d) list for the Santa Clara River is also warranted.

The Districts request that "ammonia" be removed from the 1998 303(d) list for the following specified reaches:

1) San Gabriel River
   - Reach 1 - Estuary to Firestone
   - Reach 2 - Firestone to Whittier Narrows Dam
   - Reach 3 - Whittier Narrows Dam to Ramona
2) San Jose Creek
   - Reach 1 - San Gabriel River confluence to Temple Street
   - Reach 2 - Temple to I-10 at White Avenue

The Districts also request that "ammonia" and "nitrate and nitrite" be removed from the 1998 303(d) list for the following specified reaches:

1) Santa Clara River
   - Reach 7 - Blue Cut to west pier Highway 99
   - Reach 8 - West pier Highway 99 to Bouquet Canyon Road Bridge

In addition, preliminary results from the nitrification/ denitrification (NDN) research process have shown an enhanced removal of MBAS in the final effluent to levels below the Basin Plan objective of 0.5 mg/L. Although MBAS is currently not listed for impairment in the San Gabriel River or the Santa Clara River, it has been detected in the final effluent of some of the WRPs at levels exceeding the Basin Plan objective. However, since the WRPs will be converted to the NDN process, this will ensure attainment of the Basin Plan's MBAS receiving water objective.

The Districts appreciate the opportunity to provide comments and input into the water quality assessment guidelines that will be used for the 2002 Water Quality Assessment. Should you have any questions concerning the comments discussed in this letter and/or need copies of any of the references cited, feel free to contact the undersigned at extension 2801.

Very truly yours,

James F. Stahl

Victoria O. Conway
Head, Monitoring Section
Technical Services Department

VOC:BL:drm
Enclosures

Attachment A

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Statistical Assessment of Violations of Water Quality Standards under Section 303(d) of the Clean Water Act

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Section 303(d) of the Clean Water Act requires states to assess the condition of their waters and to implement plans to improve the quality of waters identified as impaired. U.S. Environmental Protection Agency guidelines require a stream segment to be listed as impaired when greater than 10% of the measurements of water quality conditions exceed numeric criteria. This can be termed a "raw score" assessment approach. Water quality measurements are samples taken from a population of water quality conditions. Concentrations of pollutants vary naturally, measurement errors may be made, and occasional violations of a standard may be tolerable. Therefore, it is reasonable to view the assessment process as a statistical decision problem. Assessment of water quality conditions must be cognizant of the possibility of type I (a false declaration of standards violation) and type II (a false declaration of no violation) errors. The raw score approach is shown to have a high type I error rate. Alternatives to the raw score approach are the Binomial test and the Bayesian Binomial approach. These methods use the same information to make decisions but allow for control of the error rates. The two statistical methods differ based on consideration of prior information about violation. Falsely concluding that a water segment is impaired results in unnecessary planning and pollution control implementation costs. On the other hand, falsely concluding that a segment is not impaired may pose a risk to human health or to the services of the aquatic environment. An approach that recognizes type I and type II error in the water quality assessment process is suggested.

Introduction

The Total Maximum Daily Load (TMDL) process now dominates water quality policy discussions. Policy reviews (*1*), lawsuits (*2*), regulations (*3*), and congressional interest (*4*, *5*) all have been directed to what had, until recently, been an obscure provision of the Clean Water Act. The TMDL process originates with Section 303(d) of the Clean Water Act (*6*). That section requires states to conduct an assessment of and then report on the condition of their waters. In practice, this means that the states review the water quality conditions in specific segments in a water body (a lake, bay, or river) using a specific water quality monitoring location within the segment.

Each state's 303(d) impaired waters list identifies segments where anthroprogenic loads of pollutants are leading to violation of water quality standards. The listed segments must remain on the list until the identified pollution problem has been addressed or until evaluation of subsequent monitoring data or other information suggests that the segment was misclassified or the problem remediated. Addressing an identified water quality problem for a Section 303(d) listed water is a complicated and potentially expensive process. First, a watershed study is initiated to establish the maximum quantity of each pollutant that can be discharged to a segment if the segment is to meet water quality standards. Once the maximum load is defined, there are a series of steps to allocate responsibility for load reduction, to identify pollution sources, and to secure those reductions over time. These steps constitute the TMDL watershed study and implementation plan (*7*).

Planning alone can be costly. In comments to the U.S. Environmental Protection Agency (U.S. EPA), states agencies concluded that 25% of TMDLs will be simple and will cost $50 000–200 000, 65% of TMDLs will be of moderate difficulty and will cost $300 000–400 000, and 10% of TMDLs will be complex and will cost $600 000–1 000 000 (*5*). A state may have hundreds of segments on its impaired waters list (*8*). Then, implementation of a TMDL plan imposes additional and perhaps substantial pollution control costs. Given limited resources available for programs of water quality improvement planning and implementation, it is important that waters that are truly impaired be identified. Also, water listed as impaired may cause people to avoid use of that water and benefits to society may be forgone. For these reasons, it is appropriate to review how the list of impaired waters is constructed during the water quality assessment process.

A review is especially warranted because water quality standards, monitoring protocols, and guidelines for assessing data were developed before the TMDL program took on its current significance and may have been developed for different purposes. A review of the Section 303(d) assessment process might examine the basis and intended purpose of the water quality standards themselves. Also, such a review might evaluate the monitoring protocols that secure the data used to make the listing determination. In this paper, we review the guidelines for interpreting the monitoring data that are collected. Specifically, we evaluate the U.S. EPA assessment guidelines for comparing sample measurements of water quality conditions with numeric ambient water quality standards.

Numeric water quality standards are measurable criteria for dissolved oxygen, temperature, pH, and fecal coliform bacteria counts. Critical to the Section 303(d) assessment is the monitoring data collected by a state's environmental department to assess whether stream conditions meet standards. Cost realities, given the need for statewide monitoring and the fact that most monitoring is for enforcement of point source discharge permits, results in a limited number of stations and samples for each station. For example, Virginia waters are among the most monitored in the nation with over 17 000 mi of monitored waterways. Virginia's significant monitoring program collects data at each station on a quarterly basis. The Section 303(d) assessment occurs every 2 yr, so the Section 303(d) assessment might be based on 2 yr of data at a particular station (approximately eight

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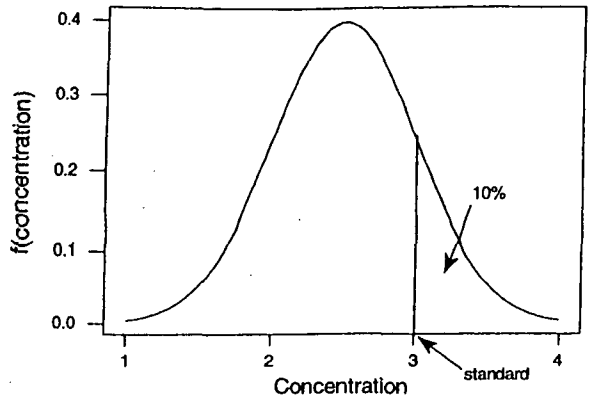

FIGURE 1. Plot of distribution of hypothetical chemical concentration. The standard allows for exceeding a concentration of 3 10% of the time.

observations; *9*). The reality of limited data must be recognized in the Section 303(d) assessment process.

The assessment challenge is to interpret the limited amount of sample data to determine whether an apparent violation of standards warrants listing a segment as impaired. Likewise, limited data must be relied upon to determine whether actions taken to address water quality degradation have had the desired results. The samples taken are affected by variability in human activity and natural or background conditions. Also, there are certain acceptable tolerances for violations. For example, an occasional violation of a dissolved oxygen standard, even if by anthropogenic sources, may not be critical for the aquatic environment. In addition, measurement errors in the analysis of the samples collected could be yet another reason the numeric standard might be violated in a sample. It appears that the U.S. EPA guidelines recognize these arguments because the guidelines require a water to be listed only if more than 10% of the samples violate the standard (*10*). In effect, the assessment guidelines imply that a violation of the numeric criterion is acceptable in 10% of the samples taken.

If the number of samples at a stream location greatly increases in frequency, conceptually approaching one for each hour (for example), the U.S. EPA guidelines suggest that it is acceptable for a standard to be violated 10% of the time. A statistical representation of this perspective is shown in Figure 1. In Figure 1, the measurement is a concentration of some contaminant in the ambient water. The distribution of the water quality parameter may be drawn to represent the likelihood of ranges of values. As displayed, the water quality standard requires that a concentration of 3.0 or less should be met 90% of the time, although some measurements may exceed the standard naturally.

The U.S. EPA guidelines suggest what can be called a raw score test to decide if a segment is impaired. The test statistic is the number of measurements that exceed the standard. The critical value is 10% of the sample size. Because the number of samples is typically not a multiple of 10, the approach requires truncation. If there are five samples and one or more exceed the standard, the site is declared impaired. The same is true for all sample sizes between 1 and 9. For sample sizes between 10 and 19, one sample is allowed to exceed the standard but not more. However, the raw score approach does not include consideration of the likelihood and costs of making an erroneous listing. Suppose eight samples are taken, and a raw score analysis is completed. If one of the samples (>10%) exceeds the standard, the site would be declared impaired. However, the one sample that violates the standard might be attributed to natural variability or an unusual human activity. In this case, the site may be classified as impaired when in fact this is not the case. This error is referred to as a type I error. Another error may occur when a site is truly impaired, but the sampled measurements from the site do not exceed the standard, and the site is not declared impaired. This error is referred to as a type II error.

In this paper, the error rates associated with the raw score approach and two statistical approaches are evaluated. The comparisons are made in terms of type I and type II error rates. One alternative to the raw score approach is the Binomial test. Both the raw score and the Binomial methods treat the sample observations as binary values, either exceeding the standard or not exceeding the standard. Another alternative to the raw score approach is the Bayesian version of the Binomial test. This method uses prior information about violation probability with sampled information to calculate a probability of violation that may then be used to make a decision. The three methods are evaluated in terms of their error rates. This evaluation of alternative approaches leads to a recommendation for improving water quality assessments in the Section 303(d) process.

Statistical Approaches

The Section 303(d) water quality assessment process is a statistical decision problem. Specifically, from a sample of water quality measurements the water quality assessor must decide if the site is impaired. Given uncertainty in the measurement and sampling process, one may use hypothesis testing to help with the decision process. In the statistical approach to impairment, the null hypothesis is that the site is not impaired. The alternative hypothesis is that the site is impaired. The hypothesis may be framed in terms of a parameter p describing the true degree or probability of impairment and p_0, the "safe level" or hypothesized probability of impairment under safe conditions. The impairment decision is based on the test H_0: $p \leq p_0$ versus H_1: $p > p_0$ where p_0 is a constant between 0 and 1 (in the current problem, it is 0.10). Under this framework, the two error rates [declare segment impaired when it is not (type I error or a false positive) or designate the segment as not impaired when in fact it is (type II error or false negative)] may be evaluated. The error rates are bounded between 0 and 1, with 0 indicating no error. However, given the sample sizes likely to be available, both errors will not be close to zero.

Because both type I and type II errors always will be present, water quality managers must choose (directly or indirectly) the tolerable amount of error. In principle, this choice should be based on an explicit consideration of the consequences (costs) of being wrong. Costs may be financial outlays made by governments or private individuals. Costs might be forgone public values that may not be reflected in markets. In the following sections, the tradeoff among error types is considered without regard to the cost of being wrong. Costs are considered in the Discussion section of the paper.

The raw score approach uses limited, binary information to make the impairment determination. An alternative to the raw score, the Binomial testing approach focuses on the probability of violation using the same information. The Bayesian approach varies the Binomial method by using information from other sources about the probability of violation.

Binomial Method. When applying the Binomial approach, observations exceeding the numeric criterion are assigned the value 1, and those that do not are assigned the value 0. Then if n independent samples are collected, the number of observations exceeding the criterion (the number of 1's) may be viewed as a Binomial random variable with parameters p and n (*11*). Using the Binomial model, one may then test the hypothesis that the probability of exceeding the standard is less than or equal to 0.10 (H_0: $p \leq 0.10$, not impaired)

versus the alternative that the probability is greater than 0.10 (H_1: $p > 0.10$, impaired). With this approach, error rates associated with impairment declarations may be evaluated, and a process to limit the error rates can be described.

In a typical statistical analysis, the type I error rate is chosen by the assessor, perhaps in consideration of costs of being wrong. If the rate chosen is 0.10, then there is a 10% chance of making a type I error. For the Binomial method, the choice of the type I error rate determines the "cutoff" value. For a given sample size n, the cutoff is selected as the number of violations to make the probability of this many or fewer violations to be as large as possible but less than the type I error rate, assuming that the null hypothesis of no impairment is true. Given the cutoff and the alternative for the frequency of violation, the type II error rate for sample size n can then be calculated. The type II error rate may be reduced by choosing a greater type I error rate (for example 0.20), by increasing sample size and/ or by decreasing measurement uncertainty. With statistical procedures, it is common to select the type I error rate at 0.05 or 0.10 and to control the type II error rate through sample size.

Bayesian Approach to the Binomial Test. In the above analysis, the probability of exceeding the standard is treated as fixed and the data (i.e., does the sample exceed the standard) are treated as random. A Bayesian approach (*12*) computes the probability that the site exceeds the standard by treating the impairment probability as a random variable that has an associated distribution. Initially the form of this distribution is based on previous information and is referred to as the prior distribution. After data are collected, the prior is updated, and the data and prior are used to compute the posterior distribution of the impairment probability using Bayes rule. Based on this posterior distribution, a decision may be made using either a cutoff approach or an odds-ratio approach (Bayes factor). This process and the mathematical details are described in more detail in the Supporting Information and ref *13*.

Suppose there is a Binomial random variable with associated sample size n and parameter p. Suppose now that a prior distribution of p, $\pi(p)$, can be specified. A prior distribution for p might be developed by introducing additional information to the analysis. One possibility is to use samples from other similar sites that are not impaired. For the unimpaired sites, information would be collected, and the prior probability of exceeding the standard calculated.

Given observations and a prior distribution, Bayesian criteria can be used to make an inference about p. Using the prior and data, the posterior distribution of p may be written as

$$\pi(p|x) = \frac{f(x|p)\pi(p)}{\int_0^1 f(x|p)\pi(p)\,dp}$$

where $f(x|p)$ is the density of the data, x, given p.

This new distribution represents current knowledge about the probability of a violation found by updating the prior information. Using the above distribution, the posterior probability of the null and alternative hypotheses may be calculated. For the null hypothesis (H_0) that the site is not exceeding standards, the probability is computed as $\alpha_0 = P(H_0|\text{data}) = P(p \le p_0|x)$. For the alternative ($H_1$) that the site is exceeding standards, the posterior may be calculated as $\alpha_1 = P(H_1|\text{data}) = P(p > p_0|x)$. Two approaches for evaluating these probabilities and making decisions are the cutoff method and the ratio method.

The cutoff method uses the posterior probability to determine the rejection rule. To do this, predetermine a probability q (analogous to the Binomial method type I error rate, q might be specified as 0.10). If the posterior probability that the alternative hypothesis is true exceeds q, then we reject the null hypothesis and conclude that the water is impaired, i.e., $P(H_1|\text{data}) > q$. The quantity q is referred to as the posterior cutoff.

The odds-ratio method uses the Bayes factor to determine the rejection rule. The Bayes factor of H_1 against H_0 is the odds ratio of the posterior probability of H_1 against H_0 divided by the odds ratio of the prior probability of H_1 against H_0. It can be expressed as

$$B_{10} = \frac{P(H_1|x)}{P(H_0|x)} \Big/ \frac{P(H_1)}{P(H_0)}$$

A large value of the Bayes factor would indicate that the null hypothesis is not correct. Kass and Raftery (*14*) (see also ref *15*) suggest that when B_{10} is between 3 and 20, the evidence of H_1 against H_0 is strong. Bayes factor cutoffs of 3 and 10 were used in our examples.

The difference between the cutoff and odds-ratio methods is in the importance given to the prior. The influence of the prior is usually diminished if the Bayes factor method is used. Because of the possible subjectivity of the prior, decision-makers may want to choose to use the Bayes factor approach. If the available prior information is empirical, the cutoff method might be adopted.

Both methods require evaluation of the prior probability of the null and alternative hypotheses. Using a weighting factor v (between 0 and 1) that balances the prior distribution between null and alternative hypotheses may extend the method. A value of v that is near 1 would indicate a stronger belief in the null hypothesis. In the figures comparing the methods, we refer to this value as $p(H_0)$ or prior(H_0). Details of the computations are given in the Supporting Information.

To compare the error rates, the acceptable probability of violation is set at 10%. The analysis assumes that the water quality parameter of interest has a distribution that does not change over time and that the samples collected are independent of each other. On the basis of these assumptions, the variable that indicates if a sample exceeds the standard may be modeled as a random variable, with an associated probability of violation. The listing decision process may be viewed as a test of the null hypothesis that the probability of violation is less than or equal to 10% versus the alternative that it is greater than 10%. The type I error rate may then be computed. To compute a type II error rate for this illustration (given the site is impaired, how likely is it that we do not detect impairment), the true probability of exceeding the standard must be specified; this percentage is set at 25%. This value was selected as indicating severe problems and represents the minimum violation percentage we would almost always want to detect. Using this framework, the distribution may be used to calculate the error rate for the raw score method by calculating the probability of not rejecting the null hypothesis (i.e., getting less than a statistically significant number of violations). To evaluate decision rules based on the Bayesian method, we considered three situations for method 1 with a uniform prior for p (v = 0.50, 0.90 and 0.99, q = 0.1) and two values of cutoff for method 2 (using Bayes factors of 3 and 10).

Results

Type I error rates for the raw score, Binomial, and Bayesian methods are presented in Figure 2, and type II error rates are presented in Figure 3. The type I error rates are compared using calculations of Binomial probabilities under different sample size scenarios where p was set to 0.10. The probability that a site is declared as impaired when in fact it is not (false positive) is displayed in Figure 2. Note that the graphs are jagged, with each spike corresponding to a change in the

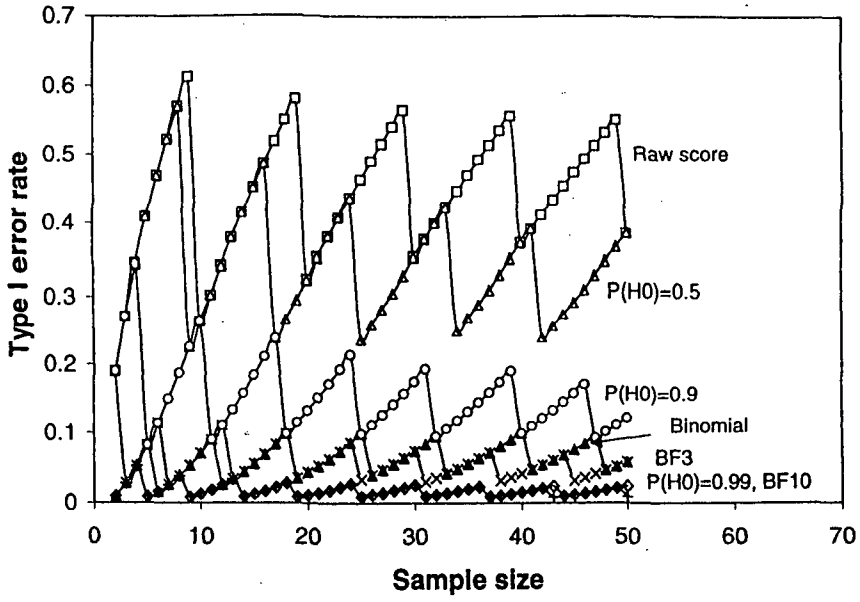

FIGURE 2. Type I probabilities for various methods. The Binomial method is based on setting the type I error rate at 0.1. Symbols: □, raw score; ▲, Binomial; △, p(H0) = 0.5; ○, p(H0) = 0.9; +, p(H0) = 0.99; ◇, BF 10; ×, BF3.

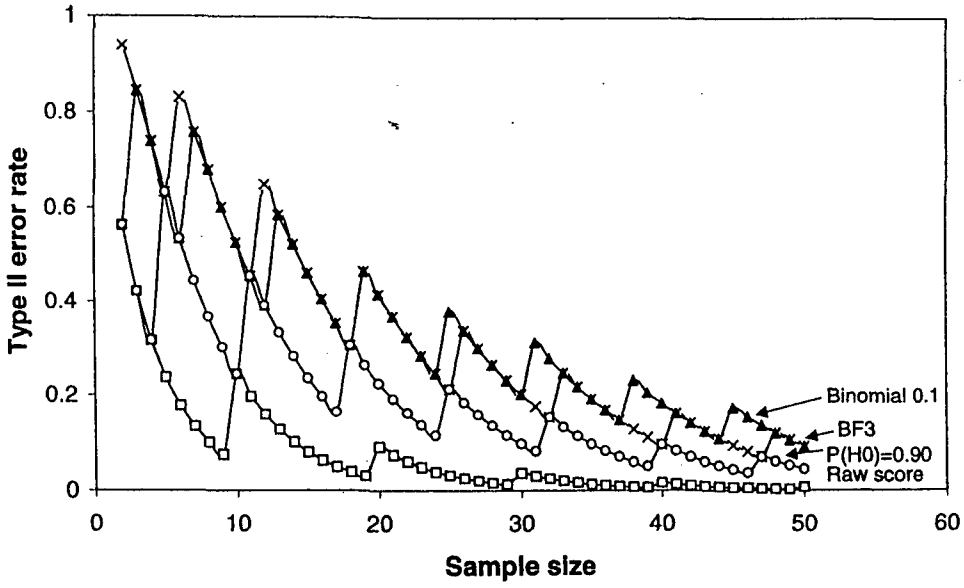

FIGURE 3. Type II probabilities for various methods. P(H0) = 0.9 represents the Bayesian method with a prior of the null hypothesis set at 0.9; BF3 refers to the Bayes Factor method using 3 as a cutoff. The symbols are the same as in Figure 2.

critical value (i.e., number of violations required to declare impairment). The Binomial method controls for type I error (i.e., it is always less than or equal to a preset value of 0.10), and the raw score approach does not. With the Binomial method, the type I error rate is fixed at some value (referred to as α) that is an upper bound on the error. The actual error rate for the Binomial method is determined by computing the (cumulative) probability of getting less than "x" samples exceeding the standard. The actual type I error rate is calculated as the greatest cumulative probability that does not exceed α. Figure 2 shows that the type I error rate (a false declaration of impairment) for the raw score method is quite high relative to the Binomial. For example, with a sample size of 9 the type I error rate for the raw score approach is around 61%. With one more sample, it drops to 26% (an example of the effect of truncation) but is still roughly 3 times the type I error rate of the Binomial approach. Error rates this high are not used in standard statistical practices. As sample size increases, the type I error rates for the different methods do not converge. Thus, relative to the Binomial approach, the raw score approach is prone to type I error (a false declaration of impairment). Type I errors for the Bayesian method decrease with increasing p(H0). Priors for H_0 near 0.5 are similar to the raw score approach while priors near 0.9 are closer to the Binomial approach. Having a high prior opinion that there is no impairment leads to making fewer decisions that there is impairment when there is none. The Bayes factor methods produce results that have smaller type I error rates than the Binomial method. Using a higher factor for rejection leads to smaller type I errors.

Figure 3 presents type II error rates. We assume for the computations that the actual level of impairment is 25%, so the segment violates standards; however, the violation is not detected. In statistical terms, this represents failure to reject the hypothesis that the violation rate is equal to 0.10 when in fact the violation probability is 0.25. In this case, Figure 3 is reversed from Figure 2. The Binomial method is prone to type II error relative to the raw score method. For example, with a sample size of 9, the type II error rate for the Binomial is about 8 times the rate for the raw score approach (60%

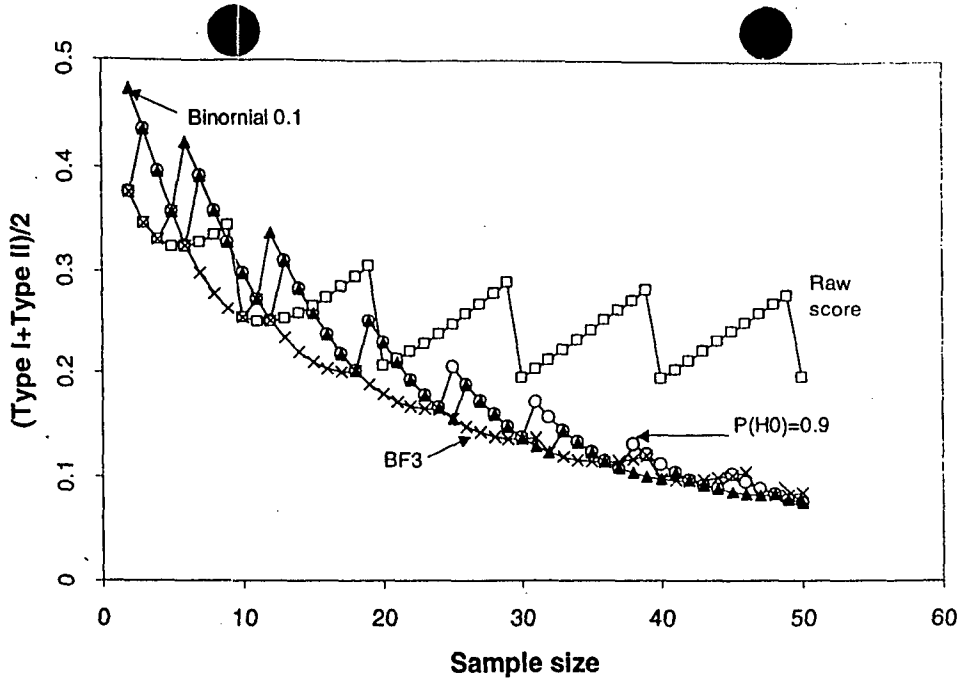

FIGURE 4. Average error rate of the different methods using different sample sizes. P(H0) = 0.9 represents the Bayesian method with a prior of the null hypothesis set at 0.9; BF3 refers to the Bayes Factor method using 3 as a cutoff. The symbols are the same as in Figure 2.

versus 7.5%). With one more sample, the ratio decreases to about 2 times (a result of the effect of truncation). As sample sizes get larger, the type II error rates do converge to zero, which is to be expected. These results are appropriate for the case of a critical error being associated with a violation probability of 0.25 and a preset type I error rate of 0.10. The results indicate that the chance of a type II error using the Binomial method decreases with an increase in the type I error rate and with increased sample sizes. For sample sizes of $n = 8$, the type II error is 0.37 for a type I error of 0.20 while for a type I error of 0.10, the type II error is 0.68. For $n = 20$, the error rates are 0.23 versus 0.41. The pattern for the Bayesian approaches is similar, and only two of the Bayesian approaches are displayed in Figure 3. Type II error rates decrease as the prior probability that the null is true decreases. The curve for p(H0) = 0.5 is closer to the raw score method than is the curve for p(H0) = 0.9. When our belief that the null is true is higher, we are more likely to decide an impaired site is not impaired. Similarly, if the Bayes factor criterion is small (e.g., 3.0) then we are more likely to declare impaired than if we use a large Bayes factor criteria (e.g., 10). This leads to higher type I and smaller type II for smaller criteria. In terms of type II error, we have

$$p(H0) = 0.99 \geq BF10 \geq \text{Binomial} \geq BF3 \geq p(H0) = 0.9 \geq p(H0) = 0.75 \geq \text{raw score}$$

Figure 4 displays the average error rate for different sample sizes. This display is interesting in that the average error rate diminishes and approaches the same value for the statistical approaches but not for the raw score approach. This results from the type II error rate decreasing as a function of sample size and low type I error rates (for methods other than the raw score). Again it indicates that the error rates for the statistical methods have controllable error rates that may be made reasonably small while the raw score method has a large error rate.

One possible approach to addressing the different error rates is to seek to make type I and type II error rates the same for each sample size (*16*). In effect, this implies that the cost of type I and type II errors are the same. Another argument for balancing the error rates is that the errors are less affected by switching the null and alternative hypothesis. Instead of considering H_0: $p \leq p_0$ versus H_1: $p > p_0$, it may be better to use the hypotheses H_0: $p \geq p_0$ versus H_1: $p < p_0$. With balanced error rates, the choice of the null and alternate hypotheses is less important. In Figure 5, the error rates are plotted against sample size using a Binomial test with the null $p = 0.1$ and the alternate $p = 0.25$, with cutoff values chosen to make the error rates as close as possible. If there are at least these numbers of samples exceeding the standard, the site is declared impaired. Cutoff values are plotted on a second vertical axis. Note that for small sample sizes it is difficult to equate the error rates although there are sample sizes where the error rate lines cross. Examples are $n = 10$, type I error = 0.26, type II error = 0.24, and cutoff = 2; $n = 16$, type I error = 0.21, type II = 0.20, and cutoff = 3; $n = 22$, type I error = 0.17, type II error = 0.16, and cutoff = 4. Note that if it is desired to have both error rates around 10%, then a sample of size 34 would be required (cutoff = 6, type I error = 0.12, and type II error = 0.11).

Relative to the EPA raw score approach, the Binomial method (with common choices for the type I error rate) is more prone to type II error and less prone to a type I error. The tendency toward type II errors in either approach is mitigated by increased sample size, although even at sample sizes over 20, type II error rates for the Binomial are around 2–3 times higher that the raw score approach. An advantage of the Binomial approach is that it is more flexible in the choice of cutoff through the selection of the type I error rate, with type II errors controlled through sample size. This means better control of error rates and the possibility of setting error rates to the same value. Specifically, at sample sizes of around 25 type I and type II error rates with the Binomial method can be made around 20% for each type of error. With the raw score approach, there is no control over the type I error rate. The Bayesian approach allows for control of the error rates through the choice of cutoff and prior opinion. While the results may be similar to the Binomial, the Bayesian method may be intuitively more appealing to managers. It allows managers to set prior belief about how likely sites are to be impacted. Sites with a high prior for impairment require fewer violations to declare impairment

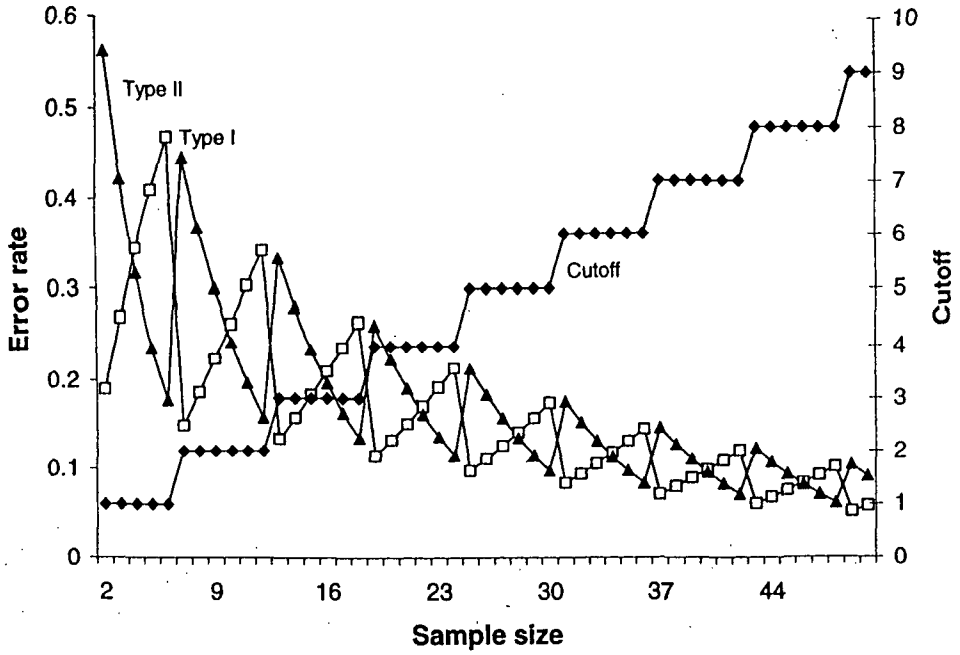

FIGURE 5. Error rates and cutoffs for different sample sizes, trying to make the type I and type II error rates as close as possible for the Binomial test. Cutoff values correspond to the minimum number of samples that may exceed the standard to declare the site as impaired.

while sites with a high prior for no impact would require more violations to declare impairment. Selecting priors can be difficult when there is little information, and the analysis becomes subjective and subject to criticism. However, support for these probabilities could come from previous Section 303(d) reports and surrounding sites. This would lead to more objective formulation of priors and would make the Bayesian approach a sound alternative.

Discussion

Ideally, the choice of an error rate should be a risk management decision based on explicit consideration of the consequences (costs) of being wrong. Cost may be financial outlays made by governments or private individuals. For planning and pollution control, costs also might be forgone public values that may not be reflected in markets as people avoid use of waters that are listed as impaired and calculation of these costs may be more or less certain. Consider as an example, a violation of a fecal contamination standard.

First, the assessor recognizes there is a cost of a false positive (type I) error that initiates the listing and the TMDL process. There is a cost to TMDL planning and modeling that is significant financial outlay. Each study is a claim on a limited agency budget, and so available resources are spread out more thinly as the number of segments listed as impaired increases. Therefore, in the face of limited budgets, a segment that is declared impaired when it is not impaired may divert limited resources from actual to false problems. Once the impairment is declared, there may be public avoidance of the segment and a loss of public use values. Once again, if the segment is not impaired, then those values forgone are an unnecessary cost. Next, planning moves forward and there are implementation costs (BMPs, etc.) imposed to change practices at the suspected source of the pollutant. Such implementation costs might be imposed on public agencies and the private sector at the end of the TMDL process. These considerations argue for selecting a decision process that might avoid type I error.

The assessor must also consider the possibility of declaring a segment as safe when in fact it is impaired (a type II error), especially when human health is at issue. Missing a fecal coliform problem may lead to an outbreak of infection with high costs to individuals. Low levels of dissolved oxygen may result in economic loss to fisheries and loss of species. Costs to human and environmental health may be great when a type II error is made and thus argue for selecting an decision process that might avoid a type II error.

Even when a site is correctly identified, there may be issues associated with action. For example, in the case of microbial contamination there is much uncertainty about the source and pathways for the pollutant and the effects on human health (*17*). There may be uncertainty about whether the measured contaminant poses a health risk, there may be uncertainty about the exposure to the pollutant (who swims in a creek and when for example), there may be uncertainty about whether the exposed population will in fact be affected by the contaminant even if it is in the segment, and finally the severity of the reaction to the exposure may be uncertain. These possible costs, despite—or perhaps because of—their uncertainty, might make the assessor willing to accept a higher type II error.

The significant consequences of a Section 303(d) listing or of a failure to list makes the interpretation of sample data especially critical. Therefore, the analytical approach that extracts the most information about water quality conditions from a data set should be employed. In particular, the approach used should allow the water quality assessor to explicitly recognize and consider the different errors that might be made, the consequences of those errors, and then assess water quality conditions in consideration of the errors and their possible costs. If a Binomial procedure is adopted, error rates can be explicitly managed by the water quality assessor by controlling the number of samples taken, by selecting the acceptable and unacceptable violation rates, and/or by selection of the cutoff values for declaration of impairment. Such choices might be governed by the concerns over the consequences of a type I versus type II error, considering the pollutant and the uses of the water segment.

The U.S. EPA mandated raw score approach to data analysis does not explicitly manage error rates. The raw score approach is conceptually similar to the Binomial test. Both methods use the number of violations as the test statistics. However, the raw score is a poorly designed test statistic. As the computational results document, the raw score approach

results in an unusually large type I error rate, regardless of sample size. As sample sizes increase, the type II error rate is reduced, but the average error rate is still large. Indeed, in other contexts, approaches to evaluating standards have been criticized for a number of reasons, including the inability to consider and manage error rates (*18*).

The results show that the Binomial method can be easily applied to address the balancing of error rates, using the same data that are now used to apply the raw score approach. The Bayesian approach changes the view of the error rates by focusing on prior probabilities and cutoffs and will require the assessor to have a basis for establishing a prior expectation about the condition of the water segment. One method for selecting the priors is to make use of information from surrounding sites or from previous reports. Given the familiarity most assessors will have with the conditions in watersheds under study, this may not be a significant additional information requirement.

Given the information routinely used in an assessment, the Binomial method should replace the raw score approach. When sample sizes are around 20–25, the assessment process can confidently rely on statistical procedures to manage and measure type I and type II errors. Such an increase in sample sizes might be readily obtained by extending the data record from 2 to 5 yr, assuming quarterly sampling. However, accounting for possible trends in the data (*9*) may be necessary.

It has also been recognized that type II errors are more likely to occur with the statistical methods than with the raw score approach. While the increased sample size will reduce the probability of type II error, water quality assessors may feel that the statistical approaches are still too prone to type II error. One strategy for reducing the type II error would be to increase the type I error rate. The desired error rates need to be set through discussions with interested parties and when agreement is not possible, we suggest balancing the error rates.

Given the information routinely used in an assessment, the Binomial method should replace the raw score approach when sample sizes are greater than 20. With samples smaller than 20, neither the raw score or the Binomial method adequately control the error rates. Given sufficient prior information, Bayesian methods may be used with smaller sample sizes to help select the error rate of concern. Agencies should be encouraged and provided the resources to increase sample sizes for the assessment process to adequately control these error rates.

Although our focus is on the Binomial approach for evaluation of impairment, there are other statistical approaches available that make use of the actual measurements rather than if the measurement exceeds the standard. Acceptance sampling by variables (*19*) is a method based on using the mean and variance of the measurements rather than simply if they exceed a standard. The method converts questions about the proportion exceeding some value to questions about a mean. Tolerance intervals and prediction intervals also represent useful approaches (*20–22*). Tolerance intervals are intervals for a percentile of the samples. Another method is based on comparison of a reference site with that sampled (*23*). Such approaches are common in groundwater evaluation. These methods evaluate the information in a different manner and may be quite useful. As with all decision procedures, these methods also require consideration of error rates before implementing.

Acknowledgments

We are grateful for support from Virginia's Department of Environmental Quality to study this problem. Also thanks go to the University of Washington's National Research Center for Statistics and the Environment for support and encouragement in writing the manuscript during the summer of 1999. We are thankful for the careful reading and comments from the referees and Associate Editor.

Supporting Information Available

Details on the calculation of the posterior distribution for the null and alternative hypotheses and Bayes factor are presented in the Supporting Information for the case of a mixture prior and a uniform prior. This material is available free of charge via the Internet at http://pubs.acs.org.

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Attachment B

Sunday, April 15, 2001
Valley Edition 610 words
Section: Metro
Page: B-7

Avocado Growers Are Seeing Green as Harvests Burgeon

■ Agriculture: Favorable conditions in Ventura County are resulting in increased yields, which should mean lower prices for guacamole lovers.

By: FRED ALVAREZ
TIMES STAFF WRITER

Blessed by near-perfect conditions, Ventura County avocado growers say they are harvesting their biggest crops in years, a boom that is resulting in lower prices at the grocery store and helping to forge new markets for the pear-shaped fruit.

With the picking season shifting into high gear in preparation for guacamole-rich Cinco de Mayo celebrations, local growers say they are ready to help meet the demand for as many as 50 million avocados.

Production had been hurt in recent years by frigid temperatures and infestations.

But warm weather as the fruit was coming into bloom last spring, followed by nourishing rains earlier this year, has boosted yields statewide, resulting in what promises to be the most productive season in nearly a decade.

"We're off to an awesome start," said Steve Barnard, president of Oxnard-based Mission Produce.

Production is up more than 25% over last year at the avocado packinghouse, where each week up to 2 million pounds of the fruit rumbles down the assembly lines.

It is unlikely, however, that this will be a record season.

That came in the 1992-93 season, when California growers plucked 570 million pounds of the fruit. Production is expected to exceed 400 million pounds this season--80 million more than last year and the highest volume since the record.

In Ventura County this season, growers are expected to produce 81 million pounds of the fruit on 14,200 acres--up 12 million pounds from last season.

The increase in supply will result in a corresponding drop in price--and in revenue, analysts predict.

Last year, California growers reported record revenue of $339 million. Ventura County, the second-largest producer in the nation behind San Diego County, generated about one-fifth of that amount.

The California Avocado Commission projects revenue this season to hover around $300 million.

That is good news for consumers, who this season are able to find avocados costing anywhere from 70 cents to $1 apiece. Prices peaked at nearly $2 last season.

But growers say it's also good news for the industry, noting that lower prices on supermarket shelves could help bring new avocado lovers into the fold.

"Any time consumers find the fruit more affordable, it helps build the market and gets avocados into places where they traditionally haven't been," said Santa Paula grower Richard Pidduck.

Not all the news on the avocado front is good, however.

Like farmers everywhere, avocado growers continue to battle escalating production costs, increased competition from importers and new pests.

Growers are expressing increased concern about a new rule being considered by the U.S. Department of Agriculture that would further boost foreign competition and, many believe, increase the threat of infestations. The USDA is studying a proposal to allow Mexican growers to expand their presence in the domestic market.

Currently, the Mexicans are allowed to market their avocados between November and February to a 19-state Northeastern region. However, the foreign growers want to tack on two months and 12 states, allowing Mexican avocados to be sold as far west as Colorado.

Tom Bellamore, senior vice president for the California Avocado Commission, said domestic growers are worried about the increased competition.

But he said they are more worried about potential pest problems, noting that the Mexican imports were only allowed into the Northeast during the winter because cold weather would kill any bugs that happened to hitch a ride.

"Our opposition is strictly built around the science," said Bellamore, who expects the USDA to make a ruling this summer. "From our growers' perspective, they know that if there is an introduction of a new pest, it could in a very short period of time have a devastating impact on them."

For now, growers are ready to leave the question of Mexican imports to federal rule-makers and instead focus their attention on a celebration of Mexican heritage.

At Bob Pinkerton's Santa Paula ranch, workers are scrambling to pick fruit in time for Cinco

de Mayo. The Mexican holiday generates the highest level of avocado consumption of the year.

"This is definitely the best yield we've had over the last two years," said Pinkerton, who is also president of the Ventura County Farm Bureau. "But you never sit back and say, 'Wow, this is great.' You've always got to keep working at it."

PHOTO: Grower Richard Pidduck strolls through a forest of avocado trees at his Santa Paula ranch. Yields of the fruit are way up this season.
PHOTOGRAPHER: STEVE OSMAN / Los Angeles Times
Descriptors: Ventura County - Agriculture, Avocados

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JAMES F. STAHL
Chief Engineer and General Manager

December 13, 2001
File No.: 31-370.10

2001 DEC 17 P 4:34

Mr. Dennis Dickerson, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Dear Mr. Dickerson:

Comments on Proposed 2002 Update of Clean Water Act
Section 303(d) List of Impaired Waters for the Los Angeles Region

The County Sanitation Districts of Los Angeles County (Districts) are providing you with preliminary comments regarding the proposed 2002 Update of the Clean Water Act Section 303(d) List of Impaired Waters for the Los Angeles Region (303(d) List). The Districts are unable to provide comprehensive comments to the Los Angeles Regional Water Quality Control Board (Regional Board) at this time because supporting data for the proposed new listings and de-listings, as well as for existing listings, have not yet been made available by Regional Board staff. Requests for all supporting data (and any supporting information related to the development of the proposed 2002 303 (d) list) have been made to the Regional Board by our agency via e-mail on November 26, 2001, and by formal letter request under the Public Records Act, on December 5, 2001. The Districts plan to make more comprehensive comments on the proposed 2002 303(d) list to the State Water Resources Control Board (SWRCB) directly once the supporting data and information are received from the Regional Board. It will be difficult, if not impossible, to fully address specific listings if this information is not made available to stakeholders. Therefore, the Districts are providing the following comments based on the limited information presented in the draft Staff Report and draft Fact Sheets provided by Regional Board staff at the November 19, 2001 public workshop on the proposed 2002 Update of the 303(d) list.

Listings Based on Insufficient Data Should be Removed

According to the Regional Board's Draft Staff Report (updated 12/4/01) for the proposed 2002 update of the 303(d) List (Staff Report), assessment of aquatic life use impairments based on tissue, sediment and benthic community data were "heavily influenced by best professional judgement". Lacking U.S. EPA guidelines, Regional Board staff have developed their own assessment guidelines for these types of data. It is often the case that there is only a limited number of sample results for sediment chemistry, sediment toxicity, benthic infaunal community and bioaccumulation data for a given waterbody, and therefore the Regional Board has required a minimum number of two samples to assess each waterbody, and ideally uses a weight of evidence approach to determine impairment, per the draft Staff Report. The Districts believe the minimum requirement of two samples is insufficient in order to determine whether a waterbody should be designated as impaired. This previous comment notwithstanding, some new listings appear to be based on only one sample, according to the data provided by Regional Board staff in the draft Fact Sheets. For example, Dominguez Channel is newly listed as impaired for sediment toxicity, and copper, chlordane and PCB's in sediment. According to the data summary provided in the fact sheet, these listings are based on one sediment sample taken in 1996. In addition, it is our understanding that the sediment quality guidelines used to determine impairment are not in the Basin Plan. As stated in the draft Staff Report, "Although these values have not been adopted as water quality standards, sediment concentrations that exceed the "probab"

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effects level" are usually associated with toxicity." The sediment quality guidelines used appear to be informal criteria that have not been subject to a formal adoption process, and therefore it is not clear under what authority the Regional Board is applying these criteria as a basis of impairment.

Several existing 303(d) listings are based on a single study conducted by the UC Davis Aquatic Toxicology Laboratory in 1992-1993. The final report "Toxicity Study of the Santa Clara River, San Gabriel River and Calleguas Creek", completed in December, 1996, served as the basis for the following listings: Calleguas Creek Reach 1 and 2 for toxicity; San Gabriel River Reach 1 and 3, Coyote Creek, and Walnut Creek for toxicity; and San Gabriel River Reach 1, San Gabriel River Estuary, and Coyote Creek for "abnormal fish histology". The report states that "the consistency of toxicity even in the limited sampling program described herein suggests that water quality in the San Gabriel River should be markedly improved by a program that identifies toxicants present in the river in conjunction with a follow-up program to reduce their concentrations. Consequently, a more intensive sampling program should be implemented." In the report, no rationale was provided for how numerical toxicity results translated to varying degrees of impairment or non-impairment. Even though the study clearly stated the cause of the toxicity was unknown, diazinon, chlorpyrofos, and ammonia were all named as possible causes. Even though the exact cause of the toxicity was not reported, it appears as though the toxicity listings for the San Gabriel River have resulted in a proposed TMDL for "Nitrogen and its Effects", and have therefore been attributed to ammonia toxicity. However, the cause of the toxicity detected in the early 1990's has not yet been determined, nor (to our knowledge) have follow-up studies been done to confirm if the study's findings are even still valid.

Regarding the "abnormal fish histology" listing, no rationale was provided at all for how the study's findings resulted in impairment. There is no translation between narrative results of the histology investigations and the listing of certain reaches. Consequently, there is no benchmark for determining when the waterbodies may be de-listed as well. In fact, the appropriate TMDL to address these listings has not been determined, and currently the TMDL is noted as "dependent on cause, further assessment needed, cause of abnormalities unknown."

The Regional Board should establish and adhere to statistically-valid minimum data requirements to adequately assess impairments, and should refrain from listing waterbodies based on best professional judgement where only limited data are available.

Several New Listings Based on Exceedances of Tissue Advisory Levels are Inappropriate

Table 3-1 of the draft Staff Report shows the correlation between Federal and Regional Beneficial Uses and associated water quality objectives. The State Water Resources Control Board Maximum Tissue Residue Levels (MTRLs) appear in the table as water quality objectives used to assess the aquatic life beneficial uses. Accordingly, several new listings based on exceedances of the MTRLs are reported in the fact sheets as affecting aquatic life beneficial uses. MTRLs are advisory values (not regulatory criteria), and should not be used to determine impairment because they are not adopted water quality objectives. As stated in the SWRCB Toxic Substances Monitoring Program (TSMP) 1994-1995 Data Report, "MTRLs are used as alert levels or guidelines indicating water bodies with potential human health concerns and are an assessment tool and not compliance or enforcement criteria." Furthermore, the use of MTRLs to assess impairment of aquatic life uses is inappropriate because, according to the TSMP 1994-1995 Data Report, MTRLs are criteria that "represent concentrations in water that protect against consumption of fish, shellfish and water (freshwater only) that contain substances at levels which could result in significant human health problems." Therefore if MTRLs are used at all, they should only be used to assess impairment to the commercial and sport fishing beneficial use when applicable. MTRLs are based on human health water quality objectives, and are not correlated to aquatic life impacts. Also, since fish are mobile, there is no way to account for tissue exceedances, and subsequent impairment, that may be attributed to water quality impacts encountered upstream or downstream of a particular sampling site. As such, the Regional Board should consider other weights of evidence (for example, water chemistry data) to validate that the source of impairment is actually from that part of the watershed.

In addition, several new listings based on exceedances of MTRLs were made using tissue data derived from whole-body samples (based on reported sample type in the SWRCB TSMP Database). According to the TSMP 1994-1995 Data Report, "MTRLs are compared only to filet or edible tissue samples and should not be compared to whole body or liver samples." Therefore, any listings based on exceedances of MTRLs using whole-body tissue samples are essentially misapplying the tissue data. As an example, the Conejo Creek R1 is newly listed as impaired for dieldrin, chlordane, HCH and PCBs in tissue, based on the analysis of whole-body samples according to data received from the SWRCB.

Looking at the TSMP database, it also appears that some of the new listings are based on 2 tissue samples of the same fish species, taken from the same site on the same day. It is not clear whether or not these are replicate samples, and therefore the data should be analyzed in greater detail to ensure the listings are not actually based on a single sample.

"Ammonia", "Nitrate and Nitrite", "Nitrite as N", "Algae", "Toxicity" and "Organic enrichment/Low dissolved oxygen" Should be Removed from the 303(d) List

On November 8, 2000 and May 15, 2001, the Districts submitted receiving water quality data to the Regional Board, which was used for water quality assessments and in turn identifying impaired water bodies. These receiving water data included all stations monitored by the Districts in the San Gabriel River, Santa Clara River, San Jose Creek, Coyote Creek, and Rio Hondo.

During this update effort of the 303(d) list, the Districts request that the listings of "ammonia" and "nitrate and nitrite" be removed for the Santa Clara River, that the listings of "ammonia", "algae", and "nitrite as N" be removed for San Jose Creek, and that "algae", "ammonia", and "toxicity" be removed for the San Gabriel River, in accordance with guidance provided by EPA. A memorandum dated November 26, 1993 by Geoffrey H. Grubbs, Director of the Assessment and Watershed Protection Division gives guidance for the 1994 Section 303(d) lists. Grubbs states, "the Water Quality Planning and Management regulation (40 CFR Part 130) provides that waters need not be included on a section 303(d) list if other Federal, State, or local requirements have or are expected to result in the attainment or maintenance of applicable water quality standards." The Regional Board states in Section 2.2-4 of the draft Staff Report that specific pollutants can be de-listed if "there are control measures in place that will result in protection of beneficial uses. Control measures include permits, clean up and abatement orders, and Basin Plan requirements which are enforceable and include a time schedule (see 40 CFR 130.7(b)(1)(iii))."

As the Regional Board is aware, in June 1995 the five WRPs discharging to the San Gabriel River watershed and the two WRPs discharging to the Santa Clara River watershed received new NPDES permits containing requirements regarding compliance with the "ammonia" Basin Plan objectives. All seven of these permits established a compliance date of June 2003 (8 years following adoption of the permits) for the receiving water limitation for "ammonia". The Districts believe that this guidance given by EPA justifies the removal of "ammonia" from the 303(d) list for the San Gabriel River, San Jose Creek, and Santa Clara River because the NPDES permits have a compliance date for the attainment of "ammonia". Since the treatment process chosen to comply with the "ammonia" objective (nitrification/ denitrification process) will also lower the "nitrate and nitrite" concentrations, the Districts believe that the removal of "nitrate and nitrite" from the 303(d) list for the Santa Clara River, and removal of "nitrate as N" from the San Gabriel River is also warranted. Removal of listings for "algae", "toxicity", and "organic enrichment/low dissolved oxygen" for the San Gabriel River, San Jose Creek, and Santa Clara River are also warranted, because it is believed that compliance with the ammonia objective will also result in the elimination of other related impairments (ammonia toxicity has been determined from effluent sampling of the Districts' WRPs).

Accordingly, the Districts request that the following listings be removed from the 303(d) list for the following specified reaches:

1) San Gabriel River
   Reach 1 - Estuary to Firestone: *Algae, Ammonia, Toxicity, Nitrite as N*

Reach 2 - Firestone to Whittier Narrows Dam: *Ammonia*

2) San Jose Creek
   Reach 1 - San Gabriel River confluence to Temple Street: *Algae, Ammonia*
   Reach 2 - Temple to I-10 at White Avenue: *Algae, Ammonia*
3) Santa Clara River
   Reach 7 - Blue Cut to west pier Highway 99: *Ammonia, Nitrate and Nitrite*
   Reach 8 -West pier Highway 99 to Bouquet Canyon Road Bridge: *Ammonia, Nitrate and Nitrite, Organic enrichment/Low dissolved oxygen*

Once again, until supporting data for the 2002 Update of the 303(d) list are provided, the Districts are unable to provide comprehensive comments. We fully intend to address the above issues and make additional comments directly to the SWRCB, as directed by Regional Board staff. We appreciate the opportunity to provide comments in response to the 2002 Update of CWA Section 303(d) List of Impaired Waters for the Los Angeles Region. If you have any questions regarding this letter or would like to discuss these comments further, please contact the undersigned at extension 2828.

Very truly yours,

James F. Stahl

Heather Lamberson

Heather Lamberson
Project Engineer
Monitoring Section

HL:drm

cc: Craig J. Wilson, State Water Resources Control Board
Jon Bishop, RWQCB - LA Region
Debbie Smith, RWQCB - LA Region
Mark Pumford, RWQCB - LA Region
Melinda Becker, RWQCB – LA Region
Renee DeShazo, RWQCB – LA Region

May 15, 2001 via fax 213 / 576-6640 6 pages total

TO: RENE DESHAZO

FROM: RANDAL ORTON
818 251-2145

RE: SUPPLEMENTAL DATA FOR 305(B) REVIEW

Rene,

Attached are our comments per your March 5, 2001 request. Hard copy will follow, but I wanted to make sure we met your deadline.

Randal Orton

LAS VIRGENES MUNICIPAL WATER DISTRICT
EST. 1950

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May 2, 2001

Renee DeShazo
Los Angeles Regional Water Quality Control Board
320 W. 4th Street
Los Angeles, CA 90013

Subject: Request for Water Quality Data

Dear Ms. DeShazo,

Per the Los Angeles Regional Water Quality Control Board's request for water quality information on March 5, 2001, we offer the following information and comments. In addition to the data already submitted to the Regional Board in our monthly, quarterly and annual reports, we are submitting the following supplemental data and analyses in hard copy and CD-ROM formats:

Dissolved Oxygen

1. La Jolla Canyon Creek Dissolved Oxygen data.

Figures 1 and 2 (attached) show La Jolla Canyon Creek approximately 0.75 miles upstream of the trailhead at the PCH access point. There are no dischargers to La Jolla Canyon Creek, and the watershed lies almost entirely within the Santa Monica Mountains Recreation Area. Nitrogen and phosphorus levels are typical of area streams with no significant anthropogenic inputs, typically on the order of 0.5 – 2.5 ppm nitrate nitrogen and <0.5 ppm phosphate phosphorus. The creek is not listed as impaired for nuisance algae or eutrophic conditions.

Shortly after dawn on June 29, 2000, a number of substandard DO levels were recorded in the area shown in the figure. All measurements were made using equipment calibrated in the Tapia Water Quality Laboratory before and after field use.

These data underscore the difficulty of interpreting reports of low dissolved oxygen relative to the 5 mg/l Basin Plan standard. We are unaware of any written guidance regarding the application of this standard to actual field measurements with respect to time of day, season, flow conditions or environmental matrix (e.g. stream surface waters, backwaters, edge waters, etc.). Our data show that DO meeting the 5 mg/l standard can be recorded where stream flows are reasonably well-aerated (i.e. plunge-pools with good flow), while substandard DO data can be collected simultaneously within meters of these locations in backwaters and other areas with minimal flow. Our sample location – an unimpaired stream with no anthropogenic inputs – suggests these conditions can be natural.

Whether these short term exceedances result in an impairment of beneficial uses is unknown; it is clear that even natural waters can experience substandard DO, particularly where waters are still and nighttime consumption of DO by aquatic life is high. Where these conditions are natural, it seems safe to assume that native aquatic life is adapted and unimpaired by short-term periods of low DO. Alternatively, these areas may be marginal habitat for some aquatic species, particularly for those whose centers of distribution or located further north[1]. Latitudinal limits are common for aquatic species, and there will always be some point at which the thermal regime (closely linked to DO requirements) becomes marginal for a species even in a state of nature.

2. Dissolved Oxygen data - Diel variation.

An open question regarding DO data used in compiling the 303(d) list is whether DO data collected during the daytime fairly represents average conditions. Physical entrainment of air in turbulent water (physical aeration) is relatively independent of the hour of the day[2], but biological production and consumption of oxygen should yield oscillations in DO within a 24 hour period. These oscillations could potentially result in short-term (3-4 hrs) periods of DO below 5 mg/l, and evidence of this is provided in (1) above for a natural stream.

Alternatively, these nighttime drops in DO may not result in substandard DO conditions. Figure 3 provides supplemental DO data at dawn at four of our standard receiving water locations, in addition to an effluent sample from the Tapia Water Reclamation Facility. While some depression in DO was observed both above and below the effluent discharge point, DO did not drop below 5 mg/l. The Tapia effluent DO was relatively constant, as expected for a continuously aerated process.

These data are for Malibu Creek. In Malibu Lagoon, Ambrose et. al. (1997) recorded some nighttime DO values below 5 mg/l in Malibu Lagoon in late summer 1995. As they noted, this could be a natural condition in closed estuaries or it could reflect impairment due to excess algal growth.

Taken together, the results from three different waters (impaired and unimpaired creeks and an estuarine lagoon) argue for better guidelines for interpreting and reporting DO data for use in compiling the 303(d) list and other uses. There appears to be a need for additional "ground truthing" with respect to the standard itself (i.e. whether the 5 mg/l standard is a realistic measure of impairment in local waters) and assumptions regarding the magnitude of diel variation in DO. In revising the Basin Plan and the 303(d) list of impaired water bodies, the Regional Board needs to describe how it designates DO impaired water bodies, particularly with respect to distinguishing between natural versus unnatural conditions.

---

1 Tolerance to low DO is related to temperature, since most aquatic organisms are poikilothermic (cold-blooded) and thus use less oxygen at lower temperatures. Colder water also has a higher DO content at saturation.

2 Some creeks experience daily variation in flow due to less evaporation and plant uptake at night. If the higher flows result in more turbulence and aeration, DO should rise. Also, daily fluctuations in temperature will also affect DO as discussed in footnote 1.

Algae and nutrients

We draw staffs' attention to a recent study by Dr. Earl Byron that was commissioned by the district and peer-reviewed by the National Water Research Institute regarding algae-nutrient relationships in the Malibu Creek watershed. This study compiled and analyzed over 20 years' data on algal abundance, nutrient levels, and other relevant parameters. They conclude that the presence of nuisance levels of algae in Malibu Creek is limited to the summer months (approximately May through late September), and that it is not due to nutrient enrichment.

This new information contradicts the 303(d) listing for Malibu Creek, that states that some reaches are impaired by high nutrients based on the presence of nuisance levels of algae. Our own investigation of the basis for the current 303(d) listing found that the creek was listed as impaired year-round for nutrients only because the field observations were not analyzed by season. Using the Regional Board's criteria for nuisance algae impairment, but breaking the raw data out by season, Malibu Creek should not have been listed as impaired by algae in the winter in any reach. This conclusion is also consistent with an earlier study by Chapman (1979) that was apparently overlooked in the previous 303(d) review. Both the study by Dr. Byron and Dr. Chapman have been previously submitted to the Regional Board (TMDL unit). We highlight the information here to ensure it is included in the 305(b) review and 303(d) list revisions.

We hope this information assists staff in their review under section 305(b) and 303(d) of the Clean Water Act. Please contact me after June 19th at (818) 251-2145 if you have any questions regarding this information. Also, please note that this information is supplemental to data submitted to the Regional Board in our monthly and annual NPDES permit compliance reports. Data in these reports is incorporated by reference in this submittal.

Sincerely,

Randal D. Orton, Ph.D., D.Env.
Resource Conservation Administrator

Attachments

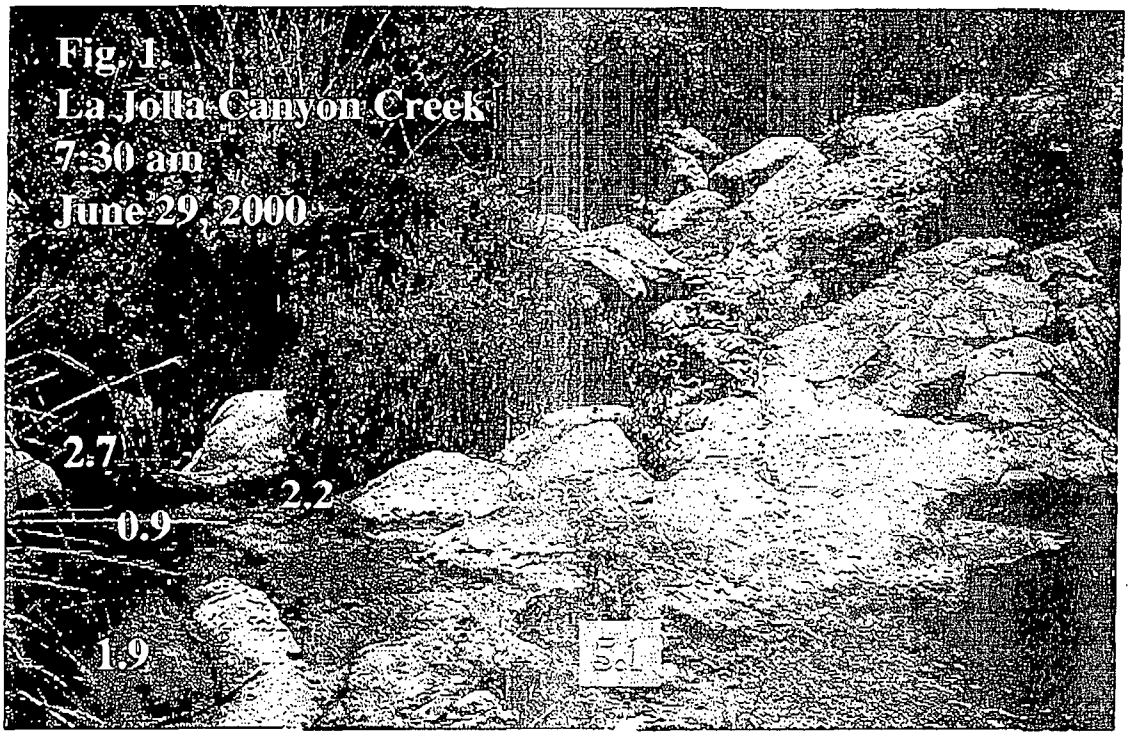
Fig. 1
La Jolla Canyon Creek
7:30 am
June 29, 2000
2.7
2.2
0.9
1.9
5.1


Fig. 2
La Jolla Canyon Creek
7:20 am
June 29, 2000
3.7
5.1
4.2
4.0

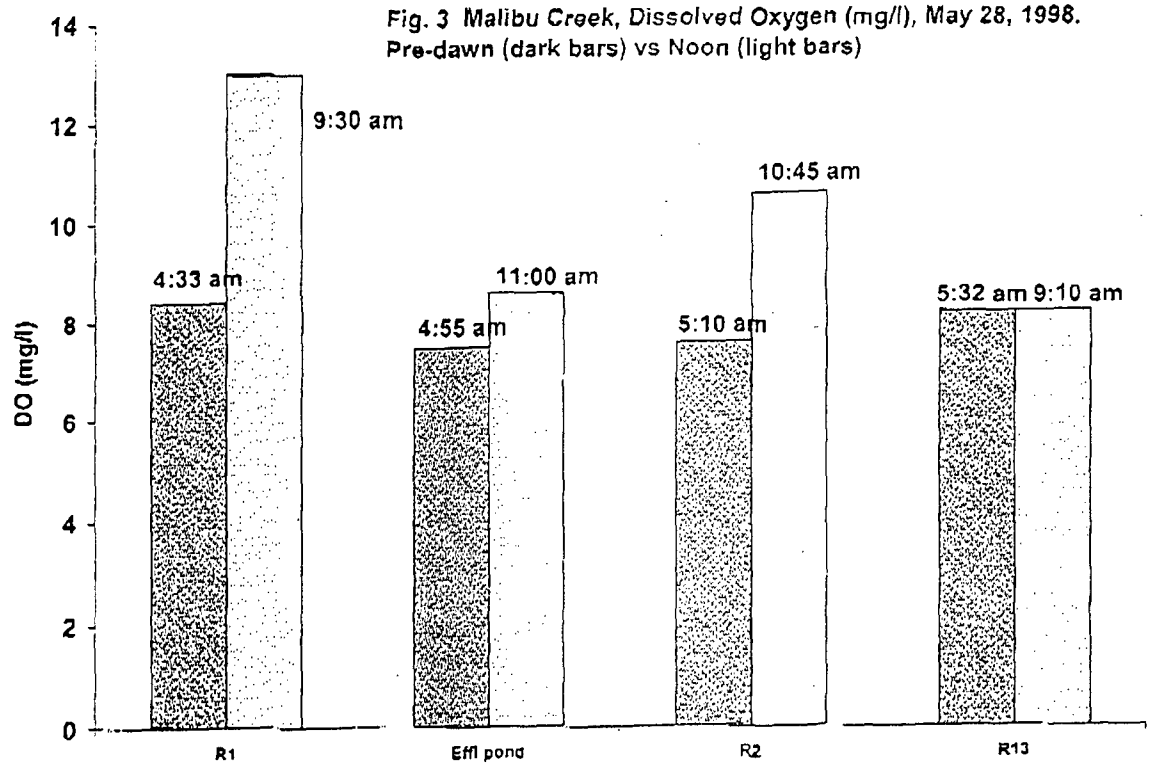

Fig. 3 Malibu Creek, Dissolved Oxygen (mg/l), May 28, 1998.
Pre-dawn (dark bars) vs Noon (light bars)

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EST. 1958

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JB

June 29, 2001

Dennis Dickerson, Executive Officer
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

2001 JUL -2 A 11:01

Subject: Comments on 2002 Water Quality Assessment and Update of the 303 (d) List of Impaired Waterbodies

Dear Mr. Dickerson:

On behalf of the Las Virgenes Municipal Water District, I am pleased to submit comments on the pending 305 (b) Water Quality Assessment and the 303 (d) list. The 305 (b) Assessment and the 303 (d) list identify impaired water bodies throughout the nation, and thus guide pollution control efforts and the expenditure of public funds for these efforts. We appreciate this opportunity to provide updated water quality data for our area and recommendations for improving the assessment process.

Data

Since the 303 (d) list was last updated in 1998, the district has continued to collect receiving water data from seven stations located in the lower Malibu Creek watershed. These data have been submitted electronically since 1997, and are submitted herewith by reference. The district has also conducted a number of independent studies and investigations in the watershed, including both new data and analyses of existing data. These are described below, according to the specific impairment in the current 303 (d) list:

- Nutrients (algae).

Several stream reaches in Malibu Creek and Malibu Lagoon are currently listed as impaired by algae on the 303 (d) list. The 2002 305 (b) assessment and 303 (d) list should indicate that this impairment is limited to the summer months, on the basis of the report by Byron et. al. (2000), previously submitted to the Regional Board and herein incorporated by reference. This study provides pertinent data on algal biology in the creek (nutrient requirements and limitations, susceptibility to scour, dependence on day length and temperature) and the extent of algal cover in the creek broken down by season. Most importantly, the authors conclude that nuisance algae in the creek is unrelated to nutrient levels at any time of year.

The current 303 (d) list thus is incorrect in its assumption that the cause of algal impairment is excess nutrients. The correct listing is impairment by nuisance algae in the summer, as opposed to the current listing of "nutrients (algae)."

On a procedural note, we were unable to reconstruct how the Regional Board in the previous assessment reached the conclusion that algal impairment of the creek was due to excess nutrients, or why the creek was listed as impaired by nuisance algae year round when it is not. The only information we were able to retrieve was the original algal cover data sheets used by the Regional Board when it first listed Malibu Creek as impaired by nuisance algae. Discussions with Regional Board staff show that, had the criteria for impairment been applied to winter conditions and summer conditions separately, the creek would not be listed as impaired by algae in the winter. Procedurally, uncovering this information was very difficult, and unsuccessful for other listings such as eutrophication, for which no records could be found to reconstruct how the Regional Board bridged the analytical gap between raw data and 303 (d) list findings. This procedural issue is addressed below with recommendations on how the process might be improved.

- Eutrophication (Malibu Lagoon)

In 1999 the district installed a multiple-sensor monitoring sonde in Malibu Lagoon in the vicinity of the Pacific Coast Highway bridge. Data on turbidity, pH, water depth, and temperature do not support the current 303 (d) listing for the lagoon as impaired by eutrophication. This conclusion specifically rests on the turbidity and pH data, which show that the lagoon experienced only one algal bloom during the period of record (1999 to 2000), of short duration (3 days), and that during this time pH did not vary appreciably, in contrast to waters genuinely impaired by eutrophication, where abnormal pH values result from anaerobic conditions. We believe the lagoon was listed as impaired by eutrophic conditions because of high nutrient levels in the summer, which no longer occur (as shown by data from station R11 collected in the regular course of the district's NPDES monitoring). Also, we believe reports of low lagoon biodiversity found in previous studies by Mannion and Dillingham (1995) and UCLA (1996) have also been taken as evidence of eutrophic conditions, but as discussed in the UCLA (1995) report, it could also reflect the lagoon's small size. As for the creek algae impairments, we are not aware of any data that indicate year-round eutrophication; on the contrary, the UCLA (1995) report notes that eutrophic conditions are precluded in the winter when the lagoon is open to the sea and freely exchanges water due to tidal inflows. The observation of algal mats in no way proves eutrophic impairments, as these are common in coastal lagoons even in a state of nature. As for all of the 303 (d) listings, we do not know how the Regional Board concluded the lagoon was impaired by eutrophication year round (or at any time for that matter).

Procedural issues

When the district, or any discharger, is required to monitor surface waters, there is a requirement of complete traceability to enable third parties to determine if the data are sound and the conclusions based on these data are reasonable. This contrasts starkly with our experience with the 305 (b) assessment and the 303 (d) list, wherein knowledge of how listings are made is extremely hard to recover. In the case of the Malibu Creek nuisance algae listings, this required extensive discussions with many Regional Board staff to even locate the pertinent records.

This situation is not appropriate for a document that is used to represent the status of a water body, especially where the document will serve as a guide to expenditures of public funds. The Regional Board must carefully document its data sources and, more importantly, the analytical steps taken to bridge the gap between raw field data and the listings that ultimately appear in the 303 (d) list.

At a minimum, we ask that the Regional Board generate a response to public comments as it does for other major regulatory decisions, detailing comments received and whether recommendations in these comments are incorporated or not, and if not, why not. Particularly where changes in the 303 (d) list are warranted, it is important for the Regional Board to document, in a way easily accessible to the public, its rationale for changing a listing (or not changing a listing) in light of new information.

We appreciate this opportunity to comment on the 2002 305 (b) assessment and 303 (d) list review. As a public agency responsible for treating the sanitary waste of over 80,000 people, we share the Regional Board's burden of ensuring water quality in the communities we serve. We look forward to working together with the Regional Board and its staff, and other stakeholders in the communities we jointly serve.

Sincerely,

Randal Orton

Randal Orton, Ph.D., D. Env.
Resource Conservation Administrator

Data CD (sent under separate cover)

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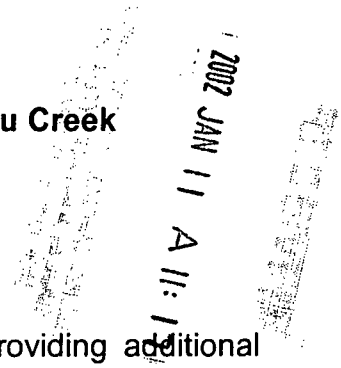
January 9, 2002

Dennis Dickerson, Executive Officer
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013



Subject: Analysis of algal cover data – Malibu Creek Watershed

Dear Mr. Dickerson:

Per your letter of October 23, 2001, we are providing additional information on algae and algal cover in the Malibu Creek Watershed. This information is pertinent to Regional Board efforts in several areas, including the Malibu Creek nutrient TMDL, the renewal of the NPDES permit for the Tapia Water Reclamation Facility, and the assessment of beneficial use impairments pursuant to section 303(d) of the Clean Water Act.

Algal Impairments in Cold Creek

At the Regional Board's November 19th workshop on proposed changes to the 303(d) list, Regional Board staff identified new criteria for interpreting algal cover data in terms of beneficial use impairments. These criteria were developed by the National Institute of Water and Atmospheric Research (New Zealand), and published as *New Zealand Periphyton Guideline* by Barry J. Biggs in June 2000. The guidelines are available at **http://www.mfe.govt.nz/new/Periphyton.PDF**.

Under these guidelines, impairment due to excess algal growth is defined as a stream or stream reach in which algal cover is greater than 30 percent at least ten percent of the time. Using these criteria and data provided by Heal The Bay, Regional Board staff concluded that Cold Creek, a tributary of Malibu Creek, should be listed on the state 303(d) list as impaired for excess algae.

Following the 303(d) workshop, district staff analyzed Heal The Bay's data for Cold Creek and other streams in the watershed using the "30% cover 10% of the time" NIWA guidelines, as was done for Cold Creek. Our analysis replicated the Regional Board staff finding, showing that Cold Creek experienced algal cover of 30 percent or more in 15/71 observations, or 17 percent of the time. A noteworthy result was the finding that 7 of these occasions occurred during the wet season, when conditions are not particularly conducive to algal growth (Chapman, 1979; Byron, 2000).

Accordingly, district staff conducted new fieldwork in Cold Creek to identify any unusual conditions that might explain why algae is capable of reaching nuisance levels during the wet season. Algal cover was assessed using a standard 1-meter square quadrate divided into 10 cm^2 cells, with algal cover systematically sampled at 2 m intervals on both sides of a 100 m longitudinal line transect located in the mid-stream thalweg. Any cell having more than 50% algal cover was counted as "full," and percent cover was then determined by summing the number of full cells, adjusting for empty cells (i.e. where leaf litter or non-submerged rocks precluded algal growth) as necessary (Fig. 1). If the number of full cells equaled or exceeded 30 percent, the stream was classified as "impaired" for algal growth at that location. The use of a 50% threshold for cell classification (i.e. "empty" vs "full") provides a conservative estimate with respect to percent algal cover in the quadrate itself. That is, this method will tend to overestimate the percentage of algal cover for the station as a whole. Two adjacent replicates were sampled at each station, and 15 stations were sampled along a 600 m section of Cold Creek downstream of the Camino Calibri bridge crossing.

Las Virgenes MWD data collected on Cold Creek using these procedures are shown in Table 1. No station had algal cover exceeding 30 percent. When these data are combined with Heal The Bay's data, the number of exceedances drops from 13 to 10 percent, a lower degree of impairment but still falling into the "impaired" category using the NIWA criteria of 10 percent or greater. In contrast, algal impairment during the dry season in Cold Creek is 25 percent, well above the 10 percent impairment threshold and consistent with previous analyses by Chapman (1979) and Byron (2000) that show a strong seasonal component to algal growth in Malibu Creek.

Algal Impairments in Other Malibu Creek Tributaries

Analysis of the entire dataset collected by Heal The Bay using the Regional Board's criteria (i.e. the NIWA criteria) is presented in Table 2. In contrast to the current 303(d) listings for algal impairment, only two sections of Malibu Creek meet the criterion for impairment. These are Medea Creek (dry season only) and Cold Creek (year round). Comparison of the criteria used in the previous 303(d) list versus the NIWA criteria used for the proposed revised 303(d) list shows that the previous analysis was numerically dominated by dry season observations, skewing the annual results towards impairment. The Los Angeles RWQCB traditionally has not separated 303(d) listings into seasonal components in the Malibu Creek watershed, resulting in a year-round listing for algal impairments when most listed tributaries appear to be impaired only during the summer or not at all, depending on the tributary.

It is important to recognize that the absence of impairments in previously listed tributaries is not because the new NIWA criteria are less stringent than previous criteria. Rather, the change in impairment status is because the Heal The Bay data more uniformly sample these tributaries at approximately monthly intervals, in contrast to the previous 303(d) list's sampling which was intermittent and performed mainly in the dry season.

In light of these findings, we recommend the Regional Board modify the draft proposed changes to the 303(d) list currently under review by the State Water Resources Control Board to reflect the following findings, particularly in light of the fact that stakeholders were not advised of the use of the new algal cover criteria for these streams prior to the 303(d) list data submittal deadline:

1. **The Cold Creek hydrologic unit is impaired for algae year-round.**
2. **The Medea Creek hydrologic unit is impaired for algae during the dry season.**
3. **All other listed impairments for algae in the remaining tributaries should be deleted.**

If you have any questions regarding this information, please contact Dr. Randal Orton in our Resource Conservation Department at 818 / 251-2145 or by email at **rorton@lvmwd.dst.ca.us**. Thank you.

Sincerely,

James E. Colbaugh
General Manager

Attachments

Las Virgenes Municipal Water District

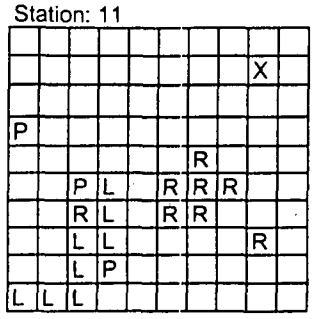
Data type: Algal Cover Counts

Codes: X=cell with algae cover > 50% L=Leaf litter R= Rock above water surface

Date: 12/21/01

Vicinity: Camino Calibri & Cold Creek, 200 m downstream of bridge

Station: 11



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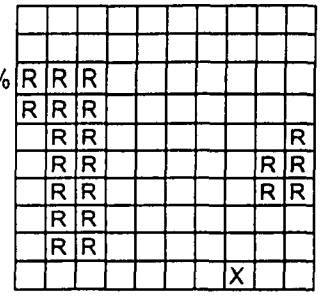
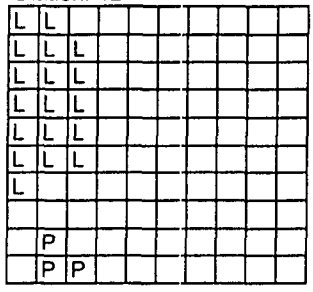
8	< Uncounted cells (rocks) >	21
1.1%	< Percent cover >	1.3%
No	< Impaired?>	No



Station: 12



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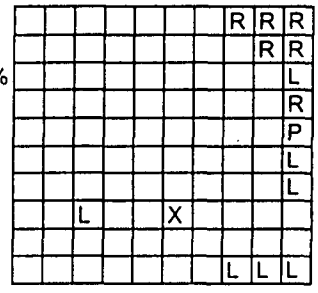
No	< Impaired?>	No



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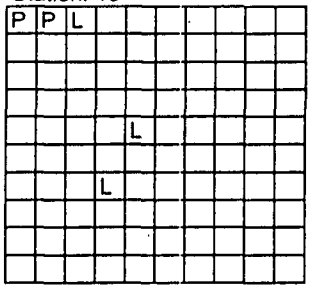
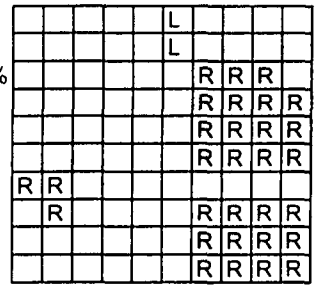
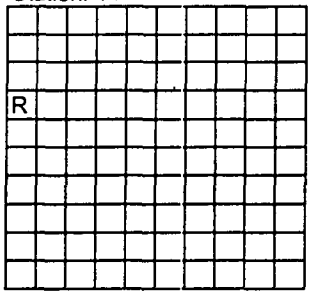


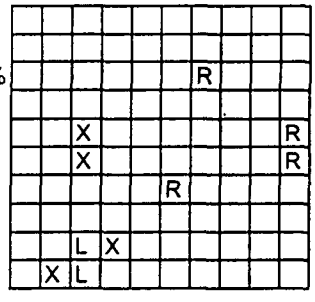
0	< Algae cover (# cells) >	0
0	< Uncounted cells (rocks) >	30
0.0%	< Percent cover >	0.0%
No	< Impaired?>	No



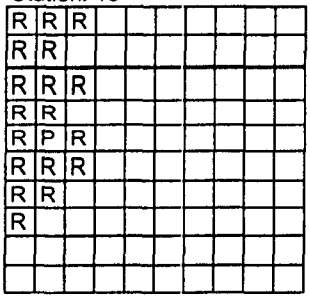
Station: 14



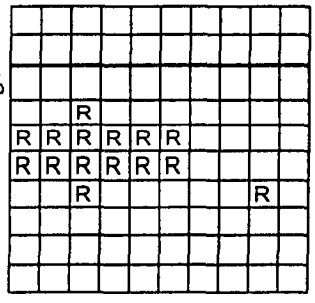
0	< Algae cover (# cells) >	4
1	< Uncounted cells (rocks) >	4
0.0%	< Percent cover >	4.2%
No	< Impaired?>	No
	< Photo	



Station: 15



0	< Algae cover (# cells) >	0
18	< Uncounted cells (rocks) >	15
0.0%	< Percent cover >	0.0%
No	< Impaired?>	No



Total stations surveyed: 5

Total stations impaired: 0

Algae Impairment in the Malibu Creek Watershed using criteria of Biggs (2000) and data collected by Heal the Bay

Hydrologic Unit	Season	Algal Cover (%)	No. Obs.	Percent	Impaired?
Watershed wide	wet	>30	9	5%	no
		<30	177	95%	
	dry	>30	11	8%	no
		<30	126	92%	
	total	>30	20	6%	no
		<30	303	94%	
Medea Creek	wet	>30	1	4%	no
		<30	22	96%	
	dry	>30	2	18%	yes
		<30	9	82%	
	total	>30	3	9%	no
		<30	31	91%	
Malibu Creek	wet	>30	1	2%	no
		<30	52	98%	
	dry	>30	1	2%	no
		<30	45	98%	
	total	>30	2	2%	no
		<30	97	98%	
Las Virgenes Ck	wet	>30	0	0%	no
		<30	26	100%	
	dry	>30	0	0%	no
		<30	15	100%	
	total	>30	0	0%	no
		<30	41	100%	
Cold Creek	wet	>30	7	13%	yes
		<30	47	87%	
	dry	>30	8	25%	yes
		<30	24	75%	
	total	>30	15	17%	yes
		<30	71	83%	
Cheseboro Creek	wet	>30	0	0%	no
		<30	27	100%	
	dry	>30	0	0%	no
		<30	18	100%	
	total	>30	0	0%	no
		<30	45	100%	

TABLE 2

Biggs (2000) suggests receiving waters are impaired by excess algae if algal cover exceeds 30% at least 10 percent of the time. These are the criteria used by the Los Angeles Regional Water Quality Control Board to conclude that Cold Creek was impaired by algae (303(d) workshop, 2001)

Natural Resources
Defense Council

6310 San Vicente Blvd., Suite 250
Los Angeles, CA 90048
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Fax 323-934-1210

FAX TRANSMISSION

This transmission is 6 pages including this cover sheet.
If transmission problems occur, please notify Wendy at (323) 934-6900.

DATE: December 12, 2001

TO: Dennis Dickerson
Executive Officer
Regional Water Quality Control Board
Los Angles Region
320 W. 4th Street, Suite 2000
Los Angeles, CA 90013
Fax: 213-576-6625

FROM: Anjali J. Jaiswal, Project Attorney

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NRDC
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NATURAL RESOURCES DEFENSE COUNCIL

December 12, 2001

Dennis Dickerson
Executive Officer
Regional Water Quality Control Board
Los Angles Region
320 W. 4th Street, Suite 2000
Los Angeles, CA 90013
Fax: 213-576-6625
Delivered by Facsimile

Re: Los Angeles Region 2002 Update to the Clean Water Act § 303(d) List

Dear Mr. Dickerson,

Natural Resources Defense Council, Heal the Bay, and Santa Monica BayKeeper appreciate the opportunity to submit comments regarding the Los Angeles Regional Water Quality Control Board's ("Regional Board") proposed update to the § 303(d) list of impaired waters under the Clean Water Act (the "2002 List" or "§ 303(d) list").

Overall, we support the Regional Board's efforts in developing an adequate and defensible § 303(d) list. In particular, we support the proposed addition of 120 water-segments to the § 303(d) list for Total Maximum Daily Load ("TMDL") development. We also support that Regional Board staff has committed to adding a proposed listing for Malibu Creek for sediment. We are pleased that the Regional Board, in accordance with the requirement under 40 C.F.R. § 130.7(b)(5) to evaluate all existing and readily available water quality-related information, has determined that the macroinvertebrate data submitted by Heal the Bay in May of 2001 warrants listing Malibu Creek as impaired by excess sediment.

Although we support the new listings, we have concerns about the proposed delisting of 86 water segments. Despite the four factors identified by the Regional Board during its recent workshop regarding the proposed 2002 List, as bases for delisting, different factors are identified in the Regional Board's Tables 4.4 and 4.5 as bases for proposed delistings. Of those factors, we are concerned about, and object to, delisting water-segments with (1) approved TMDLs, (2) where impairment has been based on Elevated Date Levels, and (3) and where guidelines are now deemed to be "outdated" or where Staff believe that no guideline now exists.

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First, we oppose the delisting of San Gabriel River East Fork for trash based on its completed TMDL in March 2000. The Clean Water Act § 303(d) does not contemplate delisting waters once TMDLs have been established for the water segments.[1] Rather, § 303(d) focuses on impaired waters meeting attainment standards. Similarly, the regulations implementing § 303(d) do not discuss delisting waters from the § 303(d) list based merely on the fact that a TMDL has been calculated.[2] In fact, 40 C.F.R. § 130.29(b) directs states that "you must keep each impaired waterbody on your list for a particular pollutant until it is attaining and maintaining applicable water quality standards for that pollutant." Additionally, 40 C.F.R. § 130.29(c) provides that states "may remove a listed waterbody for a particular pollutant if new data or information indicate that the waterbody is attaining and maintaining the applicable water quality standards for the pollutant." Because neither the Regional Board nor EPA have determined that San Gabriel River East Fork is attaining water quality standards for trash, it is improper to delist San Gabriel River East Fork for trash simply since the TMDL has been completed. Further, it is inappropriate to delist water segments that are not, at the minimum, meeting beneficial uses, especially when many TMDLs have lengthy implementation periods and any such delistings may be years in advance of any noticeable water quality improvement (i.e., the Los Angeles River Trash TMDL as adopted by this Regional Board has an implementation period that spans more than a decade). Thus, our position remains that an impaired water segment with a completed TMDL should stay on the § 303(d) list at least until it attains water quality standards because the water quality assessment is an empirical assessment not a legal assessment.

Further, removal of a water segment with a completed TMDL runs contrary to EPA guidance. Specifically, EPA's 2002 Integrated Water Quality Monitoring and Assessment Report Guidance provides that a water segment with a completed TMDL may be removed from the § 303(d) list (category 5), when TMDL implementation is "expected to result in full attainment of all standards."[3] EPA also endorsed this position in its previous 1994 guidance, in which EPA provided that states may "keep waterbodies on the section 303(d) list, not withstanding establishment of an approvable TMDL, until water quality standards have been met."[4] In the 1994 Guidance, EPA reasoned, "this approach would keep waterbodies on the 303(d) list for which TMDLs have been approved but not yet implemented, or approved and implemented, but for which water quality standards have not yet been attained."[5] Because there is no evidence that San Gabriel River East Fork for trash is attaining water quality standards and because implementation of the TMDL is not complete, delisting such a water

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[1] See Clean Water Act § 303(d) 33 U.S.C.A. § 1313(d) (West 2001).
[2] See 40 C.F.R. § 130.7 (West 2001).
[3] 2002 EPA Guidance at 6.
[4] 1994 EPA Guidance at 3.
[5] *Id.*

segment is premature. Thus, based on guidance as well as the plain language of applicable regulations, the Regional Board should keep San Gabriel River East Fork on the proposed 2002 § 303(d) list.

Finally, there are sound policy reasons to maintain listings until standards are attained, as well. Delisting water segments with completed TMDLs, but that are not attaining water quality standards has collateral impacts on resources, such as federal grants for monitoring and restoration that are linked to water segments on the § 303(d) list. Additionally, the § 303(d) list functions as a trigger in regulations for corrective actions. For example, AB 885 (1999 Jackson) imposes septic system standard regulations for systems adjacent to § 303(d) listed waters. Although we appreciate that this Regional Board is seriously engaged in TMDL development, success of the TMDL program depends on tracking waters until they attain water quality standards. Therefore, it is crucial that water segments with completed TMDLs remain on the § 303(d) list until water quality standards are attained.

Second, we are concerned about delisting 36 water segments based on exceeding elevated date levels ("EDLs") from the § 303(d) list. Generally, it is unclear if the delisting of water segments based on EDLs only eliminates the TMDL requirement as it relates to assuring healthy fish tissue in that segment or if the delisting applies more broadly and eliminates the TMDL requirement for the pollutant in that entire water segment.[6] For example, the Regional Board proposes delisting Ballona Creek for lead based on EDLs. The list narrative should clearly state whether this proposed delisting applies only to lead in animal tissue or whether it eliminates a TMDL requirement for lead in Ballona Creek entirely.

Additionally, we do not believe it is proper in the context of § 303(d) to delist water segments that were originally listed based on EDLs unless affirmative information is proffered to show that the water is not, in fact, impaired. Before delisting, the EDL 85th or EDL 95th percentile mandates further investigation to ascertain whether there are in fact any human health and/or aquatic life impacts due to the elevated toxin levels in tissues. The Clean Water Act and its implementing regulations cast a wide net to assure that all impairments are identified and remedial action is taken.[7] Section 303(d) and its regulations incorporate the idea that actions should be taken that include a margin of safety. Id. The implementing regulations broadly interpret "readily available water quality-related data" and require states to demonstrate "good cause" for not including waters on the § 303(d) list, upon EPA's

[6] Because the EDL database consists of concentrations of toxins detected in mussel or clam tissue, they apply narrowly to pollutant impairments in tissue.

[7] 33 U.S.C.A. § 1313(d)

request.[8] Hence, delisting water segments based on new and informal perspective on the utility of EDL information, alone, and without considering other data and information regarding that water segment is improper under the Clean Water Act and its implementing regulations. Indeed, EPA's 2002 guidance allows delisting for flawed information, but not based simply on the fact that the Regional Board no longer wishes to rely on valid data sets. In particular, EPA's 2002 guidance states:

> With regards to delisting, EPA is reiterating the importance of the "good cause" provisions of the existing regulation 130.7. "Good cause" may include, but is not limited to, situations where more recent or accurate data becomes available, more sophisticated or improved water quality modeling has been completed, or *flaws in the original analysis have led to water being improperly listed.* For waters that are delisted on the basis that, consistent with a State's methodology, adequate and/or information does not exist to support listing, *EPA encourages the state or territory to obtain additional data and information as a basis for future attainment and listing decisions.*[9]

With respect to the 36 water segments proposed for delisting based on EDLs, these delistings are improper because the EDLs, at minimum, are indicative of biological stress and impairment, at least in the absence of other data and information which reveal that the EDL is not indicative of impairment. In this connection, we do not believe the fact sheets prepared by staff meet the requisite "good cause" standard for delisting the 36 water segments, *i.e.*, in the fact sheets, the Regional Board has not explained why EDLs are an inaccurate measure of impairment for that water segment.

Further, EPA's 2002 Guidance encourages the state to "obtain addition data and information as a basis for future attainment and listing decisions."[10] As relates to the proposed 36 delistings, the fact sheets do not indicate any effort to obtain additional data or information regarding the water segment and whether that water segment is impaired. Hence, even if EDLs were not an accurate measure of impairment, other data regarding the water segment would illuminate if a water segment remains impaired. Because the Regional Board has not explained why EDLs are a flawed method for listing nor discussed any other data pertaining to the proposed 36 delistings based on exceeding EDLs, such delistings from the § 303(d) list are improper.

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[8] 40 C.F.R. § 130.7(b)(5).
[9] 2002 EPA Guidance at 2 (emphasis added).
[10] 2002 EPA Guidance at 2

Third, we are concerned about the delisting of 27 water segments based on either "outdated NAS guideline," "no guideline," or "no defensible guideline." As discussed above in connection with EDLs, we are concerned that delistings based on outdated NAS guideline, no guideline, or no defensible guideline are improper delistings considering the Clean Water Act's and its implement regulations' broad inclusion of waters on the § 303(d) list. Similarly, the fact sheets regarding the delisting of these proposed 27 water segments do not provide a statement of "good cause" for not including these water segments on the § 303(d) list, as discussed in EPA's 2002 Guidance. Nor is there any discussion of other information or data that may reveal whether the water segment remains impaired.

Specifically, as relates to water segments that are proposed for delisting based on no guideline or no defensible guideline, it is unclear why there is no guideline for these water segments or why the guidelines are no longer defensible. Additionally, it is unclear why the Regional Board did not adopt EPA's or another Regional Board's guideline regarding a specific pollutant, as it has in the past. Further, as relates to the water segments proposed for delisting based on outdated NAS guidelines, it is unclear why these NAS guidelines are outdated. Moreover, if the NAS guidelines are outdated, it is unclear if there are other guidelines or data available regarding the impairment of the water segment. Because the Regional Board has not explained why there are no guidelines or why the guidelines are not defensible or why the NAS guidelines are outdated, the basis of these delistings do not satisfy the "good cause" requirement for delisting under 40 C.F.R. § 130.7 or EPA's 2002 Guidance. Therefore, we are concerned that such delistings from the § 303(d) list are improper.

In sum, we reiterate that we a pleased with the Regional Board's focus on TMDL development, especially the addition of 120 new water segments. However, we are concerned about the rational of the proposed delisting of 86 water segments. Based on the above comments, we request clarification of the rationales for delisting those water segments. Additionally, we urge the Regional Board to maintain water segments on the § 303(d) list that have not attained water quality standards despite completed TMDLs and water segments with sufficient data and information to reveal impairment. If you have any questions regarding these comments, please feel free to contact us.

Sincerely,

David S. Beckman
Anjali I. Jaiswal
Natural Resources Defense Council

Leslie Mintz
Shelley Luce
Heal the Bay

Steve Fleischli
Santa Monica BayKeeper

From: "Kathryn Curtis" <kcurtis@portla.org>
To: <303d@rb4.swrcb.ca.gov>
Date: 4/19/01 2:58PM
Subject: Port of Los Angeles Comments on 303(d) Listing Process

At your request (LARWQCB letter dated March 5, 2001), following are comments/questions from the Port of Los Angeles regarding the upcoming 303(d) listing process. Please contact Kathryn Curtis at 310-732-3681 if you require any clarification. We appreciate the opportunity to provide input into this important process.

1. Explain the Regional Board's approach to validating the data that will be received as part of this outreach effort, prior to its being used to formulate the revised 303(d) list.

2. Outline the various criteria that will be used to establish a nexus between the collected data and determinations regarding 303(d) listing.

3. What is the overall timeline for the 303(d) listing process?

4. Identify the opportunities for public participation throughout the 303(d) listing process, including review of data used to make listing/delisting determinations.

5. There appears to be much overlap in data gathering efforts by various entities. How will the Regional Board and State Board coordinate the various efforts and disseminate information to all stakeholders as the 303(d) listing process and TMDL development efforts move forward?

CC: "Andrew Jirik" <ajirik@portla.org>, "Don Rice" <drice@portla.org>, "Paul Johansen" <pjohansen@portla.org>, <mad@san.ci.la.ca.us>

SCAP
SOUTHERN CALIFORNIA ALLIANCE OF PUBLICLY OWNED TREATMENT WORKS

TO: Dennis Dickerson, Debbie Smith

CC: Renee DeShazo

FROM: Mary Jane Forster Foley

DATE: June 8, 2001

SUBJECT: 2002 Water Quality Assessment

This is a follow up to my comments at the May 31, 2001 Board Workshop – Water Quality Assessment Guidelines for 2002.

Background: In my public remarks before the Board and Staff, I was advocating for a public process that I felt was beneficial for all interested parties. I think we are all in agreement that the public needs to have sufficient "due process" to revise the Water Quality Assessment required under Section 305(b) of the Clean Water Act prior to releasing the 303(d) list for public review.

I am not certain of the process that you proposed to follow at the presentation at the May 31st meeting. Is the proposed next workshop between the 305(b) draft guidance and the draft 303(d) listing recommendations? Is the workshop at the staff level or before the Board?

My comments on the process are as follows:

There should be a sequence of events for developing and finalizing a 303(d) list. I have done some research through ASIWPCA on how other states are doing this process. I have followed the Texas Methodology closely because the lead person for the Texas Water Commission and I became friends through our bi-annual ASIWPCA meetings. The Texas web site is www.tnrcc.state.tx.us and their 303(d) site is 303(d)@tnrcc.state.tx.us.

I am also researching how other states are doing the process through the America Clean Water Foundation web site, TMDLs.net. This web site will have Florida's process up this week.

Recommendation on a Sequence:

1. Select acceptable data and information to develop a 305(b) report. This would include the process of QAQC, etc. that the SWRCB included in their memo on data solicitation.
2. Prepare 305(b) report.
3. Receive public comment on the 305(b) and give the public at least 45 days to comment.

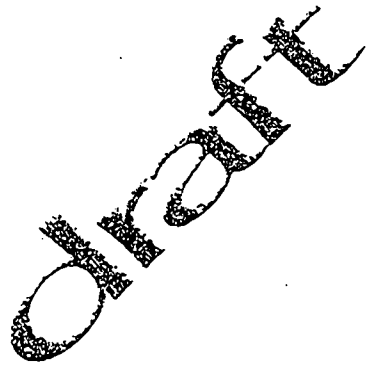
30200 Rancho Viejo Road, Suite B
San Juan Capistrano, CA 92675
Fax. 949/489-0150 Tel. 949/489-7676

4. After receiving public comment on the 305(b) report, have a staff workshop to go over justification of criteria and discussion of any guidelines that are debatable or have differing opinions on the correct science.
5. Prepare draft 303(d) list.
6. Rank water bodies for TMDL development and pass onto State Water Board.

I know the time frame is short. The SWRCB will probably give the Regional Boards until the end of October. I have called Renee and asked for the written comments sent in for assessment guidelines. I would like to obtain a copy of them, please tell me the best way to do it.

Thank you for all your efforts in this extremely difficult process. If you have any questions, you may reach me at (949) 493-8466. I will be in Sacramento on June 11 and 12, 2001. My cell is (949) 374-0912.

Review Draft, Version 2
January 16, 2001



Methodology for Developing the Texas List of Impaired Water Bodies

Clean Water Act Section 303(d)

Texas Natural Resource Conservation Commission
Office of Compliance and Enforcement
Monitoring Operations Division
Surface Water Quality Monitoring Program

Table of Contents

Draft

draft

To comment on this guidance, contact the:

Texas Natural Resource Conservation Commission
Surface Water Quality Monitoring Program
MC 150
P.O. Box 13087
Austin, Texas 78711-3087
Fax: (512) 239-4420

or E-mail:
303d@mrcc.state.tx.us

This draft is also available on the TNRCC Web site, www.mrcc.state.tx.us. From the home page, click on "Index," then click the link "Water Quality."

Methodology for Developing the Texas List of Impaired Water Bodies

The Texas Natural Resource Conservation Commission (TNRCC) identifies water bodies in the state of Texas that may require a total maximum daily load (TMDL) allocation to address the cause and source contributing to impairment of a designated or applicable beneficial use. The methodology to identify these impaired water bodies is described in this document. This methodology meets the requirements of the Clean Water Act (CWA) under Section 303(d)(1)(A) and 40 Code of Federal Regulations (CFR) Section 130.7, and it appropriately considers the United States Environmental Protection Agency (EPA), Region 6 Section 303(d) Listing Regional Guidance (draft, 2/17/98).

Water bodies identified as impaired are compiled into what is known as the 303(d) list, named after the relevant section of the CWA. The methodology used to identify impaired water bodies was established during the preparation of the *State of Texas 1998 CWA Section 303(d) List and Schedule for Development of Total Maximum Daily Loads* (SFR-58). Revisions to the methodology are made prior to each assessment that produces the 305(b) report and the 303(d) list, as internal procedures consistent with federal guidance for assessing water quality change and improve. The methodology provides consistency and predictability in the listing process.

The major changes from the previous methodology for developing the 303(d) list include:

- assessment of the entire state for all uses and parameters, rather than only the priority river basins;
- adoption of statistically-based methods for determining use support;
- one public comment period for the 305(b) report; and
- one public comment period (approximately five months later) for the 303(d) list.

The state's water quality inventory [required under CWA Section 305(b) and known as the 305(b) report] forms the basis for 303(d) listing decisions. The assessment guidance for the 305(b) report is documented separately in the *Guidance for Assessing Texas Surface and Finished Drinking Water Quality Data, 2002*

Consistency between the 305(b) Report and the 303(d) List

The 303(d) listing process is based on, and begins with, the same guidance and data assessment procedures developed for the 305(b) report. Therefore, the 305(b) report and the 303(d) list are fundamentally consistent, with some minor differences that can be explained by the differing purposes and perspectives of the two documents. The 305(b) report provides an assessment of all monitored water bodies and identifies not only designated use impairments, but also water quality concerns that are worthy of note and further investigation but do not constitute use impairments. The 303(d) list, on the other hand, identifies only water bodies with known and reasonably verifiable designated use impairments.

— The following are special considerations regarding the consistency between the 305(b) and 303(d) processes:

- Water bodies are removed from the 303(d) list after the EPA has approved a TMDL for the listed pollutant. In some cases, the water quality standard for that pollutant will not have been attained, and this ongoing impairment will continue to be reflected in the 305(b) report.
- Water bodies will remain on the 303(d) list when sufficient new data are not available for the five-year period to assess the water body.
- Support of individual uses and criteria are identified independently in the 305(b) report. When the numeric criteria that are indirect measures of aquatic life use attainment are not supported— for example, dissolved oxygen—and direct measures of the biological community indicate support of the use, water bodies *will not* be listed as impaired for the numeric criteria, or the use. Conversely, when direct measures—for example, biological community assessment—indicate nonsupport, water bodies *will* be listed for nonattainment of aquatic life use.
- When the Executive Director has assembled and evaluated all existing and readily available water quality-related data and information to develop the list, and reliable documentation clearly indicates an existing water quality standard is inappropriate, then the appropriate standard will be used to assess whether the water body is attaining its uses or not. Under CWA Section 303, TNRCC is required to review and, if necessary, revise its water quality standards at least every three years. In fact, the review is essentially continuous, but the formalities of rulemaking prevent the actual revisions from occurring simultaneously with the review. Therefore, when an existing water quality standard is determined by the Executive Director to be inappropriate through a use attainability-

analysis, the listing decision will be deferred until the Commission acts either to change the standard or not. The documentation for the appropriate standard will be provided to EPA in the form of a use-attainability analysis to support the exclusion of that water body from the 303(d) list. During the public comment period on the 303(d) list, the proposed exclusion of the water body from the 303(d) list will be noted, and the available documentation will be publicly available. The water body will be noted as not attaining existing standards in the 305(b) report. The appropriate water quality standards for the water body will then be addressed during the next revision of the water quality standards.

The Listing Process

Development of the 303(d) list includes the following basic steps:

- selecting acceptable data and information to develop the 305(b) report;
- assessing these data and information to determine which water bodies are impaired (described in greater detail in the *Guidance for Assessing Texas Surface and Finished Drinking Water Quality Data, 2002*);
- preparing the draft 305(b) report;
- receiving public comment on the 305(b) report;
- preparing the draft 303(d) list;
- ranking the water bodies for TMDL development;
- receiving public comment on the list;
- revising and finalizing the list based on new information and public input; and
- developing a schedule for development of TMDLs for listed water bodies.

Data and Information Used

As required by CWA Section 303(d) and CFR Section 130.7(B)(5), the TNRCC considers "all existing and readily available water quality-related data and information" during the development of both the 305(b) report and the 303(d) list. The TNRCC solicits data and information primarily through the established public outreach mechanisms of the Texas Clean Rivers Program (CRP), and by posting drafts of the 305(b) report and the 303(d) list on the Internet.

The TNRCC and the EPA recognize that there are some boundaries that must be established for the data and information ultimately used for listing. These boundaries are:

Time limitations. Data collected prior to the most recent five-year assessment period do not adequately reflect current conditions and are therefore not considered.

Data quality. Given the regulatory implications associated with the use of water quality data, emphasis is placed on requiring the highest quality data feasible. Assessment of data collected using consistent and scientifically rigorous water quality sampling methods ensures a predictable process for all stakeholders. For these reasons, the TNRCC normally requires that data used for the development of the report and draft list be collected under a TNRCC-approved quality assurance project plan. Data submitted to the TNRCC and not collected under such a plan must be accompanied by documentation of quality assurance that can be evaluated by TNRCC water quality staff. In order to increase the data available to the TNRCC for water quality assessment purposes, CRP staff work closely with local and regional agencies and other interest groups to develop and implement data collection efforts under an established quality assurance/quality control program.

To assist stakeholders in providing data and information to the TNRCC, the *Guidance for 2002 Water Quality Data Submittal* has been developed and is provided on the TNRCC Web site.

Readily Available Data

Readily available data include two general categories:

- *Routine data stored in the TNRCC integrated database* (surface water quality monitoring module). These data are used to conduct the 305(b) assessment and to compile the draft 305(b) report and 303(d) list. This database consists of water quality data collected by the TNRCC, the U.S. Geological Survey (USGS), the Texas Department of Health (TDH), and planning agencies through the CRP. Data must be in a form that does not require extensive data format manipulation to be useable for assessment. To provide additional confidence to the 305(b) process, data must meet minimum quality assurance/quality control requirements established by the TNRCC.
- *Data and information not stored in the TNRCC integrated database*. These data include other important sources of data and information used to develop the 305(b) report and the 303(d) list such as:
  - Fish consumption advisories, aquatic life closures, and oyster waters closures issued by the TDH.
  - The TNRCC's Water Utilities Division Chemical Monitoring System database on finished drinking water quality for pollutants related to surface water quality.

Drinking water system samples are collected under quality assurance project plans in compliance with regulations passed in support of the federal Safe Drinking Water Act.

Other Data and Information

To refine the draft report and list, the TNRCC relies on formal public comment periods to solicit additional data and information that support the listing process. These additional data and information can be used to support or refute results of the initial data assessment and the priority ranking of water bodies. These data and information may also be used to direct future water quality monitoring activities. In all cases, the value and accuracy of these data are evaluated by TNRCC water quality staff on a case-by-case basis.

Development of the 305(b) Report

The TNRCC compiles assessed data and information into a draft 305(b) report and publishes it on the TNRCC Web site for public comment. The 305(b) report and 303(d) list identify water bodies using a designated segment number and name. These water bodies are then assessed for attainment of all designated uses. Data for conventional and toxic pollutants are assessed to determine if there are violations of numeric surface water quality standards. These assessments represent the 305(b) report and identify the impaired water bodies that are compiled in the draft 303(d) list. Summaries are included in the 305(b) report that identify and highlight water bodies with impairments and concerns.

Public Participation

The TNRCC actively solicits public comment on the 305(b) report. The draft report is posted on the TNRCC Web site for comment approximately five months prior to the draft 303(d) list. Stakeholders and the public are alerted of opportunities to comment through a notice of publication in the *Texas Register* and through e-mails to participants who have previously been active in these processes. The 305(b) report is also available during the comment period from the TNRCC Surface Water Quality Monitoring (SWQM) Team. Requests may be made in the following ways: by mail at MC-150, TNRCC, P.O. Box 13087, Austin, Texas 78711-3087; by phone at 512/239-2310; or by e-mail to *303d@tnrcc.state.tx.us*.

Additionally, stakeholder meetings are held throughout the year to solicit input to the 305(b) report and 303(d) listing processes. Invited are numerous local, state, and federal agencies, and other organizations and interest groups. The TNRCC also solicits comments from EPA Region 6 at several stages of the assessment and list development.

Comments, data, and information must be submitted during the formal public comment periods in written form, via letter, facsimile transmission, or e-mail, to ensure an accurate record of the actual words and concerns of the person or group submitting them (see *Guidance for 2002 Water Quality Data Submittal*). Comments received during the four-week comment periods are considered in the development of the final 305(b) report and 303(d) list. Those commenting will not receive written acknowledgment of receipt of their comments. All comments received during the formal 305(b) report public comment period, along with the TNRCC's response to those comments, will be published with the draft 303(d) list on the agency Web site. Only the TNRCC's response to comments on the draft 303(d) list will be published with the final 303(d) list.

Development of the Draft 303(d) List

The TNRCC compiles a draft 303(d) list from the 305(b) report. This list is published on the TNRCC Web site. Preparing the list includes:

- removing a water body from the 303(d) list if the original basis for listing is no longer valid;
- ranking listed water bodies to prioritize them for TMDL development;
- soliciting public comment; and
- preparing the final list and schedule.

Removing a Water Body from the 303(d) List

The TNRCC has developed a general policy for removing water bodies from the 303(d) list that is consistent with the listing of them. Data and information used must follow the same guidelines, with the same emphasis on quality of the data and whether they are representative of the water body.

Water bodies are removed from the list for one on the following five reasons:

- *New data.* Additional monitoring data from this water body demonstrates that it meets applicable water quality standards.
- *Errors in listing.* Errors in the data or procedures used to list the water body invalidate the basis for listing.
- *New procedures or criteria.* There are revisions in the procedures and criteria used by the state to assess water quality monitoring data for determining compliance with water quality standards. Because of these revisions, a listed water body no longer meets the criteria for listing.

- *New standards*. Water quality standards are revised, and a listed water body no longer meets the criteria for listing.
- *TMDL approval*. The EPA approves a TMDL designed to attain water quality standards for this water body.

Water bodies remain on the list, however, if there is insufficient data to reassess the water body.

Ranking Listed Water Bodies for TMDL Priority

After the draft 303(d) list is compiled, it is reviewed by an interagency panel. The panel is comprised of technical staff representing the TNRCC (both central and regional offices), the Texas Water Development Board (TWDB), the Texas State Soil and Water Conservation Board (TSSWCB), the Texas Parks and Wildlife Department (TPWD), the TDH, and the CRP planning agencies. Each impairment (stressor or pollutant) of a water body is assigned a priority ranking, which reflects the priority for TMDL development. The panel relies on the ranking criteria developed by the TNRCC, but also considers additional aspects, such as the degree of exceedance of the water quality standard or criteria, or the level of public concern (as judged, in part, by the interest of local groups in addressing the issue). The assignment of a priority ranking is carried out for all listed pollutants and water bodies (see *Guidance for Assigning Priority for TMDL Development*).

Public Participation

The TNRCC actively solicits public comment on the draft 303(d) list in the same manner as the draft 305(b) report. The draft 303(d) list is posted on the TNRCC Web site in January for comment. Comment submission guidelines and information for the draft 303(d) list are identical to those of the draft 305(b) report.

Preparation of the Final 303(d) List

During the comment period on the draft 305(b) report and draft 303(d) list, TNRCC staff evaluate the data and information received and respond to requests for more information. TNRCC staff modify the report and list as appropriate, considering sound science and legal requirements. This may result in:

- removal of a water body or a parameter from the 303(d) list; and
- addition to the 303(d) list of other water bodies or parameters not on the draft list.

The final list, schedule, and supporting materials and documents are submitted to EPA Region 6 on April 1. The supporting materials include:

- *Methodology for Developing the Texas List of Impaired Water Bodies* (this document);
- *Guidance for Assessing Texas Surface and Finished Drinking Water Quality Data*;
- *Guidance for Assigning Priority for TMDL Development*;
- a list of water bodies or pollutants removed from the previous list, along with reasons for delisting;
- a list of water bodies considered for 2002 listing but not on the final 303(d) list (any water bodies shown on the draft list, but not on the final list); and
- a summary of public comments on the draft 303(d) list received during the comment period, and the TNRCC's response to them.

— The final submission is also available for public review on the TNRCC Web site, and by mail upon request by telephone, mail, or e-mail.

Preparation of the Schedule for TMDL Development

In December 1997, the TNRCC made a commitment to develop TMDLs within ten years for all water bodies listed on the 1998 CWA Section 303(d) List. For each water body/pollutant that appears on the current list, the TNRCC considers the following factors to schedule TMDL development within ten years from the initial listing.

Priority Ranking of Each Water Body

A rank of High, Medium, or Low is assigned to each pollutant on the 303(d) list at the time a draft list is developed. As a general rule, the higher the rank, the more quickly a water body is scheduled for TMDL development. Occasionally, other factors, such as those listed below, may modify this initial ranking. Comments are accepted during the 303(d) list public comment period on the initially-assigned rank. These final rankings are assigned and included on the final 303(d) list.

Geographic Focus Area

The TNRCC has established five basin groups to target intensive and comprehensive assessment and management activities through a rotating five-year cycle. Generally, the TNRCC focuses its TMDL resources in one basin group each year.

Refinement of the Schedule

Based on the priority rank and the basin group, the TNRCC develops a TMDL schedule which is submitted to the EPA in April along with the 303(d) list. After approval of the 303(d) list by the EPA, the TNRCC seeks additional information to develop a more detailed plan for TMDL development. This information includes:

- watershed proximity and related pollutants
- local and regional support for TMDL development
- data availability for immediate TMDL development
- special case of international and interstate water bodies
- strategy for each water body/pollutant

The TNRCC then refines the schedule to initiate the TMDL process for a select group of water bodies each year. Available funding ultimately determines how many projects will be initiated each year. This information is not always available at the time of schedule development, so the schedule may change based on changes in funding.

Draft

JB

SCAP
SOUTHERN CALIFORNIA ALLIANCE OF
PUBLICLY OWNED TREATMENT WORKS

June 29, 2001

2001 JUL -2 P 3:20

Dennis Dickerson, Executive Officer
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Re: SCAP Comments on 2002 Water Quality Assessment and Update of the 303 (d) List of Impaired Waterbodies

Dear Mr. Dickerson:

On behalf of the Southern California Alliance of Publicly Owned Treatment Works (SCAP), I am pleased to submit comments on the pending 305 (b) Water Quality Assessment and the 303 (d) list. SCAP's fifty-six public agency members provide wastewater and water services to over sixteen million residents in Southern California. The following comments were prepared by a workgroup of SCAP members.

1. SCAP encourages the Regional Board to carefully read and consider all comments submitted individually by our member agencies.
2. Under the Clean Water Act, as part of their biennial water quality assessments required under Section 305 (b), states are supposed to prepare analyses, among other things, of the extent to which "fishable/swimmable" uses have been or will be achieved, and what additional actions are necessary to achieve them; an estimate of the environmental impact, the economic and social costs, the economic and social benefits, and the estimated date of achievement; and a description of the nature and extent of nonpoint sources of pollutants, recommendations as to the programs which must be undertaken to control each category of such sources, and an estimate of the costs of implementing such programs. *33 U.S.C. Sec. 1315* The Regional Board must complete the required analyses during its water quality assessment, and we recommend that this be done prior to the 303 (d) listing process. We also request that a draft of the 305 (b) report be made available to the public for comment prior to being finalized and submitted to the State Water Resources Control Board.
3. SCAP supports the idea of a "preliminary list" or "watch list, on which waterbodies with inadequate or insufficient data would be placed in lieu of the 303 (d) list. Waters on the watch list would be targeted for further data gathering and assessment before either being placed on the 303 (d) list or designated as supporting the beneficial use(s). The National Research Council suggested such a list in their 2001 report assessing the effectiveness of TMDLs.[1] This has the potential to greatly reduce

[1] Assessing the TMDL Approach to Water Quality Management, prepublication copy, 2001.

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the burden caused by allocating valuable resources to addressing waters that may not truly be impaired, and focus funding and effort on true impairments.

4. SCAP urges caution regarding extrapolation of impacts on a specific waterbody based on data from a different body of water. Regional data, which have been generalized from limited data, when used, must be utilized appropriately.

5. SCAP believes that the Regional Board must only use adopted water quality standards, such as water quality objectives that have legally been adopted in the Basin Plan and approved by the State Water Resources Control Board, the Office of Administrative Law, and EPA, as the basis for the 305 (b) report or 303 (d) listings. Informal criteria that have not been formally adopted in accordance with Water Code requirements and the Administrative Procedures Act are known as "underground regulations" and cannot be legally used as the basis for the water quality assessment or 303 (d) listing.[2]

6. The Regional Board should specify what factors (including those listed below) are considered as "evidence," and how such evidence is weighted in making use of support/non-support decisions.

   a. Consider spatial, temporal (at several scales), and hydrologic variations and their effects on water quality when preparing the 2002 303 (d) list. We recommend that the Regional Board adopt a "weight of evidence" approach in preparing the 303 (d) list. Among other things, this will necessitate an understanding of variability in water quality data. In Southern California, stream flow is one of the largest sources of variability in water quality data. Stream flow is dependent on spatial, temporal (especially seasonal), and hydrologic variations. Not accounting for the effects of stream flow on water quality can bias the data set with respect to making impairment determinations. For the weight of evidence approach, one also will need to know how spatial variation was assessed, especially as it relates to effluent-dependent waterbodies. A good weight of evidence approach needs sample sets that are spatially and temporally representative of conditions in the waterbody. Sample locations should be characteristic of the main water mass or distinct hydrologic areas.

   b. For uses related to aquatic life, consider biological indicators as having a greater weight than pollutant concentration levels, to the extent that some waters may have unimpaired beneficial uses even though some chemical criteria have been exceeded. Among other reasons, this may occur because water quality objectives or criteria that are based on national guidance may not be reflective of local or site-specific conditions.

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[2] Cal. Gov. Code Sec. 11340 defines "regulation," in relevant part, as "every rule, regulation, order, or standard of general application or the amendment, supplement, or revision of any rule, regulation, order, or standard adopted by any state agency to implement, interpret, or make specific the law enforced or administered by it." Cal. Gov. Code Sec. 11342 An "underground regulation" is invalid and unenforceable because it has not been promulgated in accordance with the Administrative Procedures Act. *Frankel v. Kizer*, 21 Cal. App. 4th 743, 747 (Cal. App. 2d Dist., Dec. 13, 1993).

c. Consider on a case-by-case basis, whether or not a waterbody is oligotrophic, mesotrophic, or eutrophic and provide criteria for each type.

d. Eliminate subjective criteria such as "significant amount observed."

7. In the 1997 interagency 303 (d) listing guidance, EPA and SWRCB directed the Regional Boards to delist waters if certain factors were met. One guideline that does not appear to have been fully implemented called for recognition of control measures already in place – or expected to be installed within the next listing cycle – that will result in protection of beneficial uses. Control measures that should be considered an adequate basis for delisting include permits, clean up and abatement, cease and desist, or time schedule orders, and watershed management plans that are enforceable and include a time schedule for compliance with objectives. Prior EPA 303 (d) guidance also recommended this be taken into account. For example, within the Los Angeles Region, many inland waters are listed as being impaired by ammonia, yet all of the publicly owned treatment works are under compliance schedules to meet the ammonia water quality objectives contained in the Basin Plan in the next 1-2 years. Presumably, these waters will come into compliance with the ammonia objective when these dischargers meet this requirement. Therefore, we recommend that the Regional Board review these and other 303 (d) listings for which enforceable requirements have been adopted during this listing cycle.

8. In reviewing your prior staff reports regarding adoption of water quality assessment and/or 303 (d) listing, there has been very little explanation provided regarding how assessment decisions were made. Therefore, the following items reflect SCAP's recommendations that we believe are essential for the 2002 water quality assessment process.

In a recent Draft EPA Consolidated Assessment and Listing Methodology (CALM) report, several good recommendations are made for how states should conduct their listing processes. We are including several items based on CALM, as well as some additional items, that summarize the analytical and public review process we recommend the Regional Board follow. These comments supplement the comments previously submitted by SCAP regarding opportunities for public participation in the water quality assessment process.

- A thorough explanation of the thinking process that went into each decision should be made available in writing.
- The Regional Board should document each of the types of data that support water quality decision-making and explain how they are used in the context of applicable water quality standards to support different water quality determinations.
- A description of and reference for the quality assurance procedures should be included in water quality assessment and listing documentation. The Regional Board should define data quality requirements and how they utilize and interpret data to make decisions about whether the waterbody is impaired or attaining water quality standards.

- Metadata for the field data, i.e., when measurements were taken, locations, number of samples, detection limits, etc., should be in the administrative record and, upon request, made available to interested parties. The Regional Board should recognize that not all data are of equal value for assessing water quality standards attainment/impairment. Results of chemical data or any other type of data analysis are of limited value unless they are accompanied by documentation about sample collection (SOPs), analytical methods, and quality control protocols. Electronic copies of data and metadata should be made available, upon request.
- When data from citizen volunteer group's water quality monitoring efforts is used, the name of the group, the hours of training in water quality assessment completed by members of the group, SOPs, documentation of training of volunteers in both sampling and field testing, and whether a state certified lab was utilized should be provided. Finally, these data must meet the Regional Board's prior agreed upon standards for data quality.
- Sample size is an important element of data quality. In general, in the CALM draft, EPA is recommending that in order to have a high level of confidence in the results, a sample size of at least 30 samples is necessary. Recognizing that sample size is a big debate, we believe that a statistically-bases approach should be used in the listing process, with an adequate sample size. Therefore, the 5 samples, and sometimes 3 samples, used in prior assessment and listing processes seem less than sufficient. Not withstanding all the arguments about sample size, the tremendous implications of attainment/impairment decisions argue for the use of rigorous and statistically-valid data sets.
- What are the compelling reasons to list a waterbody, and does one reason have more weight than another?
- Fact sheets that explain proposed listings and delistings, including constituents of concern, the data used, and the water quality standard and the basis for the decision to list or delist must be provided to the public when the list is made available for public review. This is absolutely essential to enable informed public review, and will go a long way towards instilling confidence in the process and analysis prepared by the Regional Board.

SCAP is very aware of the tremendous burden this process puts on the Regional Board staff. These comments imply changes that we think will improve the process. SCAP looks forward to working with you during this process and recommends informal workshop meetings for this purpose.

Regards,

Raymond C. Miller
Executive Director

cc: Debbie Smith
Renee DeShazo

SCAP
SOUTHERN CALIFORNIA ALLIANCE OF
PUBLICLY OWNED TREATMENT WORKS

October 18, 2001

2001 OCT 19 P 2:23

Dennis Dickerson, Executive Officer
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Comments of the Southern California Alliance of Publicly Owned Treatment Works on Amendment to The Water Quality Control Plan For The Los Angeles Region to Update Bacteria Objectives For Water Contact Recreation

Dear Mr. Dickerson:

On behalf of the Southern California Alliance of Publicly Owned Treatment Works (SCAP), I am pleased to submit comments on the pending Proposed Amendment to the Water Quality Control Plan for the Los Angeles Region to Update Bacteria Objectives for Water Contact Recreation.

SCAP members are fully committed to the protection of the public from exposure to pathogenic microorganisms in recreational waters. Our main concern is the fact that your proposed changes do not differentiate between different levels of use that occur in different water bodies due to their attractiveness and appropriateness for recreational use, and which may occur on a seasonal basis. In the 1986 U.S. EPA Ambient Water Quality Criteria for Bacteria, several different criteria are included to reflect differing levels of contact recreation, i.e. a tiered approach. To our knowledge, EPA plans to continue to use this approach. It appears that they have subcategorized recreational uses to reflect the reality of the situations that exist. The Criteria document allows differing levels of indicator densities appropriate for the following full-body contact recreation uses; "designated beach area, moderate full body contact recreation, lightly used full body contact recreation, and infrequently used full body contact recreation." Since EPA recognizes that different levels of body contact associated with recreational water/activities exist and has established criteria appropriate for such levels, we recommend that the Regional Board also allow for different levels of bacteriological criteria as appropriate for the actual recreation use in a given REC-1 designated water.

This is also consistent with EPA's position on the need for more refined water quality standards. In the 1998 Advance Notice of Proposed Rulemaking for the Water Quality Standards Program, EPA itself recognized that there are significant advantages to more "refined" use designations.

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> "Alternatively, lack of precision in uses and assigned criteria could result in standards that are over protective, resulting in application of unnecessary control requirements. Although EPA supports broad application of statewide or tribe-wide criteria to ensure that sensitive uses are protected where site-specific information is lacking, the Agency's current thinking is that there is a growing need to more precisely tailor use descriptions and criteria to match site-specific conditions, ensuring that uses and criteria provide an appropriate level of protection which, to the extent possible, is neither over nor under protective." [Federal Register Vol. 63, No. 129, pg. 36750].

In another example of a tiered approach, the EPA Protocol for Developing Pathogen TMDLs recommends that States or localities promulgate different water quality objectives for water that may be used by the public in different manners (EPA Pathogen Protocol, pages 4-6). For example, designated bathing beaches are recommended to have higher standards than beaches infrequently used for bathing.
Finally, in July 2000, Congress suspended the implementation of EPA's new TMDL Rule and requested the National Research Council (NRC) to examine the scientific basis of the TMDL program. The National Research Council is an organization of the National Academy of Sciences. In July of 2001, the NRC report was published. In the chapter relating to water quality management there is a discussion of where science and public policy intersect. One of the compelling recommendations is relevant to this proposed basin plan amendment. Namely, the NRC Report concluded that "Assigning tiered designated uses is an essential step in setting water quality standards". (NRC Report, p. 30).

In conclusion, we repeat that SCAP is fully committed to protecting the public from exposure to pathogenic microorganisms in recreational waters. However, we believe that standards for recreational waters should be tailored to reflect the type of waterbody and likelihood of exposure, and should take into account the seasonality of the use when and where this is applicable. We believe that this approach is fully supported by the Clean Water Act, as well as by EPA's guidance and the recommendations of the National Research Council.

Thank you for the opportunity to comment.

Very truly yours,

Raymond C. Miller
Executive Director

Cc: David Nahai, Chair
Board Members
Renee DeShazo

SCAP
SOUTHERN CALIFORNIA ALLIANCE OF
PUBLICLY OWNED TREATMENT WORKS

October 19, 2001

2001 OCT 23 P 2:34

Mr. Dennis Dickerson, Executive Officer
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Dear Mr. Dickerson:

The Southern California Alliance of Publicly Owned Treatment Works (SCAP) is pleased to have the opportunity to comment on the Regional Board's 303(d) list for 2002.

SCAP represents fifty-five member agencies serving some sixteen million residents of southern California and is very active in the water, biosolids and air quality arenas.

SCAP is very concerned about the 303(d) Listing Process currently underway. Each Regional Board is doing the process in a slightly different manner and it is confusing to the public. Due to the varieties of processes throughout southern California, we are concerned that the 2002 list will be difficult for our members to analyze and evaluate. The opportunities being offered for public review do not appear to be meaningful because the Regional Board's have indicated their intent to submit the proposed lists as is, regardless of comments received. Furthermore, the lists are being made available for a very short public review period, if any, and; therefore the process for commenting is not adequate at the local level.

SCAP is very grateful for the Regional Board staff members that have been accessible to SCAP's Water Committee and the workshops that are planned in the near future. Even with a workshop, however, it is our understanding that the lists may already have been forwarded –without the benefit of public comment -- to Sacramento. This creates confusion. Our members question how the Regional Boards will be able to respond to their comments. To allow sufficient time for a full public review of the list, we think and suggest that the SWRCB extend the submittal deadline for the RWQCBs for several months, in recognition of EPA's recent decision to extend the 2002 list submittal deadline to October 2002 so that local interested parties can have an adequate comment and response process at the Regional level.

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We understand that the SWRCB will be commencing development of a statewide listing policy in the near future. Our thoughts regarding the listing process, *Principals for 303(d) Listing Process*, are attached.

We appreciate the opportunity to comment and ask that you send our comments to Sacramento with your proposed 2002 lists.

Very truly yours,

Raymond C. Miller
Executive Director

Cc: Board Members
Celeste Cantú
Tom Howard

SCAP
SOUTHERN CALIFORNIA ALLIANCE OF
PUBLICLY OWNED TREATMENT WORKS

2001 OCT 23 P 2:35

June 29, 2001

Dennis Dickerson, Executive Officer
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Re: SCAP Comments on 2002 Water Quality Assessment and Update of the 303 (d) List of Impaired Waterbodies

Dear Mr. Dickerson:

On behalf of the Southern California Alliance of Publicly Owned Treatment Works (SCAP), I am pleased to submit comments on the pending 305 (b) Water Quality Assessment and the 303 (d) list. SCAP's fifty-six public agency members provide wastewater and water services to over sixteen million residents in Southern California. The following comments were prepared by a workgroup of SCAP members.

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3. SCAP supports the idea of a "preliminary list" or "watch list, on which waterbodies with inadequate or insufficient data would be placed in lieu of the 303 (d) list. Waters on the watch list would be targeted for further data gathering and assessment before either being placed on the 303 (d) list or designated as supporting the beneficial use(s). The National Research Council suggested such a list in their 2001 report assessing the effectiveness of TMDLs.[1] This has the potential to greatly reduce

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SCAP is very aware of the tremendous burden this process puts on the Regional Board staff. These comments imply changes that we think will improve the process. SCAP looks forward to working with you during this process and recommends informal workshop meetings for this purpose.

Regards,

Raymond C. Miller
Executive Director

cc: Debbie Smith
Renee DeShazo

SCAP

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DRAFT
Principals for 303(d) Listing Process

1. Listing Process

a) The water quality assessment process should be used to develop a preliminary (watch) list and an action list (the 303(d) list). Placement of a waterbody on the watch list would trigger further data gathering and assessment.

b) The basis of and process for listing and de-listing must be "transparent."

c) The State should adopt a Listing Policy containing listing criteria and procedural requirements as a publicly adopted document through a full regulatory process.

d) The State's Listing Policy should include:

- A description of how different types of data will be evaluated;
- An explanation of how the following factors will be considered:
  i. data quality, age, degree of confidence, degree of exceedances
- A description of procedures for collecting and using ambient water quality data;
- A description of methods and factors to develop a prioritized schedule for TMDL development;
- A description of factors for putting waters on the "watch" list, the "action" list, and to de-list waters from both lists.
- A requirement for the development of Fact Sheets that explain the proposed listings and de-listings, including constituents of concern, the data used, and the water quality standard and the basis for the decision to list or de-list. This information must be provided to the public when the list is made available for public review. This is absolutely essential to enable informed public review, and will go a long way towards instilling confidence in the process and analysis prepared by the Regional Board.

- A description of and reference for the quality assurance procedures should be included in water quality assessment and listing documentation. The Regional Board should define data quality requirements and how they utilize and interpret data to make decisions about whether the water body is impaired or attaining water quality standards.

2. Listing Criteria

e) The Listing Policy should embody a weight of evidence approach, including:

- Consideration of spatial, temporal (at several scales), and hydrologic variations and their effects on water quality;
- For uses related to aquatic life, consideration that biological indicators should be given a greater weight than pollutant concentration levels, to the extent that some waters may have unimpaired beneficial uses even though some chemical criteria have been exceeded. Water quality objectives or criteria that are based on national guidance may not be reflective of local on-site specific conditions.

f) With respect to nutrient issues, the State should consider on a case-by-case basis whether or not a water body is oligotrophic, mesotrophic or eutrophic and provide criteria for each type.

g) The Listing Policy should eliminate subjective criteria such as "significant amount observed."

h) The Listing Policy should recognize control measures already in place – or expected to be installed within the next listing cycle – that will result in protection of beneficial uses. Control measures that should be considered an adequate basis for not listing (or for de-listing) include permit requirements, clean up and abatement, cease and desist, or time schedule orders, and watershed management plans that are enforceable and include a time schedule for compliance with objectives.

i) The Listing Policy should address the issue of sample size. Recognizing that sample size is a big debate, we believe that a statistically-based approach should be used in the listing process, with an adequate sample size (e.g. 30 samples). The tremendous implications of attainment/impairment decisions argue for the use of rigorous and statistically-valid data sets.

SCAP
SOUTHERN CALIFORNIA ALLIANCE OF
PUBLICLY OWNED TREATMENT WORKS

2001 NOV -2 P 2:24

November 1, 2001

Dennis Dickerson
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Ste 200
Los Angeles, CA 90013

Re: SCAP's List of Principals for the 303(d) Listing Process for 2002

Dear Mr. Dickerson:

Attached please find SCAP's final list of Principals for the 303(d) Listing Process for 2002.

We would appreciate a response to our comments on principals for listing criteria.

Sincerely,

Raymond C. Miller
Executive Director

Enclosure

Cc: Renee DeShazo

30200 Rancho Viejo Road, Suite B
San Juan Capistrano, CA 92675
Fax: 949/489-0150 Tel: 949/489-7676

SCAP

949.489.7676 E-mail address: kris@scap.occoxmail.com 949.489.0150 (FAX)

2001 NOV -2 P 2:24

Principals for 303(d) Listing Process

1. Divide 303(d) list into a preliminary (watch) list and an action list. Watch list would be used for further data gathering and assessment.
2. A "transparent" process for listing and de-listing process.
3. A State listing process that includes:
   - A publicly reviewable document
   - A description of how different types of data will be evaluated
   - Explanation of how the following factors will be considered:
     a. data quality, age, degree of confidence, degree of exceedances
   - description of procedures for collecting and using ambient water quality data
   - description of methods and factors to develop a prioritized schedule
   - requirements to develop listing methodology which includes descriptions of factors used to "de-list" water bodies.
4. A weight of evidence approach
   - Consideration of spatial, temporal (at several scales), and hydrologic variations and their effects on water quality
5. For uses related to aquatic life, consider biological indicators as having a greater weight than pollutant concentration levels, to the extent that some waters may have unimpaired beneficial uses even though some chemical criteria have been exceeded. Water quality objectives or criteria that are based on national guidance may not be reflective of local on-site specific conditions.
6. Consider on a case-by-case basis whether or not a water body is oligotrophic, mesotrophic or eutrophic and provide criteria for each type.
7. Eliminate subjective criteria such as "significant amount observed."

8. Control Measures – Recognition of control measures already in place – or expected to be installed within the next listing cycle – that will result in protection of beneficial uses. Control measures that should be considered an adequate basis for de-listing include permits, clean up and abatement, cease and desist, or time schedule orders, and watershed management plans that are enforceable and include a time schedule for compliance with objectives.
9. Analytical and Public Review Process should contain:
   - A thorough explanation of the thinking process that went into each decision should be made available in writing
   - The Regional Board should document each of the types of data that support water quality decision-making and explain how they are used in the context of applicable water quality standards to support different water quality determinations
   - A description of and reference for the quality assurance procedures should be included in water quality assessment and listing documentation. The Regional Board should define data quality requirements and how they utilize and interpret data to make decisions about whether the water body is impaired or attaining water quality standards.
10. Sample Size -- In the CALM draft, EPA is recommending that in order to have a high level of confidence in the results, a sample size of at least 30 samples is necessary. Recognizing that sample size is a big debate, we believe that a statistically-based approach should be used in the listing process, with an adequate sample size. The tremendous implications or attainment/impairment decisions argue for the use of rigorous and statistically-valid data sets.
11. Fact Sheets -- Explain the proposed listings and de-listings, including constituents of concern, the data used, and the water quality standard and the basis for the decision to list or de-list must be provided to the public when the list is made available for public review. This is absolutely essential to enable informed public review, and will go a long way towards instilling confidence in the process and analysis prepared by the Regional Board.

State Water Resources Control Board

Division of Water Quality
1001 I Street • Sacramento, California 95814 • (916) 341-5455
Mailing Address: P.O. Box 100 • Sacramento, California • 95812-0100
FAX (916) 341-5463 • Internet Address: http://www.swrcb.ca.gov

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at http://www.swrcb.ca.gov.

June 30, 2001

Renee DeShazo
Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Dear: Ms. DeShazo

USE OF 305(b) GUIDANCE AS THE BASIS FOR 303(d) LISTING

Thank you for the opportunity to comment on the method to be applied to develop your list of impaired waters. In developing the 303 list we are mandated to evaluate all existing and readily available water quality-related information (see 40 C.F.R. 130.7(b)(5)). This carries with it the implication that readily available information should be sufficient for determining if a water is impaired. Within those confines , we could define a very rigorous threshold for determining impairment. However, it seems logical that the law would contemplate relying on the consideration of available information rather than a wholesale rejection of available information because it doesn't conform to a rigorous decision threshold. In other words, it is not necessary to have a comprehensive study with detailed statistical analysis of the magnitude, duration, and intensity of impact on beneficial uses to conclude that an impairment exists. In fact, a listing implies only that sufficient information exists to consider at least one point in the water body to have exceeded standards for at least one significant period of time. It does not mean the entire water body does not attain standards for all times. (In contrast to the listing process, the information needed for TMDL development may be quite a bit more extensive. At a minimum, the listing does not require information regarding the sources of pollution whereas the development of allocations within a TMDL does require knowledge of the sources and at least a general understanding of the magnitude of the contribution from the various sources.)

In considering how to look at available information, no standardized set of information can be used as a determinant for listing. All available information is to be considered. Therefore some means of bringing all types of information into the evaluation must be established. The typical description for this approach is a weight-of-evidence approach. In this method the evaluator weighs various pieces of information to demonstrate a credible line of reasoning leading to a conclusion about the condition of the water. Three possible conclusions exist: 1) the water is not meeting standards, 2) it is meeting standards, or 3) we just can't tell.

When assembling information it is often useful to first consider single lines of evidence. Is there a single type of information that sufficiently characterizes the waterbody's conditions to allow for a conclusion? In the case of numeric standards we look to the water column data to see if we can determine a clear signal. Numeric criteria consist of three parts: a chemical concentration, an averaging period, and an exceedance frequency. Typically our standards are stated as instantaneous maximum, hourly averages, 4-day averages, 30-day averages, monthly averages, or median values for a given period of time. An averaging period is involved in many samples. An average is a statistical metric of the population of data points and, by definition, is made up of values that lie above and below the stated value. The number of data points that fall above or below the average, and how far from the average a point may fall and still be considered part of the population that makes up the average, is not described by the average itself but by other measures such as the variance or standard deviation. We typically look at the distribution of the data and try to fit it to some form of standardized distribution. If the pattern of the data approximates a standard distribution we can use the standard mathematical and statistical methods available to analyze the information. We typically try to fit a normal distribution or log normal distribution to the available data, because many statistical methods have been developed to evaluate these distributions.

You have proposed using the methods recommended for the 1996 305(b) reporting process as the method of choice for evaluating your information. The 305(b) guidance relies on a quantile assessment of data to draw conclusions (the most commonly used quantile is the median). Specifically, the 1996 305(b) guidance is generally taken to recommend that when 10% of the data points fall above the numeric value of the criteria under consideration that the conclusion should be that the water is not attaining the water quality standard. This approach is also stated in the draft Consolidated Assessment and Listing Methodology (April 20, 2001). While this may be a useful rule of thumb, the quantile assessment method does not address the specific average stated in the standard or the frequency allowed for values exceeding the average (e.g. once every 3 years).

A typical data set for a water attaining standards will contain many values near or below the standard and relatively few values marking the extreme condition (the data are skewed, i.e. the distribution deviates from the standard normal distribution). If the extreme condition is a high flow event or above the usual value (the most common case) the extremes will act to pull the average up. If one compares the median to the mean in the common case, this implies the mean falls above the median. We can use this relationship in evaluating chemical data and information and as a basis for building the weight of evidence. However, unless we know the distribution of the data, we cannot conclude that when we have 10 % of our data above the mean we automatically have a condition of non-attainment.

Take for example the aquatic life protection criteria based on EPA methods. These values are 4-day averages not to be exceeded more than once every three years. We do not collect data that

can be used to directly assess the 4-day average. Our sampling is typically grab samples, and are rarely collected on four consecutive days. A single grab sample cannot be used to evaluate the 4-day average. There is no way to determine the variability associated with the average or the sample from a single sample. However, the grab sample remains the best estimate of the 4-day average that we have. If we have a number of samples over a period of time we can evaluate the trend of these estimates. Over time, if the water is attaining standards, we would expect the mean of 4-day averages to approach the standard. That is to say the variability about a single mean estimate becomes insignificant and a determination of compliance with the standard can be reached. If we look to the relationship of the median to the mean we would expect the common circumstance of the mean above the median. If we find instead that the mean falls below the median we can assume the water is not behaving normally. If the mean of the samples also falls above the standard then we may assume we have a noncompliance situation. If we expect the common circumstance and find the mean above the median, then we would need to see a significant departure from the standard before we would be comfortable claiming impairment, unless we have a sufficient number of samples to statistically quantify the variance of the means (grab samples). If there is a large number of samples available we may be able to rely on statistical tests to show a condition of non-attainment when the mean is close to the median. This is because a small sample could easily be impacted by the variability inherent in the grab sample estimates or the mean itself. Since we have no way of evaluating this variability with a small sample size we should be cautious in claiming impairment where we see an expected pattern or condition.

For averaging periods where we have at least 3 samples within the averaging period we can make a direct estimate of variability and a more direct statistical analysis of conformity with the standard.

In most cases a small number of samples will not provide much assurance of the accuracy of the determination. In some cases even large number of samples will not yield conclusive statistical analyses. In these cases we look to supporting information. We depart from the single line of evidence and begin building an assessment based on indications from different types of data. There is not a prescribed approach to constructing the weight of evidence. But some simple rules of thumb may help. We typically look first at the most direct measure of the subject of the standard in question. For example, if this is a chemical concentration standard we look to chemistry information or if it is a narrative regarding aquatic community structure we look to bioassessment data. These data will provide an initial indication. We then look for other evidence that supports the indication. Are there land uses that have been associated with a problem indicated by the initial evaluation? Is there toxicity data to correspond to the chemical data? Are there official warnings or declarations of regulatory agencies that support the indication? Typically, unless we have a strongly compelling single line of evidence we will look to these multiple lines of information to bolster the decision. These lines of evidence can work to either support a listing or confirm that no listing is appropriate. Information such as photo

monitoring is typically used as this type of ancillary information. In some cases quantitative photo monitoring techniques are used, and these can be treated as a single line of evidence.

The results of mathematical models that simulate water body conditions are typically looked at in light of a weight of evidence. That is, reliance on a model result alone is not usually used. Calibrated models add evidence that the model is accurately depicting water body conditions. Similarly, land use analysis typically requires additional information beyond simply the presence of a land use type that we have found to frequently be associated with water quality problems.

In many cases a clear conclusion will not be reached, either the information is not sufficient or it is contradictory and therefore no clear description of impairment is possible. For these waters we need to record this fact and identify these waters as a group. If the group is small when we are done listing we can pursue further assessment as resources allow. If a significant portion of the waters reviewed fall into this category then we must devise a programmatic response to addressing this information gap.

The rigor of the evidence used to recommend that a water be listed becomes a judgment decision of the Regional Boards and their staff. It must be kept in mind that a decision to list does not require the same certainty that is applied when determining violations of permit conditions. Constructing the list is not a regulatory action. It is an informational and administrative exercise that prioritizes our work and highlights problem locations. As such the judgment of staff is sufficient basis for listing. What is necessary is a reasonable rationale to support the listing or delisting, and documentation of the information relied on to reach that conclusion. The regulatory actions associated with listing come as a response to the list. TMDLs, standards actions, or other means of resolving the non-attainment condition are the regulatory instruments.

In summary, it is recommended that a weight of evidence approach be applied when developing the 303(d) list. Procedures recommended for 305(b) reporting are appropriately applied within the weight of evidence, but should not be relied on exclusively as the basis for determining non-attainment of a standard. This is because the 305(b) recommendations rely on a quantile assessment that does not consider the specific averaging and exceedance frequencies specified in standards. Where ample samples are available, statistical methods designed for standardized population distributions can be used to evaluate water quality conditions.

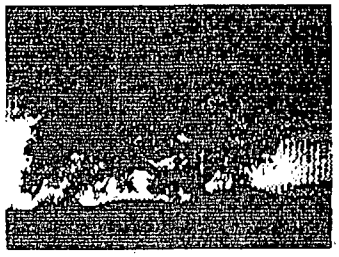
Sincerely,

/S/

Stefan Lorenzato
TMDL Coordinator

FAX COVER SHEET

City of Thousand Oaks



Public Works Department
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To: Dennis Dickerson Company: LA RWQCB

Fax # (213) 576-6640 Total # of Pages 4
Including Cover

~~URGENT~~ ~~FOR REVIEW~~ ~~PLEASE COMMENT~~ ~~PLEASE REPLY~~ ~~PLEASE RECYCLE~~

From the desk of: Donald H. Nelson Date 12/11/01

My Phone # (805) 449-2457

Message: Comments on Proposed 2002 303(d) list.

Working in the Public's Interest

Printed on Recycled Paper

City of Thousand Oaks

PUBLIC WORKS DEPARTMENT
DONALD H. NELSON, DIRECTOR

December 11, 2001

Dennis Dickerson
Executive Officer
California Regional Water Quality Control Board – Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Subject: 303(d) List Revision for 2002

Dear Mr. Dickerson:

The City of Thousand Oaks appreciates the opportunity to comment on the proposed 303(d) list. Although changes have been incorporated in the proposal, there still remain several areas that need to be corrected. The following comments are in response to the proposed listing Staff Report (12/3/01) and Calleguas Creek Fact Sheets (12/3/01).

The City agrees with the steps taken to redefine the reaches in the Calleguas / Conejo Creek watershed in a hydrologically determined method. This adds credibility to the 303(d) revision process. However, this revision once more points out an ongoing serious flaw, that is reliance on an outdated and technically flawed Basin Plan that fails to correctly define certain beneficial uses, such as the "Agricultural Use" for the South Fork of Arroyo Conejo and the "Cold-Freshwater Habitat" in the lower reaches of Calleguas Creek. The Plan also fails to account for naturally occurring background levels of chloride, dissolved solids and sulfate within the watershed.

The City and other agencies have repeatedly commented that the Triennial Review process must be completed to insure the accuracy, appropriateness, and relevance of the Basin Plan. The Basin Plan needs to be a viable roadmap for water quality and water resource management and must be based upon sound science and defensible data. Unfortunately, this is not the case with the existing Plan and therefore certain decisions based on the Plan are in many cases flawed and incorrect.

The City supports the efforts made by staff in "delisting" certain parameters in the current proposal. The current proposed plan also includes additional constituents that have been listed for certain reaches. The following comments are specific to parameter listings or omissions for delisting by the specific reach:

- **Reach 11 / Organic enrichment / low dissolved oxygen**
  This parameter should be de-listed in the South Fork of the Conejo Creek (reach 12) as was the case for Reach 10. The City submitted data tables under a cover letter dated May 10, 2001 which documents that the objectives are consistently being met in this reach.

- **Reach 12 and 13 / Ammonia**
  Ammonia should also have been de-listed in these two reaches. The Data Collection Program Report (Fugro-West) submitted annually to the Regional Board includes monthly monitoring for Ammonia (as "N") in the North and South Fork. The averages on the South Fork are between 0.3 and 0.8 mg/L. The highest concentration in over 15 years of data collection was 4.0 in July of 1991. Ammonia in the North Fork averages between 0.3 and 0.7 mg/L. The maximum concentration was 5.9 mg/L in January of 1992. The Basin Plan Tables 3-1 and 3-2 use pH and temperature to determine Ammonia Objectives. A 7.75 to 8.0 pH and a temperature range of 10 to 20 degrees C would provide a range of Ammonia objectives between 6.9 to 10.9 mg/L (Ammonia as "N" equivalent 5.67 to 8.96). Criteria for listing have not been correctly applied.

- **Reach 10 / Chloride listing**
  As noted previously the City is opposed to listings driven by Basin Plan Water Quality Objectives which do not accurately reflect naturally occurring mineral concentrations. Page 13-75 also reflects an inaccuracy in the Basin Plan by identifying agriculture as a Beneficial Use affected by chloride in Reach 10. The *Watershed Characteristics* section identifies the Hill Canyon WWTP as "scheduled to be decommissioned". This is also incorrect. The Olsen Road Water Reclamation Plant is scheduled to be decommissioned. That facility is tributary to Reach 11 (Arroyo Santa Rosa) not the Conejo Creek Reach 10. This statement is repeated in the other fact sheets for Reach 10. The *Potential Sources* section does not list naturally occurring chloride resulting from groundwater spillage.

- **Reach 10 / Nitrite as Nitrogen**
  The fact sheet and the assessment indicate 14% of the samples taken between July

1997 and December 2000 indicate an exceedance of the nitrite objective. The assessment fails to note that these five elevated data points were obtained during the summer of 1999 when HCTP was dramatically reconfiguring existing treatment processes to initiate and optimize nutrient removal through a nitrification / de-nitrification process. The few data indicating an exceedance are therefore not representative of the condition in that reach of the Creek. Since September of 1999, no results have exceeded the 1.0 mg/L objective. This reach is not impaired for nitrite and should not be listed.

- **Reach 9B / Unnatural Foam and Scum**
  The narrative indicates that this location is downstream of the Hill Canyon Wastewater Treatment Plant. This parcel is several miles downstream and two significant tributaries also commingle in the channel upstream of the photo site and downstream of HCTP. Whereas some evidence might indicate the presence of foam, the fact sheet does not indicate the presence of scum and the assessment criteria (> 10%) for listing or impairment have not been met. This reach should not be listed as impaired.

The City appreciates the opportunity to provide these comments. If you have any questions or need clarification, please feel free to contact Bob Carson of my staff at 805/449-2424 at your convenience.

Sincerely;

Donald H. Nelson
Director of Public Works

c: Tim Hanson, City of Simi Valley
Reddy Pakala, CWWD No. 1
Richard Hajas, Camrosa Water District
Robert Westdyke, City of Camarillo
Don Kendall, Calleguas Municipal Water District
Jim Egan, RMI

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

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	Renee DeShazoo	LARWQCB	213-576-6686
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	Judith Unsicker	LRWQCB	530-544-2271
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	Pavlova Vitale	SARWQCB	909-781-6288
	Keri Cole	SDRWQCB	858-571-6972
	Stan Martinson	SWRCB	916-341-5463

FROM: David Smith Dave Smith
TMDL Team Leader
EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105
415-744-2012
smith.davidw@epa.gov

May 15, 2001

Attached is a copy of a letter from me to Stan Martinson sent in response to the State's request for data and information to be considered in the 2002 Section 303(d) listing process. Because we identified a cross-cutting list of data and information sources which we believed were important to consider, we prepared a single letter to Stan and are sending copies to each of the Regional Boards. We look forward to working with you on the list revision process. Please don't hesitate to call if you have questions, and thanks for your efforts on this difficult process.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

May 15, 2001

Mr. Stan Martinson
Division of Water Quality
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Dear Mr. Martinson:

EPA appreciates the State of California's effort to initiate public solicitation of water quality related information in preparation for the 2002 Section 303(d) submission, pursuant to federal Clean Water Act (CWA) Section 303(d). The purposes of this letter are to (1) identify water quality data and information sources which are required to be or should be considered by the State as part of the listing process and (2) summarize federally required elements of the Section 303(d) list submission due April 1, 2002. We understand that the Regional Board staffs are compiling data and information for use in the listing process and are initiating the assessment process; therefore, copies of this letter will be sent to the listing coordinators for each Regional Board with the expectation that each Regional Board will consider the information in the letter.

Data and Information Sources

Federal regulations require that states "assemble and evaluate all existing and readily available water quality-related data and information" to develop the revised list (40 CFR 130.7(b)(5)). We expect that in the listing submittal, the State will document its efforts to assemble and evaluate data and information for this purpose. At a minimum, "all existing and readily available water quality-related data and information" includes but it not limited to all of the existing and readily available data and information about the following categories of waters:

- Waters identified by the State as "partially meeting" or "not meeting" designated uses or as "threatened" in California's 2000 Section 305(b) Report on Water Quality (State Water Resources Control Board, October 2000);
- Waters for which dilution calculations or predictive models indicate non-attainment of applicable water quality standards;
- Waters for which water quality problems have been reported by local, state, or federal agencies; members of the public; or academic institutions; and
- Waters identified by the State as impaired or threatened in a nonpoint assessment submitted to EPA under section 319 of the CWA or in any updates of the assessment (40 CFR 130.7(b)(5)).

should take advantage of available journal abstract data bases. For example, the State should identify the scientific literature abstracted in the Aquatic Sciences and Fisheries Abstracts, Aquatic Pollution & Environmental Quality ("ASFA 3 ') database within the last two years and indexed with the keyword "California" or any of the State's principal waterbodies; review those abstracts to identify the documents that are reasonably likely to include data relevant to the listing or delisting of the State's waters; and, among those documents, review those that are readily available.

Methodology for Listing and Submittal Requirements

The State is required to provide thorough documentation explaining the basis for its decisions to list or not to list its waters (40 CFR 130.7(b)(6). The documentation must include, at a minimum:

- a description of the methodology used to develop the list;
- a description of the data and information used to identify waters;
- a rationale for any decision to not use any existing and readily available data and information for any one of the categories of waters as described in 40 CFR 130.7(b)(5); and
- any other reasonable information requested by (EPA). Upon request by (EPA), each State must demonstrate good cause for not including a water or waters on the list.

EPA requests that the State's submission describe the specific basis for any decision to remove any waterbody-pollutant combination found on the 1998 303(d) list from the 2002 list.

Other Requirements of the Listing Submittal

The 303(d) list submittal must identify the pollutant(s) of concern and priority ranking for TMDL development for all waterbody-pollutant combinations included on the 2002 list along with the State's rationale for the priority ranking decision (40 CFR 130.7(b)(4)). The submittal must also identify the waters and pollutants targeted for TMDL development in the next two years (40 CFR 130.7(b)(4)).

TMDL Schedule Revisions

Pursuant to the provisions of EPA's 1997 policy concerning TMDL schedules, the State should revise its schedules for completing and submitting for EPA approval the TMDLs for all waterbody-pollutant combinations. Generally, TMDLs should be scheduled for completion within 8-13 years of the date the waterbody-pollutant combination was listed or the date of the 1998 Section 303(d) list submission, whichever is later. We expect that the revised schedule will provide a firm timetable for submission of State-adopted TMDLs for EPA approval which will guide the operation of California's TMDL program in the future.

Conclusion

We understand the State's desire to make its listing decisions in a manner which is consistent with State administrative process requirements and thereby avoids "underground rule-making" challenges. We understand that the State has no current plans to develop a formal methodology in advance to guide decision making on waterbody listing, priority ranking, and TMDL targeting and scheduling. We recommend that the State consider the listing guidelines developed by State Board, Regional Board, and EPA staff in conjunction with the 1998 listing process as a viable starting point for the 2002 listing process. In addition, we recommend that the State consider existing and forthcoming EPA national guidance concerning Section 303(d) listing and Section 305(b) assessments. We would be happy to provide copies of existing EPA guidance upon request. We also anticipate providing additional guidance to assist with the 2002 Section 303(d) listing decisions in the coming months.

We are concerned that in an effort to avoid potential listing challenges based on underground rulemaking concerns, the State may not be organizing its listing process in a way which will ensure that the federal listing requirements are met. Specifically, we would like to underscore the importance of ensuring that the following federal requirements are met:

- Demonstration that the State has solicited and considered all existing and readily available information, including the categories identified in 40 CFR 130.7(b)(5);
- Description of the State's listing methodology, including decision rules applied in reviewing different types of data and information to interpret numeric and narrative water quality standards;
- Documentation explaining how the listing methodology was applied for individual waters;
- Justification of decisions to not consider certain sources of readily available data and information;
- Demonstration that the State's overall approach to listing decisions and specific decision rules provide a reasonable level of consistency among listing decisions; and
- Description of the basis for priority ranking and targeting decisions.

We hope this list of data and information sources and discussion of existing listing requirements assist in your assessment efforts. We look forward to working with the Regional Boards and your staff as the listing process proceeds. If you have questions concerning this letter, please call me at (415) 744-2012.

Sincerely,

David W. Smith

David Smith
TMDL Team Leader (WTR-2)

cc: RWQCB Listing Coordinators

2001 OCT 31 P 2:27

VISTA DEL MAR NEIGHBORS

Dennis Dickerson
Executive Director
Los Angeles Regional Water Quality Control Board
320 W. 4th St., Ste. 200 Los Angeles, CA 90013

October 24, 2001

Dear Mr. Dickerson:

It has come to the attention of the Vista Del Mar Neighbors Association which surrounds Del Rey Lagoon at the mouth of Ballona Creek that your biennial update of the 303(d) list will be before your Board this winter. This letter is to request your consideration for adding the Del Rey Lagoon to the impaired water body list. This will help convince the City of Los Angeles Department of Recreation and Parks that operation and maintenance improvements need to be made immediately to address the Del Rey Lagoon water quality impairment. This will also establish a TMDL priority schedule for attaining and maintaining water quality standards for this extremely impaired water body.

We notified your agency in August of the deplorable water quality conditions in Del Rey Lagoon. Your response discussed Water Quality Standards consisting of beneficial uses, water quality objectives, and the anti-degradation policy and that the beneficial uses for Del Rey Lagoon as stated in the Basin Plan include water contact recreation, non-contact water recreation, navigation, estuarine habitat, and wildlife habitat. There is no way that existing water quality in Del Rey Lagoon will support either contact or non-contact water recreation. In fact, the Department of Recreation and Parks have signs posted in numerous locations around the lagoon stating "No Boating or Swimming, LAMC 63.44 (D5)(D1). No Wading, Swimming, Private Boats or any Floatable Objects" because to their credit they at least know that the water quality is so bad that they would be putting the public at great risk if they allowed those kinds of activities.

Your response also clearly defined the 303(d) list and TMDL process but did not inform us of the pending update of the 303(d) list. You indicated that Del Rey Lagoon may have been omitted from the last list because of a probable lack of available monitoring data and that you would be requesting monitoring data from the Department of Recreation and Parks and keep us apprised.

We sent a follow-up letter in September recommending sampling methods and tests to help determine the extent of water quality impairment in the Del Rey Lagoon and included a photograph taken in May 2001, of the algal bloom conditions. You undoubtedly have not had enough time to receive environmental monitoring data from the Department of Recreation and Parks yet. However, we strongly feel that you have enough information already from Ballona Creek, Ballona Creek Estuary, and Ballona Creek Wetlands to be able to conservatively determine that Del Rey Lagoon deserves to be on the 303(d) list, especially in light of the current operating mode.

Recreation and Parks fills the Lagoon with water from impaired water bodies already on the 303(d) list. They then isolate the lagoon from the impaired water bodies and allow highly nutrient-laden urban runoff to flow into the lagoon and be trapped for a month with no oxygen

6508 VISTA DEL MAR • PLAYA DEL REY • CA 90293
306 - 1487

source while organic matter buildup on the lagoon bottom decomposes and denitrifies to further degrade water quality. They then discharge this extremely degraded witches brew through a point source discharge outfall right back into the same impaired water body from which it came. ***This is in clear violation of the anti-degradation policy!***

Suggested TMDL's for Del Rey Lagoon are: Nutrients/Ammonia/Nitrates/Nitrites (high priority); Bacteria/High Coliform Count (high priority); Trash (high priority); Algae (high priority); Toxicity (high priority); Low Dissolved Oxygen (high priority) and the gamut of heavy metals TMDL's already listed for Ballona Creek.

Other lower Ballona Creek wetlands remnants such as Ballona Lagoon Marine Preserve, Grand Canal, Venice Canals and the Oxford Flood Control Basin should also probably be placed on the 303(d) list for similar reasons although they are not nearly as impaired as Del Rey Lagoon. A recent review of the Coastal Permit File No. 5-95-152 for the Ballona Lagoon Marine Preserve Wetlands Restoration Project indicated that a requirement for a 10-year monitoring program as a condition for permit approval is in effect. Also, references to some historical monitoring performed by the BayKeeper were found in various file reports, therefore some monitoring should be available for evaluation of that water body. Even if data isn't available for Del Rey Lagoon and the northerly remnants, we recommend that you include all of these water bodies on the updated 303(d) list with an asterisk pending receipt of appropriate monitoring data from the City of Los Angeles.

We are very fearful that if Del Rey Lagoon is not placed on the 303(d) list that proposed wetlands restoration projects will not be as sensitively designed as they need to be in terms of tidal flushing improvements and Best Management Practices for stormwater, nutrient and other TMDL control.

Please inform us when this very important item will be before your Board so representatives from our organization can be there to support our position. Thank you very much for your consideration and thanks again for passing the Ballona Creek Trash TMDL at the last Board Meeting. Every improvement in Ballona Creek is an improvement for all Wetlands remnants, which it feeds and we who live at the mouth of Ballona Creek are very appreciative.

Sincerely;

John Crosse
Environmental Advisor
Vista Del Mar Neighbors

Julie Inouye
President
Vista Del Mar Neighbors