303(d) Lists

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★ = confusion
∅ = disagree

1/12 = "10%" disagree
6/12 = ~~#~~ 50% questions/confusion
5/12 ~~#~~ ~~##~~% agree as stated.

12/5/00

THIS PAGE WILL CONTAIN A EXECUTIVE SUMMARY DOC (NOT WRITEN YET)

I. BACTERIAL STANDARDS

Issue: Should actual bacterial levels at any given beach be the criteria for the 303(d) listing of any ocean water beach?

Background

Two sets of bacterial standards for ocean water have been adopted. The SWRCB has adopted bacterial standards in the "Ocean Plan". These standards are water quality objectives ~~or attainment goals.~~ Although these standards have been linked to health standards in the past, the Ocean Plan bacterial standards are no longer considered protective of public health.

explain

As a result of the passage of AB 411[1], the legislature instructed the Department of Health Services (DHS) to establish bacterial standards that have been scientifically shown to be protective of public health. The DHS bacterial standards are used by local environmental health agencies in exercising their responsibility under the statute to post the beaches with warning signs or to close them due to water quality impairments.

The most public health protective standard for a single bacterial group is for enterococcus bacteria[2]. The SWRCB has not adopted an enterococcus standard into the Ocean Plan, and the standards for total and fecal coliform bacterial also differ from the standards for these bacteria adopted by DHS. The most protective bacterial standard uses the ratio between total and fecal coliform bacteria[3], but the SWRCB has not adopted this standard into the Ocean Plan.

Of the three RWQCBs participating in the Beach Water Quality Workgroup's discussions, only the Los Angeles RWQCB reported using bacterial standards as criteria for 303(d) listing, and these were the Ocean Plan standards (see chart below).

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[1] AB 411, Statutes of 1997.
[2] Haile, Robert W. etal., An Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay, 1996, Study sponsored by the Santa Monica Bay Restoration Project.
[3] Haile, Robert W., et.al. Ibid.

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	

Alternatives:

1. Use the Ocean Plan's bacterial standards as a factor in 303(d) listing.

2. Use the bacterial standards established by DHS, pursuant to AB 411, as a factor in 303(d) listing.

3. Use bacterial standards indirectly by measuring the number of days beneficial use is lost (days beach is posted by local health agency) due to ocean waters exceeding bacterial standards.

Discussion:

The AB 411 bacterial standards adopted by DHS[4] are the basis for regulatory actions taken by local health agencies. Posting beaches with warning signs (postings) occurs when ocean waters do not meet these established bacterial standards. Postings, for even 1 day, constitute a loss of beneficial use (REC 1). The number of postings also signifies the failure to attain water quality objectives.

Meeting the Ocean Plan bacterial standards signifies the attainment of water quality objectives for bacteria adopted by the SWRCB. Meeting these standards however, does not measure loss of beneficial use since beaches may be posted by local health agencies even though the ocean waters meet the Ocean Plan bacterial standards. The DHS bacterial standards are more stringent than the Ocean Plan bacterial standards.

Bacterial levels as currently measured vary considerably over short periods of time and distances. The magnitude of bacterial levels usually vary by source, the concentration of the source contaminate and the volume of discharge. The magnitude of bacteria does not justify the use of bacterial levels for 303(d) listing since they measure neither loss of beneficial use nor a failure to attain water quality objectives.

[4] AB 411, Statutes of 1997; Title 17, California Code of Regulations.

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. The number of postings in a given period of time measures these parameters.

Recommendation:

The Beach Water Quality Workgroup recommends that 303(d) listings be based on the number of postings by the local health agency; not on the bacterial standards directly.

The direct use of bacterial standards measures water quality attainment but do not measure loss of beneficial use. The use of posting days measures both the failure to meet water quality criteria/standards and the loss of beneficial use.

2. BEACH POSTINGS AND CLOSURES

Issue 2.1: Is the number of beach postings and closures the appropriate criteria for placing a beach on the 303(d) list?

Background

The southern California Regional Water Quality Control Boards (Regions 4, 8, and 9)[5] were surveyed to determine their methodology in placing beaches on the 303(d) list due to bacterial impairment or loss of use due to exceedances of the California bacterial standards for ocean water established by the California Department of Health Services (DHS)[6]. There are both single sample and 30-day standards[7]. Local environmental health agencies must post a beach when the single sample standards are exceeded[8], but may use their own discretion whether to post when the 30-day standards are exceeded[9].

State law[10] requires the local environmental health agency to close a beach in the event of any sewage overflow/spill until the ocean water at the beach meets the established bacterial standards. Closures usually represent an acute event/infrastructure failure and a given location and are not indicative of chronic water quality impairment.

Results of survey:

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	

[5] All the coastal RWQCBs were invited to participate in these discussions. Only the 3 southern California RWQCBs sent representatives to participate in the Monitoring and Reporting Subcommittee discussions.
[6] Title 17, California Code of Regulations, effective July 1999.
[7] Title 17, California Code of Regulations, effective July 1999.
[8] Health & Safety Code (AB 411, statutes of 1997)
[9] Title 17, California Code of Regulations, effective July 1999.
[10] Health & Safety Code (AB 411, statutes of 1997)

Survey Results:

1. It is clear from the above table, the RWQCBs surveyed do not use the same criteria for determining beaches or portion of beaches placed on 303(d) lists.
2. Only Region 4 uses bacterial standards and they are those established in the "Ocean Plan", not the standards established by DHS.
3. All 3 RWQCBs use postings/closures for determining impairment/loss of use and placing a beach on 303(d) list.
4. The source of the postings/closures data used by the RWQCBs is collected and compiled by the SWRCB from local environmental health agencies pursuant to its statutory authority.

Available Alternatives:

1. ~~RWQCBs~~ continue to interpret available data on a case-by-case basis and each region establishes its own criteria for listing.
2. ~~RWQCBs should~~ not use the number of postings/closures as criteria for listing.
3. A consistent value for the number of postings/closures should be established and consistently applied ~~by all coastal RWQCBs~~.
4. A consistent value for only the number of postings should be established as the criteria for listing.
5. A consistent value for only the number of closures should be established as the criteria for listing.

Discussion:

Postings occur when bacterial standards established by DHS at a beach monitoring station are exceeded. Postings are indicative of impaired water quality and the number of postings measures loss of beneficial use.

Environmental health agencies may also permanently post a beach at storm drain outlets either because they know, based on water quality monitoring, that the ocean water at the discharge will exceed bacterial standards or as a precautionary measure because the ocean water at the discharge may exceed bacterial standards. The latter action may not be based on water quality monitoring data.

The focus of 303(d) listing should be on chronic multi-source problems rather than event driven or single source problems. An excessive number of postings at storm drain discharges represent such a multi-source problem and the development of a TMDL is required to mitigate/abate the problem.

Closures due to sewage overflows/spills should not be a basis for listing because they are better addressed through other mechanisms, e.g., enforcement. In most instances, sewage overflows spills do not require the establishment of a TMDL to abate the problem.

RECOMMENDATION:

The Beach Water Quality Workgroup recommends that a consistent value for only the number postings should be established and consistently applied by all coastal RWQCBs.

2. BEACH POSTINGS AND CLOSURES

Issue 2.2: What numerical criteria should be applied to postings when used for determining beach impairment?

Background

See Beach Postings and Closures, Issue 1.

Available Alternatives

1. The Los Angeles Regional Water Quality Control Board sets the postings threshold for listing at >10% of the days/year, i.e., if a beach is posted more than 36 times in a year it is listed.

2. The Santa Ana RWQCB sets the postings threshold for listing at >6 days duration.

3. The San Diego RWQCB sets the postings threshold for listing at >10 days/year.

4. List the beach if the number of postings exceeds 4% of the days per year.

5. AB 538 uses a threshold of standards being exceeded any 3 weeks during a 4 week period, or if greater than weekly sampling, greater than 75% of the days in any month.

6. Do not use the frequency/duration of postings as listing criteria

Discussion

Beach closures are almost always due to sewage spills (required by AB 411). Since closures result from a single, known source event, they should not be used as a basis for listing because they can be more efficiently addressed through other mechanisms, e.g., enforcement. These events do not require a TMDL in order to address them in a regulatory manner.

The focus of 303(d) listing should be on chronic multi-source contamination problems rather than event driven or single source problems. The most efficient regulatory means available is through the development/establishment of a TMDL.

The frequency of the postings, i.e., the number of days a beach is posted is the preferred metric for establishing the threshold for 303(d) listing. Duration of a posting or closure is event orientated and reflects the magnitude of the episode. A single event may last for many days, but this duration may not signify a chronic problem. Frequency provides the basis for establishing a chronic problem.

The frequency's threshold for 303(d) listing should occur when the frequency of postings exceed that in areas minimally affect by human activities in wet years. The

Los Angeles RWQCB and the Southern California Coastal Waters Research Project[11] reviewed and analyzed water quality monitoring data from Santa Monica Bay when the RWQCB was developing the pathogen TMDL for the bay. Through modeling and empirical data analysis at Leo Carrillo State Beach, a watershed that is 98% undeveloped land (devoid of human activity), exceeded the AB 411 bacterial standards from 5 to 30 days during the year[12]. The number of days of exceedances in an undeveloped area is due to:

- What is naturally running off of land and the amount of wet weather during the given period.
- Random events, e.g., a bird dropping "floats by" as the sample is taken.
- Measurement and laboratory variations of results (documented by SCCWRP in bight 98 studies[13]).

Consequently, approximately 10% of the bacterial standard exceedances may constitute an expected background rate for exceedances of the established standards. The data included all samples collected at least weekly in both AB411 and non-AB 411 time periods and in both wet and dry weather. The United States Environmental Protection Agency recommends a threshold of 10% when no site-specific data is available.[14]

Not this simple

AB 411 requires ocean water monitoring by local environmental health agencies from April 1 through October 31 each year. Although many counties continue to monitor at their own expense during the non AB 411 period, some do not. Consequently, monitoring and beach posting activities may not be conducted during this wet weather period. Since the 10% threshold is based on year-round monitoring and posting, an adjustment in the threshold number of posting days is not only warranted but required.

why?

Monitoring data measuring ocean water quality in areas least impacted by human activity is lacking in most counties. The best available data to establish a background number for bacterial exceedances in ocean water during dry weather is found in the Bight '98 study. The study revealed that ocean water bacterial standards were exceeded in 4% of the samples collected on sandy, open beaches least affected by urban runoff discharges, etc[15].

seasonal 45th %

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[11] Weisberg, Steve, Executive Director, Southern California Coastal Waters Research Project; DeShazo, Renee, Los Angeles Regional Water Quality Control Board.

[12] 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

[13] Noble, Rachel, et al., Southern California Bight 1998 Regional Monitoring Program: I. Summer Shoreline Microbiology, Southern California Coastal Waters Research Project.

[14] United States Clean Water Act, Section 305(b).

[15] Noble, Rachel, et al., Ibid.

RECOMMENDATION:

The Beach Water Quality Workgroup recommends that a consistent value of 10% or 36.5 postings per year be the threshold for 303(d) listing and consistently applied ~~by all coastal RWQCBs~~.

Furthermore, the BWQW recommends that when monitoring is not conducted during the winter/wet weather months (non AB 411 periods), postings should not exceed 4% of the time period or 8.4 posting days during the AB 411 period[16].

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[16] The AB 411 period is approximately 210 days, and 4% of this number is 8.4 days.

2. BEACH POSTINGS AND CLOSURES

Issue 2.3: 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?

Background:

The 3 southern California RWQCBs currently use posting and closure data obtained from the SWRCB database in the following manner:

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	

Source of data	Region 4	Region 8	Region 9
Postings data	Most recent year	3 years	Most recent year
Raw Data	3 years	Not Used	Not Used

RWQCBs are supposed to develop a list of water quality limited segments for inclusion in the CWA Section 303(d) list every two years This review period however, has been extended to approximately every 3 years.

Alternatives Available:

1. Use the most recent 1-year period available.
2. Use the most recent period between reviews for 303(d) listing. Currently, this would be every three years.
3. Use some other agreed on time period.

Discussion:

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. There is general agreement that there is more dry-weather runoff from storm drains in years with above average rainfall (El Nino) than in below average rainfall (drought) years. Consequently, the participants agreed that the number of bacterial standard exceedances as measured by AB411 "postings" conducted by the local health agency 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.

Recommendation:

The BWQW recommends the following:

- The time period should begin with the last assessment or last "listing", and all postings grouped in 1-year periods to the current time, i.e., 2-3 years of posting data, should used in the assessment for 303(d) listing.
- ~~RWQCBs should be~~ allowed flexibility in the use of this time period when local knowledge warrants adjustments in the time period considered.
- ~~RWQCBs should be~~ allowed discretion in the process to take into account known changes in the watershed, e.g., the implementation of best management practices (BMPs) may have been introduced and implemented that resulted in water quality improvements.

2. BEACH POSTINGS AND CLOSURES

Issue 2.4: How should the data during the time period be viewed? Average the yearly data? 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?

Background

The 3 southern California RWQCBs currently use the following criteria:

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	

Source of data	Region 4	Region 8	Region 9
Postings data	Most recent year	3 years	Most recent year
Raw Data	3 years	Not used	Not used

RWQCBs review data and develop a list of water quality limited segments for inclusion in the CWA Section 303(d) for every reporting cycle. The 303(d) list is supposed to be updated every two years.Recently this review period however, has occurred every 3 years[17].

Alternatives Available[18]

1. Interpret available posting data[19] on a case-by-case basis.

[17] Did Craig J. Wilson say this at the first M&R meeting on 303(d) listings?

[18] All alternatives are in the context of using beach postings as the surrogate for water quality impairment, i.e., AB 411 standard exceedances, and loss of beneficial use. See "Beach Postings & Closures, Issue Bacterial Standards"

2. Establish a consistent numerical value (threshold) for the number of bacterial standard exceedances as measured by the number of AB 411 postings by local health agencies on a yearly basis to determine if a water body should be 303(d) listed.

3. List the water body when any one-year in the assessment period exceeds the posting/bacterial exceedances threshold of 36 days per year.

4. List the water body when any two years in the years of the assessment period exceeds the threshold of 36 day per year.

5. Average the number of yearly exceedances over the total assessment periodand list the water body if the average number of the exceedances per year exceeds the numerical threshold.

6. When one year exceeds the threshold or one year and the average exceeds the threshold place the water body in a special category that requires increased monitoring in order to increase the confidence level of the data.

7. Separate the posting data by seasons, i.e., use a winter time period (non AB 411 period vs. the AB 411 time period and establish a consistent value for each season to 303(d) list.

Discussion:

Note: For the purpose of discussion, the number of bacterial standard exceedances and the number of postings are synonymous.

It was previously agreed to that 303(d) listing should occur when the frequency of exceeding ~~the bacterial~~ standards (postings) is greater than the number of bacterial standard exceedances[20] (postings) in areas that are minimally affected by human activities (see Beach Postings and Closures, Issue 2).

Data for establishing background bacterial exceedances in most locals are lacking. Without necessary background data a standard for the number of ~~exceed~~edances based on some background percentage cannot be developed or justified on a local basis[21].

EPA, 305(b), recommends that an acceptable background number for bacterial standard exceedances is 10% of the calendar days used in the time period. This results in 36 days per year of bacterial standard exceedances (number of beach posting days) being the baseline for 303(d) listing.

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

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[19] SWRCB's beach posting and closure database.
[20] Postings is the preferred parameter but the beach least affected by human activity may not be monitored. In that cases raw bacteriological data may be used to establish the appropriate background number.
[21] Weisberg, Steve, Executive Director, Southern California Coastal Waters Research Project.

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 since rainstorms occur during the AB 411 period.

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 weekly monitoring is conducted, a single exceedance could trigger 303(d) listing since a beach may be posted for a period of 7 days before the next sample is taken.
3. The TMDL itself will take seasonality into consideration.

For the basis of a discussion, 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 yearly average for the 3-year assessment period, 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.[22])
- If using the highest 2 of the 3 years averaged, the beach is listed.

[22] Weisberg, Steve, Ibid.

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 when 2 of the 3 years exceed the 10% threshold for beach posting days/bacterial exceedances, the beach fails and is listed. Additionally, the participants in the initial discussion (April 9, 2002) agreed that if the average number per year of beach posting days/bacterial exceedances in the time period is greater than 10% (36.5 days), the beach/water body fails and is listed. In a later discussion (May 9, 2002), participants could not agree to list a water body if the average for the assessment period exceeded the 36.5 days/year threshold.

The question then turned to: ***What action is taken, if any, when one of the three years exceeds the 10% threshold for postings/bacterial exceedances? How will the average number of postings/bacterial exceedances per year be used?***

Participants, including RWQCB representatives, did not agree on what action should be taken when there is a single year that exceeds the threshold for postings/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 strengthening the confidence that listing is warranted.

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?*

It was argued that in order for the 303(d) listings to be comprehensive, all water bodies that appear to have water quality impaired segments requiring TMDLs should be listed. The other argument is that water bodies should not be listed until a real problem has been fully identified and there is a "high" level of confidence in the data. The philosophical difference stems from the repercussions that may occur 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.

Currently, it is "easy" to list a beach but very difficult to remove said beach from the list. The SWRCB[23] believes that there must be a high level of confidence in the data that is used to determine water quality impairments that eventually will require a TMDL to be developed in order to improve water quality. Since

[23] Wilson, Craig J., SWRCB Division of Water Quality.

TMDLs require a great deal of resources to develop and implement, it is the goal of the SWRCB to complete TMDLs that are most meaningful with respect to improving water quality.

Issue: How or which data should be used?

NEW SCENARIOS
POSTING DAYS

SCENARIO	# of Postings Year 1	# of Postings Year 2	# of Postings Year 3	Average for Period	303(d) List*
1	20	60	40	40	Yes
2	20	40	40	33	Yes
3	20	80	20	40	?
4	20	60	20	33	?

*** Participants agreed that scenarios 1 & 2 result in "Listing". Participants did not agree on scenarios 3 & 4.**

"Listing" results in the initiation of the TMDL process. How confident should we be of the "listing?"

OK

The majority of the participants did not believe the data in scenarios 3 and 4 supported the confidence level required to list the water bodies. More data is required to reach a suitable confidence level for listing. As a result, the majority of participants argued that more monitoring data was required and should be collected before the assessment is made.

The group supports the idea of a list for water bodies with uncertain information about whether or not they are water quality limited, a Monitoring Priorities List. Water bodies on this list require additional monitoring to make a decision re whether they are water quality limited. In these cases the group agreed that:

OK

- New data would be needed.
- Older comparable data would not be useful in making the determination because conditions in the watershed may have changed.
- The use of secondary criteria such as rainfall data or magnitude would also not provide sufficient information to make the determination.
- Frequency of monitoring might be increased, e.g., weekly to daily or 5x per week until the next 303(d) listing cycle.
- Where monitoring frequency remained the same, the new data would be reviewed in the next cycle.

It was suggested that the water body in scenarios 3 & 4 should be place on a Monitoring Priorities List (MPL). The Clean Water Act, Section 305(b) allows water body segments to be listed as partially supporting beneficial uses. The MPL list would not be part of the official 303(d) list transmittal but would be included in the information provided to EPA. The MPL would be placed in the state assessment of all water bodies.

The MPL provides the data necessary over a 6 year period to make an assessment that has the necessary level of confidence to list or not as the case may be.
Participants agreed that:

- If postings exceeded 36 days per year for 2 of the 3 years or 3 of the 6 years, "listing" was appropriate.
- If postings only exceeded 36 days per year once during the 6 years "listing" was not appropriate.
- If a water body is put on the MPL year round data would be required to be collected. In absence of year round data the water body segment would be moved to 303(d) list.
- For AB 411 monitoring only: If >4% and <10% posting days, the water body/beach is placed on the MPL

Recommendation:

The BWQW recommends the following:

- **Establish a consistent value (threshold) for the number of bacterial standard exceedances as measured by the number of AB 411 postings by local health agencies on a yearly basis to determine if a water body should be 303(d) listed.**

- **List the water body when any 2 of the 3 years in the assessment period exceed the 10% threshold for postings/bacterial exceedances.**

- **Listing is not appropriate if postings/bacterial exceedances only exceed the threshold of 36 days per year once during the current 3 year assessment period.**

- **A water body should be on a Monitoring Priority List, and increased monitoring is appropriate if the number of postings exceeds the threshold of 36 days per year for 1 of the 3 years.**

- **List a water body when postings exceed 36 days per year in 2 of the 3 years or once placed on the MPL 3 of the 6 years.**

- **Listing is not appropriate if postings only exceed 36 days per year once during the six years.**

- **"Rain advisory" days should not be counted towards the threshold (>10%) of postings/bacterial standard exceedances days. However, any routine monitoring results of samples taken during the time period should be used. (See Rain Advisories.)**

2. BEACH POSTINGS AND CLOSURES

Issue 2.5: 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?

How should permanent postings be calculated in determining ocean water impairment for 303(d) listing.

BACKGROUND

Local environmental health agencies post warning signs at the surf-zone area adjacent to stormdrain discharges permanently. This is done usually because the health agencies knows from monitoring data that when the drain discharges, the surf-zone bacterial levels will exceed AB 411 standards. The postings may occur automatically whenever the drain discharges (ephemeral flowing creeks and stormdrains) or the signs may be permanently posted at the discharge point of dry-weather flowing stormdrains. In some cases, warning signs remain posted at the discharge whether the drain is discharging or not. In many instances, the signs may be posted at the drains' discharges at a considerable distance from the surf-zone.

There is no provision in the AB 411 statute or regulations for "permanent" postings. The practice/policy of "permanent" posting was developed by some local health agencies prior to AB 411 and has remained a practice/policy of those agencies since the implementation of AB 411. In other instances, local health agencies that did not have ocean water monitoring and regulatory programs prior to AB 411 adopted the practice as part of their AB 411 program. Consequently, there is no standard or consistent approach used for "permanent" postings by local health agencies.

The Monitoring & Reporting Subcommittee of the Beach Water Quality Workgroup recommends that "permanent" postings should be based on monitoring data that shows the surf-zone bacterial levels exceeding AB 411 standards. If monitoring data is not available, but the warning signs are posted continuously because the local health agency believes the discharge into the surf-zone may cause the surf-zone ocean waters to exceed bacterial standards, then these postings should be called "precautionary".

The postings of signs along a creek or storm drain channel are not indicative of ocean water quality impairment or loss of ocean water beneficial uses. These postings may have an appropriate use for 303(d) listing a creek.

Available Alternatives:

1. Count "permanent" and "precautionary" postings as a loss of beneficial use for the entire year or posting period.

2. Count "permanent" postings only since they are based on monitoring data showing ocean water quality impairment. "Precautionary" postings would not be counted.

3. Base the posting count only on routine (AB 411) monitoring data and other monitoring data when incorporated into a health agencies AB 411 program, and disregard the practice of permanent/precautionary postings by local health agencies.

Discussion:

The permanent posting of a warning sign at the discharge of a creek or stormdrain into the surf-zone constitutes a loss of beneficial use, and if it is based on monitoring data, indicates water quality impairment. When the posting is precautionary in nature, i.e., warning signs are posted based on professional judgments of the local health agency that a discharge is contaminated. Precautionary postings may not necessarily constitute water quality impairment.

"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. Additionally, the SWRCB did not obtain said data from local health agencies and has not been incorporated into the SWRCB's data base[24].

Recommendation:

The Beach Water Quality Workgroup recommends that permanent postings, i.e., those based on water quality data, constitute both a loss of beneficial use and signify water quality impairment and should be counted as posting days when determining 303(d) listings.

Since the practice is not standardized or consistent among local health agencies, the local health agencies should assist in the determination of which "permanent" postings are truly contamination problems and deserving of TMDLs by differentiating between permanent and precautionary postings.

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[24] An effort is currently underway by the SWRCB staff to obtain this data from local health agencies back to 1999.

2. BEACH POSTINGS AND CLOSURES

Issue 2.6: Should "rain advisories" be used in determining posting days for a beach?

Background

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 adjacent to 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, and regardless of the fact that a "rain" advisory may have been issued.

Protocols developed by local health agencies for issuing "rain" advisories are not consistent from county to county, and there is a significant difference in even the amount of rainfall during a period of time that causes a "rain" advisory to be issued. Consequently, there is no consistency among counties with respect to issuing advisories and the number of "rain" advisories in the SWRCB data base do not have the same meaning from jurisdiction to jurisdiction. 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.

The RWQCBs represented at the discussions reported that they do not currently utilize "rain advisories" when considering 303(d) listing.

Available Alternatives:

1. ~~RWQCBs should~~ not use the number of "rain" advisories issued by local health agencies in determining 303(d) listings.

2. ~~RWQCBs should~~ use the number of "rain" advisories issued by local health agencies in determining 303(d) listings.

3. RWQCBs should use the number of "rain" advisories issued by local health agencies if water quality data is available during the rain event to support water quality impairment in determining 303(d) listings.

Discussion:

Storm water runoff in urban areas degrades ocean water quality. In large rainstorms, the magnitude of ocean water affected by runoff is quite extensive. Bacterial levels in

ocean waters become significantly elevated during these time periods[25]. If water quality data during rain advisories are not used, RWQCBs may be missing water quality impairments that really exist.

Weekly monitoring is required from April 1 through October 31 by AB 411. The local health agency cannot waive the collection of samples due to rainstorms. If conditions warrant, e.g., dangerous surf conditions, some agencies may change the collection day. If water quality does not meet DHS bacterial standards, the beach must be posted whether a rain advisory has been issued or not. As a result, these postings are as valid as postings during dry-weather periods. They constitute a failure to attain water quality objectives and loss ob beneficial use.

During the non-AB 411 period, when "rain" advisories are issued and no water monitoring occurs, water quality is unknown and cannot necessarily be considered impaired. In most of these cases, signs are not posted on the beach unless they are part of the permanent/precautionary posting protocol of the local jurisdiction (See permanent/precautionary postings.) The loss of beneficial use is probably not measurable with the issuance of a "rain" advisory alone.

Recommendation:

The BWQW recommends that "rain advisory" days should not be counted towards the threshold of bacterial standard exceedances/posting days. However, any routine monitoring results of samples taken during the time period whether or not they are collected during the AB 411 period should be used.

Regional Boards may have to use the raw data and will also have to eliminate non-routine aspects of the sampling data during the non-AB 411-time period.

why?

what's the rec.

[25] Noble, Rachel, Ibid.

3. LISTING ISSUES

Issue 3.1: What length of beach should be listed?

Background

There is currently no rule or standard regarding the length of beach to be listed. A bacterial monitoring station represents one data point. The three southern California RWQCBs did not describe the listing in a consistent manner.

303(d) listing guidelines currently used				
	Region 4	Region 8	Region 9	AB 538
Beach listed as:	**Beach name**	**Stretch of beach associated with sampling point**	**0.2 miles up and down coast of sampling point**	

Available Alternatives:

1. List as a beach name.
2. List as an area associated with the monitoring station or the source of impairment.
3. List as a consistent value associated with the source of impairment.

Discussion:

A TMDL must address the central source of the impairment, e.g., a storm drain discharge regardless of the length of beach involved.

The Monitoring & Reporting Subcommittee has recommended that monitoring stations be located 25 yards from the source of the impairment, e.g., storm drain discharge. When the bacterial standard(s) are exceeded, signs are routinely posted at 25 yards on each side of the source of the impairment. They can be seen for a distance of approximately 25 yards. Consequently, the loss of beneficial use is approximately 50 yards on each side of the source of impairment.

"Adaptive" sampling may be employed by some monitoring agencies when a monitoring station frequently exceeds bacterial standards in order to assess the area of beach impacted by the storm drain discharge. In these cases, signs are posted at a greater distance from the source discharge point. These distances are reported to SWRCB and are in the database.

In some cases, two monitoring stations may be linked by hydrological conditions. It may also be demonstrated[26] in the future that the amount of flow and its pattern from the discharge point can significantly increase the amount of beach affected by the discharge. In both of these cases the entire area affected should be listed.

[26] Currently, there is a study being conducted at two discharges into Santa Monica Bay that would try to model storm drain flows into the surf-zone.

Recommendation:

The BWQW recommends that exceedances at monitoring stations associated with storm drain discharges encompass 50 meters on each side of the discharge unless:

- **Adaptive sampling data are available indicating a broader length of beach is impaired by the discharge.**
- **Two adjacent monitoring stations are linked by hydrological conditions. In this case the beach segment between the stations is listed as well as the 50 meters on each side.**
- **Flow rates are known and indicate a broader length of beach is impaired by the discharge. Currently, no data exist providing criteria for this kind of finding and flow dispersal patterns may significantly differ from drain to drain preventing the use of such data in a meaningful manner.**

3. LISTING ISSUES: MONITORING DATA USED TO DETERMINE WATER QUALITY IMPAIRMENT

Issue 3.2: What are the data requirements/confidence levels in order to be used to determine water quality impairment/loss of beneficial use?

Background:

Ocean water quality monitoring is conducted by POTWs as part of the regulatory process to show compliance with the requirements of their NPDES permits[27]. Local public/environmental health jurisdictions conduct ocean water monitoring under a state mandate of the Health & Safety Code and the California Code of Regulations. State law mandates this monitoring from April 1 thru October 31 each year[28]. The data from these two sources are used by local health jurisdictions to determine public health risks associated with ocean water-contact and post beaches when they do not meet bacterial standards established by the Department of Health Services.

RWQCBs use data from dischargers per the requirements of NPDES permits to determine water quality impairments. RWQCBs also use data reported by local health jurisdictions to the SWRCB[29] to determine loss of beneficial use at beaches/water bodies.

Laws and regulations governing the above activities require that certified laboratories analyze the samples collected by the monitoring agencies and use approved laboratory techniques.

Some environmental groups collect and analyze samples. It has been reported that at least one RWQCB may use data from this source in determining water quality impairment. There is no process for certifying these groups.

There is no requirement/criteria for determining the distance from storm drain discharges that local health jurisdictions must use in establishing their monitoring stations. Monitoring stations used by POTWs is determined by RWQCBs in the permitting process.

Most local health jurisdictions' laboratories use defined substrate technology tests (Idexx kits) for bacterial analyses because they provide results in the shortest amount of time and are the most economical technique to use. This technology has been approved by the DHS. EPA has not approved the use of defined substrate technology kits thus requiring POTWs to use either multiple tube fermentation tests or measure bacteria by membrane filtration. The latter two laboratory techniques measure fecal coliform bacteria directly while Idexx kits

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[27] Federal Clean Water Act.
[28] AB 411, Statutes of 1997.
[29] California Water Code requires all local health jurisdictions to report the number of beach postings/closures monthly.

(Colilert) measures *E. coli* bacteria, a bacteria in the fecal coliform bacteria group. The number of *E. coli* measured is used directly as the number of fecal coliform bacteria in the sample.

Available Alternatives

1. Accept all data as reported by the agencies and environmental groups.
2. Accept only data from certified laboratories using approved techniques.
3. Accept bacterial data without adjustment for distance from source of contamination.
4. Establish adjustment criteria for distance from contamination source.
5. Accept *E. coli* counts as the fecal coliform count.
6. Make an adjustment to convert *E. coli* fecal coliform.
7. If the water body is monitored seasonally, should an adjustment be made in the threshold for standard exceedances/postings?

Discussion

The Monitoring & Reporting Subcommittee of the BWQW has recommended that monitoring stations be located 25 yards on each side of the source of the possible impairment. If baseline thresholds are developed from bacterial counts of samples collected in the wave wash at the discharge point, one could argue an adjustment should be made for dilution. At this time, however, science does not support a correction factor for the distance of the monitoring station from the source of contamination, e.g., storm drain outlet.

When the local health jurisdiction monitors only during the AB 411 period, April thru October, the threshold for standard exceedances/posting days should be adjusted since most of the wet-weather days have been removed. The Bight 98[30] summer study showed that approximately 4% of the sandy beaches without any source that might cause impairment exceeded bacterial standards. No other background data has been collected and analyzed.

It was demonstrated in a laboratory calibration study conducted as part of Bight 98[31], that *E. coli* levels as measured by Colilert, were comparable to the fecal coliform counts derived from membrane filter and multiple tube analyses.

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[30] Nobel, Rachel, Southern California Coastal Waters Research Project, 1999.
[31] Ibid.

Recommendation

The BWQW recommends the following:

- **A consistent distance should be established for monitoring stations from source of contamination. In the meantime, no adjustment should be made in the threshold due to distance and dilution.**

- **An adjustment of the *E.coli* counts as measured by Colilert to fecal coliform counts is not warranted.**

- **If the data is seasonally biased, an adjustment must be made in the number of exceedances allowed. (See 2.2, What numerical criteria should be applied to postings?)**

- **Data can only be accepted from an ELAP certified laboratory. If the laboratory is not certified, QA/QC must be approved.**

- **In order for the data to be used for "listing", it must be statistically significant (when sufficient data is available recommend 80% confidence level). If it is below the confidence level, the area in question should be placed on the monitoring priority list (see 2.4, Beach Postings and Closures).**

4. DELISTING 303(d) LISTED BEACHES

Issue: What criteria should be used to delist a beach/water body?

Background

The 3 southern California RWQCBs currently use the following criteria to remove a beach/water body from the 303(d) list:

- The San Diego RWQCB delists on the basis of raw data, not postings.
- The Santa Ana RWQCB delists if a TMDL has been established for the beach/source of contamination.
- The Los Angeles RWQCB delists using the same criteria as used for listing.

	State	San Diego	Santa Ana	Los Angeles
Cut-off Level	**Same as Listing Process**	**Same as Listing Process**		**Same as Listing Process**
Data Confidence	**Same as Listing Process**	**Use raw data**	**More data cycles**	**Same as Listing Process**
TMDL	**When Adopted**	**When Adopted**	**When adopted**	
Pro-Active Data Review		**If requested**	**If requested**	**Recheck every cycle.**

Available Alternatives

1. Delist using the same criteria that placed the beach/water body on the 303(d) list, i.e., when a waterbody does not meet the criteria for listing it is removed from the 303(d) list.
2. Delist a beach/water body only when a TMDL has been established to correct the water quality impairment.
3. Delist a beach/water body using the listing criteria for a time period of 6 years after the listing.
4. Delist a beach/water body using only raw data.
5. Reassess water quality impairment only after intervention, e.g., BMP initiated, has taken place.

Discussion

Delisting requires at least a similar level of confidence in the data that listed the water body.

The following scenario was presented:

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
40	40	40	20	20	20	20	20	20
		LIST			Remains listed			Delist
		LIST			DELIST			

An increased reassessment period, e.g., 3years extended to 6 years, increases the confidence level. An extended averaging period increases confidence.

what kind?

Options for Developing Criteria for Delisting

Option	# of days of Exceedances/Postings	# of years
1	Same as listing	3
2	Same as listing	6 include listing data years as part of delisting decision
3	More stringent than listing	3, ignoring listing data years

In the above scenario, the selection of option 1 delists the beach after 3 years of meeting water quality criteria. The selection of option 2 results in delisting after 6 years of meeting water quality criteria. Option 3 was totally rejected by the participants.

A significant majority of the participants selected option 1 as the most suitable criteria of delisting a beach/water body. Three "good" years results in delisting.

Option	# of days	# of years	Votes
1	Same as listing	3	11
2	Same as listing	6 include listing data years as part of delisting decision	2
3	More stringent than listing	3, ignoring listing data years	0

Recommendations

The BWQW recommends the following:

- **When there has been any intervention to improve water quality, e.g., BMPs have been instituted; reassess the water body using data beginning from the time of the intervention forward.**
- **Reassess the water body/beach after a 3-year time period, and if water quality/posting criteria are met, the water body/beach should be delisted.**