Amendments to the Water Quality Control Plan for Enclosed Bays and Estuaries of California:

Sediment Quality Provisions

Responses to Public Comments

Comment Letter No.	Author	Organization
1.	Jill Bicknell	California Stormwater Quality Association (CASQA)
2.	Lucia McGovern	Calleguas Creek Watershed Management Plan
3.	Todd E. Snyder	County of San Diego Department of Public Works
4.	Kay Mercer	KMI
5.	Enrique C. Zaldivar	City of Los Angeles Sanitation
6.	Kelly Richardson	Latham & Watkins on behalf of General Dynamics Corporation and Montrose Chemical Corporation of California
7.	Heather Tomley, Christopher Cannon	Port of Long Beach and Port of Los Angeles
8.	Karen Holman	San Diego Unified Port District
9.	Ian Wren	San Francisco Baykeeper
10.	Steven C. Nadeau	Sediment Management Work Group (SMWG)
11.	Kevin Buchan, (Susan Paulsen and Susan Kane Driscoll)	Western States Petroleum Association, Exponent

Comment letters are posted at: https://www.waterboards.ca.gov/water_issues/programs/bptcp/comments20171214.html

Note: A few commenters requested that their previous comment letters be incorporated by reference, these past comment letters as well as the responses are posted at: https://www.waterboards.ca.gov/water_issues/programs/bptcp/sqo_historical.html

The comments tabulated in the following pages are numbered according to comment letter.

No.	Comment	Response	Revision[1]
1.1	CASQA commends the efforts by the State Water Board in developing the updates to the Sediment Quality Objectives (SQOs) to address human health and believes these objectives incorporate much needed improvements to the science and requirements linking sediment and fish tissue for chlorinated pesticides and PCBs.	Comment noted.	No
1.2	In particular, CASQA would like to support the State Water Board's use of Office of Environmental Health Hazard Assessment (OEHHA) Advisory Tissue Levels for the Tier 1 Assessment in the Proposed Amendments.	Comment noted.	No
1.3	While CASQA supports the overall approach to the SQOs provided in the Proposed Amendments, there are a number of clarifications and modifications that are recommended to support the application of the Proposed Amendments throughout California	Comment noted. See response to comment 1.36.	No
1.4	General Comment: Implementation of Proposed Amendments appears resource intensive. As agencies responsible for implementation of regulatory initiatives like the Proposed Amendments, our assessment is the implementation of the Proposed Amendments is likely to be quite resource intensive. And while we recognize and appreciate the State Water Board making some changes that will reduce the burden (e.g., reducing the frequency of monitoring from every three years to every five years), we request that the State Water Board continue to look for ways to make implementation of the Proposed Amendments less resource intensive wherever possible. Some of our specific comments below provide suggestions for reducing the implementation burden.	Tier 1 was intended to reduce the resources necessary for monitoring by allowing for the use of existing data, where such data is available and applicable to the site in question. Existing monitoring data collected from regional monitoring programs is available in many waterbodies for contaminants in the primary species tissue and sediment. In those situations, a desktop study may be performed that would satisfy Tier 1 requirements. Additionally, see responses to comments 1.5 and 1.6.	No
1.5	The Proposed Amendments are unclear as to the procedures and minimum requirements for fish	The proposed amendments to the Sediment Quality Provisions in the Enclosed Bays and Estuaries Plan	Yes

[1] Revision pertains to a change made to the Proposed Final Staff Report and/or the Proposed Final Sediment Quality Provisions. A revision will be marked "Yes" only in the first instance the revision is described in the responses to comments.

	species monitoring. The Proposed Amendments make frequent references to fish species, fish size requirements, dietary guilds, and primary and secondary guild species, without additional clarification for the procedures and criteria required for groups to select fish species to monitor. The Proposed Amendments need to clearly specify the minimum number of fish species that need to be monitored and any requirements for selecting those species. If the fish species selection is solely based on the conceptual site model (CSM), the Proposed Amendments should clearly state that and remove other requirements and inconsistencies in the discussion. For example, Table 18 states that a minimum of two species shall be included in the assessment. Then bullet b under the Tier 2 chemical assessment that follows the table states that "Tissue from the primary species from each dietary guild should be used in the analysis". This text implies that at a site with multiple dietary guilds may need to collect up to nine species to conduct the assessment. This requirement could place a significant burden on fish tissue monitoring programs if they are mandated to collect species from each dietary guild as compared to identifying two primary species for monitoring.	(proposed Provisions) require monitoring a minimum of one species each from two different dietary guilds. Table 18 in the proposed Provisions was edited to clarify this requirement. Chapter IV.A.2.d.2) c. was also edited to state that "tissue obtained from among the primary species representing the dietary guilds which are," followed by the list of primary species. The goal is to ensure that end users select primary species that meet the requirements described in Table 18, Chapter IV.A.2.b.3), and Chapter IV.A.2.d.2). Appendix A-6 and the conceptual site model (CSM) are used to select the specific species that meet these requirements.	
1.6	Additionally, the provisions do not adequately address sites that may have limited fish species or restricted fishing requirements, such as those estuaries located on Naval bases in Southern California. For example, although Provision IV.A.2.b.3.4.b specifies that "Fish shall meet sportfish angling size requirements," the Proposed Amendments do not specify how a group should proceed if these size requirements cannot be met. Additionally, it is unclear how monitoring should be conducted if primary and secondary species cannot be collected at a site. One potential solution for limited fish species that has been used in Newport Bay is the identification and use of surrogate species where no primary or secondary species could be collected. Surrogate species need to have a clear linkage to the	Field procedures in Chapter IV.A. 2.b.3), Tier 2 data requirements in Chapter IV.A.2.d.2).c., and Table 18 have been revised to provide an alternative if it is not feasible to catch fish of legal size and to clarify conditions supporting the use of secondary species. The use of surrogate species is already addressed in Tier 3, see Chapter IV. 2.e.2)a in the proposed Provisions.	Yes

	site and be approved by the Regional Water Board Executive Officer. Surrogate species were only to be used for informational purposes; information on surrogate species by itself could not be used to make decisions.		
1.7	Revisions to the Proposed Amendment, including Provision IV.A.2.b.3 and Appendix A-6, should be made to reflect these needed clarifications and provide more flexibility for sites with limited fish species and fishing restrictions.	See responses to comments 1.5 and 1.6. Changes were not made to Appendix A-6 based on this comment.	No
1.8	CASQA Recommendation: Modify the Proposed Amendments to clearly state that only two fish species are required for monitoring, though more could be selected based on the CSM. The selected fish species should represent dietary guilds identified in the CSM and be from the primary species list where possible. However, if primary species are not available at the site, secondary species can be used. Where neither primary nor secondary species are available, surrogate species may be used for informational purposes – information on surrogate species by itself could not be used to make decisions. Surrogate species need to have a clear linkage to the site and be approved by the Regional Water Board Executive Officer.	See responses to comments 1.5 and 1.6.	No
1.9	Include language throughout the Proposed Amendments, including but not limited to Provision IV.A.2.b.3 and Appendix A-6, clarifying procedures and criteria for selecting fish species to monitor in waterbodies under conditions with limited fish species or other restrictions on fish monitoring (e.g., sportfish size, sportfishing prohibitions).	See responses to comments 1.5 and 1.6. Changes were not made to Appendix A-6 based on this comment.	No
1.10	Comment #2: Consideration of Historic Data for Tier 1 Assessments Provision IV.A.2.b.5 of the Proposed Amendments specifies that, “A conceptual site model (CSM) and study design as described in Chapter IV.A.4.d.5) must be developed prior to data analysis. Sediment and tissue data shall not be used to assess sediments in accordance with this plan, unless they are consistent with the CSM.” CASQA requests	Use of existing or historical data is allowed in Tier 1. The monitoring program design guidance in Chapter IV.A.4.d.5) was revised to provide flexibility in CSM development. In addition, Appendix A-5 was revised to state that the level of development and sophistication of the CSM depends on the Tier (1, 2 and 3) and complexity of the site being assessed. Some form of CSM is still required to inform study design or data analysis decisions.	Yes

	consideration of modifications that would allow a Tier 1 Screening Evaluation to be conducted using existing historical data without the development of a CSM. In cases where fish tissue data are not available, the Proposed Amendments could be revised to reduce the requirements for CSM development for sites where qualifying historical sediment data are available.	As described, the only requirements for Tier 1 are site boundaries, historical data availability and selection of fish species based on the waterbody. Collating this data and information would not require significant resources and is expected to guide the end-user and the applicable Regional Water Quality Control Board (Regional Water Board) on the appropriateness of the study and design.	
1.11	Some areas in California have been collecting data on fish tissue and sediment for many years. Modifying the requirements would allow use of these data for the initial Tier 1 assessment prior to investing in the development of a CSM. Because the Tier 1 assessments are intended to be conservative, if the thresholds are being met based on historic data that has been collected to characterize the site, there should be minimal risk that the SQOs are not being attained. If the Tier 1 assessment thresholds are not met, then a Tier 2 assessment is required and a CSM would be developed at that time.	Some form of CSM is required regardless of tier to ensure proper design and to inform the Regional Water Board of the decisions and assumptions used to guide the assessment. See response to comment 1.10.	No
1.12	Additionally, the Tier 1 assessment should provide some flexibility to include other available data that are relevant to the site to meet some of the Tier 1 assessment requirements. As discussed in the previous comment, there are sites were the primary and secondary fish species may not be present. The Tier 1 assessment should include allowances for sites where the data specified in the Proposed Amendments are not collected, despite efforts to do so.	Tier 1 assessment allows the use of sediment chemistry data only, fish tissue chemistry data only, or both fish tissue and sediment chemistry together. If appropriate fish tissue chemistry data are not available when planning a Tier 1 assessment, the end user should consider using available sediment chemistry data.	No
1.13	CASQA Recommendation: *Remove requirement to do a full CSM before Tier 1 assessment where fish tissue data exist that meet the Tier 1 data requirements or allow for a modified, lower level CSM for Tier 1 assessment of sediment data.*	See responses to comments 1.10, 1.11, and 1.12.	No
1.14	*Modify Provision* IV.A.2.b.5.2 as follows: *b. Sediment data must include matching total organic carbon content. If total organic carbon data are not available, an estimate may be proposed in the CSM. d. Only tissue from those species listed in Appendix A-6 shall be used in the analysis. Secondary species or an*	See responses to comments 1.10, 1.11, and 1.12. Additionally, the text in Chapter IV.A.2.c.5) of the proposed Provisions has been revised to clarify the potential outcome (unimpacted or proceed to Tier 2) when either tissue or sediment are applied in Tier 1 or when both are applied.	Yes

	alternative list of species based on site specific factors may only be used if primary species are not collected from the site, despite efforts to do so. Comment #3: Clarification of Interpretation of Tier 1 Assessment Results As currently drafted, the proposed amendments are not clear on how to interpret the results of the Tier 1 Evaluation. Provision IV.A.2.c.5 states, "If either tissue or sediment is applied in Tier 1 and the result exceeds the threshold for any constituent, Tier 2 is required for those constituents." This statement should be clarified so that a Tier 2 Assessment only applies if only one of the two media is assessed. However, as currently drafted, this requirement is unclear and could be interpreted to mean that even if both media are assessed, if either one exceeds the threshold for any constituent, Tier 2 is required, in contradiction to both the sentence and bullets that follow (Provisions IV.A.2.c.5.a-d).		
1.15	In addition to the clarification detailed above, the purpose of the Tier 1 assessment should also include a determination that sediments are not impacted and are meeting the SQOs if a complete site assessment is not warranted. Currently the language states that sediments not requiring a Tier 2 determination are "not degraded" and "not impacted", but the determination of meeting the SQOs under Tier 2 uses the terminology "unimpacted". The language should be consistent throughout the document so it is clear that sediments not requiring a Tier 2 assessment are considered "unimpacted" and thereby attain the SQOs. CASQA Recommendation: Revise the second paragraph of Provision IV.A.2.c.5. *If ~~either~~ only tissue or only sediment ~~is applied~~ in evaluated in Tier 1 and the result is above the threshold for any constituent, Tier 2 is required for ~~those~~ the constituents above Tier 1 thresholds.*	See response to comment 1.14.	No
1.16	Revise the first paragraph of Provision IV.A.2.c.1. *If potential chemical exposure is below this level, sediments are ~~not degraded~~ unimpacted and there is no reason to perform more detailed assessment*	Chapter IV.A.2.c.1) of the proposed Provisions has been revised to use the term "unimpacted."	Yes.

	(either Tier 2 or Tier 3).		
1.17	Revise bullets a-d of Provision IV.A.2.c.5. *a. If both tissue and sediment result ~~falls~~ are equal to or below the threshold, the chemical exposure associated with the sediment and tissue is acceptable and the sediment quality is ~~not impacted~~ unimpacted.* *b. If tissue results fall below the threshold and sediment ~~equals or exceeds~~ is above the threshold, the chemical exposure is acceptable and the sediment quality is ~~not impacted~~ unimpacted.* *c. If sediment results ~~fall~~ are equal to or below the threshold and tissue equals or ~~exceeds~~ is above the threshold, a Tier 2 assessment is required.* *d. If both sediment and tissue results ~~equal or exceed~~ are above the threshold, ~~the chemical exposure to consumers is unacceptable and~~ a Tier 2 assessment is required.*	See response to comment 1.14.	No
1.18	Comment #4: Consideration of Tier 3 Evaluation Approvals. The second paragraph of Provision IV.A.2.e states that *"Tier 3 may be performed at any time with approval from the Regional Water Board provided that Tier 2 is completed at the same time."* CASQA feels that approval from the Regional Water Board should not be required to conduct Tier 3 analysis. A Tier 3 assessment is a more complex and site-specific assessment, and one that should be pursued if a group sees it fit to do so. Although it is appropriate to solicit Regional Water Board involvement and concurrence on study design of a Tier 3 assessment and for the Regional Water Board to retain its ability to accept or reject the results of a Tier 3 assessment, CASQA contends that any group should be able to pursue a Tier 3 analysis if they meet the triggering criteria in Provision IV.A.2.e. 2.	The language has been amended to allow responsible parties to collect data and proceed with Tier 3 without approval from the Regional Water Board. The Regional Water Board retains the authority to approve and accept Tier 3 study results.	Yes
1.19	*CASQA Recommendation: Revise the second paragraph of Provision IV.A.2.e as follows: Tier 3 may be performed at any time ~~with approval from the Regional Board~~ provided that Tier 2 is completed at the same time. A change in any parameter or model from that used in Tier 2 must be justified based on site*	See response to comment 1.18. Chapter IV.A.2.e. of the proposed Provisions have been revised as suggested. However, approval of the values, assumptions, and rationale supporting the use of Tier 3 is still required.	No

	conditions in comparison to Tier 2 assumptions and values, and approved by the Regional Water Board prior to performing the analysis.		
1.20	Comment #5: Consideration of Subsistence Fishing Beneficial Uses Designations Provision IV.A.2.e.3 allows for the use of a different OEHHA guideline, one with high frequency of fish consumption, when considering subsistence fishers and their exposure to human health risks. While use of the higher fish consumption thresholds may be appropriate for a site with subsistence fishing, the Proposed Amendments should be clear on when the higher fish consumption rates can be used in the SQO assessments. CASQA recommends that the use of the higher consumption rates be limited to waterbodies with beneficial use designations for subsistence fishing or tribal subsistence fishing. The State Water Board recently adopted new beneficial uses for subsistence fishing, but have not assessed the designation for most waters. Designation should be required before the higher consumption frequency OEHHA rates are used to ensure the beneficial use is present.	The intent of the proposed Provisions was to apply the subsistence and tribal subsistence related thresholds only within those waters where the applicable Regional Water Board has designated those uses. Chapters IV.A.2.c.3) and IV.A.2.e.3) of the proposed Provisions have been revised to clarify when subsistence and tribal subsistence thresholds apply.	Yes
1.21	CASQA Recommendation: *Clarify higher OEHHA fish consumption thresholds for subsistence fishing should only be assessments if a waterbody has a designated subsistence fishing or tribal subsistence fishing beneficial use designation.*	See response to comment 1.20.	No
1.22	*Comment #6: Clarification on Implementation of Sediment Quality Objectives to Determine Exceedance of Receiving Water Limits According to Provision IV.A.4.c.2.a (Exceedance of Receiving Water Limit to protect aquatic life), an exceedance occurs when "any station within the site is assessed as Clearly Impacted…or if the total percent area categorized as Possibly Impacted and/or Likely Impacted equals or exceeds 15 percent of the site area over the duration of a permit cycle." According to Provision IV.A.4.c.2.b (Exceedance of Receiving Water Limit to protect human consumers of sportfish), an exceedance occurs when "the site sediments are*	The term "Possibly Impacted" is used to describe those situations where there is some evidence of impact, though greater uncertainty exists. Chapters IV.A.4.d.8), IV.A.4.e.1)a.ii., and IV.A.4.e.2) have been revised to recommend use of confirmation monitoring to increase confidence in data interpretation. However, "Possibly Impacted" remains a category of impact that is not considered as protecting sediment dependent beneficial uses. The category is applied consistent with the use of the same category in the "direct effects" or benthic community assessment framework. Furthermore, for receiving water limits, an exceedance cannot occur until a relationship has been established between an effluent and	Yes

	characterized as Possibly Impacted, Likely Impacted or Clearly Impacted." While we support the inclusion of "any station that is Clearly Impacted", we request that the term "Possibly Impacted" be removed from these provisions. "Possibly Impacted" does not clearly demonstrate impacts or the likelihood of impacts and therefore should not be used to establish an exceedance of a receiving water limit.	the observed impacts. This relationship requires understanding the stressors causing the degradation, as well as the quality of and constituents in the effluent.	
1.23	*Additionally, we request that the "15 percent" areal criterion for Possibly Impacted and/or Likely Impacted determinations from Provision IV.A.4.c.2.a be modified to a criterion that better reflects that the majority of the site is impacted. Fifteen percent is a small area and could represent local sources or impacts, making it inappropriate to determine a receiving water "exceedance" for all dischargers to a site.*	The intent of the proposed Provisions is to support sediment dependent beneficial uses throughout the entire site and not to delay until the majority of the waterbody is degraded. Additionally, see response to comment 11.15.	No
1.24	*CASQA Recommendation: Remove "Possibly Impacted" from this provision.*	See responses to comments 1.23, 11.13, 11.14, and 11.15.	No
1.25	*Modify the 15% percent areal criterion for Likely Impacted sites to be the majority of sites for the waterbody.*	See responses to comments 1.23 and 11.15.	No
1.26	*Comment #7: Clarification on Implementation of Sediment Quality Objectives for Evaluating Waters for Placement on the Section 303(d) List. Provision IV.A.4.e.1.a. and IV.A.4.e.1.b. include provisions for listing waterbodies that are "Clearly Impacted", "Likely Impacted", and "Possibly Impacted" per the SQO assessment requirements. While we support the inclusion of waterbodies with "Clearly Impacted" and "Likely Impacted" sites on the 303(d) list, we request that the term "Possibly Impacted" be removed from this provision. "Possibly Impacted" does not clearly demonstrate that waters are degraded and additional monitoring should be conducted prior to designating these waters as impaired and placing them on the 303(d) list (Category 5 of the California 303(d)/305(b) Integrated Report). Rather, these waterbodies should be placed in Category 3 of the Integrated Report. Category 3 contains waters for which there are insufficient data to make a use support decision. The*	See response to comment 1.22.	No

	designation of "Possibly Impacted" indicates that additional monitoring and information is needed to identify if impacts are occurring at the site. Therefore, it would be appropriate to place these waterbodies into Category 3 rather than making a determination that the site is impaired and placing it on the 303(d) list.		
1.27	*Additionally, we support the provision specifying the use of data from the most recent 303(d) listing cycle for the SQO site assessments and the requirements for data to be collected from multiple spatially representative stations and multiple surveys over the span of at least one year to make listing decisions.*	Comment noted.	No
1.28	*CASQA Recommendation: Place "Possibly Impacted" sites in Category 3 of the Integrated Report rather than on the 303(d) list.*	The Possibly Impacted category requires evidence of response for at least two of the three lines of evidence. The category Possibly Impacted still represents degradation and as such should be included in the list of impaired waters.	No
1.29	*Comment #8: Clarification of the technical procedure for site linkage determination The technical procedure for site linkage determination contains a number of inconsistencies that should be clarified to ensure consistent application of the Proposed Amendments. Additionally, the Proposed Amendments do not include necessary guidance, such as how to address nondetects that is needed to complete the calculations. The following are suggested modifications to clarify and reduce inconsistencies in the site linkage assessment procedures.*	See responses to comments 1.30, 1.31, 1.32, 1.33, 1.34, and 1.35.	No
1.30	*CASQA Recommendation: Add subscript i to C_{EST} and C_{Tis} in the linkage factor equation (Equation 8 and also in Appendix A-8).*	In reviewing the equations, an error in the numbering was identified. There were no equations numbered 5 and 6. As a result, equations 7, 8, 9, 10 and 11 were renumbered 5,6,7,8 and 9. In addition, the last equation was not numbered and is now equation 10. However all the responses to the comments follow the previous numbering and appear in double strike out. Equation 8 is the calculation of the estimated tissue contaminant concentration in species, i, contributed from site sediments and is denoted as C_{Esti}. The linkage factor equation is Equation 7 in the proposed Provisions and is calculated by dividing C_{Est} by C_{Tis}. C_{Est} is calculated as the	Yes

		weighted average estimated tissue concentration based on the proportion of the human diet for each guild, C_{Esti}. C_{Tis} is calculated as the weighted average observed tissue concentration for each contaminant class based on the proportion of the human diet for each guild. These weighted averages, C_{Est} and C_{Tis}, used to calculate the site linkage are not the value for a specific guild and therefore should not be denoted with subscript i. No change will be made to Equation 7, Equation 8 or Appendix-8. However, the definition of C_{Est} was enhanced to clarify that it is the weighted mean of C_{Esti} from equation 8, as was the definition of C_{Tis} to clarify that it is also the weighted average of observed tissue concentration.	
1.31	*C_{EST} and C_{Tis} definitions in Equation 8 and in Appendix A-8 are slightly different. Consider using a consistent terminology.*	The use of Site Area (SA), Site Use Factor (SUF) and Home Range (HR) have been standardized so that Equation 8 is consistent with Appendix A-8.	Yes
1.32	*Clarify summation procedure for calculation of sum contaminant concentration in Equation 8 for sets with and without detected congeners.*	There are various methods available for summation, each with different data requirements and effort. The data available should be considered when determining a specific method to be used.	No
1.33	*Consider changing "BSAF calculation" to "the estimated BSAF values" on page 28 under Calculation of site sediment linkage to be consistent with Appendix A-8.*	"BSAF calculation" in Chapter IV.A.2.d.6) has been corrected to "the estimated BSAF values" to be consistent with Appendix A-8. Additionally, Chapter IV.A.2.d.6) has been revised to clarify uncertainty in the *estimated* BSAF is based on literature values.	Yes
1.34	*Clarify differences between Equation 8 and the equation used in Appendix A-8 to calculate C_{EST} from Monte-Carlo simulation. Apparently in the latter equation SA/HR is replaced by SUFi which is coming from probability density functions for home range.*	Chapter IV.A.2.d.6) in the proposed Provisions has been revised to clarify that the Monte Carlo simulation is used to calculate the *distribution of the* sediment linkage factor based on the variability and uncertainty in measured sediment concentration data, measured fish tissue concentration data, fish home range, and BSAF. Additionally, see response to comment 1.31.	Yes
1.35	*Review cumulative % of sediment linkage distribution and linkage threshold values in Table 21. The fourth outcome (i.e. high) occurs when probability of calculated site linkage factor being equal or greater*	Table 21 in the proposed Provisions has been revised for clarity. The revision was to the way the values were presented; the values themselves did not change. Additionally, see response to comment 11.23.	No

	than 0.5 is 25% or in mathematical terms: p(X ≥ 0.5) = 0.25. On the other hand, the first outcome (i.e. very low) is defined as: p(X < 0.5) = 0.75 which is equivalent to p(X ≥ 0.5) = 1-0.75 = 0.25 and is technically similar to the definition of outcome four.		
1.36	*Comment #9: Document Clarity and Editing, In addition to the more substantive comments listed above, CASQA respectfully requests the State Water Board address and correct the numerous typographical errors and unclear or inconsistent references found throughout the document. Examples within the Proposed Amendments are as follows:* *The headers in Table 17 are incorrect (i.e. DDT is repeated twice in #3).* *Chapter IV.A.2.b.7 does not exist (page 18 under Tier 3). The triggering criteria for Tier 3, are defined in Chapter IV.A. 2.e.2.* *In Section IV.A.4.e.1.d, reference to "subchapter i above…" should be revised to "Section IV.A.4.e.1.a.i, above…" for clarity.* *The figure of Waterbody Assessment Process in Appendix A-1 and Figure of Point Source Assessment Process in Appendix A-2 need to be updated according to the modified Section and Subsection numbers (i.e. Section VII.E.8 is now IV.A.4.e, Section VII.C is now IV.A.4.c.2, Section VII.F is now IV.A.4.f, and Section VII.G is now IV.A.4.g, etc.).* *CASQA Recommendation: Edit and correct typographical errors, incorrect or unclear section references, and inconsistencies throughout the Proposed Amendments.*	The headers of Table 17 in the proposed Provisions have been corrected. The Chapter reference for the Tier 3 triggering criteria in Chapter IV.A.2.b. of the proposed Provisions has been corrected to Chapter IV.A.2.e.2). The subchapter reference in Chapter IV.A.4.e.1)d. has been modified to IV.A.4.e.1)a. for clarity. Additionally, the subchapter reference in Chapter IV.A.4.e.1) has been corrected to state "subchapter a below." Appendix A-1 and Appendix A-2 of the proposed Provisions have been revised to show the correct Chapter references, and to correct references in the flowchart.	Yes
2.1	*Comment #1: Require Modifications for TMDLs with Provisions to Consider SQOs. The Proposed Amendments, as drafted, exempt waterbodies with existing TMDLs for the reduction of organochlorine*	The application of the aquatic life and human health SQO frameworks to inform Total Maximum Daily Load (TMDL) target development was evaluated in Los Angeles and Long Beach Harbors as a test case. While no final	No

	pesticides and PCBs from the requirements associated with the implementation of the human health Sediment Quality Objectives (SQOs) protecting human consumers from contaminants in fish tissue. The Calleguas Creek Watershed is subject to TMDLs for Organochlorine (OC) Pesticides, Polychlorinated Biphenyls (PCBs) and Siltation which includes sediment and fish tissue targets. The TMDL was based on a presumption of a relationship between sediment quality and fish tissue concentrations using information available at the time of TMDL development. However, the TMDL recognized that additional science was being developed and included an explicit discussion about the potential need to update the TMDL based on the development of sediment quality criteria: "the development of sediment quality criteria and other water quality criteria revisions may require the reevaluation of this TMDL." The current state of science used to develop the proposed SQOs far exceeds that of the general screening criteria used as the basis of the CCW OC TMDL development. For TMDLs that included specific discussions of the sediment quality objectives or reopeners based on the development of these objectives, TMDLs should be updated within a certain period of time to be consistent with the SQOs. The Stakeholders respectfully request for the Proposed Amendment Provisions to include a requirement for Regional Water Quality Control Boards (RWQCBs) to update TMDLs for consistency with SQOs within 2 years for all TMDLs that have a provision that discusses updating the TMDL based on SQOs. Recommendation: Modify Provision III.A.1.b.4. to include requirements for RWQCBs to update TMDLs using SQOs when the TMDL includes reevaluation or other provisions that reference modifying the TMDL in response to updates to the SQOs.	decisions by the Regional Water Board have been made, the application was considered successful by the parties involved in the studies. However, reevaluation of each TMDL requires significant time and resources from the applicable Regional Water Board, as well as the regulated community and other stakeholders. The example above required five years and several million dollars, frequent meetings to coordinate, plan, and collect the appropriate data and information for the TMDL reopener and that effort is yet to be completed. The existing language that provides the Regional Water Boards discretion to implement the SQOs in those waterbodies with TMDLs allows the flexibility to address the issue as resources become available.	
2.2	*Comment #2: Clarification of Procedures for Fish Species Monitoring and Selection. The Stakeholders request modifications to the Proposed Amendment to*	See responses to comments 1.6, 1.7, 1.8, and 1.9.	No

	clarify the procedures and monitoring criteria for the selection of fish species for waterbodies with limited fish species or other monitoring restrictions. The Proposed Amendments make frequent references to fish species, fish size requirements, dietary guilds, and primary and secondary guild species, without additional clarification for the procedures and criteria required for groups to select fish species to monitor should these groups monitor waterbodies with limited fish, both in size and species, or waterbodies with restrictions or prohibitions on sportfishing. For example, although Provision IV.A.2.b.3.4.b specifies that "Fish shall meet sportfish angling size requirements," the Proposed Amendments do not specify how a group should proceed if these size requirements cannot be met. Revisions to the Proposed Amendment, including Provision IV.A.2.b.3 and Appendix A-6, should be made to reflect these needed clarifications. Recommendation: Include language throughout the Proposed Amendments, including but not limited to Provision IV.A.2.b.3 and Appendix A-6, clarifying procedures and criteria for selecting fish species to monitor in waterbodies under conditions with limited fish species or other restrictions on fish monitoring (eg. sportfish size, sportfishing prohibitions). The Stakeholders recommend providing clear direction that two fish species be selected for monitoring, that represent dietary guilds identified in the CSM. The selected fish species should be from the primary species list where possible, but if primary species are not available at the site, secondary species or other species that provide a clear linkage to the site, can be used.		
2.3	***Comment #3: Allow Historic Data to be Used for Tier 1 Assessments Without a Conceptual Site Model.*** *Provision IV.A.2.b.5 of the Proposed Amendments specifies that, "A conceptual site model (CSM) and study design as described in Chapter IV.A.4.d.5) must be developed prior to data analysis. Sediment and tissue data shall not be used to assess*	See responses to comments 1.10, 1.11, 1.12, and 1.13.	No

	sediments in accordance with this plan, unless they are consistent with the CSM." The Stakeholders respectfully request for the State Board's consideration for the allowance of a Tier 1 Screening Evaluation to be conducted using existing historical data without the development of a CSM. In addition, the Stakeholders request for the Proposed Amendments to be revised such that there are reduced requirements for CSM development for sites where qualifying historical sediment data are available. Some Estuaries in California, such as Mugu Lagoon within the CCW, have been collecting data on fish tissue and sediment for many years. The Stakeholders would appreciate the opportunity to use this data to conduct the initial Tier 1 assessment prior to investing in the development of a CSM. Because the Tier 1 assessments are intended to be conservative, if the thresholds are being met based on historic data that has been collected to characterize the site, there should be minimal risk that the SQOs are not being attained. If the Tier 1 assessment thresholds are not met, then a Tier 2 assessment is required and a CSM would be developed at that time. Recommendation: Remove requirement to do a full CSM before Tier 1 assessment where fish tissue data exist that meet the Tier 1 data requirements or allow for a modified, lower level CSM for Tier 1 assessment of sediment data.		
2.4	***Comment #4: Clarify Meaning of Tier 1 Assessment Results.*** *The Stakeholders respectfully request modification of the Proposed Amendments to clarify the language regarding the interpretation of Tier 1 Evaluation results. As currently drafted, the Proposed Amendments are not clear on how to interpret the results of the Tier 1 Evaluation. Provision IV.A.2.c.5 states, "If either tissue or sediment is applied in Tier 1 and the result exceeds the threshold for any constituent, Tier 2 is required for those constituents." The Stakeholders request for this statement to be clarified such that a Tier 2 Assessment only applies if only one of the two media*	Though either sediment or tissue can be used alone, the intent is to state that tissue takes precedence over sediment when both are used in Tier 1. That is, if tissue passes, and sediment fails, sediment quality is unimpacted. If tissue fails then Tier 2 is required, even if the sediment passes. See responses to comments 1.14, 1.15, 1.16, and 1.17.	No

	are assessed. However, as currently drafted, this requirement is unclear and could be interpreted to mean that even if both media are assessed, if either one exceeds the threshold for any constituent, Tier 2 is required, in contradiction to both the sentence and bullets that follow (Provisions IV.A.2.c.5.a-d).		
2.5	*In addition to the clarification detailed above, the purpose of the Tier 1 assessment should also include a determination that sediments are not impacted and are meeting the SQOs if a complete site assessment is not warranted. Currently the language states that sediments not requiring a Tier 2 determination are "not degraded" and "not impacted", but the determination of meeting the SQOs under Tier 2 uses the terminology "unimpacted". The language should be consistent throughout the document so it is clear that sediments not requiring a Tier 2 assessment because the are less than or equal to the Tier 1 thresholds are considered "unimpacted" and thereby attain the SQOs.*	See responses to comments 1.14, 1.15, 1.16, and 1.17.	No
2.6	*Recommendation: Revise the second paragraph of Provision IV.A.2.c.5. If ~~either~~ only tissue or only sediment is ~~applied in~~ evaluated in Tier 1 and the result is above the threshold for any constituent, Tier 2 is required for ~~those~~ the constituents above Tier 1 thresholds.*	See responses to comments 1.14, 1.15, 1.16, and 1.17	No
2.7	*Revise the first paragraph of Provision IV.A.2.c.1. If potential chemical exposure is below this level, sediments are ~~not degraded~~ unimpacted and there is no reason to perform more detailed assessment (either Tier 2 or Tier 3).*	See responses to comments 1.14, 1.15, 1.16, and 1.17.	No
2.8	*Revise bullets a-d of Provision IV.A.2.c.5. a. If both tissue and sediment result ~~falls~~ are equal to or below the threshold, the chemical exposure associated with the sediment and tissue is acceptable and the sediment quality is ~~not impacted~~ unimpacted. b. If tissue results fall below the threshold and sediment equals or exceeds is above the threshold, the chemical exposure is acceptable and the sediment quality is not impacted unimpacted. c. If sediment results fall are equal to or below the threshold and*	See responses to comments 1.14, 1.15, 1.16, and 1.17.	No

	tissue equals or exceeds is above the threshold, a Tier 2 assessment is required. d. If both sediment and tissue results equal or exceed are above the threshold, the chemical exposure to consumers is unacceptable and a Tier 2 assessment is required.		
2.9	***Comment #5: Remove Requirement for Regional Board Approval to Conduct Tier 3 Assessment.*** *The second paragraph of Provision IV.A.2.e states that "Tier 3 may be performed at any time with approval from the Regional Board provided that Tier 2 is completed at the same time." The Stakeholders believe that approval of Regional Board should not be required to conduct Tier 3 analysis. A Tier 3 assessment is a more complex and site-specific assessment, and one that should be pursued if a group sees it fit to do so. Although it is appropriate to solicit Regional Board involvement and concurrence on study design of a Tier 3 assessment and for the Regional Board to retain its ability to accept or reject the results of a Tier 3 assessment, the Stakeholders believe that any group should be able to pursue a Tier 3 analysis if so desired and meet triggering criteria in Provision IV.A.2.e. 2.*	See response to comment 1.19.	No
2.10	*Recommendation: Revise the second paragraph of Provision IV.A.2.e as follows: Tier 3 may be performed at any time ~~with approval from the Regional Board~~ provided that Tier 2 is completed at the same time. A change in any parameter or model from that used in Tier 2 must be justified based on site conditions in comparison to Tier 2 assumptions and values, and approved by the Regional Board prior to performing the analysis.*	See response to comment 1.19.	No
2.11	***Comment #6: Clarify that higher fish consumption guidelines shall only be used in areas with designated subsistence beneficial uses.*** *The Stakeholders respect the State Board's use of a different OEHHA guideline, one with high frequency of fish consumption, when considering subsistence fishers and their exposure to human health risks (Provision IV.A.2.e.3). However, the Stakeholders*	The proposed Provisions have been revised to state that the use of subsistence and tribal subsistence thresholds shall only be applied to those waters designated to support Subsistence and/or Tribal Subsistence Uses. See response to comment 1.20.	No

	think the use of these higher frequencies should be applicable only for waterbodies with beneficial use designations for subsistence fishing. The State Board recently adopted new beneficial use of subsistence fishing, but have not assessed the designation for most waters. Designation should be required before the higher consumption frequency OEHHA rates are used to ensure the beneficial use is present.		
2.12	*Recommendation: Clarify higher OEHHA fish consumption thresholds for subsistence fishing should only be applicable if a waterbody has a designated subsistence fishing or tribal subsistence fishing beneficial use designation.*	The proposed Provisions have been revised to state that the use of subsistence thresholds shall only be applied to those waters designated to support Subsistence and/or Tribal Subsistence Uses. See response to comment 1.20.	No
2.13	**Comment #7: Modify Provisions on Implementation of Sediment Quality Objectives to Determine Exceedance of Receiving Water Limits.** According to Provision IV.A.4.c.2.a (Exceedance of Receiving Water Limit to protect aquatic life), an exceedance occurs when "any station within the site is assessed as Clearly Impacted…or if the total percent area categorized as Possibly Impacted and/or Likely Impacted equals or exceeds 15 percent of the site area over the duration of a permit cycle." According to Provision IV.A.4.c.2.b (Exceedance of Receiving Water Limit to protect human consumers of sportfish), an exceedance occurs when "the site sediments are characterized as Possibly Impacted, Likely Impacted or Clearly Impacted." While we support the inclusion of "any station that is Clearly Impacted", we request that the term "Possibly Impacted" be removed from these provisions. "Possibly Impacted" does not clearly demonstrate impacts or the likelihood of impacts and therefore should not be used to establish a violation of a receiving water limit.	See response to comment 1.22.	No
2.14	*Additionally, we request that the "15 percent" areal criterion for Possibly Impacted and/or Likely Impacted determinations from Provision IV.A.4.c.2.a be modified to criterion that better reflects that the majority of the site is impacted. 15% is a small area and could represent local sources or impacts, making it*	See response to comment 1.23.	No

	inappropriate to determine a receiving water "exceedance" for all dischargers to a site.		
2.15	*Recommendations: Remove "Possibly Impacted" from this provision. Modify the 15% percent areal criterion for Likely Impacted sites to be the majority of sites for the waterbody.*	See responses to comments 1.22 and 1.23.	No
2.16	***Comment #8: Modify Provisions on Implementation of Sediment Quality Objectives for Evaluating Waters for Placement on the Section 303(d) List.*** *Provision IV.A.4.e.1.a. and IV.A.4.e.1.b. include provisions for listing waterbodies that are "Clearly Impacted", "Likely Impacted", and "Possibly Impacted" per the SQO assessment requirements. While we support the inclusion of waterbodies with "Clearly Impacted" and "Likely Impacted" sites on the 303(d) list, we request that the term "Possibly Impacted" be removed from this provision. "Possibly Impacted" does not clearly demonstrate that waters are degraded and additional monitoring should be conducted prior to designating these waters as impaired and placing them on the 303(d) list (Category 5 of the California 303(d)/305(b) Integrated Report). Rather, these waterbodies should be placed in Category 3 of the Integrated Report. Category 3 contains waters for which there is insufficient data to make a use support decision. The designation of "Possibly Impacted" indicates that additional monitoring and information is needed to identify if impacts are occurring at the site. Therefore, it would be appropriate to place these waterbodies into Category 3 rather than making a determination that the site is impaired and placing it on the 303(d) list.*	See responses to comments 1.22, 1.24, 1.26, 1.28, 11.13, 11.14, and 11.15.	No.
2.17	*We support the provision specifying the use of data from the most recent 303(d) listing cycle for the SQO site assessments and the requirements for data to be collected from multiple spatially representative stations and multiple surveys over the span of at least one year to make listing decisions.*	Comment noted.	No
2.18	*Recommendations: Place "Possibly Impacted" sites in Category 3 of the Integrated Report rather than on the*	See responses to comments 1.22, 1.24, 1.26, 1.28, 11.13, 11.14, and 11.15.	No

	303(d) list.		
2.19	*In Section IV.A.4.e.1.d, reference to "subchapter i above…" should be revised to "Section IV.A.4.e.1.a.i, above…" for clarity.*	See response to comment 1.36.	No
2.20	Finally, the Stakeholders support the State Board's use of Office of Environmental Health Hazard Assessment (OEHHA) Advisory Tissue Levels within the Proposed Amendments. Advisory Tissue Levels (ATLs) correspond to the range of contaminant concentrations found in fish and are used to provide consumption advices taking into account the average daily reference dose for non-carcinogens and a risk level of no more than one additional cancer case in 10,000 people consuming fish over a life-time. ATLs are designed to encourage consumption of fish that are likely to provide significant health benefits, while discouraging consumption of fish that is likely to pose a hazard for human health. ATLs are used as part of the process to develop traditional health advisories (which focus on fish whose consumption should be avoided) as well as the newer "safe eating guidelines," which inform consumers of fish with low contaminant levels considered safe to eat frequently. OEHHA's advisories have also been identified as a metric in California's Water Quality Control Policy.	Comment noted.	No
3.1	The provisions are well presented, researched and documented in both documents. Care was taken to explain the rationale and process for selection of numerous decisions, each required to develop sediment quality objectives for human health.	Comment noted.	No
3.2	**1. Receiving Water Limits Monitoring Frequency** In Section 6.7.3., the Staff Report recommends reducing the monitoring frequency from a minimum of twice per Permit cycle (5 year cycle) to once. However, the Provisions still require sampling twice per permit cycle (IV.A.4.c.2.a). Please correct this inconsistency. ***Recommendation 1:*** Modifying existing language in Staff Report Section 6. 7 .3 as follows: Phase I Stormwater Discharges and Major Discharges	The requested change was made consistent with the staff report recommendation. See Chapter IV. A.4.c.3) a of the proposed Provisions	Yes

	- Sediment Monitoring shall not be required less than once per permit cycle.		
3.3	2. Protective Condition The State Water Board defines the Protective Condition for the direct effect SQQs as categories Unimpacted or Likely Unimpacted. Additionally, Possibly Impacted may also be considered as meeting the Protective Condition based on the result of stressor identification studies (Provisions, Section IV.A.1. i.4). However, the indirect effect SQQ site assessment (Provisions, Section IV.A.2. d.8) states that only the Unimpacted and Likely Unimpacted categories meet the Protective Condition. The Protective Condition when implementing the direct effects SQQs has been defined by the State Water Board as categories Unimpacted or Likely Unimpacted. Section 6.5.8, Page 100 of the Staff Report, final sentence, states that "for consistency, the proposed amendments rely on the same delineation of impact that is applied in the approach used to evaluate direct effects." Please provide additional justification as to why the Possibly Impacted category is not included as a protective condition for the human health SQQs, which would be consistent with the direct effects SQQs. Recommendation 2: Recommend that the Possibly Impacted category for human health SQQs should be treated as in the existing direct effects SQQ, and require follow-up actions to determine if an impairment is present or not prior to determining that the site is not protective of beneficial uses.	Section 6.5.8 of the Staff Report states "*The categories Unimpacted and Likely Unimpacted are designated by the State Water Board to represent the protected condition for the interpretation of the SQO protecting aquatic life from direct effects. These categories were chosen because Section 13391.5(d) of Porter Cologne required that the SQOs be established with an adequate margin of safety for the reasonable protection of the beneficial uses of water. At the time of adoption, some commenters had requested that the category Possibly Impacted be included under the protective condition (State Water Board 2008). For consistency, the proposed amendments rely on the same delineation of impact that is applied in the approach used to evaluate direct effects."* The first sentence clearly states that Unimpacted and Likely Unimpacted were designated by the State Water Board to represent the protective condition for interpretation of aquatic life. The State Water Board made this decision in 2008 at the time the aquatic life SQO was adopted. The category Possibly Impacted is not included in that definition. The existing provisions for direct effects SQO do allow a Regional Water Board to make a finding that stations categorized as Possibly Impacted are unimpacted if the body of evidence indicates that other stressors (e.g. not resulting from exposure to toxic pollutants) are causing the biological effects. For the human health assessment framework, the framework does not require stressor identification as the contaminant of concern is present in tissue and sediment. The framework does provide flexibility to proceed to Tier 3 is a permittee or responsible party has reason to believe a more site-specific approach is necessary to better assess the sediment quality at a particular site.	No
3.4	**3. Sediment Category Concentration Scores for the CSI (Direct Effects SQQ)** Provisions page 11, Table 6 includes the concentrations ranges and weights to score the	Prior to adoption of the amendment to the Enclosed Bays and Estuaries Plan in 2011, Resolution No. 2011-0017, errors in Table 6 were identified that consisted of incorrect concentration ranges and weighting factors for several	No.

	disturbance category for sediment chemistry. The concentrations ranges have been modified in several instances, particularly for DDDs, DDEs, and DDTs. Please provide justification for the change in ranges, as some ranges have become more restricted while others are broader.	constituents: zinc, high molecular weight PAHs, DDDs, DDEs, and DDTs. These errors were identified as a result of a reanalysis by the Southern California Coastal Water Research Project (SCCWRP) of a subset of data used in the development and evaluation of the chemical score index (CSI). The data analyst was unable to replicate the exact results for the chemistry Lines of Evidence (LOE) score, and subsequent investigation revealed that the calculated values for the CSI varied between the two sets of results. Further investigation revealed that the source of variation was associated with calculation of category scores for DDDs, DDEs, and DDTs. This finding prompted a thorough review by SCCWRP of the derivation and calculation of the CSI index. This review identified the source of the error was due to a mistake in calculating the sum of DDDs, sum of DDEs, and sum of DDTs in the data set used for index development. The mistake involved the use of incorrect computer programming code in calculating these sums in an early stage of development of the data set. This error was not detected during the course of index development because all subsequent checks of the calculations used the incorrect data set as a reference. Resolution of the error in the CSI index development consisted of developing a corrected chemistry data set and repeating all of the data analyses used to develop the category score concentration ranges and weighting factors used to calculate the final CSI value. This reanalysis used the same data and same statistical methods used in the original derivation of the CSI parameters. These analyses produced the revised concentration ranges and weighting factors for DDDs, DDEs, and DDTs shown in Table 6 of the 2011 Staff Report for the amendment to the Enclosed Bays and Estuaries Plan. Concentration ranges and weights were also recalculated for other chemical constituents, and these values were the same as those adopted by the State Water Board in 2009. However, in the course of double-checking all values in Table 6, minor variations in the ranges for zinc and high molecular weight PAHs were found that were likely the result of variations in the method	

		used for rounding numbers. These small corrections were also included in the revised version of Table 6 to provide the highest level of consistency with the data analysis results. The changes to the CSI chemical concentration ranges have the potential to impact the station assessment results, as values for multiple components of the index were changed. To document the actual impact, station assessment results were compared using the original and revised CSI parameters for a large number of stations that were used in previous evaluations of the SQO assessment framework. These data were compiled from multiple regional monitoring surveys. The results of the comparison are summarized in Table 1 at the end of this document. Station assessment results varied for 1% (three stations) of the 277 samples analyzed and showed no consistent trend. These results indicate that the effect of the changes to the CSI parameters are minor with respect to other sources of variation associated with sediment quality assessment. These changes were first proposed in January of 2011; however, these changes were not carried through in the final draft considered and adopted by the State Water Board. https://www.waterboards.ca.gov/water_issues/programs/bptcp/docs/sediment/012811app_a.pdf	
3.5	**4. Fish Home Range Comments** 4.1 The fish home range assumptions and requirements for both the Tier 1 and Tier 2 human health SQOs are specific for the primary species for each fish dietary guild. However, Table 17 in Section IV.A.2.c.4 of the Provisions and the associated text do not explicitly state that the guilds should be used for secondary fish species during an estimate of the sediment evaluation. The inclusion of the primary fish species in the headers of the table is also confusing, leading the reader to assume that the biota sediment accumulation factors (BSAFs) included in the table apply only to the primary fish species. Please clarify the intent and use of secondary fish species.	The secondary species tissue would only be applied as surrogates for the primary species tissue. Species names have been removed from Table 17 except for white catfish to minimize confusion regarding applicability to secondary species. All model based assumptions are predicated on the primary species and the food web associated with that species.	No
3.6	***Recommendation 4.1:*** The Staff Report, Table 6.5	See response to comment 3.5. Additionally, food web and	No

	includes the estimated home range for the primary species from each guild. Please explain how the use of secondary species home range will be addressed. If the primary species information will be used to represent the guild, and the user has information specific to the home range of a secondary species, is it allowable to update the model with that information, instead of relying on the primary species home range?	home range are based on primary species. Secondary species are expected to have similar exposure associated with trophic transfer because of similar feeding preferences (same dietary guild). If the user desires to model the secondary species as an alternative to the primary species, then a Tier 3 assessment results and alternative home range information may be used with approval of the Regional Water Board.	
3.7	**5. Site Size Requirements** The identification of the site size is an important' consideration in the development of the conceptual site model (CSM) and in conducting the human health effects SQQ assessment. Page 119 of the Staff Report and Page 54 of the Provisions indicate that a minimum site size of 1 km2 is required. However, limited justification for this requirement is included in the text. Additionally, it is quite likely that sites less than 1 km2 may be required, especially at the mouths of small rivers that have an estuary or marine beneficial use, along with commercial fishing, shellfish, or aquaculture beneficial uses.	The standardized Tier 2 assessment performs best when the majority of foraging activity occurs within the site. The 1 km^2 requirement is intended to ensure this situation is present by limiting minimum site size to an area similar to or greater than most primary species foraging area. Assessment of smaller sites requires a different bioaccumulation model as part of Tier 3. This supporting information was included in Appendix A-5.	Yes
3.8	***Recommendation 5.1:*** Please include additional justification for the establishment of a 1 km^2 minimum site area in both the Staff Report and Provisions (Page 119, before Table 7.1 and Appendix A-5, respectively).	See response to comment 3.7.	No
3.9	***Recommendation 5.2:*** Please include the following suggested language in the Provisions (Page 54, Appendix A-5); A minimum site area of 1km^2 is recommended for Tier 2 assessment, as this area encompasses a large portion of the forage range for most of the primary sportfish species for the assessment. However, a smaller site may be identified based on site specific characteristics and with the approval of the local Regional Board.	See response to comment 3.7.	No
3.10	**6. Site Assessment and Human Health Risk Factors** In Table 7.1 of the Staff Report (Page 119) the fractional uptake from the site is noted as 1. This assumption essentially assumes that each angler	The assumption is inappropriate for Tier 2 when there is no basis or data to support a fractional uptake value of less than 1.0.	No

	or consumer of fish consumes all of their fish or seafood from that site. This assumption is highly conservative. Is a Tier 3 human health SQQ required to modify this ratio? If existing data are available to justify a revised ratio (angler study or similar) can a lower ratio be used in a Tier 2 assessment? Please provide additional justification for this assumption in the Staff Report and provide the flexibility to use a lower ratio based on justifications that are approved by the local Regional Board.		
3.11	**7. Tissue Types used to Assess Chemical Exposures** On Page 74, Section 6.2.4 of the Staff Report, there appears to be a typo; Alternative 3 is selected as the staff recommendation. However, the associated text and Appendix A, Table A-6 include fish species with the designation of "F" or skin off and also some whole fish analyses, which matches Alternative 4, not Alternative 3.	Section 6.2.4 of the Staff Report has been corrected to accurately reflect staff recommendation of Alternative 4.	Yes
3.12	***Recommendation 7.1:*** Revise Staff Recommendation to Alternative 4.	See response to comment 3.11.	No
3.13	***Recommendation 7.2:*** Address the typo in the reference of the staff recommendation in Section 6.2.4, it should reference Appendix A, A-6, not C-6.	The Appendix reference in Section 6.2.4 of the Staff Report has been corrected to Appendix A-6.	Yes
3.14	**8. Conservative Assumptions for Sediment and Tissue Based Assessment** Section 6.4.1 of the Staff Report recommends the use of the 95th percent upper confidence limit (UCL) as a conservative measure of either sediment or tissue data for use in comparison with sediment and/or tissue thresholds in a Tier 1 assessment. The use of the 95th percent UCL is poorly supported, particularly as the methodology for the state of Oregon is referenced as an existing and effective program that utilizes the 90th percent UCL.	Tier 1 is intended to be conservative and protective by requiring a Tier 2 assessment when there is any potential for impact in Tier 1. The 95th percent upper confidence limit (UCL) is commonly used in regulatory programs to provide a conservative margin of safety. The State Water Boards' California Ocean Plan requires 95th percent UCL for reasonable potential analysis, as does the Department of Toxic Substances Control in the Preliminary Endangerment Assessment (PEA) Guidance Manual. From a national perspective, United States Environmental Protection Agency (U.S.EPA) applies the 95^{th} percentile UCL as default value for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site cleanups and in their statistical software ProUCL. Other states also use the 95^{th} percentile as a default value.	No

		See references below for details: 2015 California Ocean Plan https://www.waterboards.ca.gov/water_issues/programs/ocean/docs/cop2015.pdfhttps://www.waterboards.ca.gov/water_issues/programs/ocean/docs/cop2015.pdf California Department of Toxic Substances Control (1994, Revised October 2015) Preliminary Endangerment Assessment (PEA) Guidance Manual https://www.dtsc.ca.gov/PublicationsForms/upload/PEA_Guidance_Manual.pdfhttps://www.dtsc.ca.gov/PublicationsForms/upload/PEA_Guidance_Manual.pdf USEPA, 1992 Supplemental Guidance to RAGS: Calculating the Concentration Term https://semspub.epa.gov/work/05/168975.pdfhttps://semspub.epa.gov/work/05/168975.pdf USEPA (2015) ProUCL Version 5.1 Technical Guide Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations https://www.epa.gov/sites/production/files/2016-05/documents/proucl_5.1_user-guide.pdfhttps://www.epa.gov/sites/production/files/2016-05/documents/proucl_5.1_user-guide.pdf State of Connecticut Department of Energy and Environmental Protection (2014) Guidance for Calculating the 95% Upper Confidence Level for Demonstrating Compliance with the Remediation Standard Regulations http://www.ct.gov/deep/lib/deep/site_clean_up/remediation_regulations/95ucl_guidance.pdfhttp://www.ct.gov/deep/lib/deep/site_clean_up/remediation_regulations/95ucl_guidance.pdf	
3.15	***Recommendation 8:*** Please expand the justification for why a more conservative approach than the 90th percent UCL utilized by the state of Oregon is appropriate. Also, please include procedures to allow for the proper analysis of sediment data for outliers,	See response to comment 3.14 regarding the use of the 95th percent UCL. There is the possibility that data will not be normally distributed or that outliers will be present in the data set. There are a variety of nonparametric methods and methods to test for outliers that can be	No

	data distribution, and high variability. These factors should be included and assessed prior to the estimation of the UCL, as the assumption of a normal distribution may result in incorrect estimates of risk.	applied to the data prior to completing the Tier 1 analysis. The ProUCL software described in the previous response is just one example of software that could perform these functions. Selection of methods and use of software are left to the discretion of the end user.	
3.16	The following language is proposed to supplement Section 6.4.1: The 90th (or 95th) percent UCL shall be used to conduct the Tier 1 assessment, after the data have been examined and tested for statistical outliers and tested to determine if the dataset is normally distributed. If the data are not normally distributed, the data may be log transformed and tested for normality. If the data are not log-normally distributed, non-parametric measures of the UCL may be adopted as the basis for comparison with the sediment and/or tissue thresholds.	See response to comments 3.14 and 3.15. These analyses may be conducted but are not included as a requirement to complete Tier 1.	No
4.1	First, how will it be determined whether an upstream source may be impairing an estuary and/or enclosed bay?	The SQO would be used to assess sediment quality within enclosed bays and estuaries. If sediment quality is monitored and found to exceed the SQO, the Regional Water Board will initiate an assessment of all probable sources. That evaluation will typically begin within the waterbody itself. If the evidence points to upstream sources, then the Regional Water Board has the authority to initiate an assessment of potential upstream sources. The determination would be made based on the loads that all sources are contributing. Where only one or two sources are contributing, the water quality may be improved by amending the permits associated with the sources. Where many sources are contributing, a TMDL may be developed to better address all sources and provide waste load allocations and load allocations.	No
4.2	From my understanding, source designation and allocations will be based upon a model. How will the model's resolution be verified? Often, on the Central Coast, we find that model resolution is too simplistic for our diverse conditions. What if the model does not reflect the subtleties of a highly nuanced ecosystem? Is the model, then, improved? Or does this mean that policy, and subsequent regulations, will be based upon	The framework is only intended to determine if in-place bedded sediments are exceeding the SQO. Identifying sources and allocating loads requires additional studies that the proposed framework is not intended to address. See response to comment 4.1.	No

	a model, regardless of its sufficiency? Is potential mischaracterization inherently built into this policy?		
4.3	Finally, what is the "obligation point of compliance" for an upstream non-point source? It is unclear. This issue is critical for a policy that applies to one area through nexus to another area. As written, the policy leaves regulatory staff with interpretative leeway and the regulated community with great uncertainty.	Upstream sources would not be affected or required to monitor, unless the Regional Water Board found that sediment quality is impacted and that sources upstream may be contributing to the degradation of sediment quality.	No
5.1	1. Proposed amendments to the Sediment Quality Provisions draft document (Page 3, III.A.1.b.1) Proposed provisions supersedes all applicable narrative water quality objectives and related implementation.	Correct, the proposed Provisions supersedes all applicable narrative water quality objectives and related implementation.	No
5.2	LASAN request clarification on the impact the proposed amendment would have on the existing Terminal Island Water Reclamation Plant (TIWRP) NPDES permit.	If the Regional Water Board finds that the discharge has the reasonable potential to cause or contribute, the SQOs shall be incorporated as receiving water limits. All sampling, analysis, and assessment would have to comply with the proposed Provisions.	No
5.3	LASAN seeks to clarify the anticipated timeline for the implementation of the proposed amendment and whether this will impact the existing provision in the current NPDES permit.	National Pollution Discharge Elimination System (NPDES) Permits are typically updated during the regularly scheduled renewal. At that time the applicable Regional Water Board would make a determination described in response to comment 5.2 and to incorporate any applicable measures included in the proposed Provisions.	No
5.4	2. Proposed amendments to the Sediment Quality Provisions draft document (Page 7, IV. A. e. and Page 19, b.3.4) LASAN suggests replacing "California Department of Health Services" with SWRCB-Environmental Laboratory Accreditation Program (ELAP) in accordance with Water Code Section 13176.	Chapters IV.A.1.e and IV.A.2.b.4) of the proposed Provisions have been changed to appropriately reflect that the Environmental Laboratory Program is a part of the State Water Board.	Yes
5.5	3. Proposed amendments to the Sediment Quality Provisions draft document (Pages 11-12, h. Tables 6-7) Definition of 'PAHs,' total high MW,' 'PAHs,' and 'total low MW' Tables 6 and 7, in the Proposed amendments to the Sediment Quality Provisions draft document,	The table in Appendix A-3 of the proposed Provisions has been revised to clarify the low and high molecular weight PAHs.	Yes

	categorizes PAHs as 'total high MW' and 'total low MW,' but a clear definition as to which of the 18 PAHs in Appendix A-3 constitute each class is not provided. Typically, PAHs with 3 or fewer rings are described as low MW.		
5.6	LASAN notes that it would be best to explicitly state which of the PAHs constitute each "total," and seeks clarification on which of the PAHs constitute each class. LASAN further suggests that a clear definition be provided in the glossary and perhaps a notation be made in Appendix A-3.	See response to comment 5.5.	No
5.7	4. Proposed amendments to the Sediment Quality Provisions draft document (Page 13, 2.b.3) Sampling Procedure The language in this section notes that "Surface sediment from within the upper 5 cm shall be collected for chemistry analyses." However, the Proposed amendments to the Sediment Quality Provisions direct that sediments samples should be collected concurrently with fish collection for DDTs, PCBs, chlordane, and Dieldrin analysis. LASAN notes that the field sample collection suggested will be extremely difficult and requests either a clarification or be removed.	The proposed Provisions do not require that sediment and fish tissue sampling be conducted concurrently. However, the sediment and tissue sampling should be conducted over the same time of the year and preferably during the same monitoring cycle. The reference on page 13 could not be found and a word search for "concurrently" in the proposed Provisions was unsuccessful.	No
5.8	5. Proposed amendments to the Sediment Quality Provisions draft document (Page 16, Tables 12 and 13) Sublethal effects In the Proposed amendments to the Sediment Quality Provisions draft document, sublethal toxicity methods are not included in tools for use in the evaluation of LOEs; yet, it is listed as a LOE in IV.A.f.2 (page 8). LASAN suggests removing sublethal test methods as a requirement since sublethal methods are not used as LOE.	The sublethal sediment toxicity testing is an important component of the multiple line of evidence approach adopted in the Enclosed Bays and Estuaries Plan in 2008 for marine bays (see Chapter IV.A.1.f.). Chapter IV.A.1.i of the proposed Provisions describes the tools and indicators that are applicable to lower salinity waters and those habitats where benthic tool development were hampered by limited data. For those waters, only acute (survival) testing is required using the two species listed in Table 12 of the Provisions. These Provisions were adopted in 2008 and the commenter may refer to that State Water Board action and associated documents for a detailed description of the rationale and basis.	No
5.9	6. Proposed amendments to the Sediment Quality	These terms have been standardized in the text and have	Yes.

	Provisions draft document (Pages 18, 20, 26, 57, and 67) Definition of chlordane, 'sum chlordane,' and 'sum PCB' LASAN notes that 'chlordane,' 'sum chlordane,' and 'sum PCB' that are some of the nonpolar chlorinated hydrocarbons, have been used without being defined. LASAN seeks clarification and suggests definitions in either a footnote or in the glossary (e.g., sum chlordane to mean the sum of five chlordanes: alphachlordane, gamma-chlordane, etc.; sum of PCB means the sum of 54 PCB congeners).	been defined in the Glossary (Chapter V of the proposed Provisions).	
5.10	7. Proposed amendments to the Sediment Quality Provisions draft document (Page 19, Page 19, 5, and Page 53, Appendix A-5, paragraph 1) Study design, work plan, and conceptual site model The Proposed amendments to the Sediment Quality Provisions note that "Before commencing with sample collection, a study design and work plan must be developed and approved by the Regional Board…" In part 5, it further directs that "A conceptual site model (CSM) and study design must be developed…" LASAN seeks to clarify the anticipated timeline for the implementation of the proposed amendment and whether to commence developing the plans, designs, and model for LA Outer Harbor.	While the proposed Provisions would become effective upon approval from U.S. EPA, the Regional Water Boards typically amend permits to include changes to Water Quality Control Plans during the regularly scheduled permit renewal, which occurs in five-year cycles.	No
5.11	8. Proposed amendments to the Sediment Quality Provisions draft document (Page 26, d.2.c) Tissue Analysis The Proposed amendments to the Sediment Quality Provisions note that "*Tissue from the primary species for each dietary guild shall be used in the analysis*" and the Primary species are listed including the *White Catfish* and *Common Carp*. LASAN is concerned that the *White Catfish* and *Common Carps* species are rare to nonexistent in LA	See response to comment 1.5. A minimum of one species each from a minimum of two dietary guilds is required. End users are not required to collect and sample all primary species. The primary species list encompasses sportfish species from enclosed bays and estuaries throughout California including some freshwater species that may not occur in marine bays or lagoons, but are present in lower salinity estuaries. If the species is not present in the waterbody, then that species would not be considered for analysis.	No

	Outer Harbor. Moreover, it will be difficult to achieve the remaining dietary guild primary species needed for minimum number of individuals per composite.		
5.12	In relation, LASAN suggests that the two species be removed from the list and clarification be provided.	See response to comment 5.11. White Catfish and Common Carps have not been removed from the primary species list. While these species may be rare, they may be present in some waterbodies being assessed. Only those species present in the waterbody should be considered for analysis.	No
5.13	9. Proposed amendments to the Sediment Quality Provisions draft document (Page 50, Appendix A-3) Percent Fines Among the list of chemical analytes needed to characterize sediment contamination exposure and effect provided in the table on the Proposed amendments to the Sediment Quality Provision draft document (Appendix A-3) is 'Percent Fines.' LASAN seeks clarification and clear direction on a specific procedure[s] to determine 'Percent Fines.'	The term "percent fines" describes the percent of clay and silt fraction by weight in an aggregate sample, where the remaining material in the sample is the size of sand and gravel. The higher the percentage of fines in a sample, the more likely the sample will contain organic carbon and contaminants. Standard analytical methods are widely available and should be specified by the regulatory agency. The "percent fines" has been clarified in Chapter III.A.1.d.1) of the proposed Provisions.	Yes
5.14	10. Proposed amendments to the Sediment Quality Provisions draft document (Page 2, II.A. Table 1; Page 5, III.A.2.c; Page 7, f.1; Page 8, f.1. ; Page 13, Table 10 (caption) Typo LASAN suggests considering using one word "Sportfishing" instead of "Sport fishing." Compare to "sportfish tissue" in III, A., 1, b, 4 (last paragraph) LASAN suggests considering using one word, "Wildlife." LASAN suggests considering using one hyphenated word, "Short-Term." LASAN suggests considering using one hyphenated word, "Chemically-Mediated."	In order to be consistent with recent State Water Board decisions, the term "Sport fishing" will remain two words. However, the proposed Provisions have been revised to correct the following terms: "wildlife," "short-term," and "chemically-meditated" in Chapter III.A.2.c., Chapter IV.A.1.f., Table 2, and Table 10.	Yes
6.1	Part 1 of the SQO guidance, adopted by the Board in 2008, was limited to a narrative SQO for protection of benthic communities and associated implementation	The proposed Provisions continue to address the same program areas as previous SQOs adopted by the State Water Board and are intended to parallel the existing	No

	guidance. The subject amendments make limited modifications to this existing guidance, add a significant new narrative SQO and implementation guidance for protection of human health, and provide program specific implementation guidance for the resulting combined benthic community and human health assessment. The new implementation guidance is far-reaching, with applications in dredge material management, NPDES permitting, sediment monitoring and site assessment, and evaluation of waters for listing as impaired under the State's Clean Water Act Section 303(d) list.	SQO Provisions as much as possible.	
6.2	**Existing problems with benthic SQOs have not been addressed and have been made more problematic by the proposed amendments and new guidance.** There were already a number of serious technical flaws and deficiencies in the metrics and methods of the multiple line of evidence approach used to assess potential impacts to benthic macroinvertebrate (BMI) communities under the existing Part 1 SQO guidance. Generally speaking, these have not been addressed by the proposed revisions. Furthermore, the potential negative implications of these flaws have been made more severe by additions to guidance that stipulate uses of SQO BMI community station scores for specific regulatory purposes, including Clean Water Act 303(d) impairment listing, and assessment of possible permitted discharge limit exceedances.	This comment is outside of the scope of the proposed Provisions. The benthic community tools in the Provisions were adopted through a previous State Water Board action, Resolution 2008-0070. However, in accordance with the Federal Clean Water Act Section 303(c) and Water Code section 13240, all Water Quality Control Plans must undergo a triennial review. The commenter may submit these comments during the triennial review of the Water Quality Control Plan containing the Sediment Quality Provisions.	No
6.3	These technical flaws include: • Reliance on categorical chemical concentration thresholds that lack a sound scientific or statistical basis to characterize the sediment chemistry leg of the BMI triad assessment. • Lack of provision for incorporating empirical measures of bioavailability into the sediment chemistry line of evidence (e.g., equilibrium partitioning models, passive samplers). • Lack of consideration of site-specific background levels to characterize the chemistry line of evidence	See response to comment 6.2.	No

	using the default numeric response values. • Use of four complex numerical metrics of benthic community disturbance to characterize the community structure leg of the BMI triad assessment, without interpretation or inclusion of traditional community structure endpoints (e.g., species richness, diversity, individual taxa abundances). All of these metrics rely on internal categorical threshold comparisons rather than comparison to site specific reference conditions.		
6.4	Failure to consider or even acknowledge comparison to site-specific reference conditions as a necessary component of the community structure line of evidence, when using the default numeric response values. • Lack of requirement for replication or statistical analysis of variability between replicate benthic community samples at a station or between stations. • Lack of site-specific reference comparisons in laboratory toxicity bioassays used to characterize the sediment toxicity leg of the BMI triad assessment. Under the method guidance, test sample results are compared only to negative controls, not reference sample results. • Non-standard statistical comparisons between test sample results and negative controls. Under this guidance, tested samples can be classified as “toxic”, even when the results are NOT significantly different from controls. • Biased methods used to combine multiple metrics for all three sediment triad assessment lines of evidence that overstate the actual metric findings (i.e., rounding up of all categorical metric means or medians in a given line of evidence). • Inability to consider non-chemical stressors in the interpretation of station scores (i.e., presumption of chemical causation). • Failure to appropriately acknowledge or characterize the high levels of uncertainty in constituent metric of SQO lines of evidence, let alone the multiple line of evidence station scores.	See response to comment 6.2.	No

6.5	Details on these and other technical deficiencies have been well documented, and have been known to the Board since well before Part 1 SQO adoption (see CA Chambers of Commerce 2007), and are not fully replicated here. However the stipulation of use of Part 1 SQO station scores as 303(d) listing criteria thresholds and NPDES receiving water limits makes these known deficiencies more problematic (see implementation comments below).	See response to comment 6.2.	No
6.6	To a significant degree, uncertainties and technical deficiencies associated with the benthic SQO assessment process are problematic because the guidance is so rigid, without allowance for consideration of unique Site-specific factors.	See response to comment 6.2. The existing Provisions include flexibility to account for site-specific factors in the benthic SQO assessment process. The benthic SQO relies on multiple lines of evidence to make a determination of sediment quality. Once sediments are designated as impacted, a site-specific study is required to determine the stressors causing the toxicity or community degradation. This rationale is well documented in the proceedings for the 2008 adoption of the Enclosed Bays and Estuaries Plan.	No
6.7	In development of the new human health SQO process, the Board has recognized the need for integration of Site-specific considerations through incorporation of a tiered assessment process, whereby rapid, default methods may be modified at higher tiers of assessment to address unique Site-specific conditions, which may result in exposures different from the default assumptions. Incorporation of similar options to develop a higher tier of benthic community assessment would enhance and improve the reliability of the current benthic SQO framework.	Site-specific analysis would allow greater flexibility; however, the benthic tools have all been peer reviewed and calibrated for the specific environments where they are being applied. The rationale and basis for these tools is well documented in the proceedings for the 2008 amendment to the Enclosed Bays and Estuaries Plan.	No
6.8	For example, use of alternative Site-specific reference comparisons for benthic community metrics at Sites that have highly modified benthic environments would be helpful in understanding the role that sediment chemistry does or does not play in apparent community disturbance, or when community metrics disagree.	As described in response to comment 6.6, the study, or comparisons, suggested are consistent with the types of studies that could be conducted for stressor identification. Stressor identification is necessary to ensure that the stressors causing biological effects are identified and prioritized for effective management. The important role of stressor identification is well documented in the proceedings for the 2008 amendment to the Enclosed Bays and Estuaries Plan. See Chapter IV.A.4.f.	No

6.9	Recommendation: The existing SQO metrics and multiple line of evidence paradigm should be critically reviewed and documented scientific weaknesses should be addressed. Due to uncertainty, unreliability, and conservative bias, the current form of the benthic SQO station scores are useful only as an advisory line of evidence, not as automatic regulatory action levels.	This comment is outside of the scope of the proposed Provisions. However, in accordance with the Federal Clean Water Act Section 303(c) and Water Code section 13240, all Water Quality Control Plans must undergo a triennial review. The commenter may raise similar comments during the triennial review of the Water Quality Control Plan containing the Sediment Quality Provisions.	No
6.10	The Board should expand the flexibility that is explicitly included in the new human health SQO guidance (i.e., the tiered approach) to apply to benthic SQOs.	See response to comment 6.6.	No
6.11	2. The reference envelope option for benthic SQO determination should be clarified and guidance expanded. Both the proposed Provisions and existing Part 1 guidance allows for use of a “reference envelope” approach as an alternative to the prescriptive calculation and combination of numerical metrics that comprises the SQO multiple line of evidence process. Under this option, lines of evidence are assessed by statistical comparison to reference conditions, a traditional approach to sediment triad assessment that has been used for decades: “Categorization of LOEs—Determination of the presence of an LOE effect (i.e., biologically significant chemical exposure, toxicity, or benthic community disturbance) shall be based on a comparison to a numeric response value or a statistical comparison to reference stations. The numeric values or statistical comparisons (e.g., confidence interval) used to classify a LOE as Effected shall be comparable to those specified in Chapters IV.A.1.f through IV.A.1.hSections V.F-H. to indicate High Chemical Exposure, High Toxicity, or High Disturbance. Reference stations shall be located in an area expected to be uninfluenced by the discharge or pollutants of concern in the assessment area and shall be representative of other habitat characteristics of the assessment area (e.g., salinity, grain size). Comparison to reference shall be accomplished by	The reference envelope described in the existing Provisions was and still is only intended for use in those waterbodies where benthic tools have not been developed. There are no proposed changes to that language. See Chapter IV.A.1.j titled MLOE Approach to Interpret the Narrative Objective in Other Bays and Estuaries. The reference envelope was not intended as an alternative approach for those waters where benthic tools have been developed. With that said, guidance on development of reference envelope could be considered; however, that would be appropriate for consideration during a triennial review of the Water Quality Control Plan.	No

	compiling data for appropriate regional reference sites and determining the reference envelope using statistical methods (e.g., tolerance interval)." (Provisions, Section IV.A.1.j, p.15-16).		
6.12	This option is poorly described by the Provisions. Both the accompanying staff report and the SCCWRP Sediment Quality Assessment Manual (SCCWRP 2009) provide no guidance on conducting a reference envelope assessment. In practice, the Regional Boards appear to be unaware of or unwilling to endorse this approach. The tiered approach of the new human health SQO guidance explicitly recognizes the increased value and reliability that expanded use of site specific data provides. A similar structure should be added to the benthic SQO guidance, explicitly recognizing that site-specific sediment conditions will often confound use of the default numeric response values, and that these can be addressed using the reference envelope approach. Additional guidance on key considerations and decision points involved in implementing a reference envelope assessment would be helpful, including guidelines for reference site selection, number of stations required for statistical comparisons, and appropriate statistical methods for comparison of chemical and biological data.	See response to comment 6.11.	No
6.13	Recommendation: Clarify Provisions to state that reference envelope benthic triad assessment is an acceptable alternative to the default numeric response value approach, and that it offers significant benefits (at significant cost of additional data collection) when confronted with unique site-specific conditions, including the presence of non-chemical stressors. Develop additional guidance and technical resources to aid in implementation of reference envelope assessments.	See response to comment 6.11.	No
6.14	**Comments on SQOs for Protection of Human Health** **1. The rules and language regarding the tiered assessment framework are unclear.**	Chapter IV.A.2.b. of the proposed Provisions has been revised to clarify that Tier 1 is optional and that Tier 3 can be conducted to supplement Tier 2 if certain conditions are met. Additionally, see responses to comments 1.18,	No

	The proposed Provisions concerning the limitations and progression between tiers of human health risk assessment for bioaccumulative chlorinated organics are unclear in several ways. Tiering is a well-established risk assessment approach designed to facilitate rapid "screening out" of sites or exposure pathways that fall clearly below a specified level of regulatory concern. Higher tiers of assessment make use of more site-specific information and data, thus resulting in a more reliable risk assessment, at the cost of more effort and data acquisition (see USEPA 2001). The proposed guidance and amendments make use of this approach, but do so in an unnecessarily restrictive manner: "Tier 3 may be performed at any time with approval from the Regional Board provided that Tier 2 is completed at the same time. A change in any parameter or model from that used in Tier must be justified based on site conditions in comparison to Tier 2 assumptions and values, and approved by the Regional Board prior to performing the analysis." (Provisions, Section IV.A.2.e, p.30). Many sites under investigative orders, with known site-related organochlorine release histories are unlikely to be cleared by Tier 1 or even Tier 2 assessments, as described by the Provisions. A responsible party should have the option to proceed directly to Tier 3 in such cases. A Tier 3 assessment, though more expensive and time-consuming, would be more reliable. Tier 3 findings should always supersede findings of lower assessment tiers. Furthermore, the conditions under which a Regional Board would approve site-specific Tier 3 exposure assumptions are unclear. What standards would be used to evaluate evidence that site-specific exposure parameters exist and can be estimated? *Recommendation: Eliminate requirement for Tier 2 assessment in cases where site meets Tier 3 triggering criteria and the responsible party elects to go directly to Tier 3. Clarify factors and conditions*	1.19, 2.9 and 2.10. The purpose of the tiered assessment framework is not to simply remove as many sites as possible from consideration of management actions but to delineate sites that pose no risk or low risk from sites that are contributing contaminants to the tissue burden in sportfish. Tier 2 is the standardized assessment that is required to implement the SQO. Tier 3 is only performed if assumptions associated with the Tier 2 assessment framework are inappropriate based on-site conditions or some other unique factor is present that requires an alternative assessment. However, Tier 2 is still necessary to justify the need for Tier 3.	

	upon which Board approval for Tier 3 would be contingent. Clarify that the triggering criteria list in the Provisions (Section IV.A.2.e, p.30) are examples, not an inclusive list.		
6.15	2. Empirical measurements of sediment contaminant bioavailability should be allowed The source study for the bioaccumulation modeling technique specified for Tier 2 and 3 assessments, Gobas and Arnot (2010), states that concentrations of freely dissolved contaminants in surface water and porewater should be used in calculating BSAF. The proposed guidance does not require or discuss the collection of such data, nor the use of tissue data from prey species to parameterize Gobas food web models. When practicable, collection of these types of site-specific data in a Tier 3 assessment would produce more reliable estimates of human exposure and risk than obtained from modeling bioaccumulation using bulk sediment concentrations alone. Recommendation: The guidance should explicitly recognize the value of site-specific empirical data in parameterizing bioaccumulation models, and allow the use of devices such as passive samplers to measure pore water concentrations and the use of prey tissue data to replace modeled tissue concentrations in Tier 3 Gobas models.	The proposed Provisions do not contain language that would disallow the use of empirical measurements in the food web or porewater in Tier 3. The Tier 3 triggering criteria encompass a broad range of factors that could encompass a variety of site-specific measures that are aimed at addressing a unique site. It is not reasonable to assume that all the potential measures employed by an end-user could be described in the proposed Provisions to address each potential scenario that could be encountered. As a result, Tier 3 is only limited by the criteria provided and the use of the Tier 2 assessment categories and thresholds. As designed, the Tier 2 assessment and associated results can be used to support the need for Tier 3 and the unique measurements the end user believes are necessary to support their Tier 3 study.	No
6.16	*3. **Table 21 appears to contain an error*** *Table 21. Site Sediment Linkage Categories for Tier 2 Evaluation (Provisions, p.29) appears to contain an error in the last row. The conditions defining outcome 4 ("High" Site sediment linkage) would be met by all of the conditions for outcomes, 1, 2, or 3. The table, and the scaling scheme it describes would make logical sense if the value in the first cell of the last row was 75%, not 25%.* *Recommendation: Review and correct Table 21as described above, or provide additional explanation of the existing table.*	Table 21 in the proposed Provisions has been revised to address these and other comments. See response to comment 11.23 and accompanying figure.	No
6.17	**Comments on SQO Implementation** 1. **SQO Provisions regarding TMDLs and**	See response to comment 2.1. In those enclosed bays and estuaries where TMDLs have not been promulgated	No

	discharge limits are not retroactive. The proposed amendments state that the SQO "implementation provisions … do not apply to dischargers that discharge to receiving waters for which a total maximum daily load (TMDL) has been established to address for [sic] the bioaccumulation of organochlorine pesticides or polychlorinated biphenyls from sediment into sportfish tissue within enclosed bays and estuaries unless the applicable Regional Board approves the application of such provisions." (Provisions, Section II.A.1.b, p.3). This provision is unnecessarily restrictive. Many existing TMDLs are based on outdated and faulty science, and are inconsistent with the proposed amendments. Some TMDLs rely upon comparison of site conditions to scientifically flawed sediment quality guidelines, such as ERLs and TELs that are not reliable indicators of benthic community impairment, and are fundamentally inappropriate for use in developing protective targets for human health or bioaccumulation. Re-evaluation of existing TMDLs under the final SQO guidance should be an option available for all California water bodies and dischargers, regardless of whether or not TMDLs have already been promulgated, when it results in a more scientifically defensible and reliable management goal.	by the effective date of these proposed Provisions, the SQOs must be applied. Where TMDLs have been developed, the Regional Water Boards have the discretion to reopen the TMDL and apply the SQOs. Members of the regulated community within those regions can encourage their Regional Water Board to reconsider or reopen TMDLs.	
6.18	The proposed Provisions similarly include language regarding the implementation of SQOs in the development of receiving water and effluent limitations, stating that "Effluent limits to be established to protect or restore sediment quality only after: i. A clear relationship has been established linking the discharge to the degradation ii. The pollutants causing or contributing to the degradation have been identified, and iii. Appropriate loading studies have been completed to estimate the reductions in pollutant loading that will restore sediment quality." (Provisions, Section IV.A.4.c, p.32)	See responses to comments 2.1 and 6.17.	No

	Again, many established receiving water and effluent limitations are inconsistent with the proposed SQO Provisions. As with TMDLs, updating current discharge limits driven by bioaccumulation of organochlorine chemicals in a manner consistent with the final SQO implementation guidance should be an option available to all dischargers. *Recommendation: The Board should modify relevant sections of the proposed Provisions to indicate that updating existing TMDLs and discharge/receiving water limits is an option for all waterbodies and existing limits that are based on less rigorous science.*		
6.19	**2. Aquatic life SQO scores should not be used as automatic triggers for impairment listings or determinations of receiving water limitation exceedances.** All tested stations in a Part 1 SQO assessment receive one of 6 categorical scores: "Clearly Unimpacted", "Likely Unimpacted, "Possibly Impacted", "Likely Impacted", "Clearly Impacted", or "Inconclusive". The proposed Provisions stipulate that an exceedance of a receiving water limit to protect aquatic life is demonstrated when "Any station within the site is assessed as Clearly Impacted as defined in Chapter IV.A.1.i and IV.A.1.j or the total percent area categorized as Possibly Impacted and/or Likely Impacted equals or exceeds 15 percent of the site area over the duration of a permit cycle. Calculation of percent area shall be based on data from spatially representative samples selected using a randomized study design or equivalent spatial analysis." (Provisions, Section IV.A.4.c, p.32-33). Similarly, the draft Provisions stipulate that 303(d) listings will be triggered by aquatic life SQO scores if either "i. Any station within the site is assessed as Clearly Impacted…" or "ii. The total percent area categorized as Possibly Impacted and/or Likely Impacted equals or exceeds 15 percent of the site area over the duration of a listing cycle. Calculation of percent area shall be based on data from multiple	This comment is outside of the scope of the proposed Provisions. The use of the aquatic life categories for impairment listings was part of the provisions adopted in 2008 adoption of the Enclosed Bays and Estuaries Plan. That matter is not being addressed in these proposed Provisions. See responses to comments 1.22, 1.24, 1.26, 1.28, 2.13, 2.15, 2.16, 2.18, 3.3, 7.3, 7.4, 11.11, and 11.12. Additionally, in accordance with the Federal Clean Water Act Section 303(c) and Water Code section 13240, all Water Quality Control Plans must undergo a triennial review. The commenter raises similar comments during the triennial review of the Water Quality Control Plan containing the Sediment Quality Provisions.	No

	spatially representative samples selected using a randomized study design or equivalent spatial analysis." (Provisions, Section IV.A.4.e, p.36-37).		
6.20	This automatic trigger for listing or flagging discharge exceedances is inappropriate for several reasons: • SQO station scores are not numeric standards based on measurable adverse effects and are not reliable stand-alone indicators of chemically-induced impairment (see comments on SQOs for protection of benthic communities above). • The trigger level of 15 percent of the site area exceeding any specified station score is arbitrary and unjustified. This threshold has no demonstrated relevance to the question of beneficial use impairment. The justification for this frequency provided in the draft Staff Report (Section 6.7, p104-106) is not technically valid. The review of "critical exceedance rates proposed by USEPA" (Staff Report, Table 6-9) is an evaluation of the predictiveness of concentration-based effect criteria (i.e., chemical concentration thresholds that have been determined by a statistically valid approach to be associated with the onset of adverse effects). SQO category scores are not adverse effect thresholds, and have no demonstrated level of predictiveness. They do not exhibit the same cumulative probability characteristics that concentration-based threshold exceedances do. Furthermore, if the minimum recommended number of stations (currently 5 for a small site) was assessed, a single "Possibly Impacted" or worse station would potentially trigger listing. This finding would be insufficient to classify any waterbody as impaired, regardless of the conditions at that single tested station. • "Possibly Impacted" scores are not indicative of impairment (see comment 3 below)	The scores are based on the evaluation of multiple lines of evidence, as provided in the previously adopted Enclosed Bays and Estuaries Plan in 2008. Those aspects of the SQOs are not addressed by these proposed Provisions. Applying 15% of site area as Possibly and/or Likely Impacted is consistent with the previous approach, assuming spatially representative samples. The existing approach required only 2 station exceedances out of a total number of stations of 2-24. Given a data set of 5-20 stations, the outcome should be similar to the approach being proposed. This would result in a similar probability of listings using the existing framework. The key difference is the requirement for spatially representative samples and additional consideration given to stations classified as Clearly Impacted.	No
6.21	Benthic SQOs are a valuable line of evidence that can and should be considered by the Board when making listing decisions. Notwithstanding the technical flaws in	The use of the Multiple Lines of Evidence (MLOE) and the resulting station categories supporting the benthic SQO were adopted by the State Water Board in the 2008	No

	the benthic SQO method noted above, a rational assessment of benthic triad data is inherently more relevant than simple comparison of sediment chemistry data to published benchmarks (e.g., ER-Ls). However, stipulation of automatic listing due to the linear outcome of a SQO assessment of a small number of stations is inappropriate, particularly in the absence of a full causal analysis (i.e., a stressor identification with a clear outcome). Listing decisions should remain a professional judgment-driven process that can draw on all available site-specific information, including but not limited to SQO results.	Enclosed Bays and Estuaries Plan. These comments are outside of the scope of the proposed Provisions.	
6.22	Recommendation: Remove all language in the Provisions that specifies mandatory exceedance determinations or 303(d) listing for any SQO outcome. Specify that Board listing and exceedance decisions remain a professional judgement process, but that SQO findings should be considered synoptically with other relevant lines of evidence and information. Include requirements that causal analysis (stressor identification) must be conducted and conclusive before a waterbody can be listed for any specific cause.	See response to comment 6.21.	No
6.23	3. Listing decisions and receiving water limitation exceedances should not be triggered by the "Possibly Impacted" benthic community station category. As noted above, the range of benthic SQO station scores that can trigger 303(d) listing and limit exceedances includes "Possibly Impacted" in the proposed Provisions. The description of the "Possibly Impacted" categorical score in Part 1 SQO guidance makes it clear that this outcome is not a finding of impairment, but of either small magnitude effects (possibly from non-Site related stressors) or uncertainty in the lines of evidence evaluated and/or the underlying data. The Provisions define "Possibly Impacted" as follows: "Sediment contamination at the site may be causing adverse impacts to aquatic life, but these impacts are either small or uncertain because of disagreement	The use of Possibly Impacted categories for listings was adopted by the State Water Board in the 2008 Enclosed Bays and Estuaries Plan. The use of this category for listings in the new proposed assessment framework is consistent with the 2008 SQO provisions which allow for confirmation monitoring. In addition, the existing provisions allow for a Regional Water Board to make a decision in those cases where stressor identification indicates that other factors not related to toxic pollutants are driving the observed and measured biological impacts. Those provisions already exist and do not require additional clarification. Additionally, see responses to comments 1.22, 1.23, 1.26, 1.28, 2.13, 2.15, 2.16, 2.18, 6.19, 6.20, 6.23, 6.24, 6.25, 7.3, and 7.4.	No

	among LOE." (Provisions, Section IV.A.1.i, p.14). The Provisions go on to provide the following guidance on interpretation of the "Possibly Impacted" category, describing it as "meeting the protective conditions if the studies identified in Chapter IV.A.4.f 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. In this situation, the Water Board will consider only the Categories Likely Impacted and Clearly Impacted as degraded when making a determination on receiving water limits and impaired water bodies as described in Chapter IV.A.4." (Provisions, Section IV.A.1.i., p.15).		
6.24	The "Possibly Impacted" outcome for an SQO station is not indicative of clear chemical associated BMI community impairment. Rather it is an indication of uncertainty in the analysis, often associated with the presence of non-chemical stressors at a site or variability in the community data. The logical interpretation of such an outcome is to supplement the default SQO analysis with additional information (such as a reference envelope comparison), or to perform stressor identification when uncertainty is widespread at a Site. To the extent that aquatic life SQO station scores are considered in impairment listing or discharge exceedance determination decisions, only "Likely Impacted" and "Clearly Impacted" scores should be considered as evidence of possible impairment. Treatment of the "Possibly Impacted" finding as indicative of impairment is scientifically inappropriate and internally inconsistent with the SQO guidance itself. *Recommendation: Remove the inclusion of "Possibly Impacted" station scores from the description of aquatic life SQO outcomes that shall support any decision for impairment listing or exceedances of discharge or receiving water limits. "Possibly Impacted" findings should only be used as a*	The Possibly impacted category indicates evidence of impact among the MLOE. Additionally, see response to comments 1.22, 1.23, 1.26, 1.28, 2.13, 2.15, 2.16, 2.18, 6.19, 6.20, 6.23, 6.25, 7.3, and 7.4.	No

	justification for additional investigation or supplemental lines of evidence to characterize benthic conditions at a Site or waterbody.		
6.25	4. Listing decisions and receiving water limitation exceedances should not be triggered by the "Possibly Impacted" human health site category. As with the aquatic life SQOs, the proposed Provisions require that waters be placed on the 303(d) list for exceedance of the narrative SQO for human health if Site sediments are categorized as "Possibly Impacted", "Likely Impacted", or "Clearly Impacted" over the duration of the listing cycle (6 years) (Provisions, Section IV.A.4.e, p. 38). As with the benthic station SQOs, the "Possibly Impacted" category for human health assessment is clearly not a finding of impairment. Rather, it is only indicative of high chemical exposure with low site sediment linkage (see Provisions, Table 22, p.29), a condition most likely associated with non-Site related factors. Such a finding should, at most, trigger additional investigation to assess the reasons for the uncertainty, not automatic listing or exceedance designations. To the extent that human health SQO Site scores are considered in impairment listing or discharge exceedances decisions, only "Likely Impacted" and "Clearly Impacted" scores should be considered as evidence of possible impairment. Recommendation: Remove the inclusion of "Possibly Impacted" station scores from the description of human health SQO outcomes that shall support any decision for impairment listing. "Possibly Impacted" findings should only be used as a justification for additional investigation or supplemental lines of evidence to characterize human exposure conditions at a Site or waterbody.	The difference between low and very low site linkage is important in that low category ranges, from 26-50% of the cumulative linkage distribution, exceeds the linkage threshold of 0.5. This response coupled with the high exposure category would indicate that sediment is contributing albeit at low levels to the contaminants in the fish tissue.	No

6.26	**5. The use of "regional background" in management decisions should be extended to benthic community SQO assessments.** The Provisions on human health SQO assessment include explicit consideration of regional background contamination levels during development of management guidelines, requiring such guidelines for a site to be established in consideration of regional background conditions: "Regional background contamination should be taken into account when establishing management guidelines or actions. Regional background is defined as the concentration of contaminant that is primarily attributable to diffuse sources, not attributable to a specific source or release. It is not feasible to establish management guidelines for a site that are below regional background, as they cannot be expected to be attained within a defined timeframe. Instead, such values should be regarded as management goals to inform watershed-based management plans." (Provisions, Section IV.A.4.h, p.43). This consideration is apparently restricted by the Provisions to human health management guidelines, and is not mentioned in the preceding section on benthic community protection guidelines. The scientific and regulatory rationale for inclusion of background consideration in management decision-making for human health protection apply equally to benthic and other ecological beneficial use protection. Regional background considerations should be integrated into the benthic Site-specific management guideline process. Derivation of background concentrations can be a challenging and contentious process. Further guidance should be developed by the Board on the appropriate statistical methods for estimation of regional background and comparison to Site data that are consistent with Board practice and risk assessment guidance. For example, use of background upper prediction limits or similar upper distribution points from background/reference data distributions should be compared to Site data, not means or confidence limits on means (see USEPA 2002). *Recommendation: Add an explicit consideration of appropriate background data to the benthic community chemistry line of evidence. Sediments that do not exceed regional background should not be assigned "high" chemistry scores in a benthic triad assessment. Furthermore, management guidelines to protect benthic communities should explicitly incorporate consideration of regional background. Develop additional implementation guidance on estimation of regional background and appropriate statistical*	Impacts delineated through the benthic SQO assessment framework are typically localized, while impacts associated with the human health SQO can encompass significantly larger areas. Bioaccumulation into the food web can occur at very low levels. Unfortunately, for this class of contaminants (organochlorine pesticides and PCBs), they are broadly distributed in the environment. As a result, consideration for background in the development of management guidelines is important because establishing guidelines lower than background would result in entire waterbodies designated for cleanup, which is unrealistic. This situation is unlikely to be encountered in the implementation of the benthic SQO assessment framework.	No

6.27	**6. Stressor Identification Evaluation guidance should be clarified.** Conceptual guidance is provided in flowchart form for the Stressor Identification Evaluation (SIE) process in Appendix A-2 of the Provisions (Provisions, p.49). The process requires a discharger to "review and revise SIE workplan" when the SIE is inconclusive and fails to identify the "chemicals or classes of chemicals" responsible for an SIE exceedance, an outcome that experience has shown is common. The result can be an infinite do-loop with no resolution in cases where positive stressor identification proves elusive. This flowchart should be amended to provide a decision point on when to end the evaluation process, as well as guidance on possible next steps (such as a Tier 3 human health assessment or reference envelope benthic assessment). *Recommendation: Revise the flow chart in Appendix A-2 to indicate a decision point on next steps in the event of an inconclusive SIE outcome.*	The content of the direct effects or benthic community assessment process is outside the scope of the proposed Provisions. This comment would be more appropriate for a triennial review where the State Water Board addresses significant problems that are not specifically related to any specific proposed amendment. Stressor identification has resulted in findings regarding classes of chemicals or in some cases identification of the specific contaminants. This information is much more beneficial and informative to managers than reliance on sediment quality guidelines, which has been used for many years.	No
7.1	The Ports are supportive of the adoption of the proposed amendments because Sediment Quality Objectives are comprehensive, science-based assessment tools. We have three comments on the proposed Plan, which we respectfully offer below:	Comment noted.	No
7.2	Fish Sampling Methods: The Draft Amendment provides guidance on field collection procedures as page 18 and 19, Section IV.A.2.b.3.b states, "Fish shall meet sportfish angling size requirements." Meeting angling size requirements is often a challenge and could significantly hamper the success of field collection efforts. Recommendation: Modify the language to state, "Fish shall meet sportfish angling size requirements where possible."	Chapter IV.A.2.b.3)4.b of the proposed Provisions (renumbered as Chapter IV.A.2.b.3) f) was revised to allow using fish that do not meet sportfish angling size requirements.	Yes
7.3	Consistency with SQO Direct Effects in the interpretation of "Possibly Impacted" category for the protection of aquatic life: On page 33, Section IV.A.4.c.2.a, the guidance suggests "Possibly Impacted" is a final result and is	The Possibly Impacted category is considered an impacted category regardless of whether the category is applied to the benthic or human health assessment framework. In both instances, confirmation monitoring may be performed. Unlike the benthic assessment	No

	treated the same as “Likely Impacted.” This seems inconsistent with flexibility provided on page 38 under Stressor Identification for direct effects which allows further evaluation of the “Possibly Impacted” result. Recommendation: Add clarification that further evaluation of “Possibly Impacted” results to determine actual impairment may be conducted, as recommended in Section IV.A.4.f.	framework, there is no need to perform stressor identification as the assessment framework specifically identifies the contaminant that is causing the impairment.	
7.4	Consistency with SQO Direct Effects in the interpretation of “Possibly Impacted” category for the protection for Human Health: On page 33, Section IV.A.4.c.2.c, the guidance states an indirect effects category of “Possibly Impacted” results in a categorization of “Impaired.” This seems inconsistent with flexibility provided on page 38 under Stressor Identification for direct effects which allows further evaluation of a “Possibly Impacted” result. Recommendation: Provide guidance for interpretation “Possibly Impacted” category consistent with direct effects.	As described in responses to comments 1.22, 1.26, 7.3, and 11.12, the flexibility provided with the Possibly Impacted category is associated with two issues. The first issue is uncertainty, so the existing provisions allow confirmation monitoring. The second issue is the resulting stressor identification, which is unnecessary with the human health assessment framework. As written, the proposed Provisions allow confirmation monitoring for both the existing assessment framework and the human health framework where only possibly impacted categories result. See Chapter IV.A.4.c.2).b.i	No
8.1	As the public trustee of San Diego Bay (Bay), the District shares common interest with the State Water Resources Control Board (State Board) in ensuring the protection of the Bays beneficial uses. The District supports the State Board’s continued efforts to address sediment quality issues. Moreover, the District uses the current State Boards SQO framework as an assessment tool as part of the Regional Harbors Monitoring Program and recognizes the value in having consistent statewide methodology to evaluate sediment quality. The District recognizes the difficult task in developing a program to address multiple issues in bays and estuaries throughout California, and agrees that a narrative approach is more appropriate than numeric criteria. To this end, the District respectfully submits the following comments regarding the SQO provisions.	Comment noted.	No
8.2	1. The application of the SQO framework should be consistent across the State. The SQO process is intended to supplement current point and non-point	The proposed Provisions require a spatially representative assessment of the area of interest to evaluate impacts using the benthic MLOE approach. The area of interest	No.

	source discharge monitoring programs as a screening tool to identify area(s) having potential sediment impacts. The approach, as identified in the SQO provisions, monitors the health or marine sediments with a Multiple Line of Evidence (MLOE) approach. The District agrees with this useful tool for the purpose of assessing general conditions (i.e. screening) of embayments. The District also understands the SQOs are not intended to be used to analyze areas pre/post for routine maintenance or dredging. The guidance provided in the SQO Provisions, however, remains unclear in the regards to the use of SQOs for the identification, delineation, or impact analysis of legacy contaminated sites. The district believes that SQOs can be can be valuable to ensure ecosystem and human health protection at certain sites with legacy contamination, but must be used on a discretionary site by site basis to avoid misuse.	could consist of a highly contaminated area or hotspots for characterization or remedial investigation, a waterbody or site, or segment of a waterbody to assess whether a listing or delisting is appropriate. In addition, a site may consist of an area in and around an outfall to assess a discharges impact to receiving water and associated bottom sediments. Where resources allow, a random or stratified random design is preferred but not required. Because the design of a study will be site-specific, only general guidance is provided. See the existing Provisions, Chapter IV.A.4.d, which describes how to design a monitoring program. Examples of spatially representative monitoring programs include Southern California Bight Regional Monitoring Surveys, San Francisco Bay Regional Monitoring Program, and the San Diego Regional Harbors Monitoring Program.	
8.3	2. The State Board should provide guidance on the correct sampling frequency and collection methodologies needed to appropriately delineate the site "area" for SQQ analyses. The current language in the SQQ Provisions dictate that if 15% of the site "area" fails the SQO protocol, the site is considered impacted or potentially impacted. However, it is not specified how the size of the site will be determined. Including guidance on how to correctly sample and define a site "area" will avoid the potential misuse of site delineation which could in turn result in skewed results.	See response to comment 8.2. The correct sampling frequency depends on the specific permit and the application; for NPDES permits the minimum frequency is once per permit cycle (Chapter IV.A.4.c) and Regional Monitoring Programs are required to monitor once every five years (Chapter IV.A.4.d.8)). Where impacts are identified, the Regional Water Board can require more frequent monitoring. Size of the area is dependent on the type of assessment. For evaluating waterbodies, the area considered in the design represents the entire waterbody. If assessing only a segment or reach, consider the entire area of the segment or reach. For hotspots or areas around outfalls, the site assessed should extend beyond the area impacted or area influenced by the discharge in order to ensure that the full area of impact is delineated. In applying the human Health Assessment Framework, the minimum site size is 1 km^2. Applying best professional judgement and conferring with the applicable Regional Water Board should eliminate the potential for skewed results, especially given that significant information and data already exist for many major harbors in California.	No.
8.4	3. The District cautions the State Board to approach	The site linkage determination is only one piece of the	No

	site linkage determinations in a regulatory context on a provisional basis. The amendment to the SQOProvisions includes the determination of site linkage between estimated fish tissue concentrations at the site being investigated and observed fish tissue concentrations in the general area of the site. As presented, the site linkage calculation process relies upon the Arnot and Gobas food web model, specified inputs, and the use of Monte Carlo simulations to develop a distribution of site linkages that takes into account uncertainty and variability of the input parameters. While this attempt at developing site linkages may be promising, the District is concerned that this novel approach may not useful in a regulatory context. For example, even with large datasets, site-specific models including the Arnot and Gobas model, are considered to be well calibrated if the estimated fish tissue concentration is within 2 times the measured concentration. With this level of variability between estimated and measured fish tissue concentrations, the ability to differentiate site linkages will be highly uncertain, particularly given that the framework does not appear to include a step to calibrate the model to a site, or even verify that it is reasonably able to predict site concentrations. Given this concern, the District is offering to work with the Regional and State Boards to validate this approach for San Diego Bay sites, when and where applicable.	framework. First and foremost, there must be some level of tissue contamination that exceeds Office of Environmental Health Hazard Assessment (OEHHA) tissue goals and advisories levels. If that occurs, the second piece of information needed to complete the assessment is the site linkage. Site linkage addresses the question: given a sportfish species with known and specified diet and home range, could contaminants from the site accumulate in the tissue of that fish? If so, how much? Site linkage addresses the question: is there the potential for bioaccumulation from site into sportfish? Site linkage is not intended to be predictive of tissue concentrations. Site linkage is simply evaluating the potential for contaminants from the site to be contributing to the contaminants in the sportfish tissue. For more detailed analyses Tier 3 would be appropriate where a fully calibrated site-specific food web model may be applied. The Tier 2 framework does assess waterbodies consistent with expectations for thirteen bays or portions there of as described in Appendix 6 of SCCWRPs technical document titled “Development of a Sediment Quality Assessment Framework for Human Health Effects” posted at the following link: https://www.waterboards.ca.gov/water_issues/programs/bptcp/docs/sqo_human_health_framework.pdf	
8.5	4. The District recommends the analysis of all 209 polychlorinated biphenyl (PCB) congeners at sites where source identification is an objective. The SQQ Provisions require that a subset of 50 polychlorinated biphenyl (PCB) congeners consistent with those analyzed for the Surface Water Ambient Monitoring Program (SWAMP) be determined. Determining a subset of 50 congeners may be appropriate for monitoring sites where consistency over time is the objective. However, for sites where source identification is of concern, the District recommends	The use of the Surface Water Ambient Monitoring Program (SWAMP) list represents the minimum number of congeners. For comparison purposes it is important that both tissue and sediment analyte list be consistent.	No

	the requirement to quantify all 209 PCB congeners. The District understands that the cost to analyze all 209 PCB congeners is approximately double the cost to analyze the SWAMP congener subset recommended in the amendment. However, we surmise that the long-term benefits likely outweigh the cost, particularly at sites where the ultimate goal is reducing or eliminating the source of PCB contamination. Analyzing for all 209 congeners not only allows for a more accurate determination of total PCBs, it also allows for the evaluation of the distribution of congener patterns to help with the identification of PCB sources. This is particularly important for sites that have multiple and/or on-going sources. The requirement to analyze for only 50 of the 209 PCB congeners may not allow for adequate source identification. As such, the guidance should, at minimum, provide the Regional Boards the flexibility to consider the full suite of 209 PCB congeners as optional analysis in areas where PCBs are a higher priority.		
9.1	Baykeeper has been engaged on the development of Sediment Quality Objectives (SQOs) for nearly twenty years and cannot understate our disappointment with the slow pace of SQO development and implementation, which has inhibited the pace of toxic sediment cleanup throughout the state. Members of the environmental and public health community have repeatedly noted that the slow pace of development, overly burdensome stakeholder process, and perplexing technical aspects of SQO implementation procedures have ensured a lack of commitment to implement the SQOs in a timely and comprehensive manner by the Regional Boards and individual dischargers. We do not wish to restate these comments but incorporate by reference prior comments dating from 2006, 2010 and 2011.	The State Water Board approved the SQO work plan in 2003. That was followed by the adoption of the Enclosed Bays and Estuaries Plan in 2008. The Plan was amended again in 2011 and proposed for amendment in 2018. For a program without comparable efforts in other states or at the federal level, the technical team and partners have made significant and steady progress overcoming many challenges associated with assessing contaminant bioavailability and bioaccumulation. The stakeholder process has provided valuable input over the years. The staff and technical team have conducted multiple training classes in northern and southern California and provided spreadsheets and other tools to make implementation easier. In addition, the technical teams have used existing data to assess all major bays, beginning with the earliest assessment in 2007, followed by later assessments in 2013). See Bay et al 2013 Evaluation of Sediment Condition Using California's Sediment Quality Objectives Assessment Framework. Technical Report 0764.	No

		Southern California Coastal Water Research Project. Costa Mesa, CA. (http://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/764_CASedEvalSQOFramework.pdf) Prior to that, the State Water Board developed the Consolidated Hotspots Cleanup Plan that encompassed many of the same waterbodies, segments and reaches as hotspots. Under Porter-Cologne,(§ 13225, § 13394). the Regional Water Boards are responsible for determining how and when each waterbody segment or reach is addressed and what program and tools are applied in the assessment.http://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/764_CASedEvalSQOFramework.pdf) Prior to that, the State Water Board developed the Consolidated Hotspots Cleanup Plan that encompassed many of the same waterbodies, segments and reaches as hotspots. Under Porter-Cologne,(§ 13225, § 13394). the Regional Water Boards are responsible for determining how and when each waterbody segment or reach is addressed and what program and tools are applied in the assessment.http://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/764_CASedEvalSQOFramework.pdf) Prior to that, the State Water Board developed the Consolidated Hotspots Cleanup Plan that encompassed many of the same waterbodies, segments and reaches as hotspots. Under Porter-Cologne,(§ 13225, § 13394). the Regional Water Boards are responsible for determining how and when each waterbody segment or reach is addressed and what program and tools are applied in the assessment.http://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/764_CASedEvalSQOFramework.pdf) Prior to that, the State Water Board developed the Consolidated Hotspots Cleanup Plan that encompassed many of the same waterbodies, segments and reaches as hotspots. Under Porter-Cologne,(§ 13225, § 13394). the Regional Water Boards are responsible for determining how and when each waterbody segment or reach is addressed and what program and tools are applied in the assessment.	

		Regarding the commenter's request to incorporate by reference those prior comments dating from 2006, 2010 and 2011, it would be speculative to determine which of the many previously-submitted comments may have received inadequate responses in prior proceedings and for what reasons. Thus, comments not specifically presented at this time are not addressed.	
9.2	These comments focus on one particular change reflected in the Proposed Amendments at Chapter III.A.1.b.4: *Implementation provisions described in Chapter IV.A.2 and applicable provisions in Chapter IV.A.4 implementing the objective set forth in Chapter III.A.2.b. below do not apply to dischargers that discharge to receiving waters for which a total maximum daily load (TMDL) has been established to address for the bioaccumulation of organochlorine pesticide or polychlorinated biphenyls from sediment into sportfish tissue within enclosed bays and estuaries unless the applicable Regional Water Board approves the application of such provisions.* This element of the Proposed Amendments creates a non-expiring grandfathering clause for all waterbodies with TMDLs for organochlorine pesticide or polychlorinated biphenyls (PCBs). For context, a 2001 court decision (San Francisco Baykeeper, Inc. v. State Water Resources Control Board, August 2001) ordered the State Water Board to adopt SQOs pursuant to the California Water Code §13393. The law requires the State Water Board to adopt SQOs for toxic pollutants that have been identified in toxic hot spots as part of the Bay Protection and Toxic Cleanup Program (BPTCP) and for other toxic pollutants of concern. Given that PCB impairments drive much of the sediment testing and assessments for San Francisco Bay and studies from recent years have upended the assumptions associated with the existing PCB TMDL, to excuse the San Francisco Bay Regional Water Quality Control Board from utilizing	The language in Chapter III.A.1.b.4 of the proposed Provisions has been revised for clarity. The language providing that implementation provisions for the human health objective are inapplicable to receiving waters with a previously-adopted TMDL would only affect those TMDLs promulgated prior to the effective date of the proposed Provisions. As written, the language provides each Regional Water Board with the discretion to apply the SQOs. Staff Report for the San Francisco Bay PCB TMDL acknowledged the margins as potential hotspots and identified management strategies that could be addressed within the TMDL program areas and outside the TMDL program areas. Many of these strategies have been implemented. Due to the sheer size of the bay and expanse of nearshore margins, detailed characterization of sediment quality in the margins poses a significant challenge, especially where older industrial sites have been vacated or replaced by newer tenants. However, new findings would not alter ongoing activities to reduce pollutant loadings into the bay or remediate major source areas currently underway. See responses to comments 2.1, 6.17, and 6.18. The commenter does not specify what SF Bay PCBs TMDL assumptions have been upended by recent studies. The fundamental conceptual foundation of the PCBs TMDL in SF Bay remains sound. There have been advances in scientific understanding about the nature of PCBs impairment and characterization of in-bay source areas since the TMDL was adopted. Nonetheless, the PCBs TMDL was founded on a robust conceptual framework	Yes

	this tool for PCBs would likely mean that SQO testing and assessment will not be undertaken for San Francisco Bay. This should present serious concern for anyone involved in the SQO process or those with concerns over the slow pace of toxic sediment assessment and cleanup in California.	using the same concepts and assumptions used to develop the bioaccumulation SQOs, and it explicitly included an adaptive approach to encourage the refinement of the conceptual model and to support the inclusion of updated technical information into the implementation of the TMDL. The commenter does not specify what San Francisco Bay PCBs TMDL assumptions have been upended by recent studies. The fundamental conceptual foundation of the PCBs TMDL in San Francisco Bay remains sound. There have been advances in scientific understanding about the nature of PCBs impairment and characterization of in-bay source areas since the TMDL was adopted. Nonetheless, the PCBs TMDL was founded on a robust conceptual framework using the same concepts and assumptions used to develop the bioaccumulation SQOs, and it explicitly included an adaptive approach to encourage the refinement of the conceptual model and to support the inclusion of updated technical information into the implementation of the TMDL. Also, ongoing studies are being pursued because the conceptual foundation of the San Francisco Bay PCBs TMDL called attention to their importance. These include: • exploring the role of priority margin (shoreline) areas in overall Bay impairment; • understanding how local watershed sources impact these margin areas; and • identifying and controlling source areas in local watersheds. These and other ongoing technical studies will not be hampered by the SQO "grandfather" clause. The TMDL calls for identifying source control implementation strategies, understanding the role of source areas as well as fate and transport of PCBs in contaminated shoreline areas. These and other ongoing TMDL technical efforts would not be aided by including SQOs as TMDL targets.	

9.3	Results from the last several years of study in San Francisco Bay have caused the scientists involved in the original PCB conceptual model and associated TMDL to 'go back to the conceptual drawing board', putting into question the assumptions used to develop the TMDL. Approval of these Proposed Amendments would remove any requirement to support future iterations of the PCB TMDL with the tools developed through the SQO process. Given that much of the scientific work undertaken to develop the SQOs were based on work related to assessment of PCB impairment in San Francisco Bay, there is no reasonable cause for removing the SQOs from the assessment toolbox as scientists and regulators undertake future revisions to the PCB TMDL in San Francisco Bay.	See responses to comments 2.1, 6.17, and 6.18. Additionally, the Regional Water Board has the discretion to utilize the assessment framework and associated tools being proposed. The Regional Water Boards must reassess progress on TMDLs to ensure that management actions are effective and that the waste load allocations, load allocations, and targets are appropriate to protect beneficial uses. The Regional Water Boards are in the best position to determine when and under what conditions these TMDL reopeners will be completed. See responses to comments 2.1, 6.17, and 6.18. The commenter has provided no basis for the statement that the scientists involved in the original PCB conceptual model have gone "back to the drawing board". This is a mischaracterization of the evolution of PCBs studies as envisioned in the TMDL and ongoing. See the response to comment 9.2.	No
9.4	Baykeeper understands these Proposed Amendments retain the ability of Regional Boards to optionally utilize the SQO framework for revisions to TMDLs for PCBs and organochlorine pesticides. Given the significant investment already undertaken to develop the PCB TMDL in San Francisco Bay, which by admission of those involved in its development is fundamentally flawed, we feel it is highly unlikely the costly assessments needed to undertake the SQO process will ever be conducted. This translates into the highly likely scenario that needed SQO assessments will not be undertaken in San Francisco Bay, since PCB impairments have proven to be the motivating factor for sediment monitoring and assessments for much of the last 25 years.	See responses to comments 2.1, 6.17, 6.18, 9.2, and 9.3. There is no basis for the statement that the San Francisco Bay PCBs TMDL is fundamentally flawed or that any scientist involved in its conceptual development would have made such a statement.	No
9.5	The lack of SQO assessments in San Francisco has proven to be an impediment to identifying the magnitude and extent of sediment toxicity throughout the estuary, where sediment toxicity has been a chronic issue throughout the system for decades (Figure 3). In the last year, San Francisco Bay	See responses to comments 2.1, 6.17, 6.18, 9.2, and 9.3. The commenter appears to be conflating different types of SQO assessments and their intended use. The SQO assessments at issue are for "indirect effects" such as bioaccumulation. These have nothing to do with the types	No

	Regional Board staff attempted to pursue a 303(d) sediment toxicity listing for San Francisco Bay. This request was rejected by the Regional 2 Board on the grounds that an insufficient number of SQO assessments had been conducted to warrant this listing, despite decades of data indicating widespread, moderate levels of sediment toxicity throughout the estuary since monitoring began.	of SQOs that could be relevant for assessing causes of direct toxicity, which was the issue in the listing determination mentioned by the commenter. Stakeholders in the San Francisco Bay area have been trying to determine the causes of persistent, moderate toxicity (to bivalve and amphipod test organisms) for about two decades. The indirect effects SQOs are not a tool relevant to this endeavor.	
9.6	The lengthy process associated with developing these SQOs has contributed to the lack of action on this serious indicator of beneficial use impairments in San Francisco Bay and other enclosed bays and estuaries. The approval of these Proposed Amendments will virtually ensure decades of further inaction where this proposed grandfathering clause applies.	The State Water Board and Regional Water Board have been working to understand the causes of sediment impairments and restoring those sediment dependent beneficial uses since the Bay Protection Cleanup Program was initiated in the early 1990's utilizing cleanup actions, TMDLs, and additional permit requirements.	No
9.7	Requested Revisions to the Proposed Amendments Since Regional Boards and dischargers have long supported the development and application of SQOs when developing TMDLs for PCBs and organochlorine pesticides, Baykeeper recommends removal of the grandfathering clause provided at Chapter III.A.1.b.4. If this element of the Proposed Amendments reflects concerns that approval would immediately trigger the re-opening of existing TMDLs we ask the Board to consider a finite duration for the grandfathering clause and consider changing Chapter III.A.1.b.4 as follows: *Implementation provisions described in Chapter IV.A.2 and applicable provisions in Chapter IV.A.4 implementing the objective set forth in Chapter III.A.2.b. below do not currently apply to dischargers that discharge to receiving waters for which a total maximum daily load (TMDL) has been established to address for the bioaccumulation of organochlorine pesticide or polychlorinated biphenyls from sediment into sportfish tissue within enclosed bays and estuaries unless the applicable Regional Water Board approves the application of such provisions. Any future revisions and updates to applicable TMDLs are not subject to this exemption. Any TMDL revisions or*	See response to comment 9.3. The language in Chapter III.A.1.b.4 has been revised to clarify that inapplicability of the implementation provisions is limited to only those existing TMDLs that are adopted prior to the effective date of the Provisions.	No

	permits where applicable TMDLs are implemented after 2020 shall require the application of these provisions.		
9.8	Despite long-standing critique of the SQO development process, Baykeeper recognizes the utility of the framework as a means of determining the magnitude and potential sources of sediment toxicity in California's enclosed bays and estuaries. As the largest estuary on the West Coast, with a number of unassessed and un-remediated sediment hot spots, we discourage any exemption targeting San Francisco Bay, which would effectively remove the SQO framework from the toolbox available to regulators and dischargers. In sum, Baykeeper requests that the State Board either omits Chapter III.A.1.b.4 from the Proposed Amendments or limits the duration of their applicability to a clearly defined date.	See response to comment 9.7.	Yes
10.1	The SMWG appreciates the opportunity to provide comments on the proposed amendments to the Water Quality Control Plan for Enclosed Bays and Estuaries of California to include application and implementation of sediment quality objective (SQO) protecting benthic communities from direct exposure to pollutant in sediments and application and implementation of the SQO protecting human health from exposure through fish consumption. This is a very important, but also highly technically complex topic. We at SMWG recently learned about this proposal at have not had a chance to fully evaluate and respond to the proposal. Therefore, we respectfully request an extension of time to provide comments on this topic of great interest to our members.	The proposed Provisions, Staff Report, and Substitute Environmental Document were released to the public on October 24, 2017. Notices were published in twenty-three papers within potentially affected regions that encompass bays and estuaries of California. In addition, the State Water Board also notified interested parties through multiple electronic subscriptions (for sediment quality subscribers alone over 2,000 valid email addresses were notified). Finally, no other commenters requested additional time to review the material. For those reasons State Water Board did not extend the comment period.	No
10.2	In the meantime, we urge the Board to give careful consideration to comments provided by the Western States Petroleum Association and other stakeholders to ensure that the final SQO reflect sound science and the input of all interested stakeholders. The SMWG would be pleased to provide further input to the Board in its deliberations. For further information	Comment noted. The State Water Board considers all relevant and timely comments. See responses to Western State Petroleum Association letter (number 11) for the responses to their comments.	No

	and to confirm an extension of time to provide comments on the SQO, please contact the SMWG's Coordinating Director, Steven C. Nadeau, c/o Honigman Miller.		
11.1	As briefly highlighted here and discussed in detail in the attached memo prepared for WSPA by Susan Paulsen and Susan Kane Driscoll of Exponent, WSPA has concerns regarding the proposed SQOs. In addition to discussing the concerns, we are pleased to offer suggested revisions to address each of the issues.	Comment noted.	No
11.2	Applicability WSPA is concerned that the SQOs are not applicable to all waters, particularly in areas where a total maximum daily load (TMDL) has previously been developed. As currently constructed, the SQOs would not apply to entities who discharge to receiving waters that have an established TMDL for organochlorine pesticides or polychlorinated biphenyls from sediment in sportfish unless a regional board approves such an application. Our concern, however, is that many TMDLs are based on outdated and faulty science that is inconsistent with the proposed SQO provisions. WSPA recommends the Board revise the draft to apply SQOs to all waters, including those for which a TMDL has previously been developed. Additionally, WSPA recommends the state and regional water boards be required to develop TMDL allocations using the methodology of the proposed SQOs.	The SQOs are applicable to all enclosed bays and estuaries. However, in those waterbodies where a Regional Water Board has already developed a TMDL and associated target, the discretion to implement the provisions for use in developing TMDL targets lies with the applicable Regional Water Board. See, response to comment 9.7	No
11.3	**Consistency** The Board should revise the State Listing Policy to be consistent with the sediment quality provisions. The original Policy adoption occurred in 2004 prior to the adoption of the SQOs Part 1 and the Policy has not been modified in line with the SQO provisions that provide that sediment quality provisions that added an additional listing criterion should apply only to listing for exceedances of the narrative SQO for aquatic life protection. Instead, the Policy continues to allow sediment quality guidelines to be used in listing	This comment is outside of the scope of the proposed Provisions. When the Listing Policy is reviewed in the future this change may be proposed by public and interested parties.	No

	decisions and the use of them in this way as a basis for management actions is inappropriate as no single one can account for all of the factors that influence contaminant effects.		
11.4	WSPA recommends the Board modify the Provisions such that listing decisions and receiving water limitation exceedances do not use the "Possibly Impacted" category. This particular category connotes significant uncertainty about the sediment condition and the cause of any impacts. Given such uncertainty, it should not be used as a basis for listing. Additionally, in situations where Stressor Identification Evaluations (SIE) are inconclusive, it is unclear whether or not an "off-ramp" exists. The flow chart and overall framework is in need of such clarification and off-ramp options when SIEs are inconclusive or at a minimum more explicit parameters being established to limit the scope of additional study required pending future, routine SQO monitoring.	The Possibly Impacted category in the SQO Provisions was adopted by the State Water Board in the 2008 adoption of the Enclosed Bays and Estuaries Plan. The Possibly Impacted category represents impacted or degraded sediment. Additionally, see responses to comments 11.13, 11.14, and 11.15.	No
11.5	**Tier 2 and Tier 3 Assessments** WSPA recommends the bioavailability of sediment contaminants should be included as an option in Tier 2 and Tier 3 human health risk assessments. This is important as site-specific bioavailability of chemicals is core to understanding exposure and risks. Differences among sites in this regard are widely accepted.	The consideration of bioavailability and associated measures of porewater would certainly be appropriate for Tier 3; however, Tier 2 was not intended to utilize such measures. See responses to comments 11.18, 11.19, 11.20, and 11.21.	No
11.6	This memorandum focuses on both the new Part 2 SQOs and the implementation provisions for both Part 1 and Part 2 SQOs Prior comments submitted by WSPA on the SQOs are incorporated by reference. 1. **The Sediment Quality Provisions (SQO Provisions) should be applied to all waters, including those for which a TMDL has previously been developed.** Section III.A.1.b.4 (at p. 3) currently states that the SQO "*implementation provisions … do not apply to dischargers that discharge to receiving waters for which a total maximum daily load (TMDL) has been established to address for [sic] the bioaccumulation of organochlorine pesticides or polychlorinated biphenyls*	See responses to comments 2.1, 6.17, 6.18, 9.2, 9.3, 9.4, and 9.7. The requested changes have not been made and the authority to utilize the proposed assessment framework remains with the applicable Regional Water Board.	No

	from sediment into sportfish tissue within enclosed bays and estuaries unless the applicable Regional Board approves the application of such provisions." However, many of the state's previously adopted TMDLs are based on outdated and faulty science and are inconsistent with the proposed SQO Provisions. For example, many TMDLs are based upon sediment quality guidelines such as ERLs and TELs, which are inappropriate for use as indicators of bioaccumulation or targets for protection of human health, and which should not be used in development of TMDLs. The State has invested significant time and effort in the process of developing the proposed SQOs, and the proposed SQOs represent a significant advance in terms of applying appropriate scientific methods to evaluate both the human health risk posed by toxic pollutants in sediments and impacts to benthic organisms. The SWRCB should modify the proposed SQOs to require their use in evaluating existing TMDLs and in developing future TMDLs. Suggested language changes are provided below.		
11.7	The SQO Provisions similarly include language regarding the implementation of SQOs as receiving water and effluent limitations (see Section IV.A.4.c.1. at p. 32). Section IV.A.4.c.1.d requires effluent limits to be established to protect or restore sediment quality "only after: i. A clear relationship has been established linking the discharge to the degradation, ii. The pollutants causing or contributing to the degradation have been identified, and iii. Appropriate loading studies have been completed to estimate the reductions in pollutant loading that will restore sediment quality."	See response to comment 11.8.	No
11.8	However, receiving water and effluent limitations have been developed across the state to implement TMDLs that are not consistent with the SQO Provisions. In many cases, the adopting agencies have not made these key findings. Permit limits have been applied in cases where no clear linkage between the discharge	See responses to comments 2.1, 6.17, 6.18, 9.2, 9.3, 9.4, 9.7, and 11.6.	No

	and the degradation has been established, and for pollutants that are unlikely to cause or contribute to degradation, because of TMDL targets and wasteload allocations that have been established without consideration of the requirements of the SQO Provisions. Only by revisiting TMDLs to ensure that they are consistent with the SQO Provisions will it be possible to develop receiving water and effluent limits that are consistent with the SQO Provisions and that are scientifically and technically appropriate. *Recommendation: The SWRCB should modify Section III.A.1.b.4 (at p. 3) to read as follows: "Implementation provisions … ~~do not apply to~~ shall be used to develop requirements for dischargers that discharge to receiving waters for which a total maximum daily load (TMDL) has been established to address for the bioaccumulation of organochlorine pesticides or polychlorinated biphenyls from sediment into sportfish tissue within enclosed bays and estuaries ~~unless the applicable Regional Board approves the application of such provisions~~. Implementation provisions shall also be used to develop future TMDLs for the bioaccumulation of organochlorine pesticides or polychlorinated biphenyls from sediment into sportfish tissue within enclosed bays and estuaries." In the SQO Provisions Staff Report at pp. 106-107, Alternative 1 ("Do not include a clause that would grandfather those waterbodies with adopted TMDL") should be selected.*		
11.9	**2. The Water Boards should be required to develop TMDL allocations using the methodology of the proposed SQOs.** Consistent with Comment 1, the Water Boards should be required to follow the proposed SQOs, once adopted, in all TMDLs adopted after the effective date of the Sediment Quality Provisions. *Recommendation: The SWRCB should modify language in Section IV.A.4. at p. 32 as follows: "These actions are further described in Chapters IV.A.4.f and IV.A.4.g. Nothing in this chapter shall limit a Water*	See responses to comments 2.1, 6.17, 6.18, 9.2, 9.3, 9.4, 9.7 and 11.6.	No

	Board's authority to develop and implement waste load allocations for Total Maximum Daily Loads. ~~However, I~~ It is ~~recommended~~ <u>required</u> that the Water Boards develop TMDL allocations using the methodology described herein, ~~wherever possible~~."		
11.10	**3. The SWRCB should revise the State Listing Policy to be consistent with the Sediment Quality Provisions.** The State Listing Policy was initially adopted in 2004, prior to the adoption of the Sediment Quality Objectives Part 1. The SQO Provisions specify that "the Sediment Quality Provisions adds [*sic*] an additional listing criterion that applies only to listing for exceedances of the narrative sediment quality objective for aquatic life protection in Chapter III.A.2.a" (Section IV.A.4.e.1 , p. 37). However, the State Listing Policy has not been modified accordingly, and continues to allow Sediment Quality Guidelines, including SQGs, such as ERLs and PELs, to be used in listing decisions (see Listing Policy Section 6.3.1 at pp. 19-20). However, the use of SQGs or chemical-specific concentration-based thresholds as a basis for management actions is inappropriate as "no single SQG approach is able to account for all of the factors that influence contaminant effects" (SQO Part 1 Staff Report at p. 92-93).[1] SQGs are an inappropriate basis for listing, and listing decisions should be made for toxic pollutants in sediment using only the SQO Provisions. The SQO Provisions continue to allow a water segment to be placed on the 303(d) list if that segment exhibits sediment toxicity but is not listed for an exceedance of the narrative objective for aquatic life protection (see Section IV.A.4.e.1 on p. 37, which allows such a listing in accordance with Section 3.6 of the Listing Policy). The SQO provisions also require that, if the water quality standard exceedance "consists of the sediment quality objective," the Regional Water Board is to re-evaluate the listing and delist if the water segment does not meet the criteria in	See response to comment 11.3.	No

	the SQO Provisions. In practice, these provisions of the SQO Provisions and Listing Policy appear to conflict with each 1405218.000 – 6920 other, such that listing decisions have been made and TMDLs have been developed for toxic pollutants that do not appear to be responsible for the observed effects. *Recommendation: The SWRCB should review and revise the State Listing Policy to be consistent with the SQO Provisions. While that would require a separate regulatory action, the SWRCB should insert a finding into its resolution for the adoption of the SQO Provisions that requires appropriate revisions to be made to the Listing Policy.*		
11.11	**4. The SWRCB should modify the Provisions so that listing decisions and receiving water limitation exceedances do not use the "Possibly Impacted" category.** a.) Part 1 direct effects SQOs. Section IV.A.4.c.2.a (p. 32-33) includes new language stating that an exceedance of a receiving water limit is demonstrated when "Any station within the site is assessed as Clearly Impacted as defined in Chapter IV.A.1.i and IV.A.1.j or the total percent area categorized as Possibly Impacted and/or Likely Impacted equals or exceeds 15 percent of the site area over the duration of a permit cycle. Calculation of percent area shall be based on data from spatially representative samples selected using a randomized study design or equivalent spatial analysis." Similarly, Section IV.A.4.e (p. 36-37) is entitled "Evaluating Waters for Placement of [*sic*] the Section 303(d) List." This section includes new requirements for listing decisions based on both Part 1 (direct effects) and the Part 2 (human health) SQOs. Section IV.A.4.e.1 provides new requirements for listings based on the Part 1 SQOs (Aquatic Life – Benthic Community Protection). The new requirements provide that water segments shall be listed if either "i. Any station within the site is assessed as Clearly Impacted…" or	See responses to comments 11.13, 11.14, and 11.15.	No

	"ii. The total percent area categorized as Possibly Impacted and/or Likely Impacted equals or exceeds 15 percent of the site area over the duration of a listing cycle. Calculation of percent area shall be based on data from multiple spatially representative samples selected using a randomized study design or equivalent spatial analysis." [Section IV.A.4.e (p. 37)] However, the SQO Provisions from Part 1 define "Possibly Impacted" 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." [Section IV.A.1.i.3 at p. 14]. Accordingly, the SQO Provisions require that the "Possibly Impacted" category shall be designated as "meeting the protective conditions if the studies identified in Chapter IV.A.4.f 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. In this situation, the Water Board will consider only the Categories **Likely Impacted** and **Clearly Impacted** as degraded when making a determination on receiving water limits and impaired water bodies as described in Chapter IV.A.4." [Section IV.A.1.i.4) at p. 15]. Because the Possibly Impacted category indicates significant uncertainty about the sediment condition and the cause of any impacts, sites in the Possibly Impacted category should not be used as the basis for listing.		
11.12	We also note that Appendix A-2 requires a Stressor Identification Evaluation (SIE) to be conducted only when a station is classified as Likely Impacted or Clearly Impacted, and <u>not</u> when the station is classified as Possibly Impacted. A classification of Possibly Impacted results when impacts are small or when the LOE are inconsistent. In our experience, it is difficult if not impossible to identify the stressor responsible for impacts that are small or when LOE are inconsistent (see SQO Part 1 Staff Report at p. 119). Thus, the requirement to conduct an SIE only	Appendix A-2 is intended to indicate that in the case where stations are only categorized as Possibly Impacted and no stations are categorized as Likely or Clearly Impacted, there is an option to perform confirmation sampling. If the results of confirmation sampling are the same or worse (Likely or Clearly Impacted) the next step would be to perform stressor identification. See Chapter IV.A.4.f. of the sediment quality provisions for more details.	No

	when a station is classified as Likely Impacted or Clearly Impacted is appropriate. Consistent with this observation, it would be inappropriate to base a decision to place a waterbody on the Section 303(d) list or to determine that receiving water limitations have been exceeded, for the same reason it is inappropriate to perform an SIE for a station classified as Possibly Impacted.		
11.13	Based on these considerations, recommendations are as follows: *1. The SWRCB should modify the language of Section IV.A.4.c.2.a.ii (p. 32-33) to read as follows: "ii. The total percent area categorized as ~~Possibly Impacted and/or~~ Likely Impacted equals or exceeds 15 percent of the site area over the duration of a listing cycle. Calculation of percent area shall be based on data from multiple spatially representative samples selected using a randomized study design or equivalent spatial analysis."* *2. The SWRCB should also modify the language of Section IV.A.4.e.1.a.ii (p. 37) to read as follows: "ii. The total percent area categorized as ~~Possibly Impacted and/or~~ Likely Impacted equals or exceeds 15 percent of the site area over the duration of a listing cycle. Calculation of percent area shall be based on data from multiple spatially representative samples selected using a randomized study design or equivalent spatial analysis."*	Stations categorized as Possibly Impacted should still be included in listing criteria, as those stations demonstrate some evidence of impact in at least two of the three lines of evidence. See response to 1.22.	No
11.14	b.) As with the Part 1 SQOs, the SQO Provisions for Part 2 are drafted to require that waters be placed on the Section 303(d) list for exceedance of the narrative sediment quality objective for human health if sediments are categorized as Possibly Impacted, Likely Impacted, or Clearly Impacted over the duration of the listing cycle (6 years) [Section IV.A.e.2 on p. 38]. However, the "Possibly Impacted" category is indicative of high chemical exposure but a low site sediment linkage (see Table 22 on p. 29). The Possibly Impacted category indicates significant uncertainty that the site is contributing to the exposure,	In this case for stations categorized as Possibly Impacted, data collected from the site demonstrate chemical exposure and some evidence of site linkage and as a result should be included in the listing criteria.	No

	and thus the "Possibly Impacted" category should not be used for listing decisions. *Recommendation: The SWRCB should modify the language in Section* IV.A.e.2 *on p. 38 as follows: "Human Health – Water segments shall be placed on the section 303(d) list for exceedance of the narrative sediment quality objective for human health protection in Chapter II.A.2.b of the Sediment Quality Provisions if sediments from a site are categorized as ~~Possibly Impacted,~~ Likely Impacted or Clearly Impacted over the duration of the listing cycle (6 years)."*		
11.15	c.) Given the large uncertainty and conservative basis (i.e., likely to over-predict effect) of the various lines of evidence, the selection of "15% of the total area categorized as Possibly Impacted and/or Likely Impacted" as the cutoff for designating an area as in exceedance of a Receiving Water Limit, or for deciding to place a waterbody on the 303(d) list, is also overly conservative. *Recommendation: The criteria of total percent area categorized as Possibly Impacted and/or Likely Impacted should be substantially increased (e.g., 30-40%).*	As stated previously in response to comment 11.13, a 15% total area categorization as Possibly Impacted and/or Likely Impacted indicates that there is evidence of biological effects through either toxicity or community degradation as well as evidence of potential for chemically mediated effects. Furthermore, the use of 15% is consistent with the previous approach assuming spatially representative samples. The existing approach required only 2 station exceedances out of a total number of stations of 2-24. Given a data set of 5-20 stations, the outcome should be similar to the approach being proposed. The key difference is the requirement for spatially representative samples and additional consideration given to stations classified as Clearly Impacted.	No
11.16	5. **The use of "regional background" in establishing management guidelines for sites is appropriate and protective.** Because of widespread diffuse sources of organochlorines and PCBs, including atmospheric deposition from global sources and legacy pollutants from continental or regional sources, it is not feasible to eliminate these pollutants completely from the state's waters. These pollutants were banned decades ago, and their concentrations in the environment are declining slowly over time as they degrade and as diffuse sources show lower concentrations over time. WSPA supports the portions of the Sediment Quality	The chemical indicators were developed based on mixtures correlated with community effects or sediment toxicity. They are, as stated in the existing provisions, not intended for management guidelines or as TMDL targets. The role is to indicate whether there is potential at a station for chemically mediated effects, which also relies on sediment toxicity as well. Management guidelines, on the other hand, should account for regional background as it is unlikely that any cleanup action could encompass all sediment that exceed regional background.	No

	Provisions that reference regional background contamination and require management guidelines for a site to be established in consideration of regional background conditions. We note that the three lines of evidence used in Part 1 SQOs (i.e., chemistry, sediment toxicity, and benthic infauna) are also subject to variability and regional differences. For this reason, results for individual site sample locations should be compared to indices at a comparable reference location or to regional background conditions rather than to generic values. *Recommendation: Sample results for the three lines of evidence that comprise the Part 1 SQOs should be compared statistically to results at a reference site (or multiple reference sites) in order to characterize whether a particular site location is significantly impacted.*		
11.17	**6. The State Water Board should clarify that an "off ramp" exists when Stressor Identification Evaluations (SIE) are inconclusive.** The flow chart shown as Appendix A-2 on p. 49 of the Sediment Quality Provisions describes a point source assessment process. Appendix A-2 describes the actions to be taken when stations are classified as Likely or Clearly Impacted, including preparation and execution of a "Stressor Identification Evaluation" workplan. The flow chart requires a discharger to "review and revise SIE workplan" when the SIE is inconclusive and fails to identify the "chemicals or classes of chemicals" responsible for an SIE exceedance. *Recommendation: Consistent with the SQO Provisions at Section IV.A.4.f (p. 40-41), the SWRCB should clarify the flow chart in Appendix A-2 to note that the Water Board may require a one-time augmentation to that study or, alternatively, may suspend further stressor identification studies pending the results of future routine SQO monitoring.*	The content of the assessment process is not included in the proposed Provisions. That comment would be more appropriate for a triennial review where the State Water Board addresses significant problems that are not specifically related to any specific proposed amendment.	No
11.18	**7. Assessment of the bioavailability of sediment contaminants is fundamental to assessment of**	Use of measured porewater concentrations to better inform site linkage indicator is acceptable for Tier 3;	No

	sediment quality and should be included as an option in Tier 2 and Tier 3 assessments of human health risk. Site-specific bioavailability of chemicals is fundamental to understanding potential for exposure and risks. Differences among sites in bioavailability of sediment-associated contaminants have been well documented[2]. Soot and other forms of "black carbon," which are ubiquitous in coastal sediments, have been shown to sorb hydrophobic contaminants and reduce bioavailability of sediment-associated hydrophobic organic contaminants (HOCs).[34] ,Abundant data have demonstrated that measured concentrations of HOCs in porewater are better predictors of bioavailability than bulk sediment concentrations.[5] This is not because porewater is the primary route of exposure, but rather because porewater concentrations reflect the fraction of the total sediment concentration that is available to partition among phases, including porewater and tissue. If porewater concentrations are lower than predicted based on generic partitioning coefficients, then bioavailability of sediment-associated HOCs are also expected to be lower. Because of the importance of taking into account site-specific bioavailability, EPA's Equilibrium Partitioning Sediment Benchmarks (ESBs) should be included as a sediment chemistry line of evidence.	however, Tier 2 was developed in part to minimize the types and number of analyses required to assess site linkage. Benthic invertebrates, such as worms, consume sediment and as a result, their exposure and uptake through the gut represents a significant exposure route that porewater measurements do not represent. The food web model associated with Tier 2 incorporates those exposure routes and as a result these measurements are unnecessary.	
11.19	In addition, the option should be provided in Tier 2 to use passive samplers to measure the freely available concentration of HOCs in sediment, an approach that has been strongly endorsed by the EPA[9] and the scientific community.[10]	Tier 2, as written, requires measurement of freely dissolved water column pollutant concentrations. However, the use of freely dissolved porewater and prey tissue concentrations would only be acceptable in Tier 3. Tier 2 was purposely developed to provide the means to assess linkage while at the same time minimizing the need for measuring porewater or contaminant concentrations at various steps in the food web.	No
11.20	The Gobas and Arnot Model (2010) is used to calculate biota-sediment accumulation factors (BSAFs) for Part 2 SQOs to protect human health. Because Gobas and Arnot (2010) states that	See response to comment 11.19.	No

	concentrations of freely dissolved contaminants in surface water and porewater should be used in calculating BSAFs[11], the guidance should clearly state that passive samplers can be used to measure concentrations of freely dissolved contaminants in surface water and porewater. In addition, since higher level consumers are expected to receive most of their dose via ingestion of food, the guidance should clearly state that measured concentrations of contaminants in prey can be used in site-specific food chain models.		
11.21	*Recommendations: (1) EPA's Equilibrium Partitioning Sediment Benchmarks (ESBs) should be allowed to be considered in the sediment chemistry line of evidence. (2) Guidance should clearly state that 1) passive samplers can be used to measure site-specific concentrations of freely dissolved contaminants in porewater and surface water, and 2) measured concentrations of contaminants in prey can be used in site-specific food chain models.*	Tier 2, as written, requires measurement of freely dissolved water column pollutant concentrations. U.S. EPA's Equilibrium Partitioning Sediment Benchmarks (ESBs) were developed to protect aquatic life from direct exposure and are not intended to protect higher trophic levels from bioaccumulation and trophic transfer. The existing Enclosed Bays and Estuaries Plan (Appendix A, Section f) provides guidance on the use of mechanistic benchmarks to support stressor identification studies. As stated in response to comment 11.20, porewater measurements could only be utilized in Tier 3.	No
11.22	**8. Significant uncertainty is introduced by the use of a relatively small number of sediment samples and a generic BSAF to estimate site-specific tissue concentrations and corresponding site linkage factors.** The BSAF values derived by Gobas and Arnot (2010) were based on a dataset of ~1,284 sediment samples from San Francisco Bay. Even with this relatively large data set, the SCCWRP companion document[12] reported that the spatial variability of the measured PCB concentration in sediment was by far the largest contributor (81%) to the uncertainty in predicted tissue concentrations and corresponding BSAF values. Nonetheless, the authors asserted that their model-predicted tissue concentrations were in reasonable agreement with observed tissue concentrations. However, application of BSAFs derived on the basis of >1,000 sediment samples in one water body (San	The commenter states that the limited number of sediment samples (5) required to evaluate a site's contaminant contribution to the predicted contaminant concentrations in fish tissue is reason enough to delay the adoption to allow the technical team more time to perform additional analyses on the assessment framework. Selection of five sediment samples was based on the need for an accurate assessment of site sediment concentrations balanced with a desire to maintain an affordable approach for smaller permittees. The number of samples represents a minimum. Flexibility in the guidance allows for more samples in those cases where significant contaminant gradients or heterogeneity exists in the contaminant distribution at a site. See Appendix A-5 Design Considerations for Human Health SQO Assessment in the proposed Provisions.	No

	Francisco Bay) to a site-specific data set with far fewer sediment samples in another water body is unlikely to have similar predictive ability. This is because an estimate of the central tendency (and distribution) of tissue concentrations based on > 1,000 sediment samples is likely to be much more accurate than a prediction based on a minimum of 5 site sediment samples (as specified in Table 18 of the Amendments to the Sediment Quality Provisions document). Since predicted fish tissue concentrations will be strongly influenced by how accurately the available site data characterize the actual distribution of sediment concentrations, it seems unlikely that fish tissue concentrations can be accurately predicted from a minimum of 5 sediment samples. Also, because the Site Sediment Linkage categories are based on estimated tissue concentrations, the accuracy of the linkages is also highly uncertain. *Recommendation: The amendments should be adopted only after a more detailed analysis of the accuracy and variability of various input parameters, including but not limited to sediment concentrations, and the resulting accuracy and distribution of estimated tissue concentrations and corresponding Site Sediment Linkage factors. The SQO Provisions should clearly discuss the implications of over- or underestimating sediment concentrations.*		

<table>
<tr>
<td>11.23</td>
<td>
9. The Site Sediment Linkage Categories for Tier 2 Evaluations should be clarified.
The degree to which measured concentrations of contaminants in fish tissue are “linked” to a site of interest is calculated via a site linkage factor. The site linkage factor was defined as the ratio of model-estimated tissue concentrations to measured tissue concentrations.
Site Linkage Factor = C_{Est}/C_{Tis} (see SQO Provisions at Section IV.2.d.4., p.27)
Where
C_{Est} = estimated tissue concentration (based on model)
C_{Tis} = observed tissue concentration (based on site-specific data)
The SQO Provisions specify that a Monte Carlo simulation is used to generate a cumulative distribution of site linkage factors for the site. The Monte Carlo simulation uses the variability and uncertainty in the site-specific fish and sediment concentrations, the model BSAF, and the fish home range. The results of the Monte Carlo simulation are compiled into a cumulative distribution. Table 21 (Section IV.2.d.7, p. 29) defines how the cumulative distribution of site linkage factors is used to define overall site linkage.
Table 21. Site Sediment Linkage Categories for Tier 2 Evaluations
<table>
<tr><td>Cumulative % of sediment linkage distribution</td><td>Linkage threshold</td><td>Out</td></tr>
<tr><td>75%</td><td><0.5</td><td>1. V</td></tr>
<tr><td>50%</td><td><0.5</td><td>2. L</td></tr>
<tr><td>25%</td><td><0.5</td><td>3. M</td></tr>
<tr><td>25%</td><td>>0.5</td><td>4. H</td></tr>
</table>
The categories above appear to be inconsistent. For example, if 75% of the distribution is <0.5, which is
</td>
<td>
Table 21 in the proposed Provisions has been revised for clarity. The same thresholds and values are used; however, ranges of the cumulative linkage distribution now defined as exceeding the threshold. Previously the very low, low, and moderate categories were defined as “less than” the linkage threshold
<table>
<tr><td>Cumulative % of sediment linkage distribution above threshold</td><td>Linkage threshold</td><td>Category</td></tr>
<tr><td>0-25%</td><td>0.5</td><td>Very Low</td></tr>
<tr><td>26-50%</td><td>0.5</td><td>Low</td></tr>
<tr><td>51-75%</td><td>0.5</td><td>Moderate</td></tr>
<tr><td>76-100%</td><td>0.5</td><td>High</td></tr>
</table>
The figure below represents cumulative site linkage distribution for a site. The red line representing the cumulative proportion for DDT crosses the linkage threshold (dotted blue line) at roughly 13-14% or 0.13-0.14 on the vertical axis. From the table above, this outcome equates to very low. The green line representing cumulative proportion for Dieldrin crosses the threshold at 50% or 0.50, which would be classified as low. The blue and purple lines plot the cumulative proportions for Chlordanes and PCBs, both of which cross the linkage threshold at greater than 90% (0.90) which means for both contaminants the site linkage is high.
</td>
<td>Yes</td>
</tr>
</table>

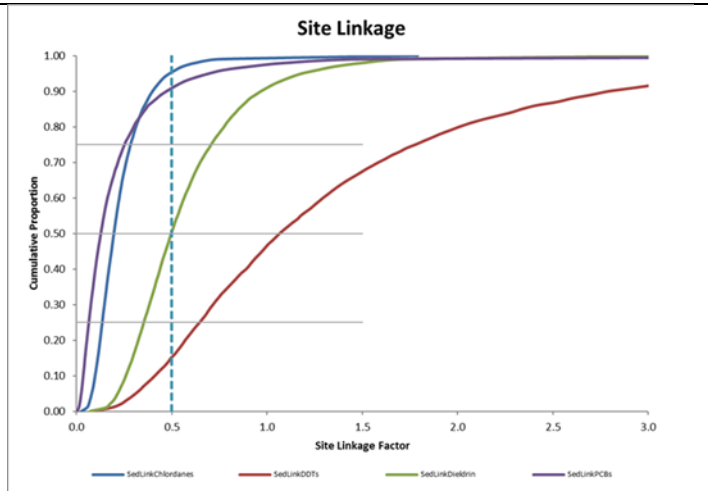
	defined as Very Low, then the remaining 25% of the distribution would be >0.5, which would be defined as High. In fact, all of the distributions that fall into the Very Low, Low or Moderate categories, would also appear to fall into the "High" category since at least 25% of the distributions would be <u>> 0.5. These apparent inconsistencies should be resolved or clarified before adoption of the SQO Provisions.</u> *Recommendation. The Site Sediment Linkage Categories should be revised and/or clarified.*		

Table 1. Comparison of original station classifications with those resulting from application of revised CSI chemical thresholds listed in 2011 Staff Report (original CSI category thresholds applied).

	Revised Station Category					
Original Category	Unimpacted	Likely Unimpacted	Possibly Impacted	Likely Impacted	Clearly Impacted	All
Unimpacted	114	0	0	0	0	114
Likely Unimpacted	0	35	1	0	0	36
Possibly Impacted	0	1	70	1	0	72
Likely Impacted	0	0	0	35	0	35
Clearly Impacted	0	0	0	0	20	20
All	114	36	71	36	20	277

Overall change in classification: 1.1% of stations
Change to less impacted classification: 0.4% of stations
Change to more impacted classification: 0.7% of stations