MONITORING & REPORTING SUBCOMMITTEE
of the
BEACH WATER QUALITY WORKGROUP
MARCH 27, 2002
SUMMARY
Southern California Coastal Waters Research Project

Agenda/Subject: 303(d) Lists

Background:

Monica Mazur, Water Quality Specialist, Orange County Health Care Agency, requested the SWRCB to work with RWQCBs to develop criteria for placing beaches and creeks that flow to beaches on "303(d) lists". Orange County beaches fall under the jurisdiction of two RWQCBs, Santa Ana and San Diego. Each RWQCB has developed its own criteria for listing beaches and creeks that flow to beaches for impairment by pathogens (bacteria). Consequently, beaches and creeks in Orange County are "listed" by their respective RWQCBs using different criteria.

Issues:

1. ***What methods are currently used to generate 303(d) lists for pathogen (bacteria) impairment?***
2. ***What are the requirements of the federal Clean Water Act?***
3. ***Does the SWRCB have listing criteria that should be used by the RWQCBs?***
4. ***Should similar criteria be used by all RWQCB's in "listing" beaches? Is there a need for developing statewide criteria for "listing" if no criteria exist?***
5. ***How do local environmental health agencies enforcing AB411 regulations fit into this process?***
6. ***Do the RWQCBs understand how local environmental health agencies perform their regulatory activities?***
7. ***When RWQCBs use data provided by local environmental health agencies to the SWRCB as required by the California Water Code what the data really means, e.g., "permanent postings"?***
8. ***Can or should criteria developed for AB538 be used for this purpose?***
9. ***How does the TMDL process fit into this?***

It is apparent that many of the various groups that compose the Beach Water Quality Workgroup do not understand this subject but have legitimate concerns and need for knowledge regarding this process. As a result, the workgroup authorized its Monitoring & Reporting Subcommittee to investigate this matter.

At the request of the M&R subcommittee and the SWRCB, Steve Weisberg, Executive Director of SCCWRP, facilitated this meeting regarding development

of 303(d) lists by the California Regional Water Quality Control Boards and the State Water Resources Control Board.

Craig J. Wilson, Chief, Monitoring and TMDL Listing Unit (DWQ) SWRCB, provided additional clarification and background information. Mr. Wilson announced that the SWRCB would conduct hearings on 303(d) lists on May 23 and 24, 2002 in Sacramento and May 30, 2002, in Ontario.

Dr. Weisberg started the meeting by stating the goal of the inquiry should be discussed in terms of "what the process should be" and move forward on this basis.

Outline for discussion:

I. How is impairment defined?
- **Frequency?**
- **Magnitude?**
- **Duration?**
- **Multiple indicators?**
- **Effects of season?**

II. How is data adapted of different types?
- **Sampling location?**
- **Sampling method?**
- **Laboratory methods?**

III. How much data is necessary to make decision?
- **How old can that data be?**
- **What quality is acceptable?**

Mr. Wilson suggested that the loss of beneficial use and standard attainment be the basis for discussion:
- Beaches posted/closed constitute a loss of beneficial use (REC I).
- Objectives based on the "ocean plan".
- If beach is posted for even 1 day during the rating period, that constitutes a loss of beneficial use.
- Ocean plan standards are currently not the same as AB411 bacterial (pathogen) standards.
- How are "general (permanent?) postings and rain advisories issued by local environmental health agencies used/interpreted for this process?

The RWQCBs represented at the meeting presented their criteria for listing:

Region 4 (Los Angeles):

- Reports/data (beach postings and closures) at the SWRCB from local environmental health agencies and bacterial data compared to the ocean plan standards are used.
- Beach listed if it had more than 1 closure/year.
- Three years of data are used.
- A beach is listed if criteria are exceeded for more than 10% of days/year for violations of the bacterial standards (>36.5 days/year).
- Ocean plan standards for total and fecal coliform bacteria.
- Focus is on frequency of violations, not on magnitude and season. Rain advisories issued by local environmental health agencies are not used.
- Listing based on sample location (fact sheet) although listed on 303(d) by beach.

Region 9 (San Diego):

- Reports/data at the SWRCB from local environmental health agencies are used. Raw bacterial data are not used.
- Closings and postings are not differentiated. They represent a loss of beneficial use.
- Listed if beach is posted for AB411 violations for 10 or more days total during the year.
- Listings are based on frequency of "violations". Magnitude of standard exceedances, number of indicator types of violations and season are not a consideration. Rain advisories issued by local environmental health agencies are not used.
- Distance used is 0.2 miles on each side of the sample location as length of beach listed.

Region 8 (Santa Ana):

- Reports/data at the SWRCB from local environmental health agencies are used.
- Beach is listed if posted for 7 or more consecutive days during the rating period.
- Beach closures are not a consideration. Closures are a basis for an enforcement action and are not considered an impairment issue.
- Listings based on AB411 period (April through October) but the listing shows no distinction between seasons.

Steve Weisberg and Renee DeShazo (Region 4) reported that through modeling and empirical data analysis at Leo Corrillo State Beach, a watershed that is 98% undeveloped land (devoid of human activity), show between 5 to 30 days of exceedances of the bacterial standards per year. The number of days of exceedances in an undeveloped area is due to:

- What is naturally running off of land.
- Random events, e.g., a bird dropping "floats by" as the sample is taken.
- Measurement and laboratory variations of results (documented by SCCWRP in Bite 98 studies).

Consequently, approximately 10% of standard exceedances may constitute an expected background rate for exceedances.

303(d) listing guidelines currently used				
	Region 4	Region 8	Region 9	AB 538
Closures	> 1 /year	Not used for listing	>10days/year P + C	Std. exceeded any 3 wks. of 4 or if >weekly sampling, >75%days in any month
Postings	>10% days/year	Duration of ≥7 days		
Standards	20%>1,000 TC 10%>10,000TC 10%>400FC geo.mean>200FC			
Beach listed as:	Beach name	Stretch of beach associated with sampling point	0.2 miles up and down coast of sampling point	

Note: AB538 requires that a source identification investigation must be initiated when its criteria is exceeded.

General Discussion:

Listing 303(d)

- A TMDL is required when a beach is listed. Listings should be based on the lack or failure to attain/meet water quality criteria and when beneficial use is lost. Anti-degradation policy must also be a factor.
- Closures due to spill should not be a primary base for listing because they may be addressed through other mechanisms, e.g., enforcement action.
- Where there is a single source, there are often means available to address the problem other than a TMDL.

Duration vs. Frequency

- Duration is event orientated (prolonged sewage leakage/spill or a factor of the magnitude of the episode).
- Focus should be on chronic multi-source problems rather than event driven or a single source problem.

Issue: What is the preferred frequency? 10% of the days, 10 days, 7 days? What is best? Why?

- Monitoring frequency, frequency and amount of rainfall and laboratory methodology are factors that should be considered.
- The criteria/basis for listing should be more than the frequency of exceedances in areas minimally affected by human activities i.e., the number of background exceedances must be considered.

General Agreement of Participants

- "Listing" 303(d) is the correct tool to use where standards are not attained or some Beneficial Use is lost and a TMDL is required to resolve the problem.
- If there is a way to solve the problems without a TMDL, listing may not be justified.
- Focus of 303(d) listing should be on chronic multi-source problems rather than event driven or single source problems.
- Closures due to spills should not be a basis for listing because they are better addressed through other mechanisms, e.g., enforcement.
- Frequency is the preferred metric to look at data rather than duration.
- 303(d) listing should occur when the frequency of posting exceeds that in areas minimally affect by human activities in wet years. In absence of complete or site specific data use 10% of calendar days posted/year.
- There is a loss of Beneficial Use when a sign is posted. Both postings and closures result in loss of beneficial use (REC 1).
- Standards = Objective + BU + anti-degradation requirements.

Conclusions

- 303(d) listing should occur when the frequency of posting exceeds that in areas minimally affect by human activities in wet years. In absence of complete or site specific data use 10% of calendar days posted/year.
- Imperfections exist in data collection/analysis (both of raw laboratory data and posting data provided to SWRCB) due to variations in sampling frequency, laboratory methodology and local environmental health agency policy all lead to inconsistency and these factors need to be addressed.
- Permanent postings:
  - Permanent postings either at a creek mouth or dry weather urban runoff represent a loss in BU.
  - Precautionary permanent postings are not based on bacterial data, and they should be distinguished from permanent postings based on professional judgments that a discharge is contaminated and supported by bacterial data.

- Allow local environmental health agencies assist in the determination of which "permanent" postings are truly contamination problems and deserving of TMDLs by differentiating between permanent and precautionary postings. This may require a change in the way the data is collected by the State Board and used in the database.

Issues for Further Discussion

- How much data (timeframe) should be considered?
  - Using 3 years captures more data and may correct for weather variations, e.g., yearly rainfall.
  - One year is definitely influenced by weather conditions.
  - Should there be seasonal consideration/adjustments?
- Should raw data be used with posting/closure data?
- Should a "correction" factor be developed based on monitoring frequency?
- How should "rain" advisories be used?
- What use is geometric means for bacteriological data? Do they have a role here?

Participants

Steve Weisberg, SCCWRP (Facilitator)
Robin McCraw, SWRCB
(Clean Beach Coordinator)
Renee DeShazo, Region 4
Garret Williams, City of San Diego
Jimmy Smith, Region 9
Richard Hauge, Ventura Co. EH
Rick Amador, City of San Diego
Craig J. Wilson, SWRCB
Jack Gregg, Coastal Commission
Monica Mazur, Orange Co. HCA
Pavlova Vitale, Region 8
Clay Clifton, San Diego Dept of EH
Eric Edwards, Los Angeles Co. DHS
John Griffith, SCCWRP
Jack Petralia, SWRCB

NEXT MEETING: APRIL 9, 2002 AT SCCWRP
9:30am to 3:30pm

MONITORING & REPORTING SUBCOMMITTEE
of the
BEACH WATER QUALITY WORKGROUP
APRIL 9, 2002
SUMMARY
Southern California Coastal Waters Research Project

Agenda/Subject: 303(d) Lists

Background:

On March 27, 2002, the Monitoring & Reporting Subcommittee of the Beach Water Quality Workgroup met to discuss all the various facets of listing impaired ocean water bodies, 303(d) lists, including the criteria for how an ocean water beach is "listed", the various methods employed by the Regional Water Quality Control Boards (RWQCB) in this process and how this process might be improved and made consistently applied throughout the state.

At this meeting, the following actions were taken:

- It was agreed by the participants that the goal of these discussions is not to change the current list or critique the process that has been used up until this point.
- Participants agreed to the discussion points proposed by the facilitator, Steve Weisberg, Executive Director of the Southern California Coastal Waters Research Project (See summary of March 27, 2002 meeting).
- Each representative of the participating RWQCBs described in detail the criteria they used in listing a beach.
- Participants agreed that data defining background conditions are poor. (EPA's 305(b) suggests that the appropriate background level for bacterial standard exceedances is 10%.)
- It was agreed by the participants that the following issues should be considered:
    1. What time period should be used assessing ocean water quality impairment or loss of beneficial use; the most recent year? The most recent 3 years? Any one of the 3 most recent years?
    2. Should "rain" advisories issued by the county environmental health agencies be used? If so, how?
    3. Should "permanent postings" be counted?

Time Period:

The 3 southern California RWQCBs currently use the following time periods:

Source of data	Region 4	Region 8	Region 9
Postings data	Most recent year	3 years	Most recent year
Raw Data	3 years		

Note: The 303(d) list is supposed to be reviewed every 2 years, however recently the review period has been stretched to 3 years.

Issues:

Given the fact that the listing period is two years, when should the time period begin? How are wet and dry weather years "adjusted"?

It was generally agreed that the number of bacterial standard exceedances or AB411 "postings" during a 1 year time period is too weather dependent and could result in beaches or beach areas being listed and delisted frequently without demonstrating real impairment or water quality improvement as the case may be.

It was generally agreed to that 3 years was a time period where weather conditions could be averaged out and true impairment (for listing) or improving water quality (delisting) could be demonstrated.

It was agreed to that:

- **The time period should begin with the last assessment or last "listing", i.e., every 2 to 3 years.**
- **Flexibility in the use of this time period should be allowed.**
- **Discretion should be allowed for known changes in the watershed, e.g., best management practices (BMPs) may have been introduced and implemented that resulted in water quality improvements.**

It was previously agreed to that 303(d) listing should occur when the frequency of exceeding the bacterial standards is greater than the number of bacterial standard exceedances in areas that are minimally affected by human activities in wet years. Some data exists from a monitoring site in Santa Monica Bay suggesting that the bacterial standards are exceeded about 10% of the time. The available data for this location however, are based on weekly monitoring conducted by the County of Los Angeles. Daily monitoring data are needed to truly justify this finding. The Los Angeles RWQCB plans to conduct daily monitoring to determine if this finding is valid. Background data in other locals are lacking and a standard for the number of exceedances based on some background percentage cannot be developed or justified on a local basis.

EPA, 305(b), recommends that 10% of the calendar days for bacterial standard exceedances be used. This results in 36 days per year of bacterial standard exceedances being the baseline for listing.

How should the time periods be viewed? Average the multiple years? Use the number of exceedances in any one-year as the listing criteria? Divide the year into seasons and apply the exceedances criteria by season?

Some participants argued that the 10% should be applied on a seasonal basis e.g., >6 days in summer and >30 days in winter. The rainfall season, at least in southern California, cannot be accurately defined. Using the AB411 period (April thru October) and the non-AB411 period (November thru March) are also unsatisfactory in this respect.

The participants agreed that annual data should be used for two reasons:
1) Rain is unpredictable by season, and
2) The data based on weekly monitoring is too "thin" for use given the few numbers of days of posting in the summer. If sampling is done weekly, a single exceedance could trigger 303(d) listing. Also, the TMDL itself will take seasonality into effect.

The following scenario was presented:

Beach X	Year 1	Year 2	Year 3	Average
Days of posting	20	60	20	33

Using >10% of days as the threshold for listing results in the following:
- If using the average for the 3 years, the beach is not listed.
- If a single year in the time period is used, the beach is listed.
- If a single year in the time period is used within a three year period, and applying rainfall data as a factor to be considered, it may or may not be listed depending on the amount of rainfall for that year. If year 2's rainfall exceeds the 90th percentile of number of rain days, then the year is an exception and should not be listed. (Background level determined to represent number of exceedances for a minimally influenced watershed at the 90th percentile of number of rain days.)
- If using the highest 2 of the 3 years averaged, the beach is listed.

Adding rainfall as a factor:

Beach X	Year 1	Year 2	Year 3	Average
Days of posting	20	60	20	33
Rainfall	Low	Moderate	Moderate	

It was agreed that if the average number of bacterial standards exceedances of the years in the time period is greater than 10%, the beach/water body fails and is listed. When 2 of the 3 years exceed the 10% threshold for bacterial exceedances, the beach/water body fails and is listed.

In order to achieve a consistent approach given the above scenario, a philosophical question must be settled, namely:

- *Is it preferable to list a beach that will or should be delisted in the following cycle? or*
- *Fail to list a beach that should have been listed?*

Participants, including RWQCB representatives, did not agree on the issue when there is a single year that exceeds the threshold for exceedances. The basis for the difference is whether this case represents true water quality impairment. The debate centered on whether to act conservatively and list the water body because there may be a problem or wait until more information becomes available before listing.

It was argued that in order to be comprehensive all water bodies that appear to have water quality limited segments requiring TMDLs should be listed. The other argument was that water bodies should not be listed until a real problem has been fully identified. The philosophical difference stems from repercussions of 303(d) listing (increased workload and negative publicity regarding the public health threat of the water body) and the difficulty with delisting a water body.

The most protective philosophy uses the most conservative (restrictive) criteria.

Some argued that the beach in the above scenario should be put on a "watch list".

There was no agreement on this issue and the participants agreed to disagree at this time.

Issue: Should "rain advisories" be used in determining posting days for a beach?

County environmental health agencies issue rain advisories when rain is predicted or occurs. These are general press releases advising beach goers that ocean water may be contaminated as a result of the rainfall, and water contact should be avoided for 72 after the rainfall has ended, especially around storm drain discharges. There is no standard for local health agencies to use in the issuance of these advisories and AB411 regulations do not recognize them as a regulatory tool. During non-AB411 periods, most environmental health agencies either do not monitor during rain events or do not post during this period. During AB411 periods, state law requires the beach to be posted when weekly monitoring reveals the ocean water does not meet bacterial standards regardless of the reason. Consequently, there is no consistency among counties with respect to issuing and reporting rain advisories. Additionally, weekly monitoring or the lack of monitoring during the "rainy" season results in an insufficient database on water quality for periods affected by rain.

RWQCBs do not currently utilize "rain advisories" when considering 303(d) listing. If water quality data during rain advisories are not used, RWQCBs may be missing water quality impairments that really exist.

It was argued that if there is systematic monitoring (routine monitoring, not adjusted due to rain nor adaptive to pinpoint problem areas) a percentage of the samples exceeding standards should be used. Regional Boards will have to use the raw data and will have to eliminate non-routine aspects of sampling data.

The participants agreed that "rain advisory" days should not be counted towards the threshold (>10%) of bacterial standard exceedances days. However, any routine monitoring results of samples taken during the time period (outside of AB 411 period) should be used.

Issue: Some county environmental health agencies permanently post the beach with warning signs where storm drains discharge. Some also post the channel or creek with warning signs. How should these permanent postings be used.

"Permanent postings", i.e., the permanent posting of warning signs at the point of a storm drain discharge regardless of any monitoring results, are defined generally as points where flowing creeks or storm drains are known to exceed bacterial standards and routine monitoring at or in close proximity to the discharge is maintained. "Precautionary postings" are defined as points where flowing creeks or storm drains are not considered to be a threat to public health but are posted with warning signs as a precaution to warn the public to avoid water contact in these areas.

There is no provision for permanent postings or precautionary postings in AB411. This is a practice that has been developed by local environmental health agencies each using their own criteria for their actions. The reporting of this type of posting to SWRCB is not consistently applied.

Discussion of this issue was not completed and should be continued.

Participants

Monica Mazur, County of Orange
Pavlova Vitale, Regional Board 8
Ric Amador, City of San Diego
Renee DeShazo, Regional Board 4
Jerrick Torres, County of Los Angeles
Christina Arias, Regional Board 9
Steve Weisberg, SCCWRP (Facilitator)
Robin McCraw, SWRCB
Richard Hauge, Ventura Co. Health
James Alamillo, Heal the Bay
Gerald McGowen, City of LA
John Griffith, SCCWRP
Garret Williams, City of San Diego
Clay Clifton, County of San Diego
Jack Petralia, SWRCB

Next meeting: May 9th, 2002 at SCCWRP (9am to 2pm)

From: Robin McCraw
To: Craig J. Wilson; Ken Harris; Thomas Mumley; Tim Stevens
Date: 1/10/02 2:44PM
Subject: Developing criteria for 303(d) listing of beaches for pathogens/bacteria

Monica Mazur, Orange Co. Dept. of Environmental Health has asked the State Board to work with the Regional Boards in developing a criteria for listing beaches and creeks which go to beaches on the 303(d) list. Orange Co. deals with both San Diego and Riverside Regional Boards and has found they use different criteria for 303(d) listing beaches/creeks for impairment by pathogens. As a starting point AB 538 (development of source investigation protocols) should be used to set our minimum criteria for listing that is, beaches should be listed when bacteriological standards are exceeded in any three weeks of a four-week period, or, for areas where testing is done more than once week, 75 percent of testing days that produce an exceedence of those standards (this is operative during the AB 411 period, April 1st to October 31st). In addition to AB 538 criteria which serves as a starting point, the State Board, all coastal Regional Boards and coastal Environmental Health Departments should agree on how to evaluate additional information that will be useful in determining whether or not a water body truly is impaired. For example, Monica has found that often rain is the cause of extended postings and this should be included in the evaluation process. Also, for the first time we asked all County Health to list their permanent postings, which tend to automatically suggest 303(d) listing however there may be a diversion in process that will eliminate this problem at least during the dry period. I imagine a concerted effort to develop criteria for how the Regional Boards list pathogen/bacteria impaired waterbodies would be helpful to the State Board, Regional Boards and County Health Departments.

Would you please let me know who at the Regional Boards and here at the State Board should participate in this effort. The Monitoring and Reporting Subcommittee of the Beach Water Quality Workgroup intends to begin a discussion of this at our meeting on January 16th at the Orange Co. Department of Environmental Health. I assume we will just begin to discuss a strategy/methodology for the criteria development and plan our next steps. I would like to invite other interested parties to this kick off meeting. I hope to send out the agenda on Friday 1/11.
-Robin

CC: John Norton; Tom Howard

Ocean Water Protection Program

Health Care Agency
Environmental Health
Water Quality Section

Ocean Water Protection Program

The Ocean Water Protection staff ensures that all public recreational ocean waters meet bacteriological water quality standards for swimming. Program specialists protect public health along the entire Orange County coastline, including the harbors and bays, by performing the following activities:

- Respond on a 24-hour basis to investigate reports of sewage or toxic contamination incidents affecting public ocean or bay waters.
- Initiate ocean and bay closure procedures following sewage or toxic releases. Continue sampling and monitoring of affected areas until water conditions return to safe levels.
- Initiate enforcement or quarantine actions when water samples fail to meet Ocean Water-Contact Sports Standards.
- Participate in special studies with other public agencies in order to identify and eliminate sources of water pollution.
- Investigate reports of illness and complaints received from the public regarding ocean and bay waters, public beaches, and other public recreational waters.
- Maintain the Ocean and Bay Posting and Closure Hotline and Web Page with the latest closure, posting or advisory status for all of Orange County.
- Prepare Beach Advisory press releases following significant rainfall events.

Ocean Water Monitoring Requirements

In 1999, bacteriological ocean water quality standards were added to the California Health and Safety Code that are more protective of public health. Important requirements include the following:

- Requires testing of the waters adjacent to all public beaches for total coliform, fecal coliform and enterococcus bacteria. Previous testing requirements were for total coliform only.
- Established single sample and 30-day log mean standards for total coliform, fecal coliform, and enterococcus bacteria. The standards are as follows.

  Based on a **single sample**, the density of bacteria shall not exceed:

  - 10,000 total coliform bacteria per 100 milliliters; or
  - 400 fecal coliform bacteria per 100 milliliters; or
  - 104 enterococcus bacteria per 100; or
  - >1,000 total coliform bacteria per 100 milliliters, if the ratio of fecal/total coliform bacteria exceeds 0.1.

Based on the **mean logarithms of the results of five weekly samples during any 30-day sampling period**, the density of bacteria shall not exceed:

- 1,000 total coliform bacteria per 100 milliliters; or
- 200 fecal coliform bacteria per 100 milliliters; or
- 35 enterococcus bacteria per 100 milliliters.

- When any waters adjacent to a public beach fail to meet any of the standards described above, the local health officer shall post signs on the beach to restrict access to the ocean or bay waters.
- Weekly testing is required from April 1 to October 31 if all of the following apply:
  - The beach is visited by more than 50,000 people annually; and
  - The beach is located on an area adjacent to a storm drain that flows in the summer.
- In case of a known release of untreated sewage into ocean or bay waters adjacent to a public beach, the local health officer is required to:
  - Immediately close the affected ocean or bay area until the source of the sewage is eliminated;
  - Collect samples from the affected waters; and
  - Continue the closure or restriction of the ocean or bay waters until testing results of water samples meet the established standards.
- Maintain and update the Ocean and Bay Posting and Closure Hotline and Web Page.

What do the different warning signs mean?

This warning sign with the yellow and black border is posted near storm drains, creeks and rivers to advise the public of the risks associated with possible contamination from urban runoff.

This warning sign with the red and black border is posted when a violation of Ocean Water-Contact Sports Standards occurs.

This yellow closure sign is posted when a release of raw sewage occurs affecting ocean or bay waters adjacent to a public beach.

Ocean & Bay Posting and Closure Hotline:
(714) 667-3752
Web Page:
www.ocbeachinfo.com

Contacts:

Larry Honeybourne	**(714) 667-3750**
Monica Mazur	**(714) 667-3751**
Mike Fennessy	**(714) 667-3755**

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Health Care Agency
Environmental Health

Monica Mazur, Supervising
Environmental Health Specialist II
(714) 667-3751

Ocean & Bay Posting and Closure Information:	(714) 667-3752
Report a Sewage Spill	(714) 667-3751
After Hours:	(714) 628-7008
Report a Bather Illness:	(714) 667-3751
Web Page:	www.ocbeachinfo.com

Ocean Water Protection Program

Where is it safe to swim? Southern California ocean and bay waters are very clean most of the time as indicated by water quality monitoring. Storm water runoff can make ocean or bay waters unsuitable for swimming, surfing or diving for at least 72 hours after a rainstorm. Areas impacted by urban runoff from drains, rivers and streams should be avoided. Also, signs are posted warning not to swim at locations where ocean and bay waters do not meet standards or where a sewage contamination has occurred.

What do we test for? Total Coliform, Fecal Coliform and Enterococcus bacteria.

What are they? Indicators of possible disease producing bacteria, viruses or protozoa (also known as pathogens).

Where do they come from?

- Environment - soils, decaying vegetation.
- Storm water/urban runoff.
- Animal wastes -for example, birds, dogs, cats or rabbits.
- Humans - sewage, kids with diapers, shedding from body.

What are the standards?

- Single sample standards:
  - Total Coliforms - 10,000 organisms per 100 ml. sample.
  - Fecal Coliforms - 400 organisms per 100 ml. sample.
  - Enterococci - 104 organisms per 100 ml. sample.
  - Fecal:Total ratio - >1000 total coliforms if ratio exceeds 0.1.
- 30-day log mean standards of five weekly samples:
  - Total Coliforms - 1,000 organisms per 100 ml. sample.
  - Fecal Coliforms - 200 organisms per 100 ml. sample.
  - Enterococci - 35 organisms per 100 ml. sample.

What pathogens may be found in sewage and possibly in runoff? (Note: these pathogens have not necessarily been associated with illness from exposure to ocean water.)

Pathogenic Agent	Disease
Bacteria	
E. coli	Gastroenteritis
Salmonella (not typhi)	Gastroenteritis, usually with fever; less commonly septicemia (generalized infection -organisms multiply in the bloodstream)
Some strains of *Shigella*	Gastroenteritis, usually with fever
Protozoa (Intestinal Parasites)	
Cryptosporidium	Diarrhea - Cryptosporidiosis
Giardia lamblia	Diarrhea - Giardiasis

Pathogenic Agent	Disease
Viruses	
Rotavirus	Gastroenteritis
Enteroviruses	Respiratory, rash, febrile illnesses; meningitis
Norwalk and Norwalk-like viruses	Gastroenteritis
Adenovirus	Respiratory and gastrointestinal infections
Hepatitis A (outbreaks associated with eating shellfish from sewage-contaminated water)	Infectious hepatitis (liver malfunction)

What happens to the bacteria/viruses/protozoa in swimming waters?

- Die off due to sun, salt water or age.
- Predation by other organisms.
- Dilution.

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Orange County Health Care Agency/Environmental Health
Bacteriological Monitoring Program
(Total Coliform, Fecal Coliform and Enterococcus)

HCA

STATION	Location Description
SAN GABRIEL RIVER	
CSGRM	Marina Drive
CSGR1	1st Street Parking Lot
SEAL BEACH (surfzone)	
OSB02	1st Street
OSB03	8th Street
OSB04	14th Street
OSB01	Sea Way
SUNSET BEACH (surfzone)	
OSUB1	Broadway
HUNTINGTON HARBOUR (in harbour)	
BHH08	Bolsa Bay
MHH07	Sunset Aquatic Marina
BHH15	Mother's Beach
BHH12	Trinidad Lane Beach
BHH09	Sea Gate
BHH06	Humboldt Beach
MHH10	Davenport Beach
MHH01	Clubhouse Marina
BHH13	Harbour Channel
BHH04	11th Street Beach
BHH11	Admiralty Drive
MHH14	Anderson Street Marina
BHH05	Anaheim Bay - Gas Dock
BHH16	Coral Cay Beach
NEWPORT BAY (in bay)	
BNB24	Newport Dunes - East
BNB24	Newport Dunes - Middle
BNB24	Newport Dunes - West
BNB24	Newport Dunes - North
BNB25	Vaugh's Launch
BNB26	Ski Zone
BNB28	North Star Beach
BNB05	Bayshore Beach
BNB30	De Anza
BNB09	43rd Street Beach
BNB10	38th Street Beach
BNB11	33rd Street Channel
BNB35	Newport Blvd. Bridge
BNB32	Lido Yacht Club Beach
BNB07	Via Genoa Beach
BNB12	Rhine Channel
BNB14	19th Street Beach
BNB15	15th Street Beach
BNB17	10th Street Beach
BNB18	Alvarado / Bay Isle Beach
BNB22	N Street Beach
BNB31	Garnet Avenue Beach
BNB03	Ruby Avenue Beach
BNB20	Sapphire Avenue Beach
BNB34	Grand Canal
BNB21	Abalone Avenue Beach
BNB01	Park Avenue Beach
BNB02	Onyx Avenue Beach
BNB29	Promontory Point Channel
BNB33	Harbor Patrol Beach
BNB23	Rocky Point Beach
NEWPORT BAY TRIBUTARIES	
CNBCD	San Diego Creek / Campus Dr.
CNBSA	Santa Ana Delhi Channel
CNBBC	Big Canyon Creek
CNBND	Backbay Drive Pipe

NEWPORT BEACH - NEWPORT SLOUGH	
BNS01	Lancaster Street
BNS02	Grant Avenue

HCA

STATION	Location Description
NEWPORT COAST (surfzone)	
ONB29	Corona Del Mar State Beach
ONB31	Little Corona Beach
ONB35	Pelican Point
ONB39	Crystal Cove
ONB43	Muddy Creek
ONB45	El Morro Beach
NEWPORT COAST (creeks)	
CNBBG	Buck Gully Creek
CNBPP	Pelican Point Creek
CNBPM	Pelican Point Middle Creek
CNBPW	Pelican Hill Waterfall
CNBCC	Crystal Cove Creek
CNBCU	Crystal Cove Creek Upstream
CNBMC	Muddy Creek
CNB45	El Morro Creek
CNBEU	El Morro Creek Upstream
LAGUNA BEACH (surfzone)	
OLB10	Emerald Bay
OLB05	Crescent Bay Beach
OLB00	Laguna Main Beach
OSL12	Treasure Island Pier
LAGUNA BEACH (creeks)	
CLBEB	Emerald Bay Drain
CLBBC	Broadway Creek
DANA POINT (surfzone)	
OSL25	Monarch Bch. (No. of Salt Creek)
OSL23	Monarch Bch. (So. of Salt Creek)
ODB02	North Beach - Doheny
S-2	Doheny Bch. (No. of San Juan Cr.)
ODB05	Doheny Bch. (So. of San Juan Cr.)
DANA POINT (creeks)	
CSLSC	Salt Creek
CDBNC	North Beach Creek
C-1	San Juan Creek Mouth
C-2	Upper San Juan Creek
DANA POINT HARBOR (in harbor)	
BDP07	Fuel Dock
BDP12	Baby Beach - West End
BDP13	Baby Beach - Bouy Line
BDP14	Baby Beach - Swim Area
BDP15	Baby Beach - East End
BDP08	Pier
BDP16	Pilgrim
BDP17	Youth Dock
MDP11	Guest Dock - End (West Basin)
S-4	Harbor Entrance
MDP10	Harbor Patrol Dock (East Basin)

SAMPLING FREQUENCIES

HCA (Health Care Agency) = 1 / week

OCSD (Orange County Sanitation District)
November 1 - March 31 = 2 / week
April 1 - May 30 = 3 / week
May 31 - September 6 = 5 / week
September 7 - October 31 = 3 / week

SOCWA - South Orange County Wastewater Authority)
Aliso Outfall -
2 / week
Doheny Outfall -
November 1 - April 30 = 1 / week
May 1 - October 31 = 2 / week

OCSD

STATION	Location Description
HUNTINGTON BEACH (surfzone)	
39N	Bolsa Chica Beach
33N	Bolsa Chica Reserve
27N	Bluffs
21N	17th Street
15N	Jacks Snack Bar
9N	SCE Plant
6N	Magnolia Street
3N	Brookhurst
0	Santa Ana River Mouth
NEWPORT BEACH (surfzone)	
3S	Orange Street
6S	52nd / 53rd Street
9S	38th Street
15S	15th / 16th Street
21S	Balboa Pier
27S	The Wedge
29S	Corona Del Mar Beach
39S	Crystal Cove

SOCWA - Aliso Outfall

LAGUNA BEACH (surfzone)	
S16	Hotel Laguna
S15	Bluebird Canyon
S14	Victoria Beach
S13	Blue Lagoon
ALISO BEACH (surfzone)	
S12	Treasure Island Pier
S11	Treasure Island Sign
S10	Aliso Beach - North
S09	Aliso Beach - Middle
S08	Aliso Beach - South
S07	Camel Point
S06	Table Rock
S05	Laguna Lido
S04	9th Street / 1000 Steps Beach
S03	Three Arch Bay
ALISO CREEK	
C1	Aliso Creek Mouth
DANA POINT (surfzone)	
S02	Salt Creek Beach
S01	Dana Strands

SOCWA - Doheny Outfall

DANA POINT (surfzone)	
S-6	Marine Institute Beach
DANA POINT HARBOR (in harbor)	
S-4	Dana Point Harbor Entrance
DOHENY BEACH (surfzone)	
S-2	Mid North Beach
S-1	1000 Feet South of Outfall
S-3	2000 Feet South of Outfall
S-5	3000 Feet South of Outfall
S-7	4000 Feet South of Outfall
S-9	5000 Feet South of Outfall
S-0	San Juan Cr/Ocean Interface
SAN JUAN CREEK	
C-1	San Juan Creek Mouth
C-2	San Juan Creek North
CAPISTRANO BEACH (surfzone)	
S-11	7500 Feet South of Outfall
S-13	10000 Feet South of Outfall
S-15	14000 Feet South of Outfall
SAN CLEMENTE (surfzone)	
S-17	20000 Feet South of Outfall
S-19	Lifeguard Building
S-21	Avenida Calafia
S-23	Las Palmeras

From: Robin McCraw
To: Christina Arias; Craig J. Wilson; Farhad Ghodrati; James Smith; Monitoring and Reporting Subcommittee; Pavlova Vitale; Renee DeShazo; Robert Klamt; Shanta Duffield; Stephanie Gasca; Syed Ali; Thomas Mumley
Date: 3/21/02 2:58PM
Subject: Agenda for March 27 Monitoring and Reporting Subcommittee-303(d) listing

Attached is the agenda for the March 27 Monitoring and Reporting Subcommittee meeting which will be held at SCCWRP. The meeting will have a single theme, the 303(d) listing process for beaches listed for pathogens or bacteria. We are asking Regional Board staff involved in the 303(d) listing process to be able to share with the group their method for listing beaches for pathogens/bacteria. The goal is to be able to develop a consistent statewide approach for listing beaches for pathogens/bacteria on the 303(d) list.
Hope to see you all there.
-Robin

SCCWRP
3/27/02

CC: Deborah Smith; Roger Briggs; Tom Howard

Monitoring and Reporting Subcommittee

Agenda

March 27, 2002
9:30am to 2:00pm
Southern California Coastal Water Research Project
7171 Fenwick Lane
Westminster, CA 92683
(714) 894 - 2222

1. Introductions and general announcements (Robin McCraw, 15 min.)

2. Discussion of the 303(d) listing process for beaches for pathogen/bacteria (Steve Weisberg, 3.5 hours)
   - What methods are currently used?
   - What are the federal requirements?
   - What modifications are needed?
   - What are the next steps?

3. Next Meeting Dates and Agendas (15 minutes)

AB 1540 website requirements

From: Tom Mays
To: "sblum@exec.swrcb.ca.gov".mime.Internet; Nancy Richard
Date: 11/30/00 4:10PM
Subject: Re: Re: AB 1740 Impaired Water Bodies Listing on RegionalBoard Web Sites

Hello Steve and Nancy. Thanks for your contributions on this issue.

After reviewing your correspondence, I recommend posting the file to a new TMDL page (Nancy, this is the page you and I are discussing), and having all regions link to it. They can also link directly to a subsidiary page containing links to the 303d list, which will be in pdf format. (We might as well do this all in one fell swoop, to meet all commitments.)

To resolve the problem over the language regarding specific postings of regional impaired bodies, I propose the following solution:

The main TMDL page will include a brief description of the TMDL process, and provide links to the first five categories outlined in an excel chart provided to me by Nancy (TMDL Documents, TMDL Basin Plan Amendments, Public Notices for TMDL Activities, Other TMDL Meeting, Conferences, Etc.; and Section 303(d) Listing.) To reference a sample of the structure I am considering, please access the Prop.13 web page from our home page.) Steve, if you are interested in delving more into this issue, I can provide you with Nancy's excel chart; but, it's not necessary.

The 303d subsidiary page will be a new one, created in html or pdf. (I plan to confer with OIT on setting this up.) The page will say that people can access a list of impaired bodies by region, or statewide, and then we would feature links to anchors within the pdf document. Since not many members of the general public are familiar with our numeric designations of regions, each link will describe the geographic territory covered by each region.

Each of the other subsidiary pages will be in html, and provide intoductory information, followed by links to the particular subject matter for that given page - regional TMDLS, basin plan amendments, meeting and comment period dates, etc., (Nancy, I can assist you with language.)

Nancy, is all this possible by the turn of the year? If not, we can eliminate prep. of the TMDL page for now, and simply tackle the 303d portion. We would simply revise the target link when we do complete the TMDL main page, and move the 303d page under this structure.

Let me know what you think of this proposal. I will be out of the office Friday, but will return Monday. At that time, assuming we have agreement, I will confer with OIT on making this happen.

Thanks again for your feedback.

Tom Mays
Webmaster
State Water Resources Control Board
(916) 651-6633
tmays@exec.swrcb.ca.gov

>>> "Steven H. Blum" <sblum@exec.swrcb.ca.gov> 11/30/00 09:18AM >>>
Hey guys. I am certainly not commenting on whether you should use this or not. That would not be my call. Being an attorney, I looked at the language & gave you my opinion if it met the statutory language. Bottom line: close, but not exact. Good enough? Who knows? On the second topic, if you have adobe acrobat (not just the reader) you can establish a table of

contents that is (usually? always?) on the left. It's quite easy to do, and it will jump to the indexed page when clicked.
----- Original Message -----
From: Nancy Richard <RICHN@dwq.swrcb.ca.gov>
To: Steven Blum <SBlum@exec.swrcb.ca.gov>; Tom Mays <webmaster@swrcb.ca.gov>
Cc: Syed Ali <ALIS@dwq.swrcb.ca.gov>
Sent: Thursday, November 30, 2000 8:54 AM
Subject: Fwd: Re: AB 1740 Impaired Water Bodies Listing on RegionalBoard Web Sites

Steve,...The title of the list includes "....TMDL PRIORITY SCHEDULE". This schedule if referring to the Start and End dates for TMDLs....these are the last 2 columns of the list.

Of course nothing is ever perfect..... Region 4 did not include all their TMDL start and end dates on the list and Region 6 put some of theirs in the comment section..., but the rest are complete. I cannot change this official 1998 EPA approved list. The next update of the list will be in 2002.; the process to update will begin this coming January.

Tom,....The list is a pdf file. Can we set up buttons that jump to a certain page of a pdf file that would correspond to the beginning of each Regions part of the list?

Nancy

>>> Steven Blum 11/29/00 05:48PM >>>
Hi Nancy. Looks slick (in a good way, of course), and I cannot give you an opinion about whether anyone at the legislature would check it out. Not my bailiwick, as they say. The only comment I would make is that it seems difficult to find the spot where each region's list begins. I'm really not trying to make extra work for you. Perhaps if you put buttons at the top of the web page that allowed the person to jump to the beginning of each region, or a table of contents on the left of the .pdf file that allowed a jump to each region, that would come closer to what I see as the stated intent of the statutory provision: that a person who wants search through a region's 303(d) listed water bodies could do so easily from that regional board's web page.

More important: Now that you had me look at the page, it appears that there is some critical information missing. The statute requires the list to include: "and the regional boards' best estimate of the expected completion date for each respective TMDL." The list you linked me appears to have only limited TMDL info. Is this something you are planning to add to the list?

Confidential:
Attorney/Client Communication

Steven H. Blum

From: Sharon Norton
To: Nancy Richard
Date: 11/21/00 9:20AM
Subject: Re: AB 1740 Impaired Water Bodies Listing on Regional Board Web Sites

Nancy,
When you get ready to put your reports on the web we might be able to help.
Sharon

>>> Nancy Richard - 11/20/00 3:04 PM >>>
Tom,

A couple of comments. First....the 303d list is already on our SWRCB website. I am not sure if the Regions are linking to this site, even though I have sent out several email messages statewide announcing that the list is available on the website, including electronic downloadable excel and GIS files. We should probably ensure that the Regional Boards link to this site, if that is necessary to fulfill the AB982 requirement.

Second, the report to the legislature, required under AB982, has been written by staff and is going through management review. It has to go all the way through review/approval by the Governor's office and then to the legislature before we can put it on the website. I do have it under the "AB982" category on my TMDL internet/intranet wish list as "Report to the Legislature" but, again, it will be awhile before it is ready to be on the web.

Nancy

>>> Tom Mays 11/16/00 03:48PM >>>
Thanks Jon. I have the hard-copy version here, but will forward to all of our colleagues, since you have provided it electronically. Appreciate your assistance.

Web subcommittee members: Jon pulled this together this afternoon, and I wanted to share with everyone. Please note that I am working with folks in our water quality division on interpretations of the earlier references to 303d compliance requirements. It is a state board requirement. (the November 30 deadlined item).I will keep you posted, as we may link this from the regions as well.

Nancy Richard: Let's discuss as it pertains to the TMDL web project.

Tom Mays
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>>> Jon Marshack 11/16/00 03:15PM >>>
This chaptered budget bill contained the following trailer provision for the State Water Board. The text I highlighted in **bold** requires the posting of impaired water bodies on Regional Board web sites by the end of this calendar year.

5. By November 30, 2000, the State Board shall prepare and make publicly available a report on the state's efforts to comply with the federal Clean

Water Act, Section 303(d). The report shall include:

(a) A process which outlines how the State Board and regional boards shall implement their Total Maximum Daily Load (TMDL) requirements consistent with Section 303(d) and, where applicable, Division VII of the Water Code and other relevant state and federal laws. This process shall be included in the state's continuing planning process required by Section 303(e).

(b) A description of the formal actions taken to date by the State Board and regional boards to implement federal Clean Water Act Section 303(d), including the number of TMDLs adopted, the process and criteria used to develop TMDLs and the watersheds for which TMDLs have been adopted.

(c) A description of the process the State Board and regional boards use for taking formal actions pursuant to the requirements of the federal Clean Water Act, Section 303(d), including actions related to criteria for prioritizing work.

(d) A description of the activities the State Board and regional boards have undertaken to involve the public in their efforts to implement the requirements of the federal Clean Water Act Section 303(d).

(e) Consistent with Section 13191 of the Water Code, the anticipated schedule for water quality control plan amendments the State Board and regional boards will undertake to implement the federal Clean Water Act, Section 303(d).

To the extent interest is expressed by the public, and resources are available, each regional board shall establish for each watershed where a water body is listed as impaired, an Advisory Committee consisting of the public and interested stakeholders who wish to be involved in the process of adoption and implementation of the corrective actions necessary to eliminate the impairment.

Not later than December 31, 2000, each regional board shall post to its website all the water bodies listed as impaired for the region as approved by the United States Environmental Protection Agency, including common name, location,and cause of the listing and the regional boards' best estimate of the expected completion date for each respective TMDL.

It is not the intention of these provisions to delay substantive TMDL work.

Staff Counsel
California State Water Resources Control Board
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current address and phone:
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>>> Nancy Richard 11/29/00 4:51:53 PM >>>
Okay my turn for my opinion.

Steve,

Can you take a look at the list on our website.

http://www.swrcb.ca.gov/plnspols/wqplans/303d98.pdf

Even though it is for the whole State, it is organized in order by Region. Who is going to check this out? Can they take a look and see if they are satisfied? I am the keeper of the database and Access report that makes the list. I could make 9 separate lists and convert them to pdf, but would rather not add extra work for myself, if it can be avoided.

The link could go from the Regional Bd site directly to the 303d/TMDL location on our website. That shouldn't be a problem. Do you agree Tom?

Nancy

>>> Steven Blum 11/29/00 04:09PM >>>
See now? What'd I tell you. "Be careful what you ask for" I said. After reading the law, I have to disagree with your conclusion. The link may in fact constitute "substantial" compliance with the stautory requirement, but clearly it does not meet the language of the law. The pertinent language:

> Not later than December 31, 2000, each regional board shall post to its website all the water bodies listed as impaired for the region as approved by the United States Environmental Protection Agency, including common name, location,and cause of the listing and the regional boards' best estimate of the expected completion date for each respective TMDL

The law clearly requires the information to be posted to each regional board's website those water bodies impaired in its region. I'm not familiar with the 303(d) list that you propose to link, but, the law requires it to be posted on the Regional Board's page, and it infers that the list for each region should only contain the info for that region. If the 303(d) list is currently organized by region, and especially if you could make the link on each regional board's page go directly to the spot where that region's information is located, then I would be a little more comfortable with our "substantial compliance", arguing that it would take no more clicks of the mouse than if it was in fact posted by each regional board directly. Less than that, in my opinion, you are risking the ire of the author for partial compliance. The would be especially true if the link to you to the State Board Home Page & did not tell you how to find the 303(d) & TMDL listings. (BTW -- how about a 303(d)/TMDL button on the home page?) Anyways, that's my opinion.

Confidential:
Attorney/Client Communication

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>>> Tom Mays 11/29/00 2:41:30 PM >>>
Steve: Here is the information on AB 1740. If you scroll down to Jon Marshack's note, you will see the bold-faced reference to the 303d posting.

In a followup note, Nancy felt that our current posting on the news page should suffice for all, and that regional web sites can link to that. It sounds fine with me. Will that cover it?

Tom Mays
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CC: Myrlys Williams; Syed Ali