

Item 13

Clean Water Act Section 303(d) and 305 (b) Integrated Report

ERRATA SHEET

CHANGES TO RESOLUTION NO. R8-2009-0032

Page 2 of 2 of Resolution No. R8-2009-0032. Add the following to the resolution:

3. The Executive Officer is authorized to make non-substantive changes to the Water Quality Assessment database prior to transmission to the State Water Board. These non-substantive changes may entail providing clarifying language of making grammatical corrections.

California Regional Water Quality Control Board
Santa Ana Region

April 24, 2009

ITEM: 13

SUBJECT: Clean Water Act Section 305(b) Integrated Report/303(d) List of Impaired Water Bodies in the Santa Ana Region.

INTRODUCTION

Every two years, the State of California is required by federal Clean Water Act (CWA) section 303(d) to develop and submit to the U.S. Environmental Protection Agency (USEPA) for approval a list of impaired waters (or "water quality limited segments"), where applicable water quality standards (beneficial uses and water quality objectives) are not being attained or are not expected to be attained with the implementation of technology-based controls. In addition, water bodies currently on the 303(d) List can be delisted when evidence reveals that the impairment of standards has ceased or that the impairment never existed. The resulting 303(d) List of impaired water bodies includes a description of the pollutants causing impairment and a schedule for developing a Total Maximum Daily Load (TMDL) for each pollutant or implementation of other appropriate regulatory actions. A TMDL is the maximum load of a pollutant that can be discharged and still ensure the attainment of applicable water quality standards. Placing a water body on the section 303(d) List of impaired water bodies requires the development of a TMDL(s) to address the source(s) of impairment.

The Santa Ana Region's 303(d) List was last reviewed and updated by the State Water Resources Control Board (State Water Board) in 2006.

In addition to CWA section 303(d), CWA section 305(b) also requires states to report biennially to USEPA on the water quality conditions of its waters. The USEPA has issued guidance to states directing that the federal CWA requirements for the 305(b) water quality assessment and 303(d) List of impaired waters be integrated into a single report. For California, this "integrated report" is called the 2008 California 305(b)/303(d) Integrated Report (2008 Integrated Report) and satisfies both the CWA section 305(b) and section 303(d) requirements. The Integrated Report places each California assessed water segment into one of five non-overlapping categories of water bodies based on the overall beneficial use support of the water segment. These Integrated Report categories, identified below, are based on the USEPA guidance for states' Integrated Reports, but contain some modifications based on California's 303(d) Listing Policy. References to the specific recommended listings are shown in parentheses at the end of each Category description.

Category 1: Water bodies that meet all water quality standards and no use is threatened. *(no water bodies identified among those assessed)*

Category 2: Water bodies meeting some water quality standards but with insufficient data and information to determine if other water quality standards are being met. **(Attachment 1)**

Category 3: Insufficient data and information are available to determine if any water quality standard is being attained. Listings in this Category may be the result of insufficient quantity and/or quality of data to properly evaluate a water body's attainment status. **(Attachment 2)**

Category 4: One or more water quality standards are impaired or threatened but a TMDL is not required or has already been established. The following subcategories are included in category 4: **(Attachment 3)**

4a: TMDL already approved or established by EPA;

4b: Other pollution control requirements (*i.e.*, permits, consent decrees, etc.) are expected to attain water quality standards; or,

4c: Water body impairment is not caused by a pollutant.

Category 5: Water body is impaired, does not attain the water quality standard, and a TMDL or other acceptable pollution abatement initiative is required. This is the part of the List historically known as the 303(d) List. This list also includes a description of the pollutants causing impairment and a priority ranking of the waters for the purposes of development of Total Maximum Daily Loads (TMDLs). **(Attachment 4)**

Delisted Waterbodies Water bodies delisted from the 303(d) List of Impaired Waters. **(Attachment 5)**

DISCUSSION

At the January 23, 2009 Regional Board meeting, staff presented recommended changes to the 2006 303(d) List, including additions and delistings, as well as recommendations for water body categorization in the Integrated Report. The January 23, 2009 staff report included a list of water bodies assessed and a description of staff's methods for conducting the assessment and identifying the appropriate category for each water body evaluated. Approximately 60 water bodies were assessed. The January 23, 2009 staff report also discusses staff's strategy for developing the proposed TMDL schedules for the Category 5 (303(d) Listed) water bodies.

Based on comments received at the January 23rd Board meeting, Board staff scheduled public meetings to review concerns and comments on the proposed 303(d) List and the Integrated Report. These meetings were held on February 10, 2009, February 19, 2009 and March 18, 2009. In addition, Board staff had individual meetings with stakeholders, including staff of the Orange County Public Works Department, Orange County Coastkeeper staff with their constituents, staff of the Orange County Health Care Agency and consultants for the Santa Ana River Dischargers Association (SARDA).

Board staff also received written comments from Surfrider Foundation, Orange County Coastkeeper, Inland Empire Water Keeper, Orange County Public Works, the Center for Biological Diversity, Tim Moore, Dr. Irwin Haydock and the Riverside County Flood Control and Water Conservation District. Staff Responses to comments are provided in Attachment 6. Attachment 7 contains copies of comment letters received.

As a result of these stakeholder meetings and comment letters, staff have made revisions to the proposed list of water bodies to be included on the 303(d) List of Impaired Waters. The recommended 303(d) List is shown in Attachment 4. Proposed changes to this List as initially presented at the January 23, 2009 Board meeting, and the rationale for these changes are also provided in Attachment 4. Due to their volume, the water body Factsheets with the respective supporting information are not reproduced in this report but can be downloaded from the Regional Board's web-site at http://www.waterboards.ca.gov/santaana/2008_integrated_report.

STAFF RECOMMENDATION

Adopt Resolution No. R8-2009-0032, directing staff to transmit the revised Integrated Report, including the revised 303(d) List of impaired water bodies as shown in Attachment 4, the list of water bodies to be delisted from the 303(d) List, all comments received and all other relevant materials to the State Water Resources Control Board in support of the statewide approval of the Integrated Report.

Attachments

Resolution No. R8-2009-0032

- Attachment 1** – Proposed Category 2 List of Water Bodies (Some Uses Fully Supported but Insufficient Data to Assess Impairment Status of All Uses)
- Attachment 2** – Proposed Category 3 List of Water Bodies (Insufficient Data to Make Use Determination)
- Attachment 3** – Proposed Category 4 List of Water Bodies (One or more uses not supported; no TMDL required)
- Attachment 4** – Proposed 303(d) Impaired Waters – Category 5 (One or more uses not supported; TMDL required and TMDL schedule).
- Attachment 5** – Proposed Water bodies to be Delisted from the 303(d) List
- Attachment 6** – Response to Comments
- Attachment 7** – Comments Received

**California Regional Water Quality Control Board
Santa Ana Region**

RESOLUTION NO. R8-2009-0032

Approval of the
2008 Integrated Report of Federal Clean Water Act (CWA)
Section 305(b) and Section 303(d) List Of
Water Quality Limited Segments

WHEREAS, the California Regional Water Quality Control Board, Santa Ana Region (hereinafter Water Board), finds that:

1. Clean Water Act section 305(b) requires States to prepare and submit to the US Environmental Protection Agency (USEPA) for approval a report assessing statewide surface water quality;
2. Clean Water Act section 303(d) and Title 40, Code of Federal Regulations section 130.7 requires States to develop and submit to the USEPA for approval a list of waterbodies for which water quality standards (beneficial uses and water quality objectives) are not attained, or are not expected to be attained with the implementation of technology-based controls. This list is referred to as the "303(d) List" or "Impaired Waters List";
3. The 303(d) List must include a description of the pollutants causing impairment and a schedule for development of a Total Maximum Daily Load (TMDL) for each pollutant. The TMDL is the maximum load of a pollutant that can be discharged without impairing water quality standards;
4. The list of waters identified under the Clean Water Act section 303(d) must also include a description of the pollutants causing impairment and priority ranking of the waters for the purposes of development of TMDLs;
5. The Regional Water Board's 303(d) List was last reviewed and updated in 2006 by the State Water Resources Control Board (State Water Board). The 2006 303(d) List was approved by USEPA in 2007;
6. The updated 303(d) List, when combined with the 305(b) surface water quality assessment, is referred to as the "Integrated Report";
7. On behalf of the Water Board, by letters dated December 4, 2006 and January 30, 2007, the State Water Board solicited water quality information and data from the public;
8. Water quality data obtained from the public, grant projects, recent investigations, monitoring conducted pursuant to waste discharge requirements and data collected through the State's Surface Water Ambient Monitoring Program (SWAMP) were reviewed;
9. All readily available data and information obtained was considered in the development of the 2008 Integrated Report;

tentative

10. In developing the 2008 Integrated Report, Water Board staff relied on the State's Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (Listing Policy), as well as applicable federal guidelines and regulations;
11. The Water Board discussed this matter at a workshop conducted on January 23, 2009 after notice was given to all interested persons in accordance with 40 CFR 132.20(h);
12. On April 24, 2009, the Water Board held a Public Hearing to consider the Integrated Report, including the revised 303(d) List. Notice of the Public Hearing, dated March 12, 2009, was given to all interested persons and published in accordance with 40 CFR 132.20(h); and
13. Water Board staff developed written responses to all public comments received and revised the Integrated Report, including the proposed 303(d) List, as appropriate.

THEREFORE, BE IT RESOLVED THAT:

1. The Water Board, in fulfillment of the requirements described in Clean Water Act section 305(b) and Clean Water Act section 303(d), hereby approves the Integrated Report, including updates to the 303(d) List of Impaired Waters and TMDL schedules; and
2. The Executive Officer is authorized to transmit the Water Board's 2008 Integrated Report, including the revised 303(d) List, and other supporting information to the State Water Board for its consideration and approval.

I, Gerard J. Thibeault, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of a resolution adopted by the California Regional Water Quality Control Board, Santa Ana Region, on April 24, 2009.

Gerard J. Thibeault
Executive Officer

ATTACHMENTS

Attachment 1

Proposed Category 2 List of Water Bodies (Some Uses Fully Supported, but Insufficient Data to Assess All Uses)

proposed changes to the January 23, 2009 recommended Category 2 water body list) List are shown in ~~strikeout~~ for deletions and underline for additions.

Waterbody	Beneficial Use Assessed and Fully Supported	Water Quality Indicators Assessed
Bolsa Chica State Beach	Body Contact Recreation	Enterococcus, Fecal coliform, Total coliform
Bonita Creek	Aquatic Life	Chlorpyrifos, Malathion
Crystal Cove State Park (at the following locations: Crystal Cove, El Morro, Muddy Creek Surf, Pelican Point)	Body Contact Recreation	Enterococcus, Fecal coliform and Total Coliform
Huntington Beach State Park (at the following locations: Brookhurst Street, Magnolia Street, Santa Ana River North, SCE Plant, 50' North of Santa Ana River)	Body Contact Recreation	Enterococcus, Fecal coliform, Total coliform
Huntington City Beach (at the following locations: Beach Hut, Bluffs, Jack's Snackbar, 17 th Street)	Body Contact Recreation	Enterococcus, Fecal coliform, Total coliform
Huntington Harbour (at the following locations: Admiralty Drive, Anderson Street, Clubhouse, Coral Cay, Davenport Beach, Harbour Channel, Humboldt Beach, Mother's Beach, Sea Gate, Sunset Aquatic Park, Trinidad Lane, 11 th Street)	Body Contact Recreation	Enterococcus, Fecal coliform, Total coliform
Mill Creek, Prado Area	Aquatic Life, Body Contact Recreation	Aluminum, Chromium, Mercury, Selenium, E. coli,
Newport Beach (at the following locations: Corona del Mar, Little Corona, Newport Pier, Orange St, 15 th /16 th Street, 38 th Street – 9S, 52 nd /53 rd Street, South of the Santa Ana River, Balboa Pier, the Wedge)	Body Contact Recreation	Enterococcus, Fecal coliform, Total coliform

Waterbody	Beneficial Use Assessed and Fully Supported	Water Quality Indicators Assessed
San Timoteo Creek Reach 3	Aquatic Life	1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane 1,2,4-Trichlorobenzene 1,2-Dichloroethane 1,2-Dichloropropane 2,4,6-Trichlorophenol 2,4-Dichlorophenol 2,4-Dinitrophenol 2,4-Dinitrotoluene 2,6-Dinitrotoluene 2-Chloronaphthalene 2-Nitrophenol 4-Nitrophenol Acenaphthene Aldrin Butyl benzyl phthalate Carbon Disulfide Chlorobenzene (mono) Chloroform DDT Dichlorobenzene (mixed isomers) Dieldrin Diethyl phthalate Endosulfan Endrin Heptachlor epoxide Hexachlorobenzene/ HCB Hexachlorobutadiene Hexachlorocyclopentadiene Hexachloroethane Methoxychlor Naphthalene Nitrobenzene Pentachlorophenol (PCP) Phenol Tetrachloroethylene/PCE Toxaphene
Santiago Creek Reach 1	Aquatic Life, Body Contact Recreation	E. Coli
Santiago Creek Reach 4	Body Contact Recreation	E. Coli
Seal Beach/ Surfside (Sea Way, 1 st Street, 8 th Street, 14 th Street, 100 yards South of Pier)	Body Contact Recreation	Enterococcus, Fecal coliform, Total coliform
Sunset Beach	Body Contact Recreation	Enterococcus, Fecal coliform, Total coliform

Attachment 2

Proposed Category 3 List of Water Bodies (Insufficient Data to Make Use Determination)

Waterbody	Beneficial Use Assessed	Water Quality Indicators Assessed
Chino Creek Reach 1a	Aquatic Life	Pesticides: Alachlor, Atrazine, Azinphos-methyl (Guthion), Carbaryl, Carbofuran, Chlorpyrifos, DDE, Hexachlorobenzene/ HCB, Malathion, Methyl Parathion, Molinate, Simazine, Thiobencarb/Bolero
San Sevaine Creek	Aquatic Life	pH
	Municipal water supply	Chloride, TDS, sodium, sulfates, total nitrogen

See the Regional Water Board's website for the Lines of Evidence for specific waterbodies
http://www.waterboards.ca.gov/santaana/2008_integrated_report .

Attachment 3

Proposed Category 4 List of Water Bodies (one or more uses not supported; no TMDL required)

Waterbody	Beneficial Use	Pollutant(s)
Newport Bay	Body Contact Recreation	Bacterial indicators ¹

See the Regional Board's web-site for the Water Body Factsheets
http://www.waterboards.ca.gov/santaana/2008_integrated_report

¹ Pathogen indicators in Newport Bay are being addressed as part of an approved TMDL.

ATTACHMENT 4

PROPOSED SECTION 303(D) LIST OF IMPAIRED WATERS

(REFLECTS REVISIONS TO THE JANUARY 23, 2009
RECOMMENDED SECTION 303(D) LIST)

The following list includes all water bodies proposed to be included on the 303(d) List per the January 23, 2009 staff report. Based on comments received and discussions with stakeholders, proposed changes to the January 23, 2009 recommended 303(d) List are shown in ~~strikeout~~ for deletions and underline for additions.

Water body	Beneficial Use	Pollutant(s)	TMDL Schedule (As soon as possible but no later than the year specified)	Rationale for Proposed Changes
Bolsa Chica Channel	Aquatic Life	Ammonia	2021	n/a
Borrego Creek <u>Downstream of Irvine Blvd.)</u>	Aquatic Life	Ammonia	2021	The upstream reaches of Borrego Creek only flow in storm events; the assessed data are from the lower reaches of Borrego Creek only and do not reflect water quality in the upper reach.

Water body	Beneficial Use	Pollutant(s)	TMDL Schedule (As soon as possible but no later than the year specified)	Rationale for Proposed Changes
Chino Creek Reach 1b	Groundwater Recharge	COD sodium, chloride, TIN, sulfates,	2021	<p>COD incorrectly identified as impairing GWR beneficial use.</p> <p>GWR beneficial use assessment is more correctly assessed using actual groundwater data. The surface water objectives for these mineral constituents were tied to groundwater objectives for these constituents that were deleted from the Basin Plan (Resolution No. R8-2004-0001). Stakeholders have indicated their intent to re-visit the appropriateness of the surface water objectives for these individual mineral objectives as part of the on-going TDS/Nitrogen Task Force.</p>
	Aquatic Life	COD	2021	COD impairment of aquatic life beneficial use.
Chino Creek Reach 2	Aquatic Life	pH	2021	n/a
	Groundwater Recharge	TDS, chloride, sulfate		<p>GWR beneficial use assessment is more correctly assessed using actual groundwater data. The surface water objectives for these mineral constituents were tied to groundwater objectives for these constituents that were deleted from the Basin Plan (Resolution No. R8-2004-0001). Stakeholders have indicated their intent to re-visit the appropriateness of the surface water objectives for these individual mineral objectives as part of the on-going TDS/Nitrogen Task Force.</p>

Water body	Beneficial Use	Pollutant(s)	TMDL Schedule (As soon as possible but no later than the year specified)	Rationale for Proposed Changes
City Creek	Aquatic Life	Mercury, cadmium silver, naphthalene, chlorine residual, acenaphthene,	2021	The following adjustments/corrections were made: <ul style="list-style-type: none"> • silver data reassessed taking detection limits into account; • use of correct guideline resulted in no exceedances of acenaphthene and naphthalene (incorrect guideline was previously used); • proposed chlorine residual listing was based on chloride rather than chlorine data .
Cucamonga Creek Reach 1	Aquatic Life	pH, copper, zinc naphthalene, chlorine residual, acenaphthene, cadmium, iron, silver, mercury	2021	The following adjustments/corrections were made: <ul style="list-style-type: none"> • total cadmium data were re-evaluated using established site-specific total/dissolved translators; • silver reassessed taking detection limits into account; • mercury assessment re-evaluated using fish tissue data; • use of correct guideline resulted in no exceedances of acenaphthene and naphthalene (incorrect guideline was previously used).
Cucamonga Creek Reach 2	Groundwater Recharge	pH TDS, sodium, chloride, sulfates,	2021	pH incorrectly identify as impairing GWR beneficial use. GWR beneficial use assessment is more correctly assessed using actual groundwater data. The surface water objectives for these mineral constituents were tied to groundwater objectives for these constituents that were deleted from the Basin Plan (Resolution No. R8-2004-0001). Stakeholders have indicated their intent to re-visit the appropriateness of the surface water objectives for these individual mineral objectives as part of the on-going TDS/Nitrogen Task Force.
	<u>Aquatic Life</u>	<u>pH</u>	<u>2021</u>	pH impairment of aquatic life beneficial use.

Water body	Beneficial Use	Pollutant(s)	TMDL Schedule (As soon as possible but no later than the year specified)	Rationale for Proposed Changes
Day Creek	Groundwater Recharge	TDS, sodium, chloride, TIN, sulfates	2021	GWR beneficial use assessment is more correctly assessed using actual groundwater data. The surface water objectives for these mineral constituents were tied to groundwater objectives for these constituents that were deleted from the Basin Plan (Resolution No. R8-2004-0001). Stakeholders have indicated their intent to re-visit the appropriateness of the surface water objectives for these individual mineral objectives as part of the on-going TDS/Nitrogen Task Force.
East Garden Grove Wintersburg Channel	Aquatic Life	Ammonia	2021	n/a
Hole Lake	Groundwater Recharge	TDS, sodium, chloride, sulfates TIN	2021	GWR beneficial use assessment is more correctly assessed using actual groundwater data. The surface water objectives for these mineral constituents were tied to groundwater objectives for these constituents that were deleted from the Basin Plan (Resolution No. R8-2004-0001). Stakeholders have indicated their intent to re-visit the appropriateness of the surface water objectives for these individual mineral objectives as part of the on-going TDS/Nitrogen Task Force.
Lake Elsinore	Aquatic Life	Sediment toxicity	2021	n/a
Newport Beach <u>(south of Santa Ana River mouth)</u>	Body Contact Recreation	<u>Enterococcus</u> <u>Indicator bacteria</u>	2021	Specific location of exceedances of total coliform, fecal coliform and enterococcus was identified
<u>Newport Slough</u>	<u>Body Contact Recreation</u>	<u>Enterococcus</u>	<u>2021</u>	<u>Exceedances of enterococcus</u>

Water body	Beneficial Use	Pollutant(s)	TMDL Schedule (As soon as possible but no later than the year specified)	Rationale for Proposed Changes
Peters Canyon Channel	Aquatic Life	pH	2021	n/a
Rathbone Creek	Aquatic Life	Cadmium, copper Iron, mercury acenaphthene, naphthalene, chlorine residual	2021	<p>The following adjustments/corrections were made:</p> <ul style="list-style-type: none"> • use of correct guideline resulted in no exceedances of acenaphthene and naphthalene (incorrect guideline was previously used); • mercury data reassessed taking detection limits into account; • stormwater iron data incorrectly compared to chronic recommended criteria. Comparison to acute criteria resulted in insufficient exceedances to list; • proposed chlorine residual listing was based on chloride rather than chlorine data.
San Antonio Creek	Aquatic Life	pH	2021	n/a
	Groundwater Recharge	Chloride, sodium, sulfate, TDS		<p>GWR beneficial use assessment is more correctly assessed using actual groundwater data. The surface water objectives for these mineral constituents were tied to groundwater objectives for these constituents that were deleted from the Basin Plan (Resolution No. R8-2004-0001). Stakeholders have indicated their intent to re-visit the appropriateness of the surface water objectives for these individual mineral objectives as part of the on-going TDS/Nitrogen Task Force.</p>

Water body	Beneficial Use	Pollutant(s)	TMDL Schedule (As soon as possible but no later than the year specified)	Rationale for Proposed Changes
Santa Ana River Reach 3	Aquatic Life	Copper (<u>wet season</u>) Aluminum; Acenaphthene; naphthalene; cadmium, iron, lead; mercury	2021	The following adjustments/corrections were made: <ul style="list-style-type: none"> • cadmium and lead data were re-evaluated using established site-specific total/dissolved translators; • iron and aluminum data were re-evaluated removing stormflow data affected by fire impacts; • mercury assessment re-evaluated using fish tissue data; • use of correct guideline resulted in no exceedances of acenaphthene and naphthalene (incorrect guideline was previously used).
Santa Ana River Reach 5 (note: this was inadvertently identified as Reach 5. The sampling location is in Reach 6; nonetheless, no listings are proposed)	Aquatic Life	Acenaphthene; chlorine residual, iron; mercury; naphthalene, silver	2024	The following adjustments/corrections were made: <ul style="list-style-type: none"> • iron data was re-evaluated using acute recommended criteria for stormwater data (previous assessed using recommended chronic criteria); • mercury and silver data reassessed taking detection limits into account; • use of correct guideline resulted in no exceedances of acenaphthene and naphthalene (incorrect guideline was previously used); • proposed chlorine residual listing was based on chloride rather than chlorine data.
Seal Beach	Body Contact Recreation	Enterococcus	2024	Already on 303(d) List
Serrano Creek	Aquatic Life	pH	2021	n/a

Water body	Beneficial Use	Pollutant(s)	TMDL Schedule (As soon as possible but no later than the year specified)	Rationale for Proposed Changes
Temescal Creek Reach 1	Aquatic Life	pH	2021	n/a
	Groundwater Recharge	Sulfate, sodium, TDS, chloride		GWR beneficial use assessment is more correctly assessed using actual groundwater data. The surface water objectives for these mineral constituents were tied to groundwater objectives for these constituents that were deleted from the Basin Plan (Resolution No. R8-2004-0001). Stakeholders have indicated their intent to re-visit the appropriateness of the surface water objectives for these individual mineral objectives as part of the on-going TDS/Nitrogen Task Force.

Attachment 5

Proposed Water bodies to be Delisted from the 303(d) List

(note – there are no changes to this list from the January 23, 2009 staff report)

Waterbody	Pollutant(s)	Justification
Big Bear Lake	Sedimentation/siltation	Incorrect listing
	Copper	Current data show standards met
Grout Creek	Metals	Incorrect use of <i>Corbicula</i> tissue data
Knickerbocker Creek	Metals	Incorrect use of <i>Corbicula</i> tissue data
San Diego Creek, Reach 2	Metals (lead, chromium, arsenic, cadmium, silver, zinc, nickel)	The number of exceedances found does not meet the Listing Policy's criteria for listing

See the Regional Water Board's website for the Lines of Evidence for specific waterbodies
http://www.waterboards.ca.gov/santaana/2008_integrated_report .

Attachment 6

Integrated Report - Response to Comments

Comment No.	Commenting Party	Date of Comment Letter(s)	Comment	Response
1	Center for Biological Diversity	February 4, 2009	Ocean waters impaired by acidification should be included on the 303(d) List. Carbon dioxide absorbed into the ocean has caused pH levels in ocean waters to increase to levels that affect marine life.	This issue is not specific to ocean waters of this region. It is a state-wide issue that will be addressed by the State Water Board as part of their 303(d) list approval process.
2	OC Coastkeeper/Inland Waterkeeper	April 1, 2009	Do not accept any data after the April 2009 deadline and do not extend the deadline for data submission. The data assessment should be based on data submitted before deadline.	It is unclear what April deadline is being referenced (and it's not clear to staff why the data assessment should be limited, as recommended). At the March 18, 2009 public stakeholder meeting, Board staff asked that comments be submitted by April 1, 2009 to allow staff time for preparation of the documents to support Regional Board action on April 24, 2009. No new data have been submitted. Stakeholders did make staff aware that existing data in the Board files are available and should be included in the assessment. Staff believes it is appropriate to evaluate these data.
3	OC Coastkeeper/Inland Waterkeeper	April 1, 2009	Do not use partitioning coefficients to calculate metals objectives. This is inconsistent with the procedures and methods being used in the state.	Partition coefficients were not used to translate total recoverable metals data to dissolved concentrations for the purpose of this assessment. (Long-established metals translators for the Santa Ana River and its tributaries were employed.) Staff (and EPA) recognize that factors such as TSS can have significant effects on the toxicity of metals, and that development of a partition coefficient is desirable. The CTR and SIP include requirements and procedures pertaining to the development of a partition coefficient. Collection of total recoverable AND dissolved metals data is also highly desirable.

Comment No.	Commenting Party	Date of Comment Letter(s)	Comment	Response
4	OC Coastkeeper/Inland Waterkeeper	April 1, 2009	Do not remove water quality data that is influenced by watershed events such as fires. The data points serve to represent what was occurring in the watershed at that time and therefore, should remain in the database.	<p>As discussed in the Listing Policy Functional Equivalent Document (Issue 7F), the Regional Board has the discretion to take the environmental conditions affecting the water body into consideration when assessing data. Staff believes it is appropriate to set aside the stormwater data related to fire events that occurred in the fall of 2003 and that affected surface water quality during the winter storms of 2004As documented in the Santa Ana Watershed Project Authority Report, "Old, Grand Prix and Padua Fires (October, 2003) Burn Impacts to Water Systems and Resources, Santa Ana River Watershed Area, San Bernardino National Forest, California" (February 2004), the fires and their water quality impacts represent exceptional and largely uncontrollable events that do not reflect typical ambient conditions ripe for TMDL development and implementation.</p> <p>Based on this assessment, staff is not proposing to list the Santa Ana River, Reach 3 for aluminum and iron (see Attachment 4).</p>
5	Inland Waterkeeper	February 28, 2007 (sic - date of letter understood to be 2009)	Based on data from the Santa Ana River Watershed Citizen Monitoring Project, Golden Star Creek and Temescal Creek should be listed for exceedances of the US EPA recommended criteria for <i>E. coli</i> single sample maximum of 235 mpn/100 mL or a geometric mean of 126 mpn/100 mL. The geometric mean for this purpose is all <i>E. coli</i> measurements for the stream for the entire project duration.	The US EPA recommended bacteria criteria specify calculation of a 30-day geometric mean based on 5 equally spaced samples during that 30-day period. Staff believes that calculating a geometric of all the data is an incorrect application of the recommended criteria. Further, the use of single sample data in comparison to single sample "maximum" (SSM) values should be avoided for impairment assessment purposes. Caution in the use of SSM data for assessment purposes is recognized by US EPA; the SSM values are intended to be used primarily for notification/posting purposes (and as a "fall-back" only if data to calculate geometric means are not available).
6	Orange County Public Works	March 5, 2009	<p>Newport Bay fecal indicator listings:</p> <ol style="list-style-type: none"> why are Ocean Plan objectives used and not Basin Plan objectives Data from Jan-Mar of 2004 and 2005 are missing Newport Dunes site is located in 	<ol style="list-style-type: none"> For marine waters where recreation occurs, the Listing Policy (section 3.3) specifies the use of standards contained in the California Code of Regulations (the AB411 standards), Basin Plan or statewide plans. In the case of Newport Bay, the bacterial data were evaluated using AB411 standards since these are the bacterial standards that Orange County Health Care Agency

Comment No.	Commenting Party	Date of Comment Letter(s)	Comment	Response
			<p>Upper Bay, not Lower Bay</p> <p>d. Newport Blvd site is located in Upper Bay, not Lower Bay</p> <p>e. Why add fecal and enterococcus listings, but not remove the pathogen listing</p>	<p>(OCHCA) currently uses to evaluate data and to determine whether posting of beaches is necessary.</p> <p>b. Board staff obtained the bacterial data from the OCHCA's web-site and from the State Board. The data from these sources are as complete as we could determine.</p> <p>c. Staff agree and has made the adjustment.</p> <p>d. Staff agree and has made the adjustment.</p> <p>e. The pathogen listing is being revised to specify 'indicator bacteria. This is more inclusive of all of the bacterial data that were evaluated.</p>
7	Orange County Public Works	March 5, 2009	<p>Lower Newport Bay listing for REC1 should be limited to West Newport or the 33rd Street and Newport Blvd. Bridge sites specifically. The same applies to the SHELL beneficial use; the listing should be limited to West Newport and one site near the harbor mouth. Listings should be limited to the geographical area of exceedence, not the entire Lower Bay.</p>	<p>Listing of the entire Newport Bay is not only based on OCHCA data that shows exceedances in specific locations, but also based on data collected through Dr. Stanley Grant's grant funded study. Evaluation of these data demonstrates exceedances of bacterial objectives on a bay-wide basis.</p>
8	Orange County Public Works	March 5, 2009	<p>Listing should be deleted since exceedances for fecal coliform are at the Newport Blvd. station which is in Lower Newport Bay. For other Upper Newport Bay stations, enterococcus data does not exceed number of exceedances per Listing Policy.</p>	<p>See response to comment #7</p>
9	Orange County Public Works	March 5, 2009	<p>Newport Beach enterococcus data does not support the listing.</p>	<p>Based on an evaluation of the bacterial data for Newport Beach, staff determined that only one Newport Beach location – the Santa Ana River mouth-south – had sufficient number of exceedances of the total coliform, fecal coliform and enterococcus geometric means to support a listing for "bacterial indicators" (see Attachment 4).</p>

Comment No.	Commenting Party	Date of Comment Letter(s)	Comment	Response
10	Orange County Public Works	March 5, 2009	<p>Lower Newport Bay copper and zinc in sediment listing</p> <p>a. The listings should be evaluated in a manner consistent with the Sediment Quality Objectives (SQOs) Guidelines that have been adopted by State Water Board, approved by OAL and are pending US EPA approval. The SQOs rely on a triad approach and the county has submitted data submitted pursuant to requirements in the OC MS4 permit that should have been assessed</p> <p>b. There appear to be QA/QC problems with the data collected and submitted by OC Coastkeeper as part of their metals Marina study and should be re-evaluated. Lab blanks have higher concentrations than the environmental samples.</p>	<p>a. It would be appropriate to use the SQOs if the data collected by the county were in accordance with the data requirements specified in the SQO protocol. The SQOs as currently approved by the State Board require strict adherence to the types of data that need to be collected and analyzed. All chemicals listed in the SQO need to be analyzed, two toxicity testing methods need to be conducted and a list of all the benthic infauna found needs to be provided (not just a summary or calculation of an index). Orange County's data does not adhere strictly to this. Some water quality constituents are missing, only one toxicity testing method was done and the infauna is summarized into an index score rather than listing the species found. Further, the SQOs have not been approved by US EPA and therefore are not yet applicable. State Board staff has advised that the SQOs should not be used for impairment assessment purposes until the SQOs are approved by EPA and their use is reflected in a revised Listing Policy. For these reasons, staff does not believe it is appropriate to use the SQOs protocol for assessing OC MS4 triad data.</p> <p>In order to ensure that the triad data are acceptable for future assessment using the SQOs, staff will be reviewing and recommending revisions of the OC MS4 monitoring program to include all the necessary parameters as required by the SQOs.</p> <p>Staff notes that Lower Newport Bay is already on the 303(d) List for a number of pollutants, including sediment toxicity, chlordane, DDT, copper and PCBs. EPA has promulgated technical TMDLs for these individual pollutants and the Regional Board has approved revised TMDLs for the organochlorine compounds. Staff does not recommend that any of these listings be revised at this time. The listings may be revised in the future once additional data are collected and/or the Regional Board-approved TMDLs become effective.</p>

Comment No.	Commenting Party	Date of Comment Letter(s)	Comment	Response
				<p>b. The OC Coastkeeper metals Marina Study blanks do show the presence of metals, however; these are blanks for the concentration of metals in <u>pore water</u>; Board staff reviewed the concentration of total metals in the sediment for the assessment and there were no QA/QC problems associated with the sediment chemistry data. Finally, as noted above, staff is not recommending any changes to the existing 303(d) listing for Lower Newport Bay based on the Marina study results.</p>
11	Orange County Public Works	March 5, 2009	Peters Canyon Channel – elevated pH levels likely due to algae respiration and are being addressed by the Nutrient TMDL.	The established Newport Bay watershed Nutrient TMDLs do not specifically address exceedances of pH. While it is reasonable to expect pH to be addressed through the implementation of nutrient controls, it is nonetheless appropriate to list for pH. De-listing can occur when the TMDLs are revised to specifically address pH or when pH levels no longer exceed the Basin Plan objective. Note that recommended revisions to the Nutrient TMDLs are being developed.
12	Orange County Public Works	March 5, 2009	Borrego Creek should be segmented for the basis of listing. Listing should only apply to the stream downstream of Irvine Blvd.	As shown in Attachment 4, staff agree and have made this change to the 303(d) List.
13	Orange County Public Works	March 5, 2009	Seal Beach enterococcus data do not support listing. Also total coliform data should have been assessed.	Seal Beach is already on the 303d List due to enterococcus exceedances. The data do not support de-listing.
14	Surfrider Foundation	February 18, 2009	Using a 4% exceedance frequency of AB411 standards as specified in the Listing Policy (Section 3.3), Bolsa Chica State Beach should be included on the 303(d) List (20 of 490 samples exceed AB411 standards).	The Listing Policy (Section 3.3) does specify the use of a 4% exceedance frequency <u>if</u> the data are collected only during the summer season; however, if the data are collected throughout the year, then the Policy specifies the use of the 10% exceedance frequency. Since the data assessed were collected year-round, the 10% exceedance frequency is the protocol Board staff used in assessing impairment.

Comment No.	Commenting Party	Date of Comment Letter(s)	Comment	Response
15	Irwin Haydock	e-mailed received February 27, 2009	<p>Based on data collected by OC Coastkeeper monitoring programs, the following water bodies/ pollutants should be added to the 303d List:</p> <p>Bolsa Chica Channel for nitrate and pH</p> <p>Borrego Wash for ammonia</p> <p>Delhi Channel for nitrate</p> <p>Peters Canyon Channel for Nitrate and pH</p> <p>Serrano Creek for Nitrate, ammonia and pH</p>	<p><u>Bolsa Chica Channel</u> for nitrate and pH – The proposed listing is for ammonia only. The number of exceedances of pH levels was not sufficient to justify listing. Bolsa Chica Channel is not in the Basin Plan and no beneficial uses have been assigned (though REC1 and “fishable” uses are assumed, per the federal Clean Water Act). In particular, the MUN beneficial use has not been designated; therefore, there are no applicable nitrate water standards for Bolsa Chica Channel.</p> <p><u>Borrego Wash</u> for ammonia – remains on the proposed 303(d) List</p> <p><u>(Santa Ana) Delhi Channel</u> for nitrate – the Delhi Channel is not in the Basin Plan and no beneficial uses have been assigned (though REC1 and “fishable” uses are assumed, per the federal Clean Water Act). In particular, the MUN beneficial use has not been designated; therefore, are no applicable nitrate standards for the Delhi Channel.</p> <p><u>Peters Canyon Channel</u> for nitrate and pH – pH remains on the proposed 303(d) List. Peter’s Canyon Channel is excepted from the MUN designation, therefore, there are no applicable nitrate water standards for Peters Canyon Channel.</p> <p><u>Serrano Creek</u> for Nitrate, ammonia and pH – the proposed listing is for pH only. The number of exceedances of ammonia concentrations was not sufficient to justify listing. Serrano Creek is excepted from the MUN designation; therefore, there are no applicable nitrate water standards for Serrano Creek.</p>
16	Tim Moore	April 1, 2009	<p>Pursuant to the Listing Policy (Section 6.1.5.4) the Lake Elsinore sediment toxicity test results for sediment samples collected in Lake Elsinore on the same day should be averaged together. Even though the regional boards have discretion to evaluate data based on water body conditions, the Regional Board has not divided or</p>	<p>As discussed in the QAPP and the Lake Elsinore Sediment and Water Column Toxicity Study report, the study design does not allow for, or make appropriate, the averaging of the data across the Lake. The sampling design used in Lake Elsinore was the simple random sampling design whereby each sampling site, regardless of the time samples were collected, represents a percent of area in the lake. This design is commonly used by US EPA in their EMAP</p>

Comment No.	Commenting Party	Date of Comment Letter(s)	Comment	Response
			designated different segments of Lake Elsinore.	monitoring and by SCCWRP for their well known Southern California Bight studies. In the case of Lake Elsinore, one strata was used because there was no need to split the lake into different strata. The lake, which is in a graben, is fairly rectangular in shape and not very large. The simple random sampling design implies that each sampling unit has the same probability of being chosen and is independent of each other. The lake is split into several small sampling units that are assigned a number. Each number is then provided to the investigator with the corresponding latitude and longitude. A site is picked on the day of sampling simply based on the ability of collecting enough water or sediment for the laboratory to analyze. This was done in Lake Elsinore. The sampling activities take several days to complete. It is entirely appropriate to evaluate the data in this manner.
17	Tim Moore	April 1, 2009	The exceptionally low water level in Lake Elsinore during 2003 (10 feet below normal) may cause unrepresentative water quality conditions during the sediment toxicity study. As a result of evaporative losses the total dissolved solids (salts) may have been concentrated significantly. Measured hardness in the lake water samples was 2x higher than in the control water; alkalinity was 3x higher, and conductivity was nearly 4x higher. While <i>Hyalella azteca</i> is more tolerant of elevated salinity than other invertebrate species routinely used in toxicity tests, it is not immune to ionic interference. Unless the test organisms are pre-acclimated to higher TDS concentrations before the toxicity test begins, it is not possible to distinguish true toxicity from such ionic interference. 1993 water column toxicity tests support this hypothesis.	<p>Low Lake levels are not a sufficient basis to support not including Lake Elsinore on the 303d for sediment toxicity. The 303d policy (section 6.1.5.3) specifies that the data should represent the critical season – that time when organisms are at the most risk for being impacted by water quality. For Lake Elsinore, this is when lake levels are low and water quality constituents have the greatest impact.</p> <p>With respect to the 1993 water column toxicity testing– toxicity testing that was done when lake levels were at f normal or above normal lake levels supports and serves as back-up to the Listing Policy’s focus on the critical condition.</p>

Comment No.	Commenting Party	Date of Comment Letter(s)	Comment	Response
18	Tim Moore	April 1, 2009	<p>A Toxicity Identification Evaluation (TIE) should be performed before adding Lake Elsinore to the 303(d) list for sediment toxicity. The Regional Board's Sediment Toxicity Study concluded that "there is no evidence to conclude that the chemical constituents measured in Lake Elsinore sediment are causing impairment". This includes both trace metals and organic pollutants. As noted earlier, it may be that the apparent test failures are, in reality, more the result of atypical salinity conditions rather than genuine sediment toxicity. Alternatively, the elevated mortality observed during the tests may be the result of pollutants already being addressed by other 303(d) listings.</p>	<p>There is no requirement in the listing policy to have results from TIEs prior to listing a water body. The Listing Policy (section 3.6) requires the Regional Board to list for toxicity if the appropriate toxicity tests demonstrate toxic responses. Board staff believes that it is appropriate to follow-up the sediment toxicity results with specific TIEs to determine the responsible constituent(s) causing toxicity. Again, this does not need completed prior to listing a water body on the 303d list.</p> <p>Staff would also point out that the commenter's statement of the Lake Elsinore sediment study report,</p> <p>"The Regional Board's Sediment Toxicity Study concluded that "there is no evidence to conclude that the chemical constituents measured in Lake Elsinore sediment are causing impairment",</p> <p>is taken out of context in light of the conclusions of the report. The study report goes on to conclude,</p> <p>"The sediment chemistry does not suggest possible reasons for the observed toxicity because the metals and organics concentrations are not above the Listing Policy thresholds and no statistical correlations between the chemistry and toxicity were found. However, there may be other factors that may be contributing to the observed toxicity such as unmeasured contaminants".</p> <p>The point is that not all constituents were measured in the sediment chemistry tests and as the commenter suggests, and staff agrees, TIEs are needed identify the responsible pollutant.</p>
19	Tim Moore	April 1, 2009	<p>The Regional Board has already adopted a TMDL to reduce nutrient impairment to Lake Elsinore. A new 303(d) listing for sediment toxicity may confuse matters unnecessarily. Therefore, we recommend that the most</p>	<p>See response to comment #18. It is also immaterial if an existing TMDL is in place. The Policy requires the evaluation of all readily available data to arrive at a listing decision independent of other listings or currently implemented TMDLs.</p>

Comment No.	Commenting Party	Date of Comment Letter(s)	Comment	Response
			likely cause of toxicity be identified in order to determine whether a new listing is necessary to address a new pollutant problem. Once again, we believe it would be more appropriate to place Lake Elsinore in Category 3 until the TIE work is completed.	If, as a result of further study, the responsible pollutant is identified and is currently being addressed by the nutrient TMDL, then at that time, staff would recommend placing Lake Elsinore/sediment toxicity on the Category 4 Waters (no TMDL needed; water body/pollutant being addressed).
20	Tim Moore	April 1, 2009	Lake Elsinore: The statistical tests used in the sediment toxicity study are incompatible with the state's listing procedure. All of the toxicity tests used a 95% confidence level to determine if there was a statistically-significant difference in mortality between control groups and organisms exposed to sediment samples from Lake Elsinore. That means there was a 5% risk of recording a Type-I error (aka "false positive") in each test. However, the "Null Hypothesis" in Table 3.1 of the state listing policy is set so that the "actual exceedance proportion < 3%." Therefore, by definition, the test procedure is likely to fail at an unacceptable rate (5% vs. 3%) for reasons based solely on statistical variability rather than actual sediment toxicity.	<p>The comment appears to misconstrue the level at which toxicity is identified and the binomial test per the Listing Policy. To evaluate the Lake Elsinore sediment toxicity data, the statistical test used to evaluate the data was the student's t-test assuming unequal variance and a p value of 0.05. In order for a sample to be toxic it had to be significantly different from the control and demonstrate less than 80% survival. In evaluating the Lake Elsinore sediment toxicity results, staff's intent was to determine the appropriate method to use to determine what percent area of Lake Elsinore exhibits toxicity. When the Listing Policy was adopted, the question was further refined to ask, per the binomial distribution, how many sampling units exhibit toxicity in Lake Elsinore. The binomial distribution question (or count) is only determined once each site was determined to be either toxic or non-toxic using the student's t-test. Once all sites were counted, each site exhibiting toxicity was counted, and staff then used the listing policy to determine whether the rate of exceedance required listing the lake for toxicity. Therefore, the binomial statistic required in the Listing Policy was used.</p> <p>Further, per SWAMP protocols, there are two requirements that a test must meet in order to be labeled "toxic." One is that the test is statistically different than the control and the other that the results are less than 80% of the control. The additional 80% criterion accounts for situations where low variability in test samples would result in samples being statistically different from controls when the difference was small and not thought to be relevant.</p>

Comment No.	Commenting Party	Date of Comment Letter(s)	Comment	Response
21	Tim Moore	April 1, 2009	Lake Elsinore: EPA has not yet done the routine field validation studies to demonstrate the relationship between test results and the actual health of aquatic populations living in the sediment. For that reason, we believe it would be wise to complete the TIE work before proceeding with the 303(d) listing.	Again, the Listing Policy specifies that listing based solely on toxicity testing results is appropriate and validation/TIE studies are not needed.
22	Tim Moore	April 1, 2009	Lake Elsinore: Ammonia concentrations may be responsible for the toxicity. <i>Hyallela azteca</i> are highly sensitive to ammonia and ammonia levels were measured as high as 6 mg/L by the toxicity testing lab.	The laboratory conducted ammonia measurements daily during the duration of the toxicity tests. In fact, the lab reports that initial ammonia levels ranged from <1 mg/L to 6 mg/L, but markedly decreased after 10 days to levels ranging from 2 mg/L to < 1mg/L. And in fact, in all instances, the ammonia levels decreased during the testing period, therefore ammonia was not the cause of toxicity.
23	Riverside County Flood Control and Water Conservation District	April 1, 2009	Cucamonga Creek – pH listing appears to be in error.	There is no error. The proposed listing is appropriate. There are 60 exceedances of the pH Basin Plan objective out of 83 data points. This listing conforms to section 3.2 of the Listing Policy.
24	Riverside County Flood Control and Water Conservation District	April 1, 2009	Cucamonga Creek - copper exceedances are at station locations in San Bernardino County (upstream of Riverside County). The impact from these discharges should be considered in developing copper TMDLs for the Santa Ana River.	Copper is not proposed to be included on the 303(d) List for the Santa Ana River (see Attachment 4 to the Staff Report). Copper is proposed to be listed for Cucamonga Creek. When as Board staff initiates TMDL development for copper in Cucamonga Creek, the basis for the listing will be evaluated and the appropriate TMDL development strategy will be developed. Additional collection of metals data (total/dissolved) and/or other data needed to identify an appropriate partition coefficient may lead to a revised assessment and recommendation regarding listing/de-listing in the future (see response to comment # 4).
25	Riverside County Flood Control and Water Conservation District	April 1, 2009	Lake Elsinore - the sediment toxicity results do not represent conditions at Lake Elsinore based on previous water column toxicity testing results in the Perris Valley storm drain.	Staff is unclear of the intent of this statement. Monitoring at the Perris Valley storm drain location is required in the Riverside County MS4 permit specifically to evaluate runoff from urban sources, since this channel drains the largely urban area of Moreno Valley. Lake Elsinore, at the terminus of the watershed, integrates inputs from all sources in the

Comment No.	Commenting Party	Date of Comment Letter(s)	Comment	Response
				watershed. Therefore, it would not be expected that toxicity testing results from Perris Valley storm drain would necessarily be consistent with toxicity results from Lake Elsinore.
26	Riverside County Flood Control and Water Conservation District	April 1, 2009	Lake Elsinore - the sediment toxicity results does not meet the temporal data requirements of the Listing Policy. The Listing Policy states, "...samples should be available for two or more seasons or for, two or more events when the effects or water quality objective exceedances would be expected to be clearly manifested". (section 6.1.5.3 of the Listing Policy)	The Listing Policy does speak to the general preference for data to be over two or more seasons to identify recurrent effects. The Lake Elsinore sediment toxicity meets these criteria. Sediment toxicity data were collected during both dry and wet seasons and there was demonstrated toxicity during both.
27	Riverside County Flood Control and Water Conservation District	April 1, 2009	Lake Elsinore – sediment toxicity listing does not take into account the impacts of wildfires as a potential contributor to the toxicity.	<p>The District indicates that the Lake Elsinore sediment toxicity results were affected by wildfires and that fire information has been provided in the MS4 annual reports going back to the 2001-2002 annual report. Based on discussions with Regional Board stormwater staff, there is no listing of the fire information in the 2001-2002 annual report – the report that is needed to evaluate any impacts to the April 2003 wet season sediment toxicity sampling period. In fact, stormwater staff indicate that the District did not start reporting on fires until the 2003-2004 annual report. As a result, staff could not evaluate the sediment toxicity results in light of any occurrence of fires.</p> <p>Staff would like to emphasize that the Lake Elsinore sediment toxicity studies were conducted during the dry season of 2003 (June, October) as well as the wet season of 2003 (April). Sediment toxicity was observed in <u>both</u> seasons. One would not expect impacts of fires to be seen during the dry season. In addition, if 2003 was a relatively dry year (see comment #17), then it is unlikely that runoff from the wildfires areas in the San Jacinto mountains reached Lake Elsinore.</p>

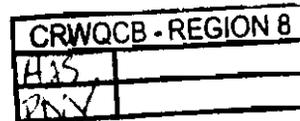
Comment No.	Commenting Party	Date of Comment Letter(s)	Comment	Response
28	Riverside County Flood Control and Water Conservation District	April 1, 2009	Lake Elsinore – sediment toxicity results are not representative of conditions at Lake Elsinore since lake levels were low.	See response to comment #17.
29	Riverside County Flood Control and Water Conservation District	April 1, 2009	Lake Elsinore – sediment toxicity listing is based on vague statements in the Integrated Report. The sediment chemistry does not suggest a possible reason for toxicity and there were no statistical correlations seen between sediment chemistry and sediment toxicity.	It is not necessary to have a specific chemical responsible for sediment to be identified prior to listing. It is possible that the sediment chemical evaluations did not measure the responsible chemical. As discussed in response to comment #18, the Listing Policy specifies that listing solely based on toxicity results is appropriate.
30	Riverside County Flood Control and Water Conservation District	April 1, 2009	Lake Elsinore – sediment toxicity needs to take into account wildfires when interpreting toxicity results.	See response to comment #27.
31	Riverside County Flood Control and Water Conservation District	April 1, 2009	Lake Elsinore – sediment toxicity evaluation guidelines are inappropriate since they are based on studies that have climate and ecology unlike an arid west freshwater environment. One study was in the Sacramento area with incompatible climate and ecology and the Los Angeles study used saltwater organisms.	The sediment toxicity sampling and evaluation protocol is appropriate and has no relationship to conditions elsewhere in the state. The correct evaluation of sediment toxicity is based on whether the sample toxicity is statistically different from the control at a 95% confidence level. For the Lake Elsinore sediment toxicity results, this was the protocol used to evaluate the toxicity results. Using a t-test and assuming unequal variance and significance ((p) set at 0.05), the sediment sample had to be statistically significantly different from the control to be considered toxic. See also response to comment #20.
32	Riverside County Flood Control and Water Conservation District	April 1, 2009	Santa Ana River, Reach 3 – iron listing should be deleted since it is based on data collected 10 to 15 years ago. Land use and local program changes that affect discharges have changed since that time. There is no recent data to confirm that listing.	As shown in Attachment 4, because of the impact wildfires likely had on data collected in 2004, staff is not recommending inclusion of the Santa An River on the 303(d) List for iron. See also comment #4.

Comment No.	Commenting Party	Date of Comment Letter(s)	Comment	Response
33	Riverside County Flood Control and Water Conservation District	April 1, 2009	Santa Ana River, Reach 3 – copper listing should be deleted since it is based on older data and the dates of exceedance correspond to periods of wildfire runoff impacts.	Based on an application of the long-established site-specific total/dissolved translators, the resulting comparison of the Santa Ana River copper, lead and cadmium data with the California Toxics Rule (CTR) criteria demonstrates no exceedances. Therefore, staff is not proposing that the Santa Ana River be listed for copper (or lead or cadmium) (see Attachment 4).
34	Riverside County Flood Control and Water Conservation District	April 1, 2009	Temescal Creek – pH listing; the District was unaware of the pH exceedances prior to the proposed 303(d) listing and will initiate investigations to determine the source, particularly to determine if it is an illegal discharge. Given the public and private expenses associated with TMDL development, the District requests that Temescal Creek not be included on the 303(d) List pending the results of the District's investigations.	The Clean Water Act requires that if there are exceedances of water quality standards, the water body and responsible pollutant be included on the 303(d) List. As shown in Attachment 4, staff is proposing that the Temescal Creek pH TMDL be completed on or before 2021. As such, Board staff welcomes the proactive approach of the District to conduct an investigation to identify the source(s). If control measures are implemented such that there are no more pH exceedances and standards are met, staff would recommend de-listing of the Creek.

Attachment 7 – Comments Received



CENTER for BIOLOGICAL DIVERSITY



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Sent via certified and electronic mail

February 4, 2009

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Re: California's 2008 List of Impaired Water Bodies under Clean Water Act § 303(d)

On behalf of the Center for Biological Diversity, these comments are submitted in for consideration in California's 303(d) List of Impaired Water Bodies. This comment letter supports the inclusion of ocean waters impaired by ocean acidification on the list.

The ocean absorbs carbon dioxide causing seawater to become more acidic. Among various adverse impacts to marine life, this process—termed ocean acidification—impairs the ability of calcifying organisms to build their protective structures. Already ocean pH has changed significantly due to human sources of carbon dioxide. Recent surveys of the west coast by Feely et al., showed that northern California is being exposed to some of the most acidic waters due to ocean acidification. On the current trajectory, ocean ecosystems are likely to become severely degraded due to ocean acidification.

On February 27, 2007, the Center for Biological Diversity submitted scientific information supporting the inclusion of ocean waters on California's 303(d) List to each of the coastal regional water boards. Since then, it has only become more apparent that ocean acidification poses a serious threat to seawater quality with adverse effects on marine life. On June 11, 2008, the Center for Biological Diversity submitted additional scientific information concerning the latest findings on ocean acidification. The regional Water Quality Control Boards have deferred action on ocean acidification to the State Water Resources Control Board. For example, in response to comments on the San Francisco Bay Area's proposed list, the Region relied on the State Water Resources Control Board's review of the Center's data on ocean acidification.

In a letter dated January 16, 2009, the U.S. Environmental Protection Agency ("EPA") acknowledged the threat that ocean acidification presents to water quality. The EPA has now committed to evaluate its water quality criterion for pH under the Clean Water Act. This important step by EPA recognizes that changes in pH caused by carbon dioxide are appropriate for consideration under the Clean Water Act. The Boards are urged to include ocean waters on their impaired waters list. California is a leader when it comes to actions on climate change and should seize the opportunity to take decisive action on ocean acidification. The Clean Water Act gives California the authority and duty to address ocean acidification.

The overwhelming scientific evidence supports the inclusion of ocean waters on the 303(d) List because of impairment caused by ocean acidification. This letter and its source documents should be taken under consideration in support of listing ocean waters, and the Center's previous letters and documents are incorporated by reference.

The Regional and State Water Resources Control Boards are urged to take ocean acidification seriously and to take prompt steps to halt this threat to our ocean ecosystems. The Boards should place California's ocean water segments on the 303(d) List and develop a TMDL for carbon dioxide pollution that is impairing our seawater quality.

The Clean Water Act Requires California to Include Ocean Waters Impaired by Ocean Acidification on Its 303(d) List

Under the Clean Water Act, each state must establish water quality standards that take into account the water's "use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes." 33 U.S.C. § 1313(c)(2). The Clean Water Act's section 303(d) requires each state to identify waters for which existing regulations are inadequate to protect water quality—resulting in a "303(d) List." 33 U.S.C. § 1313(d). "Each state shall identify those waters within its boundaries for which the effluent limitations ... are not stringent enough to implement any water quality standard applicable to such waters." 33 U.S.C. § 1313(d)(1)(a). A water body failing to meet any numeric criteria, narrative criteria, waterbody uses, or antidegradation requirements shall be included as a water-quality limited segment on the 303(d) List. 40 C.F.R. § 130.7(b)(3). Relevant here, one of the conventional pollutants recognized under the Clean Water Act is pH. 33 U.S.C. §

1314(a)(4). Consequently, an unacceptable change in pH constitutes a basis for inclusion in the 303(d) List.

The Clean Water Act's 303(d) List was intended as a mechanism to address problems such as ocean acidification, and the 303(d) List is an effective mechanism to address atmospheric deposition. EPA's *Information Concerning 2008 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions* acknowledges that atmospheric deposition must be a factor considered by states during their water quality assessments (available at http://www.epa.gov/owow/tmdl/2008_ir_memorandum.html). Moreover, 303(d) listing and the establishment of total maximum daily loads has been an approach applied to parallel air deposition pollutants causing water quality problems such as mercury and acid rain.

Ocean Waters Should Have Been Included in the San Francisco Bay Area's 303(d) List

California's ocean waters meet one or more of the 303(d) listing factors enumerated in California's Water Quality Control Policy ("WQCP"). First, California's ocean waters are experiencing a trend of declining water quality for pH. Second, ocean acidification is causing degradation of marine communities.

Ocean pH has already changed by over 0.1 pH units on average. Thus, the ocean is on a declining trend and must be listed as impaired. Recent studies show that the magnitude of ocean acidification is among the highest off the coast of northern California (Feely et al. 2008). Thus, ocean waters should be listed as impaired because ocean acidification threatens the aquatic life uses, and it violates the antidegradation policy.

In the Pacific, the "saturation horizon" for aragonite and calcite has already shifted toward the surface by 50 to 200 m. This means that calcareous organisms cannot survive at the same depths they once could. The depth of water in which they can survive will continue to become shallower in the coming decades (Feely 2004). New data on ocean acidification on the west coast of the United States demonstrates that the problem of ocean acidification is much worse than previously thought. Feely et al. (2008) conducted hydrographic surveys along the continental shelf of western North America from central Canada to northern Mexico in May-June 2007 and calculated aragonite and calcite saturation from water samples at depth. This study found that seawater undersaturated in aragonite, with pH values less than 7.75, was upwelling onto large portions of the continental shelf from Canada to Mexico, reaching mid-shelf depths of 40-120 m along most of the surveyed areas (Figure 1) (Feely et al. 2008). As a result, marine organisms in surface waters, in the water column, and on the sea floor along the west coast are being exposed to corrosive water during the upwelling season.

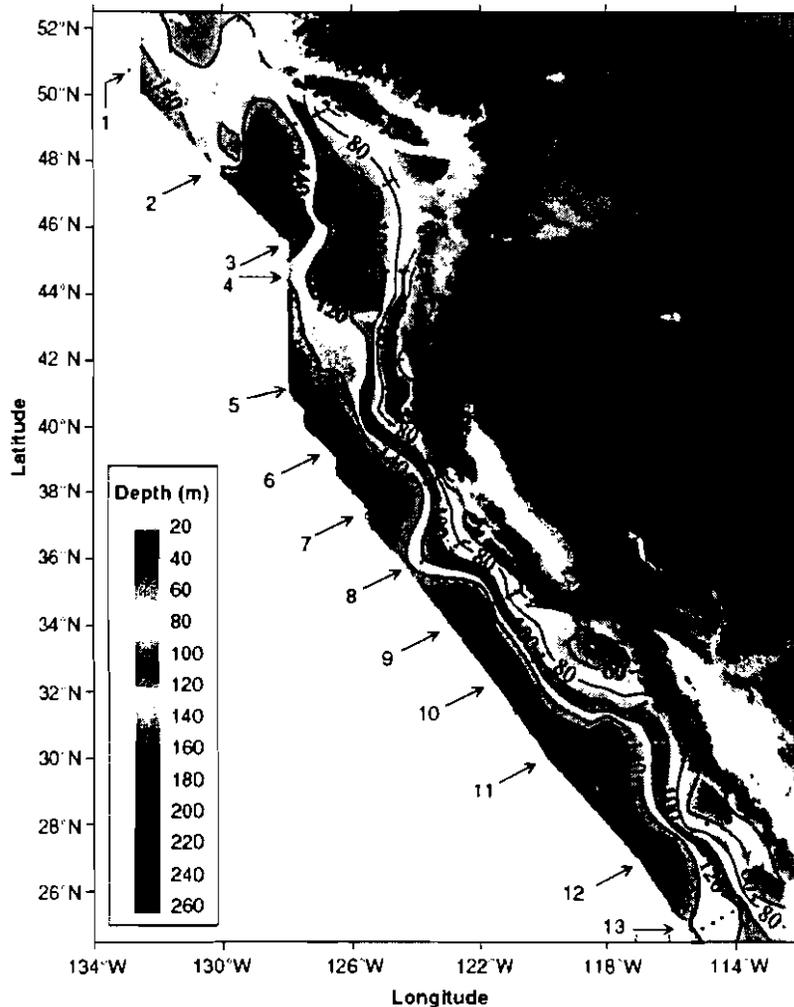


Figure 1. Distribution of the depths of water undersaturated with respect to aragonite on the continental shelf of western North America from Queen Charlotte Sound, Canada, to San Gregorio, Baja California Sur, Mexico. On transect line 5, corrosive water reaches all the way to the surface in inshore waters near the coast. The black dots represent station locations.

Source: Feely et al. (2008): Figure 1.

The findings of Feely et al. (2008) add to the evidence that ocean acidification poses a significant threat to marine life. First, Feely et al. (2008) highlight that ocean acidification is impacting the continental shelf of western North America much earlier than predicted. They note that the occurrence at the surface of open-ocean water undersaturated in aragonite was not predicted to occur until 2050 (under a IS92a business-as-usual emissions scenario where atmospheric CO_2 concentration reached 550 ppmv) and only in the Southern Ocean—not along the west coast of North America (Feely et al. 2008). Secondly, the researchers calculated that *without the anthropogenic signal of CO_2* , the equilibrium aragonite saturation level would be deeper by about 50 m across the shelf and no undersaturated waters would reach the surface. The aragonite and calcite saturation depths in the North Pacific are already among the shallowest in the global ocean (Feely et al. 2004: Figure 2). The uptake of anthropogenic CO_2 has caused

aragonite saturation depths in the North Pacific to migrate upwards by 50-100 m since pre-industrial times, with current upward migration occurring at a rate of 1-2 meters per year, while calcite saturation depths have moved upwards by 40-100 m since pre-industrial times (Feely et al. 2004, Fabry et al. 2008, Feely et al. 2008). Seasonal upwelling is enhancing the advancement of the corrosive deep water into broad regions of the California Current System with large predicted impacts on marine species (Feely et al. 2008).

Another study by Wootton et al., provides further evidence that ocean acidification is progressing much faster than expected. In an extensive study on the coast of Washington, Wootton et al. found that pH declined by -0.045 annually (Wootton et al. 2008). The authors stated:

This rate of decline is more than an order of magnitude higher than predicted by simulation models (0.0019; ref. 3), suggesting that ocean acidification may be a more urgent issue than previously predicted, at least in some areas of the ocean.

(Wootton et al. 2008: 18849). The study examined 24,519 measurements of coastal ocean pH spanning 8 years. It found that pH declined strongly when atmospheric carbon dioxide increased. The study considered all variables known to have an impact on ocean pH and found that atmospheric carbon dioxide was the only factor that could explain the persistent decline in pH.

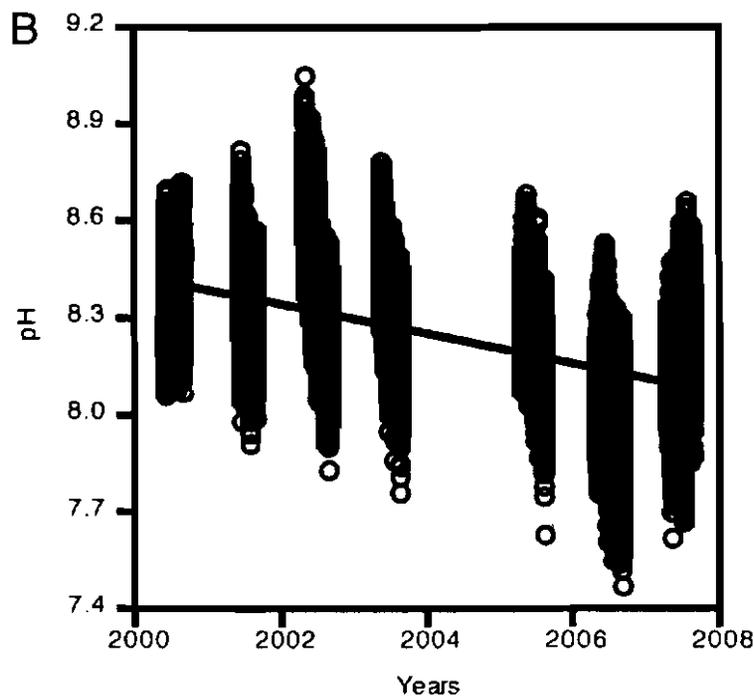


Figure 2. Patterns of ocean pH through time at Tatoosh Island ($N_{24,519}$). pH readings as a function of date and time taken between 2000 and 2007. The decline is significant ($P < 0.05$).

Source: Wootton et al. 2008

The study also found that ocean acidification led to species shifts in habitats that showed declining fitness of calcifying organisms. Specifically, calcifying organisms exhibited increasing probabilities of replacement by other species as pH decreased and decreasing probabilities of displacing other species. Notably, the abundance of California mussels, which provide important food and structure for various species on the Pacific's rocky coast, declined with declining pH.

Other recent scientific studies on ocean acidification further highlight the adverse consequences of ocean acidification that is degrading California's water quality:

- Ocean acidification can increase noise pollution with impacts on marine mammals and other species sensitive to sound as carbon dioxide invasion and reduced ventilation will result in significant decreases in ocean sound absorption (Hester et al. 2008).
- Ocean acidification can disrupt the ability of larvae to detect olfactory cues from adult habitats, larval clownfish lost the ability to respond to olfactory cues that guide their behavior when reared in conditions simulating CO₂-induced ocean acidification (Munday et al. 2009).
- Increasing water temperatures and acidity lead to increased methylation of mercury and greater uptake by fish and mammals (Booth et al. 2005, McMichael et al. 2006).
- Corals in the Great Barrier Reef have experienced declining calcification greater than 14 percent since 1990 (De'ath et al. 2008).
- Studies have shown that squid under elevated carbon dioxide have a slowed metabolic activity and impaired behaviors, and researchers say warming waters will mean that the oxygen-poor zones the squid inhabit at night will be shallower reducing squid habitat and increasing their vulnerability to predators (Rosa et al. 2008).

These studies demonstrate that ocean acidification is impairing and will further impair the aquatic life uses of coastal waters, including those in California.

Zeebe et al. (2008) highlighted the importance of establishing lower greenhouse gas emissions targets in order to avoid negative consequences of ocean acidification on marine species and ecosystems and noted the inadequacy of existing regulatory mechanisms, such as the 0.2 water quality standard adopted by California, to regulate ocean acidification:

Thus, although the response of different organisms is expected to be inhomogeneous (9), current evidence suggests that large and rapid changes in ocean pH will have adverse effects on a number of marine organisms. Yet, environmental standards for tolerable pH changes have not been updated in decades. For example, the seawater quality criteria of the U.S. Environmental

Protection Agency date back to 1976 and state that for marine aquatic life, pH should not be changed by more than 0.2 units outside of the normally occurring range (10). These standards must be reevaluated based on the latest research on pH effects on marine organisms. Once new ranges of tolerable pH are adopted, CO₂ emission targets must be established to meet those requirements in terms of future seawater chemistry changes (Zeebe et al. 2008: 52).

This outdated pH criterion will soon be reviewed by EPA to determine its relevance to ocean acidification. California should also review its numeric criterion in light of new information about ocean acidification.

The problem of ocean acidification is imminent and swift action is needed to address this problem that cannot be reversed within human timescales.

California Is Required to Consider Scientific Evidence of Ocean Acidification Submitted by the Center for Biological Diversity.

In preparing its 2008 303(d) List, California has a duty to consider the information submitted by the Center for Biological Diversity. The regulations governing implementation of the Clean Water Act's section 303(d) *require* that California "evaluate all existing and readily available water quality-related data and information to develop the list." 40 C.F.R. § 130.7(b)(5); *see also Sierra Club v. Leavitt*, 488 F.3d 904 (11th Cir. 2007).

Conclusion

The materials submitted with previous letters and this letter support a finding that California's oceans are impaired. Ocean pH has decreased by 0.11 units since the industrial age and will continue to decrease at an accelerated rate if carbon dioxide emissions continue to increase as predicted. California waters which are reached by the California Current's upwelling are experiencing even more severe pH changes warranting prompt action to list them as impaired. The decrease in ocean pH has already begun to impair the calcification of some aquatic organisms, and catastrophic effects are predicted for the next decades.

The purpose of water quality standards is to protect the biological diversity of California's waters as well as recreational and commercial uses. Ocean acidification will have significant negative impacts on the survival of calcareous organisms as well as fish and other marine species. Commercial and recreational uses will be harmed as a result, which will particularly affect the shellfish and fishing industries that are so important to California's residents.

The coastal waters must be listed as impaired under section 303(d) now so that TMDLs can be established to protect California's coastal waters.

Respectfully submitted,



Miyoko Sakashita

Sources

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rec'd via e-mail
NAS 3/31/09



Inland Empire Waterkeeper



ORANGE COUNTY
COASTKEEPER

April 1, 2009

Pavlova Vitale
Santa Ana Regional Water Quality Control Board
3737 Main Street, Suite 500
Riverside, CA 92501-3348

RE: Proposed 2008 Integrated Report/303(d) List of Impaired Waters in the Santa Ana Region

Dear Pavlova,

Orange County Coastkeeper and Inland Empire Waterkeeper want to applaud you and your staff again for your effort into this difficult task. We are pleased with how things have been handled thus far. This letter is in response to issues raised during the three public meetings and to make our stance clear.

The Regional Board was very clear when asking for water quality data and the due date for such data. We diligently provided our materials on time and have spent roughly 200 un-billable hours assisting Regional Board staff to interpret and check the data. Therefore, we strongly urge you not to accept any data after the April 2009 deadline, and not to extend the deadline to accommodate agencies that couldn't get their information in on time. Asking for any type of delay on your part would be inappropriate. Lastly, any type of changes to the database should be based on data submitted before the deadline.

A partitioning coefficient has been suggested to calculate the metals objectives. We do not support use of this coefficient, but instead urge you to continue with the status quo method. The ramifications of changing the calculation would be substantial and not appropriate during this process. Your interpretation of the listing guidance has been correct and we urge you to continue and not be swayed by "new" calculations or coefficients that nearly no one in the state is using.

Watershed events do occur that cause a demonstrable change in water quality, such as wildfires, floods, in-stream earthwork and accidental spills. This is not cause for removing data. Instead, this demonstrates the need for a robust dataset that is not skewed by outliers. We urge you to avoid incorporating watershed events into the data, and then removing data points that simply represent what was going on at the time and have a valid place in the dataset.

Sincerely,

Garry Brown
Executive Director
(714) 850-1965



Inland Empire Waterkeeper

February 28, 2007

Pavlova Vitale
Santa Ana Regional Water Quality Control Board
3737 Main St., Suite 500
Riverside, CA 92501

Subject: Comments for the 2008 303(d) List of Water Quality Limited Segments

Dear Ms. Vitale,

Inland Empire Waterkeeper (IEWK) is the newly formed chapter of Orange County Coastkeeper (OCCK) whose purpose is to advocate on behalf of the upper Santa Ana River Watershed. As such, we are submitting herein the results that pertain to waterbodies in the upper Santa Ana River Watershed, which were identified by OCCK's recent monitoring efforts. OCCK will be submitting their findings for waterbodies in Orange County separately.

The findings below come from the Santa Ana River Watershed Citizen Monitoring Project, and the Orange County Coastal Watersheds Monitoring Project. Since the databases, QAPP's, and Final Reports from these projects are already in your possession, they are not included with this letter. After analyzing the data from both projects in accordance with the current state guidelines for developing 303(d) listings, we found a sufficient number of samples exceeding USEPA recommendations for *E. Coli* (235 mpn/100 ml for a single sample/126 mpn per 100ml for a geometric mean). The geometric mean for this purpose is all *E.Coli* measurements for the stream for the entire project duration. Please see the attached spreadsheet for details.

The following waterbodies should be considered for listing in the 2008 impaired waters list for impairment of recreational use by *E. Coli*.

- Golden Star Creek, (per monitoring sites 1 and 2)
- Temescal Creek, (per monitoring sites 1, 2, and 3)

OCCK and IEWK believe the data submitted to the Regional Board for the above-mentioned waters is complete and accurate for listing purposes. It meets the guidelines detailed in the project QAPP's and SWAMP guidelines. All of the quality control data to back up the recommendations is available. We will be glad to assist the Regional Board in reviewing the data if there are any questions regarding its development or quality. Thank your for the opportunity to submit our comments on this important issue.

Sincerely,

Mandy Revell
Director and Waterkeeper

2008 303(d) Listing Questions

1. All Newport Bay FIB listings (4087, 13436, 13451, 13463, 13439):
 - a. Why are the Ocean Plan objectives used? The Basin Plan applies to Newport Bay.
 - b. Why is the data from the first quarter (Jan-Mar) of 2004 and 2005 excluded?
 - c. The Newport Dunes sites are located in Upper not Lower Bay
 - d. The Newport Boulevard Bridge site is located in Lower not Upper Bay.
 - e. Why add the Fecal Coliform and Enterococcus listings and not remove the pathogens listing?
2. Lower Newport Bay
 - a. Pathogens (4087):
 - i. The weight of evidence summary is incomplete.
 - ii. Why list all of Lower Bay for 2 locations of REC-1 exceedence? The listing should be limited to West Newport, or the 33rd Street and Newport Blvd. Bridge sites specifically.
 - iii. The areas that exceed SHELL are limited to the West Newport and one site near the harbor mouth. Listings should be limited to the geographical area of exceedence, not the entire Lower Bay.
 - b. Enterococcus listing (13436):
 - i. The weight of evidence summary is missing
 - ii. Only two sites in close geographic proximity exceed standards. List only the locations or area that exceeds, not the entire Lower Bay.
 - c. Fecal Coliform Listing (13451):
 - i. The weight of evidence summary is missing
 - ii. Only two sites in close geographic proximity exceed standards. List only the locations or area that exceeds, not the entire Lower Bay.
3. Upper Bay
 - a. Enterococcus (13439):
 - i. The weight of evidence summary is missing
 - ii. Newport Blvd. Bridge is in Lower Bay.
 - b. Fecal Coliform (13463):
 - i. The weight of evidence summary is missing
 - ii. Newport Blvd. Bridge is in Lower Bay.
 - iii. None of the remaining lines of evidence show any exceedences.
 - iv. This listing should be removed.
4. Newport Beach Enterococcus (13441):
 - a. The weight of evidence summary is missing
 - b. No lines of evidence indicate exceedences that reach the listing criteria
5. Lower Bay Copper and Zinc (sediment) (15662, 15664)
 - a. Why wasn't NPDES data used to evaluate the listing? Traid sampling back to 8/05
 - b. The QA/QC information for the OCKK samples needs to be evaluated. In the Lower Newport Bay Copper/Metals Marina Study report lab blanks are shown to have higher values than the environmental samples.
 - c. The listings should follow the Sediment Quality Objectives guidelines and provide multiple lines of evidence to show impairment. Like SWQSTF reasoning.

6. Peters Canyon Channel pH (13116)
 - a. Most likely an algae related issue, being addressed by the Nutrient TMDL
7. Seal Beach Enterococcus (7275)
 - a. Why wasn't the data used for the TC delisting used to examine the ENT listing? All HCA samples are analyzed for TC, FC and ENT.
 - b. ENT data does not support listing
8. Borrego Creek: Listing entire creek on one location. Upstream of Irvine Blvd. only flows in storms, there is a hydrologic disconnect between the Borrego 2 and Borrego 1 locations. Should segment Irvine Blvd to Agua Chinon.

OCCR LNR Metal Data

Table 10. Pore water dissolved metals from Newport Bay marina sediment samples. All values are expressed in µg/L.

MDL	RL		6011	6013	6021	6022	6032	6042	6051	6063	6073	6062	Lab Blank
3	5	Aluminum (Al)	11	12	12	9	11	14	11	11	11	14	ND
0.01	0.015	Arsenic (As)	4.33	6.71	4.47	2.57	2.02	2.38	2.98	1.30	2.59	2.49	3.32
0.005	0.01	Beryllium (Be)	ND	0.261									
0.025	0.05	Chromium (Cr)	0.38	0.44	0.40	0.44	0.40	0.38	0.41	0.37	0.51	0.39	3.19
0.005	0.01	Cobalt (Co)	0.46	0.438	0.424	0.457	0.392	0.341	0.343	0.369	0.336	0.356	0.263
0.01	0.02	Manganese (Mn)	505.5	332.5	198.3	382.3	115.6	85.83	127.2	87.46	51.4	118.5	0.580
0.02	0.04	Silver (Ag)	0.624	0.641	0.674	0.639	0.609	0.596	0.569	0.555	0.511	0.478	0.590
0.005	0.01	Thallium (Tl)	ND										
0.035	0.07	Titanium (Ti)	0.529	0.977	0.739	0.674	0.498	0.455	0.540	0.408	1.047	0.327	2.949
0.02	0.04	Vanadium (V)	1.03	1.51	1.27	0.50	0.34	0.39	0.93	0.24	3.04	0.4	3.61
0.005	0.01	Zinc (Zn)	3.149	3.784	4.135	3.710	3.256	3.605	3.059	2.926	3.760	3.173	8.835
0.005	0.01	Cadmium (Cd)	ND	0.135									
0.01	0.02	Copper (Cu)	1.48	1.84	1.86	1.95	1.60	1.60	1.52	1.44	4.56	6.20	3.16
0.005	0.01	Lead (Pb)	0.03	0.037	0.037	0.011	0.013	0.057	0.045	0.01	0.028	0.012	ND
0.005	0.01	Nickel (Ni)	1.185	1.25	1.207	0.979	0.837	1.054	0.957	0.981	0.673	0.925	ND
0.01	0.015	Selenium (Se)	1.22	1.48	1.32	1.38	1.28	1.15	1.12	1.29	1.74	1.13	5.87
0.005	0.01	Tin (Sn)	0.025	0.025	0.033	0.033	0.027	0.021	0.032	0.026	0.14	0.14	0.051

[Cu] sed
[Zn] water
[Cu] water
[Cu] sed

From: Donald Schulz <surfdad@hotmail.com>
To: Pavlova Vitale <pvitale@waterboards.ca.gov>
CC: Joanne Schneider <jschneider.rb8post.region8@waterboards.ca.gov>
Date: 2/18/2009 7:37 PM
Subject: Bolsa Chica State Beach-303(d) list Decision.
Attachments: RWQCB ffed_appxa093004.pdf

Hi Pavlova;

Can you clarify the following apparent inconsistency?

The SARWQCB Draft 303(d) list Integrated Report "New or Revised Fact Sheet"
Bolsa Chica State Beach- Decision ID 12564 (enterococcus) states;

"This pollutant is being considered for placement on the section 303(d) list under section 3.2 of the Listing Policy. Under section 3.2 a single line of evidence is necessary to assess listing status."

However, the appropriate section of the Listing Policy that should apply to Bolsa Chica State Beach should be section 3.3;

section 3.3;

3.3 Numerical Water Quality Objectives or Standards for Bacteria Where
Recreational Uses Apply

Also stated in the above referenced "fact Sheet" is:

"3. Twenty one of 490 samples exceeded the AB 411 Standards and this does not exceed the allowable frequency listed in Table 3.2 of the Listing Policy."

However, as stated in section 3.3 of the Listing Policy;

"In the absence of a site-specific exceedance frequency, a water segment shall be placed on the section 303(d) list if bacteria water quality standards in California Code of Regulations, Basin Plans, or statewide plans are exceeded using the binomial distribution as described in section 3.1.2.

If a site-specific exceedance frequency is available, it may be used instead of the ten percent exceedance frequency as described in Table 3.2 or four percent as described in the following paragraph. The site-specific exceedance frequency shall be the number of water quality standard exceedances in a relatively unimpacted watershed (i.e., a reference water segment). To the extent possible and allowed by water quality objectives, RWQCBs shall identify one or more reference beaches or water segments to compare the measurements"

The decision not to list Bolsa Chica State Beach on the 303(d) list if twenty one of 490 samples exceed AB 411 standards does not appear to be consistent with the above stated Section 3.3 of the Listing Policy.

Your clarification of this apparent discrepancy is appreciated.

Thanks for your attention to this issue.

Don Schulz (562) 430-2260

See how Windows connects the people, information, and fun that are part of your life
<http://clk.atdmt.com/MRT/go/msnknwpxp1020093175mrt/direct/01/>

e-mail received
2/27/09

c/o Pavlova N. Vitale

Santa Ana Regional Water Quality Control Board
3737 Main Street, Suite 500
Riverside, CA 92501
Email: pvitale@waterboards.ca.gov

RE: comments for the 2008 303(d) List of Water Quality Limited Segments

Dear Santa Ana Regional Water Quality Control Board:

My name is Irwin Haydock, Ph.D., great grandson of a California pioneer family; a father of 4; and grandfather of 10. I now live in Fountain Valley, Orange County, California.

I retired as the Chief Scientist of the Orange County Sanitation District in 1996, where I was responsible for Water Quality and Ocean Monitoring Research Programs since 1989. For more than two decades I have since been a citizen volunteer on the Orange County Watershed Management Committee, closely involved in the Newport Bay Integrated Watershed and Coastal Management planning process to implement a sustainable, ecosystem-based, adaptive management plan. We recently completed a phase II plan that will be competitive for Prop 84 funding of a number of water quality related projects.

I recently attended a meeting at the Orange County Coastkeeper Offices in Costa Mesa. The topic of discussion was proposed additions to the Santa Ana 303(d) list, including:

1. Bolsa Chica Channel for Nitrate and pH
2. Borrego Wash for Ammonia
3. Delhi Channel for Nitrate
4. Peters Canyon for Nitrate and pH
5. Serrano Creek for Nitrate, Ammonia and pH.

I have reviewed this data and listened to their basis for these suggested additions to the 303(d) list and urge the Board to accept the published findings of Coastkeeper's scientific staff (<http://www.coastkeeper.org>) and add these locations to the 2008 303(d) list. This respects Coastkeeper's volunteer work and heavy-lifting that is absolutely essential if we are to solve the water quality problems we face today.

By the way, all of these water courses are essential fish and wildlife habitats, and deserve protection under the State Water Resources Control Board's jurisdiction. Some of these waters are places where we played as children, enjoying nature and being awed by sounds and sights we experienced along the streambed and adjacent watershed. In so many cases we now can only visit Joan Irvine Smith's Museum in Irvine to see some of this earlier time in the mind of its artists and their scenic art rotating there on display.

Based on my half-century of study and experience in aquatic ecosystems I can also state that clean water flows are essential to maintaining necessary fresh, estuarine and coastal

habitats for the great diversity of life that once was present and could eventually flourish again. I believe we should rethink our approach to flowing waters and clean them up rather than trying to divert them to our local wastewater treatment plants (POTWs for eventual discharge to the Pacific Ocean. The ocean needs freshwater too; don't get me wrong, but first in line are our river deltas, estuaries, and bays that are essential to guide anadromous sea life to their fresh water origins. This was once true in Southern Calif. as it was more recently in Northern Calif., before they had to close the salmon fishing.

In the 1970s EPA and the State Water Boards pushed stringent source controls on POTWs. One of the unintended consequences of heavy metals control was renewed release of soluble-free sulfides from sewage that eventually corroded the joints in thousands of miles of concrete sewer pipes in Los Angeles County, where I worked from 1973 -1989. A better approach might have been to profit from mining these waste metals from the sewage solids at the treatment plant, saving sewers and recovering valuable metals before releasing treated wastewater to the sea. Instead, we now waste more money trucking these clean, nutrient-rich solids to other counties that don't want them? And, by the way, at the same time we are squirreling away much of our rich natural sediment runoff in our dam's bottoms or the back end of Newport Bay!

In the case of our urban runoffs (once we called them creek and stream flows) we should strive, wherever possible, to keep water clean at the sources or encourage or build in-stream natural or artificial treatment systems, respectively, to clean up problem contaminants. Then we can allow these waters to flow naturally to the estuary, bay and sea, without fear of contamination and while maintaining rich and diverse habitat for a greater variety of organisms along the way for all to enjoy and harvest.

I appreciate the opportunity to comment on the 303(d) list for the Santa Ana Region. I hope that my comments are helpful in your current and future efforts to protect and manage our precious regional water resources.

Sincerely yours,

Original emailed

Irwin Haydock, Ph.D.
11570 Aquamarine Circle
Fountain Valley, CA 92708
(714) 775-4415

cc: **Ray Hiemstra** Associate Director of Programs
Ray@coastkeeper.org



rec'd via e-mail
WAS 4/1/09

1 April 2009

Hope Smythe
Santa Ana Regional Water Quality Control Board
3737 Main St., Suite 500
Riverside, CA 92501

RE: Comments on Proposed 303(d) Listing for Sediment Toxicity in Lake Elsinore

Dear Ms. Smythe:

The following comments are submitted on behalf of the Riverside County Flood Control District and the Elsinore Valley Municipal Water District regarding the proposed addition of Lake Elsinore to California's 303(d) list of impaired waterbodies for sediment toxicity. In general, we recommend that the data used to support the listing be reevaluated in a manner more consistent with the state's listing policy.¹ More specific suggestions are provided below.

- 1) **All toxicity test results for sediment samples collected in Lake Elsinore on the same day should be averaged together.** Although the Regional Board has "wide discretion establishing how data and information are evaluated," Section 6.1.5.4 (pg. 23) of the state listing policy states that:

"At a minimum, data shall be aggregated by the water body segments as defined in the Basin Plans. In the absence of a Basin Plan segmentation system, the RWQCBs should define distinct reaches based on hydrology and relatively homogeneous land use... The RWQCBs should identify stream reaches or lake/estuary areas that may have different pollutant levels based on significant differences in land use, tributary inflow, or discharge input. Based on these evaluations of the water body setting, RWQCBs should aggregate the data by appropriate reach or area."

¹ California State Water Resources Control Board. Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List. Sept., 2004

Lake Elsinore is not divided into sub-areas in the Basin Plan. Nor has the Regional Board identified sub-areas based on significant differences in land use, tributary inflow or discharge input. Therefore, according to Section 6.1.5.3 (pg. 24) of the state listing policy:

"Samples collected within 200 meters of each other should be considered samples from the same station or location."

It is apparent that the Regional Board staff relied on results from the "Lake Elsinore Sediment and Water Column Toxicity Study (May, 2007) to support the proposed listing. In that study, 30 sampling sites were randomly selected to characterize potential sediment toxicity. The stated purpose was to "define the extent (percent of area) and magnitude of deviation from [regulatory] thresholds."² Sampling from a large number of sites on a single day may be appropriate for that purpose. However, it is inappropriate to treat each sample as an independent data point to assess attainment of the water quality standard using the binomial statistical formula described in the state listing policy. According to Section 6.1.5.3 of the policy:

"If the majority of samples were collected on a single day or during a single short-term natural event (e.g. a storm, flood, or wildfire), the data shall not be used as the primary data set supporting the listing decision."

In this instance, all of the sediment samples were collected on two days: one in April of 2003 and the other in October of 2003. According to Section 6.1.5.6 of the state listing policy:

"To be considered temporally independent, samples collected during the averaging period shall be combined and considered one sampling event...If the averaging period is not stated for the standard, objective, criterion or evaluation guideline, then the samples collected less than 7 days apart shall be averaged."

Therefore, we recommend that all test results for samples collected on the same day within 200 meters of one another be averaged together before using the data to assess potential water quality impairment. Even if the Regional Board's final conclusion does not change, it is important to use an approach that is consistent with the state listing guidance in order to assure the level of acceptance needed to move forward through the TMDL development process.

- 2) **The exceptionally low water level in Lake Elsinore during 2003 may cause unrepresentative water quality conditions during the sediment toxicity study.** During the time sediment samples were collected, the elevation of Lake Elsinore was approximately 1230' msl which is nearly 10 feet below the minimum level deemed necessary to support aquatic life uses. Evaporation caused by extended drought, which continued well into 2004, caused the total dissolved solids (salts) to concentrate significantly. Measured hardness in the lake water samples was 2x higher than in the control water; alkalinity was 3x higher, and conductivity was nearly 4x higher.

² Santa Ana Regional Water Quality Control Board. Lake Elsinore Sediment and Water Column Toxicity Study. May 18, 2007. Pg. 4.

While *Hyalella azteca* is more tolerant of elevated salinity than other invertebrate species routinely used in toxicity test, it is not immune to ionic interference. Unless the test organisms are pre-acclimated to higher TDS concentrations before the toxicity test begins, it is not possible to distinguish true toxicity from such ionic interference. The water column toxicity tests support this hypothesis. No toxicity to *Ceriodaphnia dubia* (another freshwater invertebrate) was observed when samples were analyzed in 1993 when Lake Elsinore was nearly 20 feet higher.³ However, the 2003 samples showed significant toxicity to *C. dubia*. Subsequent research showed similar adverse affects of elevated salinity to zooplankton populations in Lake Elsinore.

Although the 2003 study collected samples from the "dry" season and the "wet" season, both were collected near the end of an extended drought period. It may be inappropriate to use this limited data set to characterize the general condition of Lake Elsinore in light of other studies results that show toxicity test results tend to vary with ambient salinity concentrations.

Therefore, we recommend that Lake Elsinore be placed in Category 3 of EPA's five-part listing hierarchy (waters for which there is not enough information to make an attainment determination) until sediment samples can be collected and analyzed during a time when ambient salinity concentrations are unlikely to cause ionic interference in the toxicity test procedure. At a minimum, this should be when the lake level is at least 1240' msl and preferably greater than 1250' msl.

- 3) **A Toxicity Identification Evaluation (TIE) should be performed before adding Lake Elsinore to the 303(d) list for sediment toxicity.** The Regional Board's Sediment Toxicity Study concluded that "there is no evidence to conclude that the chemical constituents measured in Lake Elsinore sediment are causing impairment."⁴ This includes both trace metals and organic pollutants.

As noted earlier, it may be that the apparent test failures are, in reality, more the result of atypical salinity conditions rather than genuine sediment toxicity. Alternatively, the elevated mortality observed during the tests may be the result of pollutants already being addressed by other 303(d) listings. These include un-ionized ammonia, hydrogen sulfide and/or toxic blue-green algae all known to occur with excess nutrient concentrations.

Subsequent documentation provided by the testing laboratory states that ammonia concentrations were measured as high as 6 mg/L during the Lake Elsinore sediment study. Since the ammonia toxicity increases with both temperature and pH, and *Hyalella azteca* are highly sensitive to ammonia (particularly when pH and hardness are elevated as they are in Lake Elsinore), then it is likely that the toxicity observed is due to excess nutrients.⁵ Unfortunately, the lab did not include the individual ammonia measurements in the test reports as required by EPA's protocol.

³ Santa Ana Regional Water Quality Control Board. Lake Elsinore Sediment and Water Column Toxicity Study. May 18, 2007. Pg. 3

⁴ Ibid, pg. 10

⁵ U.S. EPA. Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Invertebrates - 2nd Edition. March, 2000. EPA-600/R-99/064. (See section 1.3.7.5 on pg 8).

The Regional Board has already adopted a TMDL to reduce nutrient impairment to Lake Elsinore. A new 303(d) listing for sediment toxicity may confuse matters unnecessarily. Therefore, we recommend that the most likely cause of toxicity be identified in order to determine whether a new listing is necessary to address a new pollutant problem. Once again, we believe it would be more appropriate to place Lake Elsinore in Category 3 until the TIE work is completed.

- 4) **The statistical tests used in the sediment toxicity study are incompatible with the state's listing procedure.** All of the toxicity tests used a 95% confidence level to determine if there was a statistically-significant difference in mortality between control groups and organisms exposed to sediment samples from Lake Elsinore. That means there was a 5% risk of recording a Type-I error (aka "false positive") in each test. However, the "Null Hypothesis" in Table 3.I of the state listing policy is set so that the "actual exceedance proportion \leq 3%."⁶ Therefore, by definition, the test procedure is likely to fail at an unacceptable rate (5% vs. 3%) for reasons based solely on statistical variability rather than actual sediment toxicity.

EPA guidance states that analytical variability must be considered and accounted for when using toxicity tests for regulatory purposes:

"The allowable frequency for criteria excursions should refer to true excursions of the criteria, not to spurious excursions caused by analytical variability or error."⁷

"The precision of toxicity measurements is similar to that of finely tuned instruments operating at detection limits. The users of biological methods must account for the inherent variability in response. Typically, for toxicity test methods, this means...that the natural variability...will have to be accounted for...when permit limits, criteria, or standards are set."⁸

"EPA acknowledges that spurious data are inevitable and authorizes states to discard such data even in a context where human health is directly at issue."⁹

⁶ California State Water Resources Control Board. Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List. Sept., 2004. Pg. 9

⁷ U.S. Environmental Protection Agency. Technical Support Document for Water Quality Based Toxics Control - Responsiveness Summary, May 9, 1991, Item 12 @ pg. 11

⁸ U.S. Environmental Protection Agency, Availability, Adequacy, and Comparability of Testing Procedures for the Analysis of Pollutants Established Under Section 304(h) of the Federal Water Pollution Control Act, Report to Congress, EPA/600/9-87/030 (September 1988) @ pg. 3-11

⁹ 40 C.F.R. Section 141.24(h)(9).

Federal courts have also placed strict limits on the use of statistical data when measurement error is likely:

*The possibility of statistical measurement error, which is often unavoidable where regulations set quantitative standards, does not detract from an agency's power to set such standards, it merely deprives the agency of the power to find a violation of the standards, in enforcement proceedings, where the measured departure from them is within the boundaries of probable measurement error.*¹⁰

By way of illustration, the laboratory's own reference toxicant control chart shows just how variable the *Hyaella azteca* test can be. The LC50 for copper chloride ranges between <20 mg/L and >80 mg/L (a 400% difference). The lab's upper and lower control range is so large that it has deemed any value between -4.6 mg/L and 108.9 mg/L as "acceptable performance." When a lab is willing to state that a negative concentration of copper chloride is within the tolerable range of performance, then the QA/QC criteria offer no meaningful protection against error. This is especially true considering that the Lake Elsinore tests used the minimum number of replicates allowed (4) rather than the 8 replicates recommended by EPA.

Finally, the binomial formula used to construct Table 3.1 in the state listing policy is based on the assumption that all of the test results are "independent" of one another. However, the data are not independent when the samples are collected on the same day, or the samples are collected within 200 meters of one another. In addition, any samples analyzed using the same control group for statistical comparison are not really independent of one another.

EPA guidance warns that simple screening tests like those done in Lake Elsinore are appropriate for reconnaissance-level field surveys and may be used to trigger further investigations.¹¹ However, more robust testing is required to support a 303(d) listing. This is particularly true when relying on test procedures, like the sediment toxicity measures, that are not yet certified for inclusion in 40 CFR Part 136 as a "standard method." According to EPA:

*"A fully validated and standardized method is a method that has been ruggedized by a systematic process and is applicable for its intended use. Ideally, only those methods that have been fully validated and standardized should be used for Agency [EPA] needs. However, due to resource and time constraints, it is not always possible to fully validate and standardization required for a given method depends to some extent on the intended use of the data. For example, methods which will be used extensively for regulatory purposes or where significant decision must be based on the quality of the analytical data normally require more extensive validation and standardization than methods developed to collect preliminary baseline data."*¹²

¹⁰ Amoco Oil Co. v. EPA, 501 F.2d 722, 743 (D.C. Cir. 1974) (emphasis in orig.).

¹¹ U.S. EPA. Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Invertebrates - 2nd Edition. March, 2000. EPA-600/R-99/064. (See section 2.1.2.3).

¹² Availability, Adequacy, and Comparability of Testing Procedures for the Analysis of Pollutants Established Under Section 304(h) of the Federal Water Pollution Control Act - Report to Congress; EPA/600/9-87/030; September, 1988; p. 3-5

Please understand that we are not disputing the general validity of EPA's sediment toxicity test methods. These procedures may be useful for collecting preliminary baseline data. However, EPA has not yet done the routine field validation studies to demonstrate the relationship between test results and the actual health of aquatic populations living in the sediment. For that reason, we believe it would be wise to complete the TIE work before proceeding with 303(d) listing.

Thank you for the opportunity to review and comment on the proposed 303(d) listing. In particular, we sincerely appreciate the level of effort expended by Pavlova Vitale in providing us with detailed supporting documentation needed to evaluate the laboratory performance. As always, if you have any questions or wish to discuss our comments further, please contact us at your convenience.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'T. Moore', with a long horizontal line extending to the right.

Timothy F. Moore

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RIVERSIDE COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT

April 1, 2009

Mr. Gerard J. Thibeault, Executive Officer
California Regional Water Quality Control Board
- Santa Ana Region
3737 Main Street, Suite 500
Riverside, CA 92501

Attention: Ms. Pavlova N. Vitale

Dear Mr. Thibeault:

Re: Comments regarding the 2008
Integrated Report for the 2008
303(d) List Update for the Santa Ana
Region

The Riverside County Flood Control and Water Conservation District (District) serves as the Principal Permittee for the Riverside County Municipal Separate Storm Sewer System (MS4) Permit for the Santa Ana Region. The Regional Water Quality Control Board (Regional Board) staff has proposed adding pollutants to the section 303(d) list as it applies to surface waters in Riverside County. On behalf of the Permittees, the District has reviewed the Draft 2008 California 303(d)/305(b) Integrated Report for the 2008 303(d) List Update for the Santa Ana Region¹ (Integrated Report). In addition, the District has reviewed the update to the list of proposed additions to the 303(d) list subsequently posted by the Regional Board. Following is a review of each of the updated proposed listings affecting Riverside County and our recommendations for disposition.

Cucamonga Creek Reach 1

The following listings are based on a potential impairment of a Warm Freshwater Habitat beneficial use.

pH

It appears that this pollutant was proposed for listing in the recent update in error. In evaluating pH data, the Regional Board staff recommendation stated:

After review of the available data and information, Regional Board staff concludes that the water body-pollutant combination should not be placed on the section 303(d) list because applicable water quality standards are not being exceeded.

¹ http://www.waterboards.ca.gov/santaana/water_issues/programs/tmdl/303d/index.shtml

Request

Delete pH as a pollutant impacting beneficial uses in Cucamonga Creek Reach I per Regional Board staff recommendation.

Copper

All of the samples cited in Decision ID 12979 supporting the listing of copper were collected at the stations located in San Bernardino County at:

- 400 feet south of Highway 60 across from the Chino Basin Municipal Water District wastewater Treatment Plant;
- At the gauging station located 20 feet south of Baseline Road in the City of Rancho Cucamonga;
- 75 feet east of the Hellman Avenue Bridge, between Pine Avenue/Schleisman Road and Chino Corona Road/Chandler Street near the City of Chino;
- Cucamonga Creek near Mira Loma.

All of these stations are located several miles upstream of Riverside County.

Request

As these exceedances exist upstream of the discharge of Cucamonga Creek into receiving waters in Riverside County, the impact of these discharges should be considered in developing copper TMDLs for the Santa Ana River.

Lake Elsinore

Sediment toxicity

The LOEs are not credible data because it is not representative of conditions at Lake Elsinore

Based on the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List² (Listing Policy) 6.1.4 Data Quality Assessment Process, the data collected is not credible or relevant for listing purposes because the data collected was not "representative of conditions within the targeted sampling timeframe."³ Insufficient data is available to determine that the April 2003 sample was representative of conditions for the wet season. For example, monitoring of the Santa Ana Region stormwater includes one site upstream on the San Jacinto River from Lake Elsinore in Perris (Site # 752, Perris Line J Sunset Ave); *Ceriodaphnia dubia* consistently produces high survivability results, with the lowest wet weather survivability rate for fiscal year 2007-2008 at 95%. Yet, *Ceriodaphnia dubia* toxicity results from the water

² Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List, California Water Resources Control Board, September 2004.

³ Listing Policy, p 21-22.

column toxicity were collected and lower survival rates were detected downstream at Lake Elsinore five years prior, in 2003. This suggests that an anomaly occurred during the 2003 season at Lake Elsinore that caused a spike in toxicity. This anomaly may have resulted from the low lake levels and/or impacts from the wildfires. Additionally, results from sediment chemistry analyses in the Lake Elsinore Study were below the Sediment Quality Guidelines of the Listing Policy. As a result, the data may not be representative of conditions at Lake Elsinore.

LOE 8397 does not meet the temporal representation requirements due to lack of more than one sample

Line of Evidence (LOE) 8397 fails to meet the temporal representation requirements under section 6.1.5.3 of the Listing Policy. The Listing Policy states (emphasis added)⁴:

...samples should be available from **two or more seasons** or from **two or more events** when effects or water quality objective exceedances would be expected to be clearly manifested.

LOE 8397 is based on one wet weather sampling event in April 2003, where 27 exceedances were found out of 30 samples. Thus, insufficient wet weather sampling data is available to meet listing criteria for listing Lake Elsinore on the 303(d) list for sediment toxicity. Further, the samples may be invalidated on the failure to address the impacts of wildfires as a potential contributor to the toxicity.

LOE 8407 is not credible data because it is not representative of conditions at Lake Elsinore

Based on section 6.1.4 Data Quality Assessment Process of the Listing Policy, the data collected is not credible or relevant for listing purposes because the data collected was not "representative of conditions within the targeted sampling timeframe."⁵ Historically, Lake Elsinore has extreme fire seasons. The samples collected during fall 2003 are not credible for listing purposes as the conditions may have been unrepresentative of a normal dry season at Lake Elsinore. Without additional sampling, there is insufficient data to support the conclusion that the October 2003 sample was representative of dry season conditions in Lake Elsinore.

Reliance on a vague and inconclusive report is improper

The Regional Board is relying on the limited data set and vague and inconclusive statements contained within the Integrated Report on which the lines of evidence are based (emphasis added):⁶

Significant toxicity was found in the sediment with highest occurrence in the wet season. The sediment chemistry data **does not suggest possible reasons for the observed**

⁴ Water Quality Control Policy, p. 23

⁵ Water Quality Control Policy, p 21-22

⁶ Lake Elsinore Sediment and Water Column Toxicity Study, SWAMP, State of California Water Board, May 18, 2007, p. 11

toxicity because metals and organics concentrations are not above the Listing Policy thresholds and no **statistical correlations between the chemistry and toxicity were found**. However, there may be other factors that may be contributing to the observed toxicity such as unmeasured contaminants. Regardless of the cause of toxicity, the number of stations exhibiting toxicity in the wet and dry seasons is enough to include Lake Elsinore on the Section 303(d) List for toxicity in the sediment.

The LOEs fail to consider environmental conditions such as wildfires

LOEs 8397 and 8407 fail to take into account wildfires that may have affected toxicity for that year. Section 6.1.5.1 - Data Quality Assessment Process of the Listing Policy requires that "environmental conditions in a water body or at a site must be taken into consideration (e.g...the occurrence of wildfires)."⁷ Fires are documented as having direct and indirect effects on water and sediment quality:

Fires impact a watershed for several years after their initial burn due to loss of ground cover and chemical changes in the soil. In addition to increased runoff rates and volumes and increased erosion and sedimentation, naturally occurring elements that are usually retained by forest vegetation and soils can be washed away during storm events. Fires can impact adjacent watersheds via aerial deposition of ash containing metals, nutrients, particulates and toxic organics, and by increasing the pH in Urban Runoff.⁸

The Lake Elsinore area has experienced a number of wildfires over the years; however, there is no evidence that these fires were taken into consideration as a potential environmental condition in the sediment toxicity analysis of Lake Elsinore. This is extremely important, considering only the top two (2) centimeters of the lake sediment was tested. The toxicity listing of Lake Elsinore through this LOE is not in compliance with the Listing Policy. The source of toxicity may be related to the extreme historical fire seasons; there is no decisive way to mitigate the impacts of wildfires on sediment or water quality of Lake Elsinore. Further study is warranted under conditions that are representative of the dry weather season at Lake Elsinore prior to 303(d) listing.

The Santa Ana Permittees have included all fire events within each fiscal year via table and map forms since the 2003-2004 Santa Ana Region Annual Reports, the first Annual Report under the 2002 MS4 Permit. Furthermore, the Southern California Coastal Water Research Project (SCCWRP) has conducted studies on the effect of fires in Southern California; this has led to the formation of a Southern California Monitoring Coalition (SMC) workgroup on Fire Monitoring. In August 2008, SCCWRP hosted a two-day post-fire monitoring workshop that assembled

⁷ Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List. (California Environmental Protection Agency. September 2004. p 23

⁸ Santa Ana Watershed Monitoring Annual Report, Section 11, Fiscal Year 2007-2008, p.11-32

federal, state, local and private entities to discuss the effect of fires on watersheds. Documents presented at this workshop are available from SCCWRP.⁹

Insufficient guidelines were used as a basis for the survivability rates

The guidelines cited for evaluating sediment toxicity in Lake Elsinore are inappropriate as they are based on two studies that have climate and ecology inconsistent with that of Lake Elsinore. The Los Angeles study is based on saltwater organisms (amphipods). The Sacramento study was conducted in an area with a significantly different climate and ecology than the arid Santa Ana Region and is thus incomparable for the purpose of creating survivability guidelines. Thus, neither of these studies is comparable to the climate and ecology of an arid freshwater environment for comparability purposes of the survival rates.

Conclusion

LOE 8407 (dry weather samples) is invalid because (1) the samples were not representative of the conditions at Lake Elsinore due to the severe fire season and (2) there has been no mention of the wildfires as an environmental condition taken into account for listing and/or reporting purposes. Both are violations of the Listing Policy criteria. If the dry weather event is invalid, then there is only one sampling event to be relied upon, which then violates the Listing Policy requirement for more than one sampling event. This argument is appropriate whether each LOE is considered on its own merits or whether the LOEs are cumulative under section 6.1.5.3 of the Listing Policy regarding the amount of samples necessary.

Request

The Permittees request that the proposed listing of sediment toxicity in Lake Elsinore be removed as sampling and methods used are invalid and do not meet the listing criteria.

Santa Ana River Reach 3

The beneficial use identified as impaired by iron and copper in the Santa Ana River Reach 3 is Warm Freshwater Habitat. The samples exceeding the standards/guidelines on which this proposed listing is based were collected from one station at the Hamner Avenue Bridge at the Santa Ana River in the unincorporated area of Riverside County. However, only two samples were collected as recently as 2004, and it appears that most of the samples were collected between 10 and 15 years ago.

Iron

The majority of the data cited in the listing recommendation is between 10 and 15 years old. Substantial changes in the land uses and local programs to control discharges have occurred in the area tributary to this station over the past decade which may affect this proposed listing.

⁹ <ftp://ftp.sccwrp.org/pub/download/TMP/Eric/Fire%20effects/>

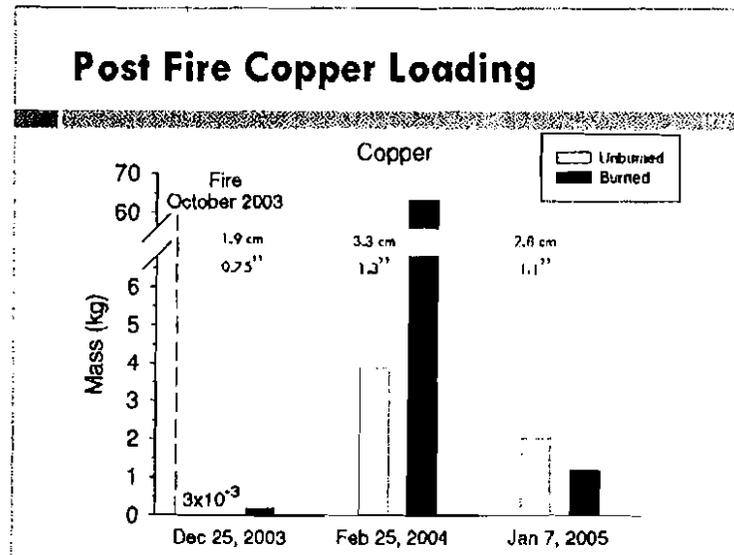
Only three exceedances have been measured during the past decade, and these samples were collected from storm runoff subsequent to a major wildfire event during a seven-week period between December 2003 and February 2004. There is no subsequent data to confirm the existence of exceedances. Further, the Evaluation Guideline used in the LOE 5833 and LOE 25789 point to a 1976 reference that does not support the toxicity criteria of a 4-day iron concentration average of 1,000 µg/L. Additionally, the Guideline Reference used in the LOE was not provided.

Request

As noted, most of the water quality data on which this proposed listing is based is over a decade old. Significant land use changes have occurred in the area tributary to this station over the past decade which may affect this proposed listing and more recent data may have been affected by wildfires. In addition, the San Bernardino and Riverside County Permittees have implemented commercial and industrial inspection programs since adoption of the 2002 NPDES MS4 permits. Given the considerable public and private expenses associated with TMDL development and implementation, it is requested that this listing be deferred and that additional monitoring be requested to confirm the continued presence of this pollutant prior to listing.

Copper

Most of the data cited in the listing recommendation is between 17 and 37 years old. Data collected prior to May 18, 2000 pre-dates the establishment of the California Toxics Rule (CTR) objective. Only three exceedances have been measured during the past decade, and these samples were collected from storm runoff during a seven week period between December 2003 and February 2004. As noted in the March 18, 2009 public workshop, the 2003 wildfires occurred in the upstream tributaries and reaches of the Santa Ana River. Studies conducted by the United States Geological Survey (USGS), SCCWRP and other private entities have shown that fires affect watersheds directly and indirectly through ash fallout, elimination of ground cover, and an increase of total suspended solids (TSS) in surface waters. Studies also show results of increased metal loading in streams. The following graph denotes preliminary results of post-fire copper loading from a SCCWRP study of the 2003 Simi Valley Fire:



As previously noted, the Permittees have included all fire events within each fiscal year in table and map formats since the 2003-2004 Santa Ana Region Annual Reports, the first Annual Report under the 2002 MS4 Permit. Furthermore, SCCWRP has conducted studies on the effect of fires in Southern California; this has led to the formation of a SMC workgroup on Fire Monitoring. In August 2008, SCCWRP hosted a two-day post-fire monitoring workshop that assembled federal, state, local and private entities to discuss the effect of fires on watersheds. Documents presented at this workshop, including the study above, are available from SCCWRP. Additionally, the USGS released Report 2007-1407 on ash chemistry and burned soils from the October 2007 Southern California Wildfires¹⁰.

Request

As noted, the most recent water quality data on which this proposed listing is based is over a decade old. Significant land use changes have occurred in the area tributary to this station over the past decade which may affect this proposed listing and the San Bernardino and Riverside County permittees have implemented commercial and industrial inspection programs since adoption of the 2002 NPDES MS4 permits. Additionally, the impacts of the 2003 fires in areas tributary to Reach 3 of the Santa Ana River have not been considered. Given the considerable public and private expenses associated with TMDL development and implementation and the

¹⁰ Preliminary Analytical Results for Ash and Burned Soils from the October 2007 Southern California Wildfires. Geoffrey S. Plumlee, Deborah A. Martin, Todd Hoefen, Raymond Kokaly, Philip Hageman, Alison Eckberg, Gregory P. Meeker, Monique Adams, Michael Anthony, and Paul J. Lamothe. United States Geological Survey Open-File Report 2007-1407.

April 1, 2009

uncertainty of the data cited, it is requested that this listing be deferred and that additional monitoring be requested to confirm the continued presence of this pollutant prior to listing.

Temescal Creek, Reach 1

pH

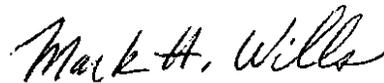
This listing is based on a potential impairment of an aquatic life beneficial use based on exceedances of the Basin Plan Objective for pH of 8.5. Prior to review of the Integrated Report of Supporting Information for the proposed addition to the 303(d) list, the District was unaware of this data or the exceedances. However, on becoming aware of the level and persistence of these exceedances, the District has initiated field investigations to determine if this impairment is related to an illegal discharge.

Request

Given the considerable public and private expenses associated with TMDL development the Permittees request that further investigation to identify the source(s) of these exceedances be conducted before adding pollutant to the 303(d) list. As noted above, the District has initiated field investigations to determine if the sources are related to an illegal discharge. The District will communicate the findings of these investigations with the Regional Board and assist in enforcement actions as appropriate.

The District appreciates the opportunity to provide these comments. If you require additional information or have further questions, please contact Jason Uhley (951.955.1273, juhley@rcflood.org) or Arlene Chun (951.955.1330, abchun@rcflood.org) of my staff.

Very truly yours,



MARK. H. WILLS
Chief of Regulatory Division

ABC:cw
P8/124446