

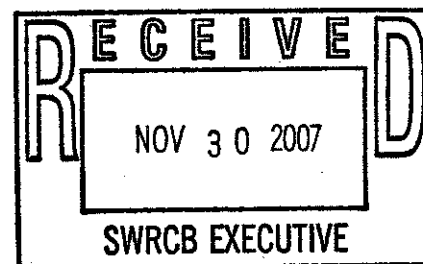


BAYKEEPER.

*Defending Our Waters—from the
High Sierra to the Golden Gate*

November 30, 2007

Ms. Tam Doduc, Chair, and Board Members
State Water Resources Control Board
1001 I Street, P.O. Box 100
Sacramento, CA 95814



Submitted via electronic mail to commentletters@waterboards.ca.gov.

Re: Comment Letter regarding Draft Plan Sediment Quality Objectives

Dear Chair Doduc and State Board Members:

On behalf of San Francisco Baykeeper ("Baykeeper") and our members, thank you for accepting these comments on the Proposed Water Quality Control Plan for Enclosed Bays and Estuaries of California, Sediment Quality Objectives ("SQO Plan"). Please note that we support and incorporate by reference San Diego Coastkeeper's comments on this SQO Plan as well as those we submitted on November 28, 2006 on the SQO California Environmental Quality Act ("CEQA") scoping documents. While our comments today do not reiterate many of the issues raised in our previous comments, we have not abandoned them. Rather, in the interests of brevity, we have chosen not to restate them here. We sincerely hope that the State Board will carefully consider and address all of the outstanding issues raised in our previous comments, a copy of which is attached.

We appreciate the time and effort that the staff of the State Water Quality Control Board ("State Board") dedicated to developing this Plan. It has been a long process and we understand that developing objectives to protect sediment quality is a complex task with a great deal of uncertainty. Staff's attempts to create a plan that is scientifically sound and that minimizes bias are recognized and much appreciated. We remain concerned, however, that the SQO Plan is overly complex, provides the Regional Water Quality Control Boards ("Regional Boards") with too much discretion, and fails to afford adequate protection for either the ecosystems that depend on California's waters or human health.



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As set forth in more detail below, the Plan presents a number of concerns which must be addressed in order for the SQO Plan to accomplish the legislature's intent that this Plan "provide maximum protection for existing and future beneficial uses of bay and estuarine waters."¹

- The SQO Plan must create a clear and protective line for classifying sediments as degraded;
- The Plan's target receptors are too narrowly defined;
- The Plan fails to require analysis of common and important pollutants;
- Clear triggers for clean up and remedial actions are needed;
- Prioritization of follow up actions for degraded sites must be clarified;
- SQOs should apply to the entire biologically active layer;
- The stressor identification process is too vague; and,
- The Plan should state whether SQOs will apply to dredged materials.

A. The SQO Plan fails to create a clear and protective line for classifying sediments as degraded.

As we have previously stated, the SQO Plan should clearly articulate which of the six impact categories will be considered degraded. Unfortunately, the proposed Plan lacks the necessary clarity because it provides the Regional Boards with a loophole by which they may potentially exclude a substantial number of sites in California. The Staff Report recommends that any site that falls into the 'Unimpacted' and 'Likely Unimpacted' categories would be considered protected.² Presumably, then, all other categories would be considered degraded. Appendix A, however, states that a Regional Board may designate the category 'Possibly Impacted' as protected if "studies demonstrate that the combination of effects and exposure measures are not responding to toxic pollutants in sediments."³ It is unclear from this text what studies must be done to justify classifying any site in 'Possibly Impacted' as protected. The Plan must provide clear and sound guidance on what tests must be undertaken before a 'Possibly Impacted' site can be re-categorized as protected.

We find this loophole worrisome. A clear, firm line between protected and degraded is essential for the SQO program to be effective. According to the document that evaluated the current state of California's bays and estuaries, 63% of tested sites fall into this currently discretionary category⁴. This loophole creates too much uncertainty

¹ See. Cal. Water Code § 13390,

² State Water Resources Control Board. 2007. Draft Staff Report Water Quality Control Plan for Enclosed Bays and Estuaries, September 27, 2007. at p. 39.

³ State Water Resources Control Board. 2007. Appendix A Draft Staff Report Water Quality Control Plan for Enclosed Bays and Estuaries, September 27, 2007, p. 17.

⁴ Barnett et al. 2007. Sediment Quality in California Bays and Estuaries. Draft Final Report. SCCWRP. September 2007 Technical Report.

and vests the Regional Boards with too much discretion. If a site is 'Possibly', 'Likely', or 'Clearly Impacted', it should be considered degraded and undergo stressor identification.

Furthermore, the policy documents do not clearly state whether the 'Inconclusive' category is considered degraded or protected, and whether any actions are to be taken when a site falls into this category. It may be a rare occurrence for a site to be considered 'Inconclusive'. However, that is not sufficient justification for not providing guidance on what to do when a site is determined to be inconclusive.

B. Target receptors are too narrowly defined.

In promulgating legislation requiring the Bay Protection and Toxic Hot Spots program, the legislature specifically required that the programs established protect all "existing and future" beneficial uses.⁵⁶ Additionally, the Water Code requires that the SQOs "provide adequate protection for the most sensitive aquatic organisms."⁷ To ensure that SQOs provide the required level of protection, they must (1) protect all beneficial uses and (2) address the indirect effects of sediment quality.

1. SQOs must protect all beneficial uses.

The short list of beneficial uses and receptors in Appendix A eliminates key beneficial uses of bays and estuaries.⁸ Specifically, the following beneficial uses have been excluded from SQO protection:

- Industrial Service Supply
- Navigation
- Water Contact Recreation (1)
- Non-contact Water Recreation (2)
- Preservation of Biological Habitats of Special Significance
- Rare Threatened or Endangered Species
- Migration of Aquatic Organism
- Spawning, Reproduction and/or Early Development

The justifications offered for excluding these beneficial uses—that there has to be a clear relationship between pollutants and sediments and there must be robust indicators to measure risk to that beneficial use—do not sufficiently justify the exclusion of some beneficial uses. While some of the excluded beneficial uses clearly do not meet the criteria (e.g. industrial service supply and navigation), others clearly do. For example, Areas of Biological Significance, Rare, Threatened and Endangered Species, Migration

⁶ Cal. Water Code § 13390.

⁷ California Water Code Section 13392.6.

⁸ State Water Resources Control Board. 2007. Appendix A Draft Staff Report Water Quality Control Plan for Enclosed Bays and Estuaries, September 27, 2007, p. 17.

of Aquatic Organisms, and Spawning, Reproduction, and/or Early Development, are all clearly impacted by contaminated sediments. That it is difficult to create an index to measure these beneficial uses is not a sufficient reason to exclude the beneficial use. The adopted SQO must protect all of those beneficial uses listed in Table 2.1.

2. SQOs must address indirect effects.

The Staff Report currently only addresses direct effects to sediment dwelling benthic organisms and indirect effects on human health. This is an unacceptably low level of protection: SQOs should address the indirect effects of sediment quality on all aquatic organisms and incorporate important issues such as bioaccumulation and biomagnification of sediment-related contaminants. These indirect effects should be addressed through inclusion of an objective that prohibits pollutants in sediments at levels that will bioaccumulate in aquatic life to levels that are harmful to fish or wildlife.

While we understand that indirect effects are complex, for any SQO program to be protective of all beneficial uses of bays and estuaries, it must consider the risk that contaminated sediments pose to all organisms that rely upon or use our bays and estuaries, not just benthic invertebrates and humans. California law requires that SQOs "provide adequate protection for the most sensitive aquatic organisms."⁹ The CEQA scoping document, section 2.7, explicitly acknowledges that "[f]ish are an important receptor that can be affected by pollutants in sediments and pollutants that bioaccumulate up the food chain."¹⁰ We strongly encourage the State Board address the indirect effects of sediment quality on wildlife by creating a sediment quality objective that protects all organisms. If necessary, this objective could be established in Phase 2 provided that language in the current plan that reflects this intent.

C. The Plan fails to require analysis of common and important pollutants.

Water Code § 13392.6 requires "the adoption of sediment quality objectives for toxic pollutants that have been identified in known or suspected toxic hot spots and for toxic pollutants that have been identified by the state board or a regional board as a pollutant of concern." The list of analytes in Attachment A, however, omits trace metals that have been measured in sediments and often found at contaminated sites. For example, silver, aluminum, chromium, iron, and nickel, have been measured in San Francisco Bay sediments^{11,12} and methylmercury is known to be a major concern, yet all of these

⁹ Cal. Water Code § 13392.6.

¹⁰ *CEQA Scoping Meeting Informational Document, Development of Sediment Quality Objectives for Enclosed Bays and Estuaries.*, p. 11.

¹¹ Hornberger, M.I., et al. 1999. Historical trends of metals in the sediments of San Francisco Bay, California. *Marine Chemistry* 64: 39 – 55.

analytes are excluded from the list. The documents do not currently give sufficient justification for why the list is so limited.

While the document acknowledges that permittees could include other analytes, including those that are emerging concerns, this policy should go further. Analytes that are already regularly measured in sediments (such as trace metals) or those known to be of emerging concern (like pyrethroids, PFOs, or PBDEs) should be specifically listed in the SQO Plan.

D. Clear triggers for clean up and remedial actions are needed.

Neither the SQO Plan nor the Staff Report provides any guidance on what, if any, clean up actions should occur when a site is determined to be degraded. Instead, the SQO Plan makes action by the Regional Boards entirely discretionary. The ultimate purpose of the SQOs is to stimulate remedial action, not merely identify contaminated sites. The SQO Plan must provide clear instructions about clean up actions or how the SQOs will fit into a TMDL process. Failure to include such direction in the SQO Plan will not only undermine the fundamental goal of SQO development, it is likely to foster inconsistent application across Regional Boards and amongst dischargers. In general, the Plan lacks sufficient implementation detail.

E. Clarify how degraded sites will be prioritized for follow up action.

The SQO Plan describes a complex framework of categories that reflect levels of impact and exposure that are intended to establish whether a site is degraded. It does not, however, include any framework for ranking sites for remedial action or clean up and establishing schedules for that cleanup. At a minimum, the SQO Plan and staff report should provide guidance to the Regional Boards on how the information created in determining whether sites are degraded should be used to identify and prioritize remedial actions.

F. SQOs should apply to the entire biologically active layer.

We are concerned that the proposed SQO Plan applies only to the top two centimeters of sediment. Examining only the top layer of sediment does not provide sufficient insight into the ecological health of a water body. The biologically active layer is well known to be deeper than two centimeters – this is even stated clearly in the introduction to the

¹² Luoma, S. et al. 1990. Temporally intensive study of trace metals in sediments and bivalves from a large river-estuarine system: Suisun Bay/Delta in San Francisco Bay. *The Science of the Total Environment*, 97/98: 685-712.

Staff Report ("The fraction that remains and eventually settles forms the sediment's surface, a layer (5 – 20 cm) of high physical, chemical, and biological activity. Most of the benthic infauna resides in this surface layer."¹³). In fact, some species, such as the Bay Ghost Shrimp (*Neotrypaea californiensis*) can burrow at least 75 cm into the sediments. Sediments can be dynamic and can move and be buried due to a single storm event. The State Board should ensure that SQOs apply to the entire biologically active layer. At a minimum, the SQO Plan should clearly articulate the rationale for selecting a particular depth.

Furthermore, the recommended method for collecting benthic community samples (grab samples) will collect sediment below two centimeters. Are the additional sediments supposed to be removed? Water Board Staff need to either properly justify why SQOs only apply to a segment of the sediments that is smaller than their own definition of biologically active layer or extend the depth to which the SQOs will apply to be *at least* consistent with their own definition.

G. The stressor identification process is too vague.

The stressor identification process outlined in Appendix A, Section F should identify what tests a permittee or other party must undertake. As currently written, it is unclear whether all the listed tests are required or just a subset. If only a subset of tests are required, how that is subset determined? It is important to note that the tests listed are not equal in their power to discriminate stressors (TIE vs spatial extent) so, unless all tests are required, the policy should provide guidance on what tests must be conducted and under what circumstances. While we recognize that stressor identification is a relatively 'young' science and somewhat poorly understood, it is important that permittees are required to use the most robust stressor identification tests available, that they are required to complete such identifications in a timely manner and that listing of a water body is NOT contingent upon the completion of stressor identification.

H. The Plan should state whether SQOs will apply to dredged materials.

As it is currently written, both the Staff Report and Appendix A fail to clearly explain the relationship of SQOs to dredged material. If the SQOs are intended to apply to dredged material, then the Plan should state this explicitly. If they are not applicable, then staff must clearly and thoroughly articulate the rationale for excluding dredged material.

Finally, we note that this Plan is hampered by its own complexity. Its clarity and usefulness would be enhanced if it were to contain a decision tree and/or flowchart

¹³ SWRCB 2007. Draft Staff Report Water Quality Control Plan for Enclosed Bays and Estuaries. Part 1. Sediment Quality. P 8

showing the process envisioned from collecting samples, to determining categories of impairment, to potentially listing sites and developing TMDLs. The documents currently available do not adequately explain or demonstrate how each step is interrelated and how one proceeds from sampling to remedial action.

* * *

Thank you for your consideration of these comments. We look forward to answering any questions you may have.

Sincerely,

Jen Kovecses, Staff Scientist

Sejal Choksi, Baykeeper and Program Director

November 28, 2006

Ms. Tam Doduc, Chair and Board Members
State Water Resources Control Board
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Via Email: commentletters@waterboards.ca.gov

Re: Comments CEQA Scoping Document for Development of Sediment Quality Objectives for Enclosed Bays and Estuaries

Dear Chair Doduc and State Board Members:

On behalf of the undersigned groups we submit comments on the scoping document for development of sediment quality objectives (SQOs) for enclosed bays and estuaries (scoping document) and the Preliminary Draft Plan for SQOs for Enclosed Bays and Estuaries (the "SQO Plan"). These groups, individually and collectively, have a keen interest in seeing sediment standards established for California's bays and estuaries that are protective of human health and the ecosystem. We hope these standards will serve as the foundation for addressing some of the severe contamination problems confronting our waters and stand as a bulwark against repeating the kinds of mistakes that have led to this widespread contamination.

I. Introduction

A. General Comments

State Board staff has worked hard to produce the draft plan and scoping document, and we would like to express our appreciation for their time and effort. The documents represent a useful starting point for the creation of a protective SQO policy. We understand that this is a very preliminary draft of the SQO Plan and a number of key elements of the plan have not yet been specified, nevertheless, we offer these comments and suggestions in the hope that a more protective and effective SQO Plan will ultimately be adopted.

As currently written the SQO Plan is not an effective safeguard of either human health or the ecosystems that depend on these waters. In general, the Plan is very subjective and will likely not lead to contaminated sediment remediation. The Plan is biased towards inaction and contains a wide variety of policy flaws and technical shortcomings. If adopted today as written we could not support it and would likely seek to challenge the legal deficiencies of the draft SQO Plan in court. As such, the State Board should reconsider the approach taken thus far.

For a SQO policy to succeed in protecting our bays and estuaries, it must meet several basic criteria. These criteria may also be found, explicitly in most cases, in the authorizing legislation which created the Bay Protection and Toxic Hot Spots program. Water Code section 13390 et seq. First, the objectives must be broadly written. Second, the policy should be precautionary and conservative with respect to human health and environmental degradation. Third, the policy must lead directly to management actions that will result in clean up of contaminated sediments including effluent limits in permits, impairment listings under the section 303(d) of the Clean Water Act, and clean up orders issued by Regional Boards. Finally, the policy must be transparent and straightforward to implement. As set forth in detail below, a variety of changes need to be made to the State Board's current approach in order for these criteria to be met such as:

- The SQOs must protect all sediments in our bays and estuaries and all of the beneficial uses of those waters.
- The implementation of the objectives should reach all chemical constituents of concern and should recognize toxicity to be a pollutant in its own right.

- The Policy must include an explicit margin of safety.
- Implementation should make management decisions easier rather than more difficult.
- Permits for discharges of pollutants of concern should contain effluent limits.
- Numeric objectives should be developed for all legs of the triad.
- The List of chemicals in Appendix A should be expanded to include all chemicals of concern.
- A Single Line of Evidence should be considered on its own merit, when magnitudes are great.
- Monitoring requirements should assess data from diverse sources.

B. Flawed Stakeholder Process Should Not Legitimize Draft SQO Plan

A large amount of the State Water Board budget allocated to SQO development was spent on a cumbersome and unwieldy "stakeholder" process. These stakeholder groups were dominated by the regulated community and failed to achieve any meaningful consensus among the stakeholders because they marginalized the voices of the public health and environmental community. The "stakeholder" process should not now be used to legitimize, to any degree, the decisions contained in the draft plan.

The draft plan and scoping document produced in close collaboration with the Advisory Committee in large measure reflect the desires of the participants from the regulated community. Several of the signatories to this letter actively participated in the Advisory Committee. Environmental Stakeholders in San Diego (Sierra Club, San Diego Chapter; Santa Diego Baykeeper; and Environmental Health Coalition) participated for over two years in the hope of assisting in the development of protective sediment quality objectives. Until May 2006 the participating groups attended committee meetings and provided input on issues such as the development of numeric objectives and a thorough health risk assessment analysis as envisioned by the Porter-Cologne Act. Unfortunately, the participating environmental organizations chose to resign from the Committee when it became clear that their concerns were largely being ignored by staff and the committee. Please see the group resignation letter attached hereto as Exhibit A. We urge you accord the outcomes of this flawed process little deference. In the scoping workshops staff have pointed to or relied upon the "direction" provided by the Advisory Committee as a justification for policy choices and technical decisions represented in the Draft SQO Plan. We strongly reject these justifications.

Stakeholders in the Los Angeles region attempted to develop SQOs to address contaminated sediments in San Pedro Bay and Santa Monica Bay. However after over eight years of negotiations, the groups failed to set any objectives. This long, unsuccessful process demonstrated that it is extremely difficult, if not impossible, to have a consensus-based approach to developing numeric SQOs. Again this difficulty is seen through the State Board's attempt to pursue a stakeholder process. Thus, the State Board should take the lead in setting numeric SQOs no matter how difficult the process may be.

II. The SQO Plan Must Have Broad Applicability and Scope

A. The Scoping Document Unnecessarily and Without Authority Narrows the Goals of the SQOs and Reduces the Protection They Will Provide.

One of the root causes of many of the shortcomings in the Draft SQO Plan is a flawed articulation of the goals for the SQO program. The goals identified by staff are set forth in Section 1.5 of the scoping document. These goals represent a substantial narrowing of the statutory goals for the program. The scoping document articulates the goals of the program as:

- Establish narrative receptor-specific SQOs.
- Establish a condition that is considered protective for each targeted receptor.
- Develop, refine, and validate the tools so that the condition of each station can be measured relative to the protected condition.
- Build a regulatory framework around these tools to promote the protection of sediment quality related beneficial uses.

We find no statutory support for goals articulated so narrowly. The goals of the program are properly found in Water Code section 13390 which states:

It is the intent of the Legislature that the state board and the regional boards establish programs that provide maximum protection for existing and future beneficial uses of bay and estuarine waters, and that these programs include a plan for remedial action at toxic hot spots.

We specifically call your attention to the language "... maximum protection for existing and future beneficial uses. . ." Further the statute defines a "Sediment quality objective" to mean "that level of a constituent in sediment which is established with an adequate margin of safety, for the reasonable protection of the beneficial uses of water or the prevention of nuisances."

Section 13390 further states:

It is also the intent of the Legislature that these programs further compliance with federal law pertaining to the identification of waters where the protection and propagation of shellfish, fish, and wildlife are threatened by toxic pollutants and contribute to the development of effective strategies to control these pollutants.

As you can see the statutory goals are much broader than those articulated in the policy. We draw several conclusions from the comparison of this language:

- The statute requires SQOs written to protect ALL "existing and future" beneficial uses not just SQOs narrowly constructed around convenient receptors.
- The statute contemplates a numeric sediment chemistry objective rather than a "narrative" objective."
- We find no support for the restriction of SQO applicability to monitoring "stations". While we support robust regional monitoring (including regular monitoring of specific stations), the SQOs must protect all sediments in bays and estuaries whether or not they are proximate to a station included in a monitoring program.
- The Draft SQO Plan completely omits the statutory imperative to achieve "remedial actions" that will ultimately redress harmful contamination problems.

We suggest the goals of the program in Section be revised as follows:

- Establish SQOs that protect all existing and future beneficial uses of California's bays and estuaries.
- Develop, refine, and validate implementation tools so that the condition of the sediments throughout each water body can be compared to the applicable SQO.
- Build a regulatory framework that is well integrated with other programs, promotes effective strategies to control sediment contamination, and will directly result in remedial actions, including but not limited to cleanups, enforcement actions, TMDL development, and new or revised permit limitations when SQOs are not attained.

¹ We recognize that an effective policy may require the implementation to focus on the most sensitive receptors but if a non-numeric narrative objective is employed the language of the objective itself should not be limited to specific receptors.

B. Document Deals Inappropriately with Geographic Limitations

The SQO Plan specifies that "[t]he Plan does not apply to ocean waters including Monterey Bay, Santa Monica Bay, or inland surface waters." SQO Plan at 37. However as highlighted below, the Water Code includes Santa Monica Bay and Monterey Bay for the purposes of "...identifying, characterizing, and ranking toxic hot spots..." A major goal of the State Board's effort to develop SQOs is to identify and characterize toxic hot spots. Thus, it is inappropriate to entirely exclude these Bays from this process as many contaminated areas are known to exist in these Bays. For instance, there are major hot spots in Ballona Creek and Marina del Rey, and Santa Monica Bay contains the worst DDT hotspot in the country. Santa Monica Bay has arguably the most well studied sediments in the State. Thus in order to appropriately prioritize remedial actions, these Bays should be considered in the development of SQOs.

Section 13391.5(a), emphasis added

The definitions in this section govern the construction of this chapter.

(a) "Enclosed bays" means indentations along the coast which enclose an area of oceanic water within distinct headlands or harbor works. "Enclosed bays" include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay.

"Enclosed bays" include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. **For the purposes of identifying, characterizing, and ranking toxic hot spots pursuant to this chapter, Monterey Bay and Santa Monica Bay shall also be considered to be enclosed bays.**

C. The Proposed List of Beneficial Uses is Incomplete

The Water Code requires the state and regional water boards to protect all existing and future beneficial uses of a water body.² In addition, the statute requires that the SQOs "provide adequate protection for the most sensitive aquatic organisms."³ The short list of beneficial uses and receptors at Table 3.1 does not accomplish this.⁴ In fact, the document acknowledges that the draft SQOs will not protect all beneficial uses that may be impacted by pollutants in sediment.⁵ The adopted SQO must protect all of those beneficial uses listed in Table 2.1 plus others. We are particularly shocked that the "Rare Threatened or Endangered Species" use has been excluded. The following have been excluded from SQO protection:

- Industrial Service Supply
- Municipal
- Water Contact Recreation (1)
- Non-contact Water Recreation (2)
- Preservation of Biological Habitats of Special Significance
- Rare Threatened or Endangered Species
- Migration of Aquatic Organism
- Spawning, Reproduction and/or Early Development

In addition, two key beneficial uses of our bays and estuaries are not considered for inclusion at all: "Subsistence Fishing" and "Traditional and Cultural Practices". In 2005, there were over 1 million

² California Water Code Section 13390 and CEQA Scoping Meeting Informational Document, Development of Sediment Quality Objectives for Enclosed Bays and Estuaries, Section 2.6, p.9

³ California Water Code Section 13392.6.

⁴ CEQA Scoping Meeting Informational Document, Development of Sediment Quality Objectives for Enclosed Bays and Estuaries, n 3 A., p. 40

⁵ Id, Section 2.6, p. 9

"angler trips" made from a man made structure in California.⁶ Of note, California Department of Fish and Game does not require fishing licenses for fishing from man made structures because they assume that the majority of these anglers are subsistence fishermen. Also, Koreans and Pacific Islanders are examples of ethnic groups who rely on fish from these inland marine areas in their traditional and cultural practices. Thus, these two beneficial uses should likewise be protected by the objectives. Substantial time and efforts were taken to bring this information to the Advisory Committee. We are frustrated not to see it reflected in the scoping document.

The scoping document chooses which beneficial uses to protect by selecting those uses that are easily assessed through the proposed SQOs. This selective approach works backwards. In order to protect all beneficial uses, robust and easily interpreted SQOs must be chosen. In contrast, the chosen approach was to develop SQOs that are not necessarily indicative of sediment quality and then figure out what beneficial uses they could be used to protect.

We believe many of the excluded uses, such as Industrial Service Supply and Recreation, will likely be adequately protected by the efforts to protect the receptors and beneficial uses already included in the Plan, nevertheless, they should be included in the Plan and the SQO should explicitly address them. However for a number of the uses, such as Rare Threatened or Endangered Species, it is not at all clear that protection of the beneficial uses included in the Draft Plan will offer adequate protection. This is, of course, a terrible reason to exclude them from protection. To the contrary it is cause for incorporating a more robust margin of safety into the objectives.

The reasons for why these beneficial uses are excluded from the SQO Plan are never carefully explained. Our parsing of the jargon (i.e. "assessment methods" and "robust indicators" have not yet been developed for "important, relevant and well understood receptors") suggests that it is technically challenging to develop reliable objectives and implementation language for these uses. In other words, these beneficial uses have not been included because either uncertainty exists regarding the relationship between sediment contamination and protection of these uses; or the State Board currently "lacks the tools" to implement a narrative objective. For the sake of argument if we accept this as true, the State Board may not presently be able to generate an SQO with the greatest level of reliability for these beneficial uses. This, however, does not excuse the State board from the obligation of promulgating an SQO which attempts to protect the use anyway. Ideally a numeric sediment chemistry objective could be adopted and then refined in the future as better science becomes available.

There appears to be considerable resistance to even develop an enforceable narrative objective at this point.⁷ Staff has repeatedly asserted that such a narrative objective cannot be adopted because appropriate "implementation tools" have not yet been developed. We do not understand this restriction. Narrative objectives of this sort have been adopted for decades in Basin Plans and other water quality policies with little or no implementation. We reject the underlying logic that no protection is better than some protection. This is tantamount to arguing that we should not wear our clothes in the cold of winter because they have a few holes in them. This argument only makes sense if you fear the consequences of an overprotective objective more than you fear the consequences of no protection. Said another way this argument only makes sense if you care more about imposing costs on the regulated community than you do about the risks to the beneficial uses at issue. Needless to say we stridently object to this rationale and hope you will as well. Instead of "do nothing" we should "do something" and incorporate an ample margin of safety.

The most troubling omission in this regard is the failure to include an objective to protect fish and wildlife from bioaccumulative toxins (indirect effects). As noted above California law requires the SQOs

⁶ California Department of Fish and Game. CRFS Database. <http://www.recfin.org/forms/est2004.html>

⁷ Of note, we are pleased to see that the Phase I SQOs will include objectives and implementation for estuaries including the Sacramento - San Joaquin Delta. Given the ecological, economic and water supply importance the Delta plays for California we think this is a critical and legally essential element to the SQO Plan. Likewise we appreciate the inclusion of a human health objective in the Plan.

"provide adequate protection for the most sensitive aquatic organisms."⁸ The scoping document, section 2.7, acknowledges that "[f]ish are an important receptor that can be affected by pollutants in sediments and pollutants that bioaccumulate up the food chain."⁹ However, fish are not used as an indication of pollutants (receptor) in sediment because this cannot be done without "significant and detailed site-specific studies."¹⁰ This rationale is disingenuous at best. There is no good reason that a conservative numeric objective could not be adopted today with a mechanism for future refinement on a site specific basis in the future. Or alternatively a simple narrative objective could be adopted such as:

"Pollutants shall not be present in sediments at levels that will bioaccumulate in aquatic life to levels that are harmful to fish or wildlife."

In addition an objective should be included for the direct impact to aquatic species residing in the water directly above sediments. As discovered at the Palos Verdes shelf, the water directly above contaminated sediments can also be impacted. Thus, the narrative objective should be tweaked to consider this direct impact. A narrative objective could be adopted such as:

"Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities or aquatic species in bays and estuaries of California"

D. Receptors Should Include Fish and Wildlife and be Tailored to the Most Sensitive Part of the Population

As stated in the scoping document, receptors are a critical element of the proposed plan.¹¹ Receptors are one of the primary indicators of the health of sediment and the status of beneficial uses of a water body. One example of the link between receptors and beneficial uses is found in the scoping document: human health can be used as a receptor to assess commercial and sportfishing.¹² However, fish would also be a primary receptor for commercial and sportfishing. Because selection of the correct receptors is so vital, it is important to include receptors that can be used to assess all the beneficial uses of a water body. Therefore, the receptors used should include fish and wildlife as well as the benthic community and human health. Furthermore, the specific receptors should be tied to the most sensitive part of the population, such as pregnant women and subsistence fisherman who would be more impacted by consuming contaminated fish. The World Health Organization has established toxic equivalent factors (TEF) for dioxin-like PCBs for birds, humans and fish. These TEFs indicate that sensitivity to these dioxin-like PCBs is highest for birds, then humans and lastly fish.¹³ Phase II should be addressing these indirect effects up the trophic levels. Instead the document states that "[a]dditional receptors and information on pollutants in the sediments can be evaluated in the later phases of the program."¹⁴ This should not be an optional evaluation.

E. Chemical List Should Include All Pollutants of Concern

Water Code § 13392.6 requires "the adoption of sediment quality objectives for toxic pollutants that have been identified in known or suspected toxic hot spots and for toxic pollutants that have been identified by the state board or a regional board as a pollutant of concern." The list of chemical constituents in Appendix A clearly omits numerous chemical constituents. Most notably the organophosphate pesticides and pyrethroid pesticides are excluded. Also, high concentrations of nickel,

⁸ California Water Code Section 13392.6.

⁹ CEQA Scoping Meeting Informational Document, Development of Sediment Quality Objectives for Enclosed Bays and Estuaries. p. 11

¹⁰ *Id.* p. 11

¹¹ *Id.* Section 2.7 p. 11

¹² *Id.* Section 2.7, p. 11

¹³ EPA 2000 PCB ID Toxicity Equivalency Factors available at <http://www.epa.gov/toxteam/pcb/tefs.htm>

¹⁴ CEQA Scoping Meeting Informational Document, Development of Sediment Quality Objectives for Enclosed Bays and Estuaries Section 2.7, p. 13

selenium, tin and silver in sediments are of concern, but these constituents are not of the list. The list should be expanded to contain substances which have reasonable potential, or are already known, to impair aquatic sediment quality. We request that staff be directed to review the 303 (d) list, contact the regional boards and compile a complete list of all "pollutants of concern" as well as chemicals that "have been identified in known or suspected toxic hot spots." This list should form the basis for Appendix A. Any omitted chemicals should be justified.

F. The Policy Must Recognize "Toxicity" Itself as Pollutant

Toxicity itself should be treated as a pollutant under the policy. It is frequently the case that the chemical constituent responsible for toxicity is not immediately identifiable. Likewise a toxicity problem identified in the lab may not yet have caused a discernable impact in the benthic communities. In addition, combinations of chemical constituents in sediments can have additive and synergistic effects that result on toxicity when the concentrations of the chemicals individually would not be expected to yield toxicity. To address this problem in NPDES discharges, federal regulations require permittees to monitor and manage whole effluent toxicity. Likewise "unknown toxicity" is a common listing designation for impaired waters. The presence of moderate or high toxicity from an unknown source should be treated as a pollutant under the SQO Plan as well. Management actions such as 303d listing, or effluent limitations in permits should NOT be delayed by the desire to demonstrate an effect in the benthic assemblage or until the chemical cause or causes have been identified. Toxicity by itself should be enough.

G. The Language Limiting the SQO Plan to "direct discharges" Should be Removed

Section E of the Draft SQO Plan limits the Plan's applicability to "direct discharges". This limitation is confusing, imprecise and severely undermines the goals of the SQO program. To have any hope of success the implementation and remedial actions called for by the SQO Plan must be capable of addressing municipal and industrial storm water pollution sources as well as non-point and upland sources such as agriculture. At the Oakland scoping workshop staff indicated that the language was intended only as a limitation on the SQO Plan's monitoring requirements. We request that the limitation be removed entirely or moved to the monitoring section and redrafted for clarity.

H. The Policy should consider buried sediments in addition to surficial sediments

The Draft SQO Plan only applies to surficial sediments. How does the State Board define surficial sediments? Examining just the top layer of sediment does not give sufficient insight on the ecological health of the water body. Species such as ghost shrimp and spoon worms go down a meter or more into the sediments. Thus, buried sediments can impact the benthic community. Also sediments can be dynamic and can move and be buried due to a single storm event. Clearly, the State Board should consider deeper sediments, in order to understand the health of the water body.

III. The SQO Plan must be precautionary and conservative.

A. The Policy Should Implement the Precautionary Principle

As an overarching premise, the sediment assessment process should err on the side of protecting water quality and beneficial uses. The Water Code mandates that the SQO program provide "maximum protection" for beneficial uses of bay and estuarine waters.¹⁵ The Precautionary Principle was endorsed at the United Nations Conference on Environment and Development in 1992 as an appropriate guideline in environmental decision-making. This Principle encourages environmental managers to err on the side of caution, in order to ensure that neither human nor environmental health is compromised.

¹⁵ California Water Code Section 13390.

In setting a standard there are two types of costs that must be considered. The costs of being overprotective (unnecessary discharge restrictions, excessive monitoring, administrative burden) and the costs of under protection (increased cancer rates, birth defects, and ecological degradation). We would like to see a policy that when in doubt leans strongly toward avoiding the latter risks. This is what the legislature intended and is simply sound policy. As currently written the Draft SQO Plan tilts strongly in the other direction. A myriad of small choices (all presumably well intentioned) add up to a weakly protective policy and will prevent it from achieving its central ambition: protecting human and ecosystem health. In particular, the use of multiple lines of evidence and the way they are integrated appears biased in favor of underprotection and inaction.

As the SED is prepared we request that the document be very explicit about how these risks are being balanced as each Alternative is selected. This is especially important with respect to the choices around the MLOE approach and integration of the MLOE. We believe that a clear picture regarding how these risks are balanced may lead you to more protective decision-making.

B. The SQO Plan Does Not Include an Explicit Margin of Safety

Sediment quality objectives are defined as "a level of a constituent in sediment which is established, with an adequate **margin of safety**, for the reasonable protection of beneficial uses of water or the prevention of nuisances."¹⁶ Despite this explicit statutory requirement, the scoping document provides no discussion of how a margin of safety is incorporated into the sediment quality objectives. This is unacceptable.

A margin of safety acts as a "safety net" in the event that incorrect assumptions were made or unknowns exist in the development process. Further, the "margin of safety" must be sufficiently protective to ensure that water quality standards are attained and maintained. There are non-conservative assumptions made throughout the document such as using the average value to integrate data points for the sediment assessment. Also, the entire MLOE approach is itself non-conservative, as many steps need to be followed before impairment is determined. Thus, it is absolutely critical that the State Board provide an explicit margin of safety in the sediment quality objectives. The use of single lines of evidence, as discussed below, would reduce the need for a large margin of safety.

C. MLOE Station Integration Is Overly Biased Toward "Showing Effects"

Section J and Table 3.10 of the Draft Plan provide for the assessment of sediment quality in the absence of benthic data. This flexibility is critical for an effective policy. Unfortunately, the scoping document does not make clear whether table 3.10 is a permanent part of the assessment tool kit for all waters or whether it is intended to be part of the interim tools for the Delta and other estuaries.

If Table 3.10 is not an integral part of the permanent frame work, we find the MLOE integration to be overly biased toward "showing effects." The guiding idea that underlies the MLOE approach (in the absence of Table 3.10) is that evidence gathered regarding sediment chemistry and toxicity must be validated by evidence of actual effects on the relevant benthic community. We find this principal to be fundamentally incautious. A protective policy would be oriented toward eliminating the threat or risk of a negative impact rather than requiring a demonstration of impact before remedial action can be taken. Moreover, the sediment chemistry assessment tool already factors in the likelihood of biological impacts by using the CSS data, which correlates concentrations of constituents with effects in the real world. In light of this the burden of showing actual effects is redundant and unnecessary. It amounts to one more hoop to jump through. (Obviously, if the benthic data is available it can strengthen an assessment and should be incorporated.) Moreover, effects of excessive contamination may take time to manifest in a particular benthic community. In addition, contaminated sediments can move from one location to another where a community may be more fragile because of other stressors. In other regulatory

¹⁶ *Id.* Section 13391(d). Emphasis added.

programs we do not ordinarily demand proof of effect before remedial action is taken. We merely require a demonstration that a particular condition creates a risk of an unacceptable effect. Further, benthic data is expensive to collect and difficult to manage. The SQO Plan must provide for a SQO that can be used in its absence. As discussed below we believe more weight should be given to the sediment chemistry and toxicity evidence when these lines of evidence suggest a problem but an effect has not yet been demonstrated. For example, sediment with contaminants that exceed an effects range median ("ERM") guideline are impaired as are sediments that demonstrate significant toxicity impacts. No additional lines of evidence are needed in these cases.

IV. The Policy Must Lead Directly to Effective Action.

One of the greatest failings of the draft SQO plan is its failure to support the specific management actions that might alleviate identified problems in sediment quality. The management actions outlined in the document are ineffective. The document does not articulate how to draw the line between sediments that are impaired and those that are not. The Draft Plan calls for permits to contain difficult to enforce "receiving water limitations" rather than effluent limitations. The plan does not set forth how cleanups will be accomplished or enforcement actions can be taken against the sources of excessive contamination. Finally, the over reliance on MLOE makes establishing a clean up standard almost impossible.

The steps outlined in the scoping document are directed at finding a possible cause of sediment degradation, but not at taking action once degradation is found.¹⁷ The sequential approach listed in section VII.C. consists of three tasks – all aimed at confirming degradation. These steps will lead to delay and are biased toward inaction.¹⁸ If the goal of the SQOs is to stop sediment quality degradation in order to prevent impairment of the beneficial uses of a water body, quick and direct action must be taken. Current programs already in place could be utilized to implement a cleanup or remediation plan. Whatever the course of action, the plan should be fully outlined in the implementation plan so that regional boards may direct their efforts towards cleanup.

In the current SQO approach, it is unclear when a water body is out of compliance. However, in the event sediment does fail to meet an SQO, the current plan calls for a sequential approach consisting of three tasks: first, confirmation of pollutant related impacts; second, pollutant identification; and lastly, source identification.¹⁹ None of these three tasks actually requires cleanup, or any other kind of measure designed to remove the pollutant and protect human health or "aquatic life". In fact, none of the three steps even introduce a timeline for such action.

The last step in this sequential approach is outlined in Section VII.C.4.a, titled "Source Identification and Management Actions." This section lists the appropriate steps to be taken once the source of a pollutant is identified. These steps include "all necessary and appropriate steps to address exceedence of the SQO, including but not limited to reducing the pollutant loading into the sediment."²⁰ This statement is as close to "action" as the plan gets. A more detailed approach is appropriate. Without a more specific procedure, regional water boards will have no guidelines to follow. To date, California has not proceeded with remediation of identified hot spots. This is unacceptable. Simply ordering a reduction in pollutant loading into the sediment would never deal with hazardous sediment already in the water body. The lack of a clear action plan will lead to inconsistency among not only regional boards but among dischargers.

A. The Plan Must Draw A Clear and Protective Line for 303(d) Listing Decisions

One of the critical programs that will rely on the SQOs is the Clean Water Act 303d program for impaired waters and TMDL development. One of the virtues of a numeric chemical concentration threshold is that impairment determinations are simple. By contrast the MLOE approach with is

¹⁷ CEQA Scoping Meeting Informational Document, *Development of Sediment Quality Objectives for Enclosed Bays and Estuaries* Section 2.25, p. 35

¹⁸ *Id.* Section VII C., p. 53

¹⁹ *Id.* Section VII C, p. 53

²⁰ *Id.* Section VII p. 55

complicated integration matrices and 6 assessment categories makes such a determination less than straightforward. If the Plan is adopted with a MLOE approach the Plan should clearly articulate which assessment categories constitute impairment. Moreover, as currently configured all of the following categories should yield an impairment finding and 303d listing:

- Clearly impacted,
- Likely impacted,
- Possibly impacted, and
- Inconclusive.

The "possibly impacted" assessment category includes a variety of combinations of lines of evidence that clearly warrant management actions. For example Moderate Toxicity may be present combined with chemical exposures and a high effect on benthic communities. Likewise, "clear evidence of sediment contamination likely to result in effects" combined with high effect on benthic communities.

The unfortunately named "inconclusive" category is applied "when high toxicity is present without corroborating evidence of chemical exposure and benthic disturbance." We believe all instances of high toxicity should result in management actions to address the toxicity. The first action should be to identify the cause of the toxicity. However, until the culprit (or culprits) is identified management actions should proceed.

B. The Policy Must Require Effluent Limits in Permits

The draft plan presently contemplates incorporating only receiving water limits into NPDES permits. This is a mistake. Receiving water limits are notoriously difficult to enforce and reduce accountability for the redress of contamination problems. Effluent limitations are vastly preferable for compliance assurance purposes. Although deriving effluent limitations can be more difficult they are simple to enforce and set clear expectations for the discharger. Further, we believe effluent limitations are required by the federal regulations whenever a discharge has the reasonable potential to cause or contribute to the violation of a sediment quality standard. 40 CFR 122.45. We suggest the adoption of guidance to assist the regional boards in deriving effluent limitations. At a minimum, effluent limitations should not be precluded by the plan.

C. The Policy Should Establish Chemical Concentrations that can be used in Sediment Cleanup

An additional drawback to the proposed MLOE approach is that it makes it very difficult to determine when sediments undergoing remediation are "clean enough." With a numeric sediment concentration this problem is solved. The SQO and the clean up standard are identical.

D. The Policy Should Include More Details in the Implementation Strategy

The Program of Implementation in the Draft Plan does not include necessary implementation details. The Plan should cover details of maintenance dredging and handling and disposal of contaminated sediments. Specifically, BMPs for dredging and handling and beneficial reuse goals need to be articulated. For instance, BMPs such as silk curtains and environmentally sealed clam shelled dredging devices should be specified for use in dredging. Also, the State Board should not allow aquatic disposal (ocean disposal, aquatic capping, CAD sites, etc) of contaminated sediments if there are feasible alternatives. Beneficial reuse of sediments should be a priority.

V. The Policy must be Transparent and Straightforward to Implement.

This policy and these standards will be very difficult to use. In general, the proposed Plan is largely subjective and offers little improvement over the current failed system. As written, the policy will be difficult for the public to understand and utilize and difficult for agency staff and board members to translate into stronger permits and to use in making 303d listing decisions or in drafting TMDL s. It will

also be expensive to use. It requires a lot of expensive data (reference data, toxicity and benthos) to establish a problem exists without creating strong incentives to gather the data.

The objectives should be easy to use. Water Code section 13391.5 (d) defines "sediment quality objective" to mean "that level of a constituent in sediment which is established with an adequate margin of safety, for the reasonable protection of the beneficial uses of water or the prevention of nuisances." The reason the legislature chose the words "level of constituent" is that numeric thresholds have the virtue of being very clear, very easy to use, and create a lot of certainty. They may not be perfect but they have many advantages.

In an effort to find greater reliability in the SQO and with a strong push from the discharger stakeholders, staff have selected another approach. The cost of this appears to be a complete loss of simplicity, clarity and ease of use. We suggest that this price may be too high.

Further, the proposed plan imposes additional burden on the regional boards in applying the SQOs once monitoring has been conducted. Current water quality objectives are easily evaluated. The proposed narrative objectives for sediment are clumsy and confusing. It will be difficult for regional boards to proceed through all steps of the process: determining location of monitoring; determining who will monitor; performing the monitoring; determining if sediment meets the narrative objectives; finding the source of the contamination; and finally taking steps to clean up the sediment. The whole process can be simplified by eliminating the decision matrices and relying on the underlying numeric data.

A. The Multiple Lines of Evidence (MLOE) Approach is Flawed

We have grave concerns with the use of narrative objectives. Coupled with the multiple lines of evidence (MLOE) assessment approach, they are an ineffective way to determine if sediments are contaminated and impaired. Narrative objectives create vague goals and the MLOE approach creates uncertainty in the classification of a station, much less a water body, for determining the contamination of sediments. To illustrate this matter, consider the range of labels given to a station after combining the MLOE: unimpacted, unlikely impacted, possibly impacted, likely impacted, clearly impacted, and inconclusive. It is unclear what these classifications entail. If a station is possibly or likely impacted is any action taken? If a station is unlikely impacted, what steps are taken to ensure confidence in this assessment? If a station is possibly impacted, does this meet the narrative objective? Are possibly impacted sediments toxic to benthic communities or harmful to human health?

In contrast to narrative objectives, numeric objectives would create a bright line test that would eliminate the confusion caused by the vague narrative objectives and muddled integration of multiple lines of evidence. Specific numeric objectives would create consistency among regional boards and consistency over time because inherently numeric objectives are clear, transparent, cautious and easy to use regardless of the approach. Moreover, numeric objectives eliminate the need to use MLOE that introduce more variability and less transparency. The alternatives outlined below utilize the monitoring envisioned in the current plan while simplifying the process.

The Draft Plan states that "[n]one of the individual LOE has sufficient reliability for use by itself to assess sediment quality impacts due to toxic pollutants." Plan at 42. In fact under the proposed approach, sediment is not considered impaired unless a complex set of procedures establish numerous lines of evidence to confirm an impairment. We strongly disagree with this approach for sediment assessment.

Multiple lines of evidence are not always needed to identify that there is a problem that requires a response. This is especially true for toxicity. For instance, consider a situation where the toxicity test shows a 0% survival, but the other legs of the triad are either non-conclusive or the data are unavailable. In order to fully protect beneficial uses in this hypothetical situation, sediment management decisions should be made with the understanding that there is a sediment contamination problem. Toxicity tests act as the "safety net" for water quality and sediment quality monitoring because no monitoring programs do not test for all constituents that can cause receiving water toxicity or sediment toxicity. Thus the toxicity

line of evidence should be evaluated on its own merit. As another hypothetical situation, consider circumstances where the mean weighted CCS score is several orders of magnitude above 2.99. This alone should indicate that there is a sediment problem because of the magnitude of the score. The Draft Plan states that sediment with a score above 2.99 is categorized as having "high exposure." Draft Plan at 46. Thus regardless of other lines of the triad, a high exposure designation should require further action whether it be further monitoring or remediation. For benthic assessment purposes, an IBI score of 39 is established as the boundary between "fair" and "poor" biological conditions, and a score of 20 is the division between "poor" and "very poor" biological conditions.²¹ If a very low IBI score is found, this alone should indicate that there is a sediment quality problem. In addition in some cases, lines of evidence beyond those proposed in the triad approach are appropriate to make sound decisions. For instance if an area has historically had sediment contamination, this fact combined with a LOE showing impact should trigger an action. Thus as described in these examples, a single line of evidence is sufficient to diagnose a sediment impairment, and the State Board should modify the Draft Plan accordingly.

B. Numeric Objectives Would be More Straightforward than Narrative Objectives

The scoping document states that the proposed SQOs are narrative as opposed to numeric because "sediment quality is assessed with a combination of tools and results, in contrast to a numeric water quality objective for which a single specific measurement may be used."²² The conclusion that sediment quality must be assessed with a combination of tools is unsupported. If sediment is found to have high chemical concentrations, is this not enough to infer that the sediment is contaminated? If sediment is found to be toxic, is the sediment not polluted? A single line of evidence is enough to determine if sediment quality is impaired. Thus, if sediment does not have to be assessed through a combination of tools, it does not follow that a narrative objective must be used. A more logical and simplified approach is available. Sediment quality can be more easily assessed with numeric data and therefore the objectives can logically be numeric as well. Combining sets of numeric data to subjectively evaluate a narrative objective, as the current plan proposes, will inevitably lead to confusion and misinterpretation.

Furthermore, narrative objectives do not provide the public or other interested parties the transparency that numeric objectives would allow. Because the narrative objectives are not straightforward, it is not clear how the objectives protect the beneficial uses of individual water bodies. A bright line should exist beyond which action must be taken.

The idea of numeric objectives is not novel. For example, Washington has a combination of both narrative and numeric objectives. It was our understanding from the 2004 workshop that there would be case studies to develop both numeric and narrative objectives.

C. Alternatives to the MLOE Approach

We offer three variations on the MLOE approach proposed by the Draft SQO Plan that would better satisfy the criteria set forth above:

- Statewide numeric objectives for chemical concentrations based on the most protective levels of the relevant constituents. Although such a policy may result in some degree of overprotection it would establish a simple, protective, straightforward and cheaply implemented policy.
- Numeric objectives for sediment chemistry adopted together with a policy that sets forth the process for adoption of site specific numeric objectives based upon other lines of evidence.
- Narrative objectives that are implemented with a multiple line of evidence approach similar to that proposed in the Draft SQO Plan but with the following tweaks:

²¹ Ode, P.R., A.C. Rehn and J.T. May., A Quantitative Tool for Assessing the Integrity of Southern Coastal California Streams, Environmental Management. 35:493-504 (2005).

²² *Id* 2.11, p. 18

- Three lines of evidence would be used when data for all three lines are available.
- Two lines of evidence would be supplemented by a methodology similar to that found Table 3.10.
- When either sediment chemistry data shows sediments with high magnitude chemical concentrations, toxicity data shows high toxicity, or an IBI or appropriate marine community index demonstrates a high degree of degradation then any of these single lines will result in an assessment determination that will trigger management actions regardless of the other lines of evidence.
- Biological endpoints would not be limited to toxicity and bioassessment. The approach should assess evidence of impairment based on the 'resident species portfolio' approach and bioaccumulation testing.

D. The Way the Lines of Evidence Integrate Is Problematic and Incautious

The current plan utilizes the evaluation of multiple lines of evidence, which are then integrated to yield one final assessment. The integration of the MLOE is at best confusing. When a station receives a "category of impact" after the three lines of evidence have been integrated, what is the next step? The categories are in no way linked to action or inaction.²³ It is reasonable to assume (because that is all we can do) that the unimpacted category results in minimal action, but what of the "in between" and less informative categories?

Every step of the MLOE integration draws more opportunity for confusion and confounding of errors. The "decision matrix" pools together two of the lines of evidence and tries to reconcile them.²⁴ There are two decision matrices that are then combined into one "station assessment matrix."²⁵ If one part of the decision matrix is incorrect the station matrix data is thrown off. A simple numeric objective disposes of the need to go through this series of steps and offers a clear answer that can be easily traced back to the original data.

E. Water Body Scale Integration Is Totally Unnecessary and Not Protective of Aquatic Life.

The scoping document states that integration of single station assessments into a single watershed-based or water body assessment will be accomplished through a multi-station assessment tool.²⁶ We understand from conversations with staff that this is likely to take the form of some sort of statistical averaging over a water body. We believe that water body integration is completely unnecessary and not protective of aquatic life. An exceedance at a single site is adequate justification for management action to address the contamination at that site. All of the potential actions about which we are aware (303 (d) listing, permit limitations, clean up orders) can be narrowly tailored to the spatial extent of the identified contamination. We see no purpose in integrating across stations or sites other than to average away spatially modest (but potentially damaging) problems. Moreover, the tool to be used does not take into account the magnitude of the exceedance. One or a few stations could have highly toxic sediment and yet the water body as a whole might meet the SQOs. This approach would not protect the beneficial uses of a water body. If a station fails to meet SQOs, this should be a signal that cleanup actions should be undertaken promptly for that site to prevent degradation of a larger portion of the water body and the local impairment of beneficial uses. Great quantities of valuable data have been and will continue to be acquired in monitoring the water bodies. Ignoring critical elements of the data will not only

²³ CEQA Scoping Meeting Informational Document, *Development of Sediment Quality Objectives for Enclosed Bays and Estuaries* Section V.I., p. 48

²⁴ *Id* Section V.I., p. 48

²⁵ *Id* Section V.I., p. 49

²⁶ *Id* Section 2.23 p. 33

lead to inaccurate assessment, but will discard valuable data that has already been generated and needs only to be applied.

Single station assessments need not be averaged into a water body assessment. This will avoid confusion and will result in a more accurate assessment of sediment. Single station assessments will also simplify the process of determining where contaminants are coming from and focus cleanup efforts to the appropriate area.

F. The Policy Should Not Average Test Responses.

All three assessment methodologies call for the integration of data by **averaging** or taking the **median** of the responses to determine a final response category. For instance, the benthic community assessment states that "[t]he median of all benthic response categories shall be used to determine the benthic community response category." Draft Plan at 45. This approach is flawed in several ways. First, it is unclear how the calculations will be performed. How is the median calculated from descriptive categories? In the case of sediment chemistry data, how can the scores of two different methodologies with different score ranges be averaged? Another major problem with this approach is that integrating the data in this way does not make sense for sediment assessment purposes. Sediment quality can vary dramatically within a relatively small area. Sediment "hot spots" are often formed because of shoaling or a discharge that took place in a certain area, for example. For many of the dredging projects that take place, small amounts of sediments are directed to upland disposal sites because of their high contamination while the vast majority of the sediments can be discharged at ocean discharge sites or another site. How would these sites be differentiated using this approach? The result would be that contaminated sediment hot spots would be de-listed by data from clean sites. This approach provides incentive for additional sampling to dilute out contaminated site monitoring results. Thus, each sediment monitoring site should be evaluated for further action on its own merit.

VI. Specific Concerns with Assessment Methodology.

A. Toxicity Assessment is Lacking

The Draft Plan outlines a procedure for assessing sediment toxicity. Acute and chronic toxicity responses are characterized as nontoxic, low toxicity, moderate toxicity, and high toxicity according to the response values in Table 3.4.²⁷ In general, we support a quantitative approach that allows toxicity data to be compared to a numerical value in order to assess the overall toxicity. However, the document does not provide any basis for the decisions to use certain test organisms and methods for this evaluation. For instance, why were three amphipod species chosen for the toxicity tests and no echinoderms? Echinoderms are often extremely sensitive to sediment contaminants. Also, it is unclear how the response categories provided in Table 3.4 were derived. Thus in order to fully assess this methodology, the State Board should provide the public with this technical information.

B. Benthic Assessment is Flawed

The Draft Plan provides a crude description of a procedure to assess benthic community conditions. Benthic data are to be evaluated using four existing benthic assessment methods and categorized according to the level of disturbance.²⁸ However, there are many missing pieces to this assessment methodology. First, several of the indices that are specified in the document were developed for freshwater systems and are based upon large amounts of freshwater data. In fact, the IBI was developed using data from 275 freshwater sites throughout Southern California. We are unaware of any studies to develop an IBI or RIVPACS for bays and estuaries. The State Board should provide additional information about these assessment methods and how they were adapted to bays and estuaries. Also,

²⁷ CEQA Scoping Meeting Informational Document, *Development of Sediment Quality Objectives for Enclosed Bays and Estuaries*. P. 44.

²⁸ *Id.* P.44.

the Draft Report does not provide any information on what "score" would correspond to a specific disturbance category or how the four assessment methods would be integrated with one another. Currently, the method appears to be subjective. Also, what reference sites would be used and how is this determined? In sum, this section of the Draft Plan does not provide adequate detail for any benthic community assessment to take place. Ideally, the State Board should identify or develop an index with appropriate thresholds to quantitatively determine benthic community impairment. There are numerous benthic community indices used for soft bottomed coastal habitat that may be appropriate for this purpose.

C. Resident Species Portfolio and Bioaccumulation Approaches

The Draft Plan incorporates two biological endpoints for assessment. Each of the endpoints (toxicity testing and Benthic Assessment) has known limitations. The State Board should include consideration of impairments to aquatic life such as high bio-accumulated body burdens of substances and physiologically-based indicators in use by the Pacific Estuarine Ecosystem Indicator Research (PEEIR) consortium. The Draft Plan does not address types of impairment which can be readily detected through use of these methods. The 'triad' presented in the Draft Plan does not appear to consider known impairments evident in an examination of data collected by the California Mussel Watch, Toxic Substances Monitoring, and Bay Protection and Toxic Hotspot Cleanup Programs. Bio-accumulation data collected by these and other programs reveals risks to both aquatic and human health that are not addressed in the Draft Plan.

D. Specific Concerns with Sediment Chemistry Assessments

The Draft Plan outlines a method for assessing exposure to toxic pollutants in sediment. Sediment samples will be tested for the chemical analytes listed in Appendix A.²⁹ Then the sediment will be evaluated by categorizing the risk of exposure to toxic pollutants using the Chemical Category Score and California Pmax methodologies.³⁰ Again the State Board should describe these methods in more detail, so that the approaches can be fully evaluated. Regardless, several issues arise upon an initial evaluation of this approach. First, an approach that uses weighting factors and sums scores across constituents does not provide any information on the impact of a certain pollutant. This may be problematic if data for all of the parameters are not available. Also using an average value is not protective of critical conditions. In addition, there are two different methodologies to determine the risk exposure. When is one methodology used over another? The State Board should develop an approach that allows for chemistry data to be easily compared to a numeric objective for a specific constituent.

VII. Specific Concerns Regarding the Monitoring Provisions.

A. Monitoring Requirements Should Be Flexible and Assess Data from Diverse Sources

We support the establishment of regional or water body based monitoring programs to develop some of the information demanded by the SQO assessment methodology. We do have a number of concerns regarding the monitoring provisions of the Drafts SQO plan. As an initial matter, policy and assessment should be designed to utilize a wide variety of data both existing today and generated in the future. Assessment should not be restricted to data from monitoring stations that are part of a monitoring program. Most sediment quality data in the State comes from monitoring dredging activities, and this data should also be used in the analysis. Data from any location in a water body should be able to be assessed and render a decision regarding the quality of that sediment. Also, the assessment tools must be flexible enough to accept data from a variety of sources. The monitoring section should lay out the responsibilities of the regulated community without limiting the data that can be used under the policy.

Specifically, Table 3.10 should be used for data sets where benthic data has not been collected. In addition, the tools should be supplemented with integration tools that work when either of the other two

²⁹ CEQA Scoping Meeting Informational Document, Development of Sediment Quality Objectives for Enclosed Bays and Estuaries. P. 56.

³⁰ Id. P.45.

lines of evidence are absent and when the magnitude of a single line of chemical or toxicity data indicate a problem. When magnitudes are high either of these single lines of evidence should allow for decision making regarding 303d listing decisions, permitting and cleanup. These changes will also provide an incentive for the collection of robust multi-line data sets. As long as the absence of data guarantees no action the regulated community will continue to drag its feet in the collection of data.

B. Monitoring Timelines are Vague and Too Lax

Regional sediment monitoring is to be done at least once every three years. The document calls for periodic sediment monitoring at intervals not less than once per permit cycle for NPDES permittees.³¹ This would mean the minimum amount of testing would be once every five years. There is no evidence in the document that this is a sufficient amount of monitoring.³² This limited monitoring is insufficient to adequately characterize sediment impairment. Such infrequent monitoring would allow accumulation of contaminants in sediment and degradation of water quality for years. This is especially true given that the Draft Plan only includes the top layer of sediment. Sediments can be dynamic and can move and be buried due to a single storm event, for example. Also, extensive monitoring is necessary to satisfy the sediment assessment methodologies described in the Draft Plan. Thus at a minimum, the State Board should require sediment monitoring on an annual basis. More frequent monitoring should be performed especially in more dynamic areas like river and stream mouths.

It is unclear from the document who is to be doing the bulk of the monitoring within the monitoring coalitions discussed. Therefore, if the permittees are not required to undertake more frequent monitoring, the burden will fall on the regional boards. Encouraging more compliance-based monitoring in the plan will alleviate some of this burden.

C. Enforcement of Monitoring is Undeveloped

The plan also does not state how monitoring will be enforced within the envisioned monitoring coalitions. The regional board should have express authority to make sure the appropriate monitoring is being undertaken. Furthermore, although not mentioned in the scoping document, the regional boards should not be forced to rely on their residual powers granted by § 13267 of the water code³³ to order monitoring. A detailed monitoring plan will lead to easier compliance on the part of the regulated community and enforceability by the regional boards. To this end, we recommend state guidance on this subject as a starting point for the Regional Boards.

D. Regional Monitoring Should Supplement Rather than Supplant Compliance Monitoring

The sediment monitoring program envisions a coalition of monitoring. The document lists a variety of incentives to combining the regional board monitoring efforts with compliance monitoring.³⁴ These coalitions will theoretically benefit all parties involved. However, it should be clear in the document that only the regional board has the legal authority to use their best professional judgment (BPJ) and that the regional boards cannot allow the regulated members of the coalitions to substitute their own BPJ for that of the regional board's.

E. Existing Monitoring Programs are a Valuable Resource Unexplored in the Scoping Document

Though the document acknowledges the benefit of combining resources, it does not explore utilization of current programs. We agree with the Executive Officer of the San Diego Regional Board, John Robertus' comments at the October 2006 scoping meeting that there are many monitoring efforts already underway and that useful data is already being generated through other programs. Some existing

³¹ *Id* Section VII.A., p. 52

³² *Id* Section VII.A., p. 53

³³ This section of the water code authorizes a regional board to require monitoring program reports when conducting an investigation into the quality of waters within its region.

³⁴ *CEQA Scoping Meeting Informational Document, Development of Sediment Quality Objectives for Enclosed Bays and Estuaries* Section VII.A., p. 52

programs in southern California are the Southern California Coastal Water Research Project Authority (SCCWRP)³⁵ and Bight 98, 03, and 08.³⁶ Also, the San Diego Harbor Monitoring Plan³⁷ in San Diego can be implemented to require monitoring. The scoping document fails to take into consideration all the above-mentioned programs and their ability to lessen any unnecessary burden on regional boards, such as resorting to their § 13267 powers to order monitoring reports. We hope to see these issues addressed in the SED. Relying on existing sound data will also streamline efforts in gathering data and assessing water bodies. This will give the program a head start and require less initial monetary investment from dischargers.

VIII. The scoping materials do not provide sufficient information regarding a variety of key technical issues.

In general, the CEQA Scoping Document provides an inadequate discussion of the scientific basis for decisions made in developing the Draft Plan. The Draft Plan is very "bare-bones" and includes little to no detail on most technical elements. In order to allow for full evaluation the Draft Plan and proposed sediment quality objectives, the State Board should circulate technical documents for public review. Also, the SED should include much more detail about these technical decisions. We understand from the scoping meeting that a series of reports will be issued shortly. We are hopeful that they will provide complete information on the following topics and others:

- Details of Benthic Community Condition Assessment
- How scoring for Benthic Community Assessment will work?
- How were the benthic assessment methods adapted to bays and estuaries?
- What is the basis for species selected for toxicity testing?
- How were the response categories in Table 3.4 derived?
- How reference sites will be found?
- Details of Chemistry Assessments
- A list of substances which have been detected in sediment at elevated levels

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³⁵ As you may know, SCCWRP is a joint powers agency composed of several government agencies focusing on marine environmental research. The common mission of SCCWRP is to gather the necessary scientific information so that its member agencies can effectively, and cost-efficiently, protect the Southern California marine environment

³⁶ Bight is an integrated assessment of the southern California coastal ocean, of over 60 organizations collaborating to conduct a comprehensive assessment of the ecological condition of the Southern California Bight (SCB). A bight is as a bend in the coastline, and the Southern California Bight is the 400 miles of recessed coastline between Point Conception in Santa Barbara County and Cabo Colnett, south of Ensenada, Mexico. The program included three components: coastal ecology, shoreline microbiology and water quality.

³⁷ You may be familiar with the San Diego Regional Harbor Monitoring Program, a response to the July 24, 2003 request by the San Diego RWQCB under §13225 of the California Water Code. The Harbor Monitoring Program consists of a coordinated and comprehensive harbor water quality monitoring program. The intent of the program is to develop a proposed coordinated monitoring effort of harbors in the San Diego Region to provide water quality status and trends information, as well as, assess the surface water's abilities to support designated beneficial uses.