

AB 982 Public Advisory Group Regulated Caucus

September 24, 2004

Arthur G. Baggett, Chair
Members, State Water Resources Control Board
1001 "I" Street
Sacramento, CA 95814

Re: September, 2004 Draft "Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List"

Dear Chairman Baggett and Members of the Board:

We write to express our serious concerns about the direction that the State's long-anticipated "Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List" (Listing Policy) has taken over the last several months - - and especially since the September 8 Workshop, culminating in the proposed changes your Staff has made in the "September Draft" issued last week. We believe that the changes in the September Draft are unreasonable, create a substantial disincentive for cooperative "public-private" partnerships in addressing real water quality problems, and shift the Listing Policy even further toward an unbalanced and subjective approach to assessing water quality standards attainment. While we continue to have significant concerns about several aspects of the proposed policy, we support the use of the binomial method as sound balanced scientific policy that is technically appropriate and legally defensible.

We urge the State Board to reject the proposed changes reflected in the September Draft Policy, for the reasons outlined below.

- (1) **The State Board Should Maintain the Binomial Method as Proposed in the July Draft Policy.**

Much was made at the September 8 Workshop by members of the Environmental Caucus who claimed that the Binomial Method, as presented in the July Draft Policy, was illegal (because it was, *de facto*, a change to water quality standards), statistically unsound, and would make it easier to delist waters already on the impaired waters list.

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As you will recall, Professor Gary Lorden testified that, in his opinion, the Binomial Method presented in the July Draft Policy was statistically sound, objective, and very well balanced. No testimony was presented to controvert or challenge Dr. Lorden's opinions.

Nevertheless, dramatic changes were made to the Binomial Method provisions in the "September 2004" version of the Policy. Indeed, Table 3.1 now provides that (with respect to toxic pollutants), for sample sizes of between 2 and 24 data points, Regional Boards should *list* a water segment if the number of exceedances is two or more. Further, for delisting purposes, Table 4.1 has been changed to require a minimum sample size of 28 data points, yet there is no corresponding adjustment to the maximum number of exceedances that would trigger a delisting. Even more troubling, Sections 4.1 and 4.2 have been modified to provide that the binomial method cannot be used to support delisting with sample sizes of less than 28 and 26 for toxic and conventional pollutants, respectively.

- ***The September Draft Version of the Binomial Method Is No Longer Balanced, and Reflects a Bias In Favor of Listing Waters.***

We understand the temptation to simply "move the pegs" to make it easier to list waters for alleged impairment due to toxic pollutants. And clearly, the decision whether to "move the pegs" from three exceedances to two is a policy call that rests with the Board. However, by moving one of the pegs the *other way* - - requiring MORE samples for delisting of waters - - the statistical method no longer exhibits the "wonderful balance" that Dr. Lorden spoke so eloquently about earlier this month. Indeed, if the State Board wishes to "move the pegs" to make it easier to *list* for toxic pollutants, it must also "move the pegs" when it comes to delisting as well. Without making a parallel change, the Policy loses its balance and statistical objectivity. This argument is further, and better, presented in Dr. Lorden's letter dated September 24, 2004 on this very issue.

- ***The Binomial Method Presented in the July Draft Policy is Legally Sound.***

Concerns have been expressed as to whether the Policy's statistical approach for determining the existence of impairment constitutes an illegal modification to the State's water quality standards. Because the Policy's approach is a legitimate exercise of the State's judgment in determining when it can find, based on a limited data set, that a standard has been exceeded in a water segment, that exercise of judgment does not change the underlying standards, and therefore, the State does not need to follow the procedures for revision of standards in order to adopt the proposed statistical approach.

The FED for the Policy correctly points out that "[w]ater quality standards themselves are not changed by statistical analysis. Statistics test the validity of the sample and provides the numerical means to verify compliance based on imperfect and randomly variable

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sampling data." (FED at 155.) Thus, comments that point out differences between the statistical approach and the exceedance frequencies specified in standards (*i.e.*, once in three years for toxics) miss the point. Standards and statistical tests are two different things. Of course, the litmus test for determining if a water segment should be listed is whether the standard has been exceeded, and that analysis must incorporate consideration of any exceedance frequency that is specified in the standard. However, this is an entirely separate issue than the State's determination of how it will interpret limited data sets in deciding whether the standard has been exceeded at the given frequency. As stated in the FED, "sampling introduces variability, uncertainty, and the potential for error." (FED at 155.) It is up to the State to determine how best to address these issues, and the State's decision is not subject to EPA approval as a standards revision.

Particular issues have been raised as to the State's use of the proposed statistical approach as applied to toxic pollutants, in the comments of the Environmental Caucus that were filed on February 18 and August 25, 2004, and then stated again at the September 8 Workshop. The main basis for this concern is that the allowable frequency of exceedance in the CTR for toxics is once every three years on the average.¹ Therefore, they contend, if a water segment is found to exceed the standard twice or more in a three-year period, the water segment needs to be listed as impaired. The Environmental Caucus argues that use of the Policy's statistical approach is inconsistent with that listing criterion. However, close examination of the issues that have been raised shows that the State has not proposed a methodology that is inconsistent with its water quality standards, and that the challenges that have been raised are really questioning the State's judgment, not its legal authority, and are basically disagreements over the actual numeric levels that the State should use in performing its statistical analysis, not over whether it can use such an approach at all. Choice of the appropriate values to use in the assessment process is a technical issue, not a legal one, and is particularly within the purview of the State Board to make.

Among the claims that have been made regarding the State Board's statistical approach is an argument that the approach cannot be used on toxics, because "the FED provides absolutely no evidence to demonstrate that sampling data for the toxic chemicals on the CTR list are subject to variability, uncertainty and the potential for error." (Environmental Caucus February 18, 2004 Comments at 34.) While that statement might be true, it is irrelevant; sampling data for any chemical is necessarily subject to variability, uncertainty, and the potential for error, and we see no need for the Board to demonstrate that basic fact of environmental sampling. Moreover, the same comments that raise that point are themselves inconsistent on this issue, since they later argue that "there is an exceedingly small likelihood of wrongly detecting a CTR constituent in the water column." (Environmental Caucus February 18, 2004 Comments at 34.) If there is a chance, even "exceedingly small,"

¹ It should be noted that this once in three years average frequency of exceedance only applies to aquatic life criteria and is not part of the methodology used to derive the human health criteria, which assumes exposure over a lifetime (*i.e.*, 70 years.)

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of making a mistake, that would seem to reflect "potential for error." Note also that wrong detections are not the issue at hand here. The Policy's statistical approach is intended to address error in determining whether the pollutant levels are above or below the standard. The risk of error in properly quantifying those levels is much greater than the risk of error in simply detecting the pollutant.

In fact, variability of less than (+/-) 20% is usually considered acceptable for most standard water quality analytical procedures. That is, if one takes a sample and split it in half and analyzed both halves separately and the results for each were within 20% of each other, the results would be acceptable. For more difficult procedures, such as analyzing for low levels of dioxins, a variation of plus or minus 50% is often considered acceptable. What this means, in practice, is that even if one has a sample result that indicates the sample exceeded a given standard, it may not actually be the case that the concentration of the specific pollutant in the sample was **actually above** the standard itself - - it may have just been an (acceptable) error in the analysis.

Other concerns regarding the proposed statistical approach as applied to toxics were raised by EPA Region IX in its e-mail of June 24, 2003 (Region IX Comments, attached to the Environmental Caucus February 18, 2004 Comments as Appendix III.) However, the Region IX concerns raised are without a solid legal basis, and are inconsistent internally as well. For example, Region IX claims that the proposed binomial approach "does not meet federal requirements for assessing impairment associated with aquatic life use." (Region IX Comments at 92.) But the comments do not cite what Federal requirement is not being met. The requirement cannot be that the State must adopt "once in three years" in place of its statistical test for toxics, since the comments concede that EPA's own policies allow more flexibility:

"EPA recommends criteria development approaches to assess a 95% compliance rate for conventional pollutants and a more stringent rate for toxic pollutants of at least 95%, in the context of a binomial assessment method." (Region IX Comments at 91.)

EPA thus allows use of exceedance frequencies other than "once in three years" for toxic pollutants, even though the recurrence interval on which the standards is based is "once in three years on average." It seems, then, that EPA recognizes the difference between a recurrence interval in standards and a statistical approach used in making listing decisions, and understands that the two do not need to be identical. State use of a valid statistical approach that differs from the standards recurrence interval is not, then, inconsistent with the Clean Water Act, and EPA has no basis for telling the State what that statistical approach must look like, since there is no legal requirement for EPA approval of state listing methodologies. EPA can surely "recommend use of a simpler decision criterion," as it has done in its comments on the Policy (Region IX Comments at 92.), but EPA cannot mandate that the State follow that recommendation.

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Not only is the strict approach to listing that is recommended in the Region IX Comments not required by the Act; it is also inconsistent with the approach that EPA has followed in reviewing other State's listing decisions for toxics. In Florida, EPA followed the following process in assessing the State's 2002 listings for toxics:

"EPA carefully considered waterbodies with data related to toxic and non-conventional pollutants when reviewing Florida's section 303(d) list. In considering this data, EPA paid particular attention to the magnitude and duration of any exceedances, and also considered any compensating periods of time when no exceedances were observed.

* * *

In order to identify water quality limited segments, EPA looked closely at the data for each waterbody to first determine whether enough data existed in the past 7.5 years to conduct an assessment and then analyzed the information for trends, levels during critical conditions, magnitudes and frequency of any exceedances, or any other more site specific data or information which could include biological monitoring or water quantity & flow impacts to determine if there was sufficient evidence to conclude that the waterbody did not meet water quality standards. Specifically, EPA compared the data against the relative criteria at 62-302.530 F.A.C., as approved by EPA. Based on this review, if there were any uncertainty in the analysis, EPA asked FDEP for any additional information that might assist with determinations. Other information might include site specific activities conducted in the watershed, bioassessment conclusions, habitat investigation results, etc." (Decision Document Regarding Department of Environmental Protection's 303(d) List Amendment Submitted on October 1, 2002 and Subsequently Amended on May 12, 2003 (June 11, 2003) at 29-30.)

The analysis performed by EPA in reviewing the Florida list looked at several different factors, and various kinds of relevant information, to determine whether waters should be listed as impaired for toxics. That analysis went well beyond just checking to see if there were two or more exceedances in three years. But if the approach stated in the Region IX Comments were mandated, as stated in those comments, then the only relevant information for EPA to review, in assessing the Florida list, would have been the number of exceedances over three years and whether that number exceeded one. Therefore, the position taken in the Region IX Comments is not consistent with the official position of the Agency, as reflected in approval actions for other State 303(d) lists. That official position would allow States to make listing decisions based on valid statistical approaches that differ from the recurrence interval specified in standards, as long as there is sufficient rationale and information to support those listing decisions.

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The comments filed by the Environmental Caucus and by EPA Region IX also raised concerns as to use of the Policy's statistical approach for pollutants and parameters other than toxics. However, those concerns have even less basis than the issues raised as to toxics, since the recurrence interval specified in standards for non-toxics generally require many more exceedances than two in three years before the standard is exceeded. Indeed, while the Region IX Comments imply that EPA may not approve the Policy's approach, they do not actually state that the Policy's approach is legally invalid, focusing instead on whether the approach has been adequately explained:

"There is no comprehensive explanation of the binomial approach and the underlying decisions utilized by the state to determine relevance with current water quality standards.

* * *

The use of this exceedance rate [10%] in a binomial assessment method has not been shown to be protective of water quality nor consistent with water quality standards requirements." (Region IX Comments at 90-91.)

The implication of these Agency statements is that the State can legally use the proposed statistical approach, as long as it provides further justification for its choice. We recommend that the State Board supplement the FED with that additional explanation before finalizing the Policy.

- ***The Revisions to Sections 4.1 and 4.2 Are an Unreasonable Barrier to a Sound and Objective Review of the Entire Historical 303(d) List.***

Staff's recommended changes to Sections 4.1 and 4.2 in the September Draft would mandate that "the binomial distribution cannot be used to support a delisting with sample sizes less than" 28 for toxics and 26 for conventional or other pollutants. (September Draft Policy at A-12 and A-13.) This added language creates an unreasonable and unneeded barrier to reviewing the historical Section 303(d) List.

The language is unreasonable because, as most objective observers and participants in the Listing Policy development would agree, there are numerous cited instances where there is little or no credible data to support the historical listing. In these instances, it could take years and considerable financial resources to sample those listed water segments to qualify for delisting.

The added language is not needed because, even if a party seeks to have a water segment delisted (with limited or questionable data to justify the original listing), the Regional Boards have the discretion to maintain the listing via application of the "Situation-Specific Weight of Evidence Delisting Factor" criteria set forth in Section 4.11 of the Policy.

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Specifically, Staff has suggested adding to that section which provides that, "If warranted, a listing may be maintained if the weight of evidence indicates a water quality standard is not attained." (September Draft Policy at A-14.)

While the Regulated Caucus would prefer this sentence be deleted, we would have no objection to the State Board retaining this IF the additional provisions added to Section 4.1 and 4.2, noted above, are removed. In this way, Regional Boards would be afforded ample discretion to maintain a listing, even if a true application of the binomial method (e.g., required minimum number of samples for delisting) suggested that delisting was warranted.

(2) **Applying the Coastal Waters Bacteria Exceedance Frequency for Purposes of Listing Inland Waters is Inappropriate and Will Lead to Near-Blanket Listings of All Streams Due to the "Tributary Rule"**

The Regulated Caucus cannot support the proposed application of the coastal waters bacteria criteria to inland waters, as the proposed change is neither scientifically justified nor necessary under the Policy.

- ***Most Regional Board Basin Plans Have Not Been Updated to Reflect US EPA's 1986 Water Quality Criteria for Bacteria.***

Many of the bacteria water quality objectives contained in Regional Water Quality Control Plans have not been updated to reflect U.S. EPA's 1986 recommended water quality criteria for bacteria for *E. coli* and enterococci criteria. The Regional Water Quality Control Plans have also not been updated to specify an implementation program for such criteria as required by California Water Code section 13242, or as advised in U.S. EPA's draft *Implementation Guidance for Ambient Water Quality Criteria for Bacteria*.

Before determining if a water segment is impaired (i.e., exceeds water quality objectives), it is important to ensure that the water quality objectives are appropriate and reflective of human health risks and that the indicator organisms to determine such risks are used to evaluate water quality.

U.S. EPA recommended the use of *E. coli* and enterococci in 1986 based on epidemiological studies conducted before 1984. In its *Implementation Guidance*, U.S. EPA reaffirms the recommended use of these indicator organisms, based largely on the lack of any new scientific information or data that justifies a revision. However, even in its *Implementation Guidance*, U.S. EPA recognizes that new criteria may be necessary for the protection of recreation uses based on further epidemiological studies that evaluate new indicators and methods for determining human health risk from bacteria.

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Many of California's Regional Water Quality Control Plans still contain and rely on total and fecal coliform numeric water quality objectives instead of the U.S. EPA recommended *E. coli* and enterococci criteria. They have not been amended to reflect the 1986 recommendations and therefore contain inappropriate water quality objectives. Consequently, it is difficult for the Regulated Caucus to support a 303(d) listing policy that determines impairment based on outdated and inappropriate water quality objectives.

- ***Using the Four-Percent Exceedance Rate as a Listing Factor for Inland Waters is Scientifically Unsupportable.***

Both current and EPA-proposed bacteria objectives were based upon epidemiological studies that inferred an illness rate based upon observed exposures to bacteria levels. Nowhere in these epidemiological studies or in the development of associated water quality objectives is human health risk evaluated based upon the number of single sample exceedances (or with a 4% exceedance factor). In fact, use of a 4% exceedance factor would place an overly heavy reliance upon single samples, in direct contradiction to US EPA's most recent guidance on the implementation of bacteria water quality objectives.

This guidance (*Implementation Guidance for Ambient Water Quality Criteria for Bacteria*, USEPA, November 2003 draft) specifies that the 'single sample maximum' "was never intended to be a 'value not to be exceeded' and that "the most direct relationship between measurements of bacteria levels and risk level is the *geometric mean* of measurements taken over the course of a recreation season" (p. 10, emphasis added.) As indicated in the EPA guidance, it is highly unlikely that a low fraction of single sample exceedances would correspond either to long-term geometric mean bacteria concentrations or risks to human health. (In fact, it is unlikely that only 4% of single samples exceeding objectives would correspond to a violation of longer-term geometric mean bacteria levels.) Use of the 4-percent factor ignores the scientific studies that correlate bacteria levels to human health risks and results in much more stringent, and scientifically unsupportable, requirements for water quality standards attainment.

- ***Using the Four-Percent Exceedance Rate as a Listing Factor for Inland Waters Will Lead to Near-Blanket Listings of Inland Streams Throughout California.***

Many of the inland water contact recreation beneficial use designations are designated or derived from the application of the tributary rule. For example, agricultural drains, storm drains and effluent dominated waterbodies in the Central Valley have been "designated" as having a contact recreational use due to the designation on a downstream mainstem river. If the Listing Policy is expanded as is being recommended and advocated, these types of water bodies may be listed as impaired for bacteria even though they are not

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actually used by the public as a recreational body of water and therefore pose no threat to human health.

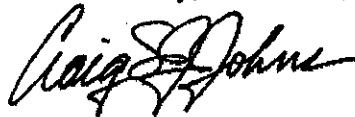
Note that downstream beneficial uses would still require protection – *i.e.*, water quality standards would have to be met where contact recreation actually occurs – but it is likely unnecessary that bacteria objectives would have to be met in the upstream, tributary water bodies for this to occur. Such an expansion would greatly increase the state's burden to prepare TMDLs (and the regulated community's burden to comply) without providing any real benefit or protection to human health. The state's limited resources for TMDL development should be better spent on actual water quality impairments and not contrived impairments resulting from the application of a listing factor that has not been adequately analyzed nor carefully thought through.

- ***The Situation-Specific Weight of Evidence Listing Factor is Sufficient to Address Bacteria Concerns for Inland Waters with Large Recreational Contact Use.***

If the reason for expansion of the policy is allow for the listing of impairment for inland lakes, reservoirs and rivers that actually do have a large contact recreational use in the summer months (April 1 through October 31), then the SWRCB and/or Regional Water Quality Control Boards may utilize the **Situation-Specific Weight of Evidence Listing Factor** (Section 3.1.11) to list such water segments. It is not necessary to expand the four percent exceedance factor that currently applies just to beaches to all inland waters.

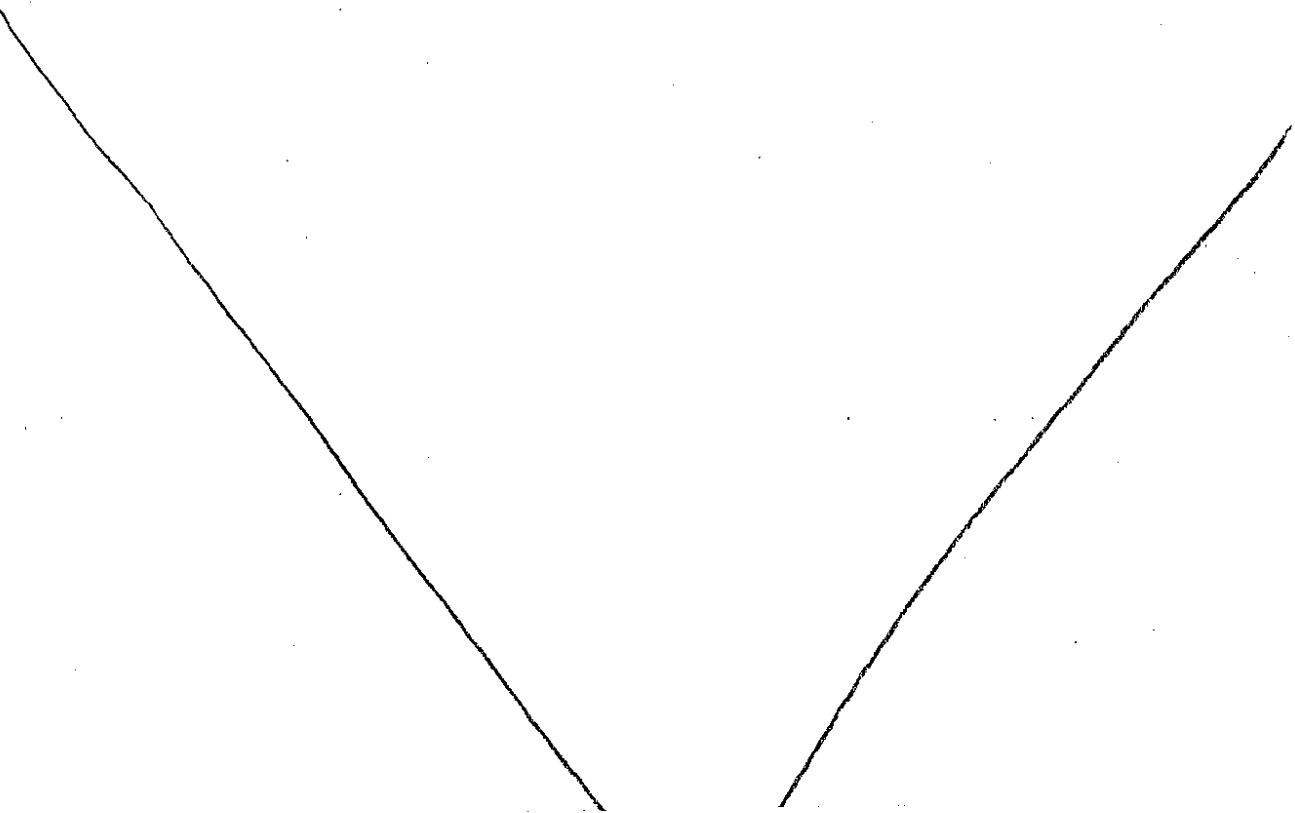
For the reasons above, the Twenty-Four Members and Alternates of the Public Advisory Group's Regulated Caucus urge the State Board to **reject** the proposed changes reflected in the September Draft Policy. Thank you for the opportunity to provide these additional comments.

Sincerely,



Craig S.J. Johns
Co-Chair, Regulated Caucus

cc: Craig J. Wilson, SWRCB
Linda Sheehan, Co-Chair, Environmental Caucus
Members, Regulated Caucus



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