		APPENDIX E	COMMENTS AND RESPONSES	
No.	**Subject**	**Comment**	**Response**	**Author**
		VERBAL COMMENTS (02 05 08)		
V1		SQO is a complex policy	Staff agree. Incorporating multiple lines of evidence into a draft Water Quality Control Plan requires a unique and complex approach	WSPA, CASQA
V2		Appreciate the clarifications, and figures in the January 2006 draft Part 1	Comment noted.	WSPA, CASQA
V3		There are inconsistencies between some items and we will talk to staff about those issues, however we support the Draft Part 1	Comment noted.	WSPA, CASQA
V4		We are disapointed with the loophole associated with the Possibly Impacted response actions between Section V.I and Section VII.F. Concerned about option to postpone stressor ID pending further monitoring. We disagree with the this text.	Comment noted. As with any attempt to be protective, the draft Part 1 must realistically address those areas of uncertainty. An unsuccesful TIE is a real possibility and continuing to spend time and money on a study that results in a inconclusive results is not an appropriate use of resources. Staff believe the proposed course of action is prudent and responsible.	SFBK
V5		Implementation langauge still vague, lacks clarity, Staff need to clarify the implementation langauge to make the document stronger	Comment noted. See comment V2. Staff believe that the nessecary clarifications have been made.	SFBK
V6		Permitees should not be allowed to delay categorizing sites for cleaning up pollutions; document still lacks a scheme to prioritize sites for cleanup	The Draft Part 1 requires stressor identification because only after the stressor is identified can beneficial uses be effectively restored. If the stressor is no longer being discharged then some sort of remedial action may be appropriate. However if the stressor is being discharged, then any remedial action would only result in a short term benefit. In this situation, the ongoing discharges would continue to contribute the causative pollutants to the water body. Stressor identification reduces this risk and provides the Regional Boards with a better means to focus both cleanup actions and TMDLs on the pollutants causing problems.	SFBK
V7		The draft Part 1 should ensure that sites are prioritized for cleanup actions not just stressor ID	See response to comment V7	SFBK

No.	Subject	Comment	Response	Author
V8		The Draft Part I should require the use of all stressor ID methods (e.g., TIE), not just a few	Staff disagree. Stressor identification is an iterative study. In some cases, conclusive results may be obtained relatively quickly, in other cases it may take all the tools listed or more. Requiring a permittee to perform all the approaches listed is not appropriate.	SFBK
V9		Staff need to clarify what is meant by Section II.B Relationship to other narrative objectives	The narrative objectives will supercede those narratives that are applied to protect benthic communities from direct exposure to toxic pollutants in sediments. This plan will not affect any Sites where the site assessment was submitted before the plan is adopted. Nor will it affect any action that was or is taken to implement other water quality standards. For example, sediment cleanup actions that implicate non-toxic pollutants or other receptors, such as fish or human health, would not be affected by the supersession language.	SFBK
V10		Indirect effects is not adequately addressed in the policy	Staff intend to address indirect effects in Phase 2 and Phase 3.	SFBK
V11		Supports phase I policy; it is scientifically defensible	Comment noted. Staff appreciate the support	LACSD, DM
V12		Using MLOE is essential to assessing SQOs and use of a single line of evidence will undermine the scientific basis of policy	Comment noted	LACSD, DM
V13		Concerned that SQOs are a conservative assessment of sediment conditions due to factors such as rounding up of scores, especially in the PI category	The proposed a Draft Part 1 that utilizes a conservative approach for rounding values within the individual lines of evidence. A less conservative and less protective approach would be to round down these values. The Draft Part 1 differentiates the response actions associated with Possibly Impacted sediments compared to those classified as Likely or Clearly Impacted to address the uncertainty within the Possibly Impacted category.	LACSD, DM
V14		Supports the language that provides the Regional Boards with discretion regarding interpretation of PI category	Comment noted	LACSD, DM
V15		The research for estuarine tools is to limited due to the focus only on Delta. The Water Board should provide more funding to develop tools for other estuaries	Comment noted	LACSD, DM

No.	Subject	Comment	Response	Author
V16		The Draft Part I provides a narrative objective and well thought out tools and framework to interpret the narrative objective	Comment noted. Staff appreciate the support	DM
V17		More data will be available with the adoption of this policy, and this will provide an opportunity to "tune-up" these interpretive tools in later amendments. This will ensure that the SQOs are supported by the best available science	Comment noted	DM
V18		Its important to understand that the MLOE tools are a means of interpreting/implementing the narrative and that none are adequate when used alone	Comment noted	DM
V19		Heal the Bay is very disappointed with the SQOs. The draft Part 1 has numerous and serious flaws.	Comment noted	HTB, SDCK
V20		The SQOs must apply to dredging and disposal decisions	Staff agree. The draft Part 1 describes what actions the Regional Boards must be take to issue a water quality certification for sediments fail to meet the SQOs.	HTB, SDCK
V21		We are concerned about the limitation of SQOs to the top 5 cm, This severely limits scope of SQOs.	The use of a 5 cm sampling depth for chemistry and toxicity analyses is consistent with most other sediment quality assessment programs, which analyses the top 2-5 cm of sediment. Use of this depth to represent the surficial sediment conditions will increase the relevancy of the data to indicate the effect of present day sediment loadings and provide comparability with other monitoring programs. Sediment from deeper depths are characterized in dredging programs, but those problems have different objectives than the SQO and are not compatible with the benthic community line of evidence.	HTB, SDCK
V22		Doesn't adequately assess benthic species as they can occur deeper than 5 cm	Benthic community condition is assessed in the SQO monitoring by analyzing sediment from the entire grab, which usually penetrates to a depth of 10-15 cm. The majority of benthic species live in the upper 5-10 cm of sediment and the exclusion of the few species living below the grab penetration depth does not significantly affect the ability to characterize benthic community condition as the benthic indices were calibrated for the sampling depths used	HTB, SDCK

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V23		Toxicity tests, by itself can be an indicator of impairment, is a safety net for water and sediment quality	Staff disagree. Toxicity tests have been well documented as assessing water column impacts. The same cannot be said for sediment toxicity tests.	HTB, SDCK
V24		The draft Part 1 does not go far enough to adequately protect sediment quality and contains too many gray areas	Staff disagree. While there is a need to address the other receptors as planned in later phases, the approach adequately protects benthic communities while addressing the uncertainty associated with the assessment of sediment quality.	SDCK
V25		Section II.B of the Draft Part 1 describing the relationship to other narratives can have unintended consequences on current or ongoing projects that may result in further delays of cleanup actions.	See response to comment #V9	SDCK
V26		Page 27 incorporates Resolution 92-99, however the language included in the draft Part 1 is not an accurate summary of the Resolution. Either provide the full 30 plus pages of text or just incorporate the Resolution and delete the rest of the text that follows.	Staff agree and will delete that portion of the text in the revised Draft Part 1	SDCK
V27		Still not clear on who performs the monitoring	Individual permittees may perform the monitoring alone as a permit condition or join a regional monitoring coalition as described in Section VII.B. C. D. and E and Figures 1 and 2.	SDCK

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V28		We seek an extension of 2/29 deadline, as the public has not be given adequate time to fully review and comment on the scientific aspects and the implementation of the SQOs. The technical data need to be available in order to reproduce the same scientific results. Peer Reviewer Dr. Di Toro, was unable to duplicate the same results when he was evaluating the Pmax chemical indicator. When this documents are available then we can review and comment	Staff disagree. Dr. Di Toro was provided no more information then was publicly available yet he was able to compare his results with those of the science team. Dr. Di Toro did evaluate the relationship between chemical concentrations and toxicity using the data available in the SQO database. The minor difference in the slope was largely associated with the use of different data screening criteria. Dr. Di Toro included all Eohaustorius data from the database and screened out low chemical toxic data based on the average concentration in nontoxic samples; this process differed from that used for development of the CA LRM approach, in which a substantial number of samples were excluded (due to habitat conditions or use for validation) and the background screening process was conducted separately for each study (not on the entire database).	LW
V29		Peer reviewers questioned the underlying science and had specific concerns with the chemical indicators.	Staff disagree. One peer reviewer indicated that the Draft Part I should support the use include mechanistic guidelines for determining causes of toxicity. Another suggested that the CSI should undergo peer review. However none said that the chemical indicators were seriously flawed	LW
V30		The SQOs overemphasize the sediment chemistry line of evidence.	Staff strongly disagree. Chemical line of evidence is given no more weight in the integration then the other lines. This is obvious by reviewing Attachment B which provides all possible combinations and demonstrates how the different lines of evidence effect the overall station classification.	
V31		A Peer reviewer also urged caution in applying the CSI indicator especially with peer review lacking	Staff agree. The draft plan is based upon applies a cautious approach by using multiple metrics, and tools .	LW, IEA

No.	Subject	Comment	Response	Author
V32		Plan doesn't consider reference areas or bioaccumulation	Reference communities were used to develop the benthic indices. Reference conditions for the other two lines of evidence would be useful if the goal is to determine relative impacts. However this was not a goal of this program. Bioaccumulation will be utilized in later Phases where indirect effects will be evaluated.	LW
V33		Use of four categories to classify LOE results is arbitrary.	Staff disagree. The Section 5.5.5 describes the basis for these categories and the SCCWRP report titled A Framework for Interpreting Sediment Quality Triad Data (http://www.waterboards.ca.gov/bptcp/docs/sediment/mloe_frameworkvalidation.pdf) provides the rationale for these categories in detail.	LW
V34		The approach to address rounding of the LOE is overbroad and is not appropriate	When results of a single LOE require rounding there are two primary options; either round up or round down. Staff have continued to support the more protective approach of rounding up..	LW
V35		More work needs to be done on SQOs. We believe another 6 months is adequate to better assess both the science and the implementation of the SQOs	Staff disagree.	CCOC,GE
V36		The Water Board must consider the over breadth of the program. The draft Part 1 would designate 83% of all sediment as failing would fail SQOs and 63% of those are in the Possibly Impacted category, which may or may not represent a degraded state and is clearly the most difficult to resolve.	Staff disagree.	CCOC,GE
V37		The science supporting the draft Part 1 is not quite "good enough"	Staff strongly disagree.	CCOC,GE
V38		The draft Part 1 requires Stressor ID studies. However its important to understand how difficult these methods are.	The commenter is suggesting the stressor identification should not be performed because it is difficult yet provides no alternative. The alternative approach would be to use an exceedence of a sediment quality guideline to determine what chemicals should be addressed for cleanup and or TMDL actions which is the current approach.	CCOC,GE
V39		The Draft Part I makes it easy to get onto the 303d list, however getting off the list is much more difficult.	Staff disagree. Please see the Draft Part 1 Section VII.E	CCOC,GE

No.	Subject	Comment	Response	Author
V40		The Economic Analysis was insufficient	See response to Comment #609.	CCOC,GE
V41		We agree with MLOE concept, however there are still many defects that will become overly expensive to Californians. The approach is overly conservative and results in to many false positives	Staff disagree.	QEA, CCOC,GE
V42		Chemistry thresholds are set too low, in one particular case the threshold is set 10 times lower than levels determined by EPA cause effects.	Staff disagree. The chemical indicator utilizes two empirical approaches derived from data composed of mixtures of chemicals in California bay sediment. These chemical values are not comparable to does response studies performed with single chemicals.	QEA, CCOC,GE
V43		The Draft Part 1 should integrate a mechanistic approach	The Draft Part 1 integrates the mechanistic approaches in the role that they were intended. That is to assist in determining the cause of toxicity (see Section VII.F.1.c of the Draft Part 1.	QEA, CCOC,GE
V44		3% is too low for failure of SQOs, revise exceedance policy. A 20% exceedance is more reasonable since it corresponds to rates of toxicity at low chemistry reported in some studies	The binomial distribution criteria are based on balancing error rates for false positive and false negative determinations and were adopted by previous Board action in the 303(d) Listing policy. The same error rates are used for sediment assessment in order to attain a consistent level of certainty in the decision.	QEA, CCOC,GE
V45		Additional clarification is needed regarding how staff will determine causation and when stressor ID is used.	Staff have clarified when stressor identification is required in Section V.I.4 Section VII.C, F and Figures 1 and 2	QEA, CCOC,GE
V46		The Economic Analysis represents a very incomplete study of economics. The report equates costs with economic impacts, and does not provide definite conclusions regarding costs associated with control and regulation.	See response to Comment #609.	DS
V47		The Economic Analysis needs a discussion of the benefits of SQOs	See response to Comment #609.	DS
V48		The Economic Analysis needs does not provide any conclusions on the overall impact of SQOs. This is important because it will ultimately have an effect on allocation of resources.	See responses to Comments #609 and #610.	DS
V49		The Economic Analysis has many errors. The document should be peer reviewed.	The commenter does not provide specifics. See response to Comment #609.	DS
V50		The Economic Analysis should provide aggregate costs	See responses to Comments #609 and #610.	DS

No.	Subject	Comment	Response	Author
V51		States that there are over 200 published papers on water quality, sediment quality related economic analyses	Comment noted. See response to Comment #609.	DS
V52		SQOs designate areas as impacted without being compared with reference sites or where there may be no substantive impact	Staff disagree. Evidence of both exposure and biological effects are required to demonstrate an impact. Comparison to reference areas is applied in cases where relative differences are concern	IEA
V53		The proposed SQOs are overly broad and have sweeping implications	Staff disagree. The SQOs apply only to sediments in bays and estuaries of California	IEA
V54		We request an extension of court deadline	Comment noted	IEA
V55		Both the Economic Analysis and the scientific under pinnings of the SQOs need more work and peer review	Comment noted	IEA
V56		Supports MLOE, coupled with source and stressor ID, is the only way to make SQOs successful	Comment noted. Staff appreciate the support	BACWA, TriTAC, CASA CVCWA
V57		Supports use of SQOs for NPDES permits and receiving water limits	Comment noted. Staff appreciate the support	BACWA, TriTAC, CASA CVCWA
V58		Supports regional monitoring approach	Comment noted. Staff appreciate the support	BACWA, TriTAC, CASA CVCWA
V59		Request the Water Board make a clear commitment to provide enough time and resources to develop tools for phase 2 estuarine sites. These tools are vital for the delta and SF Bay.	Comment noted	BACWA, TriTAC, CASA CVCWA
V60		We are concerned about proceeding to 303d listing on basis of the Possibly Impacted (PI) category without doing stressor ID first. We suggest evaluating 303d listing criteria both with and without inclusion of PI sites	Staff agree, There is a great deal of uncertainty associated with the PI category. However staff believe that this issue could be better addressed in Phase 2	FSI
V61		Suggest that TOC, SEM and AVS data be collected in current SQO monitoring programs in order to facilitate future refinements of chemistry line of evidence with respect to use of mechanistic approaches	Staff agree. If resources are available staff will broaden the Water Boards own data collection efforts to include these measures.	FSI
V62		Suggest that the Water Board collect broader list of pollutants that may be potentially causing harm to benthos.	Staff agree. Staff have broadened the list of analytes for the studies currently being performing in the Delta	FSI
V63		Supports the requirement for stressor identification	Comment noted	FSI
		WRITTEN COMMENTS (accepted by 11/30/07 and 09/05/08)		

No.	Subject	Comment	Response	Author
504		Despite the complexity of the Issue the public have been given very little time to digest the material and intelligently comment on the report and draft plan	Staff disagree. In fact, most of the indicators described in the plan were described in the scoping document circulated August 17, 2006. Task specific plans and results have been presented at the Scientific Steering Committee meeting and the material made available on line. In addition, those that wanted the data set to perform their own analyses were provided the data.	LW
1066		Submitting the enclosed documents in support of the comments submitted by the California Chamber of Commerce, General Electric Company, Montrose Chemical Corporation of California, and National Steel and Shipbuilding Company under separate cover on September 5, 2008	Comment noted. For list of documents submitted see comment letter at: http://www.swrcb.ca.gov/water_issues/programs/bptcp/comments_sediment2008.shtml	LW1
1024		We urge you not to adopt this flawed approach, and instead reconfigure and bolster the policy to provide "adequate protection for the most sensitive aquatic organisms" as required by section 13393 of the Water Code.	Comment noted. Response to the assertion that the draft Part 1 does not provide protection to the most sensitive organism is addressed in responses to comments Nos. 60, 1004, 1005 and 1006 and is discussed further in Section 5.4 and 5.4.3 of the Staff Report.	SCCA
1082		I lost a lot of time and effort researching the November 2007 public hearing that could have gone into the new deadline because the Board's 2007 Schedule was no longer posted. I found it through extensive research, and that is how I came across the November 19/ 2007 public hearing. Had I checked out all of the Program Website, I would have possibly found it sooner. The point is that the exact day in November 2007 should have been mentioned in the Board's Notice.	The document circulated for the public comment ending September 5, 2008 was posted July 18, 2008	TJ
1083		All of my efforts were not in vain because I came across the February 5, 2008 related public hearing and realized that 3 public hearings had been voided because of a gargantuan oversight by Board staff. How fortunate for the dischargers because they qot more time--almost a year--with the status quo because Resolution 2008-0014 has been voided along with staff reports, and exhibits.	Nothing was voided or removed from the Adminstrative Record.	TJ

No.	Subject	Comment	Response	Author
1084		The fact is that all of the oral comments from Board members, staff and the public and previous draft staff reports and supporting documents are now null and void. The commenter	The notion that all previous hearing comments, or draft documents circulate are void is not true. The September 16, 2008 Hearing is a continuation of the	TJ
1085		Though it is stated on Page 2 of the Notice that commenters need not resubmit their prior comments but may simply reference them in any new comment letters", the fact is that this statement is not made by Board counsel.	Nothing was voided or removed from the Adminstrative Record.	TJ
1086		All written comments and evidentiary materials including those submitted in a non-timely manner must be part of the record.	Only comments received during the comment period are accepted into the adminstrative record.	TJ
1088		Comparing the new public hearing Draft Plan to the January 29, 2009 Draft Plan was difficult due to various text format change. from sentence to paragraphs, to entire sections. Re-wording, and reshuffling of Sections. Some information highlighted in yellow turned out not to be new. There were still some of the same underlined areas in the January 29, 2009 Draft Plan. Sections titles changed to statements from questions. List of tables did not coincide	Staff made additional changes to the Staff report released in July 2008 in order to clarify some concepts or to make the document easier to read.	TJ
1089		Since the November 19, 2007, February 5, 2009, and February 19, 2008 public hearings have been voided, should not the September 27, 2007 public hearing Draft Plan and Appendices have been re-released for public comment? If not, why not? If so, why has a new Draft Plan been released for comment? Is it to save staff time since Part 2 is ready to go through the public review and comment process?	No. See response to comment No. 1084	TJ
1090		Are the November 19, 2007 public hearing transcripts available to the public? If not, why not?	The transcript is a public record and is in the administrative record for this action. It is available upon request.	TJ
1091		Is the posting of the notice in the newspaper included in any of the Office of the Clerk to the Board communication to the Board? How could the certification of the posting of the public hearing Notice bypassed scrutiny by the office of the Clerk to the Board, and the Office of Chief Counsel?	No. Staff are responsible for ensuring that the appropriate newspaper postings are made. In this case staff made a mistake.	TJ

No.	Subject	Comment	Response	Author
1093		In my haste to get my comments to you in a timely manner, I included comment #7 under the Legal Notice section of my August 29, 2008 letter instead of under the July 18, 2008 Draft Plan. I have made the correction in this letter. I have also added a new item under legal notice. In my August 29, 2008 letter, I inaccurately referred to the Draft Plan as the July 18, 2008 Draft Plan. My July 18, 2008 Draft Plan heading should read July 18, 2008 Draft Staff Report. In this letter, even though the numbering system under each heading continues my August 29, 2008 letter comments, I have corrected the headings	Comment noted	TJ
1094		In my August 29, 2008 letter comments regarding the January 29, 2008 Draft Plan should have read January 29, 2008 Draft Staff Report (Page 3, July 18, 2008 Draft Plan, Comment #l}. The comment should have read "Comparing the new public hearing Draft Staff Report to the January 29,2008 Draft Staff Report was difficult	Staff highlighted text in yellow to point to the public what changes were made to the staff report that provided new information or that added clarity to the section. Typos changes to table numbers or the table of concents were not highlighted as changes	TJ
1095		My August 29, 2008 letter comments regarding the September 27, 2007 Draft Plan(Page 4, July 18, 2008 Draft Plan Questions, Number 1) should have also read September 27, 2007 Draft Staff Report. The question should have read " ..Should not the September 27,2007 public hearing Draft Staff Report been released instead of a new draft staff report?	As stated previously, past documents hearings and responses were not voided. As a result changes that were made since the November 2007 hearings have been retained in later documents	TJ
10		The Draft Report falls well short of the level of documentation, justification, and validation that would be required to evaluate, let alone justify, a new technical policy with such sweeping implications.	Staff disagree. The draft report is well documented and the plan follows a logical and sequential approach that utilizes multiple lines of evidence to assess sediment quality and if found to be degraded requires an evaluation of the potential causes.	IEA
15		California will be among the first in the nation to pursue such a well reasoned and thoroughly documented approach to establishing such objectives for the protection of surficial sediments.	Staff appreciate the support	CLTNS, Weston

No.	Subject	Comment	Response	Author
506		The State Board should not forge ahead at this time. The SQOs present an important and unprecedented regulatory effort. There are no SQOs in California, and few across the country. The SQOs will be a milestone in the regulation of sediment quality in California and potentially will be a model for other coastal states across the nation	Comment noted	CCOC, LW
507		It is critical that the State Board apply sound scientific methods to identifying sediments as contaminated, and develop SQOs that are consistent with Chapter 5.6's principal goal of identifying and addressing discrete areas of contaminated sediments that are unreasonably affecting the beneficial uses of California's bays and estuaries. The current proposal does not satisfy these objectives and accordingly must be revised.	Staff disagree. The scientific validity of the tools and indicators has been supported by the science team, the Scientific Steering Committee and has been supported by peer reviewers. The SQOs are not applicable only within toxic hotspots. Are water quality objectives applicable only where water quality objectives are exceeded? No!.	CCOC, LW
508		A. The SQOs Must Be Based on Good Science.	Staff agree and believe that the proposed indicators are founded on good science. Commenter is referred to responses from Peer Reviewers.	CCOC, LW
509		If adopted as proposed, the SQOs would classify 80% of all sediments in California's bays, and more than 90% of sediments in San Francisco Bay, as contaminated. Under the State Board's current classification, finalized in 1999 after years of work, a relatively small percentage of bay and estuary sediment is considered contaminated, corresponding to discrete "hot spots."	The criteria used in the 1999 designation were intended to identify the worst "hotspot" areas and are not equivalent to the more protective SQOs proposed in the Staff Report.	CCOC, LW
510		The State Board carries a significant burden to explain the dramatic expansion of the 1999 classification portended by the proposed SQOs. Our analysis indicates that the proposed expansion is not warranted, and should be addressed through revisions of the proposed rule	See response to comment #511.	CCOC, LW

No.	Subject	Comment	Response	Author
511		The SQOs Will Make Contaminated Sediments the Rule, Dramatically Expanding Chapter 5.6 Jurisdiction without Scientific Basis, and Contrary to Intent. The flawed chemistry thresholds, and other problems, result in the SQOs incorrectly classifying the vast majority of bay and estuary sediment as contaminated, in sharp contrast to the 1999 classification under the same basic principle. The SQOs neither acknowledge nor explain this dramatic departure from the State Board's earlier findings, and are arbitrary and capricious in that regard	Staff disagree. The commenters contend that the California Legislature intended that the statutory mandate to develop sediment quality objectives and the requirements governing toxic hot spot regulation serve the same purpose, i.e. the identification and remediation of toxic hot spots. They further contend that the SQOs would dramatically expand the quantity of sediment considered to adversely affect beneficial uses over that identified in the toxic hot spots program.	CCOC, LW
511 Co			These contentions are erroneous. In chapter 5.6, the California Legislature mandated that the State Water Board fulfill two distinct functions – one aimed at remediating already polluted sites and one intended to prevent formation of these sites in the future. The former was the identification of toxic hot spots, i.e. locations where hazardous substances had accumulated in water or sediments to levels which may pose a substantial present or potential hazard to aquatic life, wildlife, fisheries, or human health; may adversely affect beneficial uses, or which exceed water quality standards or sediment quality objectives. (Wat. Code §13391.5(e).) The toxic hot spots program required the Water Boards to assess and rank these sites and to develop cleanup plans. The latter was the development of sediment quality objectives in order to ensure the reasonable protection of beneficial uses of water and to prevent nuisance conditions. (Id. §13391.5(d).)	CCOC, LW

No.	Subject	Comment	Response	Author
511 Co			Sediment quality objectives apply to all sediments in bays and estuaries, whether the sediments are impaired or not. The objectives are not cleanup standards, but rather objectives designed to ensure that beneficial uses are protected. While the toxic hot spots program is intended to address sites that are already polluted or contaminated, sediment quality objectives serve both to assess current sediment quality and to enable the Water Boards to regulate water discharges in order to prevent pollutants from accumulating in sediments to levels that can impair beneficial uses in the future.	CCOC, LW
511 Co			Commenters' interpretation of chapter 5.6 does violence to the clear and unambiguous wording of the statute. When chapter 5.6 was adopted, the term "water quality objective" was well understood, and it must be presumed that the Legislature intentionally chose the term "sediment quality objectives", in lieu of cleanup levels focused only on toxic hot spots. (See, e.g., People v. Knowles (1950) 35 Cal.2d 175, 183 [217 P.2d 1] ("If the words of the statute are clear, the court should not add to or alter them to accomplish a purpose that does not appear on the face of the statute or from its legislative history.")).	CCOC, LW

No.	Subject	Comment	Response	Author
512		The Proposed SQOs Are Not Reasonably Achievable and Lack Implementation Detail. There can be no doubt that restoring bay and estuary sediment to compliance with the grossly overbroad SQOs would be a monumental and unprecedented undertaking. Yet, perhaps in recognition of how ambitious such a program would look on paper, the draft SQOs provide no useful discussion of how the regulated community reasonably can achieve the SQOs, which entities are to take what steps to remedy the picture of widespread and chronic noncompliance painted by the draft SQOs	We do not agree that the objectives are impossible to meet. Cleanup of impaired sediments will be conducted in accordance with State Water Board's cleanup policy, which is contained in Resolution No. 92-49. While this policy promotes cleanup activities that attain background pollutant levels, it allows the Water Boards to approve cleanup levels above background if background levels cannot be restored. The policy further allows the Water Boards to approve containment zones where the Water Boards determine that it is unreasonable to remediate to levels that achieve water quality objectives.	CCOC, LW
22		Only after the technical and implementation deficiencies in the proposed approach have been corrected should the SWRCB consider its adoption as fulfilling the legislature's requirement for the Bay Protection and Toxic Cleanup Program	Comment noted. Staff have proposed an approach based upon MLOE that is supported by the scientific community. Minor revisions have been made to implementation and figures added to clarify how the SQOs would be applied within specific programs.	GLF
26		Approaches being pursued under phase 2 of the development process are necessary to ensure adequate environmental protection and successful regulatory implementation of the SQOs.	Staff agree.	Weston

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78		A third issue that is necessary for regulatory success of the program is the ability to understand the linkages between water-borne and sediment-associated contaminants in a given system. Since the primary regulatory control mechanisms are via the Total Maximum Daily Load (TMDL) and National Pollution Discharge Elimination System (NPDES) programs, understanding this linkage is critical to ensuring that imposition of TMDLs and permit limits will achieve the desired reduction in sediment associated contamination. While it is not clear whether such processes fall under the purview of the SQO program, they are none-the-less necessary to a successful comprehensive regulatory strategy, and they currently do not exist.	Staff agree that this is an important issue, however this issue is not within the current purview of SQO development.	Weston
86		At present the only areas with adequate data sets for benthic communities are Southern California's enclosed bays and marine lagoons and polyhaline San Francisco. For other bays and estuaries, the data sets are inadequate. We pose two key financial questions for the SWRCB· Will financial resources be available to collect the data needed to make this program successful in all coastal areas of California· Who will be responsible for funding this effort? It will be prudent and less expensive in the long term to use the comprehensive MLOE approach initially to avoid the error and expense associated with “false positives” (incorrect impairment designations).	The current program has funding to collect data in portions of San Francisco Bay and the Sacramento San Joaquin River Delta. Additional data will be collected from Regional Monitoring Programs.	WPHA,PWG

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87		The proposed SQOs would be ambient sediment quality objectives and, therefore, should contain provisions for monitoring programs to assess attainment of the SQOs in all waters to which they apply. While many enclosed bays may have dischargers with sufficient resources to support the data requirements of this methodology, many enclosed bays and estuaries do not, in which case monitoring would have to be done by the Water Boards or others. An analysis of the feasibility of meeting the SQO Plan's data requirements should be included in the Staff Report, and this factor should be considered in the analysis of alternatives. The SQO Plan should be applicable to situations with limited data availability and provide for further data collection through conservative assumptions in lieu of missing lines of evidence.	The plan is applicable to estuaries. The SQOs have to be scientifically defensible under both state and federal law. Staff concluded that scientifically defensible objectives required 3 lines of evidence with the accompanying data requirements. The staff report did analyze single line v. multiple lines of evidence as alternatives in the staff report and recommended the MLOE alternative. Finally its important to note that the State Water Board has committed over $600,000 to collect sediment quality data in the Delta. Regional Board receives SWAMP funding of $500,000 to $700,000 a year to support monitoring and assessment and has yet to commit any resources to support the State Water Boards effort in the Delta.	RB5
88		The SQO Plan should be applicable to situations with limited data availability and provide for further data collection through conservative assumptions in lieu of missing lines of evidence.	The Regional Boards have the authority under the California Water Code to require a permittee to collect additional data where a threat to beneficial uses is suspected.	RB5
92		SQO evaluations should be performed using current (rather than historical) data, although historical data should be used in developing management guidelines; e.g., to consider trends over time.	Staff agree.	FSI, LACSD, OCRDMD, WSPA
514		There is no consideration of reference condition. An analysis of sediment quality at a site requires the use of reference sites	The reference condition is incorporated into the benthic community indices.	LW
519		Request the Water Board not adopt the SQOs	Comment noted	LW
520		Request the Water Board release all supporting documentation including all documents cited in the staff report and relied upon to develop the SQOs and be allowed additional time to review these documents	All of the material has been posted at http://www.waterboards.ca.gov/bptcp/sediment.html. In addition, the Lyris server has been used to circulate both technical and policy related documents and notices to over 800 subscribers. Lyris subscriptions are available under "quick hits" at the State Water Boards home page (http://www.waterboards.ca.gov/bptcp/sediment.html).	LW

No.	Subject	Comment	Response	Author
		It is not clear how sections relate to one another and some terms used in the body of the Plan do not track to the Glossary (e.g. definition of reference in benthic community assessment). A flowchart was described at the November State Board workshop, but has not been made available on the website. The SQO Plan would benefit from a clear step-by-step plan of how practitioners would move through the assessments, integration, and management actions	Staff have added text clarifying how the SQOs will be implemented in Section VII of the draft Part 1 and added figures 1 and 2 to support the text	SDCK
521		The SQOs would dramatically expand the quantity of sediment that the State Board would consider to adversely affect beneficial uses, as compared to the quantity of sediment already identified as adversely affecting beneficial uses when it implemented the toxic hot spot program. If an agency interprets its statutory mandate differently from how it has previously interpreted its mandate, without adequately accounting for the difference, a court is more likely to find that an agency abused its discretion. This proposition is well established in administrative law. If an agency interprets its statutory mandate differently from how it has previously interpreted its mandate, without adequately accounting for the difference, a court is more likely to find that an agency abused its discretion	Staff disagree. The BPTCP identified many areas where sediment quality is degraded for various reasons. In addition, under the BPTCP sites were ranked and prioritized for future action. A review of all the Hotspots ranked high, medium, and low (SWRCB, 2004A) relative to the preliminary assessment conducted by SCCWRP (Barnett et al, 2007) suggests that the areas affected are not extremely different. It is also important to understand the differences between Toxic Hot Spot Identification and the application of SQOs. The Hot Spots Ranking criteria included other factors not related to sediment quality.	CCOC, LW
522		The Proposed Regulation Is Defective as a Matter of Law Because It Does Not Further the Purpose of the Bay Protection and Toxic Cleanup Program of Identifying Actual Toxic “Hot Spots” .” To effectuate the purpose of the statute, the Proposed Regulation should establish a mechanism that can be utilized to distinguish properly between impacted and nonimpacted areas and identify those that actually constitute specific and discrete toxic “hot spots” in need of remedial action. Application of the proposed SQOs instead suggests that vast portions of California’s waterbodies exceed the proposed SQOs (see Section II.C, supra), eviscerating the ability to use the proposed SQOs as an effective, specific and discrete toxic “hot spot” identification and management tool.	Staff disagree. The direct effects narrative objective and interpretive tools builds from the high quality data collected and the indicators developed under the BPTCP. The proposed narrative objectives and the MLOE approach provides a means to confidently assess sediment quality. This program did not just focus on building tools to identify the worst sediment quality, these tools were developed to assess sediment quality along a continuum of sediment quality from good to poor.	CCOC, LW

No.	Subject	Comment	Response	Author
523	VII	The SQOs should positively identify specific and discrete toxic "hot spots" – i.e., sites where scientifically defensible evidence demonstrates the presence of significant adverse impacts to aquatic life or human health, and sound evidence establishes that specific pollutants in the sediment are the cause of the observed adverse effects on benthic organisms. As currently drafted, the SQOs fail to accomplish these objectives. Rather than focusing on sites that are known to have the highest magnitude of identifiable, concrete impacts and making sediment management decisions targeted at those sites, the proposed SQOs would establish a scheme where sediment impairment is the norm.	Staff disagree. See the response to comment 522. The site categories allow both the regulated community, the regulators and the public to identify the worst sites or hotspots as well as sites with the highest sediment quality and those sites that are not as highly degraded. In addition, it builds on the idea of prioritization based upon the responses of the indicators applied.	CCOC, LW
524		The SQOs should instead adopt an approach that identifies specific and discrete toxic "hot spots" and consider the pathways by which risks exist, receptors for those risks (sediment-dwelling organisms, wildlife or humans), the spatial extent of the contamination, the regulatory goals of the Program, and costs of different sediment management decisions. Utilizing such an approach will better allow the State Board to provide a meaningful interpretation of ecological significance and to make sound management decisions designed to provide the appropriate degree of ecological and human health protection consistent with the regulatory context.	The approach can be and should be applied to identify the areas with the greatest level of degradation.	CCOC, LW

No.	Subject	Comment	Response	Author
525		The SQOs as proposed do not further the fundamental goal of Chapter 5.6. The proposed SQOs should draw from the state's experience with the TMDL program, where impairment has become the rule in the water column, and implementation plans are required for virtually every water body near human activity. The SQOs need not, and should not, be tantamount to a TMDL program for all sediments statewide. As currently proposed, there is a risk that the SQOs needlessly will result in a vastly expanded program of sediment cleanups that are unjustified on the science, fail to effectively reduce risk, and cause more harm than good. Such a program is unwarranted by any reasonable assessment of potential impacts to the benthic community, human health or wildlife	Staff disagree. The SQOs are not similar to a TMDL.	CCOC, LW
526		The State Board instead should focus on specific and discrete toxic "hot spots" where scientifically defensible evidence (1) demonstrates the presence of significant adverse aquatic or human health impacts, and (2) identifies the specific pollutants in the sediment that are the cause of the observed adverse effects. Without this necessary linkage, the proposed SQO is flawed, and does not comport with the statutory mandate to reasonably protect the beneficial uses of California bays and estuaries, and does not advance the legislative purpose of the Program.	The approach can be and should be applied to identify the areas with the greatest level of degradation.	CCOC, LW

No.	Subject	Comment	Response	Author
96	Newport Bay	The SQO Plan should explicitly recognize that ongoing efforts to address toxic compounds present in Newport Bay sediments constitute compliance with Porter-Cologne Chapter 5.6 and also provide appropriate SQOs for the Bay. The County, Santa Ana Regional Board, and other stakeholders within the Santa Ana Region have been engaged in a similar process to that proposed in the SQO Plan to address toxic compounds in sediments as required under Chapter 5.6. Under a recent Santa Ana River Basin Plan Amendment incorporating organochlorine TMDLs for the Newport Bay watershed, we currently are developing a work plan to use significant stakeholder investment to perform stressor identification studies for sediments in the Bay	Comment noted. Statewide water quality control plans are not the appropriate vehicle to acknowledge or rule on site specific actions	FSI, OCRDMD
100	1.1	We appreciate the difficult task before the State Water Resources Control Board to develop scientifically defensible Sediment Quality Objectives (SQOs) for enclosed bays and estuaries. We believe the State Board staff has done an admirable job planning and implementing the design and development process. The California derived SQOs are likely to be an important national milestone in environmental policy. The effort of ensuring that the policy be built on a solid foundation of scientific understanding while also incorporating feedback from a diversity of stakeholder and user groups is to be commended. The State has approached this difficult task in a manner that is both responsible and scientifically supportable	Comment noted.	LACSD
101	1.1	Page 1, par. 1, lines 6-10 - This sentence is missing an important word (see bolded suggestion listed below). It should read "SQOs would provide the State and RWQCB stakeholders and interested parties with a technically sound mechanism to differentiate sediments impacted by toxic pollutants from those that are not consistently impacted throughout the coastal regions".	Comment noted.	WPHA,PWG

No.	Subject	Comment	Response	Author
1	1.1	We support the State Board's efforts to maintain and improve the sediment quality in California's enclosed bays and estuaries and recognize that developing Sediment Quality Objectives (SQOs) is a difficult and complicated task.	Staff agree.	FSI, LACSD, OCRDMD
102	1.2	Page 1, last sentence - WPHA would suggest including benthic community assessments as another source of information that should be used as the basis for SQOs	Staff agree but the language used was obtained from Section 13393 of the California Water Code.	WPHA,PWG
499	1.2	The Proposed SQOs appear to be inconsistent with the statutory definition of a "Sediment Quality Objective". The State Board has exceeded its statutory mandate by proposing a complex mechanism that does not appear to meet the definition of a "sediment quality objective" under the Porter-Cologne Act.	The commenter is referring to the definition in Section 13391.5 of the CWC which is stated in Section 1.2 of the Draft Staff Reports. Because there are no chemical measures that can reliably protect aquatic life, staff have proposed narrative sediment quality objecitves that staff believes will accomplish this mandate. They are; 1) Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities in bays and estuaries of California. This narrative objective shall be implemented using the integration of multiple lines of evidence (MLOE) as described in Section V of Part 1. 2). Pollutants shall not be present in sediments at levels that will bioaccumulate in aquatic life to levels that are harmful to human health. This narrative objective shall be implemented as described in Section VI of Part 1. Where numeric criteria are infeasible, both the CWC and CWA provide the authority for states to develop narrative objectives.	CCOC, LW

No.	Subject	Comment	Response	Author
500	1.2	The SQOs must correspond to "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." Cal. Water Code § 13391.5 (emphasis added). The State Board's proposed multiple lines of evidence framework does not constitute a "level of a constituent" within the meaning of the Legislature's mandate. Instead, the State Board has developed a triad approach for evaluating sediment quality, in which each of the individual lines of evidence has significant limitations and the integration across the lines of evidence lacks transparency and does not result in clear, coherent delineations between sediments that are actually impacted and in need of remediation and those that are not. Whatever the merits of the triad approach as a general scientific concept over a single line of evidence approach, the novel, complex framework proposed appears inconsistent with the meaning of Section 13391.5.	We disagree. Both sediment quality objectives contained in the proposed plan establish pollutant levels (for human health) or pollutant quantities (for benthic community protection). Further, nothing in the statutory definition of sediment quality objectives requires that the pollutant levels be numeric. It should be noted that the term "sediment quality objectives" is defined similarly to the term "water quality objectives", and it is well established that water quality objectives can be either numeric or narrative. Since at least 1975, for example, all basin plans have included a narrative toxicity objective.	CCOC, LW
501	1.2	The State Board's complex approach for managing sediment quality, involving (1) the selection of indicators and thresholds from the individual lines of evidence, (2) the joining of multiple lines of evidence to make a station assessment, and (3) the joining of multiple stations to make a waterbody assessment by combining the "severity of effect and potential for chemically mediated effects" (Staff Report, at 85-87), could not reasonably have been contemplated by the Legislature when defining "sediment quality objectives" as set forth in Section 13391.5.	See response to comment #500.	CCOC, LW
502	1.2	The public had no notice that the State Board would expand the explicit, narrowly tailored definition of a "sediment quality objective" to a complex multiple lines of evidence approach that lacks clarity and transparency, and results in classifying vast bodies of waters as impaired	As stated previously, staff are proposing narrative objectives supported by specific indicators , which are used to interpret the narratives. The use of sediment chemistry sediment toxicity or benthic community in sediment assessments and the use of these in a weight of evidence approach has been widespread for a decade or more as discussed in Section 5.5.1 of the draft Staff Report.	CCOC, LW

No.	Subject	Comment	Response	Author
103	1.3	We recognize and applaud the peer review process that the draft policy has undergone. As the Draft Staff Report states, peer review ensures that public resources are managed effectively and that the policy is supported by the scientific community at a local and national level. The peer review process has helped shape the validity of the procedures presented in the Draft Staff Report and presents a scientifically defensible model for other states to follow.	Comment noted.	LACSD
104	1.3	Page 2, Section 1.3 - Scientific Peer Review - The report should clearly state the legal obligations and process associated with the peer-review. How are qualified peer-reviewers selected if they are not included within an existing institutional agreement? How are review comments addressed and who decides which comments to include or disregard?	External peer reviewers are identified through a contract with U.C. Berkeley, and all potential candidates must prepare and sign a conflict of interest disclosure statement. Peer review comments are presented in this document in bold. As with public comment, all significant comments from peer reviewers are addressed.	WPHA,PWG
1017	1.3	There is no evidence that the Scientific Steering Committee or the peer reviewers actually reviewed all technical aspects of the entire SQO Plan using the appropriate criteria for review and determined that the approach proposed would provide a level of protection consistent with the mandate. The fact that some of the supporting reports have been well received does not mean the approach, taken as a whole, is technically sound in meeting the goals of the mandate	Staff disagree. See response to comment Nos. 1016, 1018 and 1019.	HBK

No.	Subject	Comment	Response	Author
1018	1.3	The package sent to the peer reviewers asks the wrong questions and reads more like a sales pitch than a request for critical review. The question the peer reviewers should have been asked was whether the SQO meets the requirements of the CWC and whether the SQO Plan will prevent or remedy impacts to water quality and the beneficial uses dependant upon them.	Staff disagree. The peer reviewers were asked to comment on the scientific basis of the draft Part 1. This included questions regarding the selection of receptors, the use of an MLOE based approach, selection of individual LOE, development of a method to integrate the LOE in relation to the intended use, and whether the implementation language is appropriate for the overall approach being proposed. The questions posed to peer reviewers and comments are presented at the end of this document. The memorandum requesting peer review is available at: http://www.swrcb.ca.gov/water_issues/programs/bptcp/docs/sediment/sqo_peerreviewrequest.pdf	HBK
1016	1.4	This flawed approach had been given a veneer of scientific credibility in the Staff Reports and presentations by making vague sweeping statements about the level of scientific support without being clear about what was reviewed, whether the reviewers were asked the right questions, and what they actually said	Staff disagree. The peer review comments are presented at the end of this document. The Scientific Steering Committee meeting presentations background material and meeting summaries are at: http://www.swrcb.ca.gov/water_issues/programs/bptcp/sqoscientific.shtml#2007. All workplans, analyses, results and conclusions were presented to the Scientific Steering Committee during the course of the Phase I development effort. As reports and journal articles were prepared these documents were reviewed by the Scientific Steering Committee as well. All documents that were final draft prior to the peer review were also submitted to the peer reviewers as supporting documentation.	HBK

No.	Subject	Comment	Response	Author
1019	1.4	One paper (Bay and Weisberg, 2007)18 has been cited numerous times as showing that the approach proposed appeared to correlate well with 'median expert opinion'. Even assuming that 'median expert opinion' was in fact based on the right evaluation criteria, what they reviewed was not the approach that appears in the final SQO Plan as currently presented for adoption. There were significant differences; only one species of toxicity tests were used in for the toxicity LOE, and the listing policy's exceedance frequency table was not applied. Therefore the level of validation this provides for the actual method proposed in the SQO Plan is greatly overstated	Staff agrees that there were differences. The limited availability of sublethal toxicity test data prevented the authors from incorporating those data into the assessment. However the sediment toxicity tests used in the assessment were consistent with the proposed approach. Sublethal endpoints can be more sensitive then the acute survival endpoint. In those cases it could provide a greater confidence that a site is truly nontoxic. Since both the experts and the SQO assessment used the same data, this limitation is unlikely to alter the value of the study for validating the method used to interpret the three lines of evidence.	HBK
1020	1.4	Another report (Barnett et al., 2007)has been used to demonstrate to this board the applicability of the SQO plan's MLOE method by showing the results when applied to Bays and Estuaries statewide. This report, however also did not use the proposed method contained in the SQO plan. Again, only one toxicity test was used in this report. A different method of spatial averaging of sites was used, but that's not what the SQO plan proposes, which is the binomial method from the listing policy.	Staff do not believe the lack of sublethal toxicity data invalidated the assessment as described in response to comment No. 1019. The original intent of the report cited was to support the State Water Boards and U.S. EPA RIX 305(b) reports. The 305(b) reports serve a different purpose then the 303(d) reports. The draft Part 1 incorporates the binomial statistic to maintain consistency with the existing 303(d) listing policy.	HBK
105	1.4	The State Board staff has a clear understanding of the importance and difficulty of integrating a solid scientific framework with the mandated policy requirements in developing SQOs. The science staff from SCCWRP and the nationally recognized experts comprising the Scientific Steering Committee have provided the quality of input needed to support such an important project. In this effort, they have ensured the policy is built from the most comprehensive database constructed from California sediment data statewide.	Comment noted.	LACSD

No.	Subject	Comment	Response	Author
106	1.4	Integrating the science with policy is an equally important task and we feel that the State Board has been diligent in their consideration of comments from diverse stakeholder groups. The Advisory Committee and the Scientific Steering Committee have provided numerous comments, many of which have been incorporated into the Draft Staff Report. The Districts are grateful that the State Board has been receptive to such feedback and we believe the policy is better for it. Overall the Districts are very supportive of the development, process, and current direction of this policy.	Comment noted.	LACSD
107	1.4	Page 3, Scientific Steering Committee (SSC) - The use of a SSC with highly recognized experts is an excellent idea. WPHA recommends that this panel (or a panel of similar experts) be retained throughout the implementation process of the SQOs	Staff concur.	WPHA,PWG
3	1.4	We resigned from the sediment quality objective ("SQO") stakeholder group largely because the vast majority of our comments were never addressed or taken seriously.	Comment noted.	HTB
1000	1.4	Public Process was circumvented when no public notice was posted	Staff agree that the notice wasnot published prior to the November 2007 Hearing. Prior to the September 2008 Hearing, the public notice was posted on the Water Board's website and emailed electronically to sediment quality interested parties. In addition the notice was published in several newspapers encompassing the Bay area, Los Angeles, Santa Rosa and Sacramento.	Ginn D
1132	1.4	It is inexcusable that the public participation process to approve the 2007 Staff Report and Appendices was botched	Staff view the public process as the most critical component of the planning process. In addition, with the Water Board limited resources, this oversight has costed staff and management a great deal of time that could have been better spent working on Phase II. In addition, the Advisory Committee and the Technical Team also put in additional time that would not have been required had the oversight not occured. Staff apologizes for the mistake.	TJ
4	1.4	Flawed Stakeholder Process Should Not Legitimize Draft SQO Plan	Staff disagree.	SFBK

No.	Subject	Comment	Response	Author
6	1.4, 1.7	We commend the State Board staff for soliciting input from the nationally recognized experts that make up the Scientific Steering Committee, as well as, the Regional Board staff members, the Science Team, and the diverse stakeholders that comprise the Advisory Committee.	Staff appreciate the time the Scientific Steering Committee, Advisory Committee and Agency Coordination Committee members spent working on this important program.	BACWA, Caltrans, CVCWA, CLTNS, LACSD, OCSD, Tri-TAC, Weston
504	1.5	Despite the complexity of the Issue the public have been given very little time to digest the material and intelligently comment on the report and draft plan	Staff disagree. In fact, most of the indicators described in the plan were described in the scoping document circulated August 17, 2006. Task specific plans and results were presented at the Scientific Steering Committee meetings and the material made available on line. In addition, those that wanted the data set to perform their own analyses were provided the data.	LW
108	1.6	Page 4, second line from the bottom - It would be useful if the authors can provide an example of how economic considerations are used in the development of water quality objectives.	See response to comment #609 and references provided in the Response.	WPHA,PWG
2	1.7	We would like to acknowledge the time and effort that the State Board staff and Science Team have devoted to this project and commend them on their substantial progress towards the goal of developing scientifically defensible SQOs.	Staff appreciate the support.	Caltrans, CASQA, CVCWA, LACSD, OCSD, Sierra Club,Tri-TAC
109	Section 1.8	PROPOSED PROJECT AND DESCRIPTION, definition of the Sacramento-San Joaquin Delta - The estuary definition for the Sacramento-San Joaquin Delta includes the entire legal Delta as defined by Section 12220 of the California Water Code. Certain of the channels found in this large inland geographical area contain fresh water. We recommend that the intent of Phase II of the project be clarified with respect to the applicability of future MLOE SQOs to inland fresh surface waters as distinct from the mixing zones for fresh and ocean waters.	Staff agree that it is important to distinguish the different habitats in order to properly assess benthic communities. The draft Part 1 bounds the use of tools to only those habitats where they have been developed and tested.	WPHA,PWG

No.	Subject	Comment	Response	Author
110	Section 1.9	We believe that the first four goals described in Section 1.9, as they apply to the benthic community have been met:The Plan is scientifically defensible and transparent. The plan uses MLOE approach (sediment toxicity, chemistry, and benthos) to assess the sediment quality. While this triad is in common use today, it lacks transparency because it requires expert BPJ to interpret the information and determine the sediment quality. The plan minimizes the need for BPJ. Each LOE was carefully refined drawing on California sediment data base. Toxicity test species were chosen for their sensitivity to pollutants and availability of sources that provide reliable test species. Statistical methods are applied to improve the predictability of the adverse effects of toxicity and chemistry on the benthic community. T Threshold levels for each of these lines of evidence were determined using the data base. Finally, the plan presents a transparent logical process to integrate the MLOE, thereby reducing if not eliminating the need for BPJ.	Comment noted.	Sierra Club
111	Section 1.9	The proposed plan outlined above applies specifically to Southern California's enclosed bays and marine lagoons and the Polyhaline central San Francisco Bay. Other bays listed in the Report have not met these goals because lack of data. Instead, the Plan, Part 1 Appendix A, Staff Proposal Section V.J describes the same multiple lines of evidence approach using available indicators/tools. Part 2 if adopted would replace this with superior indicators and tools comparable for those developed for the Southern California and central San Francisco Bay.	Comment noted.	Sierra Club

No.	Subject	Comment	Response	Author
112	Section 1.9	The goal to establish narrative receptor-specific SQOs besides the benthic community have not been fully met. Part I addresses only the bioaccumulation of contaminants of concern in fish tissue (indirect effects) to protect human health in accordance with the California Environmental Protection Agency policy human health risk assessment policies for fish consumption. The proposed plan states that a more detailed approach to support human health based sediment quality objectives will be completed in the next phase (Part 2). This is not sufficient, in our view, to protect all the beneficial uses including all aquatic life in trophic level above the benthic community. Aquatic life in these habitats would be adversely affected if the indirect effects of the sediment quality objectives to protect only human health are adopted.	Comment noted. Staff agree that more works needs to be conducted in Phase II of the program.	Sierra Club
113	Section 1.9	The goals of the SQO program, as stated, are to establish methods to evaluate conformance to a “protected condition” (section 1.9). This “protected condition” is not defined in section 1.9, but section 5.6 provides several alternative definitions of a “protective condition”. However, the definitions in section 5.6 are all based on results of the assessments of MLOE. If the “protective conditions” defined in section 5.6 are taken to be equivalent to the “protected condition” that is defined as a goal in section 1.9, then the consequence is that the goal is defined by the results of the analysis—clearly an inappropriate situation. The “protected condition” defined in section 1.9 must be independent of the methods used to evaluate conformance to that goal. To illustrate why this is so, consider that the assessment methods might be highly inaccurate, resulting in a substantial under-prediction or over-prediction of actual effects; nevertheless, following section 5.6, the lowest assessment categories would be defined as the protected condition, even if those categories actually correspon	The MLOE assessment approach was evaluated by comparison to the independent assessment results of professionals experienced in sediment quality assessment and found to provide a high level of accuracy and low bias.	IEA

No.	Subject	Comment	Response	Author
114		Furthermore, bays and estuaries are not uniform environments: they contain significant spatial variations in physical and biological conditions. As a consequence, uniform sediment quality assessment methods cannot be applied to all sampling locations within a bay or estuary unless those methods incorporate evaluation of a reference condition relevant to each sampling location.	The use of a MLOE approach provides a robust measure of sediment quality that is less sensitive to variations within a waterbody.	IEA
115		The report should be revised to clearly establish appropriate reference conditions as the protected condition, and the assessment methods must also be revised to incorporate comparisons to reference conditions	Reference conditions have been incorporated into the benthic community LOE as described in Ranasinghe,et al 2007.	IEA
	1.9	Earlier versions stated that it was the goal of the State Water Board to protect the sediment quality dependent resources living in California's bays and estuaries and human health. The current version of the document states that the goal is merely to adopt SQOs in compliance with the Water Code. However, the Water Code also calls for the Board to establish a program that provides maximum protection of existing and future uses in bays and estuaries. The Staff Report relies on the word reasonable within the Water Code definition of SQO in developing goals. Though the level of contamination in the sediment should be set at levels that are reasonably protective, the overall goal of the program should be maximum protection. Because the chosen objectives are narrative rather than numeric, it is even more important that the goals clearly mandate maximum protection	Staff disagree. Section 1.9 describes appropriate goals.	SDCK
116	Section 2	Conceptual Model For Sediment Quality. We commend the inclusion and discussion on the conceptual model. Figure 2.1 is a generic model which serves a basis for developing a detailed site specific conceptual model.	Comment noted.	Sierra Club

No.	Subject	Comment	Response	Author
117	Section 2	In Figure 2.1 we recommend adding a pathway connecting the Wildlife to Humans to account for waterfowl (ducks and geese) that are hunted for human consumption. Mercury levels in duck muscle tissue and liver are known to be very high. The State of Utah has posted duck consumption advisories. We recognize that for Part 1, this pathway is not being addressed but for completeness we believe it should be included	Comment noted.	Sierra Club
118	Section 2	A detailed site specific conceptual model is a critical tool in assessing and managing contaminated sediments. It is a three dimensional model that describes natural physical characteristics of the region; its geomorphology, hydrogeology, and surface water bodies. Many of the bays and estuaries are located in highly urbanized and industrialized regions of the State. As such their associated activities that can modify these physical features should be included in the conceptual model	Staff concur.	Sierra Club
119	Section 2	Page 8: “Additional nonpoint contaminant sources include atmospheric deposition and groundwater. Most of the contaminant mass from all of these sources is associated with particles…” I would be surprised if groundwater that was not contaminated by a specific point source was a significant source of sediment contamination. If it were, the contaminants would not be associated with particles in the groundwater	Comment noted. The sentence was amended to reflect the commenters concern.	**DLS**
120		Upon introduction, most contaminants not already associated with particulate matter (in the source) will associate with suspended particles in the water column.” This statement is incorrect. With the exception of partitioning of organic contaminants from the gas phase into water, the most significant sources of sediment associated contaminants will contain a higher concentration of particles than what they are likely to encounter in the water column	Comment noted. The sentence was amended to reflect the commenters concern.	**DLS**

No.	Subject	Comment	Response	Author
121		Page 9: "…co-occurrence of binding constituents, such as sulfides…" The term "binding constituents" will not be familiar to environmental chemists or geochemists. I suggest that the authors rewrite this sentence to emphasize that the forms of metals in sediments will be controlled by sulfide at low redox potential and organic matter, metal oxides or clay minerals at higher redox potentials	Comment noted. The sentence was amended to reflect the commenters concern.	**DLS**
1042	2	Absent from the SQO development approach discussion and documentation was citation, much less incorporation, of the vast technical literature discussing the aqueous environmental chemistry and behavior of sediment-associated contaminants.	The Staff Report discusses relevant aspects of the chemical issues associated with the behavior of sediment-associated contaminants. Papers authored by some of the leading critics of empirical approaches (e.g., Di Toro and O'Connor) and describing chemical factors affecting bioavailability have been cited in the Staff Report.	GFL
527	3.0.	The SQO documentation does not consider adequately the factors affecting the baseline condition of bay sediments statewide. For example, the Staff Report contains a description of the environmental setting for San Francisco Bay but does not discuss the fact that the San Francisco Bay has been subject to numerous noncontaminant factors contributing to baseline.	The CEQA Guidelines require that an EIR include a description of the physical environmental conditions in the vicinity of the project as they exist at the time the environmental analysis is commenced, from both a local and a regional perspective. (Cal. Code Regs., tit. 14, §15125.) This description must "be no longer than is necessary to an understanding of the significant effects of the proposed project and its alternatives." (Ibid.) Section 3 of the Staff Report contains a description of the environmental setting for the proposed Plan. It includes brief descriptions of the affected coastal regions and water bodies. Section 3 also includes water column, tissue and sediment quality impacts associated with toxic pollutants, which have been identified on the State Water Board's section 303(d) list.	CCOC, LW

No.	Subject	Comment	Response	Author
528	3.0.	The proposed SQOs must contain an analysis of the following environmental resources, which the project is likely to significantly impact:Quantify current air quality conditions, including an assessment of criteria pollutants for which certain areas surrounding bays statewide are in nonattainment.Quantify current greenhouse gas emissions from the state's bays and the globe. Include an assessment of the environmental impact that global climate change is currently having on the state's bays and describe the biological resources in the state's bays and in the vicinity that could be impacted by reasonably foreseeable implementation measures, such as dredging and other implementation activities.	Commenters contend that the description does not provide sufficient detail regarding the potential factors that may have contributed to the existing physical baseline. CEQA, however, does not require an analysis of the contributing causes for the state of the existing physical environment. Commenters further contend that the description must quantify current air quality conditions and current greenhouse gas emissions from the state's bays and the globe and describe biological resources that could be impacted by remediation measures. This type of analysis would be speculative at best and is unnecessary to an understanding of the potential significant effects of the proposed Plan.	CCOC, LW
528 co		All rare, endangered, and threatened species in the bays should be identified. Wetlands, eelgrass beds, benthic communities, and other important habitats should be identified and characterized. In order to enable the public to assess the merits of project alternatives, describe any observable, toxic effects on wildlife and habitat caused by current pollutant levels in bay sediment, as compared with the adverse impacts of the reasonably foreseeable implementation measures		

No.	Subject	Comment	Response	Author
513	3	The SQOs must include a more extensive discussion of the current baseline condition, the factors that are most responsible for contributing to that baseline condition, and the critical factors that will limit or regulate the future enhancement of ecological resources in the bay sediments statewide.	Staff disagree. An adequate description of the environmental and regulatory baseline have been provided in Sections 3 and 4 of the Draft Staff Report.	CCOC, LW
122	Section 3.2	Page 15, Table 3.1 and all the tables in this section that include impairment listings based on sediment chemistry - Which aquatic benchmarks were used for various chemical derived listings (ERMs, ERLs, TELs etc)? For PAHs and PCBs were the data normalized for TOC? What frequency of exceedence of the benchmark was used for the listings (i.e., more than once in 3 years, only one exceedence)?	These listings predate the Listing Policy adopted by the State Water Board and are not very detailed. As an example, the Elkhorn Slough Listing for pesticides dates back to 1990 and refers only to "high pesticide concentrations found in shellfish tissues and sediment".	WPHA,PWG
123	Section 3.2	Page 15, Table 3.2 and all tables in this section that include listings based on tissue concentrations of chemicals - Which tissue thresholds were used for the tissue derived listings? Please refer to our concerns on the use of fish and shellfish tissue data as listed above in the General Comments section	The basis for Water Boards 303(d) listings is the Water Boards 303(d) Listing Delisting Policy which is available at http://www.waterboards.ca.gov/tmdl/303d_listing.html	WPHA,PWG
124	Section 3.2	Page 16, Table 3.3 - WPHA is quite concerned that hydrophobic chemicals such as DDT and dieldrin are used for listing of impaired sites based on measurements in the water column. Can the authors provide any insight on this issue?	These listings have been adopted by the State Board in accordance with the Listing Delisting Policy (http://www.waterboards.ca.gov/tmdl/303d_listing.html).	WPHA,PWG
125	3.3	Page 17, Table 3.4 - Which specific pesticides were used for the pesticide listings in this table. The same comment would apply to all the other tables in this section where pesticides were used for a listing	These listings predate the Listing Policy adopted by the State Water Board and are not very detailed. As an example, the Elkhorn Slough Listing for pesticides dates back to 1990 and refers only to "high pesticide concentrations found in shellfish tissues and sediment".	WPHA,PWG
91	4	The Regulatory Baseline Section provides a useful overview of the various State and Federal laws and associated objective plans and policies that relate to the development of SQOs. Are there any examples where these various laws contradict each other (i.e., allowing possible lawsuits) or are they all in agreement and complementary in terms of establishing SQOs	An exhaustive analysis of each Regional Board's interpretation of State and Federal Laws and implementation of plans and policies is beyond the scope of this draft staff report.	WPHA,PWG

No.	Subject	Comment	Response	Author
126	4.1.1 (4.2.3)	Page 27, Section 4.1.1, par. 2 - Section 13392.5 of the BPTCP requires the RWQCBs in consultation with the SWRCB develop monitoring and surveillance, and suggested guidelines to promote standardized analytical methodologies and consistency in data reporting and identification of additional monitoring and analyses needed to complete the toxic hot spot assessment for each enclosed bay and estuary. This law would seem to promote the idea that the State Board should be the controlling agency ensuring standardization of methods and interpretation of data for all California regions associated with environmental regulations such as the development of SQOs. This law would support WPHA's general comments (see previous section) that the SWRCB should provide guidance and oversight to the RWQCBs to ensure uniformity and consistency with the SQO process.	A primary goal of the draft Part 1 is to provide uniform and consistent means to assess sediment quality in all bays and estuaries.	WPHA,PWG
127	4.1.1 (4.2.3)	Page 28 (bottom of page) and page 29 (top of page) - The report states that biological effects at a site were determined to be associated with toxic chemicals if chemical analysis demonstrated significantly higher levels compared to reference sites. More details are needed to describe the reference sites and how they were selected	Details are described in the assessment of the bays and estuaries of the Coastal Regional Boards available at http://www.waterboards.ca.gov/bptcp/reports.html. Only in San Francisco Bay was a reference envelope applied to assess the chemistry and toxicity data. In the other regions when empirical guidelines were not available, data was compared to the 90th and 95th for each chemical analyzed, and to the range of concentration measured throughout the state.	WPHA,PWG
129	4.1.1 (4.2.3)	Page 30, top of page - It is not clear, what is actually Appendix D (Economic Analysis or High Priority Protection Sites)?	Appendix D High Priority Sites. The Economic Analysis is a stand-alone document.	WPHA,PWG
138	4.4.1 (4.1.1)	Page 36, Basin Plan Narratives - Please explain why are all of the basin plan narratives different for each of the Regions?	Each Region Water Board has the authority to develop a basin plan that addresses the unique issues and waterbodies in the region. Consequently, basin plans differ by region.	WPHA, PWG
139	4.4.1 (4.1.1)	Page 36, Water Quality Control Plan for the North Coast Region - second bullet - Does this mean that any detected concentration of a chemical found in tissue is a violation?	Violations apply to a discharge that has exceeded a permit limit or requirement.	WPHA, PWG

No.	Subject	Comment	Response	Author
140	4.4.1 (4.1.1)	Page 36, Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin -second bullet - How are controllable water quality factors defined?	The Basin Plan defines this term in Chapter 3, stating "Controllable water quality factors are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the state and that may be reasonably controlled". (http://www.waterboards.ca.gov/sanfranciscobay/basinplan.htm)	WPHA, PWG
141	4.4.2 (4.1.2)	Page 39, Section 4.4.2 - The Bruns et al 2007 reference (which is missing from the reference section) states that the Central Valley RWQCB cannot use bio-assessment data due to lack of assessment tools. Bio-assessments have been conducted in the Central Valley for many years; therefore, the assessment tools are certainly available to use bio-assessment data in a regulatory context as other Regions in California have done. The Central Valley approach to use only one line of evidence for impairment designations will lead to the increased probability of "false positive" results.	Although the California Department of Water Resources and U.S. Bureau of Reclamation have funded benthic sampling in the San Francisco Estuary and Delta since 1975 through the California Interagency Ecological Program (IEP), RB5 has not attempted to utilize the data for assessment of sediment quality or biological health in the Delta. Under SWAMP, RB5 has conducted biological assessments within the wadeable streams and irrigation canals, but these tools have not been used elsewhere. The State Board staff are partnering with DWR to better understand the health of benthic communities in the delta.	WPHA, PWG
142	4.1.2 (4.2.1)	The summary of the regulatory baseline should include sediment quality-related 303(d) listings made under the current Listing Policy for waterbodies outside of the Bays and Estuaries, as these listings provide additional description of the current regulatory structure. The pyrethroid 303(d) listings in the Central Valley Region provide an example of how standards exceedances are determined based on the impacts of pyrethroid pesticides.	The proposed plan considers only bays and estuaries. Staff are required to capture how sediment in those bays are currently managed and regulated. The Section provides an accurate description of Regional Board practices in those waterbodies.	RB5

No.	Subject	Comment	Response	Author
143	4.4.3 (4.1.3)	Page 41, Section 4.4.3, par. 1, line 12 - How are mixing zones defined in California?	Mixing zones are described for ocean water in Section III of the California Ocean Plan (http://www.waterboards.ca.gov/plnspols/docs/oplans/oceanplan2005.pdf). Section 1.4.3 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California (http://www.waterboards.ca.gov/iswp/docs/final.pdf) addresses mixing zones for priority pollutants in inland surface waters and bays and estuaries. Several basin plans also address mixing zones.	WPHA, PWG
1087	4.4	Page 59, it is stated under Section 4.4 POINT SOURCES REGULATED UNDER THE CLEAN WATER ACT Section 402, second paragraph states "The State Water Boards SIP addressed the implementation of numeric toxic pollutant criteria and objectives of bay, estuarine, and inland surface waters." On Page 46, it is stated that the SIP is not applicable to storm water discharges, nor addresses sediment quality specifically. The City of Simi Valley, City of Thousand Oak., and the Camarillo Sanitary District Plants NPDES permit Orders newly revised have had storm water removed and not removed.	The Draft Staff Report is correct in stating what the SIP applies to and does not apply to. Requirements to address within individual stormwater permits are not under consideration. The Los Angeles Regional Water Quality Control Board is the appropriate agency to contact regarding individual permits and concerns	TS
144	4.8 (4.5)	Nonpoint Source Policy. On page 47 under San Diego Region last bullet, revise to state that the Board adopted conditional waiver on October 10, 2007. (R9-2007-0104)	Comment noted and correction made.	Sierra Club
145	4.8.6 (4.5.6)	Page 50, Section 4.8.6, par. 1 - There seems to be contradiction in this paragraph that needs to be resolved. Sentence 3 states that atmospheric deposition potentially accounts for 57-100% of the total trace metal loads in storm-water within Los Angeles. However, the last sentence in this paragraph states that direct atmospheric deposition accounts for a very small fraction of the NPS pollution	Direct deposition in the last sentence refers to deposition directly to the water's surface, which is less than that contributed from indirect deposition to the watershed and subsequent runoff into the waterbody.	WPHA, PWG

No.	Subject	Comment	Response	Author
1092	4.4	Does. the Los Angeles Region have requirement for training and education? (Page 63) or provisions for nursery operators and owners? (Page 63)	At issue is sediment quality objectives, the rational to support the objectives and the means by which the SQOs are being proposed for implementation and the basis in which staff has addressed the factors required within the formal planning process, not whether the Los Angeles Regions irrigated lands programs has adequate training for applicators.	TJ
1096		Page 67, it is stated "The NPS Program Plan does not contain management measures for abandoned mines, and there is no specific, comprehensive program at either the state or federal level for cleaning up abandoned and inactive mines other than coal. In Ventura County, if the Gillibrand Company's titanium mine ever closes it would be nice to know whether a comprehensive program at the local, state and/or federal government exists to clean it up in liqht of the new joint venture water treatment plant project between the Gillibrand Company and the City of Simi Valley.	At issue is sediment quality objectives, the rational to support the objectives and the means by which the SQOs are being proposed for implementation, and the basis in which staff has addressed the factors required within the formal planning process, not whether the state has an adequate program in place to assess abandon mines.	TJ
1097		t is unfortunate that "Currently, there are no policies in the State to directly address potential NPS pollution from atmospheric deposition.	Comment noted	TJ
1098		The City of Simi Valley on March 1992 requested that the Ventura County Board of Supervisors include detention basins under the then Ventura County Flood Control Benefit Assessment Program. The plan was to build 6 to 11 dams, but to date only one has been constructed even though the county Board of supervisors .approved the City's request	Comment noted	TJ
1099	5.1	Section 5.1.1: Support Staff Alternative 2 (page 69).	Comment noted	TJ
1100	5.1.2	Section 5.1.2: Support Staff Alternative 2 (Page 70).	Comment noted	TJ
1101	5.2.1	Section 5.2.1: Support Staff Alternative 1 (Page 71).	Comment noted	TJ
8	Section 5.2	The SQO Plan Must Have Broad Applicability and Scope	Staff agree and believe the draft plan provides broad applicability to a variety of waterbodies and programs.	SFBK

No.	Subject	Comment	Response	Author
146	5.2.1 Applicable Waters	The state has separated the current SQO direct effects tool development into a Phase 1 approach, focusing on embayments, and a Phase 2 approach focusing on estuaries We agree that these decisions were the appropriate response and give scientific credibility to the SQO development process. Applying regionally or habitat specific assessment tools in areas for which they had not been intended would undermine the fundamental philosophy of the policy.	Staff agree.	LACSD
9		The SQO Plan specifies that the 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	The focus of the Bay Protection Program is bays and estuaries. If SQOs are to be developed for ocean waters, the mechanism for that is through the California Ocean Plan triennial review process.	SFBK
147	5.2.1	The use of one set of tools to characterize sediments of California bays and estuaries without concern for community metrics influenced by latitudinal shifts, depth, salinity, and grain size would result in many inaccurate sediment assessments. We are pleased that the Science Team has rigorously tested, validated, and proofed the data to provide the best set of tools to date to quantify the various regional and habitat specific distinctions throughout the state.	Comment noted.	LACSD, OCSD
148	5.2.1	The Districts support specialized tool development and validation based on these regional and habitat parameters. This effort in tool development needs to continue. Phase 1 of this project has focused on one habitat in two regions: embayments in southern California and San Francisco Bay. Phase 2 will focus on estuaries, however collection of data will be taken only from the Sacramento-San Joaquin Delta estuary. Additional tool development for central California embayments and estuaries in other areas of the state is greatly needed.	Staff concur.	LACSD

No.	Subject	Comment	Response	Author
149	5.2.1	We support the State's decision to use a reference envelope approach for regions of the state that are currently lacking necessary data for tool development and appreciate that the initial concept of using only one or two lines of evidence has been dropped.	Comment noted.	LACSD
150	5.2.1	We encourage the State to continue promoting data gathering in such areas so that future tools can be developed and incorporated into the policy. This effort would help ensure that the SQO process is consistent across the state.	Staff concur.	LACSD
151	5.2.1	We caution the State on using embayment indicators within the estuary environments as an interim solution. As stated above, the Science Team has shown that these environments have fundamentally different physical and chemical compositions resulting in distinct biological communities. A single set of tools cannot be applied regardless of habitat with accuracy.	Staff agree.	LACSD
152	5.2.1	We have the same concern regarding the State's proposed combined use of northern and southern embayment tools as an interim solution for central coast bays as well. We ask that these areas be re-evaluated by the Regional Boards once appropriate regional and habitat specific tools become available.	Staff at the Water Board have already begun to collect the data necessary to develop more robust indicators for some of the estuarine waterbodies.	LACSD
153	5.2.1	Page 54, par. 2 - More details are needed on the reference envelope approach discussed in this paragraph.	The State Water Board is currently collecting data that will support the development of reference communities in some of the estuarine habitats	WPHA, PWG
154	5.2.1	Page 53: Near the bottom of the page, it is stated that, "The bioavailability of both hydrophobic and inorganic pollutants is strongly influenced by salinity." While there are some small effects on partitioning directly associated with salinity, the impact on hydrophobic partitioning and the formation of sulfide minerals from salinity alone is modest at best. This statement needs to be revised or better documented	Comment noted.	**DLS**
1102	5.2.2	Section 5.2.2: Support Staff Alternative 2 (Page 72)	Comment noted.	TJ

No.	Subject	Comment	Response	Author
158	5.2.2	Page 55, Staff Recommendation - Alternative 2, use only surficial sediment, is recommended. If data sets are available from studies where sediment is collected below 2 cm then how will these data be used?	Staff agree and have changed the definition in the glossary.	WPHA, PWG
79	5.2.2	Evaluation of only the top 2 cm of sediment for characterization of sediment toxicity and chemistry is problematic for a number of reasons. The stability of the top 2 cm of surficial sediment is such that it is highly transient/mobile. This layer (<1 inch) is subject to shear forces created by tidal exchange, other bottom currents, and ship traffic, which result in the frequent resuspension and transport of this most surficial layer. Moreover, this layer typically has a high water content and may actually be displaced as a consequence of sampling. As a consequence, an assessment of the upper 2 cm of surficial sediments alone is ill suited to identify potential "hotspots" for subsequent regulatory action. Instead, it is recommended that toxicity and chemistry be sampled to a depth of 10-15 cm (4-6 in) consistent with the benthic community assessment LOE. Sampling to this depth would ensure greater comparability among the existing LOEs and ensure characterization of a more representative, stable sediment layer that is less subject to transport.	Staff concur and have revised Section VIII glossary and Section V.D to ensure that sediment for toxicity and chemical analysis are collected in the top five centimeters. The amended language also specifies that benthic grabs require a minimum penetration of 5 centimeters.	Weston
80	5.2.2	The Staff Report does not provide sufficient justification for limiting the scope to the top 2 cm of sediment. In fact, this decision appears extremely arbitrary and greatly limits the scope of the SQOs. Limiting the scope to the top 2 cm also creates an implementation problem. If the SQOs indicated that the top 2 cm are impaired, will a remediation effort only dredge the top 2 cm? Will the process go on and on? As a point of comparison, maintenance dredging projects typically remove at least the top meter of sediments and some of them remove 5 meters or more. Thus, the 2 cm designation is a huge logistical issue	Staff concur and have revised Section VIII glossary and Section V.D to provide a definition that's based more on the biological active layer.	HTB

No.	Subject	Comment	Response	Author
81	5.2.2	We believe that the two centimeter depth limit for the analysis of sediment to apply the SQOs is too shallow. There is a significant amount of interaction between aquatic and benthic life below this level, and the top 2 cm of sediment often represent a transient layer. Further, the studies upon which the SQOs were based examined up to the top 30 cm of sediment. LADWP believes that the SQOs should require analyses of sediment cores to determine the temporal sediment and pollutant distribution. This would include an evaluation of sediment transport and a determination of the level of concern that pollutants at depth would have upon the designated beneficial uses of the area	Staff concur and have revised Section VIII glossary and Section V.D to provide a definition that's based on the biologically active layer. However, staff are not considering cores in the assessment of sediment quality. These studies could provide beneficial data in the management of degraded sediments.	LADWP
82	5.2.2	Plan should provide a methodology for quantifying the biological active layer. This would be critical for remedial action. We also don't believe 2cm is appropriate	Staff have revised the definition of the surface active layer.	LACo
158	5.2.2	Page 55, Staff Recommendation - Alternative 2, use only surficial sediment, is recommended. If data sets are available from studies where sediment is collected below 2 cm then how will these data be used?	Staff agree and have changed the definition in the glossary.	WPHA, PWG
5	5.3	The California Water Code requires that SQOs be developed as part of a program to protect beneficial uses in bays and estuaries. After reviewing the SQO Plan, it is clear that these goals have not been met due to the technical approach taken by staff and the extremely limited application of the SQOs.	Staff disagree. As stated in the Section 2 and Section 5.3 of the draft Staff Report, benthic communities are an ecologically important resource and the receptor at greatest risk from direct contact with contaminants in sediment and staff believe the proposed SQOs indicators and tools will protect this important resource. However, this is just the first step in a iterative and mutli-phase effort to develop SQOs and supporting tools that will protect those beneficial uses most at risk.	HTB, SDCK

No.	Subject	Comment	Response	Author
1001	5.3.1	The Staff Report currently only addresses direct effects to sediment dwelling benthic organisms and only marginally addresses 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. Consistent with the statutory requirements, the Phase II SQOs must address indirect effects on all receptors including wildlife and should prohibit pollutants in sediment at levels that will bioaccumulate in aquatic life to levels that are harmful to fish or wildlife. We strongly suggest that the plan be revised to clarify that Phase II objectives will address the indirect effects of sediment quality on all receptors including wildlife	The development of proposed SQOs in Phase II is currently underway. The public process will ultimately determine the entire scope of the Phase II objectives. In the meantime, all the Regional Water Quality Control Board Basin Plans contain language that provides protection to fish and wildlife. Some Basin Plans contain explicit narrative objectives or prohibitions that address the bioaccumulation in aquatic life that could harm beneficial uses which include higher trophic levels such as predatory fish and wildlife (Santa Ana Region, San Francisco Regions). Others contain language that specifically addresses pesticides in sediment that may bioaccumulate up through the food chain (North Coast, San Francisco Bay, and Central Coast Basin Plan) or more generally harm beneficial uses.	CSPA/SFBK
1001	5.3.1		In general, State Water Board staff has tried to propose narrative sediment quality objectives that are directly coupled to a framework that can be used to interpret the objective. However, the development of a framework and specific indicators is receptor specific and requires a great deal of time and resources. Because resources are limited, staff has been developing receptor specific frameworks in distinct phases as resources are made available. Currently, Phase I focuses primarily on the benthic community and Phase II currently focuses primarily on human health. As stated previously, however, the ultimate scope of Phase II will be determined through the public process.	

No.	Subject	Comment	Response	Author
58	5.3.1	The SQO Plan should provide protection for all beneficial uses affected by contaminants in sediment or it should clarify where additional protections are needed to protect beneficial uses from effects such as bioaccumulation. Our Basin Plan does not include an estuarine use. It includes other aquatic life uses that are applicable in the Delta which should be listed in the SQO Plan	Staff agree that this is the goal, However, sections 5.3.1 and 5.3.2 discuss beneficial uses and the linkage to specific receptors and why specific receptors and exposure pathways were selected. The draft plan states very clearly what receptors are protected under I A and again IV. A and B.	RB5
1103	5.3.1	Section 5.3.1: Support new Alternative 3--combination of Alternatives 1 and 2 (Page 74)	Comment noted	TJ
1104	5.3.2	Section 5.3.2: Support Alternative 1 (Page 76)	Comment noted	TJ
73	5.3.2	A issue critical to ensuring that the proposed SQOs provide for an adequate level of environmental protection is the need for tools to assess the potential for indirect effects at higher trophic levels (including humans) via transfer and potential biomagnification of sediment associated contaminants through the food web. Again the need for such tools is recognized and included for development under phase 2, but without such tools in place, the proposed SQOs can not ensure an adequate level of environmental protection, and, consequently, regulatory implementation at this time would be premature.	Staff disagree. To wait until the Water Board has tools to assess and protect every potential receptor at risk to pollutants in sediment is essentially putting the development of SQOs off indefinitely.	Weston

No.	Subject	Comment	Response	Author
74	5.3.2	Selection of appropriate receptors is a critical element. The report states that the sediment-related exposure receptors for the SQOs are benthic communities exposed directly to pollutants in sediment and humans exposed indirectly through fish and shellfish tissue. These are appropriate receptors and a description of data sets for benthic communities is documented in the report. However, a description and documentation of the fish and shellfish data sets that will be used to address the human health receptor is not described. For example, what species of fish are included in the data set and are these fish resident or migratory? Migratory fish may bio-accumulate toxic chemicals from areas other than the locations from which they are collected. Other variables such as fish size and life stage should also be described. Factors such as spawning periods, which can impact lipid in tissue and influence bio-accumulation of toxic chemicals would also need to be described.	These issues will be addressed in Phase 2 and later phases, as appropriate..	LACo, WPHA,PWG
75	5.3.2	There are several important receptors that are absent from the SQO Plan. For instance, the SQOs completely ignore indirect receptors such as fish and wildlife. Exploring these indirect receptors in the development of SQOs is critical, as biomagnification can occur throughout the food chain. In other words, the benthic community could appear healthy, but other species may have been indirectly impacted. The impacts on fish and seabirds from DDT and PCB contaminated sediments off of Palos Verdes is a classic case of biomagnification with minor benthic community effects of much of the shelf. The Staff Report acknowledges this issue but does nothing to appropriately address these receptors	Staff disagree; no receptors were ignored. Section 5.3 of the draft report provides an explanation of the potential receptors considered and how each receptor was selected.	HTB, SDCK

No.	Subject	Comment	Response	Author
76	5.3.2	The legislature specifically required that the programs established protect all existing and future beneficial uses and provide adequate protection for the most sensitive aquatic organisms. 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. The short list of beneficial uses and receptors in Appendix A eliminates key beneficial uses of bays and estuaries. 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. 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	Staff have developed a draft plan that protects benthic invertebrates - those organisms that are in direct contact with toxic pollutants in sediments. The goal of phase II is to develop an equivalent framework that protects human health from those pollutants that bioacumulate from sediment up the food chain and into fish tissue. As stated previously, however, the ultimate scope of Phase II will depend on the outcome of the public process. Later phases have not been defined specifically at this stage but could include other forms of wildlife.	SFBK, SCCA
	5.3.2	As stated in the staff report, selection of appropriate receptors is a critical element of every standards development proposal. 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 staff report: human health can be used as a receptor to assess commercial and sportfishing. 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	Staff will be initiating Phase 2 to primarily address human health, although the entire scope of Phase 2 will be determined by the public process. Additional phases could address other receptors.	SDCK

No.	Subject	Comment	Response	Author
	5.3.2	The stated goals are protective of specific identified receptors and are therefore narrow in application. Although narrative objectives have been chosen, they should nonetheless be protective of all aquatic life and benthic communities and the use of specific receptors to measure sediment may not achieve that goal	Staff agree; however tools and indicators need to be developed to protect other receptors.	SDCK
29	5.3.2	The proposed SQOs focus on protecting aquatic communities rather than protecting organisms and sensitive species. Therefore, the proposed objectives appear to be less protective than existing levels of protection specified in the Water Code and the Water Quality Control Plan for the Sacramento and San Joaquin River Basin (Basin Plan)	See response to Peer Reviewer comment #453 and comment #458. The Water Board is currently conducting studies that could potentially identify sensitive species. RB5 staff have not conducted studies to identify sensitive species in the Delta.	RB5, HBK
59	5.3.2	A major goal of the proposed SQOs is to protect the most sensitive aquatic organisms. If SQOs are to protect the most sensitive aquatic organisms then the authors should state how they plan to accomplish this goal.	See response to comment #60 below.	WPHA,PWG

No.	Subject	Comment	Response	Author
60	5.3.2	The proposed aquatic life sediment quality objective would only protect benthic organisms against impacts on the community level, and therefore would appear to provide a lower level of protection than required by the Water Code. Section 13303 of the Water Code states that SQOs must provide "adequate protection for the most sensitive aquatic organisms." The proposed objective would also provide a lower level of protection than the existing narrative toxicity objective in the Water Quality Control Plan for the Sacramento and San Joaquin River Basin (Basin Plan), which states "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.	Staff disagree. As stated in Section 2 and Section 5.3 of the Staff Report, the benthos is the biological community most directly exposed to changes in benthic habitat conditions, such as chemical contamination. Although certain species or groups of benthic species are known to be more sensitive to general disturbance than others, the variability in the nature of stressors potentially present at any given site, as well as the site history, prevent a single most sensitive species to be singled out as the target of policy protection. However, the benthos is composed of individual organisms representing many species from different families, classes, and phyla with a range of trophic relationships and life histories (longevity, foraging strategies, reproductive modes, etc). This phyllogenetic and ecological diversity assures that changes within the benthic habitat will elicit responses evident in the make up of the benthic community.	RB5, HBK, SCCA

No.	Subject	Comment	Response	Author
60 co			These changes are the result of the response of individual species to the presence of stressors with those most sensitive showing the greatest and earliest response. The benthic indices developed and validated for use as the metric for the benthic line of evidence are designed to track this response. Along a stress gradient within a given habitat type, the progressive reduction or loss of members of the benthic community, beginning with those species most sensitive, drives the index values, allowing that change to be quantified and rated. A site that is within the reference condition as defined by the benthic indices is one in which stressors have not detectably altered the assemblage of species expected for the habitat. This provides a standard to assure that the sensitive species within the assemblage are protected.	RB5

No.	Subject	Comment	Response	Author
1003	5.3.2	If narrative objectives are to be used for protecting benthic species, they need to clearly state the level of protection for all benthic species, not simply provide for protection at the community level. As Dr. Schaffner stated in her peer review, protecting at the community level and protecting all species are different.7 To try to rectify the differences, state board staff have greatly exaggerated the sensitivity of the benthic metrics making unsubstantiated claims that are misleading at best.	The diversity and abundance of the benthic invertebrates that comprise the benthic community varies from location to location based upon habitat factors such as dissolved oxygen, depth salinity, grain size, hydrodynamics, and available food and anthropogenic factors such as the toxic pollutants and nutrients. The presence and absence of individual species will vary as the natural conditions change from location to location. As a result, the utility of individual organisms as an indicator or as the receptor of concern is limited. However, a healthy benthic community will still exhibit distinct characteristics that differentiate it from a community that has been stressed in most cases regardless of the habitat. These characteristics include functionality, balance, presence of sensitive species, and limited abundance of highly tolerant species. As a result, staff have focused on the protection of benthic communities.	HBK
1003			In regards to exaggerated claims, it is difficult to respond to the commenter with out knowing what statements the commenter feels are in question. Staff have based the technical portions of the draft Staff Report and draft Part 1 on information and conclusions drawn from external scientific articles or documents prepared by state or federal agencies, or from studies and reports prepared by the science team during the course of the SQO development process. Staff do not feel that exaggerating or misleading claims were made in the staff report or draft Part 1.	HBK

No.	Subject	Comment	Response	Author
61	5.3.2	The Delta could have a lower level of protection for benthic organisms from toxicity than the rest of the water bodies in the Central Valley Region. A higher level of impact would be allowed if the level of protection were set at the community level as opposed to the organism or population level. Showing "toxicity to benthic communities" would be much more difficult than showing detrimental effects to sediment-associated aquatic life. Toxic effects could occur to organisms and species before such impacts were manifested at the community level. We recommend that the proposed aquatic life SQO be amended to replace the term "benthic communities" with "aquatic organisms". The relationship of the proposed narrative SQO to existing narrative objectives in the Central Valley Water Board's Basin Plans should be specified and changes in the level of protection resulting from the SQO Plan should be analyzed.	Staff disagree. The regulatory baseline information provided by Central Valley Region staff for preparation of Section 4 of the staff report does not support the commenters assertion. Furthermore, staff requested by email that the Regional Board provide some evidence for the record that would support this claim. To date, no response has been provided.	RB5
1105	5.4.1	Section 5.4.1: Support Staff Alternative 3(Page 79).	Comment noted	TJ
1106	5.4.2	Section 5.4.2: Support New Alternative 5--combination of Alternative 3 and 4 (Page 80)	Comment noted	TJ
155	5.4 (5.4.2)	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	Staff agree that numeric objectives would be easier to implement; however, there is no single tool or measure that can be used at this time to assess sediment quality reliably and confidently. Without a single robust tool, numeric objectives are not possible.	SFBK
156	5.4 (5.4.2)	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	Staff disagree. A narrative objective coupled with indicators to interpret the narrative objectives represents a logical means to assess sediment quality.	SFBK

No.	Subject	Comment	Response	Author
157	5.4 (5.4.2)	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	Past reliance solely on numeric guidelines has led to confusion and misinterpretation. The MLOE approach is recognized by the regulatory and scientific community as a more robust and effective approach.	SFBK
1004	5.4	Benthic studies should be used appropriately to show when there are severe impacts unidentified by other lines of evidence, but not to justify existing toxicity and chemical contamination as they would under the SQO Plan. Unfortunately SWRCB staff and the science team built the entire approach around the goal of only protecting at the community level.This does not meet the requirements of section 13393 of the CWC and must be changed before the SQO Plan can be adopted.	Staff believe that the staff report and references provide justification for the use of all three lines of evidence. No single line of evidence is adequate. Section 2 and Section 5.3 and 5.4 explain the inadequacy of using a single line of evidence or two lines of evidence. Section 5.4 describes the concept of protecting organisms versus communities and how there is no consensus as to which approach is more protective in sediments. There is consensus on the MLOE and that indicators that rely on single species such as sediment toxicity tests are needed as well as benthic community measures to assess the risk to benthic communities from direct exposure to pollutants in sediments. See comment No. 1003	HBK
1005	5.4	State Board staff have taken the position that the complicating factors in sediment toxicity require an approach fundamentally less protective than the approach for controlling toxics in water. We do not agree. As stated by Dr. Sedlak in his peer review, these complicating factors in sediment toxicity are likely not more difficult to capture than those inherent in land, water, air or any other area of environmental regulation. While there are complexities related to bioavailability in sediment that often need to be addressed, a more appropriate method can be formulated than what is found in the SQO Plan as it is currently drafted.	Staff disagree. The proposed MLOE approach is intended to protect through the use of multiple benthic measures, acute and sublethal toxicity tests and chemistry indicators that were developed from California data. See also Section 5.6 of the Staff Report and response to comment No. 52. Staff disagree with Dr. Sedlack comment as described in response to comment No. 171.	HBK
159	5.5.1 (5.4.1)	We strongly support the staff recommendation for the use of a narrative based MLOE approach	Comment noted.	LACSD, Tri-TAC

No.	Subject	Comment	Response	Author
505	5.5.1 (5.4.1)	We believe that the State Board has done a good job of recognizing the weaknesses that would result from relying on any of the individual single line of evidence alone for purposes of assessing sediment condition	Comment noted.	CCOC, LW
33	5.5.1 (5.4.1)	We reviewed the three charts presented at the November 19 State Water Board hearing. In these charts, results for a single line of evidence were compared to the integrated results from all three lines of evidence. Although some correlation was evident (as would be expected), the charts showed clearly that no single line of evidence could correctly predict a site's impact level as determined by the integrated MLOE approach. For example, the charts appeared to demonstrate that a MLOE finding of "Clearly Impacted" was just as likely when amphipod mortality was relatively low (20-30%) as when mortality was very high (80-100%). It appears from the charts that a single line of evidence would only be somewhat predictive in showing no impact – e.g., when amphipod mortality is less than 20%, it appears to be highly unlikely that an SQO exceedance could occur. These charts further reinforce the need to use a MLOE approach to assessing sediment quality	Staff concur.	CASQA
14	5.5.1 (5.4.1)	My concern with the draft report is the lack of application of basic toxicological principles in deriving SQOs. Toxicology relies on establishing dose-response by studying the effects of different doses of a chemical on a biological system. These are controlled studies that provide information on the dose-response relationship and toxicity thresholds.	The understanding of the geochemical and toxicological processes governing sediment contamination effects is incomplete; an attempt was made to use these principles in deriving tools for the sediment quality objectives, but it resulted in less accurate and comprehensive methods than the multiple line of evidence approach proposed in the Staff Report.	JLB
36	5.5.1 (5.4.1)	We concur with Board staff's conclusion that the use of three LOE is necessary even in waterbodies where existing data are limited, and where MLOE evaluation tools have yet to be developed, as the MLOE approach "provides the highest degree of confidence	Comment noted.	CASQA

No.	Subject	Comment	Response	Author
37	5.5.1 (5.4.1)	We offer three variations on the MLOE approach proposed by the Draft SQO Plan: 1. • Statewide numeric objectives for chemical concentrations based on the most protective levels. Although this may result in overprotection it would establish a simple, protective, straightforward and cheap policy. 2. 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. 3. Narrative objectives that are implemented with a MLOE similar to that proposed but with the following tweaks;	Staff disagree. Three lines of evidence were supported by the SSC and a majority of the Peer Reviewers. As stated in Section 5.5.1 of the staff report, there is to much uncertainty with each single line of evidence to rely on them when used alone. Staff believe that the approach described in the draft Staff Report is appropriate and has performed well when compared with the expert judgment. (http://www.waterboards.ca.gov/bptcp/docs/sediment/mloe_frameworkvalidation.pdf)	SFBK
37 Co	5.5.1 (5.4.1)	Three lines of evidence would be used when data 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 chemical concentrations, or high toxicity, or an IBI or appropriate marine community index demonstrates a high degree of degradation then any of these single lines will trigger management actions regardless of the other lines of evidence. Biological endpoints would also employ resident species portfolio approach and bioaccumulation testing		
55	5.5.1 (5.4.1)	Uncertainty is an extremely important but often overlooked issue with all methods used in science. The report's narrative of the MLOE approach, the backbone of the SQOs method described in the document, needs to have a specific section that clearly states the uncertainty with all three lines of evidence proposed: sediment chemistry, sediment toxicity, and benthic community assessments	The uncertainty associated with each LOE and the overall assessment was quantified and documented in the technical reports.	WPHA,PWG

No.	Subject	Comment	Response	Author
28	5.5.1 (5.4.1)	In contrast to water column impairment issues where one line of evidence (i.e., water quality criterion or objective) may be sufficient (but not preferred), sediment contaminant issues are much more complex. Complexity issues with sediment make an objective based approach premised on a single line of evidence such as chemical criterion problematic for the following reasons: 1. Variations in the bioavailability of sediment associated contaminants; 2. Multiple pathways of exposure resulting from both direct effects (contact with sediment); and 3. Indirect effects (as a result of bioaccumulation and transfer to higher trophic levels). Therefore, we supports the SWRCB's MLOE approach for SQOs in bays and estuaries of California.	Comment noted.	WPHA,PWG
56	5.5.1 (5.4.1)	Staff should expand on the limitations of the lines of evidence. Below are few examples for each LOE. Uncertainty with sediment chemistry would include consistent sediment sampling methods and analytical chemistry methods, limitations with the suite of chemicals measurements, and spatial/temporal scale completeness issues. Uncertainty with sediment toxicity would include testing only a limited group of species and assuming that these species represent the biological community and are indicators of impairment. Uncertainty with assessments of resident biological (benthic) communities would include establishing a reference baseline for comparison, and the influence of physical and chemical factors on benthic assemblages	Section 5.5 of the staff report describes these limitations and the basis for using MLOE.	WPHA,PWG

No.	Subject	Comment	Response	Author
34	5.5.1 (5.4.1)	The multiple lines of evidence approach is an ineffective way to determine if sediments are contaminated and impaired. 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. Toxicity tests act as the “safety net” for water quality and sediment quality monitoring because monitoring programs do not test for all constituents that can cause receiving water or sediment toxicity. The goal should be that all three tests are “clean.”	The MLOE approach is an effective approach as applied to sediments because of the uncertainty associated with each line of evidence. The staff report provides a description of the need for MLOE and also provides a detailed list of references that support this approach as well.	HTB
32	5.5.1 (5.4.1)	Because of the variable and site-specific nature of pollutants in sediments, the evaluation of sediment quality should not be based on a single line of evidence (LOE). The use of a single LOE, or even two LOE used jointly, is contrary to the direction of the State Water Board’s Scientific Steering Committee (SSC) and current scientific literature. Relying on a single LOE will lead to erroneous results and management actions that are either unnecessary or that do not have the intended effect. Thus, we strongly support the Board’s recommendation to evaluate sediment quality using a triad MLOE approach	Staff concur.	CASQA, FSI, WSPA
38	5.5.1 (5.4.1)	The most important line of evidence in determining causation is the result of spiked-sediment bioassays. In the absence of spiked-sediment bioassay results, sediment thresholds for toxicity can be estimated from water column bioassays by equilibrium partitioning. Toxicity thresholds and dose-response from these two types of bioassays, should carry the greatest weight	Staff agrees that the described approaches are effective for stressor identification; these approaches are not sufficiently developed for statewide use in sediment quality assessment, however.	JLB

No.	Subject	Comment	Response	Author
27	5.5.1 (5.4.1)	We support the proposed multiple line of evidence (MLOE) framework, which is based on robust regional tools and has undergone a rigorous scientific peer review process	Comment noted.	BACWA, Caltrans, CASQA, CVCWA, FSI, LACSD, LADWP, OCRDMD, OCSD, PWG, Sierra Club, SRCSD, Tri-TAC, WSPA
160	5.5.1 (5.4.1)	The proposed assessment method is based on integrating multiple LOEs. Three primary LOEs (sediment chemistry, toxicity, and benthic community impacts) are independently evaluated, then combined to create a final station assessment for each sediment location evaluated. Each primary LOE is itself derived from multiple secondary LOEs. While based on quantitative data inputs (e.g., chemical concentrations, percent survival of test organisms, benthic community indices), all LOEs are evaluated on a semi-quantitative, categorical basis, on an integer scale of 1 to 4. Divisions between categories are arbitrary, without apparent rigorous technical basis, and appear designed to promote rigid decision-making rather than application of sound professional judgment in the interpretation of SQOs. .	Divisions between categories were based on rigorous statistical analysis and their technical basis is documented in the technical reports. Similar classification schemes have been used in the scientific literature.	IEA
47	5.5.1 (5.4.1)	Due to the complexity of sediment impairment issues as discussed above, it is critical that this program have consistent testing and sampling procedures, data analysis and data interpretation among regions in California to ensure success. Therefore, WPHA encourages the SWRCB to provide guidance and oversight to all nine RWQCB for SQOs.	Staff agree that statewide consistency is a high priority and believe the draft is an important first step	WPHA,PWG

No.	Subject	Comment	Response	Author
12	5.5.1 (5.4.1)	At best, the report makes passing reference to some selection criteria employed, but in no case does the report contain the technical backup, data, or detail to enable any reviewer to perform an independent evaluation of the proposal.	The report describes the approaches employed and provides references to technical reports (many of which are posted on the Water Boards website) and supporting literature	IEA
13	5.5.1 (5.4.1)	The report is primarily devoted to documentation of the purposes, objectives, and intended benefits to the public of ecological SQO development. However, the underlying scientific justification for the proposed assessment methods is only superficially described.	Staff disagree and provided technical reports and references for those that required greater detail.	IEA
161	5.5.1 (5.4.1)	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	As stated in the draft staff report, none of the indicators performs well when used alone to reliably assess sediment quality. Toxicity tests rarely if ever mimic all the life histories, feeding strategies and chemical exposures that occur within the benthic community.	SFBK
41	5.5.1 (5.4.1)	The document should consider other alternatives such as the possibility of considering all three lines of evidence, but allowing strong signals from one or two lines of evidence to be sufficient for indicating exceedances of the standards	Analyses show that reliance on a single LOE often produces an inaccurate assessment of whether an exceedance is present.	RB5, SCCA
162	5.5.5 (5.4.6)	Furthermore, the proposed manner of combining LOEs (generally taking an average of multiple values and rounding up to the next whole number) sacrifices accuracy and resolution for the sake of simplicity. The result is that very small incremental differences in input data can result in major differences in the final LOE scores due to the arbitrary placement of category thresholds (see chemistry score comment 4 for an example)	The method of combining the indices for the benthic community LOE was shown to improve accuracy relative to the use of a single index.	IEA

No.	Subject	Comment	Response	Author
163	5.5.1 (5.4.1)	Despite the use of reference conditions to establish a baseline for assessment of impairments of beneficial uses, both in established regulations and in practice (see section 4 of the report), the SQO assessment methods that are described do not incorporate any comparison to reference conditions. By failing to incorporate comparisons to reference conditions, the assessment methods are not grounded in practical reality	Reference conditions are incorporated into the thresholds for the toxicity and benthic community LOEs.	IEA
164	5.5.1 (5.4.1)	The limited value of sediment chemistry relative to direct measurement of biological effects is recognized in section 5.5 of the report. Variations in bioavailability and in exposure are acknowledged to impede the inference of biological effects from chemistry data alone, and the report concludes that "As a result of the factors described above, sediment quality indicators based on pollutant concentrations in sediment have only limited utility when used by sediment managers unless bolstered by effects data such as toxicity and benthic community disturbance." In contrast to these statements, the method defined in the report for combining LOEs (Attachment B of Appendix A) gives equal weight to chemistry relative to the biological lines of evidence. Equal weighting of the chemical and biological lines of evidence is contrary to the stated intent to give priority to direct measurements of biological effects	Greater weight is given to the biological measurements (toxicity and benthic community condition) in the overall assessment.	IEA
1107	(5.4.3.1)	Section 5.4.3.1: Support Staff Alternative 2 (Page 81).	Comment noted	TJ
1108	(5.4.3.2)	Section 5.4.3.2: Support Staff Alternative 4(Page 87).	Comment noted	TJ
1109	5.4.3.3)	Section 5.4.3.3: Support Alternative I (Page 92).	Comment noted	TJ
1110	(5.4.4.1)	Section 5.4.4.1: Support Staff Alternative 2 (Page 93).	Comment noted	TJ
1111	(5.4.4.2)	Section 5.4.4.2: Support Alternative 2 (Page 98).	Comment noted	TJ
165	5.5.3 (5.4.4)	As a primary LOE, the chemistry score should reflect information not included in the two other LOEs (benthic community and toxicity). However, the two components of the chemistry score are, in fact, simple functions of predicted benthic community effects and toxicity. The chemistry LOE should instead be based solely on comparison of chemical measurements to a representative (regional or local) background condition, not on biological effects	Comparisons solely to background conditions would result in arbitrary thresholds for determining the chemistry LOE category because there would be no way to document uncertainty and the relationship to the protected condition.	IEA

No.	Subject	Comment	Response	Author
166	5.5.3 (5.4.4)	Moreover, the use of theoretical BRI and toxicity indices for any purpose makes little sense when empirical measures of both benthic toxicity and BRI are available. The proposed approach requires the use of predictive models to estimate BRI and toxicity at stations for purposes of evaluating the chemistry LOE, then requires direct calculation of BRI and direct measurement of sediment toxicity to evaluate the benthic community and toxicity LOEs. There is no reason to rely on a highly uncertain prediction when direct measurements are available.	Both the toxicity and benthic LOEs have sources of uncertainty with respect to the linkage to toxic pollutants. Inclusion of the chemistry LOE reduces this uncertainty.	IEA
167	5.5.3 (5.4.4)	The CSI employs a relatively obscure statistical parameter, Cohen's kappa coefficient (Cohen 1960) to causally associate concentration ranges of individual chemicals in sediments with BRI ranges, and to set the weighting factors used to calculate station CSI values from constituent chemical concentrations. This is a non-standard application of the kappa statistic, which was developed and has traditionally been used in the fields of education and medicine to measure the agreement between two "raters" (e.g., two academic testers' findings or two physicians' diagnoses). Although considered useful as a way to test rater independence, the validity of the kappa statistic as a quantitative measure of the level of agreement has been criticized (Brennan and Prediger 1981, Sim and Wright 2005). Reliance on kappa in the current application to quantitatively establish relationships between measured variables, and to scale the relative importance of components within mixtures may well be inappropriate, although it is difficult to fully assess without more detail about its use than the Board has provided.	The kappa coefficient is a well-established and widely applied statistical tool. Other standard tools (e.g., Spearmans correlation) were used in the evaluation of the candidate chemistry indices.	IEA

No.	Subject	Comment	Response	Author
168	5.5.3 (5.4.4)	The CSI and Pmax, appear to be logically inconsistent internally, and with each other. For example, the CSI predicts low benthic disturbance conditions (category 2) will be observed when total DDT concentrations in sediment exceed 0.50 mg/kg, a detection limit level. However, the LRM prediction for amphipod mortality at this concentration is only 1 percent, a level that would seem unlikely to have significant population-level implications. Contrast this with the case of copper. Low benthic effects for copper are predicted at a bulk concentration of 53 mg/kg, a level well within the background range in many locations. At 53 mg/kg copper, the LRM predicts amphipod mortality of 24 percent. The implications of "low disturbance" are unclear, based on the performance of these indicators for different chemicals. Similar discrepancies exist throughout the four disturbance categories.	The CSI and Pmax represent empirical relationships for two different types of biological response (benthic community and toxicity). Different relationships with chemical concentration are to be expected because of differences in species, exposure, and response endpoint. The chemical indices and thresholds are not intended to represent causal relationships, but rather a gradient of potential biological response ranging from no effect (background) to high effect.	IEA
169	5.5.3 (5.4.4)	Because the CSI and LRM outputs are simply a surrogate for non-site-specific benthic community and toxicity responses, they should always be overridden by site-specific benthic community and toxicity data, and therefore have no value to assess the chemistry LOE or the two biological LOEs	Inclusion of the chemistry LOE provides an important line of evidence to minimize the influence of false positives associated with the biological measurements.	IEA

No.	Subject	Comment	Response	Author
1008	5.5.3 (5.4.4)	The chemistry LOE needs to be more robust and protective. Both of the proposed chemistry LOE methods are those based on regressions of toxicity and benthic condition with a short list of chemicals. The only way to fulfill the SQO Plan's requirement to prove that a community level impact exists requires knowing what level of a pollutant causes a specific level of impact and thus having widespread sediment toxicity. We should not have to wait until widespread impacts have occurred and been documented in millions of dollars worth of studies in order to develop sediment chemistry thresholds.	Staff agree that the chemical LOE is the least reliable indicator, however the LOE is still important as a measure of the potential for pollutant exposure to occur. However, staff disagree with the commenter's assertion that understanding dose response relationships for each pollutant of concern is required or is appropriate for several reasons. Rarely is every pollutant present in sediment measured at a given station. Further, dose response data is not available for every pollutant. Dose response relationships do not address complex mixtures of pollutants in sediment. In addition, the bioavailability of a pollutant, and thus its effect on aquatic life, varies significantly from location to location as described in Section 2 of the Staff Report.	HBK
1009	5.5.3 (5.4.4)	The SQO Plan needs to allow all useful information such as sensitive species toxicity values, mechanistic models, and Toxicity Identification Evaluations in developing chemical thresholds and assessing contaminant exposure risks for benthic species. The chemical line of evidence should not exclude by design anything not on the proposed short analyte list. The need for consideration of data on additional pollutants such as current use pesticides, and use of the most appropriate metrics to evaluate their the potential toxicity in evaluating sediments was actually a concern of the experts whose opinion is cited as validation of the MLOE approach	Staff disagree. The approaches mentioned by the commenter could be better applied after impacts have been identified as described in Section 5.7. Staff did not intend for the chemical LOE values to be used as regulatory limits. Rather, the intent of the draft plan was to apply the chemical LOE during the assessment, identify the pollutant causing the impacts, and develop site specific values that would be protective of aquatic life. This approach would take into account site specific factors that affect bioavailability.	HBK

No.	Subject	Comment	Response	Author
1010	5.5.3 (5.4.4)	The inclusion of data for additional chemicals of concern (e.g., current use pesticides) would have given some experts greater confidence in their assessment decisions with respect to the chemistry and benthos lines of evidence by indicating whether additional potential toxicants were present. The lack of established assessment guidelines for these additional chemicals is problematic, but mechanistic models and effects data from the literature can be used to assist in interpretation when using best professional judgment	Available data was the primary factor limiting the list of pollutants. As more data is collected, the Water Board will incorporate more chemicals to better assess the risk of chemical exposure. The draft Part 1 utilizes mechanistic models and effects data to assist in stressor identification only. If future analysis suggest that mechanistic approaches would provide greater reliability as a primary LOE, the State Water Board can propose such changes during triennial reviews of the draft Part 1.	HBK
1036	5.5.3 (5.4.4)	Not only was the CSI metric not reviewed, there are fundamental problems with the design of the metric itself. The CSI metric merely compares chemical mixes found at a site being analyzed to the chemical mix present most often at the historical degraded sites used to develop the dataset. Radically different chemical mixes could be similarly toxic and have similar effects on communities, but would not be ranked as impacted unless they had high concentrations of the specific chemicals which were elevated at the degraded sites in the historical dataset. For example, if pure DDT was analyzed under this metric the site that generated it would not be considered be impacted. Furthermore, averaging the two limited chemical metrics together doesn't make their weaknesses go away; it actually lets the extremely weak CSI metric water down the slightly better California Logistic Regression Model ("CA LRM") metric. This results in a chemical line of evidence that provides no protection for even potentially heavily impacted and toxic sites.	Staff disagrees. Peer reviewers were asked to review the scientific foundation of the draft Part 1 as described in the Staff Report. All the chemical indicators were described in the Staff Report, as was the process used to select the indicators the performed the best (Section 5.4.4). Each peer reviewer was asked to provide a response to the same set of questions. The questions covered topics ranging from selection of receptors to selection of indicators proposed for each line of evidence. In regards to the chemistry LOE, the question posed to the peer reviewers was; "Are the proposed sediment chemistry indicators appropriate for assessing the potential risk of exposure from toxic pollutants to benthic invertebrates within bays and estuaries of California?" The peer review questions and responses are presented at the end of this document.	HBK

No.	Subject	Comment	Response	Author
1036 co	5.5.3 (5.4.4)		In addition to formal peer review, the CSI metric was reviewed during its development by the Scientific Steering Committee, an independent panel that included chemists, biologists, and regulatory agency representatives. Additional review of the CSI (along with other elements of the SQO Plan) was provided by the external review panel that included leading environmental chemists and biologists from academia. The underlying design of the CSI (e.g., based on the empirical association between chemical concentrations in field sediment samples and biological effect, is similar to that of other peer-reviewed sediment quality guideline approaches such as the NOAA ERMs and Logistic Regression Models, the principal difference is that benthic community condition is used as the biological endpoint.	HBK
1036 co	5.5.3 (5.4.4)		The use of an average index value (e.g., mean CSI or mean ERM quotient) is a peer-reviewed method that is frequently used in similar applications and has been shown to provide greater accuracy in determining the biological significance of chemical contamination compared to evaluation of single chemical guideline values. The averaging approach for integrating the chemical metrics actually provides greater protection because the chemistry line of evidence score is usually rounded up to the higher exposure category in most cases when there is a disagreement between the metrics.	HBK
170	5.5.3 (5.4.4)	On the basis of the scientific data presented in the supporting documents it appears that the contaminants hypothesized to be responsible for sediment toxicity are metals and PAHs. Aside from PCBs and some legacy pesticides, I could not find any evidence in the supporting documents that any other contaminants were suspected of causing benthic toxicity. From a scientific standpoint, I cannot understand why these contaminants cannot be addressed directly.	The supporting documents describe the specific chemicals included in the SQGs, which include those typically measured in previous studies, but the documents do not infer that these are the specific chemicals responsible for biological effects. The potential that contaminants other than those listed in the documents may be causing biological effects is addressed through measuring toxicity and benthic community condition and conducting stressor identification.	**DLS**

No.	Subject	Comment	Response	Author
171	5.5.3 (5.4.4)	The authors of the documents state that bioavailability and other complicating factors make it impossible to assess these issues with measurements of contaminant concentrations. I am not convinced that the complicating factors associated with benthic toxicity are more difficult to capture than those inherent in the soil, water and air pollution regulations that are the basis of almost every other environmental regulation	Chemical measurements can assess contaminant bioavailability in sediments in many cases, but the tools are not sufficiently refined, comprehensive, and standardized to be feasible for use in a regulatory program.	**DLS**
172	5.5.3 (5.4.4)	The category 2 CSI thresholds for pesticides are set so low that they approach normal detection limits. This calls into question the applicability of the logistic regressions used at very low concentrations. Have effects on benthic communities been reliably observed at these concentrations, or are they simply predicted by extrapolation of relationships determined at higher concentrations? Without full access to the data from which the regressions were derived, it is impossible to answer this question	The chemical category values are based on observed relationships with biological effects. Benthic community effects have been observed at the low category levels, albeit at a lower frequency, as intended.	IEA
173	5.5.3 (5.4.4)	I believe that a less unwieldy approach could have been developed if the same amount of effort was directed at resolving the bioavailability issues. For example, there is a strong scientific foundation for explaining metal-related sediment toxicity by using the ratio of simultaneously extracted metals (SEM) to acid volatile sulfides (AVS). The authors of the document dismiss this approach because SEM and AVS data were unavailable. If the goal of the study is to develop an approach for protecting sediments, it seems reasonable to advocate for the collection of relatively simple data that provide a mechanistic understanding of the factors affecting toxicity	This recommendation is inconsistent with that of the other independent peer reviewers, Scientific Steering Committee, or the prevailing opinion expressed in the recent scientific literature on sediment quality assessment. The USEPA devoted many years and spent millions of dollars trying to resolve these bioavailability issues and did not achieve the level of success needed for use in this program. Staff agrees that additional bioavailability research is needed and future revisions of the policy should consider the incorporation of new advances in this area as they become available.	**DLS**

No.	Subject	Comment	Response	Author
174	5.5.3 (5.4.4)	The proposed categorical scoring scheme forces an arbitrary, low-resolution outcome on all sediment evaluations. This approach artificially simplifies complex, multivariate relationships between chemical and biological effects, but it is unlikely to result in an accurate representation of sediment quality and may create misleading results. When concentrations of even a single chemical are close to a threshold between categories, station scores may be driven by artifacts of the method rather than the data. Such artifacts are inherent in any scoring scheme that is based on quantum thresholds in concentration, such as that proposed by the Board.	Validation analyses of the MLOE assessment framework have shown that it provides results of similar accuracy to independent analyses by experts using alternative approaches. The five-category resolution of the framework is an improvement over the typical pass/fail methods used in other programs.	IEA
175	5.5.3 (5.4.4)	The presence of a chemical of a e presence of a chemical in a toxic sediment does not prove causation and should not be the basis for any SQO	There is no presumption of causation by a specific chemical until stressor identification has been conducted.	JLB
176	5.5.3 (5.4.4)	Finding sediment toxicity and altered benthic organism assemblages compared to the population that should be present based on habitat characteristics should trigger further investigation to evaluate the cause of the toxicity and/or altered benthic organism populations. Of particular concern is whether the toxicity is causing the altered benthic organism assemblages	Staff agree.	GFL
177	5.5.3 (5.4.4)	Dr Wolfe stated that the chemical line of evidence was not necessarily reliable for predicting the results of the all three lines of evidence. This is to be expected owing to the unreliability of using a total concentration co-occurrence-based approach for including chemical information in the SQO development	Staff agree; however, it's important to note that the presentation was made to demonstrate that each LOE (chemistry toxicity and benthic community) when used alone does not perform well in comparison to the MLOE.	GFL

No.	Subject	Comment	Response	Author
1037	5.5.3 (5.4.4)	Use of chemical indices based on co-occurrence as a significant component of the initial evaluation ignores what has been known about the aqueous environmental chemistry and toxicology of sediment-associated contaminants for nearly four decades, namely that chemicals exist in sediments in a variety of chemical forms, only some of which are toxic/available to impact aquatic life, and that the release/impact of most sediment-associated contaminants is unrelated to their total concentrations in the sediment	The presence of geochemical factors that modify the bioavailability/toxicity of sediment-associated contaminants and the difficulties in interpreting chemical concentration data has been described in the Staff Report (Sections 5.4.4.1, 5.4.4.2). The SQO Plan incorporates several elements that directly address this issue: the chemistry line of evidence is not used by itself to evaluate the station, use of the chemistry line of evidence is limited to overall exposure assessment, not specific cause-effect determination, and stressor identification (which addresses bioavailability issues) is required as part of the implementation plan.	GFL
178	5.5.3 (5.4.4)	What should be done to evaluate the reliability of the proposed SQO development approach is compare the outcome of a total concentration co-occurrence-based approach with that of a properly developed sediment quality evaluation using the biological effects-based components of toxicity and benthic organism assemblage information that include a properly evaluated chemical component based on TIEs that show the chemical(s) responsible for toxicity and altered benthic organism assemblages	Data is not currently available to conduct this evaluation because the SQO assessment method has not yet been applied to a variety of samples that have matching TIE data. Staff agree that this evaluation would be informative and expect to conduct such an evaluation when sufficient data are available.	GFL
1046	5.5.3 (5.4.4)	The staff response has not addressed the issue raised in this comment. This comment did not advocate running TIEs at every station. Rather, it was offered as a mechanism by which the unreliability of the SQO approach incorporating total concentration/cooccurrence would be clearly revealed.	Comment response to comment No. 178 has been revised.	GFL
179	5.5.1 (5.4.1)	We also are generally satisfied with the suite of tools that have been proposed for each LOE and how they have been developed, evaluated, and validated.	Comment noted.	LACSD

No.	Subject	Comment	Response	Author
	5.5.1 (5.4.1)	We are concerned that no line of evidence deals specifically with bioaccumulation. The exclusion is difficult to fathom as the narrative objective for human health specifically includes bioaccumulation. Instead, bioaccumulation is only briefly mentioned in the stressor identification provision and in the glossary. We can only guess that bioaccumulation and biomagnifications will be covered in Phase II, indirect effects. We urge the State Board to ensure that this critical topic is carefully and fully addressed. We also recommend that language be included to inform practitioners how and when bioaccumulation will be included	Bioaccumulation is not a key indicator to protect benthic communities. This tool is more frequently applied to assess the risk to higher trophic levels. Staff will be evaluating this indicator as a measure of indirect effects in the next phase.	SDCK
180	5.5.1 (5.4.1)	We are pleased that the State recognizes the inadequacy and unreliability of using a single line of evidence (such as chemistry or toxicity) to evaluate sediment quality. The Science Team and Scientific Steering Committee have repeatedly warned against the use of single lines of evidence to characterize sediment quality. The three pronged approach of using benthic community data, chemistry, and toxicology represents a leap forward in policy implementation and sets a strong precedent for development of sediment quality standards.	Comment noted.	LACSD,Tri-TAC
515	5.5.1 (5.4.1)	The tools do not take into account bioavailability	Bioavailability is taken into account by the use of toxicity data in the station assessment and also the use of empirical chemical indices that are calibrated using laboratory and field biological effects.	LW
181	5.5.1 (5.4.1)	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.	That may be appropriate for the extreme case described; however, that case is a relatively rare occurrence.	SFBK, SCCA

No.	Subject	Comment	Response	Author
182	5.5.1 (5.4.1)	Page 61 - last two lines - It is stated that PAHs do not bio-accumulate in tissues. This is incorrect as there are numerous examples in the literature demonstrating that PAHs can bio-accumulate in tissues of aquatic organisms (see Salazar et al. 2005).	Staff agrees that this comment is too general. However, bioaccumulation data does have limitations as a stand-alone measure of contaminant exposure and effect.	WPHA, PWG
183	5.5.1 (5.4.1)	While our Basin Plan contains safeguards against the potential impacts of replacement pesticides, these safeguards could be difficult to implement if, for the reasons described in these comments, the SQO Plan provides less protection from toxic effects of pollutants in benthic sediments than current objectives and programs provide for pollutants in the water column. In order to support the Water Boards' considerable progress in addressing overall toxic impacts of pesticides, Central Valley Water Board staff believe that, whenever technically possible, our standards and programs of implementation should provide a consistent level of protection of beneficial uses regardless of whether the pollutants being regulated are present in the water column or in benthic sediments	The Staff Report describes Sections 2 and 5.3 and 5.4 why sediment quality needs to be assessed and regulated differently then the water column. The Central Valley Regional Boards limited experience with sediment quality assessments should not lower the State Boards standards to promote scientifically defensible standards and interpretive tools.	RB5, SCCA
1007	5.5.1 (5.4.1)	The Toxicity line of evidence ("LOE") is clearly the most obvious representation of the condition of sediments. In applying this portion of the analysis the SQO Plan provides for a limited number of test organisms to be used in analyzing the toxicity of sediments from specific locations. These species have been chosen due to their known response and sensitivity to various conditions. They represent however, a small snapshot relative to the large diversity actually found within natural aquatic environments. As these species have been identified for their responsiveness, this characteristic needs to be properly appreciated in application of the toxicity line of evidence. Should any analysis show impact from this line of evidence the proper weight should be granted to that information and the site should be considered impacted. Combining this evidence with other lines of evidence should not be allowed to override the finding of toxicity and find that an area is not in fact impacted	Staff disagree with the concept that sediment toxicity tests are reliable when used alone for assessing sediments or reflect the actual exposure to the benthic communities for the reasons stated in Sections 5.4.1 and 5.4.3.1. of the Staff Report. See also response to comment No. 1004.	HBK

No.	Subject	Comment	Response	Author
184	5.5.2 (5.4.3)	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 general, we support a quantitative approach that allows toxicity data to be compared to a numerical value in order to assess the overall toxicity	Staff disagree. Section V.F and Tables 2, 3, and 4 of the Draft Part 1 describe how to assess toxicity test responses explicitly.	SFBK
	5.5.2 (5.4.3)	We appreciate that the toxicity line of evidence includes both lethal and sublethal tests. Unfortunately, the SQO Plan still lacks echinoderm species, which can be extremely sensitive to sediment contamination. We hope staff will consider adding echinoderms or explaining why they were not included. The Plan should also make it clear that Table 4 presents the relevant categories for assessment, rather than the narrative explanation of the category in V(F)(3). We foresee some confusion if a discharger records results that put the assessment in one category numerically and another one from the narrative perspective	Staff agree the echinoderm test is sensitive, however, this test was not included for two reasons. 1. The species is more difficult to use routinely and 2. the species is only available in winter and spring. That differs from draft Part 1, which states that summer sampling is the appropriate sampling period.	SDCK
	5.5.2 (5.4.3)	The use of supplemental toxicity tests is useful and should be encouraged. Unfortunately, without a mandate to do the tests in certain situations, the extra cost of the tests will likely discourage their use. We are also troubled that these supplemental tests could be used to 'game the system' that is move the final category lower than it would have been otherwise. Some additional guidance to the Regional Board on the subject of when and how additional tests should be used would be helpful. The Regional Boards should use their Best Professional Judgment (BPJ), not the dischargers in making this decision. Integration of sediment toxicity categories is necessary, but the method should be more explicit. The word 'midway' should be excluded, instead focusing on any value about the category being rounded up to the next higher response category. This would avoid any confusion about whether a value is midway between or not	Staff have deleted the use of supplemental toxicity tests for some of the reasons mentioned by the commenter. Other reasons are the inability to integrate the results in a defensible scheme without understanding the sensitivity of the test organism, the reproducibility of the test or the type of endpoints selected for the test.	SDCK

No.	Subject	Comment	Response	Author
185	5.5.2 (5.4.3)	The results of the bioassays are scored on an integer scale from 1 to 4, based on a comparison to control results. The scores from all available tests are then averaged, and rounded up to the next whole number. There are several flaws inherent in this method	Toxicity test comparisons to negative controls are used to provide comparable interpretation of results statewide; each test result is weighted equally because there is uncertainty regarding the predictive accuracy of all tests; the use of categorical classifications are based on objective methods with a scientific basis and are needed to provide consistency in data interpretation.	IEA
186	5.5.2 (5.4.3)	The proposed method fails to rely upon, or even include comparison to reference response levels. Negative controls are used primarily as a quality assurance tool in environmental toxicology, to establish dose response baselines and evaluate signal to noise ratio for the measured endpoints. Full evaluation of the environmental significance of toxicological data, especially in the case of a complex, multi-chemical exposure scenario like sediment toxicity, requires a comparison to endpoints measured under appropriate reference conditions	Comparisons to a negative control help provide the required margin of safety for the assessment. Subsequent comparisons to reference conditions may be appropriate when determining the necessary management actions.	IEA
187	5.5.2 (5.4.3)	The method implies that all tests are equally reliable and predictive of sediment toxicity. This is not necessarily the case. Sublethal endpoints are inherently more variable than mortality, particularly endpoints that require subjective determination (i.e., “normal” development in bivalve larvae). Weighting all tests equally effectively results in a toxicity LOE with the variance of the least reproducible study	Staff disagree. The variability of each test method has been incorporated into the thresholds used to interpret the results.	IEA
188	5.5.2 (5.4.3)	The toxicity scoring schemes that generate discontinuous, qualitative classifications from continuous, quantitative observations or data result in loss of measurement accuracy and resolution, and are likely to introduce artificial distinctions among samples that are not reflective of meaningful differences in toxicity	The use of categories is necessary to provide a consistent method of data interpretation that can be applied by agencies with variable levels of toxicological expertise.	IEA
189	5.5.2 (5.4.3)	Page 68, Table 5.4 - One issue that should be considered with the use of Ampelisca is that this is a high salinity species (> 28 ppt). Therefore, it would not be appropriate to use it in low salinity areas of bays or estuaries.	Staff agree.	WPHA, PWG

No.	Subject	Comment	Response	Author
190	5.5.2 (5.4.3)	Page 69, Section 5.5.2.3, par. 1 - We do not support the use of best professional judgment by RWQCB staff to interpret sediment toxicity data. A consistent set of guidelines should be used by all RWQCBs (as supported by Staff Recommendation, Alternative 2 on page 74).	The goal of a statewide plan is to reduce the use of BPJ.	WPHA, PWG
191	5.5.2 (5.4.3)	5. Page 70: The basis for the low toxicity threshold is unclear. The moderate and high thresholds are related to statistical tests of the data while the low threshold appears to be based upon best professional judgment. The basis for defining the low threshold needs to be better documented and related to an actual adverse effect, in the same manner that is presented in the supporting information for the moderate and high thresholds	The low toxicity threshold is based upon two specific criteria that have been used in other programs to interpret toxicity test results: magnitude of response relative to the acceptable control response and statistical significance. The threshold is not based on best professional judgment. The toxicity category designation is always used in combination with other lines of evidence to determine regulatory action; it is never used as the sole basis for decisions, regardless of the statistical significance result.	**DLS**
192	5.5.2 (5.4.3)	In Figure 5.1, it appears that a test result in which the response is not significantly different from the control can be classified as exhibiting low toxicity. What is the scientific basis for concluding that a sample that is not different form control is impacted?	This category is intended to represent responses that are of low magnitude and uncertainty with regard to test variability; it does not represent a conclusion regarding impact, which is determined from MLOE.	**DLS**
193	5.5.2 (5.4.3)	The toxicity test organisms may not be indigenous or available at the actual site where the sediment sampling is conducted. And while the test may exhibit toxicity the sediment at the site may not be toxic. This could lead to erroneous assessment of sediment quality at the site.	Staff agree; this is the reason a MLOE approach is proposed.	LACo
194	5.5.2 (5.4.3)	How come regional thresholds for toxicity were not considered.	Regional thresholds are not needed to make a determination of the presence of toxicity; a negative control is sufficient and provides more consistent information.	
195	5.5.2 (5.4.3)	Why is the median used for toxicity categorization while average values are used for categorizing the benthic and chemistry data	The average is used to integrate the toxicity responses.	

No.	Subject	Comment	Response	Author
196	5.5.2 (5.4.3)	Page 74, middle of page for Staff Recommendation - We agree with the three categories of low, moderate, and high sediment toxicity in Table 5.5 as magnitude of toxicity is addressed. Perhaps this point could be added to support these categories. This approach also provides a better assessment of data for toxicity ranking as opposed to using either toxic or non-toxic (binary approach)	Comment noted.	WPHA, PWG
197	5.5.3 (5.4.4)	Page 75, par. 2, line 9 - Another possible scenario exists if pollutant concentrations are very low or not detected but significant effects are observed. Joint toxicity, such as synergistic or additive effects, may be occurring from low concentrations of several or many chemicals	Comment noted.	WPHA, PWG
198	5.5.3 (5.4.4)	Page 78, par. 3 - This paragraph contains two very important points which we believe should be highlighted in the Executive Summary. The points made by the authors are; 1. The new benthos based CSI SQG provided greater accuracy for predicting benthic community condition than did SQGs based on toxicity, and 2. The accuracy and ecological relevance of chemical SQGs can be improved by incorporating benthic response data into SQG development	Staff concur.	WPHA, PWG
199	5.5.3 (5.4.4)	Page 80, top of page, Alternative 3 - It is still not clear why the national data sets in concert with data sets from California cannot be used for this sediment chemistry approach. The national data sets are much larger and it is doubtful that the benthos from California Bays and estuaries will have different sensitivity to chemicals in sediment	National data could be used, but there is an increased likelihood of errors in predicting impacts due to regional differences in contamination patterns and magnitude.	WPHA, PWG

No.	Subject	Comment	Response	Author
200	5.5.3 (5.4.4)	The State Water Board proposed two methods, the CSI and CA LRM, to assess sediment chemistry exposure. As detailed in Table 5.8, the CSI is derived from data collected only in southern California. However, the CSI will be used to evaluate sediments collected from bays in both northern and southern California. The Plan indicates that the environmental settings in northern and southern California vary significantly in numerous ways that can significantly affect impact of pollutants in sediment, yet it proposes to use data from only southern California in its analysis. (Plan at pp. 12-26.) While we support the MLOE approach proposed by the State, the use of a subset of available data to develop the tools used to evaluate the chemistry LOE again points out the need to perform site-specific stressor identification and to develop site-specific management guidelines.	Staff agree. The chemical LOE are not intended to indicate cause, only risk of exposure based upon mixtures. The only way to determine causality is through stressor identification.	CASQA
529	5.5.3 (5.4.4)	The Proposed Chemistry Thresholds Are Not Scientific. Chapter 5.6 requires the SQOs to be based on science; the proposed chemistry thresholds are not based on science. They are based on statistical calculations of data without regard to underlying information as to what may be causing biological effects observed in toxicity tests. By ignoring information on toxicology, such as causation studies and dose-response knowledge, and chemical bioavailability, the chemistry thresholds are set without regard to toxicological and scientific principles	The chemistry SQGs are based on principles that have been recognized as effective in numerous scientific articles, meetings, and workshops. Information on toxicology and bioavailability is utilized in the stressor identification activities that follow the initial station assessment.	CCOC, LW
530	5.5.3 (5.4.4)	the data sets relied on to derive the chemistry thresholds lack meaningful coherency between these two measures – chemical concentrations and observed biological effects. Plots of these variables against each other look like scatterplots, completely random assemblages of data. The State Board's own analysis concluded that 90 percent of the time, there is no relationship between these two measures. Yet, the SQOs include threshold values picked from these poor associations.	The technical reports document that statistically significant associations are present between the chemistry and biological indicators. The uncertainty in these associations is acknowledged and moderated by the use of a MLOE assessment approach.	CCOC, LW

No.	Subject	Comment	Response	Author
531	5.5.3 (5.4.4)	The Proposed Chemistry Thresholds Lack Any Correspondence to Levels of Toxic Pollutants Known to Cause Toxicity, which Generally Are Hundreds of Time Higher. The SQOs cannot justify the chemistry thresholds on a margin of safety basis when the levels are so far below those levels that pose actual risk. Without scientific rationale, the statistics used to set the thresholds seem to produce values much closer to zero than to any value with toxicological significance	The chemistry indices are not thresholds intended to represent levels of causation due to specific chemicals. They are intended to represent categories of chemical exposure that range from minimal to high; thus some of the values are low by design.	CCOC, LW
532	5.5.3 (5.4.4)	In order to be scientifically valid, the proposed SQOs should (1) establish a cause-and effect relationship between chemical concentration and biological effects; (2) have a high predictability and spatial generality in their application; (3) have a high degree of reliability (or degree of confidence); and (4) apply to complex mixtures to predict the potential toxicity of individual chemicals. The proposed SQOs do not meet any of these fundamental requirements and suffer from numerous limitations. It therefore is scientifically unsound for the proposed SQOs to rely on the statistical methods to predict potential impairment of sediments.	The criteria stated in the comment are not achievable by any one scientific method. The proposed MLOE approach incorporates multiple lines of evidence in order to attain criteria 2-4. Criterion 1 is addressed in the stressor identification process.	CCOC, LW
533	5.5.3 (5.4.4)	The proposed SQOs propose exceedingly low thresholds and are relying on an association between the chemicals and the sediments to support threshold values.	A range of chemical values ranging from very low to high were developed in order to classify the overall level of chemical exposure. These values are not intended to represent thresholds of causality for specific chemicals.	CCOC, LW
534	5.5.3 (5.4.4)	The proposed methods do not account for effects due to mixtures of chemicals, only a single chemical. When multiple chemicals exist, as is common in bay sediments, the methods preclude the ability to separate which chemical is causing an observed effect.	Each line of evidence is calibrated to field sediments and thus takes into consideration the contaminant mixtures present in California bays.	CCOC, LW

No.	Subject	Comment	Response	Author
535	5.5.3 (5.4.4)	The scientific community recognizes the defects in the proposed methods should preclude their use in establishing sediment criteria or cleanup levels. We confirmed conclusions previously reached by other investigators which include that the proposed methods (1) generate statistical associations that do not help establish causal relationships between chemical concentration and biological effects; (2) cannot account for factors important in determining bioavailability of chemicals; and (3) cannot account for biological effects due to unmeasured concentrations of other chemicals or chemical mixtures.	The MLOE approach moderates these limitations by using data from multiple sources to provide a more accurate and reliable assessment of sediment quality. The MLOE station assessment approach is not intended to establish causality or determine cleanup levels.	CCOC, LW
536	5.5.3 (5.4.4)	No ability to reliably identify a specific cause of observed toxicity in sediments. To be reliable, a proposed method must be able to adequately estimate or predict adverse effects or toxicity at a given location, and have a high probability of estimating effects in a consistent manner.	The accuracy of the MLOE assessment method was found to be comparable or greater than other methods used by experts.	CCOC, LW
537	5.5.3 (5.4.4)	The proposed method also must have a high degree of predictability, which refers to the ability to apply the reliable method spatially among various geographical locations (e.g., will the method predict the same toxicity or effects in San Francisco Bay as in Los Angeles Harbor).	Consistent methods and categories of interpretation have been developed for different regions of the state in order to enhance consistency among locations.	CCOC, LW
538	5.5.3 (5.4.4)	The State Board's test methods are neither dependable in estimating toxicity (i.e., reliable), nor capable of being applied to various geographical locations to get consistent responses or comparable estimates of toxicity (i.e., predictable).	Direct measurements of toxicity are included in the MLOE approach so that a consistent measure of toxicity is obtained in various locations.	CCOC, LW
539	5.5.3 (5.4.4)	No ability to predict potential sediment impairment. Since the key assumptions that are necessary to make the methods scientifically sound are rarely met, it is essentially not possible to develop a predictive relationship for individual chemicals from synoptic measures of exposure to complex mixtures and responses, either in bioassays or in field measurements of benthic invertebrate populations and communities.	Inclusion of the Possibly Impacted assessment category represents conditions where potential sediment impairment may be present, but there is uncertainty. The assessment tools were not developed to provide predictive causal relationships for individual chemicals.	CCOC, LW

No.	Subject	Comment	Response	Author
540	5.5.3 (5.4.4)	In many cases, the correlation between the magnitude of exposure to a chemical (concentration in sediments) and the adverse effects were much less than 10%. In other words, 90% of the time there was no relationship between concentration of the chemical in the sediment and biological response.	The strength and nature of correlations between chemicals and effects is often low because it is affected by many factors that are poorly understood. This limitation is acknowledged and moderated by use of a MLOE approach and subsequent stressor identification.	CCOC, LW
541	5.5.3 (5.4.4)	Inability to achieve intended biological response. For Selected California Harbor sediments, use of either Cal-LRM and CSI methods-based toxicity threshold concentrations of Total DDT or Total PCB for setting injury or sediment clean-up levels would not be justified since these thresholds failed to distinguish between toxic and non-toxic effects for any of the toxicity endpoints considered. Cal-LRM and CSI-based thresholds derived for establishing sediment quality using selected field observations lead to values that have no toxicological or statistical meaning	The CA LRM and CSI chemical values are not represented to be accurate for setting injury or clean-up levels. Both indicators were developed based upon mixtures and only provide an estimate of the risk of exposure. The draft Part 1 states very clearly that none of the LOE are not intended to used as a stand alone tool	CCOC, LW
542	5.5.3 (5.4.4)	Inconsistent results cast doubt on proposed methods' validity. There were instances in which statistically significant differences were found in the magnitude of an endpoint response among areas or among data sources within an area, yet no significant differences were found with respect to the co-occurring concentration of a contaminant. Such inconsistencies immediately call into question the validity of assuming a direct relationship between the magnitude of contamination and the magnitude of adverse biological effects using field observations. For all of these reasons, as more particularly set forth in ENTRIX's comments, the SQOs' proposed statistical methods have severe limitations. Such statistical methods can be used to explore whether associations between levels of contamination and biological effects exist (here they do not).	Inconsistencies in the sediment quality lines of evidence are considered in determining the sediment impact category. The level of disagreement among the lines of evidence will vary depending upon site conditions and that information is retained in the assessment process.	CCOC, LW

No.	Subject	Comment	Response	Author
543	5.5.3 (5.4.4)	The methods might be appropriate as screening tools to identify sediments in areas that may require more detailed evaluation. It is not scientifically sound, however, to use such methods to support the identification of SQOs or site-specific sediment cleanup goals. The proposed SQOs' statistical approaches do not have a scientific basis and should not be included in the development of SQOs or classification of the degree of potential impairment of sediments.	The methods are not intended for use as site specific cleanup goals, unless verified by further investigation.	CCOC, LW
544	5.5.3 (5.4.4)	The rounding-up rule contributes to the inability of the proposed multiple lines of evidence procedure to distinguish between impacted and non-impacted sites.	Staff is not aware of an analysis that supports this statement.	CCOC, LW
545	5.5.3 (5.4.4)	The numbers proposed by the State Board do not correspond to the level of a constituent that provides for the reasonable protection of beneficial uses or the prevention of nuisance even taking into account an adequate margin of safety. Of particular concern is that statistical thresholds conflict with and are often lower than thresholds based on an understanding of toxicology (such as the equilibrium partitioning (EqP) approach) which reflect process and mechanistic understanding as to how toxic compounds cause toxicity, and account for site-specific factors that affect contaminant bioavailability	Mechanistic approaches such as EqP are needed, but the methods currently available do not provide as high a level of accuracy and applicability to diverse locations as do the empirical approaches proposed in the Staff Report. Use of the MLOE approach is used to balance the limitations of not having mechanistic tools that are available for statewide use and interpretation.	CCOC, LW
546	5.5.3 (5.4.4)	The SQOs rely on data from Field et al. (1999), or propose to adopt an approach similar to that by Field.6 The Field study, however, concluded that "PCBs tended to fit poorly with the model." As a result, the applicability of the LRM approach to evaluate PCB-contaminated sediments is questionable. The proposed SQOs should provide further discussion and analyses supporting the use of this model for PCBs in the SQO evaluation. The State Board should explain to what extent its analysis differs from Field's, and how the proposed SQOs have overcome (if they did) the poor fit in the data that precludes its use in evaluating PCB-contaminated sediments	The LRM approach was calibrated to California data in order to improve the fit of the models. Potential inaccuracy in interpreting the chemistry line of evidence is balanced by the inclusion of independent biological measures of effect (toxicity and benthic community disturbance).	CCOC, LW

No.	Subject	Comment	Response	Author
201	5.5.3 (5.4.4)	I am troubled by the use of California Logistic Regression Models (CA LRMs) to set threshold levels for sediment-associated contaminants using the same type of toxicity data that are used later in the sediment toxicity tests	While toxicity test data are used in part to develop the chemistry SQG thresholds, these aren't the same tests used to make the site assessment. More importantly, the toxicity and chemistry LOEs are complementary in determining whether there is sufficient chemical exposure to cause biological effects.	**DLS**
202	5.5.3 (5.4.4)	Statistical associations do not explain or establish causation. The methods assume associations between chemical concentrations and biological effects rather than supporting development of cause-and-effect relationships. Any number of variables such as unmeasured chemicals, ammonia, hydrogen sulfide, and dissolved oxygen content in sediments could affect sediment toxicity and species responses.	Chemical-specific causation was not assumed. Significant correlations of the measured chemicals with toxicity were documented in the technical reports, confirming the assumption that an empirical association was present.	**DLS**
547	5.5.3 (5.4.4)	We recommend that the proposed SQOs should not be based on any thresholds developed on purely a statistical association between chemical concentrations and biological endpoints. Chemical thresholds must reflect toxicological factors and account for background levels.	The statistically based thresholds were calibrated to toxicity and biological responses in order to improve the accuracy of the classifications. Thresholds based on available mechanistic approaches and background levels had lower accuracy.	CCOC, LW
548	5.5.3 (5.4.4)	The statistical approaches contained in the proposed SQO do not have a valid scientific basis and should not be used for a number of reasons, including the following:	Staff disagree.	CCOC, LW
203	5.5.3 (5.4.4)	As we have stated previously, additional analytes should be included in Attachment A.25 We also have concern with the last two sentences of (V)(H)(1) – 'Inclusion of additional analytes cannot be used in the exposure assessment described below. However, the data can modify the final sediment quality assessment category and assist in stressor identification. This irrationally removes potentially critical clues to contamination from the initial assessment. Without these analytes, we may never get to the stressor identification stage. We also renew our general questions and concerns with the assessment's narrative categories and integration	As more data becomes available, additional pollutants will be evaluated for inclusion on the list.	SDCK

No.	Subject	Comment	Response	Author
204	5.5.3 (5.4.4)	The proposed methods do not account for factors affecting chemical bioavailability. Chemicals only represent a potential harm to benthic and other wildlife if they are bioavailable. The methods may not account for factors affecting chemical bioavailability such as grain size and acid volatile sulfide (AVS) content of sediment-sorbed materials (e.g., Nebeker et al. 1989; DiToro et al. 1990).	The chemistry LOE is based on indices that represent the overall effect of the chemical mixture, not individual chemicals.	FSI
205	5.5.3 (5.4.4)	The major technical deficiency is that the role of aquatic chemistry in affecting how chemical contaminants in aquatic sediments impact beneficial uses of waterbodies has not been adequately considered or incorporated	The limitations of chemical indices based on empirical relationships are clearly identified in the Staff Report. However, the incorporation of mechanistic relationships based on chemical and toxicological relationships would not increase the actual reliability of the assessment due to limitations in current methods for measurement and data interpretation. Equilibrium partitioning approaches were evaluated as part of this process and were found to have less of a correspondence to measured sediment toxicity in a wide variety of California sediments.	GFL
1047	5.5.3 (5.4.4)	While it may have been the staff's intention to "acknowledge" the importance of aquatic chemistry by requiring toxicity and benthic community effects assessments, the inclusion of the total concentration/co-occurrence-based component in the overall assessment, as was done, renders the findings of otherwise reliable assessments of toxicity and benthic community effects, distorted and unreliable, undermining, at best, the attempt at technical reliability.	See revised response to comment No. 205	GFL

No.	Subject	Comment	Response	Author
206	5.5.3 (5.4.4)	While the sediment toxicity and benthic organism assemblage information are technically valid components of a biological effects-based sediment quality evaluation, the total concentration of a chemical or chemicals in a sediment, either directly, or through a co-occurrence assessment or index, is not. It has been known for more than 30 years that the total concentrations of sediment-associated chemicals, individually or collectively, do not have a cause-and effect relationship to the impact that that sediment has on benthic organisms, aquatic life, or sediment/water quality	The Staff Report and Plan clearly state that the indices used for the chemical line of evidence are intended to provide a measure of overall chemical exposure, not to determine cause and effect. The rationale for including empirical chemical indices in assessment framework is that such indices provide an indication of the biological significance of overall contamination at a site, which has been shown to be a more reliable assessment tool for statewide application than currently available chemical-specific approaches.	GFL
1117	5.5.3 (5.4.4)	The staff response has not addressed the issue raised in our comment. First, the use of total concentration/co-occurrence as was done does, in fact, carry a presumption that the exceedance of the co-occurrence trigger is reason to believe that the sediment may cause an adverse impact. If there were not a fundamental presumption that the reason for concern for the sediment (i.e., cause of concern) was the parameter(s) that triggered the exceedance of the co-occurrence index, there could be no rationale for incorporating the index value or trigger.	The Staff Report and Plan clearly state that the indices used for the chemical line of evidence are intended to provide a measure of overall chemical exposure, not to determine cause and effect. The rationale for including empirical chemical indices in assessment framework is that such indices provide an indication of the biological significance of overall contamination at a site, which has been shown to be a more reliable assessment tool for statewide application than currently available chemical-specific approaches. The presumption of cause and effect in the comment reflects a superficial analysis of the Staff Report and Plan. Response to the original comment has been revised.	GFL
207	5.5.3 (5.4.4)	The failure of the SQO staff report to even discuss the significance of not including the potential toxicity associated with low-DO, ammonia, and hydrogen sulfide derived from aquatic sediments as part of the cause of sediment toxicity is a major, fundamental flaw with the proposed approach	The presence of other toxicants and stressors, such as ammonia, low DO, and physical disturbance has been discussed in the Staff Report. Staff agrees that these factors may be important causes of the biological effects observed; that is the reason that the first element of the stressor identification approach directs the investigator to confirm that the effect is due to the types of chemical contaminants covered by the policy.	GFL, RB5

No.	Subject	Comment	Response	Author
1049	5.5.3 (5.4.4)	The staff response does not address the issue raised by the comment. The stressor identification approach provided by the staff does not address the issue of the impact on benthic organism assemblages of low-DO conditions that occur with the suspension of bedded sediments into the water column associated with wind or other causes and the exertion of rapid-acting inorganic oxygen demand that kills aquatic life. This issue was completely ignored by the staff. Further, in its response the staff has apparently categorized “low-DO, ammonia, and hydrogen sulfide” as “other ‘non’toxic pollutants;” these chemicals/conditions clearly are some of the most significant causes of toxicity in sediments	See revised response to comment No. 207	GFL
208	5.5.3 (5.4.4)	Another significant deficiency with the SWRCB staff’s recommended approach is the imprudently narrow focus of the list of chemicals considered in the SQO development. Low DO, ammonia, and hydrogen sulfide can be responsible for sediment toxicity but are not given consideration. They can, in fact, be largely responsible for toxicity erroneously attributed, through “co-occurrence” evaluation, to other chemicals that also occur in the sediment. Further, there is a vast array of potentially toxic chemicals, such as some of the widely-used pesticides, that are not being adequately considered in the staff’s proposed list of chemicals that serves as the basis for SQO development	The toxicity and benthic community lines of evidence do reflect impacts from other chemicals and toxicants. Incorporation of the toxicity data as part of determining the chemical exposure potential during the assessment reduces the likelihood that sites impacted by constituents not on the SQO chemical list will be identified during the assessment. The list of chemicals in the plan does not imply that those are the only chemicals of concern; the list is based on chemicals of concern for which sufficient data was available to include in development of the chemical indices. Nonchemical factors are not included in the chemical indices because they are outside of the scope of the sediment quality objectives. Staff supports the incorporation of additional chemicals as sufficient data become available.	GFL, RB5, SCCA

No.	Subject	Comment	Response	Author
1050	5.5.3 (5.4.4)	Contrary to the staff's response, the toxicity and benthic organism community LOEs do not correct for the fact that the sediment classification approach does not consider, in its initial stages, the vast array of chemicals that can be responsible for sediment toxicity. As discussed in our comments, the technically unreliable and inadequate initial screening/classification could readily dismiss from further consideration/evaluation sediments that could, in fact, have adverse impacts owing to contaminants/conditions that are not considered, including ammonia, low-DO, and hydrogen sulfide.	The toxicity and benthic community lines of evidence do reflect impacts from other chemicals and toxicants. Incorporation of the toxicity data as part of determining the chemical exposure potential during the assessment reduces the likelihood that sites impacted by constituents not on the SQO chemical list will be identified during the assessment. The list of chemicals in the plan does not imply that those are the only chemicals of concern; the list is based on chemicals of concern for which sufficient data was available to include in development of the chemical indices. Staff supports the incorporation of additional chemicals as sufficient data become available. The comment response has been revised.	GFL
209	5.5.3 (5.4.4)	The statement about including "other chemicals of concern" in the CA LRM Pmax co-occurrence-based approach for the "chemistry" (more properly, chemical concentration) is a superficial attempt to try to make this technically invalid approach appear more reliable. Repeatedly at staff-organized meetings to discuss SQO development, and in his writings Lee has pointed out that there is a vast array of chemicals that could be causing toxicity in a sediment but that are not considered in the Long and Morgan, MacDonald, or Field et al., co-occurrence-based approaches. Misguided focus on a chemical based on its total concentration can result in failure to address the primary cause of the sediment toxicity	The approach does not assume that a cause and effect relationship with specific chemicals is present. The toxicity and benthic community LOEs incorporate the effects of unmeasured toxic chemicals such as pesticides.	GFL

No.	Subject	Comment	Response	Author
1051	5.5.3 (5.4.4)	The staff did not address the substance of the comment. As discussed in answers above, the fundamentals of the "co-occurrence"-based approaches do, in fact, presume a cause and-effect relationship between the concentrations of contaminants and "impact." Further, contrary to the staff's response, the toxicity and benthic organism community LOEs do not correct for the fact that the approach does not consider, from the beginning of sediment classification, the vast array of chemicals that can be responsible for sediment toxicity.	These comments are addressed in the revised responses to comments Nos. 207 and 208.	GFL
210	5.5.3 (5.4.4)	The inclusion of chemical concentrations in the proposed SQO methodology in the manner advocated by the staff, is a contrivance to incorporate what the staff mistakenly calls "chemistry" into a triad approach for sediment quality evaluation. Aquatic sediment chemistry involves the evaluation of the chemical reactions – their kinetics and thermodynamics – that control whether a chemical exists in forms that affect aquatic life in a sediment	The approach proposed in the Plan is consistent with current scientific practice for sediment quality assessment. The Staff Report clearly describes the limitations of the various approaches for assessing chemical exposure in the context of evaluating sediment quality. The selection of empirical approaches for use in the chemical line of evidence was based on the guidance of the Scientific Steering Committee and the results of analyses that demonstrated that empirical approaches, with their weak technical basis, still provided a more reliable measure of chemical exposure than mechanistic approaches.	GFL
1052	5.5.3 (5.4.4)	The fact that the staff may consider its approach to be "consistent with scientific practice for sediment quality assessment" is irrelevant and does not make up for the fundamental and demonstrable technical deficiencies of the approach. Even the staff acknowledges that the commonly used co-occurrence-based approach for sediment classification is unreliable. Yet the staff continues to use this unreliable approach with the mistaken notion that the errors made in using this approach can later be corrected.	The Staff Report clearly describes the limitations of the various approaches for assessing chemical exposure in the context of evaluating sediment quality. The selection of empirical approaches for use in the chemical line of evidence was based on the guidance of the Scientific Steering Committee and the results of analyses that demonstrated that empirical approaches, with their weak technical basis, still provided a more reliable measure of chemical exposure than mechanistic approaches. Comment response has been	GFL

No.	Subject	Comment	Response	Author
211	5.5.3 (5.4.4)	Staff has relied exclusively upon authors who advocate for co-occurrence-based approaches, to the exclusion of the vast technical literature that substantiates the technical unreliability of the approach. Notably absent is reference to the presentations at the 2002 Fifth International Conference on Sediment Quality Assessment, as well as countless papers in the literature that address why co-occurrence based approaches should not be used in sediment quality evaluation. Such unbalance in a review, especially in advocacy of a technically unreliable position, is not serving the SWRCB or the public interest well	The Staff Report has cited papers from the more recent 2005 Pellston Conference on the "Use of sediment quality guidelines (SQGs) and related tools for the assessment of contaminated sediments", which was sponsored by the Society for Environmental Toxicology and Chemistry. This conference had a balanced and international composition of scientists with diverse expertise and perspectives on the issues.	GFL
1053	5.5.3 (5.4.4)	The staff's response did not address the substance of the comment. The staff's response, "Staff are using empirically derived guidelines to assist only in the interpretation of the MLOE" says nothing to justify, from a technical perspective, its approach or to correct for the deficiencies pointed out in the comment.	The response to this comment (No. 211) has been revised to specifically address the original comment.	GFL
212	5.5.3 (5.4.4)	It is disturbing and disheartening to find that the SWRCB staff used co-occurrence-based ERL and ERM values in 2006 to evaluate the quality of California's water and sediments. It was obvious even then that what should have been done was to base the sediment quality evaluation on toxicity information and not incorporate what were recognized to be technically invalid co-occurrence-based ERM and ERL values into the evaluation. In order for the State Board and Regional Board staffs to rectify this error, additional staff resources and expertise would be required to properly conduct the TIEs to determine the chemical(s) responsible for the sediment toxicity that should have been conducted long ago. Since this back tracking and reworking is unlikely, it is unlikely that the SWRCB and Regional Board staffs will stop using co-occurrence-based approaches to evaluate sediment quality. Thus, inappropriate and unreliable evaluations of sediment quality will continue in California, and remediation and source control programs misdirected toward perceived (but not confirmed) sediment quality problems	The author is referring to the Listing Policy in this comment. The proposed approach requires stressor identification.	GFL

No.	Subject	Comment	Response	Author
1054	5.5.3 (5.4.4)	Trying to conduct stressor identification after a sediment has already been classified as impaired is not a workable approach in today's regulatory climate. Further, several of the stressor identification approaches are not technically valid.	The implementation policy is consistent with EPA TIE technical guidance documents, which recommend use of TIEs after initial determinations of effect prompt the need for management action. The stressor identification approaches are consistent with EPA guidance; more information is needed regarding which approaches are considered invalid before a specific response can be provided. No revision to the original comment (No. 212) response made.	GFL
213	5.5.3 (5.4.4)	Overall the staff's proposed approach for SQO development can trap the public and private entities into spending large amounts of money only to find they are chasing phantom sediment quality "problems." Members of the Scientific Advisory Panel repeatedly stated that the total chemical concentration co-occurrence-based SQOs should not be used in a regulatory program. Yet clearly the co-occurrence-based SQO is a key component of the proposed sediment quality evaluation approach and, therefore, likely a component of the regulatory program that will evolve from the staff's proposed approach for sediment quality evaluation	The MLOE approach results is a classification of sediment quality into multiple categories that can be used to prioritize management actions and thus make more effective use of limited resources. The Scientific Steering Committee has endorsed the use of chemistry data in the MLOE approach described in the Staff Report.	GFL

No.	Subject	Comment	Response	Author
1055	5.5.3 (5.4.4)	The staff stated in its response, "The Scientific Steering Committee has endorsed the use of chemistry data in the MLOE approach described in the Staff Report." That statement is misleading. That Committee was explicit in stating that it is not endorsing an approach for implementation of the SQO development approach into a regulatory program.	The SSC has been consistent in multiple meetings in endorsing the use of empirical chemical indicators as a line of evidence for assessment. Following is an excerpt from the SSC recommendations following the March 2006 SSC meeting: "There was no recommendation to change the current Chemistry LOE strategy at this time, with the exception of the lack of complete independence as stated above. The SSC encourages efforts to develop improved methods for this LOE that more directly address bioavailability/exposure and to develop a more independent LOE. However, the SSC recognizes that this effort would require substantially more time and resources and should not be performed at this time; although, regional geology should be considered when evaluating stations as previously stated." No revision to the original comment response has been made.	GFL
1015	5.5.3 (5.4.4)	The SQO Plan identifies the specific chemicals that can be used to identify a site as impacted. By establishing a defined set of constituents and not providing for application of the SQOs to other chemicals the SQO Plan is sacrificing the health of our bays and estuaries for the limited benefit of ease of use. There are a wide variety of chemical constituents that have the potential to cause toxic impacts on the environment, many of which are not found on this list. Furthermore, the SQO Plan does not contain a specific provision for updating the list of chemicals of concern. New chemicals are being introduced regularly, and impacts from existing chemicals are discovered almost daily, not to mention the known harms from existing chemicals.	Staff disagree. The chemical LOE does not reflect the chemicals that are being regulated under this draft Part 1; rather the chemical LOE provides a means to assess the overall risk of exposure to pollutants in sediments. If the MLOE indicates a potential risk of exposure and some evidence of biological effect, stressor identification is required to determine the cause. As more data becomes available, the list of chemicals is anticipated to increase. See response to comment Nos. 1010 and 1013.	HBK, SCCA

No.	Subject	Comment	Response	Author
1068	5.5.3 (5.4.4)	The mechanistic approach should be incorporated in the initial assessment and not deferred to the stressor identification phase. To deem a station impaired prior to application of a mechanistic approach is incorrect.	Evaluation of mechanistic approaches for both metals and organics using California data demonstrates that these approaches are less effective at assessing sediments for their potential to cause toxicity than empirical approaches (SCCWRP 2008: Evaluation of Equilibrium Partitioning Sediment Benchmarks for Classifying Sediment Toxicity). Inclusion of mechanistic approaches in the initial assessment would increase the uncertainty of the chemistry line of evidence and reduce the reliability of the assessment.	CCOC
1070	5.5.3 (5.4.4)	A new peer review article concludes that sediment effect concentrations should only be used to screen out sediments that are likely not toxic due to PCBs, and should not be used to make definitive evaluations of toxicity.	The MLOE assessment approach is consistent with the recommendations cited in the article. The chemistry line of evidence is not used alone to make definitive evaluations of sediment condition and the policy specifically limits use of the chemistry line of evidence to assessing overall chemical exposure, not the effects of specific chemicals such as PCBs (Appendix A.V.A).	CCOC
	5.5.4 (5.4.5)	The same basic concerns with the toxicity LOE (integration, narrative vs. numeric description) apply to the benthic assessment. Additionally, it is unclear whether all indices must be used or only the applicable ones. If the indices disagree wildly, there is no process for determining what caused the disagreement, one still takes the median. This is better than averaging, but still allows for some inflation to either side. We are also troubled by the lack of information on what constitutes reference. The narrative defines the reference disturbance category as 'a community composition equivalent to a least affected or unaffected site. There can be a broad difference between least affected and unaffected. There is also concern with how large a site is defined. If the entire 'site' has just been decimated by pollution reference could be completely thrown off. While this could still occur in the larger bay area, one would be more able to find an undisturbed area to use as a reference. The SQO Plan should acknowledge this and develop guidelines for determining reference placement	All indices must be used to assess the benthic LOE. All the benthic indicators were developed within specific habitats and based upon presence and absence over a variety of conditions including what is referred to as reference conditions. As a result, the benthic tools do not need to be applied and then compared to a reference site or envelope in order to complete the assessment.	SDCK

No.	Subject	Comment	Response	Author
1112	5.4.5.1	Section 5.4.5.1: Support Staff Alternative 3 (Page 102).	Comment noted	TJ
549	5.5.4 (5.4.5)	There are significant defects, however, in the proposed application of the multiple lines of evidence framework which render it overbroad, and technically unsound, because it fails to discriminate between impacted and unimpacted sites. Specifically, the State Board proposes to interpret the lines of evidence in such a fashion that most, if not all, of the enclosed bays and estuaries in California likely will fail the SQOs.	The MLOE framework includes a multiple category classification framework that provides greater discrimination among conditions than has been used previously in California.	CCOC, LW
550	5.5.4 (5.4.5)	Of the approximately 1294 km2 of marine embayments in California, approximately 20% was Clearly Impacted or Likely Impacted; 63% of the area was Possibly Impacted and 17% was Unimpacted or Likely Unimpacted. Only 0.3% of California's marine embayment areas was classified as Inconclusive. The statewide analysis results were dominated by the conditions present in San Francisco Bay, which represented nearly 80% of the embayment areas	Staff disagree. The commenter is referring to the application of the MLOE framework to existing data as described by Barrnett et al, 2007. Its important to note that the results were dominated by the large area that San Francisco Bay encompasses. In the North (excluding SF Bay) 76% of the area was classified as unimpacted or likely unimpacted. In the south 62% of the area in bays was classified as unimpacted or likely unimpacted. The Barnett et al report characterized much of SF Bay as possibly impacted, however that finding is consistent with the findings of 2006 current 303(d) list and hotspots ranked as High and Moderate in SF Bay which includes San Leandro Bay and the Central Basin.	CCOC, LW
551	5.5.4 (5.4.5)	Application of the proposed multiple lines of evidence framework led to similarly overbroad results in Newport Bay waterbodies that failed the SQOs. Both regions of Newport Bay failed to meet the SQOs, as well as three of the other four Bays evaluated in Region 8 (Anaheim Bay, Huntington Harbor, Bolsa Bay, and Rhine Channel).	Staff disagree. Most if not all of Newport Bay is listed for sediment toxicity in the 2006 303(d) List. Both the listing and the Barnett et al findings are consistent with the BPTCP where portions of both upper and lower Newport Bay were ranked as either moderate or high toxic hot spots (SWRCB 2004a).	CCOC,LW
552	5.5.4 (5.4.5)	Assessment Is Biased Toward Designating Stations as Impacted The proposed approach is biased toward designating a station as impacted. The approach is flawed in that two lines of evidence indicating a low likelihood of impact are dismissed in favor of the single line of evidence indicating an adverse impact.	Comparison of the MLOE framework to expert professional judgment identified very little bias in the results.	CCOC, LW

No.	Subject	Comment	Response	Author
553	5.5.4 (5.4.5)	A station is designated as impacted if benthos community condition and chemistry exposure indicate little or no impact, but toxicity is high. This is not appropriate given that toxicity is the weakest line of evidence because (1) factors other than toxic chemicals can cause toxicity; (2) the laboratory conditions often differ from in-situ conditions; and (3) the specified test organisms may not occur naturally at the site.2 As a result of the State Board's disproportionate reliance on toxicity in interpreting the multiple lines of evidence, many waterbodies will fail the SQOs under high toxicity conditions regardless of the findings for benthos community condition or chemistry exposure. Indeed, a waterbody fails to meet the SQO or is inconclusive under "high" toxicity in all cases regardless of sediment chemistry exposure or benthic community condition levels	The site is designated as Unimpacted or Inconclusive unless there is corroborating evidence of effect/exposure from the benthic community or chemistry lines of evidence.	CCOC,LW
554	5.5.4 (5.4.5)	The Site designations are not consistent with principles set out in the State Board's own proposal. Namely, that (1) results for a single line of evidence shall not be used as the basis for an assessment; and (2) evidence of both elevated chemical exposure and biological effects must be present to indicate pollutant-associated impacts	The framework is consistent with these principles.	CCOC, LW

No.	Subject	Comment	Response	Author
555	5.5.4 (5.4.5)	An important and missing step in the proposed SQOs' approach is evaluating whether the available data lead to consistent, scientifically sound conclusions. For example, there are instances when indicators of benthic health are contradictory and the balance between chemical toxicity and community disturbance is unclear. For example, the investigation of sites in San Francisco Bay by Hunt et al. (2001) reported conflicting chemical and biological lines of evidence. This detailed study indicates that characterization of a site requires thorough analyses and even then may yield gross inconsistencies among the lines of evidence, which suggests the potential for data quality issues or the dominant impact of factors other than the considered chemicals. The Staff Report fails to delineate at what point and under what guidelines the process will account for such inconclusive lines of evidence	The Inconclusive and Possibly Impacted categories identify situations where there is substantial uncertainty in the interpretation of the results. The Policy states that further analysis is needed before the cause of effects and specific management actions can be determined.	CCOC, LW
214	5.5.4 (5.4.5)	Page 81, bottom third of the page under benthic indices - We encourage the use the macro-invertebrate Observed/Expected (O/E) ratio that is commonly used in freshwater wadeable streams of the U.S. and Europe (See U.S. EPA, 2006; Wadeable Stream Assessment Report and Hawkins, 2006). The O/E ratio measures a specific aspect of biological health: taxa lost at a site. The taxa expected (E) at individual sites are predicted from a model developed from data collected at least-disturbed reference sites; thus, the model allows a precise matching of sampled taxa with those that should occur under specific conditions. By comparing the list of taxa observed (O) at a site with those expected to occur, the proportion of expected that have been lost can be quantified as the ratio O/E. It is stated by the authors that RIVPACS will be used but it is not clear if this is the O/E approach recommended above.	This method is used in the RIVPACS approach described in the Plan.	WPHA, PWG

No.	Subject	Comment	Response	Author
215	5.5.4 (5.4.5)	Page 82, Summary of Findings - One finding of this effort is that the judgment of benthic experts provided accurate information on benthic impairment when compared with various indices. We therefore strongly suggest that a panel of benthic experts should be involved with the development of SQOs.	Staff concur.	WPHA, PWG
216	5.5.4 (5.4.5)	As with toxicity data, full interpretation of benthic community data requires comparison to appropriate reference stations. Only in this way can index performance and sensitivity be evaluated. Failure to adequately assess the reference benthic condition renders any conclusions reached using the proposed approach questionable	The benthic indices were calibrated to the appropriate reference condition.	IEA
217	5.5.4 (5.4.5)	No adequate justification is offered by the Board for their recommendation to use these four, and only these four, indices of benthic community disturbance. Two of the four indices (IBI and RivPACS) were developed for very different habitats (freshwater riverine systems) than those for which they are proposed here. Beyond a single station example, little detail is provided on how to apply and interpret these freshwater methods, and no validation of their reliability and relevance in estuarine and marine environments is included in the report	The technical reports document that several combinations of multiple benthic indices provided the best accuracy. The specific combination recommended in the Plan was selected to be inclusive of approaches used previously in California.	IEA
218	5.5.4 (5.4.5)	Even some basic procedural steps involved in calculating the various benthic community indices are incompletely documented and explained in the report. For example, calculation of IBI requires identification of pollution tolerant and pollution sensitive taxa. Inter-species sensitivity difference is a continuum, not a binary condition. Categorization of taxa at any site as pollution tolerant or sensitive requires guidance (i.e., a comprehensive definition of each category, justification for the categorization guidance, and validation of the decisions made).	Additional guidance for the calculations is available from other public sources, such as SCCWRP.	IEA

No.	Subject	Comment	Response	Author
219	5.5.4 (5.4.5)	Benthic community scoring schemes that generate discontinuous, qualitative classifications from continuous, quantitative observations or data result in loss of measurement accuracy and resolution, and are likely to introduce artificial distinctions among samples that are not reflective of meaningful differences in benthic community structure or chemical impacts. Furthermore, the breakpoints that are used to convert the continuous index values into discrete categories are not adequately explained or justified. These breakpoints appear to be arbitrary, and appear not to have been validated against a range of actual sites	The threshold development method is described in the technical reports. Thresholds were calibrated against actual site data and used a combination of objective criteria and statistical analysis.	IEA
220	5.5.4 (5.4.5)	The BRI approach is an attempt to compress the wealth of information available on benthic macroinvertebrate communities into a single number. However, evaluation of the approach indicates that several of its features are either highly subjective or negatively affected by uncertainty. Although the BRI values represent a continuum of benthic community conditions, variation along this continuum is assumed to be attributable solely to pollution effects, and the manner in which the benthic response thresholds break that continuum into discrete categories is highly artificial and subjective. The use of these artificial thresholds can overestimate the significance of any benthic community alterations, particularly with respect to major community characteristics such as taxa richness, total abundance, and species diversity	The BRI has been peer reviewed and published in the scientific literature. No assumption regarding the specificity of the index for pollution effects is made.	IEA
221	5.5.4 (5.4.5)	The BRI approach ignores study-specific reference conditions and the fact that species replacements can occur in benthic communities without resulting in measurable losses of community function. Many of the species with pollution tolerances may be similar to those of the reference species, and changes in the index may be the result of habitat changes unrelated to toxic chemicals (e.g., sediment grain size, sediment organic content and water currents)	Habitat specific reference conditions and species replacement is incorporated into the BRI.	IEA

No.	Subject	Comment	Response	Author
222	5.5.4 (5.4.5)	Benthic Assessment Is Flawed 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	As described in the Staff Report, SFEI has devoted considerable resources to the development of an IBI in San Francisco. The IBI has also been applied in other bays and estuaries	SFBK
223	5.5.4 (5.4.5)	The varying physical conditions in bays create a very complex environment, with associated complex variations in the benthic macroinvertebrate community. These systematically varying habitat characteristics also can be related to systematic changes in physical–chemical relationships, such as the tendency of some chemicals to naturally occur at higher concentrations on fine particles. Organisms that are naturally found in fine sediments are therefore more likely to have high pollution tolerance scores, and their presence will therefore result in elevated BRI values even in the absence of pollution. Therefore, interpretation of the BRI is only meaningful if an individual station value of the index is compared with an appropriate reference station. Such uncertainties may profoundly affect the scores and the presumed relationship to pollution effects. Because of these factors, the BRI index (or any other index) should not be incorporated into the SQOs without scientific justification for all arbitrary scores, category thresholds, and an independent validation of the index using be	Habitat specific reference conditions and species replacement is incorporated into the BRI.	IEA

No.	Subject	Comment	Response	Author
224	5.5.4 (5.4.5)	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	The data integration method is explained in detail in Appendix C.	IEA
225	5.5.4 (5.4.5)	Given the limitations in the data and methodologies used in arriving at the numerous values proposed the accuracy is questionable.	The accuracy of the methods is documented in the technical reports.	LACo
226	5.5.4 (5.4.5)	Although benthic ecology is outside of my area of expertise, it appears that this is the weakest part of the sediment triad. It is unclear to me that the authors of the report have established that benthic community structure has a meaningful relationship with chemical contamination because so many of the habitat variables that could alter benthic community structure co-vary with the contaminant sources (e.g., it seems like the physical conditions near where the Los Angeles River discharges will not be ideal for sensitive benthic communities, even if all of the contaminants are removed).	Benthic community disturbance may be caused by multiple factors, including contamination and physical conditions. Use of the MLOE approach minimizes the occurrence of false positives.	**DLS**

No.	Subject	Comment	Response	Author
1012	5.5.4 (5.4.5)	Beyond the fact that the SQO Plan improperly uses impacts to the benthic community as a basis of finding that an area has been impacted by sediments, the benthic community line of evidence improperly uses least impacted conditions as a baseline, or reference condition, instead of using an unimpacted condition. To use as a reference condition for determining impact something which itself has already been impacted does not amount to a sound assessment. All of our bays and estuaries have been impacted by toxics to greater or lesser extent through decades of historical use.	Staff disagree. The commenter assumes that there are no healthy benthic communities present in California's enclosed bays and estuaries, but does not provide supporting information or basis. Reference condition was not the only means by which metrics were developed, calibrated, or validated. Rather the attributes of diversity, abundance, and balance were used to define the entire stressor gradient from an unimpacted community to highly degraded. Based upon this effort, stations exhibiting the attributes of healthy and unaffected communities were present in enclosed bays of California. See: http://www.swrcb.ca.gov/water_issues/programs/bptcp/docs/523_goldstandard_tr2.pdf	HBK
30	5.5.5 (5.4.6)	The method for determining if sediments are exceeding the proposed narrative objective requires a great deal of data and lacks flexibility. In many cases, sediment impairments are obvious and waiting for additional data only delays our ability to start correcting problems. In some cases, flexibility is needed to respond to information and data which would not be considered within the proposed method. Also, the method allows for significant toxicity to sensitive species to exist without there being an exceedance of the narrative objective	Staff disagree. Consistency is desirable when developing interpretive tools for a narrative objective. Section 4.1 describes the narratives, prohibitions and varying approaches used by the Regional Boards to assess sediment quality which does not support consistency across the regions. In regards to the toxicity comment no single line of evidence should be relied upon to assess sediment quality as discussed in Section 5.4. The theoretical concept of protecting sensitive species versus actual living resources (communities) is also discussed in that Section.	RB5
1113	5.4.6	Section 5.4.6 Support Staff Alternative 2 (Page 107)	Comment noted	TJ
35	5.5.5 (5.4.6)	The steps proposed to integrate the lines of evidence and determine impairment is extremely complex and subjective.	Staff disagree. See Response to Peer Review Question Number 4 below (starting at comment #477	HTB
50	5.5.5 (5.4.6)	The MLOE approach is conservative by nature due to the State's effort to ensure protection of beneficial uses. However, the policy guidance to round up metrics within individual lines of evidence (LOE) may lead to an overly conservative and possibly inaccurate final station designation.	Data analyses indicate the round up strategy affects the final station category in approximately 53% of cases when compared to rounding down. In most cases the change is a one category shift. About 21% of samples would shift from one of the three impacted categories to one of the two unimpacted categories if the results were rounded down instead.	CASQA, LACSD

No.	Subject	Comment	Response	Author
51	5.5.5 (5.4.6)	We suggest that the Science Team perform formal sensitivity studies evaluating the effects of rounding a single LOE, as well as compounded rounding effects when integrating two or three LOEs.	Staff agree; such analyses are in progress.	LACSD
227	5.5.5 (5.4.6)	Rounding up results from multiple metrics may lead to an overly conservative site assessment in some cases. Specifically, a review of the data used to conduct the recent Statewide Assessment of sediment quality for California found that 13 % of the stations were rounded up to the next higher (i.e., greater impacted) category for the benthic community and 40% of the stations were rounded up for chemical exposure. Additionally, 15 % of the stations were rounded up for both LOEs. The net result of this rounding convention was that 1 of every 11 stations evaluated (9%) were classified as Possibly Impacted (as opposed to Likely Unimpacted or Unimpacted) due to the rounding up of one or more LOEs. This frequency of classification change from Unimpacted to Impacted may result in the inappropriate listing of a waterbody as impaired. Since the Statewide Assessment only used one measure for toxicity, the effects of rounding would likely be even more severe when multiple toxicity tests are performed per the SQO policy.	This approach provides a reasonable margin of safety that does not extrapolate the assessment beyond the observed responses.	LACSD
228	5.5.5 (5.4.6)	Station assessment is too expensive and instead the plan should support compositing samples from multiple sites	Staff disagree. The MLOE approach was developed based upon assessing the response of the 3 LOE at a single station. Composite samples would not provide the appropriate data to assess each station.	LACo
516	5.5.5 (5.4.6)	The tools over emphasize the chemistry LOE. High chemistry will trump low toxicity and /or low biological effects	The chemistry LOE result is never used by itself. It is always balanced by the inclusion of the toxicity LOE to determine the potential for chemically-mediated effects.	LW
517	5.5.5 (5.4.6)	semi-quantitative integer scale creates categories that are arbitrary	The categories were developed as an aid to applying and interpreting the assessment tools. The category thresholds were based on scientific relationships and statistical analyses.	LW

No.	Subject	Comment	Response	Author
229	5.5.5 (5.4.6)	Page 87, last bullet on page - Can the authors provide any insight on how often the "Inconclusive Category" will (or may) be found based on previous experience? This is important because an assessment of impact cannot be made with the inconclusive category	Prior analyses indicate the inconclusive category will result in approximately 1% of the samples evaluated.	WPHA, PWG
230	5.5.5 (5.4.6)	We appreciate the State's mandate to provide objectives that are protective, however sensitivity studies on the effects of rounding should be completed to ensure that the final station assessment is reflective of the true sediment condition.	Comparison of the data interpretation framework (including rounding) to expert judgment showed the approach had low bias and was reflective of the expert consensus sediment condition.	LACSD
556	5.5.5 (5.4.6)	The SQOs Lack a Logical Scheme by which to Label Sediments Contaminated. The SQOs would establish a scheme by which sediment unimpacted by toxic pollutants is nonetheless classified as impacted. For example, under the SQOs, sediment may be classified as impacted even if no toxic pollutants are detected at the site. Similarly, a site that has a robust benthic community that does not show any signs of being impacted by toxic pollutants can be classified as impacted. Even when both toxicity and exposure are low, the SQOs can designate sediments as contaminated	The assessment categories correspond to a series of logical relationships based on scientific principles. Many scientific studies have shown that conclusions based on just a single line of evidence are unreliable.	CCOC, LW
231	5.5.5 (5.4.6)	The Regional Boards are given discretion under the proposed policy to determine if the status of Possibly Impacted sites is valid. We advise that the Regional Boards be directed to consider the degree of rounding associated with these Possibly Impacted station designations and determine if they are appropriate. Those stations designated as Possibly Impacted due to compounded rounding should be reclassified as Likely Unimpacted.	Staff disagree. Staff feel the possibly impacted sites should be considered degraded regardless of how the individual LOE categorical scores are achieved. If evidence suggests that the thresholds or response categories are overly conservative, staff can propose modifications to the categories during a future triennial review.	LACSD

No.	Subject	Comment	Response	Author
1013	5.5.5 (5.4.6)	We support using all available LOE appropriately. But this evidence needs to be combined in a manner consistent with strong environmental protection. Additionally, what the SQO plan calls a multiple line of evidence ("MLOE") approach would actually function to limit the information and analysis that can be used in assessing sediment toxicity by strictly prescribing to the exclusion of all other methods, limiting all analysis to this lowest common denominator. It is inappropriate to limit the interpretation of a narrative objective to such a narrow analysis given the evolving science in this field. Protection of aquatic life should not be sacrificed for consistency	Staff disagree. The commenter would prefer to use any and all LOE to interpret the narrative sediment quality objective. The problems associated with this approach are described in response to Comment No. 1001. In regards to the evolving science, the Water Board is obligated to amend and update the objectives and indicators periodically under both the California Water Code and Federal Clean Water Act. As new tools are developed, the Water Board will evaluate these tools to determine if they would improve the reliability and accuracy of the assessment.	HBK
1014	5.5.5 (5.4.6)	It is notable that while there is no flexibility for what can be used to identify an exceedance of standards, there is considerable flexibility in what can be used in section F to determine that an exceedance was incorrectly identified. The approach for integrating the lines of evidence seems to be based on the premise that somehow averaging together defective lines of evidence makes up for the deficiencies outlines above in the specific methods. This should be approached more intelligently. Since each line of evidence provides useful indications of sediment quality problems, the results from one line of evidence should not be used to contradict valid indications of standards exceedance from the other lines of evidence. This principal is stated in USEPA's policy of Independent Applicability found in Biological Criteria: National Program Guidance for Surface Waters. It is especially important not to let warnings from toxicity testing be ignored due to chemical tests that exclude numerous relevant chemicals and/or bioassessments that are insensitive and	Staff disagree. The commenter does not agree with the integration of data from each MLOE, rather the assessment should be based upon whatever particular tool suggests there is potential risk. This approach is counter to the basis and reason for the MLOE approach, which is supported in Section 2, and 5.3 through 5.5 of the Staff Report as well as the scientific literature (Section 9). See responses to comment Nos. 1001 and 1013.	HBK, SCCA
557	5.6	We recommend that "Possibly impacted" sites therefore should not be included as impaired. The State Board should state that these sites are meeting the protective condition until studies demonstrate otherwise. Perhaps this category could be used as a trigger for expanded monitoring, rather than the full suite of investigations triggered by a declaration of impairment	Staff disagree with the reccomendation. See Section 5.6 of the Staff Report	CCOC, LW

No.	Subject	Comment	Response	Author
558	5.6	The proposed SQOs' lead to the conclusion that sediments are impaired when such a conclusion is at odds with the underlying data. For example, when the multiple lines of evidence are integrated and a site is found to be "possibly impacted," that is supposed to indicate that sediment contamination at the site may be causing adverse impacts to aquatic life, but these impacts are small or uncertain because of disagreement among lines of evidence. Staff Report, at 87. This category is supposed to reflect a "degraded condition" (id., at 92-93), even though this category "only suggests the possibility of the station being impacted," it "represents the greatest uncertainty and disagreement amongst the LOE," and "[s]tations within this category may be either unimpacted or impacted." Id., at 93	Staff disagree. The Draft Part 1 describes specific actions for sediments designated as Possibly Impacted do to the fact that there is uncertainty in this category. These actions differ then those required for sediments with stations classified as Likely or Clearly Impacted because of the uncertainty	CCOC, LW
559	5.5.5 (5.4.6)	There are multiple examples where a site is characterized as "possibly impacted" at reference benthic and minimal chemistry exposure categories. Similarly, a site is categorized as "likely impacted" when there is high toxicity and high disturbance, but minimal exposure. Id., LOE Category Combination 16. The designation is supposed to indicate that there is persuasive evidence for a contaminant-related impact to aquatic life at the site, even if there is some disagreement among lines of evidence, yet it applies even if no pollutants are detected in the sediment	Reliance solely on chemistry data to judge the accuracy of a station assessment is not reliable, due to the lack of a comprehensive analysis of all chemicals of potential concern in most studies.	CCOC, LW
560	5.5.5 (5.4.6)	It also is illogical to conclude, as the process does, that sediment is "likely impacted" by toxic pollutants when the benthos is at the reference condition	Each line of evidence has sources of inherent error and can lead to false positives or negatives when used in isolation.	CCOC, LW
232	5.5.5 (5.4.6)	The combination of rounding effects built into each LOE, combined with the conservative calls made for certain final station designations, make this policy extremely protective. Some stakeholders have questioned whether or not the policy is protective enough; we would claim that it might be overly protective in some cases. If any more conservatism were built into this policy, we believe it would not accurately portray the sediment condition for the area being assessed	Comment noted.	LACSD

No.	Subject	Comment	Response	Author
63	5.5.5 (5.4.6)	One of the primary strengths of the MLOE approach is the multi-level station designations that are given in the Station Assessment Matrix (Table 11, page 17 Appendix A). These final station assessments provide descriptive language regarding the level of degradation perceived to be present at a station.	Staff concur.	LACSD
64	5.5.5 (5.4.6)	Although we do not see the necessity of the Inconclusive category proposed in the Draft Staff Report, we do find the remaining five assessment designations to be extremely useful as guidance tools for ranking waterbody impairments for cleanup and remediation activities.	Comment noted.	LACSD
1038	5.5.5 (5.4.6)	As discussed by Lee and Jones-Lee (2007) however, initial classification or screening of the type prescribed would not be “conservative” to at least rule out sediments that clearly do not need further investigation; it would simply be unreliable. Sediments that do not pose significant hazard would not necessarily be screened out; some sediments worthy of further investigation would not necessarily be identified as such.	The assessment approach described in the draft Plan provides a similar level of accuracy as assessments based on expert best professional judgment. While no assessment approach is likely to be error free, this approach was shown to have a low level of bias, providing a balance between false negatives and false positives.	GFL
1043	5.5.5 (5.4.6)	Incorporating aquatic life toxicity and benthic organism assemblage information into sediment classification to improve the reliability of the initial sediment classification beyond that which would be attained based solely on total concentrations of a chemical(s) is misguided because the total concentration/“co-occurrence” aspect of the approach is essentially a “wild-card” that distorts in rather random fashion any technically valid components of the evaluation, rendering that otherwise useful information, unreliable as well.	The use of the sediment quality triad, based on chemistry, toxicity, and biological assessment is a widely used approach that has been extensively reviewed and documented in the peer-reviewed literature as the approach that provides the greatest reliability for ecological risk assessment. Comparisons of alternative assessment frameworks, both with and without the chemistry line of evidence, indicate that accuracy of the assessment (relative to expert best professional judgment) is improved when the chemistry evidence is included.	GFL
1044	5.5.5 (5.4.6)	It is strongly recommended that the SWRCB return the staff’s July 18, 2008 version of the SQO development approach to the staff and direct the staff to properly correct the significant technical deficiencies. Most significantly, the disregard for and misrepresentations of the aqueous environmental chemistry of sediment-associated contaminants incorporated into the approach.	Comment noted. See response to comment No. 205	GFL

No.	Subject	Comment	Response	Author
1067	5.5.5/5.5.6, (5.4.6,5.5)	While the SQOs are professed to incorporate multiple lines of evidence in making assessments, in reality a station can be deemed impaired due to the results of only a single line of evidence, even when other lines of evidence show little or no impairment. The application of the MLOE needs to be revised so that stations are not deemed to be impaired based on only a single line of evidence.	The MLOE assessment approach is consistent with the key principles identified in Appendix A, V.J.4. Information from all three lines of evidence is required and used in determining the station assessment category and classification of a station in one of the three categories of impact only occurs when there is evidence (i.e., low, moderate, or high) of both chemical exposure and biological effects (Appendix A, Table 11). A response in at least two of the three lines of evidence is required for the station to be classified as impacted (Appendix A, Attachment B).	CCOC
233	5.5.6 (5.5)	Due to a lack of adequate data, the proposed Phase 1 SQO policy has suggested an interim approach in California estuaries. That approach requires the use of three lines of evidence and requires the determination of effect for at least two lines to determine that a site is "Impacted". We have reservations regarding the application of this interim approach, given the lack of adequate information to properly establish tools and metrics for these evaluations. The development and interpretation of MLOE tools in estuaries is acknowledged by the Science Team and expert panel to be significantly more difficult than the work completed to date in coastal embayments.	This approach is conservative in that it limits the probability of type 1 errors. Ecologically relevant indicators are currently under development and will replace the interim approach.	BACWA, CVCWA, SRCSD, Tri-TAC
234	5.5.6 (5.5)	We strongly encourage the SWRCB to devote sufficient resources to expedite data collection and tool development in the Delta, northern San Francisco Bay and other estuaries in the state. This is particularly important because the determinations used to make these interim findings may lead to near-term management determinations.	Staff concur.	Caltrans, CVCWA, SRCSD, Tri-TAC
39	5.5.6 (5.5)	The data requirements and level of proof required for determining exceedances of the sediment quality objectives in the proposed methodology could limit the State and Regional Water Boards' sediment quality protection efforts and effectiveness.	The SQOs have to be scientifically defensible under both state and federal law. Staff concluded that scientifically defensible objectives required 3 lines of evidence with the accompanying data requirements. The staff report did analyze single line v. multiple lines of evidence as alternatives in the staff report and recommended the MLOE alternative.	RB5

No.	Subject	Comment	Response	Author
40	5.5.6 (5.5)	Measurement tools and threshold limits generated do not directly translate into conditions which are fully protective of aquatic life, since 1) The empirical measurement tools and thresholds generated are in some cases largely a product of the study designs and pollutant distributions providing the data from which they were generated. 2) The toxicity and benthic community lines of evidence are fundamentally reactive, in that impacts to aquatic life are already likely occurring before they are observed using these tools. 3) The threshold limits are not necessarily biologically based, and are influenced by best professional judgment (BPJ) used to determine impact thresholds for the metrics	1) The tools and thresholds have been calibrated to California conditions in order to provide greater accuracy in assessment; 2) The chemistry, toxicity, and benthic community tools include a "Low" threshold that represents changes of small magnitude that likely indicate incipient impacts; 3) Metric thresholds have been determined by objective statistical methods in most cases.	RB5
31	5.5.6 (5.5)	Considering the collapse of aquatic organisms in the Delta, it seems inappropriate to adopt a policy that allows toxicity to sensitive species.	Staff disagree. An evaluation of sensitive species has yet to be conducted on benthos in the Delta. The Water Board is very concerned about the POD, and hope that the existing sediment quality studies by the State Board with assistance from the Department of Water Resources will also support those efforts to better understand the reason for POD. It should be noted that although the Central Valley Regional Board receives $500,000 to $700,000 annually for SWAMP monitoring none of these funds have been used to asses the health of benthic communities in the Delta.	RB5
43	5.5.6 (5.5)	At numerous decision points, the plan should provide only default methodologies, but allowing flexibility to adjust to particular sediment pollution problems	Standardized assessment methods are needed to provide comparable assessments statewide. The stressor identification process is very flexible. This is especially important for those waterbodies, where a standard scientifically defensible framework has never been developed such as the Delta.	RB5
45	5.5.6 (5.5)	The data requirements and level of proof required for determining exceedances of the sediment quality objectives in the proposed methodology could limit the State and Regional Water Boards' sediment quality protection efforts and effectiveness	Comment noted.	RB5

No.	Subject	Comment	Response	Author
46	5.5.6 (5.5)	We recommend that the State specify that an exceedance of SQO in the environments where tools have not yet been developed be used only as a trigger for additional study. The State Water Board and its science team are currently working to develop the evaluation methods and tools to evaluate the SQO in estuarine environments, and these tools are expected to be adopted approximately one year after the adoption of the current Plan. Additional study and implementation of management actions should be triggered after assessment using established, calibrated tools for SQO evaluation	Staff disagree. As stated above in response to comment #233, the approach is conservative.	CASQA
49	5.5.6 (5.5)	The MLOE approach discussed in this report only addresses bays and estuaries per the stated objectives. Due to potential sediment toxicity issues in freshwater aquatic systems in California, WPHA suggests that it would be useful to include a section (i.e., future vision section) in the report to show how the state will expand the MLOE approach to freshwater lotic (i.e., streams and rivers) and/or lentic (i.e., ponds and lakes) of California.	There is no current plan to develop SQOs for streams and rivers.	CLTNS, WPHA,PWG
44	5.5.6 (5.5)	The SQO language could be structured to allow flexibility to allow the Water Boards to make determinations using the facts specific to a particular sediment quality assessment and the most current science and information	Staff agree and the appropriate level of flexibility has been provided in the draft.	RB5
48	5.5.6 (5.5)	The Central Valley Regional Board is embarking on sediment quality regulatory programs for agricultural pesticides and other toxic chemicals would serve the SWRCB's interest well by wholly adopting these narrative SQOs indicators and threshold used to interpret the narrative objectives and the program of implementation, where sufficient data exists	Comment noted.	CRC
235	5.5.6 (5.5)	Interim approach requires development of reference envelope which requires significant resources. It is not equitable to pass this cost on to Central Valley Stakeholders	The State Water Board has collected extensive data from the Delta in the Fall of 2007 and will be collecting additional data in the spring summer of 2008 to develop the necessary information on reference communities in the Delta.	CVCWA, SRCSD,

No.	Subject	Comment	Response	Author
236	5.5.6 (5.5)	Provisions of the SQO Plan relevant to the Delta should provide a high level of protection which can be implemented in a timely manner and which are consistent with the importance the Water Boards have placed on the protection of the Delta and its beneficial uses	Comment noted.	RB5
237	5.5.6 (5.5)	Benthic bioassessments have many limitations that restrict their use for assessing contaminated sediments in the Delta	Staff agree.	RB5
238	5.5.6 (5.5)	We recommend that the SQO Staff Report be revised to more clearly delineate how the steps and responsibilities necessary to transition from the interim approach in Phase I to the more robust approach in Phase II will play out and be funded. This is particularly important because, as has been acknowledged, the development and interpretation of MLOE tools in estuaries is significantly more difficult than the work completed to date for coastal embayments	Staff concur and have made changes to the draft to reduce the uncertainty or ambiguity in the draft plan. Figures 1 and 2 of the Draft Part 1 were added to provide additional clarity.	SRCSD
239	5.5.6 (5.5)	We advocate that the determination of whether a permitted source will cause or contribute to the violation of a sediment quality receiving water limitation should be made after the stressor identification studies are completed and toxic pollutants identified in those studies are linked to the permitted source through a source assessment evaluation.	Staff agree and have made changes to the language in Section VII.C to ensure that pollutant causing degradation is identified and linked to the discharge.	CVCWA, OCSD, OCRDMD, SRCSD, Tri-TAC
240	5.5.6 (5.5)	Page 90, Combination of Sediment Chemistry and Toxicity, lines 5 and 6 - A re-occurring theme in this report is that organism response in embayments is drastically different than estuaries. Is there benthic taxa assemblage data or other data available to support this point?	Such data are lacking for California, but are needed to calibrate and validate the tools.	WPHA, PWG

No.	Subject	Comment	Response	Author
241	5.5.6 (5.5)	Page 91, Three LOE: Chemistry, Toxicity and Benthic Community - More details are needed to explain how the baseline conditions or reference envelope for the area of interest would be developed. The selection and justification of reference sites is critical for this science based process to succeed. It is also stated in this paragraph that "Statistically significant differences relative to the reference envelope among two of the three lines of evidence would trigger an impacted designation for the study site". Does this mean that significant differences for any two lines of evidence could drive an impairment designation? This approach may be problematic if for example chemistry and toxicity suggest impairment but the benthic community analysis does not. We recommend that benthic community data (the most important line of evidence) must be one of the two lines of evidence suggesting adverse effects before an impairment designation is assigned.	The methods used to determine the baseline conditions or reference envelope are dependent upon the type and amount of data available and site characteristics and should be determined on a project-level basis. The reference envelope should be based on the calculated prediction interval of the reference site data, where feasible. The presence of significant differences (relative to reference or baseline) in sediment chemistry and toxicity, but not benthic community would be sufficient to trigger an impacted designation for the site. The recommendation to require a significant difference in the benthic community LOE for designating an impact is inconsistent with the assessment framework for bays, where an impact can be determined without evidence of substantial benthic community effects. A requirement for the presence of a significant benthic community effect is also problematic because the reliability and sensitivity of benthic community metrics for estuaries is not known at this time; these metrics may have low sensitivity and thus result in a failure to identify and prote	WPHA, PWG
1114	(5.5.1)	Section 5.5.1: Support Staff Alternative 4(Page 109).	Comment noted	TJ
1115	(5.5.2)	Section 5.5.2: Support Staff Alternative 3(Page 110).	Comment noted	TJ
1116	5.6	Section 5.6: Support Alternative 3 (Page 111).	Comment noted	TJ

No.	Subject	Comment	Response	Author
1011	5.6	Section II. B. of the SQO Plan states that the Plan "supersedes all applicable narrative water quality objectives and related implementation provisions in water quality control plans to the extent that the objectives and provisions are applied to protect bay or estuarine benthic communities from toxic pollutants in sediments." The SQO Plan further requires both elevated chemical exposure and biological effects in order for areas that currently have more limited data available before a site will be considered impacted, and does not allow the use of a single line of evidence in any case for making an impacted determination. The combination of these three factors – elimination of existing narrative water quality objectives, inability to use one line of evidence in making an initial determination, and requiring both elevated chemical exposure and evidence of biological impacts results in drastically lowering the protections afforded to enclosed bays and estuaries,	Staff disagree. 303(d) listings can still be based upon a single LOE such as sediment toxicity or benthic community impacts. The single line of evidence is not a reliable indicator for assessing sediment quality relative to a narrative objective. Staff feel it is inappropriate to support a methodology to determine compliance with an objective that is not considered reliable. Third, the narrative protecting benthic communities only applies to that specific receptor exposed directly to toxic pollutants in sediments. The existing narratives within Basin Plans may still be applied to address other receptors and exposure scenarios. See also responses to comment Nos. 52, 53, and 54.	HBK, SCCA
53	5.6	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	Staff believe the proposed SQOs are precautionary and assume that sites categorized as possibly and likely impacted are degraded. See Section 5.6 of the draft Staff Report.	SFBK, SCCA

No.	Subject	Comment	Response	Author
52	5.6	Caution should be taken in translating conditions which are determined to be predictive of toxic effects in certain situations into standards which should be protective of aquatic life, including an appropriate margin of safety.	The SQOs and interpretive tools were developed to protect benthic communities from toxic pollutants. As described in Section 5.6 of the Staff Report, the application of the MLOE provides greater confidence in assessing protection and degradation.	RB5
54	5.6	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.” 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	As explained in the staff report, an implicit margin of safety is present with the categories Possibly Impacted and Likely Impacted which are proposed as representing degraded sediment quality.	SFBK
	5.6	As explained above, station assessment does not appear to give an explicit margin of safety. Certainly the SQO Plan goes too far when it allows a Regional Board to designate Possibly Impacted sites as meeting the protective condition. It is unclear why, having set up stressor identification and management action procedures, the SQO Plan ignores them completely, giving a wholly different way of dealing with sediments. If, as seems to be contemplated here, there is concern that Possibly Impacted sediments may be clean, the flaw is in the SQO Plan design. Either, tighten up the categories so there is less uncertainty as to exceedances, or provide a method for determining compliance after all initial tests are done	Section 5.6 of the draft Staff Report describes a margin of safety and previous sections describe why multiple categories where used. When exposure and biological effects are marginal, there's little confidence in categorizing a station as impacted. As the magnitude of exposure and biological effects increases, the ability to confidently identify an impacted site increases. Redefining the station categories is not going to solve this problem.	SDCK

No.	Subject	Comment	Response	Author
1006	5.6	Water Code Section 13391.5(d) defines a sediment quality objective as “that level of a constituent in sediment that is established with an adequate margin of safety, for the reasonable protection of the beneficial uses of water or to the prevention of nuisance.” This section clearly presents the idea that a sediment quality objective should err on the side of greater protection, not towards lesser protection. As currently written, when there is doubt as to whether a location is impacted (“Possibly Impacted”) the area will be determined to not be degraded unless the site is proven to be impacted through confirmation monitoring and stressor identification. Furthermore, high indications of impact from one line of evidence can be overridden by low indications of impact from another line of evidence. This is clearly contrary to providing “an adequate margin of safety” and protecting the most sensitive aquatic organisms as required by the Water Code	Possibly impacted is defined in Section 5.4.6 as “sediment contamination at the site may be causing adverse impacts to aquatic life, but these impacts are either small or uncertain because of disagreement among LOE”. In other words, some data suggests the possibility of the station being impacted. Staff believes this provides the appropriate level of protection as described in Section 5.6. Application of the MLOE approach does not lead to a conclusion regarding the specific stressor acting at a given station. Because of this, stressor identification is required to determine what pollutants are harming aquatic life. Actions intended to restore sediment quality should only be taken after the pollutants causing the problem are identified. If this effort isn’t performed, how can anyone be confident that revised effluent limits, waste load allocation, or cleanups will result in a positive change in sediment quality?	HBK, SCCA
1006 co	5.6		A cleanup effort that fails to identify pollutants may result in recontamination of the area of concern if inputs causing and contributing are not controlled correctly. Effluent limits or waste load allocations that address the wrong pollutants are also unlikely to achieve the desired result. In response to the one line of evidence being overridden by the other line of evidence, that is true. Because of the inherent limitation of each line of evidence, the approach relies on multiple lines of evidence to develop preponderance of data that can guide decision making.	HBK, SCCA

No.	Subject	Comment	Response	Author
561	5.7	The fact that it takes as few as two impacted stations to trigger an exceedance of a receiving water limit makes the SQOs overbroad. The full data set used to conduct the SQO assessment can contain as few as two stations. Given the variability inherent in the nature and chemistry of sediments and the large areas over which SQO assessments are likely to take place, it is not appropriate to evaluate compliance with the receiving water limit on so few data points. This approach introduces yet another conservative bias. Although only two samples are required to declare that a water body is impaired and must be included on the State's Section 303(d) list, 28 or more samples are required to remove waters from the State's 303(d) list.	The number of impacted stations required to list/delist a water body based on SQOs is consistent with the 303(d) listing policy established by previous board actions and provides a comparable level of conservatism as for other types of water quality objectives. Sediment measurements integrate the effects of contamination over longer time scales than do water column measurements, which may result in relatively less variability in the assessment results.	CCOC, LW
562	5.7	The proposal should include reasonable specifications for the minimum number of stations and minimum number of "Impacted" stations. These specifications should be tied to a desired minimum sampling density. For example, it might be appropriate to require a minimum of 10 stations per site and a minimum spatial density of one station per hectare. Further, sites should be defined by the discharge gradient of regulated dischargers. Regional scale evaluations are useful for identifying water body status, but they have little value in managing individual dischargers.	Staff considered the need to prescribe the design of sediment sampling programs, however, this was considered too limiting to be of use. Instead, the plan provides a basis for Regional Boards and permittees to develop their own designs as described in Section VII.E.	CCOC, LW
563		The SQOs should examine what implementation will likely be required to achieve the SQOs, what alternative approaches to achieving the SQOs' goals exist, how much sediment will fail to example, the Staff Report is not clear on when and how a non attainment of the SQOs will be determined, or how remediation of the site will be accomplished, and lacks a defined implementation plan.	Staff disagree. Section VII has been amended to clarify the implementation requirements and figures 1 and 2 illustrating the overall process for permitees and regional monitoring programs have been added. See also response to comment #587.	CCOC, LW
242	5.7	Page 93: The title to section 5.7 is unclear. Should it read, "Application of Proposed SQOs Within Specific Programs"?	Comment noted and correction made.	**DLS**

No.	Subject	Comment	Response	Author
23	5.7	One of the most significant deficiencies in the proposed approach for developing the SQOs is its lack of detailed information on how the results of the SQO triad, even if reliable, would be implemented to reliably direct and regulate the identification and cleanup of contaminated sediment, and institute appropriate source identification and control to prevent future sediment contamination	Staff disagree. Draft Part 1 (Appendix A) Section V, VI, and VII describes a process for assessing sediment, identifying the stressor and controlling the discharges of those pollutants resposible for degrading sediment (source identification and control).	GFL
243	5.7	What regulatory and implementation actions would be required and by whom?	The Regional Boards would regulate the sediment quality within the regions. Permittees and responsible parties would be regulated in accordance with the draft Part 1. Actions are described in the draft Part 1.	SCV
1118	5.7.1	Section 5.7.1: Support Alternative 2 (Page 113).	Comment noted	TJ
93	5.7.1	Resolution No. 92-49 allows a Regional Water Board to approve cleanup levels less stringent than background if the Regional Water Board finds that it is technologically or economically infeasible to achieve background. The resolution also requires that any alternative cleanup level should be consistent with the maximum benefit to the people of the State, and not unreasonably affect present and anticipated beneficial uses of such water. It is not clear to us that this resolution is directly applicable to the implementation of the SQO Plan. Therefore, we recommends that the key provisions of Resolution No. 92-49 be incorporated directly into the SQO Plan. Specifically, we recommends that any required management actions be “appropriate and consistent with the maximum benefit to the people of the State,” consider economic and technical feasibility, and allow the concept of “containment zones.”	Resolution 92-49 is applicable to the cleanup and/or remediation of contaminated/polluted sediment as described in Section 4.3 of the staff report. Staff have added language that incorporates Resolution 92-47 in Section VII.G of the Draft Part 1.	CASQA, OCRDMD, WSPA
244	5.7.1	The Policy Should Establish Chemical Concentrations that can be used in Sediment Cleanup	Staff believe that would be beneficial if it was possible. However, given the wide variety of receptors that could be affected by contaminants in sediments, that would be a very long and difficult task.	SFBK

No.	Subject	Comment	Response	Author
245	5.7.1	The section (only a paragraph) on sediment cleanup actions maintains that SQOs in combination with a risk assessment would be necessary to determine the degradation of benthic communities. In other words, the SQOs on their own merit are not helpful	Staff disagree. When the benthic community is the receptor at risk, the tools could be applied to determine what sediments require action. However, cleanup actions are driven by other receptors as well and those must be also considered as well.	HTB
246		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 staff report describes under which situations the narrative protecting benthic communities should be applied. However other receptors may also be affected by pollutants. As a result, cleanup goals are established based upon those species that are most at risk to the pollutants of concern based upon principles of ecological risk assessment. The question of cleanup levels is addressed by Resolution 92-49 described in Section VII.G.	SFBK, HBK
247	5.7.2	The plan states that the SQOs wont be applied to dredged materials. However this needs clarification because the dredged materials can satisfy the national testing procedures and be reused in by for beneficial reuse. Will these sediments need to meet the SQOs?	All subtidal surficial sediments will have to meet the SQO. If dredging has occurred, the newly exposed surficial sediments will have to meet the narrative SQO after the benthic community has had time to recolonize the area.	LACo
1119	5.7.2	Section 5.7.2: Support Alternative I (Page 116).	Comment noted	TJ
1120	5.7.3	Section 5.7.3: Support Staff Alternative 2 (Page 118).	Comment noted	TJ
248	5.7.3	What the process and timeline for updating the existing 303(d) listing policy	Staff will propose that the 303(d) Listing policy be opened to amend the sediment quality related listing criteria as they relate to the benthos	SCV
249		It is not clear how the proposed SQOs would effects the current list or what would happen if a TMDL has already been adopted and is being implemented	See the revised Section VII.8.E. Staff will recommend that sediment quality listing requirements be reassessed within the Listing Policy.	LACo

No.	Subject	Comment	Response	Author
250	5.7.3	We agree that SQOs should be used in the 303(d) listing process, but we request clarification on this process. The alternatives analysis states that staff have elected to "utilize the existing approach described in 303(d) listing policy (SWRCB 2004)." However, the proposed MLOE approach to evaluating the SQO is inconsistent with the State's Listing Policy (Listing Policy)2, which (in Section 3.6) allows a water body to be listed if (1) "statistically significant… sediment toxicity" is observed, and (2) "if the observed toxicity is associated with a pollutant or pollutants..." The Listing Policy further specifies that the association of pollutants with toxic or other biological effects can be established using sediment quality guideline exceedances, equilibrium partitioning approaches, or Toxicity Identification Evaluation or similar evaluations. Thus, the Listing Policy allows a listing for "sediment toxicity" to be made if only two LOE are present – toxicity and chemistry. If not corrected, this inconsistency between programs will result in a greater number of inappropriate, unfounded listings	See the revised language in Section VII.8.E. Staff are also recommending that the 303(d) Listing policy be revisited to address sediment quality and MLOE based listings.	CASQA, FSI, OCRDMD
251	5.7.3	We recommend that the State Water Board make the following change to remedy this apparent discrepancy: amend both the recommended Alternative 2 Section 5.7.3 of the Staff Report and Section VII.E.8 of the proposed Plan to specify that the binomial statistical approach of the existing Listing Policy should be used jointly with the MLOE evaluation approach to make listing decisions, and that this approach supersedes Section 3.6 of the Listing Policy	See the revised Section VII.8.E. Staff will recommend that sediment quality listing requirements be reassessed within the Listing Policy.	CASQA, OCRDMD, WSPA
252		LADWP suggests that the SQO Plan be revised so that 3 lines of evidence as a confirmation of past impairments are required as the first step of any sediment TMDL development	The MLOE will be required if a Regional Board determines that the applicable water quality objective is the aquatic life protection SQO.	LADWP

No.	Subject	Comment	Response	Author
253		Under the SWRCB's draft plan the RWQCBs would list water bodies as exceeding the SQOs if the MLOE has demonstrated with sufficient data to indicate sediment impairment. This requirement for additional evidence of impairment could potentially reduce the number of water bodies incorrectly listed as impaired for chemical constituents of concern that be used by our agricultural sector. Reliance on MLOE to make listing decisions logically should provide greater confidence in the decision-making process and result in fewer false positives and false negatives. The Coalitions believe the outcome will be a greater efficiency in the use of state resources to administer SQO programs and would result in the reduction in the amount of unnecessary economic burden on the regulated agricultural community, while still protecting sediment quality	Staff agree.	CLTNS
254	5.7.3	Considering other possibilities besides the "binomial method" for determining the overall impairment status for a waterbody using the data from individual stations	Staff will consider other possible methods during Phase 2.	RB5
729	5.7.3	The SQOs are not a federal water quality standard under the Clean Water Act. Therefore, if application of the sediment triad to a particular station indicates that the station is "possibly impacted, likely impacted or clearly impacted," this conclusion does not bear on whether the overlying water body must be put on the federal Clean Water Act section 303(d) list of impaired waters. Setting SQOs, and eventually requiring implementation measures to achieve the SQOs, are not mandated by the Clean Water Act. As such, if municipal entities are required to take actions to meet the SQOs, such actions will be an unfunded mandate and the state must reimburse those municipalities for those costs	Commenters contend that sediment quality objectives are not water quality standards and are not mandated under the Clean Water Act. This contention is erroneous. Sediment quality objectives are part of water quality standards under the Clean Water Act and, as water quality standards, are federally mandated	CCOC, LW

No.	Subject	Comment	Response	Author
729 cont	5.7.3		The federal Clean Water Act requires the states to adopt water quality standards for navigable waters. (Clean Water Act §303(c).) Water quality standards consist of beneficial uses of navigable waters, criteria to protect those uses, and an antidegradation policy. (Clean Water Act §303(c) & (d)(4)(B); 40 C.F.R. §131.6.) Criteria, which are referred to as water quality objectives under state law, are "elements of State water quality standards, expressed as constituent concentrations, levels, or narrative statements, representing a quality of water that supports a particular use." (40 C.F.R. §131.3(b).) Criteria to protect beneficial uses can be narrative or numeric and can be expressed in terms of pollutant concentrations in the water column, fish tissue, or sediments. (See generally Water Quality Standards Handbook, 2d ed. (1993), ch. 3 (EPA-823-b-93-002.) In fact, EPA has been working for several years on the development of sediment criteria to protect aquatic life	CCOC, LW
729 cont	5.7.3		The proposed sediment quality objectives are narrative criteria intended to protect specific beneficial uses in bays and estuaries and, as such, are part of the state's water quality standards. Commenters contend that the proposed objectives set forth a framework for determining "whether criteria are met in the sediment, but this is not required by the Clean Water Act." The proposed objectives are the criteria and the framework is legally required in order to implement the narrative objectives. The EPA water quality standards regulations require that the states, when adopting narrative criteria for toxic pollutants, provide information identifying the methods by which the State will regulate point source discharges of the pollutant to water quality limited segments based on the narrative. (40 C.F.R. §131.11(a)(2).) The proposed framework satisfies this requirement.	

No.	Subject	Comment	Response	Author
564		The proposed Section 303(d) approach, is not an appropriate precedent for assessing sediment impairment, as it would significantly overstate the number of impaired waterbodies. Under the proposed approach, a waterbody would be identified as impaired if more than 3% of the stations exceeded the SQOs. If a waterbody had 100 stations, exceedances only would need to be demonstrated in over 3 of them, and the SQOs would classify 97 stations as not impacted. This number is so low given all of the variability in the matrices being examined that one could exceed this level by pure chance, particularly given the inherent likelihood for false positives (i.e., declaring a station as being impacted when it is not). Indeed, it is likely that some fraction of the sampled sediments, perhaps as high as 20% in some cases, will exhibit toxicity that is unrelated to and not caused by local dischargers. The Section 303(d) listing policy applies the 3% threshold in an entirely different context; namely, to refer to sample results collected over time. This is fundamentally different than setting the appro	See response to comment #V44	CCOC, LW
1069	5.7.3	The 303(d) listing strategy in the proposed SQOs in inconsistent with the listing procedures ser forth in the Staff Report. A 303(d) listing should not be made unless and until a stressor identification has been conducted, and a stressor has been identified.	Staff disagree. The proposed approach to perform stressor identification after listing is consistent with the State Water Board's 303(d) Listing Policy for water and sediment. If the stressor is identified, the listing can be changed to reflect the new information.	CCOC

No.	Subject	Comment	Response	Author
1002	5.7.3	Baykeeper feels it is extremely important to make it clear that the SQO policy provides an additional listing criteria ("Part 1 adds an additional listing criterion that applies only to listings for exceedances of the narrative sediment quality objective for aquatic life protection in Section IV.A"). We feel it is critical that this SQO policy does not override current criteria for listing waterbodies and that the current criteria for listing are given the same consideration as the SQO Policy. In addition, we believe the SQO policy should clarify that currently listed waterbodies will not be delisted unless and until there is sufficient scientific evidence to demonstrate that the waterbody complies with all applicable water quality and sediment quality objectives, and that the adoption of the SQO policy does not alter the listing status of any water quality limited segment.	Comment noted. Staff provided a response on 303(d) listings at the February Board Meeting in a slide presentation. In that slide, staff stated that Regional Water Boards could list for either toxicity alone as described in the 303(d) policy or list using the draft Part 1. If a waterbody is listed for toxicity and the Regional Water Board determines that the applicable water quality standard is the SQO, then the Regional Water Board shall reevaluate the listing using the MLOE. If the Regional Water Board reevaluates the listing and determines that the water segment does not meet the SQO listing criteria, the Regional Water Board shall delist the water segment. Staff has been directed by the State Water Board to amend the sediment quality related listing criteria in the 303(d) listing policy to clarify these changes. At this time, the proposed changes to the 303(d) listing policy are still under going development. When completed, the proposed changes will be noticed, circulated for public review and comment, and heard before the Board prior to any formal Board action.	CSPA/SFBK, HBK
1023	5.7.3	It appears that the proposed Sediment Quality Objective would have the effect of making it more difficult to include impaired water bodies on the Clean Water Act 303(d) list. The requirements of the SQO approach would make it more difficult to put water bodies on the 303(d) list, and creates additional costs, and opportunities for additional delays, disruptions and distractions from the discharger community seeking to avoid listing. We do not believe there is justification for abandoning the current protective approaches used by the water boards in protecting water quality. The SQO proposal takes an entirely different approach to sediment quality which requires proof of an impact (through multiple tests) before regulatory controls can be developed	Staff disagree. See comment No.1002 and response above. The use of a single LOE versus MLOE is described in response to comment No. 1014	SCCA
255	5.7.4	The Policy Must Require Effluent Limits in Permits	Staff disagree for the reasons stated in Section 5.7.4 of the draft staff report.	SFBK

No.	Subject	Comment	Response	Author
256	5.7.4	Regarding the implementation provisions of the proposed SQO policy, we support the application of SQOs as Receiving Water Limitations in NPDES permits. This approach is a rational approach given the absence of causation information resulting from the initial test results that are determined in the SQO evaluation process	Comment noted.	Tri-TAC, CVCWA, OCSD
565	5.7.4	The Staff Report states that a Regional Board may apply SQOs to a discharger's permit if it determines that sediment quality is "potentially at risk" "in the vicinity" or "within [the] discharge gradient" of a discharger. Staff Report, Appendix A, p. 21. Despite the importance of these qualitative expressions of spatial association in dictating whether SQOs can be applied in a permit, they are never defined.	Staff disagree. Given the different sizes of bays and estuaries in California, the different types, number and sizes (flow) of discharges, the Regional Boards must be given the flexibility to address these issues on a region by region basis. In a small bay with minimum circulation a discharge may be a high risk while the same type of discharge in a larger bay with greater tidal exchange and mixing may be a low risk.	CCOC, LW
566	5.7.4	The proposed methods to identify a discharger or dischargers responsible for an exceedance of the SQOs are vague and subjective in regions of multiple discharges. In such circumstances, the SQOs fail to provide guidance as to how gradient analyses can be applied to determine the alleged source of contamination. In practical terms, how will a discharger prove that the contamination is or is not related to their permitted discharge, especially if the contaminated sediment is located some distance from the discharge?	Staff disagree. The MLOE approach can be applied to sediments in the vicinity of the outfall to determine if sediment are at risk. If sediment quality is degraded in accordance with the Draft Part 1 then stressor identification is required. Once the stressor is identified, the sources contributing the pollutants can be identified and appropriate steps taken to reduce the discharge of the pollutants from these sources.	CCOC, LW
567	5.7.4	The need for guidance on these key issues is acute given that the analyses required to determine whether sediments are "potentially at risk" may be involved and costly for both dischargers and regulators	Staff disagree. See response to comment #566	CCOC, LW

No.	Subject	Comment	Response	Author
568	5.7.4	The proposed SQOs also state that a discharger shall be in violation of its permit if it is demonstrated that the discharge is causing or contributing to the SQO exceedance.The Staff Report does not outline how the causal relationship between the discharges and sediment quality will be established and whose burden it is to make such a determination. The approach outlined in the Staff Report sets up a situation in which multiple dischargers are affected by a regional evaluation without determining causality. The burden improperly is shifted to dischargers within an area subject to regional evaluation to prove to the agency that their discharge is not the cause of any observed impairment, at potentially significant costs. All dischargers within the vicinity under evaluation will be presumed responsible for any observed toxicity, even if there is no evidence that the particular discharge caused or contributed to the problem	Staff disagree. If an exceedence occurs, and the stressor identification reveals the pollutants that's causing the impairment is in the discharge, then additional controls are needed. If there are a number of sources contributing to the pollutant loading, then the reductions should be shared among the permittees. None of these concepts are new to water quality protection and management.	CCOC, LW
569	5.7.4	The proposed SQOs do not provide an effective means to assess responsibility of SQO exceedances. The conceptual model provided in the Staff Report provides only a hypothesis regarding the relationship of a discharge to the SQO exceedance and sediment quality at a sampling station, which by itself cannot discriminate among multiple sources. No guidance is provided to relate a pollutant-caused SQO exceedance to the extent of discharge reduction necessary to bring the water body into compliance.	See response to #568	CCOC, LW

No.	Subject	Comment	Response	Author
570	5.7.4	The proposed SQOs indicate that an exceedance would not be considered as a violation of the permit until it is demonstrated that the discharge is causing or contributing to the SQO exceedance (Appendix A, VII(C)). This safeguard may be of little consequence in practice because the exceedance of multiple stations within the water body may force an exceedance of water quality standards, which, according to the Staff Report, would put the water body on the State's 303(d) list and force the development of a TMDL for the water body even though it is not clear that there is a violation of the water quality standard based on the multiple lines of evidence used in the sediment quality evaluation	Staff disagree. The commenter is comparing receiving water limits and permit conditions with ambient monitoring, sediment quality objectives and 303(d) listings. See Figures 1 and 2 of the Draft Part 1 which highlight these differences.	CCOC, LW
571	5.7.4	The Staff Report fails to provide sufficient guidance for determining how to establish effluent limits. The proposed SQOs merely state that "[e]ffluent limits established to protect or restore sediment quality shall be developed only after" three conditions are met. Regional Boards are then directed to Appendix A, Sections VII(F) and VII(G) for stressor identification and site-specific management guidelines, but these sections are unclear as to who has the responsibility to develop and implement the work plans and the definition and extent of "appropriate loading studies."	Staff disagree. The plan very clearly identifies the actions permittees must take. The plan does not include effluent limits for the reasons described in Section 5.7.4 of the draft Staff Report	CCOC, LW
572	5.7.4	The proposed SQOs do not address how a discharger would potentially be controlled using the findings of the SQO evaluation set forth in Appendix A. It is assumed that this control would occur through the NPDES permitting process, but no clear steps are identified to indicate exactly how a discharge permit may be evaluated and changed when an SQO is exceeded.	Staff disagree. The Draft Part 1 provides the appropriate language to implement the SQOs, determine the cause of degradation and develop targets in a manner that is scientifically defensible. The Regional Boards should retain the flexibility to address pollutant load reductions on a case by case basis.	CCOC, LW
573	5.7.4	The ultimate "goal" for the sediment quality is not clearly defined. Is the target to make all "impacted" systems "unimpacted"? Such a goal would be unrealistic and costly (in addition to being legally invalid as discussed below)	Commenter suggests that waterbodies that are degraded should not be restored. The State Board's mission is to preserve, enhance and restore the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations.	CCOC, LW

No.	Subject	Comment	Response	Author
574	5.7.4	SQOs should contain guidance on how to set realistic goals once a failure to achieve an SQO is determined. The proposed SQOs should specify how to determine what level of reduction in permitted discharges (if any) would be necessary to accomplish the program's goals, and how dischargers are expected to evaluate the effect of reductions in water-based concentrations on the sediment quality. These issues will impact regulators and dischargers through the cost and management of detailed monitoring plans, stressor identification studies, and operational modifications loosely prescribed by the SQO process and driven through the NPDES permitting process. The current SQO document is relatively silent on these key issues and consequently, raises many questions for stakeholders that may be impacted if an SQO exceedance is determined.	Please see Section 5.7.4 of the Staff Report and Section VII.G and Figures 1 and 2 of the draft plan	CCOC, LW
575	5.7.4	The SQOs should include a framework that clearly lays out how to evaluate the steps necessary to determine causality and effect. The SQOs should not require stations within the discharge mixing zones to be considered when evaluating existing sediment conditions, and future sampling for the purpose of establishing exceedances of SQOs should be done outside mixing zones. Discharge permittees are required to identify a mixing zone, in which water quality standards do not apply, for water quality applications. Because it is not consistent to require that SQOs be met in a region in which water column concentrations can exceed water quality standards, the same approach should be applied in the proposed SQOs	Staff believe the draft Part 1, clearly lays out the steps necessary steps to determine causality. In response to the comment regarding mixing zones, see response to comment #301.	CCOC, LW

No.	Subject	Comment	Response	Author
576	5.7.4	The SQOs should contain guidance on determining the link between sediment quality and discharge effluents along with a framework for when violations of the SQOs force the water body into the TMDL process. Appropriate loading studies should be defined and explicitly indicate that the fate and transport processes that govern the relationship between a discharge and sediment quality (e.g., dilution, sediment transport, speciation) must be taken into account. The SQOs should identify what studies are to be performed and indicate how the results of the studies will relate sediment quality to effluent loadings	Staff believe that Section VII provides guidance to identify the pollutants causing impacts, a means to establish biologically based targets and the issues to consider when assessing the relationship between the pollutants in sediment and a discharge. Staff did not attempt to provide prescriptive guidance for the design of loading studies as there are many factors that drive the design that would depend upon the configuration of the discharge, the pollutant, the hydrodynamic regime of the receiving water and other factors.	CCOC, LW
1121	5.7.4	Section 5.7.4: Support Staff Alternative 3 (Page 119).	Comment noted	TJ
1122	5.7.4.1	Section 5.7.4.1: Support Staff Alternative 2(Page 120).	Comment noted	TJ
1123	5.7.4.2	Section 5.7.4.2: Support Alternative 2 (Page 120).	Comment noted	TJ
1124	5.7.4.3	Section 5.7.4.3: Support Staff Alternative 2 (Page 121).	Comment noted	TJ
1125	5.7.4.4	Section 5.7.4.4: Support Alternative 2 (Page 121).	Comment noted	TJ
257	5.7.5	The SQO Plan describes a series of sequential studies that would be implemented to respond to exceedances. While these focused studies could provide useful information, in some cases they could add unnecessary delay and expense before getting around to cleanup or pollution control actions. The proposed SQO Plan's provisions that SQO-related effluent limits may only be established after a demonstrated impact appears to be inconsistent with the Water Code's requirements for the prevention of new toxic hot spots	Staff disagree. How would Regional Board staff justify new of more stringent effluent limits without first determining the cause? The permit writer cannot propose without justification. The process described in the plan is intended to support intelligent management actions including the development of more stringent controls when neccesary. Stressor identification is the means to prevent new hotspots.	RB5
258	5.7.4	Page 99, Section 5.7.4, Staff Recommendation at bottom of page - Proposing that the narrative SQOs be applied in NPDES permits as receiving water limits will be problematic. Therefore, we cannot support this recommendation without additional information. All hydrophobic chemicals from an effluent would need to be measured and some type of fingerprinting analysis would need to be conducted to identify specific sources. For example, if copper was in the effluent and also reported in sediment near the outfall how would you tease out natural copper versus the effluent derived copper or perhaps other sources of copper in the area?	Comment noted. For the example provided, copper would first have to be identified as causing degradation, then sources would be identified, and load reductions determined. Revised effluent limits or BMPs would be used to restore sediment quality if existing discharges were contributing to the impairment.	WPHA, LADWP, PWG

No.	Subject	Comment	Response	Author
259	5.7.4	We are concerned by the prospect that receiving water limitations may be implemented in NPDES permits based on the identification of sediment as "impacted." The determination that sediments are classified as "impacted" based on the multiple lines of evidence is not, by itself, sufficient to show that toxic pollutants are degrading sediment quality. Since the SQOs are intended to regulate toxic pollutants, identification of a confirmed SQO exceedance should be made only after stressor identification and after it is determined that the impact is not due to natural background conditions or to causes unrelated to toxic pollutants	Staff have clarified that violations of a receiving water limit will only occur after the pollutants causing the impacts have been identified and those pollutants have been linked to the discharge.	OCRDMD, WSPA
260	5.7.4	Staff propose that narrative SQOs be applied in NPDES permits as receiving water limits. However, the application of SQOs as receiving water limits is highly problematic for the following reasons 1. It is unknown how it would be determined that a discharge “causes or contributes to” an exceedance of SQOs. Even following stressor identification (i.e., even if the pollutant(s) responsible for the SQO exceedance are known), the relationship between discharges and concentrations in sediment, or between concentrations of the pollutant(s) in the overlying water column and in sediments, is highly complex and 2. It is unknown how “reasonable potential analyses” are to be made to determine that a regulated discharge has the reasonable potential to cause or contribute to an exceedance of SQOs.	Staff agree that the application of SQOs as receiving water limits is more complex then water quality objectives, however these relationships can be established after stressor identification with appropriately designed studies.	CASQA, FSI, LADWP, OCRDMD

No.	Subject	Comment	Response	Author
261	5.7.4	We recommend that SQOs shall not be implemented as receiving water limits. The SQO Plan should state that SQO assessments may be included in NPDES permits as a part of a monitoring program, but an assessment result of “impacted” should not be identified as a permit violation because methods to relate pollutant concentrations to impacts using MLOE have not yet been developed. If impact is indicated using multiple samples and a binomial distribution method as described in the SQOs, stressor identification should follow. However, if it is not possible to determine a stressor due to analytical uncertainty, regional monitoring should be required to improve local knowledge of the causes of the impact	Staff disagree. See response to comment #260.	LADWP
24	5.7.4	One of the most vulnerable groups subject to inappropriate application of the SWRCB staff’s proposed sediment quality evaluation is the urban stormwater runoff water quality managers and the public they represent. While it has been well-established that such metals are largely non-toxic, the total concentrations of the metals will likely continue to exceed co-occurrence-based sediment quality guidelines, including those proposed for the SQO development approach	Staff disagree. The commenter does not understand the relationship between assessment and stressor identification.	GLF
1056	5.7.4	Aside from staff’s unrelenting disregard of fundamentals of aquatic chemistry in their approach, the staff has not addressed the consequences of “backsliding” in its trying to correct errors in the initial assessment by follow-on studies, even if those errors could be reliably corrected through stressor identification	The approach being proposed is intended to minimize errors which could occur when corners are cut during the assessment and stressor identification phases.	GFL
25	5.7.4	Inappropriate regulatory approaches can ultimately result in the regulated community’s having to take the issues to the court to find remedy from implementation of their unreliable results. Using the SWRCB database used to develop the SQOs, it can be demonstrated that the chemical concentration component of the SQO can be in error and mislead the identification of chemicals as causing impaired sediment quality	Commenter is referred to Section VII.F of the draft Part 1	GLF

No.	Subject	Comment	Response	Author
1057	5.7.4	The staff did not credibly address the significant potential for dischargers of a chemical to be forced to seek remedy through the courts to get the technical errors made in SQO development and implementation corrected.	Staff disagree with the assumption that technical errors were made. We believe that the SQOs are completely appropriate and scientifically defensible. We, nevertheless, recognize that individuals who disagree are always free to seek whatever legal remedies are available to them.	GFL
262	5.7.4	We oppose the implementation of SQOs as receiving water limits. Rather, the SQO Plan should be consistent with existing provisions in municipal stormwater NPDES permits that specify the obligations of NPDES permittees when either the permittee or Water Board determine that discharges are causing or contributing to exceedances of water quality standards	Comment noted. Section VII. B. has been amended to read that the narrative SQO will be applied as receving water limits if the discharge has the reasonable potential to cause or contribute to an exceedance of the narrative SQO.	CASQA, FSI
263	5.7.4	What is the feasibility and practicality including the scientific basis for applying the proposed SQOs as receiving water limits in POTW and industrial permits and municipal stormwater permits?	The sediment quality objectives are based upon sound science. They cannot be directly translated into effluent limits, however they can be applied as receiving water limits to determine if a discharge is having an impact on sediment quality dependent aquatic life.	SCV
264	5.7.4	Why are monitoring frequencies for stormwater included in the draft plan	Minimum frequencies are included because they are appropriate.	SCV
265	5.7.4	Permit Limits Should Be Derived Through TMDLs. If the MLOE analysis indicates that sediment is clearly or likely impacted, stressor identification must be performed and, if appropriate, the results utilized to support development of a Total Maximum Daily Load ("TMDL"). Wasteload allocations from the TMDL would then be incorporated into permit requirements. Thus, any effluent or receiving water limits in NPDES permits related to SQOs should be derived from the TMDL process. Effluent or receiving water limits should not be used outside a TMDL process unless a discharger is identified as a primary contributor to a particular SQO exceedance, on an ongoing basis, based on substantial evidence and following stressor identification	Staff disagree. Establishing permit limits should not be limited to the situation where TMDLs are developed.	WSPA

No.	Subject	Comment	Response	Author
266	5.7.4	The insertion of receiving water limits into NPDES permits should not be regarded as a primary (much less the only) management tool for dealing with an SQO exceedance. In fact, there are many instances (most notably, legacy pollutants) where regulation via NPDES permits would be an ineffective management tool, as current sources represent only a small fraction of the contaminant reservoir or load within a water body. In addition, it is not clear what will happen if no discharger is found to be responsible or if no stressor is identified. The Plan should provide that effluent limitations in NPDES permits should be derived from the TMDL process	Staff disagree. Legacy pollutants may contribute to degradation of benthic communities; however, other pollutants such as metals, PAHs, pesticides may be more problematic.	WSPA
1035	5.7.4	Responses No. 265 and 266, staff assert that permit limits and other controls must be available to the Regional Boards. While we understand this position, we continue to believe that such controls should not be the primary means of implementing the Plan, to which the Regional Boards turn first by default, in circumstances where other approaches would prove more effective. For this reason, the Plan should express a primary reliance, as a matter of policy, on the existing programs best suited to cope with the complexity of sediment contamination issues, especially given the importance of legacy pollutants. We respectfully request that staff reconsider including a statement giving priority to the TMDL and toxic hot spots programs as methods of implementation of the SQO Plan	Staff believe the Draft Part 1 is fully supportive of Regional Monitoring programs that consider the water body as a whole. Where permittees are required to address outfalls on an outfall by outfall basis, the Draft Part 1 requires the discharger to establish and link from the sediment stations in question to sources including others that may be contributing to the degradation of sediment quality. Staff feel that this will lead to waterbody scale evaluations and TMDL type appraches to correct these problems.	WSPA
267	5.7.4	WSPA believes that it is critically important for the SQO Plan to provide specific guidance as to what “contributing” to an exceedance means in the context of SQOs, rather than applying the interpretation of “contributing” commonly used for water quality objectives. For this reason, we recommend that the identification of an SQO exceedance potential require a clear demonstration that the discharge is causing or substantially contributing to the exceedance	Staff disagree. If a pollutant is causing impacts to sediment quality and discharges in the vicinity are contributing to the accumulation of that pollutant in sediment, then more effective controls need to be put into effect.	WSPA
268		Plan must also specify how “reasonable potential analyses” are to be made, in order to determine that a discharge has the reasonable potential to cause or contribute to an exceedance of SQOs	The term "reasonable potential" has been deleted.	WSPA

No.	Subject	Comment	Response	Author
269	5.74	The SQO Plan should include authority for Regional Boards to grant compliance schedules, allowing a reasonable time for permittees to come into compliance with new or revised permit limits	Compliance schedules were not identified as a significant concern by the Advisory Committee, however the need for compliance schedules can be evaluated during Phase 2.	Caltrans, WSPA
1031	5.7.4	In response to Comment 269, State Board staff states that the need for compliance schedules can be evaluated during Phase 2 of the SQOs. However, if the State Board adopts SQOs during Phase I without explicitly including compliance schedule authority, dischargers would be at risk of immediate violation. (This issue is, of course, exacerbated by the problems with receiving water limits and reasonable potential analysis, as discussed above.) We urge the State Board not to wait until Phase 2 to consider compliance schedules which would be needed for Phase 1. The SQO Plan should include express authority for Regional Boards to grant compliance schedules, allowing a reasonable time for permittees to come into compliance with new or revised permit limits.	Staff disagree with the need to include compliance schedules within the draft Part 1. Under State Water Board Resolution No. 2008-0025, the Regional Water Boards have the authority to authorize the compliance schedules for SQO related permit issues, including the need for more stringent effluent limits to restore sediment quality when the need arises.	WSPA
270		The Plan also categorizes varying degrees of certainty that sediment at a given location is impacted. There is considerable uncertainty regarding the "possibly impacted" category. Thus, we recommend that "clearly impacted" and "likely impacted" sediment stations should be given highest priority for analysis and management actions, followed by "possibly impacted" stations. Because even the "clearly impacted" and "likely impacted" categories reflect considerable uncertainty that impacts are caused by toxic pollutants, a water body should not be considered to have "exceeded SQO" or to be "impaired" until the stressor identification process is completed and it is determined that the impact is not due to natural background conditions.	Staff have addressed this issue for sites classified as Possibly Impacted in Section VII.F of the Draft Part 1.	WSPA
271		Once an SQO exceedance is confirmed, management actions should be determined through the 303(d) listing process and TMDL development, or through the toxic hot spots program, as appropriate.	Staff agree when impacted sediments encompass a large area. However, the draft Part 1 must still address those impacts associated with a single source.	CASQA, WSPA

No.	Subject	Comment	Response	Author
272		The SQO Plan must provide specific guidance for how SQO exceedances that are due primarily to legacy pollutants are to be addressed. We recommend that SQO exceedances due primarily to legacy pollutants - i.e., pollutants that are no longer actively used or discharged, or for which the reservoir in sediments greatly exceeds ongoing discharges - be referred to the TMDL or toxic hot spots program.	Staff do not believe there is adequate evidence to propose separate management actions for legacy pollutants in this Draft Part 1.	CASQA, OCRDMD, WSPA
94	5.7.5	We support the requirement that all sources are responsible to take all appropriate steps to conduct the studies and remediate the study site. For generating stations, responsible sources must include both point and non-point sources contributing to the intake water. We are concerned about sources that discharge contaminants during wet weather. If it is clear that the sources upstream of an intake are the major contributor of pollutants to that intake, and if the generating station itself is a de minimis contributor, the upstream or intake sources should be responsible for conducting the studies to identify the stressors. We strongly recommends that the SQO Plan state that pollutant sources contributing to a discharger's pollutant load should be held responsible for special sediment studies and remediation of any impact	In general, generating stations are responsible for pollutants in their intake water that are discharged into a receiving water. Nevertheless, on a site-specific basis, the Regional Water Boards may consider whether it is appropriate to have other additional sources conduct special sediment quality studies.	LADWP
7	5.7.5	The State Board should provide more detailed guidance throughout the Draft Staff Report and Appendix A regarding the implementation of SQO assessments.	Staff have addressed this concern by adding more specificity inSection VII of the Draft Part 1 and through the addition of Figures 1 and 2.	LACSD
11	5.7.5	We remain concerned, however, that the SQO Plan is overly complex, provides the Regional Water Quality Control Boards with too much discretion, and fails to afford adequate protection for either the ecosystems that depend on California's waters or human health.	Staff disagree. The plan describes the specific tools used to interpret the narrative objective to assess sediment and provides a logical framework to determine the cause of sediment quality degradation.	SFBK
273	5.7.5	We also have specific comments regarding the steps to be taken in response to a determination that sediments in a water body are "Possibly Impacted", "Likely Impacted" or "Clearly Impacted". We support the imposition of a reasonable deadline of 180 days in the policy for completion of a draft work plan for the causation/stressor	Staff concur and have revised the text in Section VII.F.2.	BACWA, Tri-TAC

No.	Subject	Comment	Response	Author
274	5.7.5	We recommend a tiered response, wherein sites listed as Clearly Impacted would receive first priority in terms of resource commitment and initiation of follow-up studies; sites classified as "Likely Impacted" would be second priority. For sites listed in these two categories, we recommend that the policy establish a deadline for completion of the studies in the approved work plan within two (2) to three (3) years of approval of that plan by the Regional Board.	Staff concur and have revised the text in Section VII.F.2.	BACWA, Tri-TAC
275	5.7.5	We agree with proposed policy language that water bodies that are listed as "Possibly Impacted" should be treated differently from water bodies that are determined to be "Clearly" or "Likely Impacted". We believe that sediments listed as "Possibly Impacted" have the greatest uncertainty in terms of impacts and will be the most difficult to evaluate to determine causative factors and management solutions. We request the addition of policy language that would specifically acknowledge the difficulties in determining causation or stressors for sites classified as "Possibly Impacted" and the likelihood that such studies may be inconclusive	Staff concur and have revised the text in Section VII.F.2.	BACWA, Tri-TAC
276	5.7.5	Further, we request that, for "Possibly Impacted" sites, the policy lays out a finite approach consisting of (1) monitoring to confirm the SQO determination, (2) an initial stressor identification study and, (3) in the event of an inconclusive outcome of that study, either a one-time augmentation to that study or a suspension of further stressor identification studies pending the results of future routine SQO monitoring.	Staff concur and have revised the text in Section VII.F.2.	Tri-TAC

No.	Subject	Comment	Response	Author
66	5.7.5	The finding of a waterbody impairment under this policy does not provide an answer to the basic question; what is causing the impairment? In most cases, a waterbody that does not pass the SQO narrative will need further study to identify the cause(s) of the impairment and the appropriate management action(s) to restore the waterbody. It is critical to first perform a causation study/linkage analysis often referred to as a stressor identification evaluation (SIE). This initial response to a SQO exceedance and listing will confirm or deny chemical impairment. If the sediment is impaired due to something other than a chemical cause (e.g. dredging, anchor drag, prop wash, storm event), then the stations should be reclassified, as appropriate, and rerun through the binomial statistic to determine if the waterbody should continue to be listed. If there is chemical impairment, then the chemicals will need to be identified to initiate the source identification and management process.	Staff concur.	BACWA, LACSD, OCSD, OCRDMD, Tri-TAC, Weston, WSPA
67	5.7.5	We agree with the stepwise approach described in the plan which consists of assessment, stressor identification, sources evaluation and management action is the right way to proceed	Comment noted	CVCWA,SRCSD,
68	5.7.5	The proposed plan recognizes that tools for stressor and source identification are critical to the success of the regulatory program and have described some general approaches that might be used as part of this process; however, neither the tools nor the requisite implementation guidance are fully developed at this time, necessitating the need for completion of this work prior to regulatory implementation.	Comment noted.	Weston

No.	Subject	Comment	Response	Author
69	5.7.5	We are concerned that stressor identification for sediment may give uncertain results. Furthermore, even though USEPA has recently released a guidance document for conducting sediment Toxicity Identification/Evaluations (TIEs), standardized methods for conducting TIEs for sediment have not yet been developed. TIEs may result in the identification of a category of pollutant but fail to isolate the actual stressor. TIEs may result in different pollutant categories of concern when the tests are repeated. Additionally, it is possible for a station to be categorized as “clearly impacted,” “likely impacted,” or “possibly impacted” even when no toxicity is present in a sample. In this circumstance, TIEs are an inappropriate tool, as toxicity must be present in a sample for a TIE to identify the agent causing that toxicity. Since TIEs are resource intensive, TIEs with inconclusive results and/or accelerated toxicity monitoring should not be required to be continued indefinitely. Therefore we recommend that the SQO Plan recognize the limitations of conducting TIEs on sediment with current methods of analysis. This can be done by providing	Staff agree. However, staff believe that stressor identification will lead to more effective TMDLs and cleanup actions. It is important to understand that stressor identification can also be used to eliminate potential pollutants of concern. As stated previously, the intent is to make TMDLs Cleanups and Restoration actions more effective by focusing on those pollutants that are causing impacts. The draft Part 1 has been amended to ensure that the site categories serve as the basis for prioritizing action.	LADWP
70	5.7.5	Stressor identification is critical. We believe this is the appropriate course of action when sediments are impaired, and this process should be initiated before Total Maximum Daily Loads (TMDLs) are developed and before management actions are undertaken, a position we share with SWRCB Staff (Draft Staff Report, Appendix A, p. 27.) In many TMDLs and permits adopted throughout the State, sediment quality guidelines have been used by default as regulatory targets. Stressor identification is necessary to identify pollutants responsible for observed toxicity and should be able to identify compounds responsible for observed effects. Without stressor identification, management actions may focus only on those pollutants evaluated as part of the MLOE and not others, potentially failing to address pollutants actually responsible for SQO exceedances.	Staff concur.	FSI, OCRDMD

No.	Subject	Comment	Response	Author
71	5.7.5	The staff provided a section devoted to stressor identification in its report. That section is evidently part of the staff's guidance on SQO implementation; the stressor identification results are to be used to correct the errors associated with use of total concentration co-occurrence-based chemical information	Staff disagree. Once sediment quality is assessed, the logical next step is to determine what is causing the problem.	GFL
1058	5.7.5	The staff has not addressed the issue raised. Thus, while regulators and dischargers expend time and resources pursuing the "cause" of a "problem" identified by the SQO approach, there may well be no "problem" at all. A serious consequence of the subsequent finding – through investigations and/or the courts – that there is no "problem" is the diversion of resources from identifying and dealing with real problems, and the very real potential of having to continue on with "remediation" of the non-problem to avoid the appearance of absolving polluters of responsibility for "cleanup" (albeit of a non-problem).	The inclusion of a dominant role for toxicity and benthic community evaluation in the initial assessment approach provides the best protection against the type of errors mentioned by the commenter. The first step of the stressor identification phase is the confirmation of a chemical linkage to the effects, which is intended to minimize the scenario of chasing a non-problem described in the comment.	GFL
72	5.7.5	TIEs that can be reliably used by those with limited understanding and experience in the aquatic chemistry of sediments as it relates to sediment toxicity, it is possible for those with this knowledge to conduct TIEs to potentially identify causes of sediment toxicity. This situation points to the need to focus the initial sediment quality evaluation on biological effects (toxicity and benthic organism assemblages) without trying to force-fit total chemical concentration information into the evaluation	The draft plan does incorporate stressor identification into the process	GFL
1059	5.7.5	However, essentially all the other proposed ID approaches are technically invalid; their incorporation will result in inadequate or incorrect identification of stressors for sediment toxicity and/or benthic organism alternation.	The stressor identification approaches listed in the document consist of a toolbox of potential methods that have been recommended in peer-reviewed EPA guidance for toxicity identification evaluations. As with all technical methods, careful consideration to study design is needed so that the methods can be selected, applied and interpreted appropriately.	GFL

No.	Subject	Comment	Response	Author
16	5.7.5/VII	As noted in our comment letter of November 28, 2006, the proposed project should include a clear discussion of "what implementation actions would be required, and by whom, if a SQO is exceeded.	Comment noted. Section VII.C of the Draft Part 1 describes the actions a permittee must initiate. In addition Figures 1 and 2 have been added to clarify the actions.	CASQA
17	5.7.5/VII	It is important to understand that the ongoing development and actual regulatory implementation is far from complete and will require significant support and commitment of resources by the state into the foreseeable future. We also caution the Board against premature implementation of the proposed SQOs until such time as the approach and implementation guidance are fully developed.	Comment noted.	Sierra Club, Tri-TAC, Weston
18	5.7.5/VII	A good foundation has been created to define and prioritize problems in bays, but additional work needs to be done (a) to test drive and adjust the new tools that have been developed, (b) to figure out how to establish the same system in estuaries, which will be equally or more difficult, and (c) to effectively implement the overall program to ensure that it is used properly and produces good solutions. Again, you will need to stay the course and provide resources, at a statewide level, to get this done.	Comment noted.	Tri-TAC
19	5.7.5/VII.C	Staff should justify the use of the binomial distribution criteria to determine the exceedence of the receiving water limit and providing documentation to design a robust sediment sampling plan and data analysis methods for use to augment the existing data base upon which the thresholds for the multiple lines of evidence were developed	The binomial distribution criteria are based on balancing error rates for false positive and false negative determinations and were determined by previous Board actions. The same error rates are used for sediment assessment in order to attain a consistent level of certainty in the decision.	Sierra Club, RB5
20	5.7.5/VII.E.8	Alternatives for combining site data to make waterbody assessments should be analyzed for their environmental effects and subject to similar rigor as applied to the rest of the objectives, since they imply acceptable exceedance frequency. The SQO Plan may not need to specify regulatory compliance decisions at this level of detail. The SQO Plan should likely leave this decision to the Regional Boards. The SQO Plan should not inappropriately use the "binomial distribution" from the 303(d) Listing Policy	Staff disagree. The binomial statistic was determined to be appropriate for assessing sediment quality data from multiple stations within the State Water Boards 303(d) Listing policy. There is no reason why the same approach cannot be applied to this narrative SQO for either 303(d) listings or for assessing recieving water limits.	RB5

No.	Subject	Comment	Response	Author
21	5.7.5/VII	We are concerned about the lack of specificity regarding implementation of the proposed SQO Plan.	Comment noted. Changes have been made to clarify the actions of the Regional Boards and Permittees.	CASQA, GFL, WSPA
42	5.7.5	At numerous decision points, the plan should allow the State and Regional Boards to determine the course of action	Staff agree and have created a draft plan that provides the appropriate level of flexibility while ensuring that the tools and framework are applied consistently.	RB5
277	6.0.	The Staff Report should analyze potential changes to existing regulatory programs and standards resulting from the SQO Plan and potential environmental impacts of those changes, Potential reductions in sediment quality resulting from the proposed SQO Plan, such as those caused by setting a high threshold of evidence prior to a determination of an exceedance and those discussed in the Staff Reports evaluation of economic impacts, are a potential environmental impact which should be discussed in the CEQA analysis. On page 103 the Staff Report states that, for estuaries, "staff is unable to determine whether adoption of the proposed objective could result in potentially significant environmental impacts." The Staff Report should provide this analysis in order to meet CEQA requirements	Section 4 of the staff report describes the regulatory baseline provided by Regional Board staff that describes how sediment quality is regulated and assessed in the Delta. We attempted to explain how the Regional Boards currently assess sediment in other habitats. However, the Science Team, Scientific Steering Committee and three of the four Peer Reviewers make it clear that an MLOE approach is the scientifically defensible means to assess sediment quality. Any other approach is not appropriate for sediment. This is well explained in both the draft Staff Report and the Draft Part 1.	RB5
278	6.0.	Although the human health sediment quality objective and implementation provisions are brief and reflect current practices, formalizing these in a Water Quality Control Plan is development of regulation. The Staff Report should contain an environmental analysis supporting the sections of the proposed SQO Plan related to the human health related sediment quality objective.	Interpretation and implementation of the proposed human health based SQO is based on language that is currently provided in the Regional Boards Basin Plans.	RB5
279	6.0.	Section 13393 of the California Water Code requires the State Water Board to consider USEPA draft and final sediment criteria and to adopt them if they are final criteria which are scientifically based and provide adequate protection for the most sensitive aquatic organisms and/or humans. The Staff Report should contain an analysis of any USEPA sediment criteria relevant to the Water Code's evaluation criteria	The analyses were performed in the initial evaluation of potential chemical indicators. The results were summarized and presented to the Scientific Steering Committee in July 2005. That presentation is available online at http://www.waterboards.ca.gov/bptcp/sqoscientific.html #2005.	RB5

No.	Subject	Comment	Response	Author
280	6.0.	How does the draft policy envision addressing CEQA as part of the site by site basis?	Staff envisioned that a project level CEQA analysis would be required for the management of SQO related impairments or cleanup actions.	WPHA
577	6.0.	The Proposed SQOs Do Not Comply With CEQA. CEQA requires that the environmental document fairly disclose all the potentially significant environmental impacts associated with project. The proposed SQOs, however, do not provide a sufficient description of the project's baseline against which project impacts can be assessed, and did not assess the environmental impacts associated with implementation measures that will be required to achieve compliance with the SQOs. Given the low thresholds under which sediment is brought into the program, significant questions arise as to the many environmental impacts that will occur to achieve compliance with the SQOs, none of which are addressed in the proposed SQOs	The CEQA Guidelines require that an EIR include a description of the physical environmental conditions in the vicinity of the project as they exist at the time the environmental analysis is commenced, from both a local and a regional perspective. (Cal. Code Regs., tit. 14, §15125.) This description must "be no longer than is necessary to an understanding of the significant effects of the proposed project and its alternatives." *(Ibid)* .Section 3 of the Staff Report contains a description of the environmental setting for the proposed Plan. It includes brief descriptions of the affected coastal regions and water bodies. Section 3 also includes water column, tissue and sediment quality impacts associated with toxic pollutants, which have been identified on the State Water Board's section 303(d) list.	CCOC, LW
578	6.0.	The technical and legal defects of the SQO all implicate CEQA in that they result in an inaccurate project description and baseline environmental assumptions that compromise the analysis of impacts and the evaluation of alternatives. The program-level CEQA analysis "is not a device for deferring the identification of significant environmental impacts that the adoption of a specific plan can be expected to cause." Had the State Board conducted an in-depth analysis of just portions of the likely implementation measures, it would have found the SQO would cause significant environmental impacts that must be mitigated	Staff disagree with the commenter. The science supporting the SQOs is sound as is the legal basis for the SQOs implementation.	CCOC, LW

No.	Subject	Comment	Response	Author
579	6.0.	The Proposed SQOs Do Not Adequately Analyze the Potential Environmental Effects of Implementation Measures. The Staff Report's analysis of the potential environmental impacts of the SQOs is premised on the erroneous assertion that, because it is a program level EIR it does not need to consider any of the reasonably foreseeable environmental impacts of implementation of the SQO. Unlike, for example, a general plan amendment which allows but does not mandate any future activities, the SQOs will set firm regulatory guidelines that must be complied with. As such, the reasonably foreseeable impacts associated with implementation of the SQOs must be addressed in the proposed SQOs, regardless of the fact that it is identified as a program-level environmental document	Commenters note that the environmental checklist contained in the staff report states that the SQOs will not result in any potentially significant adverse impacts, but that the text of the staff report contradicts this conclusion. Commenters are correct, and staff has corrected the checklist to be consistent with the text.	CCOC, LW
579 co	6		Commenters further contend that the proposed Plan will likely have significant environmental impacts on environmental resources, including land use, landfill capacity, air quality, global climate change, benthic communities, and species and habitat. The staff report and checklist indicate that the proposed Plan could have short-term adverse impacts on biological resources, including aquatic species and habitat. Likewise, the staff report and checklist acknowledge the potential for short-term adverse impacts on air quality. Commenters correctly point out that the staff report indicates that greenhouse gas emissions from remediation "will be miniscule" without supporting documentation. This wording has been revised to state that these emissions are unknown, although they are not expected to be significant, and that the overall impact of the emissions on global climate change is too speculative to analyze. With respect to landfill capacity, the Staff Report acknowledges potential impacts but the checklist does not. The checklist has been revised accordingly.	CCOC, LW

No.	Subject	Comment	Response	Author
580	6.0.	The Project Description Is Inadequate. The SQO documentation falls short of providing an adequate project description by proposing the SQOs and then not describing in detail the measures "necessary for its implementation." The Staff Report contains no discussion of implementation measures	Staff disagree. Appendix A of the staff report describes how the SQOs would be applied to point sources, dredging projects, and the relationship to sediment cleanup and Resolution 92-49.	CCOC, LW
581	6.0.	The Proposed Regulation Does Not Adequately Assess the Environmental. Impact of Implementing the SQOs The Environmental Checklist attached to the Staff Report states that the SQOs will not result in any potentially significant impacts. Those conclusions are unsupported, and indeed are contradicted by the Staff Report itself which states that, "if, however, permittees or responsible parties are required to institute additional controls or corrective actions to comply with the proposed aquatic life SQOs for bays, over baseline conditions, these actions could result in potentially significant environmental impacts	Commenters note that the environmental checklist contained in the staff report states that the SQOs will not result in any potentially significant adverse impacts, but that the text of the staff report contradicts this conclusion. Commenters are correct, and staff has corrected the checklist to be consistent with the text. Commenters further contend that the proposed Plan will likely have significant environmental impacts on environmental resources, including land use, landfill capacity, air quality, global climate change, benthic communities, and species and habitat. The staff report and checklist indicate that the proposed Plan could have short-term adverse impacts on biological resources, including aquatic species and habitat.	CCOC, LW
581 co	6.0.		Likewise, the staff report and checklist acknowledge the potential for short-term adverse impacts on air quality. Commenters correctly point out that the staff report indicates that greenhouse gas emissions from remediation "will be miniscule" without supporting documentation. This wording has been revised to state that these emissions are unknown, although they are not expected to be significant, and that the overall impact of the emissions on global climate change is too speculative to analyze. With respect to landfill capacity, the Staff Report acknowledges potential impacts but the checklist does not. The checklist has been revised accordingly.	CCOC,LW

No.	Subject	Comment	Response	Author
582	6.0.	The proposed SQOs include not only the establishment of SQOs, but must necessarily include those reasonably foreseeable methods of compliance with the draft proposal. The State Board must assume that the SQOs will not only be adopted, but will be implemented. The SQO documentation does not adequately characterize the project and the environmental baseline conditions, making a full environmental review of the implementation plan impossible. But even with the limited time and information available, it is believed that the project likely will have significant environmental impacts on environmental resources, including land use, landfill capacity, air quality, global climate change, benthic communities, and species and habitat.	See response to comment #581	CCOC, LW
583	6.0.	The Proposed SQOs Omit an Assessment of Cumulative Impacts, as Required by CEQA. The full environmental impacts of the SQO cannot be ascertained until a full cumulative impacts analysis is conducted. To ignore the prospective cumulative harm under such circumstances could be to risk ecological disaster.". The proposed SQOs conclude in just a few sentences that "cumulative environmental impacts . . . are expected to be beneficial" although acknowledging that the implementation of the SQOs at the project level may have adverse cumulative effects. These conclusory statements do not constitute sufficient analysis of the project's impacts together with those of "closely related past, present, and reasonably foreseeable probable future projects.	The CEQA Guidelines define a cumulative impact as an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. (See Cal. Code Regs., tit. 14, §§15130(a)(1) & 15355.) As the staff report indicates, at the program level, the State Water Board is not aware of any other projects involving the adoption of SQOs. Whether there could be potential significant cumulative impacts at the project level will depend on the site-specific factors associated with the project. The potential for cumulative impacts at the project level will need to be analyzed at that time.	CCOC, LW

No.	Subject	Comment	Response	Author
584	6.0.	CEQA requires analysis of cumulative impacts to use either the list approach or the summary-of-projections approach. . The summary-of projections approach is appropriate only where an adopted general plan or prior certified environmental document “described or evaluated regional or area wide conditions contributing to the cumulative impact. There appears to be no such general plan or prior environmental document analyzing the cumulative impacts of implementing the SQOs. As such, the State Board must use the list approach. It must begin this exercise by listing all potential dredging projects, development projects on the margins of the state’s bays, habitat restoration projects, recently adopted TMDLs affecting the state’s bays, any likely future TMDLs affecting the state’s bays, and other projects in the SQOs project areas that could affect the environmental resources impacted by the SQOs	See response to comment #583.	CCOC, LW
585	6.0.	Once the cumulative project list is identified, the State Board must analyze the impacts of the SQOs together with those other projects. As it has not done so, there is no basis for the State Board to conclude that the SQOs along with these other projects will not result in an adverse environmental impact.	See response to comment #583.	CCOC, LW
89	6.0.	We recommend that the State Water Board provide clear direction to the Regional Water Boards that a CEQA evaluation and consideration of economics be required at the project level as site-specific remediation goals are adopted, and in the selection of appropriate management actions when an SQO exceedance has occurred	See response to comment #280	CASQA, OCRDMD

No.	Subject	Comment	Response	Author
90	6	The California Environmental Quality Act (CEQA) requires that full disclosure be provided as to the environmental consequences of a proposed action. The staff report does not meet the CEQA-equivalent requirement in that regard. It does not provide, for example, a reliable discussion of the consequences of ignoring low-DO, ammonia, hydrogen sulfide, and other toxicants, in sediment quality evaluation. Sediment remediation could be similarly misdirected by not considering many other constituents such as pyrethroid-based and other pesticides. This issue should have been discussed in any credible CEQA-equivalent discussion of the SQO development approach	Staff disagree. The draft Part 1 supports stressor identification and that task is aimed at identifying the stressor that is toxic to benthic communities, regardless of the type of pollutant. Once the stressor is identified, Regional Boards can respond in accordance with Basin Plans.	GFL, RB5
1060	6	CEQA disclosure requirements: The response to this comment does not reflect an understanding of the issues and technical aspects of aquatic chemistry that preclude the recommended stressor ID approach from identifying low-DO, H2S, and many other chemicals as causes of the problems for which they are, in fact, responsible.	Staff disagree with the commenter regarding the information gained from stressor identification. A stressor identification study would include consideration for the pollutants described by commenter in the initial stage.	GFL
1021	6.5	State Water Board staff have provided little meaningful analysis of alternatives or impacts, including other potentially more sound, protective alternatives. This is especially disturbing given the fundamental flaws that are foundational in the single approach given any substantive development and analysis	Staff disagree. Staff considered multiple alternatives in the evaluation of both technical and regulatory issues and received input and advice from respected scientists from academia, and state and federal agencies responsible for the management of contaminated sediments on the benefits and limitations associated with those alternatives presented in the Staff Report. In response, staff disagree with the comment that the foundation of the single approach described in it is fundamentally flawed. Staff believe the proposed approach is protective.	HBK, SCCA

No.	Subject	Comment	Response	Author
587	7	The State Water Board is required to comply with Water Code sections 13240 through 13247	Under chapter 5.6, the State Water Board is required to adopt sediment quality objectives "pursuant to the procedures established by [Division 7] for adopting or amending water quality control plans." (Wat. Code §13393.) The procedures specified in Division 7 include public notice and a hearing prior to adoption of a water quality control plan. (Wat. Code §13244.) Because chapter 5.6 references only the procedures for adopting or amending water quality control plans, an argument can be made that the State Water Board need not comply with the substantive requirements in Division 7 for the adoption of water quality objectives.	CCOC,LW
587 cont	7		Other Water Code sections, in contrast, require the State Water Board to comply with all provisions of Division 7 when adopting water quality control plans. (Compare Wat. Code §13170 (the State Water Board may adopt water quality control plans "in accordance with the provisions of Sections 13240 to 13244") with id. §13393 (the State Water Board shall adopt the sediment quality objectives "pursuant to the procedures established" in Division 7 for adopting or amending water quality control plans.) Nevertheless, the State Water Board complied with these provisions.	CCOC,LW

No.	Subject	Comment	Response	Author
587 cont	7		In particular, the staff report addresses the factors specified in Water Code section 13241 that the Water Boards must consider when adopting water quality objectives. Likewise, the proposed plan contains a program of implementation, which addresses regulation of ongoing discharges as well as cleanup actions for impaired sediments.	CCOC,LW
281	7.2	Page 116, Section 7.2, par. 2 - This paragraph states the following: "The implementation language proposed in the draft plan provides direction on how the SQOs shall be implemented within Regions, however within the draft plan each Regional Board retains the authority and flexibility to apply the SQOs in the appropriate regulatory program". Providing too much flexibility to the RWQCBs without oversight and control by the SWRCB will result in the inconsistent application of SQOs across the state. (please refer to WPHA's general comment on this issue).	Staff have clarified how the SQOs are to be implemented in the revised text and have included figures to support the text.	WPHA, PWG
586		The sediment quality objectives violate Water Code section 13267.	We disagree. Sediment monitoring requirements for permitted dischargers will be required pursuant to Water Code section 13383, rather than section 13267. For other dischargers, the Water Boards will comply with Water Code section 13267 when sediment monitoring requirements are actually issued.	CCOC,LW

No.	Subject	Comment	Response	Author
283	7.4	Page 119, Table 7.2 - Does the PAH suite proposed for analysis only include the standard 16 PAHs typically measured by EPA or does this list include the 43 parent and homologues recommended by the Western States Petroleum Association (WSPA). The WSPA list is much more comprehensive as it includes the parent and isomer-specific 2 through 6 ring compounds. Using the WSPA list will aid in the confident identification of the nature and source of PAH assemblages in sediment (petrogenic versus pyrogenic) which will aid in source identification	The PAH list indicates those compounds needed to apply the chemistry LOE tools and conduct the initial assessment. Measurement of other PAH compounds is encouraged as part of the stressor identification and source identification process.	WPHA, PWG
284	7.4	The list of chemicals to be measured should also include tributyltin (TBT). Although TBT (an organometallic used in antifouling paint) has been banned on small watercraft, it has a very long half life, is very toxic and may still be a sediment stressor near marinas and harbors.	Measurement of additional contaminants is likely to be useful for stressor identification.	WPHA, PWG
285	7.4	What background information was used to develop the list of chemicals to be measured? It would seem that an extensive review of all point and non-point sources in the area of study should precede the selection of chemicals to be measured. The “one size fits all approach” may not work	The chemical list was based on factors that included data availability, prior use in chemical indicators, and representation of diverse contaminant sources.	WPHA, PWG
286	7.4	Does the list of bulk metals to be measured also include an analysis of SEM/AVS to provide insight on the bioavailability of metals?	No. However those analyses are encouraged under Section VII.E when stressor identification is required.	WPHA, PWG
287	7.4	Page 120, Table 7.3 - Various values are listed in the number of samples column ranging from 5 to 30 for the various regions. Do these sample values represent a composite of samples collected within a station grid or is this only one sample collected at a site? This is a critical sampling design issue	The number of samples represent discrete samples, not composites.	WPHA, PWG

No.	Subject	Comment	Response	Author
288	7.4	Economic Considerations of Proposed Sediment Quality Plan; Executive Summary, Under the Plan, Regional Boards would list sediment as exceeding the SQOs if the MLOE indicate impairment. This requirement for additional evidence of impairment could reduce the number of water bodies that would be incorrectly listed as impaired for toxic substances. Potential costs or cost savings associated with implementing the SQOs depend on the relative stringency of the objectives. Although the analysis of economic factors is necessarily complicated by various sources of uncertainty, the statement regarding potential reduction in the number of water bodies that would be incorrectly listed as impaired for toxic substances is credible. Reliance on MLOE to make listing decisions should provide greater confidence in the decision-making process and result in fewer false positives and false negatives. The outcome will be greater efficiency in the use of State resources and reduction in the amount of unnecessary economic burden on the regulated community, while still protecting sediment quality	Staff agree.	WPHA, PWG
289	7.4	The economic analysis presented in a report entitled "Economic Considerations of Proposed Sediment Quality Plan for Enclosed Bays in California," prepared by SAIC attempts to examine economic costs associated with the proposed Plan; however, without any direction on how the program is to be implemented, it is impossible to determine an economic impact of that program. The Report provides monitoring and stressor identification cost estimates but does not provide cost estimates associated with other implementation actions such as remediation or cleanup actions that may be required pursuant to the Plan. Monitoring costs for 16 bays for which no or insufficient data are available for assessing SQO compliance are estimated at $468,900 to $691,400. In addition to those 16 reaches, the Report looked at the available MLOE data on eight bay segments and estimated costs for Phase I stressor identification testing for those 24 bay segments at $210,000-$620,000. However, with "low level" chemical contamination that may be encountered at "Possibly Impacted" sites, it is unlikely that a Phase I stressor identification evaluatio	See responses to Comment #610 and Comment #290.	CASQA, OCRDMD

No.	Subject	Comment	Response	Author
290	7.4	the Economics Report looked at the available MLOE data on eight bay segments. Estimated costs for Phase I stressor identification testing for those 24 bay segments were $210,000-$620,000 statewide. However, the County of Orange budgets $200,000 annually to conduct sediment chemistry, sediment toxicity, and benthic community analyses in Newport Bay alone. A multi-agency sediment removal project currently underway in Newport Bay is expected to cost $38 million by the time it is concluded, which we note is one of the implementation options listed in the Staff Report	The commenter has provided estimates of baseline monitoring and cleanup/remediation costs (i.e., costs that can be incurred under the current sediment quality-related objectives). See the revised economic analysis accompanying the final Plan for revised discussion and estimates of monitoring and stressor identification costs associated with the Plan. Note that, as discussed in the report, monitoring three lines of evidence is ongoing at many sites (such that data are available to assess potential compliance with the SQOs for many of the bays), and could be incorporated in the future to assess compliance with the baseline objectives even in the absence of the Plan. Similarly, the sediment management (stressor identification) tasks described in the Plan are similar to the activities that currently occur in developing TMDLs for sediment-related impairments (and if they were not to occur, TMDLs could fail to accurately target sources responsible for sediment toxicity).	FSI, OCRDMD
291	7.4	For both monitoring and stressor identification, cost estimates include the collection of the samples and the laboratory analysis but not the costs associated with analyzing the information or with preparing the associated reports (i.e., personnel time). As with the environmental analysis, it is difficult if not impossible to conduct a thorough economic analysis without detail on the implementation actions that are likely to occur as a result of the program. Thus, we recommends that the State Board require the Regional Water Boards to consider economics (and environmental impacts) at a project level when considering cleanup levels (or other management goals) and associated management actions.	The Plan provides the data necessary to assess the results of the MLOE monitoring data. For stressor identification, the plan requires a sequential management approach that resembles the current process of developing TMDLs for sediment related impairments (e.g., developing and implementing a work plan to confirm and characterize pollutant-related impacts, identifying pollutants, identifying sources and management actions, including adopting a TMDL if necessary). The final staff report provides an estimate of these costs (see also revised discussion of monitoring and assessment costs in the economic analysis accompanying the final Plan). Also, see response to Comment #297.	OCRDMD

No.	Subject	Comment	Response	Author
292	7.4	The baseline for the economic analysis should be the application of current criteria, policies and regulations to the available data set, and it should include potential new 303(d) listings based on assessment of the available data under the State's Listing Policy. The economic analysis should include estimates of the costs to agriculture, costs to dischargers of pollutants to the Delta, and incremental monitoring costs to meet the data requirements of the SQO Plan.	Staff agrees that the baseline for the economic analysis should be the application of current criteria, policies, and regulations to the available data set, and potential new 303(d) listings based on assessment of the available data under the State's listing policy. The economic analysis reflects these considerations, although we cannot predict what the new listings would be. (Waters that would be listed in the future under existing regulations would not represent incremental impacts of the Plan.) Staff also agrees that the economic analysis should include any incremental control or monitoring costs resulting from the Plan. However, as stated in the economic analysis accompanying the proposal, there is little evidence of unambiguous incremental impacts. Even in instances in which existing data appear to indicate an incremental impairment under the Plan, additional assessment is needed to identify the affected sources. The economic analysis includes estimates of the potential magnitude of such assessment costs.	RB5

No.	Subject	Comment	Response	Author
292 co	7.4		Additional estimates of costs to specific sectors or dischargers would be purely speculative and, therefore, would not provide decision makers or the public with meaningful information regarding the impact of the Plan. The Regional Water Boards regulate discharges from municipal and industrial point sources under the National Pollutant Discharge Elimination System (NPDES) permit system. However, as stated in the economic analysis accompanying the proposal, it is uncertain whether the Plan would require dischargers to reduce pollutant concentrations to levels below those required by baseline standards. Further, since the Plan requires additional evidence of sediment toxicity, it is unlikely to result in cleanup/remediation requirements for dischargers that would not already be needed to meet baseline standards.	RB5
292 co	7.4		Regional Water Boards regulate agriculture through conditional waivers of waste discharge requirements (WDRs) that require compliance with existing water quality standards. All of the affected Regional Water Boards have adopted narrative objectives that specifically prohibit the discharge of pesticides and/or toxic pollutants that cause detrimental effects in aquatic life or to animals and humans. Thus, in the absence of the Plan, existing regulations prohibit the agricultural sector from causing or contributing to biological impacts. Therefore, incremental costs are unlikely	RB5
293	7.4	How does the draft SQO policy currently address “site-by-site” economics associated with implementation as well as evaluation of future “site-by-site” economic and potential unfunded mandate concerns?	See response to Comment #297	SCV
294	7.4	How does the draft policy address potential unfunded mandate concerns?	See response to Comment #729	LW

No.	Subject	Comment	Response	Author
295	7.4	Before the RWQCB adopts this policy, it would make sense to estimate the amount of effort required to achieve the stated goals. On the basis of the monitoring data included in the supporting information, I would guess that many locations in Southern and Northern California will be identified as toxic by the SQOs. Does the RWQCB have the resources needed to complete these analyses? If the causes of toxicity turn out to be the mixture of contaminants originating in urban non-point sources (e.g., metals and PAHs) is there a practical way that these can be controlled	An assessment was conducted and is presented in SCCWRP technical Report No. 522 titled Sediment Quality in Bays and Estuaries available online athttp://www.waterboards.ca.gov/bptcp/docs/sediment/522sedimentqual_baysestuaries.pdf. As described the report 76% of the north coast bays 62% of the south coast bays and 4 % of san Francisco Bay were found to be Likely Unimpacted or better.	**DLS**
588	7.4	The Proposed SQOs Did Not Consider Economics, or Properly Disclose the Potential Costs of the SQOs. The State Board previously estimated the cost to address sediment “hot spots” at up to $1 billion. Since the SQOs would multiply the amount of sediment considered contaminated, it is reasonable that the SQOs program would cost many billions of dollars. The costs presented, however, are far below, and do not consider the costs of implementation measures needed to achieve the SQOs, casting doubt on their validity and utility, and raising arbitrary and capricious inconsistencies with the “hot spots” program.	See responses to Comment #607, Comment #608, Comment #609, and Comment #610.	CCOC,LW
589	7.4	There is no discussion of the economics associated with the expected environmental benefits of achieving the SQOs	See response to Comment #609.	CCOC, LW
297	7.4	We request that the plan state that the Regional Boards must conduct project-level environmental and economic assessments for all proposed management actions, including establishing sediment cleanup levels, selecting management measures, and developing NPDES permit limits. A full range of alternatives should be considered, including natural recovery	It is unnecessary to include the requested language because, under existing law, the Regional Water Boards must comply with CEQA when they act as lead agency on a project.	CASQA, FSI, OCRDMD, WSPA

No.	Subject	Comment	Response	Author
593	7.4	Although the Economics Report provides monitoring and stressor identification cost estimates, it does not provide cost estimates associated with other implementation actions that may be required pursuant to the proposed Plan (such as remediation or cleanup actions). The costs that are provided for the existing Bay Protection and Toxic Cleanup Program (BPTCP) range up to $1.03 billion for cleanup of "hot spots" statewide. However, hot spots are, by definition, relatively small areas in larger waterbodies. The proposed SQO Plan will regulate entire waterbodies, yet the State Board apparently believes that the economic impacts of implementing the Plan will be small compared to the implementation of existing programs. If this is the case, we recommend that the State Board provide additional guidance to the Regional Boards on how to consider implementation actions and require a project-level assessment of economic costs prior to imposing specific management actions.	See response to Comment #292 regarding cost estimates associated with other implementation actions that may be required pursuant to the proposed Plan. Although the Plan regulates entire waterbodies, there is no evidence that cleanup and remediation of entire waterbodies will be required as a result of the Plan. Under the Bay Protection and Toxic Cleanup Program (BPTCP), Regional Water Boards assessed sediment quality using three lines of evidence to identify toxic hot spots and prioritize sites for remediation. Since Regional Water Boards have already identified sites requiring cleanup and remediation using three lines of evidence, identification of additional areas requiring cleanup and remediation under the Plan but not under baseline objectives is unlikely. Also, given that the Plan requires additional evidence of sediment toxicity, it is uncertain whether it could result in a need for future cleanup and remediation that would not be needed to meet baseline standards. See response to Comment #297.	FSI

No.	Subject	Comment	Response	Author
594	7.4	The Economics Report estimates monitoring costs for 16 bays for which no (or insufficient) data are available for assessing SQO compliance; these costs range from $468,900 to $691,400. In addition to those 16 reaches, the Economics Report looked at the available MLOE data on eight bay segments and estimated costs for Phase I stressor identification testing for those 24 bay segments at $210,000-$620,000 statewide. However, the County of Orange has currently budgeted significant funding to conduct toxicity evaluations within Newport Bay within the work plan that is being prepared as part of the Newport Bay Organochlorines TMDL working group. See Attachment 2 to Resolution No. R8-2007-0024. Our preliminary budget for the workplan process suggests that the State Board's estimate of statewide costs for stressor identification are at least an order of magnitude too low.	The commenter did not provide the organochlorines TMDL work plan budget information referred to, nor is the information contained in the attachment to the resolution cited. Note, however, that these toxicity evaluations are being performed under the existing regulatory framework in response to exceedance of water column objectives for toxic pollutants.	FSI

No.	Subject	Comment	Response	Author
595	7.4	The Staff Report's Economic and CEQA Analyses Underestimate Costs and Impacts. The Staff Report's economic and CEQA analyses conclude that adopting the SQO Plan will result in limited implementation costs – mainly monitoring costs – and insignificant adverse environmental side-effects. This conclusion is based on the staff's assumption that the SQOs will be implemented mainly through existing regulatory programs such as the TMDL and toxic hot spots program. We agree with the recommendation to implement SQOs via existing programs, but are concerned that costs may greatly exceed the Staff Report's estimates. • For example, consistent with the Staff Report's assessment that some bays and harbors may be classified as "possible," "likely," or "clearly impacted" almost in their entirety, the cost of remedial action in San Francisco Bay alone would be approximately $72 billion, while addressing only the Bay sediments classified as "clearly" and "likely" impacted would still cost approximately $17 billion (see Attachment A, p. 26).	Based on available data, the commenter has misrepresented the incremental impact of the Plan with respect to San Francisco Bay. As shown in the economic analysis, much of San Francisco Bay is currently listed for sediment-related impairments. Thus, a TMDL is necessary for all listed segments. In addition, under the Bay Protection and Toxic Cleanup Program (BPTCP), the Regional Board identified a number of priority toxic hot spots needing cleanup and remediation. In comparison, under the Plan, one segment of San Francisco Bay, San Leandro Bay, would no longer be impaired (based on limited data), potentially resulting in a cost savings of TMDL development and implementation costs. For the majority of other Bay segments on the 303(d) list for sediment-related impairments that would also exceed the SQO under the Plan, there is potential for the Plan to have no impact (if assessment, cleanup and remediation of toxic hot spots under the BPTCP, and controls that would be implemented under TMDLs in the baseline would result in compliance with the Plan), or cost savings (as a result of better targeting of TMDLs).	CCOC
595 co	7.4	In addition, the monitoring costs indicated in the Staff Report are unrealistically low, likely by at least an order of magnitude. We estimate that stressor identification costs alone could range from $5 million to $6 billion (see Attachment D).	Only for San Pablo Bay, which is not currently on the 303(d) list for sediment toxicity, do MLOE data indicate impairment under the Plan. However, it is questionable as to whether addressing sediment toxicity would represent an incremental impact of the Plan compared to existing objectives given that MLOE indicate sediment toxicity, and the Regional Board has identified toxic hot spots of priority for cleanup and remediation necessary under BPTCP.	CCOC

No.	Subject	Comment	Response	Author
596	7.4	Moreover, the lack of implementation specifics and deferral to future management decisions calls both the CEQA and cost analyses into question. It is difficult to understand how the State Board can conclude that the environmental impacts of SQO implementation through future management decisions are not reasonably foreseeable and are too speculative for analysis at this time, and at the same time conclude that such impacts will be less than significant and that implementation costs will be modest.	Staff disagrees. What the Staff Report says (pp. 105-106) is: "It is also very difficult to determine whether there will be any reasonably foreseeable adverse environmental impacts stemming from the reasonably foreseeable methods of compliance over the current baseline. There are an unlimited number of reasonable and foreseeable actions that could be implemented by permittees or responsible parties to comply with the draft Part I." The economic analysis establishes the baseline for estimating regulatory impacts. That baseline includes a host of ongoing monitoring, assessment (e.g., TMDL, source identification), control, and cleanup and remediation activities necessary under the current regulatory structure. If the State Board does not adopt the Plan, these activities will continue. Further, Regional Boards will continue to identify new sediment toxicity impairments under the existing objectives, and respond by developing TMDLs and identifying plans for eliminating sediment toxicity. Staff disagree that it is unreasonable to conclude that, compared to this baselin	CCOC

No.	Subject	Comment	Response	Author
596 co	7.4		Staff also disagree that it is inconsistent to conclude that it is difficult to determine if there will be any adverse environmental impacts of the future management decisions compared to the baseline. The economic analysis establishes the baseline for estimating regulatory impacts. The commenter provided a spreadsheet (Attachment D) showing the costs from a study by Parsons for a group of dischargers to Patrick Bayou in Harris County, Texas. Patrick Bayou is on the Texas 303(d) list for sediment toxicity; EPA added the site to the Superfund National Priority List in 2002. The spreadsheet includes costs (in 2001$) for project management/data analysis ($537,000), toxicity test/sediment TIE ($213,000), expert benthic assessment ($54,280), analytical organics ($76,000), analytical metals, AVS, and SEM ($39,000), expert statistics ($18,000), and surface water modeling ($175,000).	CCOC
596 co	7.4		The per station cost ($73,126 in escalated 2007$) that the commenter calculates and uses to estimate impacts of the Plan includes all of the TMDL-related study components and thus compares to TMDL development costs that could be incurred under existing objectives (baseline) to address sediment-related impairments, or the whole sequential approach to managing sediment described in the Plan, as opposed to just the monitoring and TIE costs shown in the economic analysis accompanying the proposal. The total cost (over $1 million) is similar to the State Board's estimate reported in the economic analysis of over $1 million for complex TMDLs. See the revised economic analysis accompanying the final Plan for revised discussion of the sequential sediment management process described in the Plan.	CCOC

No.	Subject	Comment	Response	Author
597	7.4	While we appreciate the inclusion of information on sediment contamination sources in the staff report, we hope that some sections can be updated to reflect recent factual changes. For example, section 4.8.1 covers agricultural programs in each region. The San Diego Region's waiver policy has been updated since the drafting of the staff report.	Staff agree.	SDCK
598	7.4	We were pleased to see the inclusion of information in the Staff Report on marinas and recreational boating. Copper from boat hull paint is responsible for several 303(d) listing in San Diego, and one copper impairment TMDL in Shelter Island Yacht Basin. We hope that staff will consider including these references in the staff report. While the current impairments are for water, the contamination can easily settle out and affect sediments. The implementation measures, as well as the successes and failures of the TMDL will be of interest to many sediment quality stakeholders.	Staff agree.	SDCK
599	7.4	The Porter-Cologne Act requires the State Board to consider and balance the economic and environmental benefits and harms associated with the SQOs. The California Legislature was keenly aware that the State Board's actions taken pursuant to Porter-Cologne Act would have significant economic impacts. Therefore the Legislature built in a reasonableness standard to all actions taken by the State Board and the nine regional boards under Porter-Cologne. The standard sets forth the State's policy on water quality, namely that waters of the state be regulated to attain the highest quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved . . . economic and social . . . ." Cal. Water Code § 13000.	See response to Comment #605.	LW

No.	Subject	Comment	Response	Author
600	7.4	The Staff Report acknowledges that economic considerations must be taken into account when adopting the SQOs. Staff Report, at 117; SAIC Report, at 1-1; Cal. Water Code § 13241(d)-(e) ("Factors to be considered . . . in establishing water quality objectives shall include . . . economic considerations [and] the need for developing housing within the region."); City of Burbank v. State Water Resources Control Bd., 35 Cal. 4th 613, 618 (2005) (California law allows consideration of economics when imposing pollutant restrictions more stringent than required by CWA). Water quality targets and allocations must take into consideration that water quality which reasonably is achievable in light of social and economic factors. Cal. Water Code § 13241 (economics must be considered in setting water quality objectives.).	See response to Comment #609.	LW
601	7.4	The proposed SQOs must contain an independent analysis of their economic impacts, and they cannot simply respond to information received by the regulated community. Memorandum from William R. Attwater, Chief Counsel, State Water Resources Control Board, to Regional Water Board Executive Officers at 4 (January 4, 1994), at 4 (acknowledging that a regional board "cannot fulfill this duty [to consider economic impacts when adopting a TMDL] simply by responding to economic information supplied by the regulated community").	See response to Comment #609 and Comment #610.	LW

No.	Subject	Comment	Response	Author
602	7.4	CEQA also requires a consideration of costs when an agency establishes a performance standard. Cal. Pub. Res. Code § 21159. The SQOs, like a water quality objective, are a quintessential performance standard. Western States Petroleum Ass'n v. South Coast Air Quality Management Dist., 136 Cal. App. 4th 1012, 1024 (2006). Indeed, the State Board has acknowledged that "numeric targets and load allocations would probably fall into the category of performance standards." Memorandum from William R. Attwater, Chief Counsel, Office of Chief Counsel of SWRCB, to Executive Officer of Santa Ana Regional Water Quality Control Board, "Do TMDLs Have to Include Implementation Plans?" (March 1, 1999) at 7. Finally, the California Administrative Procedures Act requires that the draft SQOs contain an analysis of their economic impact. Cal. Gov't Code § 11346.3.2.	See response to Comment #609.	LW
603	7.4	The State Board has not considered economics adequately in developing the proposed SQOs. Although the Staff Report contains a section entitled "Economic Considerations" (Staff Report, Section 7.4) and attaches the SAIC Report which purportedly analyzed the economic impacts of the SQOs, neither document contains a meaningful assessment of the costs of the SQO, and does not rise to the level of a consideration of economics required by law. The disclosure and analysis of costs is far too thin to inform adequately the State Board's decision making.	See response to Comment #610 and Comment #612.	LW

No.	Subject	Comment	Response	Author
604	7.4	The minimum level of assessment the State Board must conduct for a meaningful consideration of economics and to satisfy Porter Cologne includes: (1) identifying baseline risk levels; (2) listing the benefits to be achieved; (3) identifying alternative strategies to achieve the benefits; (4) estimating the costs of each alternative; (5) assessing uncertainty; (6) comparing the cost effectiveness of each alternative; and (7) identifying the most cost-effective alternative. Absent such an assessment, the State Board is without the information to balance economic considerations versus other factors, and the public is left without any assurance that the State Board is proposing a properly balanced regulation.	See response to Comment #609.	LW
605	7.4	The proposed SQO does not strike a reasonable balance between competing economic and environmental factors.	Staff disagree. In requiring evaluation of three lines of evidence to identify sediment-related impairment of designated uses of bays and estuaries, Staff believe that the Plan does just that: strikes a reasonable balance between competing economic and environmental factors. Under existing narrative objectives, results from just one line of evidence can provide the basis for sediment management actions. Some commenters prefer the more risk adverse approach of requiring all lines of evidence to be clean to protect the designated use. However, because of the potential for TMDLs based on one line of evidence to target sources that are not causing sediment toxicity, and the potential economic consequences of requiring cleanup or source controls without sufficient benefit (e.g., toxic pollutants present in sediments not causing sediment toxicity), Staff believe that the Plan represents a prudent approach to sediment toxicity.	LW

No.	Subject	Comment	Response	Author
606	7.4	There is no analysis of the impacts, positive or negative, on human health, and the environmental benefits of the SQO are minimal and otherwise speculative.	Staff believe that the discussion in the economic analysis that addresses human health impacts is accurate and complete. As described in the economic analysis accompanying the proposal, compliance with the proposed human health objective under the Plan would be based on a human health risk assessment that utilizes OEHHA policies for fish consumption as well as other fish tissue threshold values. In the absence of the Plan, waters will continue to be listed as impaired based on exceedances of fish tissue advisory levels or criteria. Because these same levels and criteria will be used under the Plan to determine compliance with the objective there would be no incremental impacts associated with the interim human health SQO.	LW
606 co	7.4		Staff also disagree that the environmental benefits of the SQO are minimal and otherwise speculative. The legislature of the State of California amended the Porter-Cologne Water Quality Control Act in 1989 to require the State Water Board to develop SQOs as part of a comprehensive program to protect existing and future beneficial uses within enclosed bays and estuaries (Section 13393). Objectives are an essential component of protecting designated uses. Without objectives, there is no means of measuring water/sediment quality over time; without measurement, we could not know whether beneficial uses are being met, and future discharge decisions would be made based on inadequate information. The scientific literature supports the conclusion that the SQOs establish a reasonable level of confirmation (weight of evidence) that the beneficial use is/is not being attained.	
607	7.4	In contrast, the economic costs of implementing the SQOs through treating stormwater and/or dredging contaminated sediments could range from several to many billions of dollars.13 See SAIC Report, at 7-1.	The commenter is referring to the estimated baseline costs of implementing the existing narrative objectives and the BPTCP.	LW

No.	Subject	Comment	Response	Author
608	7.4	Attempting the dredging and stormwater treatment that may be required to implement the SQO will have significant adverse environmental impacts, including destruction of healthy benthic communities, emissions of greenhouse gases and criteria pollutants, and various land-use impacts.	Dredging and storm water treatment are being required to implement the existing narrative objectives and the BPTCP. There is currently no evidence that an incremental increase in the amount of dredging or storm water treatment (or any other controls) will be required to implement the proposed SQO.	LW
609	7.4	The SAIC Report was commissioned to assess the economic impacts of the proposed SQOs, consistent with the requirements set forth in the California Water Code. Although it is standard environmental economic practice to identify the economic benefits assumed to accrue from improvements in environmental quality, the SAIC report does not conduct a benefits analysis.	Staff disagree. Consistent with the State Water Board's responsibilities under Porter-Cologne (SWRCB, 1999; 1994), Staff commissioned the SAIC report to assess: whether the current objectives are being obtained, the control methods available to comply with the objectives, and the costs of those methods. The State Water Board is not required to conduct a benefits analysis of water/sediment quality objectives. State Water Resources Control Board (SWRCB). 1999. "Economic Considerations in TMDL Development and Basin Planning." Memorandum from Sheila K. Vassey, Senior Staff Counsel, Office of Chief Counsel to Stefan Lorenzato, TMDL Coordinator, Division of Water Quality. October. 6pp. State Water Resources Control Board (SWRCB). 1994. "Guidance on Consideration of Economics in the Adoption of Water Quality Objectives." Memorandum from William R. Attwater, Chief Counsel, Office of the Chief Counsel to Regional Water Board Executive Officers and Attorneys. January 14. 6pp.	LW

No.	Subject	Comment	Response	Author
610	7.4	Nor does the SAIC report provide any meaningful analysis of the costs that are likely to be imposed by the proposed regulation.	Staff disagree. The economic analysis describes the types of costs and cost savings that could be incurred, and the uncertainty in forecasting future impacts associated with not having information on the sediment quality that will result from ongoing programs and source controls. Additional estimates of costs to specific sectors or dischargers would be purely speculative and, therefore, would not provide decisionmakers or the public with meaningful information regarding the impact of the Plan.	LW
611	7.4	Further, the monitoring and stressor identification costs that are discussed in the SAIC report have internal errors and inconsistencies.	See response to Comment #613.	LW
612	7.4	The expected more significant costs associated with the proposed regulation – actions that will need to be taken to comply with the proposed regulation – are not discussed at all. Without a benefits analysis or a robust cost analysis, the SAIC report does not constitute an adequate consideration of the economic issues implicated by the proposed regulation.	Staff disagree. There is no evidence that the incremental control costs to comply with the SQO are significant or greater in magnitude than the monitoring/assessment costs. Increased monitoring and assessment costs may result in cost savings with respect to controlling sources by better targeting TMDLs. See also responses to Comment #609 and Comment #610. Further speculation regarding the net incremental costs or cost savings from the Plan would not make the analysis more robust or constitute more adequate consideration of economic issues.	LW

No.	Subject	Comment	Response	Author
613	7.4	The Staff Report identifies the "incremental impacts of the Plan" as, "the cost of activities above and beyond those that would be necessary in the absence of the Plan under baseline conditions, as well as the cost savings associated with actions that will no longer be needed to occur." Staff Report, at 117. The State Board's analysis of the economic impacts of the SQOs is largely limited to an examination of the expected costs of monitoring and conducting stressor identification, which combined are estimated to range from $675,900 to $1,312,400. SAIC Report, at Ex. 6-3 and Ex. 6-5. These numbers conflict with estimated costs presented in the Executive Summary of the SAIC Report, which reports that costs may range from $535,000 to $810,000. SAIC Report, at ES-3.	The error is corrected in the revised economic analysis accompanying the final Plan.	LW
614	7.4	Aside from the errors related to the costs of monitoring and conducting stressor identification, the Staff Report and SAIC Report contain no analysis of the costs of implementation of the SQOs. "Because strategies to meet current narrative objectives at many impaired sites are still in the planning stages and the overall effects of implementation strategies are unknown, estimates of the incremental costs would be highly speculative." Staff Report, at 122 (emphasis added). Rather than estimating the cost of implementing the SQOs, the State Board simply chose not to attempt to do so.	See response to Comment #612.	LW
615	7.4	Without any support, the SAIC and the Staff Report also assumed that "it is unlikely that new or additional hot spots would be identified under the Plan that were not already identified under the [existing] hot spot program." Staff Report, at 122. The implicit assumption the State Board is making is that no additional implementation measures will be required beyond what otherwise will be required by existing programs, such as the hot spot program or TMDLs. As the proposed SQOs may in fact be a dramatic expansion of the toxic hot spot program (see Section II.C), there is no support for this assertion.	Staff disagree. Under the BPTCP, Regional Water Boards assessed sediment quality using three lines of evidence to identify toxic hot spots and prioritize sites for remediation. Since Regional Water Boards have already identified sites requiring cleanup and remediation using three lines of evidence, identification of additional areas requiring cleanup and remediation under the Plan but not under baseline objectives is unlikely. Also, given that the Plan requires additional evidence of sediment toxicity, it is uncertain whether it could result in a need for future cleanup and remediation that would not be needed to meet baseline standards.	LW

No.	Subject	Comment	Response	Author
616	7.4	Even if the proposed SQOs were correct that the implementation costs cannot be calculated due to uncertainty over implementation measures, the State Board faces no such uncertainty in analyzing the economic benefits expected to be gained from achieving the SQOs. Without an estimate of the expected benefit, the State Board cannot begin to weigh the costs versus the expected benefits. Without cost figures or benefit figures, there is simply no information to conduct a meaningful economic analysis. The absence of such analysis renders the SQO documentation flawed.	See responses to Comment #606 and Comment #609.	LW
617	7.4	The proposed SQOs must be based on sound scientific evidence. See Section II.A. The State Board is required to adequately consider all relevant factors and demonstrate a rational connection between those factors, the choice made, and the purposes of the Porter-Cologne Act.	Staff disagree. See responses to Comment #605 and Comment #606.	LW
618	7.4	Under California law, the State Board's action will be considered "arbitrary, capricious and unreasonable" if it is without support in the evidence, or is contrary to the uncontradicted evidence presented. The term substantial evidence means that the evidence must be "reasonable in nature, credible, and of solid value." Evidence which is "based on surmise, speculation, conjecture, and guess" does "not constitute substantial evidence."	See response to Comment #612. The proposed sediment quality objectives are the result of several years of intense work by respected scientists. The objectives have been reviewed by a scientific steering committee composed of leading nationwide experts on sediment quality.	LW
619	7.4	The proposed SQOs must satisfy the above arbitrary and capricious test of California law, and also cannot be entirely lacking in evidentiary support. Various aspects of the proposed SQOs, alone or in combination, do not comply with these fundamental standards for the reasons discussed in detail in the sections above and incorporated herein by reference. In sum, the proposed SQOs are arbitrary and capricious and are without the requisite evidentiary support to the extent they are not based on sound science, fail to comply with all legal requirements, and fail to achieve a reasonable balance among environmental and economic considerations. The problems with the SQOs are systemic, rendering any adoption of the SQOs as currently proposed without evidentiary support.	See responses to Comment #605 and Comment #606.	LW

No.	Subject	Comment	Response	Author
503	7	Water Code Section 13000 requires that activities and factors that may affect the quality of water be regulated to the highest water quality which is reasonable by considering all demands being made and to be made on the water and the total values involved.The State Board must address the balancing test under Water Code Section 13000 and explain how it is to be met in connection with the adoption of the proposed SQOs. To avoid running afoul of the principles reflected in Section 13000, this balancing test should focus on, among other relevant considerations, sediment quality, benthic community protection, socio-economics, and the feasibility of such protection. The costs associated with the SQOs are among the chief factors that the State Board must evaluate. The State Board must weigh all anticipated costs of its proposal against a realistic assessment of expected risk reduction benefits. The State Board must be able to demonstrate that the costs of the program are justified by a significant and beneficial reduction in harm from contaminated sediments	Staff disagree. The State Water Board is not required to conduct a cost-benefit analysis prior to adopting sediment quality objectives. Nevertheless, the State Water Board has thoroughly considered sediment quality, benthic community and human health protection, implementation costs, and other relevant considerations in developing the proposed plan.	CCOC, LW
298	7	We request that the plan state that an SQO exceedance is confirmed and referred to the TMDL or hot spots program, or in the rare case that permit limits may be appropriate, management actions must be reasonable and feasible and must take into account uncertainties in available information	Under the plan, if an SQO exceedance is confirmed and the stressors and sources are identified, the Regional Water Boards will exercise their existing regulatory authority over the exceedance. They can regulate ongoing sources, if any, and they can take appropriate action to address past discharges. The site may need to be listed under section 303(d). In addition, the Regional Water Boards can issue appropriate cleanup orders. If they regulate the site under a cleanup and abatement order, Resolution No. 94-49 allows the Regional Water Boards to consider feasibility in establishing appropriate cleanup levels. In any event, however, the Regional Water Boards cannot dictate the manner in which a pollutant source chooses to comply with a permit limit implementing the SQOs or a cleanup and abatement order. The discharger is free to select any appropriate method that will achieve compliance with the limit or order	WSPA

No.	Subject	Comment	Response	Author
299	7.7	Request that the plan incorporate the concept of "feasibility" from the California Environmental Quality Act ("CEQA"), in which "feasible" is defined as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, and social factors.	Staff disagree with the need for the suggested language. Further, Resolution No. 92-49 incorporates the concept of reasonableness in investigative and cleanup and abatement activities. See draft Part 1 under Section VII.G.1.	WSPA
296	7.7	Since some level of degradation of sediments (up to the proposed SQOs) would be allowed under the proposed plan, the antidegradation analysis should determine if the allowable degradation is to the maximum benefit of the people of the State. In the case of some sediment quality pollutants and/or locations, better sediment quality than that required by the proposed objectives may be readily achievable	Staff disagree that the proposed plan will allow some level of degradation. The antidegradation policy is an independent standard with which the Water Boards must comply under existing law, in any event.	RB5
1022	7.7	There is no acknowledgement of the degradation and resulting biological impacts that would be allowed from the SQO Plan as proposed, and no meaningful anti-degradation analysis. The staff report and supporting economic analysis only acknowledge that the SQO Plan would allow more pollution than existing objectives in the context of the cost savings for dischargers due to its often less stringent objectives and “requirement for additional evidence of impairment	Staff disagree. State Water Board believes that the appropriate level of protection is provided as described in Section 5.6 and does not anticipate any lowering of water quality as a result of the adoption of Part I. See response to comment No. 296 above.	HBK
301		The SQO Plan should allow for sediment mixing zones similar to mixing zones for water quality objectives. Stations within the discharge mixing zones should not be considered when evaluating existing sediment conditions, and future sampling for the purpose of establishing exceedances of SQOs should be done outside mixing zones.	Sediment mixing zones are difficult to relate to water column mixing zones because sediments are sinks or areas of accumulation. This topic can be evaluated during Phase II if there is a need; however, it is important to understand that a water column mixing zone ceases to exist once the discharge is terminated. A sediment "mixing" zone could potentially exist long after the discharge has terminated.	CCOC WSPA
1126	App A	APPENDIX A - DRAFT PLAN(2008 Document) 1. Include date on cover sheet	Comment noted.	TJ
1127	TOC	DRAFT PLAN Table of contents, Section "V. J." title differs from 2007 document	Comment noted. Some changes to sections were made to improve clarity and organization	TJ

No.	Subject	Comment	Response	Author
1128	TOC	DRAFT PLAN Page 2, Table of Contents, Section "VII.H" combines parts of the 2007 document's section G, and G is very small. Section G title differ	Comment noted. See response to No. 1127 above	TJ
302	I	We support the SWRCB commitment to refine the benthic community protection indicators for estuarine waters and the development of an approach to address sediment quality related to human health risks associated with consumption of fish tissue (bioaccumulation).	Comment noted.	Sierra Club
303	I	However, limiting the bioaccumulation of contaminants of concern in the sediments to human consumption of fish tissue would not provide the maximum protection for existing and future beneficial uses of bay and estuarine waters (§13390 of Porter-Cologne). The beneficial uses for San Diego Bay (San Diego Region Basin Plan) includes habitat for waterfowl, estuarine mammals, shellfish, reptiles; all of which would not be fully protected if the sediment quality is based only on human consumption of fish tissue. Fish whole body toxic load is higher than fish tissue (muscle). Consequently, the health risks to waterfowl and marine mammals would be much higher than for humans because they consume the entire fish and their intake rate per body weight is much higher than humans. Part II should address the sediment quality bioaccumulation health risks to the aquatic life dependent in the upper trophic (food chain) levels.	Staff agree that many other receptors are potentially at risk to bioaccumulative pollutants in sediment. However, achieving the goal may be difficult given the resources required to collect data, conduct analyses, and develop a methodology that could be implementable on a broad scale. See also responses to comment Nos. 5, 76 and 1001.	Sierra Club
95	I	Plan should discuss the relationship of the SQOs to the BPTCP	Comment noted. Staff disagree and do not understand the necessity.	Caltrans
	II.C	We renew our objections to the limited geographic applicability of the SQO Plan. While we are well aware of the data limitations of some of the excluded areas, exiling vast portions of the state's bays from the Plan only guarantees that data will remain elusive. We recommend that the SQO Plan include all areas with applicable sediment and environmental character (e.g. fines, salinity). Incomplete data sets can be addressed through monitoring requirements	The applicability was driven by the data available to develop tools.	SDCK

No.	Subject	Comment	Response	Author
57	III	There is no specific listing of beneficial uses for each bay and estuary that will be subjected to the SQO described in this document. This critical information on specific beneficial uses for all bays and estuaries should be included in the report.	That was the goal of Table 1.	WPHA,PWG
304	III	The Water Code requires the state and regional water boards to protect all existing and future beneficial uses of a water body. In addition, the statute requires that the SQOs "provide adequate protection for the most sensitive aquatic organisms." The short list of beneficial uses and receptors (Table 1) does not accomplish this. A longer list is included in the draft staff report11 but this too excludes several uses. Incorporating additional beneficial uses into the plan will likely result in a more robust margin of safety in the objectives, and in SQOs that ultimately protect all existing and future beneficial uses. While some of the beneficial uses will be only tangentially related to sediment quality, many are affected by the health of our sediments. The selective approach taken in the Staff Report does not meet the goals mandated by the legislature to provide maximum protection of all existing and future beneficial uses.	The reason for limiting the list was to ensure that no one erroneously believes that the narrative objectives and indicators will be fully protective of other beneficial uses. This was triggered by discussions with other agency staff concerned that the proposed tools could be mistakenly applied to protect fish, marine mammals, or other receptors which they we not intended to protect.	SDCK
77	II.D	Are data available from depositional studies in coastal California bays and estuaries that would provide insight on the annual depositional rates in these areas (i.e. sediment trap studies)? For example, does the top 2 cm of sediment represent one year of deposition? This type of analysis should differentiate new sediment from resuspended sediment on an annual basis. It is also possible that annual depositional rates may differ spatially and by water body type (bays and estuaries).	Staff have amended the definition to better address the biologically active layer	WPHA,PWG

No.	Subject	Comment	Response	Author
	II.D	The SQO Plan only applies to surficial sediments, defined as the top two centimeters of sediment. 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 burrow a meter or more into the sediments. Thus, buried sediments can impact the benthic community. Also sediments can be dynamic, shifting and changing in a single storm event. If contamination is found, there is no guidance on whether Regional Boards can issue cleanups for more than the top two centimeters, an unpractical and ineffective limit. The State Board must consider deeper sediments, in order to understand and protect the health of the water body	Staff have amended the definition to better address the biologically active layer.	SDCK
	II.E	The distinction drawn between point and nonpoint sources is confusing. Nonpoint sources are apparently not subject to the intent or implementation of the SQO Plan. As they are subject to the same narrative objectives, this leaves no implementation or management strategy for polluted sediment should they be discovered not to have been caused by a point source. This is untenable as many known sites of contamination have both point and nonpoint sources. Will contamination be left untreated and unmanaged if it cannot be traced wholly to a point source? On whom does the burden fall for this assessment?	All discharges must meet the water quality or sediment quality criteria. NPS implementation will be evaluated in Phase 2.	SDCK
305	V. B.	The SCCWRP science team has demonstrated through their technical reports that each LOE cannot reliably stand on its own to characterize the impact of chemical contaminants on sediment quality. With this information in hand, it becomes apparent that the most scientifically defensible methodology is thus to integrate MLOE. Even within each LOE, more than one type of test or index is required. Unfortunately test results are subject to many types of errors, due to both human and mechanical inconsistencies. We are happy to see that results will not be based on a single test for each LOE, as multiple tests within each LOE will give more confidence to the final station assessment as well as the basis for prioritizing remediation efforts.	Comment noted.	LACSD

No.	Subject	Comment	Response	Author
306	V. D.	Historically, San Francisco Bay and the Sacramento -San Joaquin Delta have collected benthic data using a different screen size (0.5 millimeter) than other locations within the state (1.0 mm). There has not been a statewide standardized approach. The Science Team was forced to deal with this data inconsistency when developing this policy. Differences in mesh size yield drastically different community metrics. These fundamental differences in sampling design do not allow for comparable benthic community metrics and cannot be applied interchangeably between this region and other regions of the state. The Science Team thus constructed two independent data sets for the development of tools in each LOE to be applied within specific regions of the state. For this reason, we stress that these tools must remain specific to the region for which they were created and that they should not be used outside the appropriate study area or compared directly against tools used in other regions of the state.	Comment noted.	LACSD
307	V.D	Appendix A: Page 9: What is the scientific basis for using a different mesh screen in San Francisco Bay?	See comment #306.	**DLS**
308	V.E	Appendix A, Tables 6 and 7: The compounds included in the list of high and low molecular weight PAHs should be included in a footnote.	The compounds are specified in the technical reports.	**DLS**
62	V.F,G,H	The Districts provide some initial statistics related to such rounding events based on our review of the data used to conduct the recent Statewide Assessment of sediment quality for California (see detailed comments under Appendix A, Section 5.5.5).	The magnitude of the rounding effect depends on the sediment characteristics; analyses of the available data indicate that about 21% of samples originally classified as having some level of impact would change to either Unimpacted, Likely Unimpacted, or Inconclusive if the intermediate LOE scores were rounded down instead of up.	LACSD
518	V.F,G,H	The unsupported methodology of rounding up creates simplicity but not accuracy. This effectively weighs any LOE score higher then any other LOE with lower scores	The rounding up approach is only used when there are small differences among the indicators, thus the net effect is always small and protective.	LW
309	V.F.1	We appreciate that the State has provided three acceptable test organisms from which to choose for the short-term sediment toxicity survival test.	Comment noted.	LACSD

No.	Subject	Comment	Response	Author
310	V.F.4	The policy would benefit from more detailed guidance on how to select the best test organism for a given test area or region. Each species has different ecological and test condition sensitivities. The policy should state the sensitivities and potential confounding factors associated with each of the three methods and guide the user to choose the method that is most appropriate for the area of interest. This would provide needed guidance to make the test ecologically relevant. By providing such guidance, the state may receive more accurate estimates of toxicity and fewer assessments based upon confounding factors.	Staff deleted the section regarding the use of supplemental toxicity tests. Staff disagree with the need to provide species selection guidance for the species listed in Tables 2 and 3 of the draft Part 1. All test organisms were evaluated relative to the criteria described in Section 5.5.2 and all are considered equal.	LACSD
311	V.F.4	The process for approval of additional sediment toxicity test types and protocols should be specified in greater detail.	Staff concur and have deleted the section describing the use of additional toxicity tests.	BACWA, Caltrans, CVCWA, SRCSD, Tri-TAC
312	V.F.4	The methodology for determination of values to be used in Table 4 must be screened and validated prior to use in interpretation of narrative objectives. The technical documentation for the values provided in Table 4 should be referenced.	Staff concur and have deleted the section describing the use of additional toxicity tests.	BACWA, Caltrans, CVCWA, SRCSD, Tri-TAC
313	V.F.	Section V.F - It is unclear how response categories among different toxicity tests will be integrated to provide a final sediment toxicity response category. Ranges in percent response differ among different tests. For example, the category “Low Toxicity” for an Eohaustorius survival test has a response range of 82-89%, while a Leptocheirus survival test has a response range of 78-89%. The bounds for the “Low Toxicity” category are even more problematic for sublethal tests, with a response range of 68-90% for Neanthes growth and a very narrow response range of 77-79% for Mytilus development. Thus, we seek clarification on how these response scores should be averaged to generate a response category from multiple tests. Otherwise, we are unaware of any acceptable protocol for averaging the response categories themselves, since they are essentially nominal data	A detailed description of the calculations is provided in Appendix C.	OCRDMD

No.	Subject	Comment	Response	Author
314	V.F.5	The stipulation that values shall be rounded up to the next higher response category will lead to a conservative estimate of violations of the SQO. Where such rounding up occurs, it should be tracked and taken into account in causation studies and in the establishment of sediment management requirements. It should also be considered as part of the 303(d) listing determination. This is particularly important where "rounding up" causes a site to be classified as "Possibly impacted".	Staff disagree. There are two basic rounding options, either round up or round down. Rounding up is the more protective option.	BACWA, Caltrans, SRCSD,Tri-TAC
316	V.G	Section V.G – We would like to clarify whether all four benthic indices are required to generate a response category for the benthic community condition line of evidence. This would seem to be unnecessary, since the individual indices are already integrative by nature, especially considering the high cost of such assessments. Will local agencies have the discretion to choose one of the benthic indices for use in their monitoring programs? If two or more of the indices are required to generate a response category for this line of evidence, how will different indices be integrated? The response ranges for the different indices are even more disparate than response ranges for the sediment toxicity line of evidence noted above.	All four benthic indices are required to provide the highest accuracy in the evaluation.	OCRDMD

No.	Subject	Comment	Response	Author
317	V.G	We have a concern about areas adjacent to ocean-discharging power plants. Such areas may have healthy benthic communities with different characteristics from reference locations that have no power plant discharges. Moreover, the volumes of seawater discharged by generating stations may result in a waterbody with the same characteristics as coastal ocean. Benthic communities may also be different due to permitted temperature ranges allowed in the receiving water. These unusual conditions may cause the benthic community to be improperly evaluated using the benthic indices of the SQO Plan. LADWP believes that appropriate reference locations for coastal and estuarine power plants do not exist, and therefore more work must be done to develop reference conditions and characteristics before the benthic line of evidence may be used in these locations. Test species and receptors should be correctly identified to avoid incorrect stressor identification or impact to the waterbody	Use of multiple lines of evidence and determination of the correct benthic assemblage type will minimize incorrect assessments.	LADWP
318	V.G	LADWP also believes that determination of benthic species diversity and population impacts in some estuaries of arid Southern California is problematic. This is because ocean benthic communities may develop during dry periods and become washed away during storm conditions. Grain size may also vary seasonally, and the SQOs may be evaluated in sediment samples collected on an intermittent basis, when the percent fines exceed five percent	Evaluation of the benthos during a summer index period is recommended to address seasonal concerns.	LADWP
319	V.G	LADWP recommends the following: if the SQOs are to be inserted into NPDES permits, the SQOs should contain special assessment requirements to be used for arid regions. Also, since rain storms in arid regions often wash away benthic organisms on a seasonal basis, low benthic populations in these scenarios should not be considered in the impact assessment	Staff disagree. The tools were developed on data collected over many years and under a variety of conditions.	LADWP

No.	Subject	Comment	Response	Author
320	V.H.	In Section V.H. (Sediment Chemistry), the Plan should specify that the chemistry threshold values are not to be used for any purpose other than in the chemistry LOE;	Staff disagree, as the draft plan is clear on this issue. Sections V.A and B of the draft Plan describe how each line of evidence is used and the limitations of each. VII.B also states how effluent limits shall be developed.	OCRDMD
321	V.H.	Section V.H – While we have a good understanding of how the Chemical Score Index and Logistic Regression Model probabilities are calculated, we suggest that instructions for development of this LOE be clarified as much as possible. We believe that implementation of this LOE could prove challenging for both the Regional Boards and local resource management agencies. Particularly, Integration of Sediment Chemistry Categories is unclear (SQO Plan, p. 15), since there is no clear protocol for averaging categories	Staff disagree. The process is well described and an example is provided in Appendix C.	OCRDMD
322	V.H.	We note that some of the metals concentrations may be inappropriate. For example, concentrations of cadmium in the low to moderate disturbance categories are considered anthropogenically unenriched according to the iron normalization method developed as part of Bight '03. Such concentrations should not be categorized as disturbed if anthropogenic sources are unlikely to have made a contribution to them, despite their association with low levels of benthic disturbance.	The chemical specific concentrations listed in the plan are not used in isolation as measures of causation or degree of anthropogenic enrichment. They are used in combination to provide an overall index of contamination that corresponds to varying potential for biological effects. An assessment of impacts from contamination is not based solely on the chemistry data, as recommended by the commenter.	OCRDMD
323	V.H.	DDTs, total" in Table 6 should be clarified. The conventional understanding of "Total DDT" includes all forms of DDT and their metabolites. However, since DDD and DDE were also qualified using the term "total," "DDTs, total" could be construed to refer only to the various forms of DDT but not their metabolites.	DDTs represent the sum of the p,p' and o,p isomers.	OCRDMD
590	V.H	Staff Report needs to specify in Appendix A that chemical concentrations in Equation 2 should be log-transformed	The equation has been corrected.	CCOC
324	V.H	To assert that 1.52 ppb DDT in sediment is the threshold of moderate toxicity is incorrect and illogical.	The DDT categories represent one part of an overall index of contamination. No determination of causation is implied.	JLB
325	V.H	The California LRM and CSIs are validated largely based upon comparison to published sediment quality guidelines. Some guidelines are based upon flawed data sets.	The validation effort used a common data set and was intended to compare existing approaches.	JLB

No.	Subject	Comment	Response	Author
326	V.H.	The comparisons rely largely on association rather then dose-response and toxicoligical thresholds	Staff concur.	JLB
327	V.H.	The proposed California LRM and CSI objectives overestimate the toxicity potential of DDT and chlordane by several orders of magnitude. The use of the proposed objectives for DDT and chlordane would waste valuable resources that could be used to address real problems	The chemical specific concentrations listed in the plan are not used in isolation as measures of causation or degree of anthropogenic enrichment. They are used in combination to provide an overall index of contamination that corresponds to varying mixtures that are associated with toxicity and or benthic community impacts in bays. Those values should not be interpreted as causal values cleanup levels or targets. The Draft Part 1 includes an assessment of sediment quality based upon three lines of evidence. If sediment quality is found to be degraded the next step is to identify the stressor. As a result, resources will not be wasted chasing "non" problems as the commenter contends.	JLB
83	V.H	Another concern with regard to the proposed program is the absence of guidance on emerging contaminants and how they will be incorporated into future iterations of the objectives. The current list is well over 20 years old and include a number of legacy contaminants that are banned or are no longer in use. Whole new classes of contaminants are not included, and without a mechanism to target and develop LOEs to address these contaminants, potential impairments may go undefined and as a consequence hinder or prohibit corrective regulatory action. It is recommended that a subset of known emerging contaminants be identified and targeted for LOE development via ongoing monitoring programs and that this list be periodically revisited (every 2-3 years) to ensure that the SQOs continue to evolve.	While staff agree that the current list of chemicals is limited, it is not intended to be a complete list. Rather, the chemicals simply serve as surrogates for potential exposure. Sediment toxicity is also used in the integration scheme to provide a means for an exposure measurement when there are no chemicals present at levels suggestive of an exposure risk.	Weston
329	V. I.	The strength behind the proposed approach is that both severity of biological effects and potential for chemically mediated effects are measured and integrated into a station assessment.	Comment noted.	LACSD

No.	Subject	Comment	Response	Author
330	V. I.	The State Board should include consideration of impairments to aquatic life such as high bio-accumulated body burdens of substances and physiologically-based indicators. The Draft Plan does not address these types of impairment which can be readily detected through use of these methods.	The benthic community LOE is responsive to the long-term effects of bioaccumulated contaminants in benthic invertebrates. It also integrates the effects of mortality and various sublethal responses that affect populations and community structure.	SFBK
331	V. I.	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	Staff disagree. The draft plan applies many of the lines of evidence used in the BPTCP.	SFBK
	V.I	We are concerned with the elimination of the provision in the scoping document that allowed for assessment of sediment quality in the absence of benthic data. This flexibility is critical for an effective policy. While we understand the scientific need for the Multiple Lines of Evidence (MLOE) approach, the station integration is overly biased toward "showing effects." The guiding idea that underlies the MLOE approach is that evidence gathered regarding sediment chemistry and toxicity must be validated by evidence of actual effects on the relevant benthic community. This method requires a demonstration of impact before remedial action can be taken	Staff disagree. The flexibility the commenter would like to see would reduce the role of the key line of evidence that actually reflects the condition of the resource the State Water Board is intent on protecting That is benthic community health. Furthermore the need for measures of both exposure and biological effects is well documented in Section 5.5 of the Draft Staff Report.	SDCK
332	V. I.	Table 9 – Severity of Biological Effects Matrix Scenario #1: Low Toxicity combined with High Disturbance equals High Biological Effect. This seems to be an overly conservative designation. A high disturbance combined with a low level of toxicity still leaves a high probability that the source of the disturbance is non-chemical. We would suggest changing this to Moderate Effect.	The categories were reviewed by the Advisory Committee and Scientific Steering Committee.	LACSD

No.	Subject	Comment	Response	Author
333	V. I.	Table 10– Potential for Chemically Mediated Effects Matrix Scenario #1: Minimal Chemical Exposure and Moderate Toxicity equals Low Potential. This assessment may not be conservative enough given the potential for unmeasured chemicals driving the toxicity. We suggest this be changed to Moderate Potential.	The categories were reviewed by the Advisory Committee and Scientific Steering Committee.	LACSD
334	V. I.	Table 10– Potential for Chemically Mediated Effects Matrix Scenario #2: Moderate Chemical Exposure and High Toxicity equals Moderate Potential. Again, this may not be conservative enough and we would suggest changing the assessment to High Potential.	The categories were reviewed by the Advisory Committee and Scientific Steering Committee.	LACSD
335	V. I.	Station Assessment Matrix In 3 of the 16 possible combinations of severity of effect and potential for chemically mediated effects, the site assessments are deemed Inconclusive. Although rare and unusual (only occurring in 5 out of 362 sites in the Statewide Assessment), they are not inconclusive. We suggest the following interpretations of these scenarios be used to redefine the inconclusive designations. Scenario #1: Unaffected Severity of Effect and High Potential for Chemically-Mediated Effects equals Inconclusive. We suggest this assessment be changed to Possibly Impacted since the benthos may yet respond if a toxic chemical was very recently introduced to the system. A SIE for such sites should include repeat sampling and analysis to determine if any biological effect is realized.	The categories were reviewed by the Advisory Committee and Scientific Steering Committee.	LACSD
336	V. I.	Station Assessment Matrix Scenario #2: High Severity of Effect and Minimal Potential for Chemically-Mediated Effects equals Inconclusive. We suggest this be changed to Likely Unimpacted since neither the toxicity nor the chemistry suggests a chemical source as being a cause for a biological effect.	The categories were reviewed by the Advisory Committee and Scientific Steering Committee.	LACSD

No.	Subject	Comment	Response	Author
337	V. I.	Scenario #3: Low Severity of Effect and Moderate Potential for Chemically-Mediated Effects equals Possibly Impacted or Inconclusive. We suggest that all combinations of LOEs leading to this assessment be considered Possibly Impacted. SIEs for such sites should include repeat sampling and analysis to determine if any biological effect is realized.	The categories were reviewed by the Advisory Committee and Scientific Steering Committee.	LACSD
338	V. I.	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	Staff disagree. The categories considered impacted are defined in Section V, and, based upon these categories, the appropriate actions are described in Section VII.	SFBK
339	V.I. Table 11	We are supportive of the inconclusive category with the provision that follow-up studies be performed to address the specific facts of the site. As an alternative we also support the reclassification of three inconclusive cases to likely unimpacted	Comment noted.	BACWA, Caltrans, CVCWA, SRCSD
340	V.I	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	The methods for calculation and integration of the scores are described in Appendix C.	SFBK

No.	Subject	Comment	Response	Author
341	V.I.4.b.	We request that the language be revised to read: "A Regional Board [shall change] the category Possibly Impacted [to Likely Unimpacted and] meeting the protective condition, if studies or other available evidence demonstrates that the combination of effects and exposure measures are not responding to toxic pollutants in sediments and that other factors are causing these responses within a specific reach segment or waterbody."	Staff have changed the text in Section V.I.	LACSD,Tri-TAC
342	V.I.	We request that the language be revised to read: "A Regional Board shall designate rather then may designate the category Possibly Impacted as meeting the protective condition, until studies demonstrate that the effects and exposure are not responding to toxic pollutants in sediments and that other factors are causing these responses	Staff have changed the text in Section V.I.	BACWA, Caltrans, CVCWA, SRCSD
343	V.I	We support allowing the Regional Water Board's discretion in determining whether stations in the "Possibly Impacted" category are impaired or not. As proposed categories are defined such that large portions of specific water bodies may fall into the "Possibly Impacted" category. In these instances, it will be very difficult to take any action if the scope is all-encompassing, and if "Possibly Impacted" station is categorized and treated in the same manner as "Clearly Impacted" station. Allowing Regional Water Boards the discretion to consider sites categorized as "Possibly Impacted" to meet the protective condition may be helpful in avoiding overly broad management actions.	Comment noted. Staff have differentiated the actions associated with possibly impacted sites from those designated as likely or clearly impacted.	CASQA, FSI, OCRDMD
344	V.I.4	The Staff Report recommends that any site that falls into the Unimpacted and Likely Unimpacted categories would be considered protected. 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	As stated in Section 5.5.5 of the draft Staff report, possibly impacted category means there is a possibility that the impacts are caused by toxic pollutants. Because this category reflects a lower level of disturbance, non-pollutant related factors could create the same designation.	SFBK

No.	Subject	Comment	Response	Author
345	V.J	The provisions of Section V.J of the SQO Plan could inappropriately reduce the level of protection for the Delta	Staff disagree. Staff asked for data, studies or any effort conducted in the past by the Regional Board that forms the basis of this assertion and received no response.	RB5
346	V.J	Sediments that are "possibly impacted" means that contamination may be causing adverse impacts to aquatic life, but these impacts are either small or uncertain because of relatively poor agreement among LOE. Given this definition, we see no need to authorize Regional Water Board discretion when available evidence indicates measured effects are not in response to toxic exposures in sediment particularly since the language is conditioned on a finding that other causes of observed responses are known to exist in the water body	Staff disagree. The Regional Boards could more effectively designate larger areas as meeting the narrative when this situation occurs.	CVCWA
347	V.J	Sediments Classified as "Possibly Impacted" Should Not Be Considered Impaired. Sites falling into the Possibly Impacted category should be targeted for enhanced MLOE monitoring, but should not trigger a requirement to perform stressor identification. Additionally, stations classified as Possibly Impacted should be assigned lower priority than "Clearly Impacted" and "Likely Impacted" sites.	Comment noted. Staff have differentiated the actions associated with possibly impacted sites from those designated as likely or clearly impacted in the draft Part 1.	WSPA
348	V.J	If sediments are classified as "nontoxic" or as having "low toxicity," a toxicity identification evaluation (TIE) will be an inappropriate evaluation tool, as it depends upon the presence of toxicity to identify the levels at which a pollutant causes that toxicity. Further, if the benthic community (the beneficial use to be protected by the SQO) is in a reference condition or exhibits low disturbance, which may be "within the measurement error of [the] unaffected condition" (SQO Plan at p. 12), it makes little sense to proceed with additional analyses	Staff agree that sediment TIEs are an important tool in the stressor identification tool box; however, it's important to understand that other tools may be applied as described in Section VII.F.	WSPA

No.	Subject	Comment	Response	Author
349	V.J	Large portions of waterbodies (San Francisco Bay) will likely fall into the Possibly Impacted category. This category has little power of discrimination. It will be very difficult to take any management action if all stations are classified as Possibly Impacted and treated the same as those classified as Clearly Impacted. Moreover, while the Staff Report (p. 103) states that it is not foreseeable that the SQO Plan will result in waterbody-wide remedial action, the broad characterization of Possibly Impacted areas could lead to just that result, which appears contrary to the State Board's intent.	Comment noted. Staff have differentiated the actions associated with possibly impacted sites from those designated as likely or clearly impacted in the draft Part 1. Given the costs of sediment cleanup related dredging, waterbody wide removal actions would be considered infeasible.	WSPA
350	V.J	We recommend that the SQO Plan clearly specify that sites classified as Possibly Impacted be placed on an "SQO Monitoring List" for enhanced monitoring and further evaluation. As discussed below, higher priority should be assigned to further evaluating and studying sites classified as Likely or Clearly Impacted. Sites classified as Possibly Impacted should not be considered impaired, used in 303(d) determinations, or otherwise targeted for management actions unless and until additional study is completed to confirm the impairment and the role of toxic pollutants in that impairment.	Comment noted. Staff have differentiated the actions associated with possibly impacted sites from those designated as likely or clearly impacted in the draft Part 1.	WSPA
351	V.I	Section V.I.4, Relationship to Aquatic Life – Benthic Community Protection Narrative Objective (SQO Plan, p. 17), revise as follows; a. The categories designated as Unimpacted and Likely Unimpacted shall be considered as achieving the protective condition at the station except as described under b. b. The category Possibly Impacted shall be considered as having considerable uncertainty regarding whether or not an impact exists. Stations classified as Possibly Impacted shall be placed upon an SQO Monitoring List for enhanced monitoring and assessed using the MLOE approach detailed in Sections V.A through V.I.	Staff are cognizant of the uncertainty associated with the possibly impacted category; and staff have differentiated the actions associated with possibly impacted sites from those designated as likely or clearly impacted in the draft Part 1.	WSPA

No.	Subject	Comment	Response	Author
352	V.I	Alternatively, a Regional Board may designate the category Possibly Impacted as meeting the protective condition if studies demonstrate that the combination of effects and exposure measures are not responding to toxic pollutants in sediments and that other factors are causing these responses within a specific reach segment or waterbody. c. The categories designated as Likely Impacted and Clearly Impacted will be assessed using the binomial distribution, and stressor identification studies shall be initiated if the number of stations classified as Likely Impacted and Clearly Impacted supports rejection of the null hypothesis presented in [Table 15]	Comment noted. Some of these suggestions have been considered in the revisions proposed in Section VII.	WSPA
1034		To address the uncertainty in sites designated as possibly impacted, we suggest revising the presumption in Section V.I.4.b so that, instead of providing that: "A Regional Board may designate the category Possibly Impacted as meeting the protective condition if studies demonstrate that the combination of effects and exposure measures are not responding to toxic pollutants…", the text should be revised to read "A Regional Board may designate the category Possibly Impacted as not meeting the protective condition if studies demonstrate that the combination of effects and exposure measures are responding to toxic pollutants	Comment noted. Staff feel that enough flexibility has been added to the draft Part I to adequately address the uncertainty associated with possibly impacted sites.	WSPA
353	Section V. J	The use of the CA LRM tool and metrics in estuaries should be validated prior to its use in the interpretation and implementation of SQOs.	The studies are currently under way.	Caltrans, SRCSD, Tri-TAC
354		The need exists to validate the appropriateness of the selected sediment toxicity tests (Hyalella and Eohaustorius) in San Francisco Bay and the Sacramento-San Joaquin Delta. Historic issues have existed regarding the grain size and other characteristics of San Francisco Bay sediments that may affect the toxicity test results for these species. If the validity of these test species is confirmed, the use of the threshold values listed in Table 13 for Hyalella and Eohaustorius test result interpretation must also be validated for use in estuaries.	These species have been applied to the range of salinities occurring in the Bay and Delta.	Caltrans, CVCWA, SRCSD, Tri-TAC

No.	Subject	Comment	Response	Author
355	Section V.J. Table 13 [page 19] and 14 [page 20]	We support the use of measures that indicate clear evidence of impact that is the intent of these tables. However, we request additional information to demonstrate that the use of reference ranges or intervals for chemical concentrations and benthic community data are proper thresholds of high exposure or high disturbance.	Studies underway in the Delta will provide this information.	CVCWA, BACWA, SRCSD, Tri-TAC
356	VI	We concur with the staff recommendation relying on site-specific human health risk methodology to interpret the SQOs in the first phase of their application, prior to the development of a formal policy for applying SQOs to evaluate indirect effects. Given such limitations and the lack of public review on this issue during the first phase of the SQO development process, we support the use of existing programs as proposed in the SQO Plan, such as OEHHA policies for fish consumption and risk assessment, DTSC risk assessment procedures, and U.S. EPA's Human Health Risk Assessment policies.	Comment noted.	WSPA
357	VII	The SQO Plan should describe the program of implementation for nonpoint sources	Nonpoint sources must comply with the SQOs. Staff did not want to interfere with the recent progress on NPS issues in the Central Valley. Implementation related to NPS can be considered in Phase 2.	RB5
84	VII	We also propose a specific outline for stressor identification and development of site-specific management guidelines. We include such an outline with an associated flowchart for your consideration as part of our detailed comments under Appendix A, Section VII. F. and Section VII. G. We believe that the visual aid of a flowchart will help delineate the procedures associated with the policy and make implementation easier for the Regional Boards.	Staff have added two flow charts that address these issues.	LACSD

No.	Subject	Comment	Response	Author
85	VII	We endorse the inclusion of a decision tree flow chart showing how implementation actions should flow from SQO assessments. State Board staff presented such a flow chart at the November 19, 2007 workshop on the SQO Plan. We believe that a flow chart would provide useful guidance and should be included in the SQO Plan itself, in order to ensure that it will be consistently applied. In Attachment C, we propose a modified version of staff's flow chart, incorporating our comments below	Staff have added two flow charts that address these issues.	CASQA, OCRDMD, WSPA
358	VII	The SQO Plan should include a schedule for its implementation as required by the Water Code.	A schedule is unnecessary in that the plan will be implemented once it is effective. With respect to sites that are impaired, appropriate schedules will be developed on a site-specific basis as part of the TMDL. In other cleanup situations, the Regional Boards can and typically do include an appropriate schedule in the enforcement (cleanup) order.	RB5
359	VII	Under the heading of Section VII, Program of Implementation (SQO Plan, p. 20), insert the following (inserted text is underlined) and incorporate the flow chart in Attachment C to these comments as Attachment C to the SQO Plan: "The program of implementation for the SQO Plan shall be carried out in accordance with the following provisions and consistent with the implementation flow chart provided in Attachment C"	Flow charts have been added to the revised draft Part 1.	WSPA
95	VII	Plan should discuss the relationship of the SQOs to the BPTCP	Comment noted. Staff disagree and do not understand the necessity.	Caltrans

No.	Subject	Comment	Response	Author
131	VII.	It is our understanding of the SQO policy that designated sediment cleanup and remediation activities will be assessed under a management plan specific to an area deemed as an impaired waterbody. Appropriate cleanup and remediation activities for SQO impaired waterbodies will likely be site specific and possibly restricted to a subset of stations within the impaired waterbody. Each clean up action will have a unique set of circumstances (e.g., chemical pollutant, flow dynamic, sediment type, etc.) that will need to be considered based upon the desired goals and end uses established for the area. Therefore, a close partnership between the Regional Board(s) and the regulated community associated with the waterbody in question will need to be established to ensure effective and efficient remediation of impaired areas within the waterbody.	Ideally, there should be a close partnership between the regulated community and the Regional Boards to protect and restore beneficial uses in our bays and estuaries.	LACSD
132	VII.	The SQO policy does not address actions for specific sites, however it does provide guidance for how a waterbody will be listed as impaired using the binomial approach outlined in the 303(d) listing policy. We expect that a variety of these SQO station assessments will be reported within each waterbody. As currently outlined, the number of impacted sites (Possibly Impacted, Likely Impacted, or Clearly Impacted) within the defined waterbody will determine whether a waterbody is impaired for sediment quality. Unfortunately, once the waterbody has gone through this procedure, the individual station assessments may no longer be considered. The Districts strongly urge that the Regional Board(s) be directed to consider the number and severity of impacted stations in each impaired waterbody and develop a priority ranking for each in regards to cleanup and remediation timelines. We would suggest that impaired waterbodies with higher percentages of Likely or Clearly Impacted stations be given greater priority.	Staff concur and have made changes to the draft to ensure that the site categories are prioritized based upon the severity of impact. See Section VII.F of the Draft Part 1	FSI, LACSD

No.	Subject	Comment	Response	Author
133	VII.	Once each of the waterbodies have been prioritized, we suggest that the Regional Board(s) focus the remediation efforts on the most impacted sites within the listed waterbody. Focus should be given to the most degraded sites so that important cleanup and remediation activities are acted upon quickly. The three impacted site designations (Possibly Impacted, Likely Impacted, and Clearly Impacted) provide important information relating to a specific level of degradation and can help the Regional Boards to develop appropriate workplan timelines associated with each of the three levels of assessed impact.	Staff concur.	CVCWA, LACSD
134	VII.	We recommend the sites listed as “Clearly Impacted” would receive first priority in terms of resource commitment and initiation of follow-up studies; sites classified as “Likely Impacted” would be second priority. For sites listed in these two categories, we recommend the policy establish a deadline for completion of the studies in an approved work plan within two (2) to three (3) years of approval of that plan by the Regional Water Quality Control Board (Regional Water Board)	Staff revised Section VII.F to prioritize sites based upon the highest percentage of Clearly and Likely Impacted Sites. Timelines and schedules were included but can be evaluated during Phase II	Caltrans, CVCWA, SRCSD
135	VII.	Sediments listed as “Possibly Impacted” have the greatest uncertainty in terms of impacts and will be the most difficult to determine causative factors. We request that the policy acknowledges the difficulties in determining causation for sites classified as “Possibly Impacted”. We request that the policy state that the procedure taken for “Possibly Impacted” sites would be to first perform a confirming round of SQO monitoring, followed by an initial round of stressor identification studies. If the stressor identification studies are inconclusive, a determination should be made to either suspend such studies pending additional routine monitoring or to perform additional stressor identification studies where initial results	Staff concur and have revised Section VII.F to focus on the worst sites and also acknowledge the potential that some stressor may not be identified specifically when the biological effects are limited in magnitude.	Caltrans, CVCWA, SRCSD

No.	Subject	Comment	Response	Author
136	VII.	We believe the stressor identification evaluation (SIE) is an essential element that will provide necessary information to guide cleanup and remediation efforts. This initial response to a SQO exceedance and listing will confirm or deny chemical impairment. The performance of a SIE is highly situational and therefore not readily amenable to the establishment of a standardized response timeline. To ensure a timely response to the SQO narrative exceedance, the Districts suggest that the policy require the regulated parties, as a condition of compliance under their respective permits, to submit a comprehensive SIE workplan to the Regional Board for approval within 90-days of the finding that the waterbody is impaired. The SIE workplan should include specific studies and timelines to ensure the cause of impairment is determined in a timely and effective manner given the specific circumstances associated with the area. Failure of the regulated parties to adhere to the conditions of the workplan would constitute a violation of their permit.	Staff concur.	LACSD
137	VII.	The proposed workplan approach is not without precedent as it has been successfully implemented in our water reclamation plant NPDES permits to respond to toxicity. As with an SQO-based impairment, the specific toxicant(s) responsible for the toxicity must be determined before the toxicity can be effectively mitigated and managed. We provide a conceptual model for this approach in our comments found in Appendix A under Section VII Program of Implementation, F. Stressor	Staff agree that this is a logical sequence similar to what is done if toxicity occurs in an effluent and that it is the most efficient means to restore beneficial uses.	LACSD
360	VII.A	Supports the language the avoids redundancy and or inconsistencies between the proposed SQOs and existing requirements for dredged materials	Comment noted.	Caltrans
361	VII.A	What value are the SQOs for assessing dredged material?	Section 5.7.2 of the Staff Report and Section VII.A explain the SQOs in relation to dredge materials and why. Under Phase II, staff will evaluate SQOs and their application to water quality certification.	HTB

No.	Subject	Comment	Response	Author
362	VII.A	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	Section 5.7.2 of the Staff Report and Section VII.A explain the SQOs in relation to dredge materials and why. Under Phase II, staff will evaluate SQOs and their application to water quality certification.	SFBK
1129	VII.B	DRAFT PLAN Page 20, under Section B. NPDES Receiving Water and Effluent Limits, added new language to item 1.	Comment noted. Important difference was previous versions used the term "may" instead of "shall". This revision is more consistent with Federal Clean Water Act provisions for reasonable potential and permit limits.	TJ
363	VII.B	In Section VII.B. (NPDES Receiving Water and Effluent Limits), language should be added to clarify that the threshold values of Section V.H. are not to be used as or to derive either receiving water or effluent limitations	Please see Section V.B and Section VII.B of the draft Part 1.	OCRDMD
300	VII.B	Request that the plan state that neither the thresholds developed as part of the chemistry line of evidence nor existing sediment quality guidelines (such as ERMs, ERLs or TELs) shall be used either in establishing site-specific management guidelines or in developing NPDES effluent or receiving water limits	The language in Section V.B and Section VII.B ensures that this situation will not occur.	CASQA, OCRDMD, WSPA
364	VII.B	We like to see the proposed SQOs be used for and supercede requirements related to sediment quality impacts in ASBS	The proposed SQOs were developed only to protect the benthic invertebrates that inhabit soft bottom substrates in enclosed bays and estuaries. ASBS have only been designated within ocean waters. Hence, the SQOs do not apply there. In addition, the Ocean Plan prohibits all waste discharges to ASBS.	Caltrans
	VII.B	The Policy Must Require Effluent Limits in Permits The plan contemplates incorporating only receiving water limits into NPDES permits. This is a mistake	Section 5.7.4 of the draft Staff report explains why effluent limits were not considered within this plan.	SDCK
	VII.B	Receiving Water Limitations Should Be Based on Station Level Assessments Directly. An exceedance at a single site is adequate justification for management action to address the contamination at that site. We are confused as to why the binomial test is used, especially as it does not take into account the magnitude of an exceedance	Staff disagree. Multiple stations are necessary to assess sediment quality.	SDCK

No.	Subject	Comment	Response	Author
365	VII.B	Appendix A, page 21: Under section B how is the "discharge gradient" defined?	The discharge gradient is the area around the outfall that would exhibit decreasing pattern of loading as one moves further from the sources.	**DLS**
366	VII.B	Also, under B.2. shouldn't the wording include reference to the degree through which the NPDES discharge is contributing as in, "…discharge is causing or significantly contributing to the SQO exceedance	Staff disagree. If there are a large number of dischargers discharging a pollutant at low concentrations that is degrading sediment quality, then all would be contributing a small proportion of the total load.	**DLS**
367	VII.B	We agree with the statement in the SQO Plan that NPDES permit effluent limits should only be established after (1) a clear relationship has been established linking the discharge to the degradation; (2) pollutants causing or contributing to the degradation have been identified; and (3) appropriate loading studies have been completed. SQO Plan, Section VII.B.4 (p. 21). We believe that, in most or all cases, the Total Maximum Daily Load ("TMDL") process will be the appropriate means of accomplishing these steps. However, section VII.B.4 appears to be inconsistent with section VII.B.1, which states that SQOs can be applied directly as receiving water limits in discharge permits if the Regional Board determines that sediment quality in the vicinity of the point source is "potentially at risk." Further, under section VII.B.2, an individual discharger will be in violation of a receiving water limit if the discharge is "causing or contributing" to the SQO exceedance. Any exceedances of the SQOs will require permittees to develop site-specific management guidelines. SQO Plan (p. 22)	Staff disagree. The Regional Boards should retain the authority to assess risk associated with a discharge.	WSPA

No.	Subject	Comment	Response	Author
368	VII.B	Section VII.B, NPDES Receiving Water and Effluent Limits (SQO Plan, p. 21), revise as follows 1. Sediment quality objectives may not be applied directly as effluent or receiving water limits in NPDES permits. If the Regional Board determines, based on multiple lines of evidence, that sediment quality in the vicinity of permitted point sources (e.g., within the discharge gradient) is clearly or likely impacted, stressor identification shall be performed as provided in Section VII.F. If the study results confirm the identification of an SQO exceedance, and site-specific management guidelines are developed, the results may be utilized to support development of effluent or receiving water limits in the permit through the TMDL process. Effluent or receiving water limitations should not be used outside a TMDL process unless a discharger is identified as a primary contributor to a particular SQO exceedance, on an ongoing basis, based on substantial evidence, and following stressor identification	Staff disagree and believe the revised language and flow charts appropriately implement the SQOs within NPDES permits.	WSPA
369	VII.B	2. A discharger shall not be deemed to have reasonable potential to cause or contribute to an SQO exceedance until it is clearly demonstrated that the discharger is causing or substantially contributing to the SQO exceedance, on an ongoing basis, based on substantial evidence, and following stressor identification.	Staff disagree. The text in Section VII.is appropriate to determine and exceedence and define a violation	CWCWA, WSPA
1025	VII.B.	In the previous version, Section VII.B.1 read: “If a Water Board determines that sediment quality in the vicinity of permitted point sources (e.g. within discharge gradient) is potentially at risk, sediment quality objectives may be applied as receiving water limits in the permit” (emphasis added). As now proposed, this section reads “If a Water Board determines that discharge of a toxic pollutant to bay or estuarine waters has the reasonable potential to cause or contribute to an exceedance of the SQOs, the Water Board shall apply the objectives as receiving water limits” (emphasis added).	This change was made because 40 CFR 122.44(d) requires permit limits if a finding is made that a discharge has reasonable potential. Staff recognize that there are major differences between reasonable potential determination made using effluent data, and the link between ambient sediment quality and a specific effluent.	WSPA

No.	Subject	Comment	Response	Author
1025 co	VII.B.	We understand that State Board staff believes this language will better comport with the Clean Water Act. On the contrary, this substituting of boilerplate language from the statute eliminates what little clarity the Plan had provided as to how reasonable potential may be determined. WSPA is very concerned that the Regional Water Quality Control Boards ("Regional Boards") will interpret this new mandatory language to require receiving water limits, whether or not stressor identification and other studies have been done, and potentially based on conditions at sites distant from the discharge	Reasonable potential is intended to be cautious and performed before the discharge could potentially harm to receiving waters, not after the fact. In the Draft Part 1, stressor identification occurs after there is some information suggesting that sediment quality is degraded.	WSPA
1026	VII.B.	There will be few, if any, circumstances under which dischargers far from the location of SQO exceedances should be subject to receiving water limits. In addition to the language in Section VII.C on determining exceedances of receiving water limits once they are in place, the Staff Report states that "[r]eceiving water limits should be included in permits if sediment quality in the vicinity of a permitted discharge to a bay or estuary is potentially at risk due to toxic pollutants in the discharge." Staff Report (p. 118) (emphasis added). This intent in the Staff Report belongs in the operational language of the Plan, since without it the potential exists for misinterpretation and misapplication, especially in view of the mandatory	Staff agree with the possibility, however it is important to understand the receiving water limits may be satisfied by participation in a regional monitoring program which would then address potential exceedances at the water body scale.	WSPA
1027	VII.B.	As modified, Section VII.B.1 effectively eliminates the discretion previously afforded to the Regional Boards in applying receiving water limits. WSPA believes that in implementing the new and untried SQO program, such discretion is essential to avoid rigid application that could result in imposition of permit limits on all dischargers to entire water bodies.	Staff agrees that discretion is reduced by the change from may to shall. See response to No. 1026 above	WSPA

No.	Subject	Comment	Response	Author
1028	VII.B.	If the State Board does not wish to provide detailed guidance on reasonable potential analysis at this time, it is essential that the Regional Boards retain discretion in working out the appropriate implementation themselves. By contrast, a mandate that receiving water limits be applied, with no clarity on how to do so, will inevitably result in inconsistent and potentially unnecessary application of receiving water limits. WSPA therefore requests that the word "may" be restored in Section VII.B as originally proposed by State Board staff	Regional Water Boards will be required to assess reasonable potential using best professional judgment. The Regional Water Boards will have to justify including a receiving water limit in the permit, based on available, relevant information. Relevant information can include the toxicity of pollutants discharged, the sensitivity of the receiving waters, other characteristics of the receiving waters, and so on. Factors that may be considered are described in U.S. EPAs Technical Support Document for Water Quality-Based Toxics	WSPA
370	VII.B	The SQO Plan should allows sediment mixing zones similar to mixing zones for water quality objectives. A sediment mixing zone would be similar to the mixing zones allowed for water quality objectives, and would be defined as a limited area wherein the regional board has determined that initial dilution of a point source discharge may occur that may result in an exceedance of sediment quality objectives. At the end of Section VII.B, NPDES Receiving Water and Effluent Limits, paragraph 1 (SQO Plan, p. 21), insert the following: The Regional Board may allow mixing zones, where appropriate, for effluent limitations developed under this section	See response to comment #301.	LADWP, WSPA
1029	VII.B	WSPA recommended in its prior comments that the Plan allow mixing zones similar to mixing zones for water quality objectives. In its Response to Comment 301, staff stated that this issue would be addressed in Phase 2 and that "sediment mixing zones are difficult to relate to water column mixing zones because sediments are sinks or areas of accumulation." WSPA believes staff may have misunderstood our comment regarding mixing zones. There would not necessarily be a relationship between water column mixing zones and sediment mixing zones. Rather, the Plan should recognize the reality that, once contaminants reach the sediment, they will mix with ambient material	It should be noted that Resolution No. 92-49 governing cleanup and abatement actions authorizes the use of containment zones under certain circumstances. As the commenter noted, staff will evaluate the concept of sediment management zones during Phase II. One issue the commenter failed to consider is the actual language itself that would describe the appropriate applications, limitations, and responsibilities for long term management and cleanup, if the need arises. To add sediment management zones to this Phase I draft Part 1 would not allow enough time to address these very important issues.	WSPA

No.	Subject	Comment	Response	Author
1030	VII.B	The State of Washington implemented "sediment impact zones" (SIZs). A SIZ allows some sediments to remain in place that have chemical concentrations exceeding sediment quality standards. These sediments would be confined to the SIZ and to sediments within cleanup sites that would be expected to naturally recover over a period of time to the sediment quality standards, once source control is achieved or cleanup is accomplished. Because these sediments are allowed to remain in place, biological impacts are likely to occur during the period that a SIZ is allowed and until sediments remaining at cleanup sites recover naturally to levels of the sediment quality standards. During cleanup, there is a potential for short-term impacts regardless of the alternative chosen. These impacts will likely be greater if more stringent alternative cleanup standards are chosen. The Washington study also concluded that accumulation in sediments is dependent on the loading rate of contaminants and the energetics of the receiving water. A SIZ is most appropriate for discharges into relatively calm receiving water e	Staff acknowledge the work completed in the State of Washington and will consider this information in Phase II. See response to comment No.1029 above	WSPA
1045	VII.B	Particular attention needs to be given to the implementation of the SQO development/implementation approach to urban stormwater runoff situations. The staff's SQO development approach would presume the toxicity to be caused by the "co-occurrence" of the toxicity with contaminants on the SQO chemical list, while that toxicity could, in fact, readily be caused by chemicals that are not on the SWRCB staff's limited list of chemicals that are to be considered in sediment quality evaluation, such as a pyrethroid-based pesticide	This issue is already addressed in the Plan, through implementation guidance that requires stressor identification prior to establishing or revising discharge limits.	GFL
371	VII. C.	The policy should indicate that the stations included in an analysis to determine compliance with a receiving water limitation must be strongly linked to the discharge in question, e.g., located along a discharge gradient in the immediate vicinity of a discharge.	The Regional Boards can assess these relationships.	BACWA, Caltrans, CVCWA, SRCSD, Tri-TAC

No.	Subject	Comment	Response	Author
372	VII.C.	The policy should state that the determination that a discharge is causing or contributing to an SQO exceedance must only be made after completion of stressor identification studies that link specific toxic pollutants in a discharge to the SQO exceedance.	Staff agree and have amended the language to state that this linkage is made after stressor identification is completed.	BACWA, Caltrans CVCWA, SRCSD, Tri-TAC
591	VII.C	The Staff Proposal also states that the Permittee shall be in violation of receiving water limits if it is demonstrated that the discharge is causing or contributing to the SQO exceedance. However, the Staff Report does not outline how the causal relationship between the discharges and sediment quality will be established and whose burden it is to make such a determination. The approach outlined in the Staff Report sets up a situation in which multiple dischargers are affected by a regional evaluation without determining causality	Staff have amended the language to state that this linkage is made after stressor identification is completed.	CCOC
373	VII.C	Section VII.C, Exceedance of Receiving Water Limit (SQO Plan, p. 21), revise as follows "Exceedance of a receiving water limit is demonstrated when, using a binomial distribution*, the total number of stations designated as not meeting the protective condition as defined in Sections V.I.4. or V.J.4. supports rejection of the null hypothesis* as presented in Table 15. The stations included in this analysis will be those located in the vicinity and identified in the permit. A permit limit exceedance is not a violation until it is clearly demonstrated that the discharge is causing or substantially contributing to the SQO exceedance, on an ongoing basis, based on substantial evidence, and following stressor identification. Regional Boards are authorized to grant compliance schedules allowing reasonable time for permittees to come into compliance with new or revised permit limits, as appropriate"	Staff have amended the language to state that this linkage is made after stressor identification is completed.	WSPA

No.	Subject	Comment	Response	Author
374	VII.C	The Staff Report states that the SQOs can be used as receiving water limits in NPDES permits. Further, it maintains that a stressor analysis can be completed to support TMDL development or remediation goals. This is equated to the Toxicity Identification Evaluation ("TIE") process currently used to assess the sources of water quality impairment. Arguably, the TIE process has not worked well for water quality so a similar approach for sediments is inappropriate. What happens if the discharger is unable to identify the source of toxicity?	Staff disagree. Stressor identification can focus limited resources on those specific pollutants causing real problems instead of controlling pollutants that are elevated above a sediment quality guideline.	HTB
375	VII.D	Stormwater monitoring requirements (including frequencies) are typically developed and tailored by Regional Water Boards in NPDES permits based on region-specific management questions, data needs, and characteristics, such as land uses and known pollutants of concern. Simply requiring minimum frequencies for monitoring sediment in stormwater via a statewide plan will likely gather data of little use while expending limited local public resources. For these reasons, we suggest that Section VII.D is removed and in place, guidance be provided to the Regional Water Boards on what type of monitoring should be considered in NPDES permits for stormwater under what circumstances	Staff disagree. Monitoring frequency should be flexible. As discussed in Section 5.7.4.2 temporal data from California bays and estuaries is variable. In some cases sediment toxicity varies appreciably over the span of a couple of years. As a result the Regional Boards should be able to develop appropriate montiroing frequencies within the waterbodies based upon existing information. The other course of action would require the collection of annual sediment monitoring data until the temporal variability is well understood. Staff believe there is enough basic sediment data for the Regional Boards to develop appropriate monitoring frequencies within each permit. In addition, The draft Part 1 provides flexibility for targeting specific discharges rather than all discharges.	CASQA
	VII.D.E	The SQO Plan calls for sediment monitoring at intervals of between once and twice per permit cycle. This would result in the minimum amount of testing being once every five years. There is no evidence that this is a sufficient amount of monitoring, indeed the SQO Plan points out the dynamic nature of bays and embayments.32 Such infrequent monitoring would allow accumulation of contaminants in sediment and degradation of water quality for years	The language describing maximum frequency has been deleted.	SDCK

No.	Subject	Comment	Response	Author
376	VII.E	According to Section VII. E.2 of the proposed Plan, individual permittees can be required to conduct monitoring on their own and/or participate in a regional monitoring coalition, at the discretion of the Regional Water Board. We agree with Board staff that sediment monitoring programs should be based upon a conceptual model, and should consider regional information. These considerations can best be addressed by monitoring coalitions and not by individual permittees. We recommend that the Plan require NPDES permittees to form monitoring coalitions. Individual monitoring should only be permitted if a coalition cannot be formed, or if there is reason to believe, subsequent to a stressor identification process, that an individual NPDES permittee discharges a significant amount of a stressor pollutant, or to address a given NPDES-permitted discharge "causes or contributes to" an exceedance of SQO	Staff agree, but believe that the Regional Boards should retain the flexibility to dictate the appropriate course of action.	CASQA, OCRDMD
377	VII.E	We believe that a significant portion of the Delta monitoring should be conducted using SWAMP funds or other beneficiaries e.g. drinking water suppliers.	The Water Board is currently conducting the only sediment quality related studies in the Delta.	CVCWA
378	VII.E	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	There are several approaches that could be employed. Participation in regional monitoring can be a condition of a permit. Another alternative is to utilize the SQOs as receiving water limits.	SFBK
379	VII.E	We agree with the benefits mentioned for the monitoring coalitions. However, there is little incentive for groups to form these coalitions. Why develop a 'broader understanding of pollutants [sic] effects if it only means that dischargers will be more likely to be required to act	Staff disagree. Because of the wide variety of discharges (both ongoing and past), tidal action and riverine inputs, the distribution of pollutants in bays can be highly variable. As a result, the traditional point source monitoring is not effective at assessing overall waterbody conditions.	SDCK
	VII.E	The plan also does not state how monitoring will be enforced within the envisioned monitoring coalitions. Regional Boards are given an oversight role in the coalitions and we appreciate that the Plan now requires a detailed workplan to be submitted and approved by the Board	Staff disagree. Receiving water limits and participation in regional monitoring programs can be enforceable permit conditions.	SDCK

No.	Subject	Comment	Response	Author
380	VII.E	We request that monitoring costs bare a reasonable relationship to the level of contribution from the various permitted sources and other potentially responsible parties.	Staff agree that those discharges that pose a low risk to sediment quality should be monitored less frequently than high risk discharges. Staff have provided the appropriate level of flexibility for stormwater permittees to accomplish that objective.	Caltrans
381	VII.E	We request that monitoring costs also bare a reasonable relationship to the known constituents. The departments minimum constituent list overlaps with the proposed list in Attachment A with the following constituents; TOC, Cd, Cu, Pb and Zn	Staff disagree. Staff have developed a list of chemicals that best characterize the risk of exposure in sediments that when coupled with specific toxicity tests and benthic community metrics provides a robust and confident assessment of sediment quality. To develop monitoring requirements based upon what is in existing permits would negate the reason for developing tools to interpret the narrative SQO in the first place.	Caltrans
382	VII.E.4	In Section VII.E.4, Sediment Monitoring - Methods (SQO Plan, p. 23), insert the following "Sediments collected from each station shall be tested or assessed using the methods and metrics described in Section 5. The identification of current conditions requiring management action as provided in Sections VII.B, VII.F.3 and VII.G must be based on current data collected subsequent to the adoption of this Plan".	The draft Part 1 is intended to utilize recent data in accordance with the requirements of Section V.	WSPA

No.	Subject	Comment	Response	Author
1032	VII.E.4	We suggested including language requiring the identification of current conditions requiring management action to be based on current data collected subsequent to the adoption of the SQO Plan. Specifically, we proposed to insert the following in Section VII.E.4, Sediment Monitoring - Methods (SQO Plan, p. 23): "Sediments collected from each station shall be tested or assessed using the methods and metrics described in Section 5. The identification of current conditions requiring management action as provided in Sections VII.B, VII.F.3 and VII.G must be based on current data collected subsequent to the adoption of this Plan. In Response No. 382, staff stated that the Plan is intended to utilize recent data in accordance with the requirements of Section V. Again, we suggest that this intent be reflected in the operational language of the Plan, with the language proposed above.	Staff will propose adding this language in Phase II. However, staff also acknowledges that there may be unique situations where data collected previously may provide useful information to reassess conditions using the MLOE. As such, the current data language could be applied to permit related applications.	WSPA
383	VII.E.8	The staff report states that SQOs would apply in 303(d) listing decisions. However, the staff report does not clearly state how this will be done. It simply refers back to the Listing Policy with no mention of how this evaluation will occur. Further, once impairment is determined, how will the regional boards be able to calculate an appropriate TMDL waste load allocation?	The listing language has been clarified in Section VII.E. The stations classified as Possibly, Likely and Clearly Impacted would be applied as exceedances to the binomial equation in the existing listing policy.	HTB
384	VII.E	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.	Staff disagree. Staff have used an approach already adopted by the State Water Board for assessing both water quality and sediment quality using multiple stations. See the State Water Boards 303(d) Listing policy availible at: http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/ffed_303d_listingpolicy093004.pdf	SFBK

No.	Subject	Comment	Response	Author
385	VII.E.8	Finally, the program must include guidance for the appropriate geostatistical design of proposed monitoring programs. Ideally this guidance should take advantage of existing geostatistical tools that enable the user to input information on the variability of the proposed measurement endpoints, the size of the area to be sampled, and the size of the hotspot to be detected in order to generate a statistically robust sampling design.	Staff agree with the commenter for those situations where the funding, resources and expertise are available.	Weston
386	VII.E.8	Recommend that all waterbodies not meeting the SQO narrative go through a priority ranking based on the percentage of Possibly, Likely, and Clearly Impacted stations reported in each one. Those waterbodies with higher proportions of Likely and/or Clearly Impacted stations should receive the highest priority for remediation and cleanup efforts. (Please refer to detailed comments under the Draft Staff Report, Section 4.3)	Staff agree and have added language to prioritize segments or reaches based upon the site categories (See Section VII.F).	CASQA, CVCWA, FSI, LACSD, SRCSD
387		Clarify how degraded sites will be prioritized for follow up action. 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.	Section VII.F describes how to prioritize sites based upon magnitude of impact and area.	SFBK
388		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	Staff disagree. Section V of the draft plan describes when the narrative is exceeded and Section VII describes what steps must be taken.	SFBK
389	VII.E.5	Section VII.E.5 – We note that selection of sampling strata shall consider numerous water body characteristics to ensure that a statistically sound monitoring plan is developed. We agree that much consideration should be given to an appropriately designed sampling plan addressed in Section VII.E.3. However, the listed characteristics should only be considered in the sampling plan, and not required to be addressed. Allowing for adaptive management will enable local agencies to implement management work plans that will maximize efficiency, minimize costs, and allow local conditions and constraints to be considered appropriately	Staff agree.	OCRDMD

No.	Subject	Comment	Response	Author
	VII.E	we still see no incorporation of existing monitoring programs into the SQO process. This is especially troubling given that the Southern California Coastal Water Research Project (SCCWRP) conducts this type of monitoring (the Bight Regional Monitoring programs) and has provided key members to the SQO development team	Staff assumed that many of the existing regional monitoring programs would support the regional monitoring coalitions.	SDCK
1130	VII.F	DRAFT PLAN Page 26, paragraph before number 3, and 3.c, there is an inconsistency with regards to Water Board and Regional Water Board.	Staff will specify that Water Boards was referring to Regional Water Boards	TJ
390	VII.F	The application of the SQOs to NPDES permits (page 21 of Appendix A) illustrates the circular nature of the approach that is being proposed. If the RWQCB determines that SQOs are being caused by a NPDES discharge the situation can only be remediated after the pollutants responsible for the degradation are identified and their loading is quantified. It appears as if the large amount of data collected during the SQO will only begin a process of identifying the pollutants that need to be quantified through a TIE process. In essence, every time the SQOs identify sediment toxicity a research project will have to be conducted to identify the cause	Staff disagree. The assessment is based upon MLOE which, as other peer reviewers stated, is the generally accepted practice, followed by stressor identification, which is also the appropriate response..	**DLS**
391	VII.F	We recommend that the plan clearly require before a permittee perform additional efforts to address an SQO exceedence, that the causative pollutants be identified.	Staff disagree. If a permittee is discharging toxic pollutants in an area where sediment quality is degraded, permittees must assume the burden of stressor identification.	Caltrans
392	VII.F.	Exceedance of the direct effects SQO indicates that pollutants are a "likely cause", but does not demonstrate conclusively that pollutants are the stressor driving an impact determination. The language of the policy should be modified to clarify this point.	Staff agree and the language has been amended.	BACWA, Caltrans, CVCWA, Tri-TAC

No.	Subject	Comment	Response	Author
393	VII.F.	The policy needs to address the case where stressors cannot be determined. It is anticipated that this will be the case where the MLOE analysis indicates low level impacts to sediments, e.g., "Possibly Impacted" determinations. It is recommended that the policy state that, where stressors cannot be identified and toxic pollutants cannot be ruled out, that additional sediment monitoring shall be performed to confirm the initial SQO determination. A revised work plan should then be developed and implemented to make a final attempt at stressor identification. Completion of that work should satisfy follow-up study requirements.	Staff have addressed this issue for sites classified as possibly Impacted.	BACWA, Caltrans, CVCWA, SRCSD, Tri-TAC
394	VII.F.	Clarify that the directive to Regional Board's to require dischargers to take all reasonable and necessary steps to address the SQO exceedance is predicated on the outcome of the confirmation and pollutant identification steps wherein causative pollutants have been identified and linked to the sources in question.	Staff agree.	SRCSD, Tri-TAC
395	VII.F	Section VII.F, Stressor Identification (SQO Plan, p. 24), revise as follows,"If sediments fail to meet the narrative SQOs in accordance with Section V and VI, a sequential approach is necessary to manage the sediment appropriately. Following identification of sediment as Clearly Impacted or Likely Impacted based on multiple lines of evidence, an SQO exceedance shall not be determined until confirmed by stressor identification through this sequential approach. The sequential approach consists of development and implementation of a work plan to seek confirmation and characterization of pollutant-related impacts, pollutant identification and source identification. The work plan shall be submitted to the Regional Board for approval. Stressor identification consists of the following studies"	The revised draft Part 1 describes an approach that differentiates the responses for Clearly Impacted and Likely Impacted Sites from those sites classified only as Possibly Impacted. The draft Part 1 clearly identifies what is an exceedance and what is not.	WSPA

No.	Subject	Comment	Response	Author
396	VII.F	WSPA recommends that stressor identification be conducted in two phases, or parts, as follows; Part 1 stressor identification would proceed as provided in Section VII.F.1, and would be intended to address the question, “Are uncertainties associated with MLOE evaluation affecting results, and are toxic pollutants causing or substantially contributing to observed sediment impacts?” Part 2 stressor identification (Section VII.F.2.), studies would proceed to identify the pollutant(s) responsible for impacts. However, it is also important to determine whether or not the pollutant concentrations are consistent with natural background conditions	Staff disagree and believe the two stage approach identified in the draft plan is appropriate.	WSPA
397	VII.F	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?	Stressor identification is a not a study that can be planned or described in cookbook fashion. There is no standard beginning or end, rather the scientists use a weight of evidence approach from the iterative testing of various treatments and separation processes over time. The stressor identification studies begin by identifying general causes while ruling out others. Where a pollutant is causing the stress, as the study progresses and becomes more focused over time, a case is made with the evidence obtained from the various treatments that identifies a single chemical or group of chemicals that is causing the effects while ruling out other chemicals.	SFBK
398	VII.F	The State should not require cleanup to levels more stringent than natural background conditions	Staff agree. (See comment regarding relationship to State Water Board Resolution 92-49.)	WSPA
399	VII.F.2	Section VII.F.2, Pollutant Identification (SQO Plan, p. 26), revise to add:f. Evaluation of Natural Background Conditions: After specific chemicals are identified as likely causes of impacts, an evaluation of natural background conditions should be made. An impact shall not be considered an SQO exceedance if it is demonstrated that concentrations of pollutant(s) responsible for the impact are present at levels consistent with natural background conditions	Staff disagree. Natural background conditions should not result in an SQO exceedance.	WSPA

No.	Subject	Comment	Response	Author
1033		WSPA previously requested clarifying language that would exclude identification of SQO exceedances based on natural background conditions. In Response No. 399, staff stated that it disagreed, but also that natural background conditions should not result in an SQO exceedance. If that is the case, again, this should be explicit in the Plan's operational language, not merely in a response to a comment	Staff disagree with the need to put in the recommended language. The response to comment No. 399 was based upon the MLOE framework that requires some level of response in two LOE at a minimum, and the authority provided by the Regional Water Boards in the draft Part 1 to address stations designated as possibly impacted in a flexible manner.	WSPA
400	VII.F.2	The plan should require stressor identification of current 303(d) listings where sediment quality forms the basis for the listing	If a Regional Board determines that the applicable water quality standard is the aquatic life SQO described in Section VI of the draft Part 1, stressor identification would be required.	Caltrans
401	VII.F.2	To avoid inappropriate listings, WSPA recommends that Stressor identification should be performed prior to placing a water body on the State's 303(d) list of impaired waters, so that any listing identifies the chemical(s), or class(es) of chemicals, that are responsible for the impairment. A 303(d) listing should not be based on a "likely" or "clearly impacted" assessment without knowledge of the responsible stressor. Stressor identification should be performed in a two-phase manner; first, a limited stressor identification as part of the SQO evaluation process to determine whether the sediment impact is due to a toxic pollutant or some other stressor. Second, if it is determined that the stressor is a toxic pollutant, and that the stressor is present at concentrations above natural background, the water body would be placed on the 303(d) list and a more detailed stressor identification would be performed as part of the TMDL process	There is benefit in this suggestion, however this approach is not consistent with the current listing policy and could discourage listings in those segments or reaches where complex mixtures are causing impacts or where stressor identification is not successful at determining a cause.	WSPA

No.	Subject	Comment	Response	Author
402	VII.F.3	Section VII.F.3 (SQO Plan, pp. 26-27), revise as follows: a. Determine if ongoing or legacy source. SQO exceedances attributable solely or primarily to legacy pollutants shall be listed for TMDL development under Clean Water Act section 303(d) or referred to the Bay Protection and Toxic Cleanup Program. b. Determine number and nature of ongoing sources. c. Following stressor identification, if a single discharger is identified as a primary contributor to a particular SQO exceedance, on an ongoing basis, based on substantial evidence, the Regional Water Board shall require the discharger to take all necessary and appropriate steps to address exceedance of the SQO, including but not limited to reducing the pollutant loading into the sediment as provided in Sections VII.B and VII.C and based on site-specific management guidelines	Staff have not proposed language specific to legacy pollutants. As presented in Section 3 of the draft Staff Report, many of the bays and estuaries are already listed for legacy pollutants and as a result would provide little benefit. The process described in c. is similar to the intent of Section VII and Figures 1 and 2.	WSPA
403	VII.F.3	Section VII.F.3 (SQO Plan, pp. 26-27), revise as follows; d. If an SQO exceedance is confirmed following stressor identification andWhen multiple sources are present in the water body, that discharge the stressor pollutant at a loading rate that is significant, the Regional Board shall develop and adopt a TMDL to ensure attainment of the sediment standard or require remedial action under the Bay Protection and Toxic Cleanup Program. e. For purposes of applying the State Board's Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List to sediment quality, identification of water bodies as impaired due to nonattainment of SQOs shall be determined based on all three lines of evidence and stressor identification. Existing listings of sediment impairment under Clean Water Act Section 303(d) should be re-evaluated to determine whether the listing is justified based on the MLOE and stressor identification	Staff have added language to Section VII.C to address the issue where other permittees may be contributing. It is important to understand that a TMDL would only occur after the waterbody segment or reach has been listed.	WSPA

No.	Subject	Comment	Response	Author
404	VII.F.3	We also support the conclusion in the Staff Report that the chemical sediment quality guidelines and the thresholds of the chemistry LOE shall not be used for calculating effluent limits or as cleanup targets; Section VII.F.3, Sources Identification and Management Actions (SQO Plan, p. 27), insert the following: f. Neither sediment quality guidelines nor the thresholds contained in Section V.H. may be applied directly as cleanup targets or used to develop effluent or receiving water limits in NPDES permits.	Sections V. A, B and VII. B prevent the inappropriate use of the LOE.	WSPA
405	VII.F.3	Section VII.F.3, Sources Identification and Management Actions (SQO Plan, p. 27), insert the following: g. When considering all necessary and appropriate steps to address exceedances of SQOs, the Regional Water Board shall evaluate such steps in accordance with State Board Resolution No. 92-49, Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304. Management actions and cleanup levels shall be selected consistent with maximum benefit to the people of the state, considering beneficial uses of the water, economic and social costs compared to the benefits, environmental aspects, and the implementation of feasible alternative treatment or control methods. Management action should be undertaken only when there is reasonable assurance that the action will have the intended effect. Impacts and costs should be considered for a range of alternatives to address the SQO exceedance, including natural recovery.	Staff have added language that describes the relationship to State Water Board Resolution 92-49.	WSPA

No.	Subject	Comment	Response	Author
406	VII.F.3	Section VII.F.3, Sources Identification and Management Actions (SQO Plan, p. 27), continued, If the Regional Board determines that eliminating SQO exceedances is not reasonably achievable through feasible actions by the identified dischargers and sources, the Regional Board shall require feasible steps to the extent necessary to achieve reasonable sediment quality, taking into account legacy conditions and other information as appropriate. For purposes of this provision, “feasible” means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors	Staff disagree with the inclusion of the suggested language in the draft Part 1.	WSPA
407	VII.F	This statistical approach is not valid for identification of the pollutant responsible for a biological effect such as sediment toxicity and/or altered benthic organism assemblages compared to the assemblages that should be present based on habitat characteristics. It is another manifestation of the invalid co-occurrence-based approaches in that it contrives to relate total concentrations of a chemical(s) to a biological response	Statistical analysis (e.g., correlations and gradient analyses) are a recommended method for Phase II TIE confirmation in EPA sediment TIE guidance. Staff agree that proper study design is important in conducting statistical analyses, as it is with chemical and biological analyses.	GFL
1061	VII.F	The response to this comment revealed a limited understanding of fundamentals of aquatic chemistry and statistics in its defense of using statistical approaches, however “well-designed,” for “guiding” and “confirming” results of stressor ID. Next to disregard for aquatic chemistry, one of the most notorious culprits in misdirecting water/sediment quality evaluation and management is the application of statistics beyond their limitations.	The response to this comment has been revised for clarity.	GFL

No.	Subject	Comment	Response	Author
408	VII.F	Reliable identification of the chemical(s) and/or conditions responsible for toxicity to aquatic life in sediments is done through a properly conducted TIE. This is, therefore, the appropriate mechanism for incorporation of chemical information into a triad sediment quality evaluation approach.	Staff disagree. The approach advocated by the commenter will not result in material savings of time or money for assessing sediment quality, but may actually increase the burden on the responsible agency. In the vast majority of cases, the need for stressor identification will arise after the finding of substantial biological effect (toxicity and/or benthic community disturbance). Thus, there will already be sufficient reason to suspect chemical effects and prompt the need for stressor identification. Exclusion of the chemistry information at this initial point will limit the ability of the assessment approach to identify cases where the link to chemical exposure is low and potentially prompt the need for additional stressor identification studies at a larger number of sites. The sequential approach to stressor identification described in the plan is consistent with EPA TIE guidance documents.	GFL
1062	VII.F	The response given distorts the comment made by starting with the premise that the comment advocated conducting TIEs on all sediments. Obviously TIEs are needed when there is sediment toxicity and/or altered benthic organism assemblages. As reflected in the “response,” a fundamental problem with the staff’s proposed approach and position is that the basis upon which the “reason to believe that sediments are degraded” is technically unsound, and can be expected to render unreliable assessments of whether or not a sediment is “degraded.”	The approach advocated by the commenter will not result in material savings of time or money for assessing sediment quality, but may actually increase the burden on the responsible agency. In the vast majority of cases, the need for stressor identification will arise after the finding of substantial biological effect (toxicity and/or benthic community disturbance). Thus, there will already be sufficient reason to suspect chemical effects and prompt the need for stressor identification. Exclusion of the chemistry information at this initial point will limit the ability of the assessment approach to identify cases where the link to chemical exposure is low and potentially prompt the need for additional stressor identification studies at a larger number of sites. The comment response has been revised.	GFL

No.	Subject	Comment	Response	Author
409	VII.F	This approach reflects a lack of understanding of aquatic chemistry/toxicity; those familiar with this topic know that spiking sediments cannot be relied upon for determining if a chemical in the sediments is the cause of observed sediment toxicity	Staff disagree. Sediment spiking, like any technical procedure, can provide misleading information if not conducted appropriately. Spiking of water and sediments is recommended in EPA TIE technical guidance documents for sediment and effluent as one of the elements of Phase III confirmation studies. In addition, spiked sediment experiments are routinely used by chemists and toxicologists to examine the partitioning and bioavailability of sediment-associated contaminants; such data are highly relevant to the stressor identification process.	GFL
1063	VII.F	The comment made was not one with which one can simply choose to “disagree” as provided in the response. It is a matter of the realities of aquatic chemistry. The response continues by claiming that the results of the spiking studies advocated provide another piece of “information,” presuming that that “information” is meaningful and useful.	Sediment spiking, like any technical procedure, can provide misleading information if not conducted appropriately. Spiking of water and sediments is recommended in EPA TIE technical guidance documents for sediment and effluent as one of the elements of Phase III confirmation studies. In addition, spiked sediment experiments are routinely used by chemists and toxicologists to examine the partitioning and bioavailability of sediment-associated	GFL
410	VII.F	Also, transplanting organisms to measure bioavailability is not necessarily reliable to identify a toxic species in sediments. Non-toxic forms of some chemicals such as organic complexes can be taken up by organisms in sediments without causing toxicity to them, or to other organisms, in the sediment. Further, the partitioning between a sediment bound chemical and organism tissue is significantly different from the partitioning	Properly designed field and laboratory bioaccumulation studies can provide reliable information regarding the bioavailability of contaminants. Such studies can assist in stressor identification in several ways by evaluating whether the body residue of specific contaminants is sufficient to account for observed effects. Bioaccumulation studies have limited applicability, however, and may not be useful for contaminants that are metabolized or sequestered by the organism. The validity of bioaccumulation studies for stressor identification is therefore contingent upon the potential contaminants of concern and is best suited for confirming toxicant identification results from other stressor identification analyses.	GFL

No.	Subject	Comment	Response	Author
1064	VII.F	The staff response did not address the issues raised in the comment. It summarily dismissed the technical concerns raised in the comment by stating, “All methods to measure bioavailability have limitations and site-specific considerations.” However, it did not address the “limitations and site-specific considerations” for its recommended bioavailability assessment approach in its proposed stressor ID approach.	The response to comment No. 410 has been clarified above.	GFL
412	VII.F	Overall, except for the appropriate use of TIEs, the recommended stressor identification presented in the staff report is flawed and can readily lead to incorrect assessments of the chemical(s) responsible for sediment quality impairment. Unreliable stressor identification can lead to large expenditures for misdirected and hence ineffective sediment “remediation” and source control	The potential stressor identification methods listed in the Plan are complementary to one another and are not intended to be used in isolation. These methods represent a diversity of approaches that is essential to the overall conceptual approach for TIEs, where a weight of evidence is needed. The methods referenced in the Plan are those recommended in the peer-reviewed EPA sediment TIE guidance document (EPA/600/R-07/080).	GFL
1065	VII.F	The staff response does not address the issue raised in our comment.	The response to comment No. 412 has been revised (above).	GFL
413	VII.F	Any identification of a water quality or sediment quality “problem,” especially one based in any way on co-occurrence-based concentrations, should be followed by properly conducted, true chemistry and toxicity studies to reliably determine if a real water quality impairment such as toxicity exists, the cause of the impairment (not simply what “cooccurs” with measured concentrations) as well as the role of aquatic nutrient-caused sediment toxicity (such as episodic low-DO) in affecting the aquatic life resources of the waterbody	The draft Plan is consistent with this recommendation. Following determination of exceedance of the direct effects SQO, stressor identification is required to confirm the linkage to chemicals and determine the cause. Stressor identification should include integrated toxicity and chemistry methods that are appropriate to the situation and the plan also emphasizes the need to determine whether the results have been confounded by other stressors such as ammonia or low DO.	GFL

No.	Subject	Comment	Response	Author
1039	VII.F	The staff's recommended approach for "stressor identification" also did not reliably incorporate or consider basic principles of aquatic chemistry. Thus, even if the "stressor identification" step could make up for the unreliability of the screening, it could not be relied upon to provide correct identification of the "cause" of sediment-toxicity.	The stressor identification approach recommends the use of a variety of approaches that are based on relevant chemical principles, including TIEs, bioavailability studies, and mechanistic models. The stressor identification approach is also consistent with the most current EPA guidance for sediment toxicity identification evaluation [EPA/600/R-07/080 Sediment Toxicity Identification Evaluation (TIE): Phases I, II, and III Guidance Document].	GFL
1040	VII.F	Rather than postponing the proper evaluation of impacts of sediment-associated chemicals until after unreliable processes have been undertaken, TIEs should be conducted as part of sediment classification for those sediments that have potentially significant aquatic life toxicity.	Staff disagree. See response to comment No. 407. Staff do not believe that adding stressor identification into the initial assessment framework would streamline the process. Because successful completion of a stressor identification study could take months, the addition of TIEs to the initial assessment could slow the entire sediment assessment process down.	GFL
1041	VII.F	Another significant problem with implementation of the staff's "stressor identification" approach to adjust for unreliable screening is the fact that once a sediment is "classified," even erroneously, as "impaired," it will be very difficult to change that classification, despite results of further study	Staff disagree. The process diagrams (Figures 1 and 2) of the draft Part 1 describe explicitly how the classification may change as a result of TIEs.	GFL
1045	VII.F	The SWRCB should also direct the staff to develop detailed guidance on how to properly identify a chemical(s) responsible for sediment toxicity and/or altered benthic organism assemblage	Detailed guidance on stressor identification methods is available from the USEPA and the scientific literature. Guidance on designing and conducting sediment toxicity evaluations, SQO evaluations, is in development.	GFL
414	VII. F/ VII., G.	We propose a detailed outline of implementation for both SQO stressor identification and development of site-specific management guidelines. We have also included a corresponding flowchart as a visual aid to help guide the proposed process. Currently the Draft Staff Plan and Appendix A are lacking in detailed guidance and it is unclear how the policy would be specifically implemented. We believe the following outline provides needed clarity to how the process would be executed.	Staff have attached a flowchart - much like the first page of the flow chart submitted by the commenter and others.	LACSD

No.	Subject	Comment	Response	Author
415	VII. G. (VII. H)	We support the development site-specific management guidelines.	Comment noted.	CASQA, Sierra Club, WSPA
416	VII. G. (VII. H)	The SQO Plan ends, rather abruptly, where it should have begun: how to ensure that sites meet the narrative objectives. It is deeply concerning that this section provides no enforceable steps or timelines for action. Instead, a Regional Board is cautioned that only after stressors have been identified and controllable sources exist – or the almost laughable if remedial goals are desired, guideline development should be considered. After cautioning, again, that this step is not to be taken until stressors have been identified, the Plan exhorts staff to develop a relationship between exposure and biological effect	Staff disagrees. The most critical component is a dependable means to assess sediment quality followed by the requirement to perform stressor identification. Without stressor identification, the ability to control, manage and improve sediment quality is severely limited.	SDCK
417	VII. G. (VII. H)	If the targets can be used in cleanup actions, why must we engage in the time, expense, and effort of the MLOE? Once management guidelines are developed in one bay, all other sediment in the bay should be judged by the objective numeric targets. Below the targets, the sediment must meet the protective condition. Above the targets, the sediment is degraded. Taken to a logical conclusion, why not develop management guidelines in all bays – a one time effort compared to assessing all sediments by the MLOE triad and developing guidelines if sediments are degraded	The MLOE approach is used because no single tool can reliably assess sediment quality. That includes the chemistry line of evidence. Development of management guidelines requires a detailed understanding of all the stressors at the site, and their interaction and distribution, and the affected receptors, all of which makes the development of bay wide or state wide numeric standards very difficult at this time.	SDCK
	VII. G. (VII. H)	Providing various methods of testing allows a discharger the opportunity to find a method most convenient to it, but also enables continued testing until one of the various test methods provides a favorable result. Only at the last step of the stressor identification, only if a discharger or dischargers are found responsible (a process not explained), and only if the loading rate is significant, is a Regional Board directed to take steps to address the exceedance. A cleanup is never specifically mentioned and no guidelines are given	Staff disagree. Cleanups or controls can only be effective if the stressor causing the impairment is removed or controlled. The Regional Boards have the tools and the authority to cleanup sites or place additional controls on discharges when beneficial uses are at risk or degraded.	SDCK

No.	Subject	Comment	Response	Author
282	VII. G. (VII. H)	We also concur with the Staff's recommendation that the "selection of corrective action can be addressed only after many site-specific factors are considered such as the hydrodynamics and flow regime in the area of concern, the specific pollutant that is causing the degradation or impairment, the receptors at risk due to the presence of the pollutants at the levels observed within the area of concern, the aerial extent, presence of existing sources or legacy releases and types of controls in place and feasibility of additional controls	Comment noted.	CASQA,FSI
418	VII. F and G. (H)	Without proper stressor identification, there is a substantial risk that management actions would inappropriately focus only on those pollutants that are evaluated as part of the MLOE, potentially missing the pollutants responsible for the SQO exceedance and resulting in the failure of management action	Staff agree and have developed a draft policy that includes stressor identification as a critical component.	CASQA
419	VII. G. (VII. H)	We strongly recommend that the State Water Board address how remedial measures will be implemented and funded if there is no on-going discharge of a compound, and if no "responsible party" can be identified.	The potential to clean up a site where no responsible party is present is limited unless funding is provided through the State Water Boards Cleanup and Abatement Account or other sources.	CASQA
420	VII. G. (VII. H)	We recommend deletion of the sentence that starts with "Although this relationship is not always easy…". We also recommend deletion of the approaches outlined in (b) and (c) as not being applicable to direct effects impacts.	Staff agree with the comment regarding the text that begins with "although this relationship" and have revised Section VII.G. In regard to the approaches outlined in b and c, staff disagree; the cited approaches can be a useful component of the guideline development process.	BACWA, SRCSD, Tri-TAC
421	VII. G. (VII. H)	In Section VII.G. (Development of Site-Specific Management Guidelines), language should be added to specify that the threshold values of Section V.H. are not to be used to establish site-specific management guidelines or regulatory targets	Sections V. A, B and VII. B prevent the inappropriate use of the LOE.	OCRDMD

No.	Subject	Comment	Response	Author
422	VII. G. (VII. H)	Risk-based evaluation methods should be considered as one available tool that can be used to establish site-specific management guidelines: In Section VII.G. (SQP Plan, p. 27), add the following: E. Risk assessment. Information from risk assessments, both for human health (as specified in Section VI) and for ecological risk, can be used in establishing site-specific remediation and management targets. Risk assessment utilizes site-specific information on pollutant concentration, bioavailability, and consumption to evaluate risks to receptor organisms. Adaptive management approaches should be considered in establishing cleanup targets.	The concept of using human health risk assessment is already described in Section VI. This draft plan does not address wildlife at this time.	WSPA
65	VII. G. (VII. H)	We suggest that the Regional Boards be directed to consider the percentage and severity of impacted sites (Possibly, Likely, and Clearly Impacted) within waterbodies not meeting the SQO narrative standards and develop a priority ranking (see detailed comments under the Draft Staff Report, Section 4.3).	Staff concur and have made changes to the draft to ensure that the site categories are prioritized based upon the severity of impact.	Caltrans FSI, LACSD, Tri-TAC
424	Attachment B. Station Assessment Categories	Several of the outcomes of the 64 combinations of MLOE station assessments appear to be overly conservative. We request that the following specific station assessments be re-examined	The station designations developed by the Science team were evaluated by the Scientific Steering Committee and judged to be appropriate. Further, the approach was used to assess embayments and the outcomes were deemed reasonable.	BACWA, Tri-TAC
425	Attachment B	No. 24: Consider ranking as "Likely unimpacted"	The current ranking is consistent with the principles for data interpretation developed in consultation with the Advisory Committee and Scientific Steering Committee. A change at this point of the program would be arbitrary.	BACWA, Tri-TAC
426	Attachment B	No. 26: Consider ranking as "Likely unimpacted"	The current ranking is consistent with the principles for data interpretation developed in consultation with the Advisory Committee and Scientific Steering Committee. A change at this point of the program would be arbitrary.	BACWA, Tri-TAC

No.	Subject	Comment	Response	Author
427	Attachment B	No. 27: Consider ranking as "Possibly Impacted"	The current ranking is consistent with the principles for data interpretation developed in consultation with the Advisory Committee and Scientific Steering Committee. A change at this point of the program would be arbitrary.	BACWA, Tri-TAC
428	Attachment B	No. 30: Consider ranking as "Likely unimpacted"	The current ranking is consistent with the principles for data interpretation developed in consultation with the Advisory Committee and Scientific Steering Committee. A change at this point of the program would be arbitrary.	BACWA, Tri-TAC
429	Attachment B	No. 42: Consider ranking as "Possibly Impacted"	The current ranking is consistent with the principles for data interpretation developed in consultation with the Advisory Committee and Scientific Steering Committee. A change at this point of the program would be arbitrary.	BACWA, Tri-TAC
430	Attachment B	No. 59: Consider ranking as "Likely Impacted"	The current ranking is consistent with the principles for data interpretation developed in consultation with the Advisory Committee and Scientific Steering Committee. A change at this point of the program would be arbitrary.	BACWA, Tri-TAC
	Appendix C	APPENDIX C - EXAMPLE PROBLEM (2008 Document) 1. Include the date on the cover sheet. 2. Number all of the pages. 3. Page 2, figure 1, the steps have been deleted.	Comment noted. At times, file conversions results in the loss of some graphics. Staff will replace the document with the graphics used in the previous staff report Appendix	TJ
431	Appendix C	The example provided highlights the effect of rounding up. In the example provided, the sediment in question was listed as "Possibly Impacted" as a result of the "rounding up" of the chemistry result. If the result was rounded down, the result would have been a low exposure to chemicals, and the category in the LOE combination table would have changed to "Likely Unimpacted". The policy or guidance should clarify how situations such as those shown in the example calculation should be addressed in the implementation of follow-up studies and management actions.	The revised Draft Part 1 recommends a strategy to confirm the classification of sites listed as Possibly Impacted in Sections V.I.4, Section VII.F. and Figures 1 and 2	BACWA, Caltrans, CVCWA, SRCSD, Tri-TAC
1130	Appendix D	APPENDIX D – Maps of Bay Protection Toxic Hot Spots. I did not find an equivalent document for 2007	Comment noted. Appendix D is posted on the web at http://www.swrcb.ca.gov/water_issues/programs/bptcp/docs/sediment/072208_appendix_d.pdf	TJ

No.	Subject	Comment	Response	Author
1131	Appendix E	Include the November 30, 2007 Public Comments list that was posted on the State Water Board'. Website's "Documents for Public Comment " section along with the responses, and any other comments not submitted in a timely manner on the September 27, 2007 Draft Staff Report	Verbal comments made at hearings and comments received during formal comment periods are included in this document and the administrative record	TJ
97	Editorial	Page iii - An executive summary is needed for the report	Comment noted.	WPHA,PWG
98	Typos	Page i (List of Tables) - The page numbering is incorrect as this page should be vi and the next page should be vii and so on	Comment noted.	WPHA,PWG
99	Typos	Page viii (correct page number) - The Appendix D should be Economic Consideration report (not High Priority Bay Protection Sites).	Comment noted.	WPHA,PWG
432	Typos	Page 8 and 9 correct figure numbering in the text to agree with the figures on page 11	Comment noted and correction made.	Sierra Club
433	Typos	Page 8, par. 3, line 1 - Figure 1 should be Figure 2.1	Comment noted and correction made.	DLS, WPHA, PWG, **JPK**
434	Typos	Page 8, par. 4, line 2 - Figure 2 should be Figure 2.2	Comment noted and correction made.	DLS, WPHA, PWG, **JPK**
435	Typos	Page 9, par. 2, line 6 - Figure 2 should be Figure 2.2	Comment noted and correction made.	DLS, WPHA, PWG
436	Typos	Page 9, par. 4, line 12 - Figure 1 should be Figure 2.1	Comment noted and correction made.	DLS, WPHA, PWG
437	Typos	In Section 3, Environmental Setting, the text refers to figures that are not present.	Comment noted and correction made.	Sierra Club WPHA, PWG, **JPK**
438	Typos	Page 17, correct spelling to Carpenteria Marsh. Page 23 and 25; correct table numbering in text to agree with the Tables	Comment noted and correction made.	Sierra Club
481	Typos	Page 17, last sentence: Delete “A summary of..” as this is redundant. The sentence should read: “Sediment quality related impairments…are summarized…” This same correction needs to be applied elsewhere in the document (i.e., pages 18, 21).	Comment noted and correction made.	**JPK**
482	Typos	Page 18: Figure 4 is not present.	Comment noted and correction made.	**JPK**
483	Typos	Page 19: Use consistent capitalization in Table 3.6.	Comment noted and correction made.	**JPK**
484	Typos	Page 21: Figures 5, 6 & 7 are not present	Comment noted and correction made.	**JPK**

No.	Subject	Comment	Response	Author
485	Typos	Page 23: Figure 11 is not present. Also, this would appear to be Figure 8 as nos. 8-10 are not called out in the text	Comment noted and correction made.	**JPK**
486	Typos	Page 24: Figure 12 is not present	Comment noted and correction made.	**JPK**
487	Typos	Page 25, last sentence: "A summary of… impairments are…" should be "A summary of… impairments is…"	Comment noted and correction made.	**JPK**
128	Typos	Page 28: "Sediment samples were collected only	Comment noted.	**DLS**
488	Typos	Page 31, first sentence: Replace "pollutant" with "toxicant" (a TIE process is just as valuable if it identifies a naturally occurring toxicant)	Comment noted and correction made.	**JPK**
489	Typos	Page 32, first paragraph: Period is missing at the end of the last sentence	Comment noted and correction made.	**JPK**
490	Typos	Page 32, last sentence of 2nd paragraph: "This results is.." should be "This result is.."	Comment noted and correction made.	**JPK**
439	Typos	Page 34, second paragraph under 4.3: "humanhealth" should read "human health".	Comment noted and correction made.	**DLS, JPK**
130	4.4.2	Page 39, third paragraph under 4.4.2: "…guidelines used recently currently…" This sentence doesn't make sense.	Comment noted.	**DLS**
440	Typos	Page 40 Bite should be Bight	Comment noted and correction made.	Sierra Club, **JPK**
441	Typos	Page 40, par. 1, line 9 - There is no Smith et al 1999 reference in the reference section	Comment noted and correction made.	WPHA, PWG
491	Typos	Page 40: A return is missing between the 2nd and 3rd paragraphs.	Comment noted and correction made.	**JPK**
492	Typos	Page 40, last paragraph: tributyltin should be lower case		**JPK**
493	Typos	Page 42, Section 4.6: The last sentence should be part of the paragraph above it.	Comment noted and correction made.	**JPK**
442	Typos	Page 54, correct Section 1.3 to 1.2 under the paragraph for Alternative 1	Comment noted and correction made.	Sierra Club
495	Typos	Page 67, column heading: "lababoratoriess" should be "laboratories."	Comment noted and correction made.	**JPK**
494	Typos	Page 55: Table 1 should be Table 5.1	Comment noted and correction made.	**JPK**
443	Typos	Pages 70, 71 correct the term Plate to Figure	Comment noted and correction made.	Sierra Club. WPHA, PWG
444	Typos	Page 71, par. 3, line 3 - Plate XX needs to be filled in and described as Figure "XX	Comment noted and correction made.	WPHA, PWG, **JPK**
445	Typos	Page 72, line 5 - Plate 5.1 should be Figure 5.1	Comment noted and correction made.	WPHA, PWG, **JPK**

No.	Subject	Comment	Response	Author
496	Typos	Page 88, Table 5.13: "Disagreement values represent is the …" should be "Disagreement values represent the	Comment noted and correction made.	**JPK**
446	Typos	Page 85, par. 3, line 6 - Plate 5.2 should be Figure 5.2.	Comment noted and correction made.	WPHA, PWG
497	Typos	Page 88, Table 5.13: "Disagreement values represent is the …" should be "Disagreement values represent the	Comment noted and correction made.	**JPK**
447	Typos	Appendix A, page 22 Section D.1, second line: correct then to than	Comment noted and correction made.	Sierra Club
448	Typos	Section V.H. There are two subsections numbered 3 under Sediment Chemistry. Integration of Sediment Chemistry Categories should be subsection 4.	Comment noted and correction made.	LACSD
449	Typos	Attachment A; correct Fuorene to Fluorene	Comment noted and correction made.	Sierra Club
480	Typos	Global: Spell out first use of acronyms (e.g., ERM, TIE, etc.)	Comment noted and correction made.	**JPK**
498	Typos	Appendix C: Figure 1 is blank	Comment noted and correction made.	**JPK**
1071	Typos	1. Page ii, Table of Contents, Section 4 indentations.	Comment noted and correction made.	TJ
1072	Typos	2. Page iii, Table of Contents, section 5 indentations.	Comment noted and correction made.	TJ
1073	Typos	3. Page iii, Table of Content., Section 5.7: the " " between 7 and Application.	Comment noted and correction made.	TJ
1074	Typos	4. Page 46, top of page, second paragraph and second bullet point, spacing.	Comment noted and correction made.	TJ
1075	Typos	5. Page 54, second and third paragraphs, spacing.	Comment noted and correction made.	TJ
1076	Typos	6. Page 55, Section 4.2.4, first paragraph and bullet points, spacing.	Comment noted and correction made.	TJ
1077	Typos	7. Page 60, the Sections numbers for Municipal and Industrial Discharges, and Construction, and Caltrans are missing.	Comment noted and correction made.	TJ
1078	Typos	8. Page 80, "Alternative 4:" is not in bold; it is not consistent.	Comment noted and correction made.	TJ
1079	Typos	9. Page 117, "Baseline:" has been deleted.	Comment noted and correction made.	TJ
1080	Typos	10. Page 121, "Staff Recommendation Alternative has been deleted.	Staff Supported Alternative 2 the addition of figures 1 and 2. The correction will be made	TJ
1081	Typos	APPENDIX B – Environmental Checklist 1. Page 7, number 12 (Population and Housing), delete second "Draft" from Board staff statement.	Comment noted and correction made.	TJ
		PEER REVIEWER RESPONSES		

No.	Subject	Comment	Response	Author
450	General	Reviewing these materials turned out to be a somewhat daunting task given the complexity, depth and breadth of information provided. At the same time, I am very impressed by the level and quality of work that has been done by Board staff and others to support the preparation of this document. Your agency received excellent input from a highly qualified technical team and an impressive scientific steering committee.	Comment noted.	**LCS**
	General	The Water Quality Control Plan for Enclosed Bays and Estuaries (Part 1: Sediment Quality) presents a comprehensive and well-defined approach for the assessing the potential hazard posed by contaminated sediments in California's bays and estuaries. The staff has clearly put considerable effort into rigorously evaluating the state of the art and has provided recommendations that are tailored for application in California. Appropriate and rigorous evaluations of existing national and regional methods were conducted. Recommendations for creation of sediment quality objectives were based on a critical evaluation of existing data as well as sound expert judgment.Overall, the staff has used sound scientific knowledge, methods, and practices to derive the proposed recommendations for sediment quality objectives. No significant flaws or deviations from accepted scientific practice were found. Accordingly, the suggestions for corrections or modification are intended to clarify the proposed guidelines for assessment of sediment quality	Comment noted.	**JPK**
	Peer Review Question	**1. Are benthic invertebrates important ecologically relevant receptors to protect from direct exposure to toxic pollutants in sediments within the bays and estuaries of California?** Yes, and the rationale for protecting benthic invertebrates are presented very well in the report.	Comment noted.	**DMD**

No.	Subject	Comment	Response	Author
470	Peer Review Question	**1. Are benthic invertebrates important, ecologically relevant receptors to protect from direct exposure to toxic pollutants in sediments within bays and estuaries of California?** The use of benthic invertebrates as ecological indicators of sediment contamination is well accepted by the scientific community and is not a controversial issue. Because benthic invertebrates are in intimate contact with sediments and pore water, they represent biota with the greatest potential for exposure to sediment-sorbed contaminants. Section 5.3 of the draft report outlines a sound rationale for selection of indicator organisms that are at greatest risk of exposure to sediment-sorbed contaminants. The staff recommendation to focus on beneficial uses linked to specific receptors is appropriate and provides proper focus for implementation. Furthermore, the recommendation to focus on the use of understood receptors (i.e., benthic invertebrates) is practical and does not exclude the use of fish and wildlife in broader ecological risk assessments.	Comment noted.	**JPK**
459	Peer Review Question	1. **Are benthic invertebrates important, ecologically relevant receptors to protect from direct exposure to toxic pollutants in sediments within bays and estuaries of California?** The Board has clearly stated in Section 5.3.2 of the Report the rationale for protecting benthic invertebrates. While benthic invertebrates will never qualify as charismatic megafauna, they are integral and important parts of estuarine and coastal ecosystems in terms of food webs and key ecosystem services that directly benefit humans. They are used in most, if not all, major monitoring programs at the Federal and State levels. Some potential limitations of using benthic invertebrates (infauna) for monitoring and assessment programs have been outlined by Gibson et al. (2000). These are discussed below, however, none relate to the ecological relevance of this group.	Comment noted	**LCS**

No.	Subject	Comment	Response	Author
460	Peer Review Question	**2. Are multiple lines of evidence appropriate to assess the potential risk to benthic invertebrates from toxic pollutants in sediments within bays and estuaries of California?** The complexity of estuarine and coastal ecosystems makes it challenging to develop methods to assess impairment. The use of multiple lines of evidence (MLOEs) has become more or less mandatory and is widely employed worldwide.. In the Report, the Board recommends the use of multiple lines of evidence for decision-making. The benefits of using MLOEs are clearly stated in Section 5.5. The rationale for selecting each LOE is provided in the Report and associated Appendices. These are the most widely employed LOEs (e.g. sediment triad) for assessing environmental impairment, so their selection here is not surprising. Effective application of the MLOEs to decision-making depends on the thresholds for each component of the individual LOEs and how the LOEs are integrated. These issues are discussed below.	Comment noted	**LCS**
471	Peer Review Question	**2. Are multiple lines of evidence appropriate to assess the potential risk to benthic invertebrates from toxic pollutants in sediments within bays and estuaries of California?** The draft report recommends that multiple lines of evidence (MLOE) be used to assess the potential risk posed to benthic invertebrates by sediment-sorbed contaminants. This approach, which is already routinely used by state and federal agencies, is necessary due to the variability in sediment type, contaminant distribution, and ecosystem characteristics between and within sites. Due to these multiple sources of variability, no single line of evidence has been demonstrated that can reliably account for these variables and their influence on contaminant bioavailability. Accordingly, use of multiple test organisms, in-situ responses and assessment of laboratory exposures to field sediments remains the most accurate way to account for contaminant availability and deleterious effects.	Comment noted	**JPK**

No.	Subject	Comment	Response	Author
472		Section 2 of the draft report presents a conceptual model for the behavior of contaminants in sediments. Figure 2.2 presents processes by which contaminants may interact with sediment, biota and water. It would be appropriate to indicate that bioturbation can contribute to entrainment of contaminants in sediment as well as resuspension. This could be accomplished by adding a rotating arrow within the sediment on the right side of the figure.	Comment noted.	**JPK**
473		Section 5 of the draft report provides an evaluation of alternatives to the adoption of sediment quality objectives (SQOs). Staff recommendations advocate the adoption of SQOs for bays and estuaries, with a reference envelope approach being proposed for estuaries. Because estuaries tend to have more dynamic water chemistry than bays, a less robust approach is appropriate. The statement that the bioavailability of hydrophobic organic and inorganic pollutants is strongly influenced by salinity (bottom of page 53) should be modified to state that bioavailability can be influenced by salinity. While the bioavailability of hydrophobic contaminants may be influenced in the transition from marine to estuarine systems, the magnitude of the effect is not always large.	Comment noted. Staff have amended the text.	**JPK**
	Peer Review Question	**2. Are multiple lines of evidence appropriate to assess the potential risk to benthic invertebrates from toxic pollutants in sediments within the bays and estuaries of California?** Clearly multiple lines of evidence are required to assess the potential risk to benthic invertebrates from toxic pollutants in sediments. This is the case both within the bays and estuaries of California and for other sites, e.g. streams, rivers and lakes. The report presents the rationale and appropriate citations to the literature supporting this position.	Comment noted.	**DMD**

No.	Subject	Comment	Response	Author
461	Peer Review Question	**3a. Are the proposed sediment toxicity indicators appropriate for assessing both the potential risk of exposure from toxic pollutants and the biological effects in benthic invertebrates within bays and estuaries of California?** In addition to the Report, I reviewed the document by Bay et al. (2007), which was included as Attachment 5. The methods used to select the recommended toxicity tests are robust and well described. Both acute and sublethal tests are included, which will serve to increase confidence in the test data. Test results are averaged to create a LOE for integration with the other major LOEs. I am less certain about the provision that allows for additional toxicity tests as described in Appendix A, Section V. F. Isn't it likely that this option would be employed only when the initial tests show toxicity? If the tests already recommended for this LOE are considered the most sensitive and reliable, why allow additional tests to be added?	Comment noted. Staff have deleted the text in the draft plan that supports the use of additional toxicity tests.	**LCS**
474	Peer Review Question	**3a. Are the proposed sediment toxicity indicators appropriate for assessing both the potential risk of exposure from toxic pollutants and the biological effects in benthic invertebrates within bays and estuaries of California?** The proposed acute and sublethal toxicity tests are appropriate for assessing the risk of exposure and biological effects in sediments in California. The use of both acute and sublethal endpoints is necessary to assess contaminant availability and toxicity. The proposed tests were derived by evaluating a variety of candidate tests for feasibility, performance, and cost. Pore water and sediment elutriate tests were not evaluated as they were deemed to be impractical for routine use. This is a reasonable conclusion. Thresholds were derived by assessing test variability and distribution of the toxicity response data. The use of toxicity threshold values is appropriate and should prove to be a useful tool for discriminating between sites. Although such an approach is unprecedented, the basis for establishing these thresholds is sound.	Comment noted.	**JPK**

No.	Subject	Comment	Response	Author
	Peer Review Question	**3a. Are proposed sediment toxicity indicators appropriate for assessing both the potential risk of exposure from toxic pollutants and the biological effects in benthic invertebrates within the bays and estuaries of California?** The analysis of the available toxicity tests and the methodology presented in the report for converting toxicity tests for use in judging the level of toxicity appears to be sound. I find the rejection of the Ampelisca abdita test a little strange since the test is employed widely, but a rationale is presented	The Ampelisca test was not recommended for use because this test had a lower sensitivity to California sediments than other commonly used amphipod test species (Bay et al. 2007. Evaluation of methods for measuring sediment toxicity in California bays and estuaries. Technical Report 503. Southern California Coastal Water Research Project. Costa Mesa, CA.). In addition, some California laboratories reported greater difficulty in conducting a successful test with Ampelisca compared to other species.	**DMD**
462	Peer Review Question	**3b. Are the proposed sediment chemistry indicators appropriate for assessing the potential risk of exposure from toxic pollutants to benthic invertebrates within bays and estuaries of California?** Section 5.5.3.2 of the Report, Section V. H of Appendix A, Attachment 6 and the Ritter et al (2007) document (sent under separate cover by C. Beegan), describe the methods and approach for using sediment chemistry indicators. The wording of the baseline and alternatives in Section 5.5.3.2 of the Report to be somewhat fuzzy relative to the wording in Section V. H of Appendix A which clearly states that "sediment chemistry exposure will be assessed using the two following methods: [CSI and CA LRM]." The CSI is a new method, which provides a means to define chemical indicators based on benthic community effects while the CA LRM is based on toxicity tests. The information provided suggests that the methodology is robust, and the idea of using benthic community data as a means of developing a sediment chemistry indicator has it's appeal, but, I urge caution in the application of this indicator until it has been peer-reviewed	Staff agrees and is using a cautious approach that consists of two elements: 1) the CSI is always used in combination with a more established SQG approach, the CA LRM; and 2) assessment results are not determined solely by the chemistry LOE results, but through a multiple lines of evidence approach. In addition, the CSI approach is presently undergoing peer review.	**LCS**

No.	Subject	Comment	Response	Author
475	Peer Review Question	**3b. Are the proposed sediment chemistry indicators appropriate for assessing the potential risk of exposure from toxic pollutants to benthic invertebrates within bays and estuaries of California?** The proposed chemistry indicators presented in Section 5.5.3 of the draft report were derived from existing state and national guidelines as well as from new indicators. The use of sediment quality guidelines (SQGs) in the absence of other information is not recommended as they are not always accurate predictors of sediment toxicity. The situation in which effects are observed in the absence high pollutant concentrations (pg. 75) illustrates this point. The report states two possible reasons for such an occurrence: 1) the presence of a non-pollutant related stressor such as physical disturbance, or 2) the presence of an undetected pollutant. The second reason should be modified to include possible toxicants that may not be pollutants (e.g., algal toxins, sulfides). Conversely, the lack of effects when pollutants levels are high may be due to low bioavailability.	Staff agree and have developed a policy that addresses confounding factors through stressor identification.	**JPK**

No.	Subject	Comment	Response	Author
475 co		The statement is made that simple, effective approaches to quantify bioavailability are not currently available. While this statement is generally true, the presence of acid volatile sulfides (AVS) has been shown to inhibit the bioavailability (and toxicity) of metals in a quantifiable manner (i.e., toxicity is not observed when AVS concentrations exceed the sum of the concentration of metals)	Staff agree and have proposed the use of AVS in stressor identification where specific metals are a concern.	**JPK**
476		The authors have recognized the shortcomings of SQGs and recommend that sediment chemistry only be used as a surrogate measure of exposure and that it be used with other lines of evidence. Given the lack of reliability of SQGs, this is a prudent approach. In addition, the recommendation that the State use existing, regional, or new SQGs derived from California data is appropriate. This rationale was derived from an assessment presented in Attachment 6, which demonstrated that a logistic regression model approach is preferred due to its ability to incorporate new data.	Comment noted.	**JPK**

No.	Subject	Comment	Response	Author
453	Peer Review Question	**3b. Are proposed sediment chemistry indicators appropriate for assessing both the potential risk of exposure from toxic pollutants to benthic invertebrates within the bays and estuaries of California?** The sediment chemistry indicator developed in the report is incomplete. As the report states, there are two general methods available for assessing the potential for toxicity in sediments: empirical and mechanistic. The report embraces the empirical method and dismisses the mechanistic method in a few sentences. However both empirical and mechanistic methods are incomplete. Neither method can predict with more than a modest degree of certainty the outcome of a toxicity test on a sediment from the field that is contaminated with many, and possibly unknown and unmeasured contaminants	Staff agrees with the Reviewer's assessment. Use of both types of guidelines are appropriate, but for different uses. Empirical SQGs are specified in the policy for use in station assessment, while mechanistic SQGs and bioavailability measures are identified as appropriate tools for stressor identification.	**DMD**
453 co		The mechanistic criteria as evaluated by Vidal and Bay appeared to have no predictive ability at all in this data set. I have prepared an appendix attached to this review that discusses these issues in more detail. It illustrates the applicability of mechanistic criteria to the available data to demonstrate their utility, even if the necessary data for a complete and rigorous application are not available. As demonstrated in the appendix, role of mechanistic criteria is not to predict toxicity. For the reasons given above and as presented in more detail in the appendix, the role of mechanistic criteria is to determine if the observed toxicity can be explained by known modes of bioavailability and toxic mechanisms. The results can be used to judge whether the chemical cause of the toxicity for particular sediment is likely to be metals, PAHs and other narcotics, or the pesticides that have been measured. The alternative is that none of these classes of chemicals appear to be the cause of the observed toxicity and the situation is quite uncertain. If the later is the case, then the result of the best professional judgment assessm		**DMD**

No.	Subject	Comment	Response	Author
463	Peer Review Question	**3c. Are the benthic community indicators appropriate for assessing biological effects through benthic community condition within bays and estuaries of California?** As noted by Gibson et al. (2000), "Individual macroinvertebrate species have sensitive life stages that respond to stress and integrate effects of short-term environmental variations, whereas community composition depends on long-term environmental conditions." The community level benthic indicators being averaged for this LOE should be protective of sensitive benthic species, as a component of benthic community integrity, for two reasons. First, some of the indicators explicitly include estimates of species sensitivity as metrics and second, the overall thresholds (for combining MLOEs) for defining impacted versus non-impacted conditions are relatively conservative (protective).	Comment noted.	**LCS**
464		There are some limitations to using macrobenthos as indicators, but these are primarily methodological. Gibson et al (2000) listed the following: 1.Relatively few state and federal programs have the necessary in-house taxonomic expertise. 2. Current methods can distinguish severely impaired sites from those that are minimally impaired. However, it can be difficult to discriminate between slightly or moderately impaired areas, particularly in estuaries. (note: this concern is probably not relevant given 1) multiple condition thresholds have been adopted for each LOE and 2) the specific method being used to integrate the MLOEs) 3. The condition of benthic habitats can vary over relatively small scales. Therefore, if too few samples are collected from a specified area, the ambient heterogeneity to be expected may be missed, potentially leading to incorrect conclusions regarding the biological and water quality conditions in the area; 4. The cost and effort to sort, count and identify benthic invertebrate samples can be significant.	Staff agree. The limitations of the benthic LOE are described in the staff report and serve to reiterate why other lines of evidence are employed as well.	**LCS**

No.	Subject	Comment	Response	Author
465		Many of these concerns can be addressed by stipulating sampling protocols, methodologies for processing samples, steps that need to be taken to ensure proper taxonomic identifications and general QA/QC guidelines. There is only limited discussion of sampling designs, levels of replication needed or specific field methodologies in Appendix A. Perhaps this is beyond the intended scope of the documents being reviewed.	In many of the bays and estuaries acceptable sampling protocols have been developed for regional monitoring through SWAMP, the Southern California Bight Regional Monitoring Program or the San Francisco Bay Regional Monitoring Program. As a result, staff did not feel it was necessary to include sampling procedures in the draft Part 1.	**LCS**
592	Peer Review Question	**3c. Are the proposed benthic community indicators appropriate for assessing the biological effects through benthic community condition within bays and estuaries of California?** Because bays and estuaries in California have diverse habitats and benthic assemblages, there has not been consensus on the application of a standard benthic index. In this report, 5 benthic indices were evaluated by calibrating with a common data set. Threshold values were subsequently selected and performance was evaluated by expert judgment. This assessment revealed that using multiple indices generally resulted in greater accuracy. The recommendation to select a combination of benthic indices for applicable water bodies is appropriate; however, the specific indices to be used are not identified in the recommendation	The indices are described in Section V.G of the draft Part 1.	**JPK**
	Peer Review Question	**3c. Are the proposed benthic community indicators appropriate for assessing the biological effects through benthic community condition within the bays and estuaries of California?** The report presents the rationale and methodology for selecting the benthic community indicators and they appear to be sound.	Comment noted.	**DMD**

No.	Subject	Comment	Response	Author
466	Peer Review Question	**4. Integration Framework. Is the integration framework appropriate for determining if a station meets the narrative objective?** The approach recommended in the report is a transparent, logic-based framework for integrating MLOE to make a station level determination of the likelihood of biological effects due to sediment. This system was developed in consultation with a stakeholder advisory committee and an independent scientific steering committee. The logic-based MLOE assessment framework developed allows for an ordinal classification of sites and a definitive conclusion regarding sediment quality at a site. Based on the results presented in Table 5.13 there is evidence that the framework is at least as effective as best professional judgment, and probably more consistent. However, the number of experts used to make this comparison seems relatively small given the high variability among their assessments	Comment noted.	**LCS**
467		Why is it that BPJ works so well for evaluating benthic community condition and less so for evaluating the MLOE data?	Benthic ecologists may use different means to assess community health, but they all are based upon the same basic principles of community ecology, species tolerance and function. There are no well established principles for evaluating multiple lines of evidence. As a result, the MLOE experts assess or weigh the individual LOE differently. Consequently, there is greater variability in their assessments.	**LCS**

No.	Subject	Comment	Response	Author
477	Peer Review Question	**4. Integration framework: Is the integration framework appropriate for determining if a station meets the narrative objective?** In Section 5.5 of the draft report, a logic-based framework is proposed that assigns each line of evidence into one of four response categories. The proposed classifications for severity of effects are rational as are the categories defining the potential that effects are chemically mediated. The six impact categories that define potential outcomes (5 levels of impact, 1 inconclusive) provide a reasonable range of effect classification and have been logically incorporated into a classification scheme. The proposed non-equal weighting framework is attractive because it considers the potential for exposure and the magnitude of biological effects.	Comment noted.	**JPK**
480		In comparing the performance of this framework with expert judgment, the framework performed well and could accurately distinguish degraded and reference sites in California. Because subjective judgment tends to be a factor in any assessment approach, the proposed framework is acceptable as its underlying methods are suitably transparent.	Comment noted.	**JPK**
	Peer Review Question	**4. Is the integration framework appropriate for determining if a station meets the narrative objective?** The integration framework – the quantification of best professional judgment (BPJ) – is to be commended. It produces a specific outcome for the data to be evaluated. The test of the method by experts on a small dataset is a nice demonstration of its utility in quantifying BPJ and making it applicable to specific sediment. I would suggest one further test. Evaluate the entire dataset for which the necessary triad information is available. What proportion of the tested sediments is in which level of concern? There are a number of arbitrary cutoff levels in the framework, and it is important to know if these choices trigger many highly toxic sediments. A criterion that is too restrictive and triggers too many false positives is not a useful regulatory tool	This analysis has been conducted. A data set consisting of 381 samples from throughout the state was analyzed using the assessment framework and the results were found to be reasonable and consistent with previous studies. Additional evaluations will be conducted in the future and the results used to determine if revisions to the framework are needed.	**DMD**

No.	Subject	Comment	Response	Author
468	Peer Review Question	**5. Is the implementation of the narrative SQO appropriate, given the limitations of the individual tools and potential uncertainty associated with sediment quality assessment?** The individual tools have been used together and individually to assess sediment quality for more than a decade. What is new here is the development of numerical thresholds for each LOE and a defined logic-based approach for weighting the LOEs to reach a decision about the status of a site. The rationale for setting thresholds has been given in detail in the Report or the supporting documents. As far as I can ascertain, the thresholds are based on consideration of large datasets and data that has undergone rigorous QA/QC. There is appropriate characterization of the variance structure in each dataset. As I understand from the Report, the overall approach is robust, reliable and defensible. It allows for a clear definition of conditions that will protect benthic communities and component species from habitat degradation and/or toxicity as a result of direct exposure to pollutants in sediments and using the best available data and methodologies.	Comment noted.	**LCS**
469		As I understand from the Report, the overall approach is robust, reliable and defensible. It allows for a clear definition of conditions that will protect benthic communities and component species from habitat degradation and/or toxicity as a result of direct exposure to pollutants in sediments and using the best available data and methodologies.	Comment noted.	**LCS**

No.	Subject	Comment	Response	Author
478	Peer Review Question	**5. Is the implementation of the narrative SQO appropriate, given the limitations of the individual tools and potential uncertainty associated with sediment quality assessment?** Implementation of the proposed narrative SQO is appropriate and has been defined in a rigorous manner. Single lines of evidence such as toxicity or chemistry are not appropriate for regulation of sediments, which present more complexity than the water column. Because the sediment quality triad (i.e., chemistry, toxicity, benthic community) presents the most robust approach for assessment of sediments, it is the most appropriate approach for implementing the narrative SQO. This approach is more complex and costly than traditional assessments of water quality, but is necessary to provide data sufficient to make sound judgments.	Comment noted.	**JPK**
479		Although this approach would still rely heavily on expert judgment, it is sufficiently robust to be applied. The staff recommendation appropriately recognizes that additional development and evaluation will be required before a detailed approach is considered.	Comment noted.	**JPK**
	Peer Review Question	**5. Is the implementation of the narrative SGO appropriate given the limitations of the individual tools and potential uncertainty associated with sediment quality assessment?** I would strongly recommend the inclusion of the results of an analysis of the data using mechanistic criteria for the purposes of determining the probable cause(s) of toxicity, or whither the cause is unknown. An example application is included in the appendix to this review.	The use of mechanistic criteria is recommended in Section VII.F Stressor Identification.	**DMD**

No.	Subject	Comment	Response	Author
	Peer Review Question	**6. Are there any additional scientific issues that are part of the scientific basis of the proposed rule not described above?** I would recommend that a report be prepared that documents the calculations that lead to the LRM in the report so that the analysis can be reproduced, including the analysis leading to Table 2 from Direct Effects Calculation. In order to apply mechanistic criteria without the approximations used in the appendix, certain data are required. Although the historical data may not include the appropriate measurements, all future data collection should include at least: SEM and AVS for a proper assessment of metal toxicity; a complete suite of PAHs including alkylated PAHs and sediment organic carbon to evaluate PAH toxicity. Not requiring such data is not consistent with using the best science.	A publication describing the details of the CA LRM development and calibration is in development, with completion expected in 2008. Formal reporting of previous mechanistic criteria calculations are not planned, as the mechanistic approach is not included in the tools for assessing sediment chemistry in Section V.H. of the Plan	**DMD**
	Peer Review Question	**6. continued.** Section 5.7.4. The staff recommendation is to apply the narrative SQGs to NPDES permits as receiving water limits. Unless mechanistic criteria can successfully identify the chemical causes of the toxicity it is not possible to establish receiving water limits. As discussed above it is the universally agreed that empirical criteria cannot be used to identify the chemical causes of toxicity.	The Draft Part 1 applies receiving water limits to assess the permittees potential impacts on sediment quality. There is no intent to determine cause using these assessment tools. If impacts are identified the next step would be determine the cause, and that would be where the mechanistic criteria could be applied as discussed in Section VII.F of the draft Part 1.	**DMD**

No.	Subject	Comment	Response	Author
452	Peer Review Question	**6. In reading the staff technical reports and proposed implementation language are there any additional scientific issues that are part of the scientific basis of the proposed rule not addressed in the specific questions below?** While I believe that I understand the general intent of the SGO, I find that the specific wording used to state the purpose is not clear and varies from one section to another in the documents I have been sent	Staff agree that the wording was confusing. Both the 1991 Workplan and 2003 Workplan adopted by the State Water Board stated that the objective was to protect sensitive aquatic life represented by sediment dwelling organisms (e.g. benthic macroinvertebrate community). The proposed narrative objective was intended to achieve that goal and states that pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities in bays and estuaries of California. The proposed approach was designed specifically to interpret this narrative and also acknowledges that benthic communities are affected by other factors and, as a result, utilizes other indicators (sediment toxicity and chemistry) as well. As for concerns about setting precedence via the selection of benthic communities versus the protection of benthic organisms, there is no compelling information in the literature to suggest that organism based indicators are more protective then community based indicators (See Staff Report Section 5.4).	**LCS**
452 co		Section 1.2 of the Report, states that the SQO "must provide adequate protection for the most sensitive aquatic organisms." This may be broadly interpreted to apply to individuals, species, populations or community-level sensitivity, or narrowly interpreted to apply only to individual species. Thus, I wondered if there is a precedent for interpretation		**LCS**
452 co		In Appendix A of the Report, Section IV states "Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities in bays and estuaries of California." Here the emphasis is on benthic communities		**LCS**

No.	Subject	Comment	Response	Author
452 co		The “Plain English Summary” (Attachment 1) for the Report indicates that in this application the SQO is intended to “protect benthic invertebrates from community degradation and/or toxicity as a result of direct exposure to pollutants in sediments.” I recommend changing community degradation to environmental degradation		**LCS**
452 co		Section V of Appendix A states that the tools used to develop MLOEs are “intended to assess the condition of benthic communities relative to potential exposure to toxic pollutants in sediments.” Here again the emphasis is on benthic communities	4	**LCS**
453		Protecting “the most sensitive organisms”/individuals/species and protecting benthic communities are not necessarily the same thing. As noted by Gibson et al. (2000), “Individual macroinvertebrate species have sensitive life stages that respond to stress and integrate effects of short-term environmental variations, whereas community composition depends on long-term environmental conditions.” I infer that the main intent of the Board is to ensure protection of benthic community integrity from environmental degradation. This should be clarified because the interpretation of the SQO is the basis for selecting LOEs, how thresholds are set for each LOE, and how MLOEs are weighted. I’m not certain that protecting benthic community integrity ensures that no sensitive species are adversely impacted unless you have that in mind when selecting LOEs, defining thresholds, and deciding how to weight MLOEs.	As stated in Section 2 of the draft Staff Report , the benthos is the biological community most directly exposed to changes in benthic habitat conditions such as chemical contamination. Although certain species or groups of benthic species are known to be more sensitive to general disturbance than others, the variability in the nature of stressors potentially present at any given site, as well as the site history, prevents a single most sensitive species to be singled out as the target of policy protection. However, its is important to understand that the benthic community is composed of individual organisms representing many species from different families, classes, and phyla with a range of trophic relationships and life histories (longevity, foraging strategies, reproductive modes, etc).	**LCS**

No.	Subject	Comment	Response	Author
453 co			This phyllogenetic and ecological diversity assures that changes within the benthic habitat will elicit responses evident in the make up of the benthic community. These changes are the result of the response of individual species to the presence of stressors with those most sensitive showing the greatest and earliest response. The benthic indices developed and validated for use as the metric for the benthic line of evidence are designed to track this response. Along a stress gradient within a given habitat type, the progressive reduction or loss of members of the benthic community, beginning with those species most sensitive, drives the index values, allowing that change to be quantified and rated. A site that is within the reference condition as defined by the benthic indices is one in which stressors have not detectably altered the assemblage of species expected for the habitat. This provides a standard to assure that the sensitive species within the assemblage are protected	
458		By recommending the selection of Alternative 2 in Section 5.6 the Board is adopting a relatively conservative (protective) approach to providing a binary interpretation of the condition categories. Adopting this alternative should provide adequate protection for the sensitive components the benthic community. This could certainly be evaluated using the datasets in hand	Comment noted.	**LCS**
	Peer Review Question	**7. Taken as a whole is the scientific portion of the proposed rule based upon sound scientific knowledge methods and practices?** With the exception of the exclusion of mechanistic criteria for judging the possible chemical causes of toxicity – and this is a glaring problem – the implementation is based on sound scientific knowledge methods and practices.	Staff agrees with the Reviewer's assessment of mechanistic criteria. Use of both types of guidelines are appropriate, but for different uses. Empirical SQGs are specified in the policy for use in station assessment, while mechanistic SQGs and bioavailability measures are identified as appropriate tools for stressor identification.	**DMD**

No.	Subject	Comment	Response	Author
	Peer Review Question	**7. Taken as a whole, is the scientific portion of the proposed rule based upon sound scientific knowledge methods and practices?** I have reviewed the Draft Staff Report, as the accompanying attachments. The Report and supporting documents clearly outline the rationale and methodologies for developing approaches to address a Sediment Quality Objective (SQO) based on benthic invertebrates, toxicity tests and chemical data. The recommendations are based on the best available science and rigorous statistical testing, calibration and validation. Most of the scientific knowledge and methodologies on which the recommendations are based have been around for a decade or more and are well accepted by the scientific community. It is important to ensure that as better techniques and more data become available there are mechanisms in place that will allow for adaptive management and improvement in the approaches.	Staff agree.	**LCS**
	Abrev.	**Organization/on behalf of**	**Author**	
	BACWA	Bay Area Clean Water Agencies	Michele Pla (Tom Grovhoug provided verbal comments)	
	CASQA	California Stormwater Quality Association	Bill Busath (Kevin Buchan provided verbal comments)	
	Caltrans	California Department of Transportation	G.Scott McGowen	
	CCOC	California Chamber of Commerce	Valerie Nera (Paul Singerella provided verbal comments)	
	CLTNS	California Rice Commission, East San Joaquin Water Quality Coalition, Sacramento Valley Water Quality Commission	Tim Johnson, Parry Klassen, L. Ryan Broddrick	
	CSPA/SFBK	California Sport Fishing Alliance/San Francisco Baykeeper	Bill Jennings, Jen Kovecses, Sejal Choksi	
	CVCWA	Central Valley Clean Water Association	Debbie Webster (Tom Grovhoug provided verbal comments)	
	DLS	**Peer Reviewer**	**David L. Sedlak**	
	DMD	**Peer Reviewer**	**Dominic M. Di Toro**	
	DM	Public	Dave Montagne	

No.	Subject	Comment	Response	Author
	DS	U.C Berkeley	David Sunding	
	FLI	Flow Science Inc on bewhalf of City of Irvine, the Orange County Great Park Corporation, Lennar Heritage Fields, Shea Tustin Legacy Community Partners and the Irvine Company	Susan Paulson	
	GFL	G. Fred Lee and Associates	G. Fred Lee	
	Ginn D	Public	Ginn Doose	
	HBK	Humboldt Baykeeper	Pete Nichols, Michelle D. Smith	
	HTB	Heal the Bay	Kirsten James, Mark Gold	
	IEA	Industrial Environmental Association	Patti Krebss	
	JLB	Consultant	James L. Byard	
	JPK	**Peer Reviewer**	**John P. Knezovich**	
	LACSD	County Sanitation Districts of Los Angeles County	Philip L.Friess (Lisa Haney provided verbal comments)	
	LACo	Los Angeles Co Dept of Public Works and Los Angeles County Flood Control District	Donald L. Wolfe, Mark Pestrella	
	LADWP	Los Angeles Department of Water and Power	Clayton Yoshida	
	LCS	**Peer Reviewer**	**Linda C. Schaffner**	
	LW	Lathum Watkins on behalf of General Dynamics NASSCO	Kelly Richardson	
	LW1	Lathum Watkins	Robert Dickson	
	OCRDMD	County of Orange, Resources and Development Management Department	Chris Crompton	
	OCSD	Orange County Sanitation District	Michael D. Moore	
	PWG	Pyrethroid Working Group	Nicholas Poletika	
	QEA	Consultant	Elaine Darby	
	RB5	Central Valley Regional Water Quality Control Board	Kenneth D. Landau	
	SCCA	Sierra Club - California	Paul Mason	
	SCV	Santa Clara Valley Urban Runoff Pollution Prevention Program	Adam Olivieri	
	SFBK	San Francisco Baykeeper	Jen Kovecses, Sejal Choksi	
	SRCSD	Sacramento Regional County Sanitation District	Wendell H. Kido	
	SDCK	San Diego Coast Keeper	Gabriel Solmer	
	Sierra Club	Sierra Club - San Diego Chapter	Ed Kimura	
	TJ	Public	Teresa Jordan	
	Tri-TAC	Tri-TAC/CASA	Jim Colston (Tom Grovhoug provided verbal comments)	
	WPHA	Western Plant Health Association	Nasser Dean	

No.	Subject	Comment	Response	Author
	WSPA	Western States Petroleum Association	Kevin Buchan	
	Weston	Weston Solution Inc	David Moore	
	Abbrev.			
	CO	Continued		
	VC	Verbal Comment 02 05 08 Public Workshop		
	Notes:	Bold face type indicates a question posed to peer reviewers		
		Where peer reviewers responsed to the specific questions in the Peer Review Request Memo the responses are grouped by question. When a peer reviewer did not respond to the direct question the responses were added to the public comments under the Section the response was related to in the Draft Staff Report or Draft Part 1.		
	VII. G. (VII. H)	Section numbers in parentheses apply to the July 18 2008 document section numbers		