

**SAN DIEGO REGIONAL
WATER QUALITY CONTROL BOARD**

**RESPONSE TO COMMENTS REPORT
BIOLOGICAL OBJECTIVES**

FOR THE SAN DIEGO REGION

October 2020

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY



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Table of Contents

Table of Contents	3
1) Executive Summary	4
2) Background	7
3) Table of Acronyms and Abbreviations	8
4) Comments Received and Response to Comments	10
a) Extension and Meeting Requests: County of Orange, Riverside County Flood Control and Water Conservation District, CASQA	11
b) Commenter: City of La Mesa	11
c) Commenter: City of San Diego	16
d) Commenter: County of Orange	33
e) Commenter: County of San Diego	42
f) Commenter: County of San Diego Copermittees	65
g) Commenter: Calleguas Creek TMDL Group	87
h) Commenter: Coalition of Non-Governmental Organizations	99
i) Commenter: Riverside County Flood Control and Water Conservation District	110
j) Commenter: San Diego Region Irrigated Lands Group	143
k) Commenter: California Stormwater Quality Association	146
l) Commenter: Central Valley Clean Water Association	175
5) References	184

1) Executive Summary

California Water Code (CWC) section 13241 directs the California Water Quality Control Board, San Diego Region (San Diego Water Board) to establish water quality objectives (WQOs) to protect beneficial uses and prevent nuisance in waters of the State within its Region. During the 2014 Basin Plan Triennial Review process, the San Diego Water Board began the public process to amend the Water Quality Control Plan for the San Diego Basin (Basin Plan) to add a Stream Biological Water Quality Objective (Stream Biological Objective) for perennial and seasonal streams, which included the consideration of biological objectives as a Tier I Issue. In January 2018, Board staff released an informal draft basin plan amendment to adopt a biological objective and held a subsequent public workshop to solicit early public feedback on the project. On February 28, 2019, Board staff released a formal draft Basin Plan amendment (BPA) for public review and comment for rulemaking purposes. This Response to Comments Report (Report) comprises San Diego Water Board staff's draft response to timely written comments on the February 28, 2019, proposed BPA. Scientific Peer Review comments and responses are contained in a separate document.

The San Diego Water Board received eleven timely written comment letters from local governmental agencies, non-governmental organizations, a professional association, a Total Maximum Daily Load (TMDL) workgroup from Los Angeles, and a non-profit association of public agencies located within the Central Valley region of California. All written comments were considered, and changes were made to the proposed BPA where appropriate to address the comments.

Many of the written comment letters raised similar topics. Specific comments and responses are included within this document in Section 4. The most common significant comments, and general San Diego Water Board responses, fall into the following categories:

Applicability to Physically Hardened “Modified” Streams

Multiple commenters objected to the applicability of the Stream Biological Objective to physically hardened “modified” streams, and many suggested the Board take an alternative approach for such streams, including consideration of a phased approach to applying the objective to such streams. In response to these comments, the San Diego Water Board staff has modified the proposed Stream Biological Objective to exclude hardened streambed segments, which are those segments of streams where the entire stream channel substrate had been artificially lined with concrete or other impervious materials from toe of bank to toe of bank. While these streams segments can and should be restored, based on currently available information, restoration of hardened streambed segments to attain the Stream Biological Objective would require the removal of concrete or other impervious material from the streambed. Because there is no existing regulatory framework or estimated timeframe to address removal of concrete or other impervious materials so that these segments may attain the objective, it is appropriate to exclude hardened streambed segments from the proposed Stream Biological Objective. Development of biological objectives for such stream segments

could potentially occur through a separate Basin Plan amendment after more information to evaluate the potential for their restoration becomes available. Additional language has also been added to the proposed BPA to clarify that otherwise modified streams remain subject to the Stream Biological Objective because attainment of the objective in these streams is reasonably achievable.

Applicability to Seasonal Streams

Many commenters asserted that it was not appropriate to apply the proposed Stream Biological Objective to seasonally intermittent streams. In response to these and other comments, staff has reframed the proposed BPA language to make clear that it applies to all inland surface waters with COLD or WARM beneficial uses (streams considered perennial and seasonal) subject to limited exclusions defined in the objective (see proposed BPA, Chapter 3, Table TBD1.) Seasonally intermittent streams are not excluded (and are therefore subject to the Stream Biological Objective) unless a particular stream meets one or more of the defined exclusions. Correspondingly, the implementation chapter has been clarified to (1) explain why categorically excluding seasonally intermittent streams from the objective is not appropriate, and (2) establish processes for determining whether an inland surface waterbody, stream or stream segment with the COLD or WARM beneficial use nonetheless meets one or more of the exclusions. Scientific Peer Review of the proposed BPA affirmed that it is appropriate to apply the Stream Biological Objective to seasonally intermittent streams.

Use of the Reference Approach to Establish a Biological Objective

Multiple commenters opposed using the reference approach to establish a biological objective and stated a preference for developing and relying instead on a regional California Stream Condition Index (CSCI) threshold. Commenters also suggested using differing reference criteria or multiple thresholds for different streams, in lieu of the reference approach. No changes have been made in response to these comments. As with the comment on seasonal streams, Scientific Peer Review found the reference approach and use of the 10th percentile threshold to be scientifically sound and defensible.

Delay Consideration of the Stream Biological Objective

Multiple commenters, including entities outside of the San Diego Region, requested the San Diego Water Board delay consideration of the proposed Stream Biological Objective and instead wait for the State Water Board to complete its policy efforts for statewide biological integrity. Many of the comments also stated that the San Diego Water Board's proposal was inconsistent with the State Water Board's efforts and science. No changes have been made to the proposed Stream Biological Objective in response to these comments. The San Diego Water Board has been involved in the State Water Board's statewide biological integrity efforts since 2008 and has been an active participant in the statewide process on both stakeholder and technical advisory groups. The State Water Board's project, since renamed the "Biostimulatory Substances Objective and Program to Implement Biological Integrity," is projected to be adopted as statewide policy in 2025. The State Water Board has not released a draft policy, so any comments on the policy are speculative. In addition, the San Diego

Water Board is relying on science funded by the State Water Board for the statewide efforts (Mazor et al. 2016 and Ode et al. 2016, among other studies), and has used this science to develop a proposed Stream Biological Objective that is appropriate for the San Diego Region. Lastly, the proposed Stream Biological Objective is specific for the San Diego Region and would not establish a precedent for use in other regions or by the State Water Board.

Expand the Scope of Assessment and Conduct Additional Assessment under Water Code Sections 13141 and 13142

Multiple commenters requested additional review and a broadening of the scope of assessment under CWC sections 13241 and 13242. While the discussion fully addressed the elements of these sections, clarifying language has been added to the discussion of the CWC section 13241 factors and to the discussion of CWC section 13242 relative to implementation of the proposed Stream Biological Objective. To the extent specific comments seek additional review and a broadened assessment of economic factors associated with hardened/modified streams, no additional analysis or broadened assessment is necessary.

Implementation of the Stream Biological Objective as a Receiving Water Limitation

Multiple stormwater agencies oppose inclusion of the proposed Stream Biological Objective as a receiving water limit in Phase I Municipal Separate Storm Sewer System (MS4) permits due to concerns that dischargers would be in potential, immediate non-compliance if streams to which they discharge have CSCI scores that do not meet the objective. No changes to the proposed BPA have been made in response to these comments, however additional clarification has been made regarding implementation of the objective in the Phase I MS4 permit as a receiving water limitation, through the Water Quality Improvement Plans, and in the permit's alternative compliance pathway provisions. It is appropriate to include the proposed Stream Biological Objective as a receiving water limit, consistent with all other current water quality objectives in the Basin Plan, and inclusion will be done upon permit amendment or during reissuance of the Phase I permit. Once incorporated in the permit, exceedance of the Stream Biological Objective in a perennial or seasonal stream does not necessarily result in immediate non-compliance with a receiving water limitation in a municipal stormwater permit. Instead, as with all other applicable water quality objectives incorporated as a receiving water limit, non-compliance with the Stream Biological Objective requires a determination that a permittee's discharge caused or contributed to the exceedance of the objective.

In summary, this Report includes responses to 143 written comments within eleven letters received during the formal public written comment period on the proposed BPA. After careful evaluation of all comments, staff made several changes to clarify the scope of the proposed Stream Biological Objective and, most pointedly, to exclude stream segments with hardened channel beds from the definition of perennial and seasonal streams covered by the Stream Biological Objective. The revisions made to the proposed BPA establish a process for determining whether a streambed segment meets the definition of hardened for purposes of exclusion from the objective. The proposed BPA revisions also provide processes to exclude other waterbodies as defined in the objective. As a result, other than exclusion of hardened streambed segments, the scope of the waters to which the objective applies is the same as the scope of waters under the originally proposed BPA. The revisions to the proposed BPA still meet the primary objectives of the San Diego Water Board's 2014 Triennial Basin Plan Review and staff plans to present the revised proposed BPA, draft Staff Report, and Substitute Environmental Documentation (SED) to the San Diego Water Board for consideration in Fall 2020.

2) Background

This document presents the written comments on the proposed BPA and San Diego Water Board staff responses. The San Diego Water Board released the proposed BPA, including the draft Staff Report and SED, on February 28, 2019, with the public comment period closing on May 02, 2019 (63-day public comment period). At a public workshop on April 18, 2019, staff received verbal comments and subsequent written requests to extend the public comment period an additional 30-60 days. On April 25, 2019, the written comment period was extended 30 days to June 01, 2019, for a total public comment period of 93 days. The proposed BPA exceeded the minimum required 45-day public comment period (23 CCR §3779(b)).

3) Table of Acronyms and Abbreviations

The following table presents acronyms and abbreviations used throughout the document. This includes acronyms and abbreviations that are generally used by commenters.

Acronym/Abbreviation	Definition
ASCI	Algae Stream Condition Index
Basin Plan	Water Quality Control Plan for the San Diego Basin
BCG	Biological Condition Gradient
BMI	Benthic Macroinvertebrates
BMP	Best Management Practice
CADDIS	Causal Analysis/Diagnosis Decision Information System
CADFW	California Department of Fish and Wildlife
CASQA	California Stormwater Quality Association
CRAM	California Rapid Assessment Method
CCR	California Code of Regulations
CSCI	California Stream Condition Index
CWA	Clean Water Act
CWC	California Water Code
EJ	Environmental Justice
GIS	Geographic Information System
Impaired Waters Policy	SWRCB Resolution 2005-0050, Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options
Integrated Report	Clean Water Act Section 305(b) and 303(d) Integrated Report
IPI	Index of Physical Habitat Integrity
ISWEBE	Water Quality Control Plan for Inland Surface Water, Enclosed Bays and Estuaries of California
Listing Policy	Water Quality Control Policy for Developing California's Section 303(d) List
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
Phab	Physical Habitat Measurements used in the IPI
ROWD	Report of Waste Discharge
SCCWRP	Southern California Coastal Water Research Program
SED	Substitute Environmental Document
SMC	Southern California Stormwater Monitoring Coalition
SOP	Standard Operating Procedures
SWAMP	Surface Water Ambient Monitoring Program
State Water Board	State Water Resources Control Board
TDS	Total Dissolved Solids
TALU	Tiered Aquatic Life Use
TMDL	Total Maximum Daily Load

USEPA	U.S. Environmental Protection Agency
WDR	Waste Discharge Requirement
WQIP	Water Quality Improvement Plan
WQO	Water Quality Objective

4) Comments Received and Response to Comments

The San Diego Water Board received public comment letters from the following entities:

Requests for Extension of Written Comment Period and for Meetings

1. County of Orange
2. Riverside County Flood Control and Water Conservation District
3. California Stormwater Quality Association

Extension Requests received within the public comment period are included in this response to comment document.

Written Comments on the Proposed Basin Plan Amendment

1. City of La Mesa
2. City of San Diego
3. County of Orange
4. County of San Diego
5. County of San Diego Copermittees
6. Calleguas Creek TMDL Group
7. Coalition of Non-Governmental Organizations
8. Riverside County Flood Control and Water Conservation District
9. San Diego Region Irrigated Lands Group
10. California Stormwater Quality Association
11. Central Valley Clean Water Association

The San Diego Water Board staff has formatted this document to include individual comments for each commenter, verbatim unless noted, followed by the San Diego Water Board's response. Each San Diego Water Board response has been assigned a unique identifier, which is referenced, as appropriate, in subsequent responses to minimize duplication in responses.

a) Extension and Meeting Requests: County of Orange, Riverside County Flood Control and Water Conservation District, CASQA

Generalized Comments: On April 24 and May 1, 2019, the County of Orange and Riverside County Flood Control and Water Conservation District (respectively) requested a sixty (60) day extension of the written public comment period for the proposed BPA. Both letters also requested a meeting between San Diego Water Board and County staffs to further discuss topics from the April 18, 2019, Public Workshop. The May 01, 2019, letter from the California Stormwater Quality Association (CASQA) requested involvement in the meeting. Lastly, the County letters requested the San Diego Water Board respond to comments submitted on a 2018 administrative draft of the proposed BPA.

Response:

The administrative draft of the proposed BPA was released on January 22, 2018, to solicit early feedback on the proposed project through the submittal of public comments. The San Diego Water Board staff also held a public workshop to discuss the administrative draft on February 14, 2018. Although staff made changes to the proposed Stream Biological Objective based on the written comments on the administrative draft and oral input at the workshop, staff are not providing written responses to comments on the administrative draft. The San Diego Water Board released a draft of the proposed Basin Plan amendment for written comment and rulemaking purposes on February 28, 2019. In response to the written requests and additional verbal requests for extensions made at the April 18, 2019, Public Workshop, the San Diego Water Board extended the written public comment period by 30 days to June 01, 2019. San Diego Water Board staff also met with both Counties and CASQA on May 17, 2019, for further discussion of topics related to the proposed BPA. This Report responds to the written comments submitted on the draft Basin Plan amendment released on February 28, 2019.

b) Commenter: City of La Mesa

Comment: Urban areas such as the City of La Mesa contain watercourses which have been drastically impacted by population growth and development. Many watercourses were modified decades ago for flood control purposes, with commercial/residential properties developing directly adjacent. In many instances the waterway is squeezed between transportation right of way and existing developments. The BPA needs additional language within *Chapter 4 Section V. Permitting* recognizing this fact. Engineered waterways will always be significantly impacted by adjacent land use; and a 0.79 CSCI score will not be attainable in most urban situations.

1. Response 1:

The statement that “engineered waterways” will always be significantly impacted by adjacent land uses is speculative and inconsistent with the goals of the Clean Water Act (CWA). To clarify, Basin Plan *Chapter 4 Section V. Permitting* covers permits for discharges into waterways. Discharge permits are implemented so a discharge into a waterway, engineered or not, does not cause or contribute to an exceedance of any water quality objective, which would include the proposed Stream Biological Objective. As many developments were built prior to implementation of stormwater and non-stormwater discharge requirements under the CWA, these developments were not required to implement design or treatment control best management practices (BMPs) when developed. Thus, discharges from these lands are often unmitigated, resulting in impacts to waterways associated with stormwater discharges. Municipal stormwater permitting under the CWA, which uses an iterative maximum extent practicable (MEP) standard, recognizes this challenge, requires implementation of improved or more effective BMPs with improvements in stormwater quality expected to take place over time. This is also reflected in the peer-reviewed literature cited in the draft Staff Report (e.g. Bernhardt and Palmer 2011). Thus, the assumption that adjacent land use will forever significantly impact waterways is incorrect and inconsistent with CWA regulations and goals.

The scientific literature demonstrates that the CSCI is an effective tool for monitoring and assessing the condition of hardened streambed segments. Research by the Stormwater Monitoring Coalition (“SMC”, SMC 2015 and 2017) supports findings in the scientific literature, that the in-stream hardening of a streambed results in direct impacts to the stream’s biological integrity, thus precluding the attainment of a CSCI score indicative of beneficial use support while it is fully hardened. Additional information has been added to Section 4.5 of the draft Staff Report (see sec. 4.5.2) regarding the applicability of the Stream Biological Objective to such streams. Based on comments received, the Stream Biological Objective has been revised such that it would not apply to stream segments whose stream substrate (bottom) has been physically hardened (lined) by humans with concrete or other impervious materials, from bank to bank (“hardened streambed segments”).

Aquatic wildlife beneficial uses can be achieved in restored hardened channels, however there is limited data on the CSCI scores in such restoration projects. Some examples of hardened streambed restoration in the region have been added to the draft Staff Report. While hardened streambed segments can and should be restored, based on currently available information, restoration of hardened streambed segments to attain the Stream Biological Objective would require the removal of concrete or other impervious material from the streambed. In addition, hardened streambed segments in the San Diego Region exist in a variety of natural settings and developed landscapes, and their restoration through removal of hardening would thus vary in scope, timing, and duration. Because there is no existing regulatory framework or estimated timeframe to address removal of concrete or other impervious materials so that these segments may reasonably attain the objective, hardened channels have been excluded from this proposed Basin Plan amendment. As additional information regarding the factors and

success of restoration of lined channels becomes available, the San Diego Water Board will reconsider developing a new Stream Biological Objective or eliminating the exclusion for hardened streambed segments from the proposed BPA.

Comment:

The CSCI analysis tool uses analogous sites within the statewide reference pool to derive its score; while many modified channels in urbanized settings, by their very nature, do not have appropriate analogs within the reference pool. A different approach is needed in regard to these situations. At the very least, language should be added to *Chapter 4 Section V* of the BPA recognizing the practical numeric limitations for existing urban waterways and/or urban waterway restoration projects.

2. Response 2:

The proposed BPA's use of a reference approach to use naturally occurring conditions at sites with low anthropogenic impacts to set WQOs is consistent with the intention of the CWA and supported by Scientific Peer Review. The selection of reference site criteria for streams in California was conducted by scientists who are experts in the field and is discussed in Section 3.3.2 of the draft Staff Report. The comment that reference sites must have analogous anthropogenic channel modification is inconsistent with the application of the reference approach for setting water quality objectives.

Chapter 4 Section V of the proposed BPA recognizes the challenges posed by existing development and also that modified channels can attain the Biological Objective with management measures. It allows for assessment of receiving waters relative to a proposed or permitted discharge to include a discussion of the existing physical, chemical, and biological characteristics relative to the overall biological condition. Also, the permitting process for each permit, which is a public process, can include more specific requirements and/or language for implementation.

As discussed in Comment Response #1, additional information has been added to the draft Staff Report (Section 4.5.2) discussing modified channels. While the proposed BPA has been revised to exclude hardened streambed segments at this time, it is important to acknowledge that research (e.g. Stein et al. 2013) has found that the Stream Biological Objective threshold score is attainable in stream reaches with armored banks that lacked significant pollutant inputs.

Comment:

The April 2017 Science Panel Report for the Statewide BioStimulatory/BioIntegrity Project and the March 2019 review of the Channels and Developed Landscapes Manuscript both supported the consideration of different thresholds for constrained channels. Reasonable evaluation methods should be available related to the context of surrounding land use which the existing watercourse is functioning.

3. Response 3:

The current approach for the proposed project, which includes evaluation method flexibility related to the context of land use in the implementation chapter, is reasonable for the protection of the current Beneficial Uses of WARM and COLD. The referenced “Channels and Developed Landscapes Manuscript,” for which project staff Chad Loflen is a co-author, is titled “Prioritizing management goals for stream biological integrity within the developed landscape context,” (Beck et al. 2019). It describes a model developed to assist management and stakeholders to prioritize stream restoration and protection efforts by placing a specific stream’s score in context by comparing a site’s CSCI score with other stream scores at sites in a similar landscape.

To clarify, the Beck et al. 2019 tool does not use on-site conditions, such as in-stream physical habitat condition, as a model predictor for determining similar streams. The Beck et al. 2019 model uses landscape-scale Geographic Information System (GIS) data. Thus, the tool allows users to explore alternative thresholds for biology, depending upon their present landscape-scale management scenario. This landscape-scale scenario simply looks at levels of development in the tributary area to the site for comparison purposes.

Importantly, the model does not evaluate the level of mitigation-related activities within landscapes. This includes mitigation such as that required to address discharges of pollutants, such as through the implementation of structural and non-structural BMPs. Nor does the model look at site-specific factors that impacts CSCI scores, such as in-stream physical habitat, the presence of invasive species, or localized anthropogenic activities (e.g. mining). As such, while the manuscript theoretically could be used to “support” development of alternative biological objectives, the manuscript clearly states that “The landscape model is primarily an exploratory tool to help identify patterns among monitoring sites where more intensive analyses may be appropriate.” It is not suitable for setting alternative objectives, whereas the proposed BPA approach using a single threshold based on reference was supported by Scientific Peer Review.

The current proposed approach allows for the consideration of using varied thresholds through the Phase I MS4 Permit implementation process (e.g. setting numeric goals or targets in a Water Quality Improvement Plan (WQIP) to address prioritized watershed conditions) using the Beck et al. tool, Biological Condition Gradient (BCG) tool, or other tools/methods. For example, the City of San Diego is developing a restoration potential tool to guide management prioritization for implementation to protect and restore stream beneficial uses. In addition, under the current Phase I MS4 permit, multiple WQIPs have identified stream system function or habitat degradation as a priority.

Comment:

Unattainable numeric criteria may discourage jurisdictions from tackling expensive restoration projects in situations whereby the increase in CSCI score may be negligible; and regulatory relief regarding numerical biological objectives for the given watercourse may not be existent.

4. Response 4:

Please see Response #1. The use of numeric criteria is not expected to discourage jurisdictions from implementing restoration projects. While no longer proposed under the Stream Biological Objective at this time, some examples of restoration of hardened streambed segments have been included in the draft Staff Report.

Restoration projects can provide multiple benefits related to multiple Beneficial Uses independent of a Stream Biological Objective, and it is possible some types of stream restoration projects may not result in immediate changes to the benthic macroinvertebrate community on-site. However, projects can benefit downstream aquatic resources, including Beneficial Uses associated with the Stream Biological Objective.

It is unclear what the commenter means by “regulatory relief” for a given watercourse. The commenter is a Phase I MS4 permittee. The Phase I MS4 permit regulates the discharge of pollutants in stormwater into receiving waters and the discharge of non-stormwater into MS4s, not the impacts from historic channel alteration. The use of the Stream Biological Objective to guide management priorities and address specific pollutants that may be impacting biological beneficial uses will provide opportunities for more focused and potentially more cost-effective selection of implementation actions to achieve long-term Phase I MS4 permit compliance. That is because it would allow permittees to focus on specific actions affecting a depressed CSCI score. Whereas under the current regulatory scenario, TMDLs will need to be adopted and actions implemented for each chemical parameter for which a water body is placed on the CWA Section 303(d) list for not meeting water quality objectives associated with biological health, regardless of whether those parameters are in fact driving a condition of biological impairment. To comply with federal CWA under the status quo, Phase I MS4 dischargers will be required to participate in loading, source, and reduction studies for every chemical parameter that requires a TMDL for which they may be a potential source, and will need to implement subsequent actions to effectively meet any required wasteload reductions. A Stream Biological Objective provides a practical alternative.

c) Commenter: City of San Diego

Comment:

The City strongly encourages the inclusion of relevant, recent, and regional studies to support a scientifically-sound policy. The CSCI model should be re-evaluated to derive a more appropriate regional numeric threshold. The proposed Basin Plan Amendment does not reflect or incorporate relevant regional studies or recent research performed under the State's Biostimulatory- Biointegrity Policy regarding attainable biological expectations. These studies can be used to define what is meant by "similar" or "analogous" reference sites specific to the southern California region. The published state-wide CSCI model evaluation noted higher variability in Southern California reference CSCIs as compared to most other regions of the state and greater CSCI bias within the San Diego xeric region. Several peer reviewers stated, the pool of reference sites used to define the CSCI for southern California is not representative of the region. Furthermore, a single CSCI numeric threshold does not take into account natural seasonal and interannual variability in benthic invertebrate community structure, also noted by peer reviewers.

5. Response 5:

Relevant research at the regional level was included in the proposed BPA, and the single CSCI threshold as proposed was found by the Scientific Peer Review to be appropriate and scientifically supported. First, all four peer reviewers found the selection of the 0.79 single threshold based on the statewide dataset to be scientifically sound and justified. In addition, peer reviewers specifically noted the advanced and appropriate use of a statewide modeled approach to determine site-specific reference expectations, rather than a regional approach as proposed by the comment. For example (Peer Reviewer Cao):

“I am also glad to see this report take the most advanced method to establish site-specific reference conditions, i.e., modelling and predicting the value of a biological metric expected under natural or unaltered conditions at a given site. This method is often far more effective to remove the effects of multiple natural environmental gradients (e.g., climate, altitude, and geology) on biotic metrics than traditional stream classification based on ecoregion, stream size, or other stratum.”

Development of the proposed Stream Biological Objective also relied upon regional scientific investigations, studies, and publications. For example, regional work on seasonal streams, potential natural sources of pollutants, and causal assessment were included, including studies conducted by or with support of the City of San Diego. The inclusion of the regional studies in the development of the objectives was well supported by Scientific Peer Review.

Comment:

The City supports a tiered biological objectives approach to address different types of hydrologically altered streams in the region in order to achieve meaningful improvements. This should include better protection of streams that are currently very high quality (CSCI much > 0.79). Tiered objectives would address streams that have limited macroinvertebrate colonization potential, and therefore lower attainable CSCI scores, as noted by peer reviewers. The proposed policy should acknowledge different biological expectations and therefore numeric thresholds for different stream types in the region. For example, it would be useful to incorporate the State's biological condition gradient tiers (BCG) into the Basin Plan Amendment to recognize different stream types.

6. Response 6:

The commenter's assertion that peer reviewers noted that some streams would have lower CSCIs due to limited colonization potential is not correct. One peer reviewer commented that biological restoration could potentially be constrained by species dispersal. There is no evidence that species dispersal would result in lower CSCI scores in the region. (see Scientific Peer Review responses for a full response).

Please also see Response #1 and #3. While the proposed BPA does not include tiered objectives, the proposed BPA does support tiered prioritization in the implementation chapter (e.g. see Response #3) and even for the hardened streambed segments now proposed to be excluded from the Stream Biological Objective. These approaches could utilize a method like the (BCG). Some additional language in this regard has been added to Chapter 4. Lastly, the State Water Resource Control Board's (State Water Board) own Scientific Panel (2017) did not support the use of the BCG for setting objectives, in part because information regarding different types and combinations of stressors, and their impacts on the benthic macroinvertebrate community "can be extracted from the CSCI indices but not from the BCG as developed and presented."

The commenter's concerns regarding the protection of high-quality streams ("CSCI much > 0.79") are valid and were also expressed by multiple peer reviewers. The concerns have been addressed through the addition of clarification language on the use of existing State and Federal antidegradation policies to protect high quality waters in the draft Staff Report (Sections 4.4.3 and 5.2).

Comment:

The City recommends a weight of evidence approach to accurately consider the complexities of aquatic life use attainment, especially in cases where there are conflicting lines of evidence. This approach can effectively integrate causal assessment. The weight of evidence approach is a more appropriate method to list 303d category 5 segments where bioassessment is used as one of the factors and is consistent with the 303(d) listing lines of evidence used in the 2016 Integrated Report. If the proposed biological objectives are adopted, it is understood that more segments would be included in both category 4c and category 5.

7. Response 7:

The San Diego Water Board agrees with the commenter that a combined weight of evidence and integrated causal assessment approach should be used in the Integrated Report (for CWA sections 305b and 303d), and staff expect to use advanced tools when evaluating the potential listings of pollutants (and pollution) associated with poor CSCI scores. While this approach is not required by the State Water Board Water Quality Control Policy for Developing California's CWA Section 303(d) List (Listing Policy, SWRCB 2015), there is value in using rapid causal assessment and lines of evidence approaches, such as those under development by the City of San Diego, to identify potential impairment sources. Regardless of the adoption of the Stream Biological Objective, the San Diego Water Board would continue to use bioassessment in the Integrated Report, consistent with the Listing Policy, which would potentially result in additional inclusion of streams in Categories 1, 2, 3, 4c, and/or 5.

The proposed use of a weight of evidence approach for development of the biological objective is infeasible due to the inherent complexity in the approach and lack of flexibility in implementation. Chemical and physical attributes both could lead to a degraded biological condition. In addition, the nature of the impairments (physical, chemical) and the source (anthropogenic, natural) can lead to placement in differing reporting categories with different regulatory implications. Thus, the Stream Biological Objective itself is more appropriate as the over-riding assessment of impairment and is directly linked to Beneficial Uses. Some additional information in this regard has been added to section 4.4.4 of the draft Staff Report.

Comment:

The City recommends providing more clarity on the limitations of CSCI score applicability to seasonal streams, as well as how a stream's changing year-to-year status impacts this. Assessing seasonal streams has limitations that are not currently addressed in the [BPA] policy. Similar to modified streams, seasonal streams need more careful evaluation regarding sampling constraints, attainable biological expectations, and the potential need for different biological objective thresholds. Peer reviewers also expressed the need to further examine reference conditions for intermittent and ephemeral streams that may be included as seasonal streams subject to the proposed policy.

8. Response 8:

The proposed Stream Biological Objectives excludes ephemeral streams, which are considered streams that only flow in immediate response to rainfall events (e.g. for 24-48 hours). Clarification was added to the draft Staff Report at Section 4.5.1 in response to a Scientific Peer Review comment that raised the same question. The definition of ephemeral streams excluded from the Stream Biological Objective is set forth in the proposed Chapter 3 language in Table TBD1.

The comment is not clear and does not provide any scientific evidence to show that assessing seasonal streams has limitations. The State of California Water Boards, California Department of Fish and Wildlife (CDFW), and Southern California Coastal Water Research Project (SCCWRP) have conducted research on the applicability of the CSCI to seasonal streams, and these results have been appropriately included in the proposed biological objective, as acknowledged by the Scientific Peer Review.

The comment that the peer reviewers expressed a need to further examine reference condition for intermittent streams is not correct. Multiple peer reviewers specifically supported the inclusion of seasonal streams in the proposed biological objective. One peer reviewer requested additional information regarding assessments conducted outside of perennial and seasonal streams (e.g. for ephemeral streams), and additional information has been added to clarify on-going research in that area.

The revised Stream Biological Objective includes definitions of waterbodies and streams not covered by the Stream Biological Objective to provide clarification. The implementation chapter has been revised to provide processes for determinations of exclusions and additional discussion of the reasoning for the exclusions is included in the draft Staff Report.

Comment:

The City recommends the Water Board consider the regional constraints of meeting the 0.79 CSCI score and financial implications. The proposed numeric criteria is not achievable in many stream segments within the Southern California coastal xeric region, especially streams that are physically modified and have significant landscape constraints. California Water Code Sections 13241 and 13242 requires a demonstration that the water quality condition (0.79 CSCI score) could reasonably be achieved from the coordinated control of all factors that affect water quality in the area. The proposed objective does not include the description of the specific actions which will be required of the responsible parties and the timeline(s) it would take to achieve the proposed objective. Additionally, the proposed objective does not consider 40 CFR 131.10(g) requirement to perform a use attainability analysis before adopting new objectives.

9. Response 9:

The draft Staff Report fully discusses the factors in CWC section 13241 associated with implementation of the proposed Stream Biological Objective within the San Diego Region. Under the requirements of CWC section 13241, subdivision (d) and California

Code of Regulations (CCR), title 23, section 3777, subdivisions (b)(4) and (c), the San Diego Water Board must consider economics when establishing water quality objectives. This consideration of economics does not require a cost benefit analysis or evaluation of the cost effectiveness of reasonably foreseeable methods of compliance with the objective. Rather, the San Diego Water Board is required to consider the CWC section 13241 factors, including potential economic factors, associated with a suite of reasonably foreseeable measures to comply with the proposed Stream Biological Objective, when it considers adopting the proposed Basin Plan Amendment and it has done so in the draft Staff Amendment. Clarifying language also has been added to the discussion of the CWC section 13241 factor in the SED pertaining to description of the water quality conditions that are reasonably achievable through the control of factors that affect water quality in the area.

In addition, language has been added to the discussion of Water Code section 13242 to more fully describe the anticipated implementation of the proposed Stream Biological Objective. To the extent specific comments seek additional review and a broadened assessment of economic factors associated with hardened/modified streams, no additional analysis or broadened assessment is necessary. First, as revised, the proposed Stream Biological Objective does not apply to streams defined in the objective as hardened streambed segments. See also Response #1. Second, as discussed above, economic factors associated with development of the Stream Biological Objective as applied to otherwise modified streams (not including hardened streambed segments) were considered in the draft Staff Report.

Finally, it is not necessary to consider 40 CFR 131.10(g) as that section of CFR is applicable to the designation and removal of beneficial uses and is inapplicable here.

Comment: Page 24, Section 3.3.3

The text in this section refers to reference sites as “comparator sites” that offer similar environmental context to the test sites. Comparator sites, however, are not necessarily reference sites. The term is typically reserved for use when conducting a causal assessment where sites being used for comparison do not necessarily have to be reference, but rather just a gradient of stressor or BMI condition relative to the site in question.

Recommendation: Consider striking the term “comparator sites” or use different terminology when referring to reference sites.

10. Response 10:

The term “comparator sites” is often used in causal assessment. The use of the term “comparator” was based on dictionary definition and was not intended to convey use in causal assessment. In order to prevent confusion, the term “comparator” has been replaced with a synonymous term (“benchmark”).

Comment: Page 24, Section 3.3.3

A statewide algae index (the ASCI) is expected to become available in late 2019. The document does not describe the implications of this assessment indicator. Will the ASCI be somehow incorporated into this policy other than being used as an “Alternate Analytical Method” which may or may not come into play in determining a stream reach condition? The State invested a lot of resources into the ASCI development and focusing strictly on the BMI for impairment listings would not take advantage of a significant resource to more holistically characterize a stream’s biological condition. The ASCI has been shown to be particularly useful in modified channels.

Recommendation: Describe the implications of the new ASCI once released. At minimum the ASCI should be utilized as part of a weights of evidence approach.

11. Response 11:

The draft Staff Report references the draft Algal Stream Condition Index (ASCI) as under development and expected to be available to supplement or replace existing algal indices for southern California, if needed, as an alternative analytical method in the proposed BPA. Please see Response #16 (below) regarding the use of alternative analytical methods in the proposed BPA. This also means the ASCI could also be used within permit implementation (e.g. setting goals). While having both algae and benthic macroinvertebrates (BMI) would make for more holistic stream characterization and impairment determination, the ASCI had yet to be peer-reviewed for publication in a scientific journal and thus was not part of the initial proposed BPA scoping, drafts, or Scientific Peer Review. As such, it is not proposed as a biological objective. However, it could be incorporated as a biological objective via a future BPA process. It should also be noted that past work identified benthic algae as potential indicators of good water chemistry in streams with artificially hardened streambeds.

Comment: Page 27, Section 3.3.4

The section describes the importance of an ecologically balanced and resilient community of organisms, however there is no clear connection of how meeting the CSCI numeric objective would accomplish this narrative goal. Also, this discussion presumes that all reference sites in the state-wide pool have such a balanced community based on the state-wide CSCI model. One peer reviewer pointed out this assumption and suggested it be further clarified.

Recommendation: Include a description of how meeting a CSCI score of 0.79 will aid in the understanding that biological conditions will support ecological balance and resiliency. Clarify that sites with a score > 0.79 are assumed to have an ecologically balanced community even though the model is based on frequently collected taxa only.

12. Response 12:

This comment has been addressed in the response to the Scientific Peer Review comments document (Section 2.4). Additional language and citations have been added to Section 3.3.4 of the draft Staff Report.

Comment: Page 27, Section 3.3.5

While native species are included as part of the narrative objective, it is not clear how the proposed amendment addresses non-native species. Certain human activities such as boating and fishing may not affect water or habitat quality but could introduce invasive or non-native species, which can alter the biological community and lower the CSCI. None of the metrics involved in the calculation of the CSCI, nor any of the other tiered lines of evidence include a measurement of native/non-native taxa in the stream benthic community.

Recommendation: Clarify how non-native species will be viewed and used in the context of a stream meeting the numeric objectives.

13. Response 13:

To clarify, the proposed BPA does not include a narrative objective. The referenced language has been revised in Chapter 4 of the proposed BPA to establish narrative guidance for the development of biological objectives through future basin plan amendments. Clarifying language has been added in response to the comments from the peer reviewer. In addition, as the CSCI includes measurement of the benthic invertebrate community using a reference approach, non-native invertebrate species will be included in the resulting CSCI score metrics for sites containing non-native species. For other non-native species that may be impacting benthic invertebrate communities directly or indirectly, these may be considered a potential causative source of observed impairment.

Comment: Page 35, Section 4.3

The Proposed Biological Objective assigns the same numeric criteria to all streams. It holds streams with modified hydrology including modified channels and engineered urban streams to a standard that is impossible to attain. As is stated in Section 5.1 of the Staff Report, in highly modified systems a healthy BMI community considered equivalent to reference is typically precluded as a result of physical habitat constraints. Considering these streams degraded or impaired for BMI could lead to spending significant resources to improve CSCI scores in streams where minimal, if any improvement is likely to be achievable. Section 13241 of the Porter-Cologne Water Quality Control Act requires consideration of water quality conditions that could reasonably be achieved and consideration of economic impacts. It's unclear if the proposed Basin Plan Amendment satisfies these and other requirements under Porter-Cologne.

Recommendations: Best attainable or other alternative thresholds of acceptable biological condition for engineered, modified, or otherwise constrained channels should be considered as part of this policy to acknowledge that reference conditions are not attainable in those streams. The Regional Board should take advantage of recent work under the State's BioStimulatory-BioIntegrity Project: 1) Channels in Developed Landscapes modeling and 2) Biological Condition Gradient (BCG) effort to better

assess the potential constraints on biology in modified streams and to encourage meaningful improvements that may not equate to reference conditions.

14. Response 14:

Please see Response #1, which discusses the reasons for excluding hardened streambed channels. Also, see Response #3 and #6 for discussion of the “Channels in Developed Landscapes” modeling for modified streams and BCG. Additional clarifying language was added to the draft Staff Report at section 4.5.2 to further explain how water quality conditions can reasonably be achieved through the control of pollutants discharged into otherwise modified streams not excluded from the Stream Biological Objective as hardened streambed segments. Scientific Peer Review found the inclusion of such streams to be justified. Please see Response #9 regarding CWC Section 13241.

Comment: Page 37, Section 4.4.1

Includes the allowance for incorporation of new site data over time and space into the CSCI model. While new sites can be incorporated, they are not defined as new reference sites upon which the CSCI is built. The current pool of reference sites used in the CSCI tool is fixed at 473, and as one peer reviewer pointed out, no procedure is presented as to how often the reference pool will be updated and how frequently sites will be evaluated.

Recommendation: Specifically state that the new sites to be included will be reference sites to be used in the Reference Stream Approach for defining expectations, and the timeframe schedule in which the reference pool will be reevaluated. Also, consider incorporating additional reference sites identified previously by the City.

15. Response 15:

Please see the response to Scientific Peer Review comments (Section 2.4) for additional information. In addition, it is inappropriate to specifically specify the timeframe for the reference pool to be re-evaluated for the purposes of updating the CSCI. The sampling and incorporation of additional reference sites into the State of California reference pool can be requested by the City of San Diego as part of the statewide program. Updates to the Basin Plan may be identified as needed during the triennial Basin Plan review process.

Comment: Page 41, Section 4.4.1

In the previous 2018 administrative draft it appeared that scores between the 10th and 1st percentiles, considered “ambiguous”, were used to address “uncertainty” in the reference pool membership. It is not clear why only the 10th percentile is now being used to justify the same argument.

Recommendation: Include justification for this change.

16. Response 16:

The 2018 administrative draft included the 10th and the 1st percentile thresholds for the Stream Biological Objective to allow for consideration of additional evidence to evaluate whether a stream's impairment is due to natural factors. However, the use of this approach would require extensive, and often unnecessary, review of additional lines of evidence for impairment determinations. In addition, the use of specific criteria as additional lines of evidence would potentially be inflexible as proposed in the 2018 administrative draft, and unable to rely on new development in methods and technologies.

As released for public comment in 2019, the proposed BPA instead used a single threshold. However, to address the concern about uncertainty reflected in the administrative draft, the 2019 proposed BPA included a process, similar to current biostimulatory language in the Basin Plan, to address site-specific situations where natural factors may require additional evidence to determine beneficial use attainment, i.e., to allow for consideration of whether natural factors are the reason for a low CSCI score. In addition, in response to Scientific Peer Review comments the proposed BPA has been further revised to include language identifying site-specific factors/events that naturally cause a low CSCI score and describing a process for consideration of these factors. As a result language for the allowance of site-specific information on the physical, chemical, and biological condition of specific sites has been moved from the proposed objective to the implementation chapter of the proposed BPA (Chapter 4 of the proposed BPA) to allow for more flexibility in using additional lines of evidence in accordance with existing guidance.

These revisions clarify that the identification of stream segments with low CSCI scores due to natural conditions/factors will occur in accordance with existing regulatory policy through program implementation. This includes the Listing Policy and SWRCB Resolution 2005-0050, Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options (Impaired Waters Policy).

Comment: Page 41, Section 4.4.3

As pointed out by several of the peer reviewers, the pool of reference sites that are used to define the CSCI for southern California may not be truly representative of the region. To determine the CSCI score for any individual stream site sampled in the San Diego Region, a “modeled reference site” is developed using the distribution of a sub-set of unaltered analogous streams from the RCMP reference pool. This sub-set of reference streams are those selected from the RCMP reference pool that are most analogous (similar) to the individual stream being sampled in terms of latitude, longitude, elevation, watershed area, long-term temperature and precipitation, and underlying geology. However, the numeric objective threshold of 0.79 is derived from the 10th percentile of the entire statewide reference pool data set distribution, which contains many non-analogous reference sites (i.e. northern California and Sierra Nevada Mountains), which support much different BMI communities than streams in southern California. Including these other non-analogous regions in the pool used to derive the numeric criteria skews the 10th percentile of the distribution upward and results in an overly conservative threshold CSCI score of 0.79 for the San Diego xeric region.

Recommendation: A more appropriate CSCI numeric objective should be derived from a distribution of reference sites that are physically, hydrologically, and geographically similar (i.e. analogous) to San Diego region streams. Reference sites most analogous to individual sites are already available as an output of the CSCI scoring tool and could be used to derive a more region-specific objective

17. Response 17:

The Scientific Peer Review found the use of the 10th percentile, derived from the statewide dataset, to be scientifically defensible and appropriate, and that the incorporation of natural gradients, which may vary across southern California and the State, was a better approach than setting a regional objective. The Scientific Peer Review did not find the “pool of reference sites that are used to define the CSCI for southern California may not be truly representative of the region.” In fact, peer reviewers suggested the proposed modeled statewide approach should be used by other states with **existing biological criteria**. For example:

*...the approach taken here is the best one available and normally more effective to reduce the compounding effects of natural factors in assessing biological conditions at a site **than ecoregion or other stream classifications. Most other states should adopt the approach to re-calibrate their biological indicators.** -Cao*

Please also see Response #2.

Comment: Page 42, Section 4.4.3

Language in this section states, “For the stream biological objective, the selection of the 10th percentile as a threshold with a limited site-specific caveat for a further reference “likeness” determination...”. However, it is unclear what this caveat is or could mean.

Recommendation: Provide further detail or an example of the implications and meaning of the “limited site-specific caveat”.

18. Response 18:

The cited section refers to the proposed Stream Biological Objective for Chapter 3, which states where the cause of a low CSCI score is natural in origin, compliance with the Stream Biological Objective may be determined using an alternate analytical method approved by the San Diego Water Board. This language has been moved to Chapter 4 of the proposed BPA and includes additional implementation language for clarity. Please see Response #16.

Comment: Page 42, Section 4.4.3

It is unclear how the reference to the USEPA 1992b document supports the proposed approach; furthermore this same citation was used to support tiered 10th and 1st percentile approach of the previous 2018 Administrative Draft.

Recommendation: Include further explanation as to why this USEPA reference supports the 10th percentile.

19. Response 19:

The United State Environmental Protection Agency (USEPA) 1992b document (*Framework for Ecological Risk Assessment*) was included as a reference for the proposed BPA and prior 2018 administrative draft version as a representation of risk estimation, including quantifying and addressing relative uncertainty, when conducting ecological risk assessment. Some additional clarifying language in this regard has been added to the section in the draft Staff Report.

Comment: Page 44, Section 4.4.4

The “alternative analytical methods” approach to evaluate if a “false positive” has occurred in the case of a site falling below the 0.79 threshold would be at the discretion of the Water Board and only where a permittee can significantly demonstrate that a low CSCI score is the result of a naturally occurring factor(s). The USEPA (1991) cited approach is applicable to effluents but not necessarily to ambient assessments. Therefore, a weight of evidence approach should be used, and analytical methods should not be considered independently applicable.

Recommendation: A weight of evidence approach should be used when evaluating whether water quality standards are met for any sites falling between the 10th and 1st percentile without having to first demonstrate a natural factor is the cause of a score < 0.79. The value and use of this additional alternate data were touched on by a couple of the peer reviewers, and the City encourages the Board to consider the use of these additional lines of evidence in a more integrative way to determine water quality. The proposed policy should provide more examples, or state more clearly, how these alternative analytical methods would be applied to streams that do not meet the CSCI numerical objective.

20. Response 20:

The USEPA citation (1991) is the *Policy on the Use of Biological Assessments and Criteria in the Water Quality Program*, and specifically discusses the use of biological criteria, recommending that “States should develop and implement biological criteria in their water quality standards.” The same citation also recommends that analytical methods (chemistry, toxicity) be independently applicable.

The proposed approach and use of the 10th percentile was specifically supported by Scientific Peer Review. For example, Edwards stated:

“The assumptions and methods to set the water quality objective as a percentile of reference using the California Stream Condition Index is scientifically sound, incorporates a margin of safety, and will identify sites that have a degraded biological condition. The allowance of site-specific scientific information on the physical, chemical, and biological condition of specific sites to prevent false positive identifications of impairment is scientifically sound.”

The San Diego Water Board received additional comments from the peer reviewers regarding the level of detail needed in order to make a determination of a false positive for a low CSCI score due to natural sources under the Chapter 3 objective language. Please see also Response #16.

Comment: Page 44, Section 4.4.4

The text states that the San Diego Water Board may consider using future developments in methods, tools, and results when making a determination of similarity to reference conditions. However, the current approach does not consider additional evidence beyond the CSCI unless it can be significantly demonstrated that natural factors are the cause of degradation. This statement is vague and would seem to contradict the approach taken with the current Proposed Biological Objectives of a bright-line 0.79 CSCI threshold. It appears that Figures 7 and 8 are an attempt how a permittee would demonstrate that a site is or isn't similar to the reference condition, but there is nothing in these examples that would indicate that "natural factors" might be at play, thereby prompting the Water Board to even consider looking at additional evidence.

Recommendation: Include guidance regarding how a permittee would demonstrate that a site is or isn't similar to the reference condition, based on additional evidence.

21. Response 21:

Please see Response #16. Additional guidance has been added to Chapter 4 of the proposed BPA to specify the process for determination of the whether a site is or is not similar to reference using additional evidence.

As specified in section 4.4.4 of the draft Staff Report, and consistent with the Listing Policy and Impaired Waters Policy, the inclusion of implementation provisions for consideration of low CSCI scores due to natural sources is included within the proposed BPA. This is meant to avoid a false positive indication of impairment for those sites that are not well represented in the reference site pool due to 1) naturally occurring factors (e.g. pollutants) or 2) naturally occurring disturbance. Due to the wide potential variety in site-specific scenarios, the guidance has been kept general. In both situations, other means of assessment could be employed, based on site-specific considerations, to determine similarity to expected reference condition. Figures 7 and 8 in the draft Staff Report are examples of what evidence could theoretically be evaluated and are not meant to be included as "natural in origin" examples. Clarifications have been added to the figures.

Comment: Page 45, Section 4.4.4

Language states that when significant scientific evidence implicating "natural factors" is submitted to the San Diego Water Board, the Water Board may at its discretion conduct an evaluation and determination for the applicable sites that do not meet the CSCI 10th percentile threshold. Text is lacking assurance that this would be taken into account and result in actual flexibility in regulation. For example, how would compliance be assessed if a CSCI is slightly less than 0.79, but all other factors (i.e. ASCI, CRAM, PHAB, and water quality) indicate that the site is in compliance?

Recommendation: Include text to confirm the San Diego Regional Board's commitment to reviewing scientific evidence when submitted and conducting evaluations for determining if applicable sites do not meet the 10th percentile threshold.

22. Response 22:

Please note that a stream is not considered "in compliance" with a water quality objective, rather water quality objectives are established for the purpose of ensuring the reasonable protection of a waterbody's beneficial use(s) (see CWC Section 13241). The San Diego Water Board understands that natural factors in some settings could result in a CSCI score below 0.79 without preventing the attainment of aquatic life beneficial uses. The Board will review and consider information regarding natural factors impacting CSCI scores during implementation to ensure appropriate regulatory responses to naturally low CSCI scores consistent with State policy. Please see response #16 regarding modification of the "natural in origin" language.

Comment: Page 51, Section Figure 8 Caption

Figure caption discusses chemistry results, but does not discuss substrate and/or gradient differences. Compare to Figure 7. Tiered objectives would address those streams that have limited macroinvertebrate colonization potential (e.g., due to natural factors such as irreversible habitat constraints, proximity to quality macroinvertebrate source populations, or intermittent flow connectivity) and therefore lower attainable CSCI scores as noted by peer reviewers. The proposed policy should acknowledge different biological expectations, and numeric thresholds for different stream types in the region.

Recommendation: Include text on differences in substrate and gradient and how these natural factors may affect CSCI scores at different sites. The City supports a tiered biological objectives approach to address different types of modified and hydrologically altered streams in the region in order to achieve meaningful improvements.

23. Response 23:

The referenced figures are examples of types of additional evidence that could be considered for sites where a CSCI score is suppressed and where the cause of a low CSCI score is natural in origin. Scientific Peer Review did not determine there were lower attainable CSCI scores based on the factors put forth in the comment. Please see response to Scientific Peer Review comments. Note that additional language has been added to the draft Staff Report identifying hardened streambed segments as reducing macroinvertebrate colonization potential (Section 4.5.2).

The proposed approach using the 10th percentile is supported as scientifically sound by Scientific Peer Review. Please see Responses #3 and #6 regarding use of different thresholds as goals or targets in the implementation of the Stream Biological Objective. Please also see Response #1 regarding exclusion of a stream type.

Comment: Page 52, Section 4.5

While a representative CSCI score can be derived from a seasonal stream during some portions of its flow duration, it has not been demonstrated that this is also true as a seasonal stream nears the end of its flow cycle. As pointed out on page 62 of the Staff Report, and confirmed by other researchers, the BMI community can quickly change as a stream nears the end of its flow cycle. Historic site reconnaissance has shown that streams often cease to flow more quickly than anticipated, and the point on the hydrologic cycle from beginning of flow to drying is typically not known during a field bioassessment. Sampling a stream near the end of its flow may lead to improper 303d listings based on inaccurate CSCI scores not representative of a seasonal stream's true biological potential. The role that hydroperiod plays in determining community composition was pointed out by multiple peer reviewers.

Recommendation: Recommend having water level loggers required at each sampled location to document flow subsequent to BMI collection. If it is determined that flow dramatically declined or deceased within a short time (to be defined) after BMI

sampling, the BMI data should be flagged as possibly not accurately representing the true BMI community potential.

24. Response 24:

Language has been added to the draft Staff Report at Section 4.7.1 regarding recommendations for additional flow monitoring methods. The San Diego Water Board, the United States Geologic Survey, CADFW, SMC, and others routinely use various water level loggers at perennial and seasonal stream sites because they can document flow cessation patterns and hydrologic variability associated with natural or unnatural factors. In addition, bioassessment sampling requires measurement of flow be conducted when sampling, and for sampling to meet criteria in the State of California's Standard Operating Procedures (SOP) in order to prevent streams from being sampled at the end of a flow cycle (discussed in later sections of the draft Staff Report).

In order to be 303(d)-listed as impaired, a stream would need to be sampled more than once, and the impaired condition also be associated with a pollutant(s). If there are no associated pollutants, and no evidence that habitat modification has impacted a score, there would be insufficient information to fully assess the stream, resulting in a Category 3 designation in the Integrated Report. It is important to note that impacts to the Stream Biological Objective within a stream could also occur with unnatural cessation of flow (e.g. unauthorized diversions).

Comment: Page 52, Section 4.5

The proposed bio-objectives appear to equate seasonal streams with intermittent streams, however, the biological communities observed in intermittent streams can vary significantly depending on proximity to a source pool of macroinvertebrates, such as from nearby perennial stream reaches. The examples given in the staff report appear to be primarily streams that are in close proximity to a perennial source pool. Three of the four peer reviewers also expressed some concern over the known natural variability in seasonal and intermittent streams, and how that might lead to differences in assessed condition for streams subject to the proposed policy.

Recommendation: Clarify whether the definition of seasonal streams is synonymous with intermittent streams and demonstrate that a wider range of intermittent streams in the region display the same CSCI range as shown in Figure 9.

25. Response 25:

Changes have been made to clarify that the Stream Biological Objective applies to perennial and seasonal streams, which are streams that do not exhibit ephemeral flows. Chapter 3 language defines perennial and seasonal streams to include intermittent streams unless a stream that exhibits intermittent qualities also meets the definition of ephemeral. As defined, the Stream Biological Objective applies to all inland surface waters with the COLD or WARM beneficial uses but excludes four categories of waters or stream segments from its applicability, which includes ephemeral streams.

The CSCI is representative of biological integrity for inland surface perennial and seasonally intermittent streams (seasonal streams) but is not similarly representative for stream segments that are ephemeral. Such stream segments are unable to be successfully sampled during spring and summer stream baseflow conditions in accordance with the State of California SOPs, and thus were largely excluded from CSCI development. The CSCI also is not representative for ephemeral stream segments because such stream segments do not have sustained flows of a duration long enough to develop a sampleable benthic macroinvertebrate community using SOPs, and thus were excluded from CSCI development. The term seasonal streams was chosen over intermittent to avoid confusion of terms, as ephemeral streams can be referred to as a type of intermittent stream.

Prior research conducted by the CSCI authors (Mazor et al. 2014 and 2015) identified that seasonally intermittent streams are well represented by the CSCI. The reference sites included in the CSCI development set in the San Diego Region, and throughout the State, are in fact intermittent streams. As described in the draft Staff Report, streams were not monitored to document perennial condition, but were simply sampled if sufficient flows were present during the spring sampling period. The proposed approach, including the inclusion of “seasonal streams,” was supported as scientifically sound by Scientific Peer Review.

Comment: Page 56, Section 4.5

Text indicates that samples should be collected when streams are at or near base flow and not influenced by storm runoff.

Recommendation: Clarify text to indicate that “samples should be collected when streams are at or near base flow and not influenced by scouring storm flows.”

26. Response 26:

Section 4.5 of the draft Staff Report has been clarified in response to this comment and similar comments from Scientific Peer Review.

Comment: Page 60, Section 4.6

The current language notes an update would be made to the CSCI if needed, but does not include specific details and a defined commitment to update the CSCI.

Recommendation: Include further detail on when and how the CSCI will be updated.

27. Response 27:

The San Diego Water Board does not propose to update the CSCI threshold at this time. However, proposed updates to the Basin Plan, such as an amendment to incorporate a new CSCI threshold, may be raised by the Board or the public as a potential project during the Basin Plan triennial review process. Please also see Response #15.

Comment: Page 85, Section 5.4

Review of the category 5 and category 4C listings in the most recent integrated report from the Region 9 where bioassessment was one of the reasons for listing shows none of the 4C segments included bioassessment as one of the factors. Bioassessment was listed as one of the factors only in category 5 segments that required the 303(d) listing and necessary action. If the proposed bio-objectives are adopted, it is understood that more segments would be included in category 4C and category 5.

Recommendation: This needs to be clarified given that listing decisions (categories 4c and 5) have significant implications for future actions and requirements that will require City implementation and resources.

28. Response 28:

It appears that the comment is referring to the online State Water Board output for 4c decisions. During the 2014/16 Integrated Reporting cycle the State of California Integrated Report database was incapable of designating waterbodies as being in multiple reporting categories (despite USEPA guidance that recommends putting waterbodies in multiple categories if applicable). The San Diego Water Board, however, adopted an Integrated Report (Resolution No. R9-2016-0196) that identified waterbodies as being in both Category 4c and Category 5 using bioassessment data. This approach would continue under the proposed BPA.

Comment: Page 89, Section 5.5

Text states that selection of biological targets for TMDLs would be consistent with the narrative guidance and the Stream Biological Objective in comparison to reference. However, many of the biological impairments are going to come in highly urbanized areas for which there may not be appropriate site-specific expectations. Additionally, an increase in benthic invertebrate community quality to reference quality in highly urbanized sites as a result of restoration is rare. Even if water quality and physical habitat are restored to sufficient levels to support a healthy invertebrate community, frequently the invertebrate community does not respond as quickly or at all. Many times, as pointed out by one peer reviewer, this is due to distance to quality invertebrate source populations that may be tens of miles away from the urban restoration site, outside the typical dispersal range of many aquatic insects. Given this,

how will site restorations be dealt with in terms of the CSCI score expectations and length of time required to attain that score?

Recommendation: How will restoration expectations be derived for highly urbanized, hardened, or otherwise engineered channels be made?

29. Response 29:

Please see Response #1 regarding hardened streambeds. The selection of restoration expectations as TMDL targets will be conducted during the TMDL development process, which considers the waterbody-specific condition, discharges, and other factors influencing affected beneficial uses. Urbanized streams in the San Diego Region can meet the proposed Stream Biological Objective, including within restoration sites. Examples have been included in the draft Staff Report of streams that are in urbanized areas and meet the proposed Stream Biological Objective. A number of these were recently identified in Resolution No. R9-2020-0012, an off-cycle addition to Section 305(b) of the combined 305(b) and 303(d) Integrated Report. Additional references to this effect have been added to the draft Staff Report in section 4.5.2 and Appendix II.

Please see response to Scientific Peer Review comments regarding species dispersal, which one reviewer said “could be restrained” (Section 2.1). However, the peer reviewer also noted that proximity to upstream species could also mediate downstream disturbance.

d) Commenter: County of Orange

Comment:

The County of Orange, in cooperation with the Orange County Flood Control District, Orange County Parks and the cities of Aliso Viejo, Dana Point, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, Mission Viejo, Rancho Santa Margarita, San Clemente, and San Juan Capistrano (collectively, “South OC Permittees”), appreciate the opportunity to provide comments on the Draft Proposed Basin Plan Amendment to Incorporate Biological Objectives. While we support the concept of biological objectives, we do not support the proposed Basin Plan Amendment in its present form.

30. Response 30: Comment noted

Comment:

Over the past several years, the South OC Permittees have committed significant resources to improve local stream conditions and developed the South OC Water Quality Improvement Plan (WQIP) and associated Highest Priority Water Quality Conditions (HPWQCs) based on a function-based framework that incorporates many of the key elements of the proposed Basin Plan Amendment. For example, the WQIP identifies Unnatural Water Balance and Channel Erosion/Geomorphic Impacts as HPWQCs, which are two important elements to maintain aquatic life beneficial uses. Linkages have been developed between MS4 discharges, hydrology, geomorphic effects, and stream biological condition, which relates directly to the development of biological objectives. This function-based framework within the WQIP supports the identification of restoration strategies that are designed to achieve meaningful improvements while recognizing the important societal benefits of flood control and protection infrastructure. Considering the positive direction of the WQIP and our collective interest in supporting the development of sound biological objectives and implementation requirements, we are providing the following comments for consideration:

31. Response 31:

The San Diego Water Board appreciates and acknowledges the efforts made to date by the South Orange County MS4 Permittees, many of which have already or are expected to improve conditions relative to the proposed Stream Biological Objective.

Comment:

Additional specificity and WQIP incorporation. Chapter 4 (Implementation) should be expanded to provide more clarity and specificity on how the proposed amendment would be implemented through the regulatory process. It is critically important to understand the implications of the proposed amendment on water quality policies, permits, and other regulatory requirements to avoid confusion and unintended consequences. For example, it is unclear how biological objectives would be incorporated into the B.3.c Prohibitions and Limitation Compliance Option component of the WQIP. Based on discussion with the San Diego Water Board staff, it is assumed that B.3.c coverage will be provided by adding biological objectives under the list of covered water quality objectives in the WQIP. This will allow the WQIP to continue to focus on the critical stressors identified as HPWQCs and the associated strategies that are currently being implemented.

32. Response 32:

Please see Response #9. In addition, CWC section 13242 provides that a program of implementation to achieve a water quality objective include a description of the nature of actions necessary to achieve the objective, a time schedule for implementation actions and a description of appropriate monitoring to determine compliance. The proposed BPA includes a detailed implementation chapter that satisfies the elements of section 13242. The nature of this proposed BPA does not, however, require development of specific permit implementation language. This proposed BPA will establish a new water

quality objective in the Basin Plan. After incorporation in the Basin Plan, the objective will be incorporated into relevant permits on a case by case basis through the permitting process as described in the proposed BPA. For instance, adoption of National Pollutant Discharge Elimination System (NPDES) permits by the Water Board, is subject to a separate public process, which must consider relevant implementation programs in the Basin Plan. Implementation through individually adopted permits necessarily involves public processes and in most instances the permittees have discretion to determine how to comply with permit requirements. (See CWC section 13360). Thus, the program of implementation includes descriptions of the Water Board's implementation steps, with associated timeframes, that will occur to meet the Stream Biological Objective. This provides clarity for regulated entities and interested parties of the Board's intentions for various planning and permitting programs.

With regard to the San Diego Water Board's Phase I Regional MS4 permit, it is expected that the Stream Biological Objective will be proposed for incorporation into the permit as a receiving water limitation when the permit is reissued or amended. As with other applicable objectives implemented as receiving water limitations, a permittee's discharge must not cause or contribute to violation of that standard in the applicable receiving water. In other words, unless a discharge to a stream is shown to cause or contribute to a stream CSCI score that exceeds the objective, the permittee is expected to be in compliance with the Stream Biological Objective. Therefore, exceedance of the Stream Biological Objective in a perennial or seasonal stream does not necessarily result in immediate non-compliance with a receiving water limitation in an MS4 permit.

Consistent with the Clean Water Act, the requirement that Phase I MS4 permittees control pollutants in discharges of storm water to receiving waters is subject to the maximum extent practicable standard. (CWA § 402(p)(3)(b)(iii).) Non-storm water discharges of pollutants to the MS4 must be effectively prohibited (CWA § 402(p)(3)(b)(ii)) – the MEP standard is inapplicable in this context. These CWA requirements are reflected in the currently effective Phase I MS4 permit's prohibitions and limitations provisions at section II.A.

The currently effective Phase I MS4 permit requires development and implementation of Water Quality Improvement Plans (WQIPs) for each watershed within the San Diego Region. The commenter is correct that the WQIP is intended to focus on the critical stressors identified by the Copermittees as part of a public process. As discussed in the proposed Basin Plan implementation chapter, implementation would be consistent with the current Phase I MS4 NPDES permit referenced in the comment (Order R9-2013-0001, as amended), as the biological condition of receiving waters is already required to be considered by Copermittees as a priority water quality condition during the WQIP development and implementation. At this time, all WQIPs for watershed management areas designated by the Phase I MS4 NPDES permit have been developed, accepted, and are being implemented by the Copermittees based on the prioritization process identified under provision B.2.a.(6). Provision B.2, *Water Quality Improvement Plans: Priority Water Quality Conditions* states:

The Copermittees must identify the water quality priorities within each Watershed Management Area that will be addressed by the Water Quality Improvement Plan. Where appropriate, Watershed Management Areas may be separated into subwatersheds to focus water quality prioritization and jurisdictional runoff management program implementation efforts by receiving water.

a. ASSESSMENT OF RECEIVING WATER CONDITIONS **The Copermittees must consider the following, at a minimum, to identify water quality priorities based on impacts of MS4 discharges on receiving water beneficial uses:**

(1) Receiving waters listed as impaired on the CWA Section 303(d) List of Water Quality Limited Segments (303(d) List);

(2) TMDLs adopted and under development by the San Diego Water Board;

(3) Receiving waters recognized as sensitive or highly valued by the Copermittees, including estuaries designated under the National Estuary Program under CWA section 320, marine protected areas, wetlands defined by the State or U.S. Fish and Wildlife Service's National Wetlands Inventory as wetlands, waters having the Preservation of Biological Habitats of Special Significance (BIOL) beneficial use designation, and receiving waters identified as ASBS subject to the provisions of Attachment B to State Water Board Resolution No. 2012-0012(see Attachment A);

(4) The receiving water limitations of Provision A.2;

(5) Known historical versus current physical, chemical, and biological water quality conditions;

(6) Available, relevant, and appropriately collected and analyzed physical, chemical, and biological receiving water monitoring data, including, but not limited to, data describing:

(a) Chemical constituents,

(b) Water quality parameters (i.e. pH, temperature, conductivity, etc.),

(c) Toxicity Identification Evaluations for both receiving water column and sediment,

(d) Trash impacts,

(e) Bioassessments, and

(f) Physical habitat;

(7) Available evidence of erosional impacts in receiving waters due to accelerated flows (i.e. hydromodification);

(8) Available evidence of adverse impacts to the chemical, physical, and biological integrity of receiving waters; and

(9) The potential improvements in the overall condition of the Watershed Management Area that can be achieved.

Updates to the WQIPs are contemplated under the current MS4 Permit and are required “[u]pon a determination by either the Copermitees or the San Diego Water Board that discharges from the MS4 are causing or contributing to a new exceedance of an applicable water quality standard not addressed by the [WQIP.” (Regional MS4 Permit, Provision A.4.a.(1).) In addition, as the commenter correctly states, Provision B.3.c of the Phase I MS4 Permit (Prohibitions and Limitations Compliance Option) is an optional pathway for Copermitees to achieve compliance with receiving water limitations within a watershed management area when certain conditions are met. Provision B.3.c allows for Copermitees to provide required analyses for various conditions of receiving waters, including biological objectives. In addition, in-stream physical habitat condition (e.g. Index of Physical Habitat Integrity, “IPI”) can be considered as part of the bioassessment.

The conditions and process for Copermitees, either individually, or collectively, to request Provision B.3.c Prohibitions and Limitations Compliance for the Stream Biological Objective is included in provision F.2.c, WQIP Updates. The Phase I Permit already has a process that is delineated and applicable for including biological objectives under B.3.c. Last, Provision A, Prohibitions and Limitations, specifically states that “... *The goal of the prohibitions and limitations is to protect the water quality and designated beneficial uses of waters of the state from adverse impacts caused or contributed to by MS4 discharges. This goal will be accomplished through the implementation of water quality improvement strategies and runoff management programs that effectively prohibit non-storm water discharges into the Copermitees’ MS4s, and reduce pollutants in storm water discharges from the Copermitees’ MS4s to the MEP...*” (Regional MS4 Permit, II.A. (italics added).) Under the currently effective MS4 Permit, inclusion of the Stream Biological Objective under provision B.3.c would therefore be appropriate.

Comment:

Modified streams and setting realistic biological expectations. The proposed amendment does not recognize biological constraints of urban-influenced and physically modified streams and instead uses the same threshold for impairment, < 0.79 California Stream Condition Index (CSCI) score, as the numeric objective for all perennial and seasonal streams in the region. This expectation is unrealistic and unattainable for urban and modified streams in South OC without extensive modifications to the landscape and will result in dis-incentives for achieving meaningful improvements in urban and modified streams. Through discussion with San Diego Water Board staff, it is understood that although achievement of this threshold is the ultimate goal, addressing the historical challenges associated with modified streams will not be

prioritized. These priorities are not clearly stated in the proposed amendment. Also, setting a single numeric objective poses compliance risks and uncertainty that do not support effective water resources management. In addition, the tools and concepts being considered under the statewide Biostimulatory/Biointegrity project regarding alternative approaches for modified channels should be incorporated into the proposed amendment. This includes the Biological Condition Gradient (BCG) model and the Developed Landscape Models developed by the Southern California Coastal Water Research Project's (SCCWRP) and its partners. This recommendation is consistent with how other states have developed and implemented biological objectives.

33. Response 33:

Please see Response #1 regarding the exclusion of hardened streambed segments from the Stream Biological Objective. Please also see Response #32 regarding implementation of the proposed Stream Biological Objective. The proposed BPA implementation chapter does not prioritize permit-specific priorities because that is best done through the public permit adoption process.

As an example, the Integrated Reporting process identifies a proposed date for priority TMDL development, but the development of TMDLs, including selection of numeric targets, timelines, and regulatory approaches considers many factors. In addition, unforeseen factors affecting public health or the environment may emerge that warrant a change in TMDL priorities.

Lastly, the current approach was found to be scientifically sound and supported by Scientific Peer Review. While some states have used a Tiered Aquatic Life Use (TALU) or BCG type of approach for development of biological objectives, other states use numeric criteria for biological objectives, and additional states (e.g. Colorado) use numeric indices of biotic integrity to set chemistry-based standards.

Comment:

Phased approach. If a single numeric objective is adopted as proposed, numerous streams within South OC will be listed as impaired on the 303(d) list and may require the development of Total Maximum Daily Loads for waterbodies that were modified before Porter-Cologne and the Clean Water Act were enacted. Conditions in these streams are not readily controllable by the MS4s; therefore, we recommend that the San Diego Water Board use a phased approach to setting biological objectives. In a phased approach, the CSCI threshold of 0.79 would apply to waterbodies currently attaining or exceeding this threshold to maintain their high quality. Other waterbodies not currently meeting the CSCI threshold of 0.79 would have interim biological objectives developed based on their current condition and applying antidegradation policy so that those streams do not degrade further. In a second phase, biological objectives for these and other water bodies would be developed using the best available science through a stakeholder-led technical advisory process. This type of phased approach would ensure that high-quality streams are protected, while the highest

attainable aquatic life uses of lower quality sites are determined such that streams with the greatest restoration potential are identified.

34. Response 34:

It is important to note that under the State Water Board Listing Policy, a single numeric biological objective will not lead to impaired listings under section 303(d) of the CWA. Section 303(d) is for the listing of waterbodies being impaired by pollutants. Streams modified as described in the comment would not require TMDLs for the physical modification because physical modification cannot be controlled by effluent limitations in NPDES permits. The existing listing process involving bioassessment data in south Orange County will continue regardless of the adoption of biological objectives. As specified in the draft Staff Report, biological objectives assist in 303(d) listings for pollutants and TMDL prioritization by identifying the pollutants associated (or not) with the impaired biological condition. For streams with low CSCI scores and associated pollutants, the effective control of associated pollutants through control of discharge sources is expected to improve the stream's CSCI score to meet the Stream Biological Objective.

Other than revisions to exclude hardened streambed segments from the Stream Biological Objective, no changes have been made in response to this comment. See Response #1.

Comment:

Reference condition and setting numeric objectives. Relevant regional studies should be used to help identify tiered biological objectives for modified, urban, and non-perennial streams in the region, including recent studies provided by SCCWRP, Southern California Stormwater Monitoring Coalition (SMC), and the City of San Diego. Also, the numeric objective should not be set based on a specific value (e.g., 0.79) that would be difficult to update over time as additional data are collected and reference sites are updated. The numeric objective should be defined as the 10th percentile value (for example based on the current proposal), thereby allowing for future updates without needing to update the Basin Plan. In addition, we recommend consideration of the statewide BCG model to address tiered levels of biological condition for developing CSCI ranges that correspond with attainable biological expectations. Peer reviewers also recognized that the use of a single CSCI numeric threshold does not account for variability in stream biota year to year due to natural differences in precipitation and stream flows. This could result in misidentification of biological conditions at various sites. Peer reviewers also commented that the policy is not clear what is meant by "similar" or "analogous" reference sites. In addition, the pool of reference sites that are used to define the CSCI for Southern California may not be representative of this region. Analogous reference conditions, specific to the region, need to be determined, which should include previous studies that identified potential reference sites and other candidate areas.

35. Response 35:

Please see Response #3 and #6 regarding the use of BCG and tiered levels. Please see Response #2 and #17 regarding regional reference sites. One peer reviewer did reference defining “similar” or “analogous” reference sites when evaluating if a high-quality site exhibited degradation, but the comment was not regarding the need for regional reference conditions. This comment is addressed in the response to Scientific Peer Review.

Under the proposed BPA, the Water Board would periodically review the need to update the Stream Biological Objective and the need to add new biological objectives. Updating the Stream Biological Objective through a public Basin Plan amendment process provides clarity and transparency.

Comment:

Seasonal streams. There are many limitations in assessing intermittent or ephemeral streams that are not currently addressed. Similar to modified streams, seasonal streams need more careful evaluation regarding sampling constraints, attainable biological expectations, and the potential need for different biological objective CSCI thresholds. Peer reviewers also expressed the need to further examine reference conditions for intermittent and ephemeral streams that may be included as seasonal streams subject to the proposed amendment.

36. Response 36:

Please see Response #8, #24, and #25. Language has been added to clarify that ephemeral streams are specifically excluded from the Stream Biological Objective, and criteria for flow duration has been included for ephemeral streams. The flow duration criteria has not changed, but has been clarified that the criteria will be used to determine exclusion of ephemeral streams (lacking sufficient flow) from the objective rather than the used initially to determine inclusion as a seasonal streams (having sufficient flow). Scientific Peer Review found the inclusion of seasonal streams, as defined and proposed based on flow duration, to be scientifically sound. The minimum flow requirements needed to be a seasonal stream were considered by the peer reviewers as well as the use of the CSCI 10th percentile threshold.

Comment:

Probable threat. The proposed amendment uses the term “probable threat” and the San Diego Water Board has identified Phase I Permittee discharges to represent a “probable threat” to the Stream Biological Objective. Considering causal assessment are needed to identify stressors to the CSCI threshold, the analysis that was conducted to make this determination was not provided. In addition, assuming Permittees discharges are “probable threat” would create challenges in demonstrating the discharge are not causing or contributing to the exceedance of the CSCI threshold. We request this term be deleted and substituted with more common terms in existing NPDES permits.

37. Response 37:

In response to this comment, and similar comments from others, the San Diego Water Board has modified the language from “probable threat” to “discharge presents an elevated risk that the Stream Biological Objective will not be attained,” as this language better represents the assessment of risk from a proposed discharge. Additional language has been added to Chapter 4 for clarification.

As stated in the draft Staff Report, Phase I MS4 Permittee discharges were designated as representing a “probable threat” based on findings in past MS4 permits that discharges from MS4s potentially cause or contribute to degraded biological conditions (see Order R9-2007-001 Finding C.7, R9-2009-0002 Finding C.9, R9-2010-0016 Finding C.9). These findings were adopted by the San Diego Water Board, and the basis of the findings, including discussions regarding evidence, are discussed in the respective permit fact sheets.

Comment:

Weight of evidence. The additive effect of the proposed biological objective (in addition to chemical and toxicity objectives) may limit the achievement of meaningful improvements. The proposed policy would use biological objectives only in a “negative” sense; i.e., to determine if aquatic life uses are impaired. Biological objectives should be used in a weight of evidence approach to evaluate aquatic life use attainment, similar to the Sediment Quality Objectives adopted by the State Water Board. Incorporating tiered objectives and a weight of evidence approach is more likely to achieve the goals intended by the San Diego Water Board and stakeholders.

38. Response 38:

Please see Response #7 regarding the use of a weight of evidence approach and Response #3 and #6 regarding the use of tiered objectives. Biological objectives are expected to identify and provide a focus upon which water quality factors (chemical, physical, biological) are impairing Beneficial Uses, thus guiding meaningful improvements and appropriate regulatory and/or non-regulatory actions to address those factors.

Comment:

California Water Code (CWC) Section 13241/13242 requirements. As a part of the water quality objective development process, the San Diego Water Board must meet the requirements of CWC 13241/13242. The Substitution [sic] Environmental Document is the basis for addressing these requirements for the proposed amendment; however, we are concerned these requirements have not been fully addressed, especially the analysis for CWC Section 13241 c) “the water quality condition that could reasonably be achieved from the coordinated control of all factors which affect water quality in the area” and CWC Section 13242 “the description of the specific actions which are necessary/required from each of the responsible parties to achieve the proposed objective” and “a time schedule for the actions to be taken.” We request further analysis be conducted to satisfy these requirements prior to the adoption of the proposed amendment.

39. Response 39:

See Responses #1, #9 and #32.

e) Commenter: County of San Diego

Comment:

The County of San Diego (County) appreciates the opportunity to provide comments on the Proposed Amendment to the Water Quality Control Plan for the San Diego Region to Establish Biological Water Quality Objectives for Perennial and Seasonal Streams (“Biological Objectives”). As one of the largest jurisdictions regulated under the San Diego Region Phase I Municipal Separate Storm Sewer System (MS4) Permit (Phase I MS4 Permit), the County is very interested in water quality regulations that are reasonable, founded upon sound science, and that move our region forward by improving water quality in a productive and responsible way. The County appreciates the San Diego Regional Water Quality Control Board’s (San Diego Water Board) willingness to meet with affected parties to consider alternative viewpoints on the proposed regulation prior to finalizing the Biological Objectives.

40. Response 40:

Comment Noted

Comment:

The County recognizes the importance of the biological integrity of the county’s waterways and acknowledges the San Diego Water Board’s leadership in the Clean Water Act’s mission “to protect the physical, chemical and biological integrity” of waterways. To that end, the County is a supporting partner and participates in the Southern California Stormwater Monitoring Coalition’s Southern California Bioassessment Program. Further, the County was an active participant in the United States Environmental Protection Agency’s (USEPA’s) Causal Assessment Test Cases conducted at four locations in California that included a site in the San Diego River. The causal assessment tools developed by USEPA were given a “test drive” in California to

identify potential causes of biological impairments and led to the development of the Causal Assessment Evaluation and Guidance for California document.

41. Response 41:

Comment noted. The San Diego Water Board also participated in the test cases.

Comment:

The County's comments in this letter come from the perspective of wanting to ensure that current and future stormwater management program efforts yield a corresponding return on investment, providing a meaningful benefit in terms of environmental health. To this end, the County supports the stated goal of the Biological Objectives project to "use biological assessment ('bioassessment') to better protect and restore waters by facilitating a broader evaluation of the effects of stressors that extends beyond the existing regulatory convention of analyzing for individual chemicals." Additionally, the County supports the San Diego Water Board's sentiment, as described in the Draft Staff Report, that using biological objectives instead of individual chemicals on a pollutant-by-pollutant basis will allow Total Maximum Daily Load (TMDL) assessments and implementation to be more effective and efficient and allow for regulated parties to consider more focused best management practices (BMPs) for their planned discharges. However, the County is concerned that the proposed Biological Objectives and associated implementation provisions as written will not effectively achieve these goals and may not result in directing resources to improving stream conditions.

42. Response 42:

Comment noted. The commenter's concern that the proposed BPA as written "will not effectively achieve these goals and may not result in directing resources to improving streams" is not clear. However, the San Diego Water Board has made changes to the proposed Stream Biological Objective and implementation provisions in response to comments received from the County of San Diego as described in the below responses.

Comment:

1. The proposed Biological Objectives are inconsistent with, and do not incorporate lessons learned and information developed for, the Statewide Biointegrity Plan. In particular, the proposed objectives do not consider the information regarding challenges with attaining the objectives in developed landscapes, input from the Science Panel about the appropriate use of reference reach approaches, and concerns regarding the applicability of the objectives to intermittent waterbodies. In addition, setting a single threshold for impairment does not account for the natural variability expected for reference sites from year to year.

*Note: The comment also includes additional information on pages 4-12 of the comment letter. The San Diego Water Board considered this information and the below response includes this consideration. The comment included the following recommendations:

Consideration of the "best attainable" value of a constrained channel will result in the

efficient and effective use of resources to reach appropriate restoration goals. The “best attainable” value could be established through the phased approach as summarized earlier in this letter.

The Science Panel recommended against using the Reference Approach proposed for use in this Biological Objectives project as a mechanism for setting single numeric thresholds for the Statewide Biostimulatory/Biointegrity Plan. Instead, consider developing a range of expectations or method for accounting for variability using a phased approach as summarized earlier in this letter.

43. Response 43:

A Statewide Biointegrity Plan is not currently under development. For over ten years the State Water Board has indeed been considering biostimulatory substances and biointegrity on a statewide basis, and that led to the development of many scientific publications relied upon for the proposed Stream Biological Objective, including the CSCI. The San Diego Water Board has been an active participant in the stakeholder groups since the statewide efforts began in 2008 and had identified biological objectives as a regional priority beginning in 2004. Furthermore, other Regional Boards are already using biological objectives in TMDL development or have biological objectives in their Basin Plans (e.g. Lahonton Region 2019).

The State Water Board currently has a goal to submit to U.S. EPA by 2025 a statewide wadeable streams nutrient/biostimulatory and biological diversity amendment to the ISWEBE Plan. Outside of the description provided in the SED, the State Water Board has not proposed any policy regarding the inclusion of a biological objective using the CSCI. As there is no formal objective proposed by State Water Board at this time, there is no formal schedule for the development of a statewide biological objective for integrity. The State Water Board website currently (March 9, 2020) describes the project as follows:

“The State Water Resources Control Board (State Water Board) is proposing to adopt a statewide water quality objective for biostimulatory substances along with a program of implementation as an amendment (Biostimulatory Substances Amendment or project) to the Water Quality Control Plan for Inland Surface Water, Enclosed Bays and Estuaries of California (ISWEBE Plan). The Biostimulatory Substances Amendment could include: a statewide numeric objective or a statewide narrative objective (with a numeric translator), and various regulatory control options for point and non-point sources.”

Regional Boards may choose to adopt water quality standards that differ from Statewide standards, so alignment is not required. For example, one component of the statewide biostimulatory planning effort could include the inclusion of numeric criteria for nutrients. However, some Regional Boards, including Region 9, already have concentration-based nutrient water quality objectives in their Basin Plans. This does not prevent statewide planning efforts from moving forward, which can provide exceptions or override existing criteria developed by Regional Boards.

In regard to challenges in meeting the objective in developed landscapes, the San Diego Water Board has modified the proposed Stream Biological Objective to exclude hardened streambed reaches. Please see Response #1. The comment exhibits a misunderstanding of the now published 2019 Beck et al. study (for which San Diego Water Board staff are included as a co-author). The comment misconstrues the use of a landscape development-based predictive model to preemptively determine the condition of a stream. This direct assumption is inappropriate, as the tool does not include information regarding in-stream condition, structural and non-structural BMP implementation in the developed areas, or other factors. Some additional clarifying language on the use and applicability of the tool in the Beck et al study has been added to the draft Staff Report.

Please see Response #3 and #6 regarding the use of the BCG for setting thresholds. Like the Beck et al. tool, the BCG model can be useful as an implementation tool for setting goals and prioritizing management actions, such as suggested by the State Water Board Science Panel.

The proposed BPA's Scientific Peer Review panel did not recommend against a reference-based approach, rather they found the proposed BPA's use of a percentile of reference approach to be scientifically sound (see also Response #2 and #17). Reference site variability was included in the development of the CSCI (see Mazor et al. 2016). The comment letter takes a specific section of the State Water Board 2017 Science Panel Report (State Board Science Panel, SWRCB 2017) and presents it out of context in order to argue that a percentile approach is not supported. In fact, the cited section from the State Board Science Panel is in reference to the 1986 historic use of the percentile approach, which was done without modeling the natural variability associated with reference sites. The State Board Science Panel was responding to the question of how to improve clarity to stakeholders regarding the use of the reference distribution.

The use of the CSCI and reference approach, which includes modeling to control for such variability, was actually highlighted as a positive by the State Board Scientific Panel in the referenced document and by the Scientific Peer Review for the Stream Biological Objective.

Please see Responses #8, #24, and #25 regarding the applicability to seasonal (intermittent streams).

Comment:

2. The majority of other states that have developed biological objectives have acknowledged the reality that not all waterbodies will be able to attain reference conditions and have therefore either not included numeric objectives or have set different numeric expectations for different waterbody types. Through the objective setting process, the other states have demonstrated that utilizing different objectives

can provide a better mechanism than single thresholds for improving waterbody condition, prioritizing actions, and conveying the benefit of waterbody improvement to the public.

*Note: The comment also includes additional information on pages 12-15 of the comment letter. The San Diego Water Board considered this information and the below response includes this consideration.

The comment included the following recommendation:

The County requests that the San Diego Water Board adopt an approach that considers multiple thresholds for different waterbody classes that reflect what can reasonably be attained given the background conditions. A facilitated process as discussed earlier in the letter could be implemented to develop Biological Objectives for different classes of waterbodies in a phased approach.

44. Response 44:

The proposed BPA has been modified so that the Stream Biological Objective does not include streams whose substrate has been anthropogenically hardened from bank to bank. The proposed BPA does not identify these as different “types” of waterbodies. See Response #1. Because such waterbodies are designated to support biologic beneficial uses, the San Diego Water Board may in the future develop biological objectives for them based on a regional, site-specific, or another approach. For the proposed BPA, the Scientific Peer Review found the proposed use of a single threshold to be scientifically sound.

Other states have used different “classes” to set objectives because they have different waterbody types that exhibit different beneficial uses and biological communities. For example, the State of Arizona uses multiple numeric thresholds for streams, all of which are based on reference condition. This is because streams in different parts of Arizona have different beneficial uses and benthic communities at reference sites. Arizona uses an unmodeled approach for its Index of Biotic Integrity (unlike the CSCI), which requires application of different reference sites for streams in differing natural environmental settings.

As discussed in the draft Staff Report, and described in Stoddard et al. 2006, different approaches are available for scientifically defining a reference condition. These approaches vary based on multiple factors, such as the availability of sites with little to no anthropogenic impact, and the quantity and quality of scientific data. Other states have chosen to use alternative approaches to developing biological objectives due to these factors. This does not, as the comment suggests, make alternative approaches better, or more scientifically appropriate. In fact, Regional Water Boards in California already have and use narrative and numeric water quality objectives, including biological objectives, that use reference condition. These include many waterbody types, including streams, lakes, and rivers.

Comment:

3. Considering different expectations for different types of waterbodies is consistent with federal requirements for establishing water quality standards. The changes to the regulations governing establishment of USEPA water quality standards adopted in 2015 describe an approach that can be applied in the adoption of biointegrity objectives in the San Diego region that will yield consistency with both the Clean Water Act and the California Water Code (CWC). This approach aligns with the national goal described in Section 101(a)(2) of the Clean Water Act, which is “water quality that provides for the protection and propagation of fish, shellfish and wildlife and for recreation in and on the water, whenever attainable.”

*Note: The comment also includes additional information on pages 15-17 of the comment letter. The San Diego Water Board considered this information and the below response includes this consideration. The comment included the following recommendation:

The County requests that the San Diego Water Board develop information to address the attainability of the proposed water quality objective and associated beneficial uses in a manner that is consistent with USEPA water quality standards regulations and CWC requirements. Additionally, the Chapter 4 BPA should clearly allow for the development of Use Attainability Analyses (UAAs) and site-specific objectives, in accordance with USEPA regulations and CWC requirements for those waters that cannot attain the proposed Biological Objectives.

Additionally, the County requests that waterbodies with channel modifications that existing prior to the establishment of the first Basin Plan in 1975 be exempted from attaining the Proposed Biological Objectives.

Overall Recommendation to Address All of Above Comments (Phased Approach):
Modify the proposed Basin Plan Objective as follows:

1. Apply the narrative guidance and numeric compliance threshold to high quality waters (reference waterbodies and other waterbodies that are currently meeting the proposed numeric compliance threshold).
2. Use an antidegradation approach for all other waters to ensure that further degradation does not occur while further studies are conducted to evaluate the need for objectives or numeric compliance thresholds for these waterbodies in a future phase.
3. For waterbodies to which the antidegradation approach is applied, the implementation approach would include a process for evaluating the potential for improving waterbody condition and associated implementation actions that would result from those evaluations to encourage waterbody improvement.

45. Response 45:

Please see Response #44. Please also see Response# 1 for changes to the Stream Biological Objective for specific waterbodies and their potential future inclusion. The Stream Biological Objective will be used to assess and protect existing beneficial uses. Federal requirements for establishing water quality standards allow for the development

of different beneficial uses and water quality objectives to protect those uses. The referenced section of 40 CFR in the comment is relative to the setting of the Beneficial Uses. The proposed BPA does not designate new beneficial uses or propose to conduct a use attainability analysis to modify an existing designation. The modification of an existing designated beneficial use would require a separate focused Basin Plan amendment.

Comment:

4. Applying the proposed objectives to seasonal waterbodies creates significant challenges for sampling, identifying causes of lowered biological integrity, and determining the applicability of the objectives. These challenges need to be addressed before the objectives are applied to seasonal waterbodies.

*Note: The comment also includes additional information on pages 17-18 of the comment letter. The San Diego Water Board considered this information and the below response includes this consideration. The comment included the following recommendation:

Only apply the objectives to perennial streams during the first phase of objective development. Use results from the Statewide Biointegrity/Biostimulatory Plan to determine applicability and appropriate interpretation of scores from seasonal streams during a future phase.

46. Response 46:

The Scientific Peer Review for the proposed BPA specifically supported the inclusion of seasonal streams and found their proposed inclusion to be scientifically sound and appropriate. Please see Responses #8, #24, and #25. The CSCI use and applicability to seasonal streams is described in the draft Staff Report, and additional language has been included in response to comments to document its use in seasonal streams. Some additional clarifying information has been added to the draft Staff Report regarding the sampling of streams that are seasonal and exhibit variable flow regimes. The SOP contains prerequisite requirements for sampling a stream in order to meet minimum flow and sampleability requirements. The referenced Figure 15 in the comment exhibits a stream sampled and scored when the SOP was not met.

Comment:

5. There are inconsistencies between the Basin Plan language, the Draft Staff Report, and the Draft Substitute Environmental Document (SED) regarding the compliance requirements for Phase I stormwater permittees. This lack of clarity in the Basin Plan language prevents a complete understanding of the compliance requirements for Phase I stormwater permittees and, thus, an evaluation of the potential impacts on the County. Furthermore, the proposed implementation provisions for Phase I stormwater permittees will result in immediate non-compliance challenges that are not adequately addressed by the provisions.

*Note: The comment also includes additional information on pages 18-25 of the comment letter. The San Diego Water Board considered this information and the below response includes this consideration. The comment included the following recommendations [lettering added for response clarity]:

a)To address this concern, language should be incorporated into the BPA for Chapter 4, Section VI.A in the opening paragraph to state that “MS4s are only responsible for addressing pollutants causing or contributing to lowered CSCI scores to the Maximum Extent Practicable.”

Do not set the proposed Biological Objectives as a receiving water limit in the Phase I MS4 Permit. Additionally, the compliance discussion in the proposed Chapter 4 BPA, Section VI.A, should clarify what is meant by the “alternative compliance pathway option” as this terminology is also often used in the sense of land development. A reference should be added to refer to Provision B.3.c of the current Phase I MS4 Permit for San Diego.

b)Understanding that low CSCI scores that result specifically from engineered or modified channels (i.e., pollution), as opposed to resulting from stressors present in discharges (i.e., pollutants), ultimately would not be addressed through an NPDES Permit, clarification should be added to Section 5.3 of the Draft Staff Report to ensure that use of restoration options would not be required through enforcement in the context of a Phase I MS4 Permit.

Understanding that low CSCI scores that result specifically from engineered or modified channels (i.e., pollution), as opposed to resulting from stressors present in discharges (i.e., pollutants), ultimately would not be addressed through an NPDES Permit, clarification should be added to Section 5.3 of the Draft Staff Report to ensure that use of restoration options would not be required through enforcement in the context of a Phase I MS4 Permit.

c)Remove statements regarding “probable threat” as related to the Phase I MS4 Permit. The concept may be useful in other contexts where monitoring and assessment requirements may need to be determined but should not be used in reference to Phase I permittees.

d)Clearly articulate all Phase I MS4 implementation requirements in Section VI.A to provide clarity.

e)Add a footnote to the second bullet point to clarify that effluent limitations could only be developed for a pollutant identified through a causal assessment as contributing to the lowered CSCI scores and would not be developed for other pollutants just because they may be exceeding an objective (without identification of contribution through causal assessment) and that effluent limitations would only be included in MS4 permits after consideration of CWC Section 13241 factors.

f) Remove the requirement in Table TBD to notify the San Diego Water Board about the intent to use the alternative compliance pathway option.

g) Include a new section entitled Anticipated Time Schedule for Attaining the Stream Biological Objective. In the section, include language from the SED and Draft Staff Report regarding the expected time frame for the waterbodies to attain the objectives. Additionally, the BPA should allow for compliance schedules to be included in NPDES permits to provide time for dischargers to meet new permit requirements associated with the biological objectives.

47. Response 47:

Please see Responses #9 and #32 regarding implementation of the Stream Biological Objective in MS4 Permits. Chapter 4 of the Basin Plan amendment contains a description of the program of implementation to achieve the Stream Biological Objective.

a/d/e) The inclusion of specific language regarding the applicable State and federal law to affected regulatory programs in the implementation chapter is unnecessary. Please also see Response #2 and #32 regarding the appropriateness of including specific permit implementation and compliance language in a BPA.

No change was made in response to the request to not set the Stream Biological Objective as a receiving water limit. See Response #32. In addition, receiving water limits are, with few exceptions, incorporated in all NPDES permits. The commenter states that implementation of the proposed objective would cause immediate non-compliance with permit conditions and long-term compliance issues. However, no information is presented to show that this would occur. For instance, permit compliance is determined largely by whether discharges are causing conditions of pollution, in this case a CSCI score below 0.79. For a discharge to cause a low score, it would either contain pollutants that likely exceed other water quality objectives or contain such high velocity as to cause erosion to a degree that prevents a benthic community from thriving. In either case, the discharge would already be in potential non-compliance with existing receiving water limitations.

b) Please see Response #1 regarding modification of the Stream Biological Objective.

c) Please see Response #37 regarding the term “probable threat.”

f) Changes have been made to Chapter 4 in response to comments regarding the applicability of “the alternative compliance pathway,” including modification of the Table. However, such NPDES permit changes are appropriate for consideration during the permit issuance and re-issuance process.

g) The commenter requests a specific time schedule for attainment of the proposed Stream Biological Objective for waterbodies. The proposed BPA includes, as required under CWC (Section 13242), a time schedule for actions taken to achieve the proposed Stream Biological Objective in all affected waterbodies. These actions are associated with the implementation of permits, TMDLs, and other programs as specified in Chapter 4, the draft Staff Report, and the SED. They are not tools unique to the Stream Biological Objective. These regulatory actions have various timeframes that will differ from waterbody to waterbody depending upon which regulatory action(s) are necessary to achieve the proposed Stream Biological Objective. CWC Section 13242 does not require more under these circumstances.

Comment:

6. The proposed numeric compliance threshold is not tied to beneficial use protection, but to reference conditions, which may be better than the conditions required to meet beneficial uses. If the San Diego Water Board elects to use a reference approach to set an objective, then an analogous pool of reference sites should be used to reflect local environmental conditions.

*Note: The comment also includes additional information on pages 25-28 of the comment letter. The San Diego Water Board considered this information and the below response includes this consideration. The comment included the following recommendation:

If the San Diego Water Board elects to adopt a single threshold then change the proposed numeric threshold from 0.79 to 0.69, to better represent the dry portions of southern California. Include the threshold in Chapter 4, rather than Chapter 3 to allow for the threshold to be modified without a BPA if needed to incorporate new science and reference conditions. Furthermore, the San Diego Water Boards should consider a range of scores as acceptable to consider natural variability and climate change.

48. Response 48:

Please see Responses #3 and #6. Scientific Peer Review found the inclusion of the proposed Stream Biological Objective to be scientifically sound. In addition, future changes to the implementation language in Chapter 4 adopted as part of the proposed BPA would require a further basin plan amendment.

Comment:

7. The implementation approach as described is not likely to result in effective and efficient implementation. Much of the implementation approach relies on the ability to determine if dischargers are causing or contributing to lowered California Stream Condition Index (CSCI) scores and identifying the causes of the lowered scores. However, there are significant technical challenges with the available tools, and it may

not be possible to make these findings. The objectives do not provide any mechanisms to address situations where the causes cannot be clearly identified. The County also has concerns that the tools are not sufficiently evolved to support implementation as proposed, which will create inconsistencies in implementation and wasted resources when sources of lowered biological integrity scores cannot be identified.

*Note: The comment also includes additional information on pages 28-30 of the comment letter. The San Diego Water Board considered this information and the below response includes this consideration. The comment included the following recommendation:

The limited restoration potential of highly urbanized streams should be outlined in the policy, and appropriate restoration goals or alternatives should be considered for these urbanized systems. Remove requirements for restoration projects to only be considered successful if they attain the water quality objective.

Recommendations:

Modify Basin Plan Chapter 4.IV.A.1 as follows:

If data shows the impairment is not associated with the discharge of a pollutant (i.e. physical habitat and/or hydrologic impairment only), the San Diego Water Board will consider non-TMDL and non-NPDES permit approaches to address the impairment.

The San Diego Water Board will use the Stream Biological Objective to establish a restoration goal for the TMDL or TMDL Alternatives ...

The 401 template should provide guidelines when Stream Biological Objectives do not apply and when CSCI as a performance target for compensatory mitigation is not appropriate.

49. Response 49:

Please see Response #1. Please also see the response to Scientific Peer Review comments regarding restoration potential and proximity to quality benthic macroinvertebrate conditions.

The recommended changes to the proposed BPA have not been made. First, the request to clarify non-NPDES permit approaches is duplicative and potentially would conflict if non-TMDL approaches require an NPDES permit for implementation. Second, implementation of the Stream Biological Objective to restore an impaired stream would require the Stream Biological Objective threshold be met. Therefore, it would not be a “goal.” Third, the comment is incorrect as benthic macroinvertebrate analysis is not a standard condition in 401 Water Quality Certifications. The small size, disturbed nature, and dry conditions often result in no benthic macroinvertebrate monitoring requirements in CWA 401 Water Quality Certifications. Staff knowledgeable regarding benthic macroinvertebrate sampling consider additional factors such timing, duration, and implementation of BMPs and mitigations measures. All of these factors can vary project to project. The San Diego Water Board will evaluate and determine if Stream Biological Objective and CSCI monitoring is needed during the 401 application process. Lastly, 401 Water Quality Certifications are regulatory actions subject to public participation. As such, the inclusion of language specifying exactly when and where these requirements will apply is unnecessary.

Comment:

8. The proposed Biological Objectives project does not meet CWC Section 13241 requirements because it does not contain a sufficient analysis of the water quality that can be reasonably achieved through the coordinated control of all factors. Additionally, as demonstrated through the work conducted by the State Water Board, the proposed implementation program is unlikely to result in attainment of the objectives in many streams in the region. Additionally, the SED is deficient and has not adequately addressed impacts for each of the environmental topics.

The State Water Board’s CEQA implementation regulations describe the environmental documents required for BPA actions (CCR, tit. 23, § 3720 et seq. “Implementation of the Environmental Quality Act of 1970.”). Pursuant to California Code of Regulations title 23 section 3777, any water quality control plan, State policy for water quality control, and any other components of California's water quality management plan as defined in Code of Federal Regulations, title 40 sections 130.2(k) and 130.6, proposed for board approval or adoption must include or be accompanied by an SED and supported by substantial evidence in the administrative record.

As written, the SED supports inclusion of Biological Objectives as a helpful indicator of water quality in perennial and seasonal streams, but is lacking in details needed to fully understand the consequences of implementation, and thus, it is not adequate, complete or a good faith effort of full disclosure (CCR, tit. 14, § 15151) to support the adoption of

the Biological Objectives. The following paragraphs provide additional details to support this conclusion.

9. Additional clarifications and responses to questions are requested to reconcile the numerous inconsistencies between the Basin Plan Amendment (BPA), Draft Staff Report and the SED that raise uncertainties about how the objectives will be implemented. Due to these uncertainties, the County is unclear of the possible impacts the Biological Objectives will have on County operations.

*Note: The comment also includes additional information on pages 30-32 of the comment letter. The San Diego Water Board considered this information and the below response includes this consideration.

Increase the robustness of the analysis of possible environmental impacts and mitigation measures from the compliance activities anticipated to be required to comply with the Biological Objectives in order to meet adequate, complete or a good faith effort of full disclosure (CCR, tit. 14, § 15151) that is required of the analyses presented in a SED.

50. Response 50:

Please see Responses #1, #9 and #32. In addition, the proposed exclusion of hardened streambed segments is expected to reduce those impacts originally identified in the SED (though none were identified as potentially significant), and additional changes have been made to the SED in this regard.

The SED fulfills the requirements set forth in 23 CCR § 3777 and the environmental analysis is supported by substantial evidence in the draft Staff Report. In accordance with 23 CCR § 3777, the draft Staff Report considers a range of economic factors in its environmental analysis of reasonably foreseeable methods of compliance. The commenter does not provide any specific evidence that the level of environmental review under the SED is inadequate. As described in section 1.5.3, the reasonably foreseeable methods of compliance were analyzed, including for all sections of 1.5.4. In addition, the San Diego Water Board chose to include a discussion of mitigation measures for some analysis, even where no impact or less than significant impact was identified. This provides for a more thorough discussion of the project and provides transparency, and also identifies what mitigation measures a site-specific project can include regardless of impacts. While no mitigation measures were needed for these aspects of the projects, their inclusion in the discussion does not impact the final determination regarding the project. Furthermore, it is appropriate to conduct an evaluation and analysis that relies on the implementation of mitigation measures being included in an approvals process conducted by, and under the control of, the San Diego Water Board.

Information provided by the commenter regarding additional impacts is speculative and provides no details, outside of statements regarding “it only seems reasonable that more mitigation would be required” and an assertion that the level of analysis is insufficient because implementation is unclear. The perceived lack of clarity by the commenter is likely due to the requirement the project include a description of the program of implementation, and not conduct permit-specific or site-specific analysis. As such the San Diego Water Board did not speculate regarding site-specific impacts.

Table 2 in the comment letter identifies concerns with the SED analysis. Table 2 contains errors in the SED determinations of impact (e.g. GHG, Hydrology, Utilities) as identified in the checklist tables in Section 1.5.4 of the SED. The comment letter alleges unspecified deficiencies but provides no significant evidence that the environmental analysis is incorrect, or other evidence to show that additional analysis of any factors is needed.

Contrary to the comment letter, the SED does identify and evaluate additional and focused implementation measures as part of the evaluation of reasonable methods of compliance. The San Diego Water Board is not required to conduct a site-specific project level analysis of the methods of compliance or to engage in speculation or conjecture as to the methods of compliance.

Finally, the Mandatory Findings of Significance (Section 1.5.4 of the SED) have been modified to reflect the reduced scope of applicability of the Stream Biological Objective to exclude hardened streambed segments. See Response #1.

Comment:

Proposed Objectives Do Not Meet CWC Section 13241 Requirements

The proposed BPA would establish a water quality objective (i.e. “formal minimum standard”) for surface waters in the region which requires attainment of a CSCI score of 0.79. The BPA, Draft Staff Report, and SED are clear that, where discharges are determined to cause or contribute to degradation (i.e. a CSCI score of less than 0.79), permit and TMDL requirements will be established which require attainment of this CSCI index value in those waters.

These proposed actions raise serious issues with regard to the San Diego Water Board’s fulfillment of requirements stipulated in the CWC that are associated with the establishment of water quality objectives.

Section 13241 of the CWC requires that:

“Each Regional Water Board shall establish water quality objectives in water quality control plans as in its judgment will ensure the reasonable protection of beneficial uses and the prevention of nuisance; however, it is recognized that it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses. Factors to be considered by a Regional Board shall include, but not necessarily be limited to, all of the following:

- (a) Past, present, and probable future beneficial uses of water.
- (b) Environmental characteristics of the hydrologic unit under consideration, including the quality of water available thereto.
- (c) Water quality condition that could reasonably be achieved from the coordinated control of all factors which affect water quality in the area.
- (d) Economic considerations.
- (e) The need for housing within the region.
- (f) The need to develop and use recycled water.”

Section 13242 of the CWC requires that:

“The program of implementation for achieving water quality objectives shall include, but not be limited to:

- (a) A description of the nature of actions which are necessary to achieve the objectives, including recommendations for appropriate action by any entity, public or private.
- (b) A time schedule for the actions to be taken.
- (c) A description of surveillance to be undertaken to determine compliance with objectives.”

The SED includes text which purports to address CWC Section 12341[sic] requirements; it does not address CWC Section 13242 requirements. The subject text describes the regulatory mechanisms (permits, TMDLs, non-TMDLs, enforcement actions) that would be used to compel dischargers to achieve the proposed water quality objective. The text also makes general reference to actions that would be employed (e.g. monitoring, pollutant and flow controls, in-stream restoration actions). The SED implies, but does not demonstrate, that all waters in the region will eventually meet the proposed objective. This information is insufficient in fulfilling the requirement of Section 13241.

With regard to the requirement of Section 13241 (a), the SED fails to address the fact that some waters of the region do not currently achieve, and may not “probably” achieve, the beneficial use defined by attainment of the CSCI index score of 0.79. This failure to clearly acknowledge and quantify the status of beneficial uses is a fundamental flaw which hampers the overall Section 13241 and Section 13242 analysis offered in the SED. Such a determination would require consideration of actual data for waters in the region and quantification (e.g. an estimate) of the percentage of waters that do and do not currently meet the objective.

With regard to the requirement of Section 13241 (c), the SED falls far short of a credible assessment of the achievability of the proposed objective in all waters in the region. As a first step, the assessment should include a determination whether the objective is currently achieved in all waters (i.e., fulfillment of Section 13241 (a) requirements, as described above). As a next step, the assessment should include information regarding the ability for waters that do not currently meet the objective to achieve the objective as a result of remediation actions. This information should be based on some form of tangible analysis, e.g. case examples where such results have been observed to occur and information to indicate that remediation measures will be effective. The assessment must also include an analysis to demonstrate whether such measures are reasonable (i.e. feasible, proven, cost-effective, affordable). Finally, the assessment should identify waters that are not expected to ever meet the objective. This finding should inform the program of implementation for such waters, as required under Section 13242.

With regard to the requirement of Section 13241 (e), the SED includes arguments that the adoption of the BPA will not increase costs due to savings that will occur due to a reduction in existing permit and TMDL requirements. These arguments are non-specific and include questionable assumptions regarding (a) the ability to identify causative factors for water bodies which do not attain the desired CSCI value of 0.79 and (b) changes in existing requirements (e.g. chemical specific NPDES permit or TMDL requirements) as a result of implementation of the proposed biointegrity objective. With respect to (a), there is little evidence that causal assessments will yield specific solutions that lead to attainment of the proposed objectives. With respect to (b), such changes require significant regulatory actions which may or may not be approved and implemented. Therefore, the assumed economic benefits of the proposed objectives are unlikely to occur, and the economic analysis provided in the SED is insufficient in its detail and conclusions.

Recommendation:

Modifying the proposed objectives to a phased approach based on the County-proposed Antidegradation Alternative would allow for existing information to be utilized to address the concerns outlined above. Additional information could then be developed as part of the second phase of the project to support evaluation of the need for and identification of appropriate objectives for waterbodies that are covered by antidegradation objectives.

51. Response 51:

The draft Staff Report fulfills the requirements of CWC sections 13241 and 13242. Please see Responses #9, #32 and #50. Additional language has been added to the SED to clarify references to the other portions of the draft Staff Report that include factors and the program of implementation. These are found throughout the draft Staff Report, as well as in Chapter 4 of the proposed BPA, and are referenced to prevent duplicity. In addition, language has been added to the draft Staff Report and referenced for modifications to the scope of the Stream Biological Objective (see Response #1) related to the comments regarding CWC Sections 13241(a) and (c).

Comment:

To address the County's concerns, we support the proposal put forward by the California Stormwater Quality Association (CASQA) to first protect high quality streams and then adopt biological objectives for other waterbodies through a phased approach using the best science available and through a stakeholder-facilitated process. However, if the San Diego Water Board chooses not to adopt the CASQA recommendation, then the County requests consideration of a different phased approach based on the Antidegradation Alternative presented in the Alternatives Analysis section of the SED. The Antidegradation Alternative, with some proposed modifications, would consist of the following approach:

1. The narrative objective and numeric compliance threshold would be applied to high quality waters (reference waterbodies and other waterbodies that are currently meeting the proposed numeric compliance threshold).
2. The antidegradation approach would be applied to other waters during the first phase of objective implementation to ensure that degradation doesn't occur while further studies are conducted to evaluate the need for objectives or numeric compliance thresholds for these waterbodies.
3. The first phase of implementation would only include perennial waterbodies with the proposed biological objective of a 0.69 CSCI score, which reflects the 10th percentile of reference stream sites in southern California, until challenges with identification and implementation of the objectives in seasonal waterbodies are addressed.
4. The biological objective would not apply to highly modified and engineered streams until additional research can be conducted to evaluate the potential effects of harm to life and property from flood waters and to evaluate the best attainable biological conditions.
5. For streams to which the antidegradation approach is applied, the implementation approach would include a process for evaluating the potential for improving stream condition and associated implementation actions that would result from those evaluations to encourage stream improvement. This process would address the concerns with the Antidegradation Approach outlined in the Alternatives Analysis in Section 1.8 of the SED.

The County would like to work with the San Diego Water Board and other interested stakeholders to develop the phased alternative approach through a facilitated process. By working through a facilitated process, the County is confident an alternative approach can be identified for seasonal streams and constrained or engineered channels that will achieve the San Diego Water Board Project goals and address the County's concerns. The County has identified a number of significant concerns with the proposed objectives, primarily related to the application of the objectives to streams that are not high quality/reference streams. All of the concerns identified in this section could be addressed through the modifications to the proposed objectives outlined above.

52. Response 52:

CASQA's proposal referenced in this comment was considered but no changes were made directly in response (see response in Section 4.k below). See also Responses #1 and #32.

Comment:**Unclear Scope of Sampling and Spatial Representativeness of Scores**

The Draft Staff Report is silent as to how many samples and over what timeframe benthic community condition needs to be demonstrated for a reach to be considered impaired. The State currently has specific guidance for how multiple site/event data should be compiled to make regulatory assessments. The State's May 2010 Workplan for Developing Biological Objectives for Perennial Wadeable Streams in the State of California states, "Topics such as how many sites are needed per waterbody, how many sample events over what period of time, the precision or error inherent in the stressor response model, and how large the magnitude of impairment, should all be factors used to decide if a site is defined as biologically impaired." Additionally, the Draft Staff Report does not specifically state whether benthic macroinvertebrate data collected outside of the recommended index periods would be considered in an assessment of impairment. Similarly, more guidance is required to define what spatial extent is represented along a stream reach by a CSCI score. The California Stormwater Quality Association (CASQA) contracted SCCWRP to evaluate the spatial variability of bioassessment monitoring to determine the distances that CSCI values could be extrapolated beyond single-site observations (Mazor et al., 2017). The spatial stream network (SSN) models utilized did not support a general extrapolation distance that works in all settings given the large variability observed among and within watersheds. Rather, the study found that SSN models offer a way to support management decisions by creating maps of site-specific and spatially extrapolated CSCI scores along a drainage network. The Biological Objectives for the San Diego Region would benefit from applying this developing science.

53. Response 53:

The implementation chapter and draft Staff Report specify that attainment of the Stream Biological Objective, for Integrated Reporting purposes, will be evaluated in accordance with the Listing Policy. This policy specifies the number of samples needed to identify a waterbody as impaired. The Listing Policy provides guidance for evaluating the extent of impairment for a waterbody (spatially and temporally, see section 6.1.5 of the Listing Policy). Additional guidance is not necessary for this purpose.

Because an impairment listing is simply the identification of a waterbody that is not meeting a water quality standard(s), further investigation of impairments through multiple available tools is typically needed to document the extent and magnitude of the impairments, identify sources, and determine the proper course of restoration.

The San Diego Water Board incorporated research conducted to date on stream intermittency, including the applicability of the suggested index period into the Stream

Biological Objective, as described in the draft Staff Report. The scientific peer reviewers identified this approach as scientifically sound.

Comment:

Unclear how the Example Waterbody Prioritization is Aligned with the Compliance Requirements. The County appreciates the discussion in the Chapter 4 Basin Plan language and the Draft Staff Report about potential prioritization options for different waterbodies that could be used in the Water Quality Improvement Plan. However, the County is unclear on how this can be implemented if receiving water limitations are included in the Phase I MS4 Permit. Because the receiving water limitations require the same objective to be obtained in all waterbodies, how can different priorities be utilized in a Water Quality Improvement Plan and obtain compliance with the permit requirements? It seems that the alternative compliance pathway (Provision B.3.c of Phase I MS4 Permit) would be the only mechanism for obtaining compliance with the receiving water limitations and that provision requires a quantitative demonstration that the objectives will be attained. If non-pollutant discharges are contributing to the lowered CSCI scores, how can the alternative compliance pathway coverage be attained?

The objectives set the expectation that all waterbodies will attain reference conditions at some point in the future and the implementation provisions in Chapter 4 do not provide any clarification that different approaches or expectations will be set based on existing waterbody constraints. The County is concerned that the proposed objectives would make evaluating, prioritizing and explaining required actions to the public and decision makers challenging when potentially unattainable numeric objectives are applied to urbanized waterbodies.

54. Response 54:

Please see Response #1 regarding the proposed reduction in scope of the Stream Biological Objective and its attainability in urban areas.

The proposed Stream Biological Objective will be implemented as a receiving water limit in NPDES permits, including the Regional Phase I MS4 Permit. The mere existence of a Stream Biological Objective exceedance in a receiving water does not automatically result in discharger non-compliance with an MS4 Permit receiving water limitation. The proposed Stream Biological Objective is dependent upon the chemical and physical condition of the stream. Therefore, a stream's chemical condition may be good enough to support the proposed Stream Biological Objective, but other conditions (e.g. physical habitat degradation) may not. In addition, it is possible for poor chemical condition to be unrelated to a Copermittee discharge. The cause of the poor physical or chemical condition may be the result of discharges or other factors not caused by or contributed to by municipal discharges regulated by the Regional MS4 permit. To respond to an evaluation for permittee compliance with the objective, a Copermittee(s) would provide supporting documentation that their discharge is not causing the exceedance of the Stream Biological Objective.

For the proposed Stream Biological Objective, as with all other water quality objectives, a determination of non-compliance with a receiving water limit requires a discharge to be shown to have caused or contributed to the exceedance of the water quality objective. Discharges of pollutants that are found to adversely affect CSCI scores are likely to also exceed receiving water limitations for chemistry-based water quality objectives. In addition, the commenter appears to confuse the receiving water condition with specific permit compliance requirements. All of the watershed management areas in the Regional Phase I MS4 Permit have WQIPs that have been accepted by the San Diego Water Board and are currently being implemented by Copermittees. Each WQIP includes an adaptive planning and management process that identifies the highest priority water quality conditions and other priority water quality conditions within a watershed.

The Regional Phase I MS4 Permit requires use of a prioritization process, recognizing that the achievement of water quality objectives (including the proposed Stream Biological Objective) at all times in all watersheds will occur over time using adaptive planning and program management. Each Copermittee implements strategies through their jurisdictional runoff management programs to achieve improvements in the quality of discharges from the MS4s and receiving waters to address the identified priorities in accordance with the compliance schedules in the WQIPs. Provision B.2.a of the Regional Phase I MS4 Permit identifies the process by which a Copermittee must consider factors, including biological water quality conditions and bioassessments as part of the prioritization process described in each WQIP. Provision B.2.c of the Regional Phase I MS4 Permit, allows for the Copermittees to prioritize water quality conditions as pollutants, stressors, or receiving water conditions that are the highest threat to the receiving water quality or that most adversely affect the quality of the receiving waters. This prioritization process for identifying priority and high priority water quality conditions would not change with addition of the proposed Stream Biological Objective. The proposed Stream Biological Objective would simply be an additional numeric objective that contributes to the description of the condition of the receiving water.

The current Phase I MS4 permit contains permit requirements regarding compliance with receiving water limitations. The comment correctly notes that provision B.3.c is an option that allows compliance with provision A of the Regional Phase I MS4 Permit for the proposed Stream Biological Objective. Please see Response #32 regarding implementation of provision B.3.c and the prioritization process for priority and high priority water quality conditions in the watersheds.

However, B.3.c is not the only way to demonstrate compliance with a receiving water limit if there is an alleged violation. In order for a permittee to be out of compliance with a receiving water limit, (1) a receiving water limit/ objective must be exceeded, and (2) the discharge must be shown to cause or contribute to the exceedance. Provision A.2.a of the Regional Phase I MS4 Permit requires that discharges from the Copermittees' MS4 must not cause or contribute to the violation of the water quality standards in receiving waters. There are mechanisms that allow a Copermittee to demonstrate that their discharge is not causing or contributing to the exceedance of any water quality objective in the receiving water. In these instances, a Copermittee can provide documentation that their discharge is not causing or contributing to the exceedance.

See also Responses #32 and #47.

Comment:

Discussion of Natural Conditions is Inconsistent between Chapter 3 and Chapter 4 Basin Plan Language

The proposed Chapter 3 Basin Plan language states:

Alternative analytical methods approved by the San Diego Water Board are allowed for determining compliance if the cause of a low CSCI score is natural in origin. Alternative

methods include other indices of biological integrity or physical habitat and sediment or water chemistry.

The proposed Chapter 4 Basin Plan language states:

Compliance Determination: San Diego Water Board must make the determination that the CSCI is inappropriate due to natural conditions. If this finding is made, the Compliance Determination section in Chapter 4 does not apply. The differences between the two chapters should be resolved. If the cause of the lowered CSCI score is natural, the objective should be considered attained and alternative indicators should not be needed. This is the approach proposed in the Statewide Biological Objectives Framework prepared by the State Water Board (see example flow chart in the attachment).

55. Response 55:

Please see Response #16 regarding the alternative methods where a low CSCI score is due to natural factors. The alternative methods language from Chapter 3 has been moved to Chapter 4 for clarity and consistency.

The proposed Chapter 4 language regarding permit implementation states:

“Where the San Diego Water Board has determined that the CSCI is inappropriate due to natural conditions, the San Diego Water Board will consider alternative evidence of biological condition (e.g. Algal Index of Biotic Integrity for Southern California Streams” scores, “California Rapid Assessment Method” (CRAM) scores, and sediment or water chemistry) and this section does not apply.”

If a cause of a low CSCI score is determined to be natural in origin by the San Diego Water Board, the permit compliance section referenced does not apply. However, the other alternative indicators will be considered by the San Diego Water Board during the permitting process as potential monitoring methods to ensure a discharge does not cause or contribute to impacts to beneficial uses.

Comment:

The Draft Staff Report and Chapter 3 Basin Plan Language are Unclear as to whether the Objective is Narrative or Numeric or the Time Period for Applicability of the Objectives

The Chapter 3 Basin Plan language appears to be a narrative objective with a numeric compliance threshold, but the Draft Staff Report states that 0.79 is a numeric objective. Please ensure the Draft Staff Report is consistent with the Basin Plan Language. The Proposed Biological Objectives were developed based on monitoring data collected in accordance with required sampling protocols. As noted in the Draft Staff Report: “For the Stream Biological Objective, samples should be collected when streams are at or near base flow (i.e., not influenced by storm runoff), as sudden flow increases can displace benthic organisms from the stream bottom and dramatically alter local

community composition (Ode et al. 2016b). State of California methods require sampling be carried out at least two, and preferably, three weeks after any storm event that has generated enough stream power to mobilize cobbles and sand/silt capable of scouring stream substrates (Ode et al. 2016b)."

The monitoring protocols clearly note that storm events can alter the local community composition and samples should not be taken until the community is reestablished. As a result, the proposed Biological Objectives should not apply during wet weather events and the three weeks after the storm event. Additionally, the recommended sampling period for waterbodies is between March 1 and August 15 (Table 4). There is no evidence that the proposed numeric thresholds can be attained outside of the recommended sampling period or during wet weather events. The Chapter 3 BPA should clearly state that the objectives are only applicable between March 1 and August 15 and not during wet weather events or the three weeks following the storm event.

56. Response 56:

First, the Stream Biological Objective is a numeric objective (see Table TBD in Chapter 3). To the extent the comment questions attainment of the proposed Stream Biological Objective during wet weather in modified streams, please see Response #1 and revisions to Chapter 3 excluding hardened streambed segments for purposes of the proposed objective. In addition, in response to this comment and Scientific Peer Review comments, clarifying language has been added to Chapter 4 and the draft Staff Report (Section 4.5) to explain the distinction between the sampling period and use of Standard Operating Procedures to calculate the CSCI and the appropriateness of requiring compliance with the objective even during wet weather.

Existing evidence shows that numeric thresholds can be attained outside of the recommended sampling period. The CSCI development dataset included samples collected during baseflow conditions during fall months, as bioassessment was historically often conducted twice per year at select sites. However, prior work by the State of California recommended reducing sampling to the early portion of the year to reduce costs, which was included in the Ode et al. 2016b SOP update. Beneficial uses which the proposed Stream Biological Objective protect apply year-round, and thus the Stream Biological Objective applies year-round, as discharges during any time of the year can impact resident stream organisms. However, in order to obtain a representative sample by which to use the CSCI for the purpose of assessing the Stream Biological Objective, and thus beneficial use attainment, sampling must occur during the prescribed time period and follow State of California protocols.

The comment implies that the Stream Biological Objective should not apply during wet weather, or outside the sampling period, because the sampling protocol would not allow for sampling during wet weather. While the Stream Biological Objective applies year-round, CSCI results from sampling of benthic macroinvertebrates during storm events, (i.e., outside of bioassessment periods in the Stream Biological Objective, or not

consistent with the SOP) would not be used to evaluate whether a stream is achieving the Stream Biological Objective.

Comment:

Redline/Strikeout of Basin Plan Amendment Chapters 3 and 4 If the San Diego Water Board elects to not adopt the CASQA recommendation of a phased approach to applying the Biological Objectives or the County-modified Antidegradation Alternative, but instead chooses to go forward with a single threshold, then County has provided for your consideration a redline/strikeout version of the Chapter 3 and 4 of the BPA as an attachment.

*Note: The comment includes additional information on pages 38-66 of the comment letter that consists of proposed redline/strikeout language. The San Diego Water Board considered this information and the below response includes this consideration.

57. Response 57:

The San Diego Water Board has considered the redline/strikeout language and has made changes where appropriate for general clarification.

f) Commenter: County of San Diego Copermittees

Comment:

The County of San Diego on behalf of the cities of Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Marcos, Santee, Solana Beach and Vista, San Diego County, Regional Airport Authority, and the San Diego Unified Port District (Copermittees), appreciates the opportunity to provide comments on the proposed Basin Plan Amendment to Incorporate Biological Objectives for Perennial and Seasonal Streams in the San Diego Region (Proposed Objectives). The San Diego Regional Water Quality Control Board (Regional Water Board) is proposing to amend its Basin Plan for the San Diego Region to include narrative guidance for all surface waters and a numeric objective for perennial and seasonal streams, with benthic macroinvertebrate community condition being the primary indicator.

The Copermittees support the use of in-stream biology as a holistic way to measure aquatic life beneficial use attainment through the assessment of benthic macroinvertebrate community health. Although the Copermittees support the development of the Proposed Objectives in general, and the use of in-stream benthic macroinvertebrates community health as a relevant endpoint, the Copermittees have concerns about the approach based on the available science and also, have concerns on how the policy will be implemented for Phase I Copermittees.

Technical concerns about the Proposed Objectives include the use of a single-bright-line threshold to define compliance, the application of biological objectives to biologically constrained streams, the use of causal assessments in identifying the cause of

impairment, and the applicability of biological indices to the entire flow spectrum of seasonal streams. Additionally, the Copermittees are concerned that the Proposed Objectives as written does not present a clear presentation of the implementation pathway and results in numerous questions about the application and implications of the objectives. As discussed later in this letter, the Copermittees believe that these deficiencies are inconsistent with requirements in Sections 13241 and 13242 of the California Water Code (CWC) for developing and establishing water quality objectives.

Furthermore, the Basin Plan language for Chapters 3 and 4 do not reflect the implementation for Phase I Copermittees that is presented in the Draft Staff Report and draft Substitute Environmental Document. Unless, the Basin Plan language is updated to reflect the long-term intent of many decades to restore constrained and engineered channels to natural conditions, the Proposed Objectives will not effectively achieve the proposed goals, and the implementation as envisioned by the Regional Water Board is unlikely to be realized.

Other potential approaches exist that could meet the CWC requirements, provide the same beneficial use protection as the Proposed Objectives, and achieve the goals established for the project. The Copermittees support the alternative approach as proposed in the letter prepared by the California Stormwater Quality Association. In this approach, the Proposed Objectives would be applied to high quality waters to maintain their protection. As biological objectives for other waterbodies are being developed, interim objectives based on antidegradation would apply, including monitoring, assessment, and consideration of California Stream Condition Index (CSCI) scores in identifying and prioritizing actions. Then, the biological objectives for other waterbodies would be developed in a second phase. While the biological objectives for other waterbodies are developed, interim objectives based on antidegradation would apply to the other waterbodies and monitoring, assessment, and consideration of CSCI scores when identifying and prioritizing implementation actions would be required. The development of the second phase biological objectives would be done through a facilitated stakeholder group with access to the most up-to-date science and include consideration of the implementation requirements necessary to attain the objectives, as required by the CWC.

58. Response 58:

Please see Response #1 regarding changes to the scope of the proposed BPA. The CASQA approach is discussed in the response to comments received by CASQA. The proposed Stream Biological Objective has been modified as described in Response #1, which has been revised to exclude hardened streambed segments. Additional responses to the technical concerns are included below. Please see Response #43, #44, and #51 regarding a proposed phased approach.

Comment:

If the Regional Water Board elects to not consider this alternative approach and continues with setting a numeric objective for all streams, then the Copermittees request that the following recommendations be incorporated when revising the Proposed Objectives for consideration by the Regional Water Board for adoption.

Recommendation 1: Revise the Proposed Objectives from a Single Bright-Line Threshold to Reflect Natural Variability and Analogous Reference Locations

The narrative guidance is being translated using a single bright-line numeric biological objective for assessing biological integrity of perennial and seasonal streams within the San Diego Region. The benthic macroinvertebrates community is being used as the single line of evidence to assess if biological integrity meets the objective, with the CSCI used as the sole measure of compliance. While the CSCI incorporates data from unaltered analogous reference sites to derive a site-specific CSCI score for an individual site being sampled, the bright-line 0.79 CSCI threshold is derived from the 10th percentile of the entire statewide reference pool data distribution. The single statewide threshold is not clearly linked to beneficial use protection, does not consider natural variability, and is not based on analogous reference data for the San Diego Region. This bright-line approach to determining impairment will result in two thirds of streams in the San Diego Region to be out of compliance, whether or not they have the ability to sustain a benthic macroinvertebrate population that would meet the Proposed Objectives as illustrated in Figure 1.

59. Response 59:

Please see Responses #2, #5, and #17 regarding the use of the CSCI threshold and reference approach. The proposed use of the CSCI as a numeric objective was found by Scientific Peer Review to be scientifically sound.

It is also misleading to reject the use of the Stream Biological Objective based on the potential for streams to not be currently achieving the objective. Evidence in the draft Staff Report and examined by Scientific Peer Review supports the conclusion that streams in the region can meet the proposed Stream Biological Objective, and the proposed BPA includes implementation measures for doing so.

It is understandable the Phase I MS4 Copermittees are concerned about being in compliance with their discharge permit. Currently many streams in the Region downstream of MS4 discharge points do not meet existing water quality objectives (see Integrated Report). MS4s, therefore, are potentially responsible for reducing loads of many chemical constituents. Use of the proposed Stream Biological Objective and its implementation plan, however, will allow for a more informed approach for estimating and reducing the causative constituents from MS4 discharges. See also Responses #2, #32, #47, and #54 regarding implementation of the objective in MS4 permits.

Comment:

Support Statement: The Proposed Objective is not Clearly Linked to the Protection of Beneficial Uses

The selection of the 10th percentile of reference sites is not linked to the protection of beneficial uses. The Mazor et al. 2016 report created four bins of the distribution of scores at reference sites with recommendations for the following classes: “likely to be intact (>30th percentile of reference calibration site CSCI scores), possibly altered (10th–30th percentiles), likely to be altered (1st–10th percentile), and very likely to be altered (<1st percentile).” The rationale for the selection of the bins, as cited below, was not based on a link to beneficial uses and notes that other approaches could be equally valid for determining thresholds.

“The rationale for these thresholds was to balance Type 1 errors (inferring degradation when it does not exist) and Type II errors (inferring a site is in reference condition when it is degraded). Similar thresholds have a precedent in bioassessment literature, but other methods for setting thresholds are possible, and if applied, might be equally valid.” (Mazor et. al 2015)

The arbitrary selection of the 10th percentile from the binned distribution of reference scores assumes beneficial uses are not protected when sites deviate from reference sites to this degree. A clear linkage between the 10th percentile of reference sites and protection of beneficial uses needs to be shown in order to use this threshold as a water quality objective.

60. Response 60:

Please see Response #5 regarding use of the 10th percentile threshold. The selection of the 10th percentile was not arbitrary and the rationale and the evidentiary support for its use are discussed extensively in the draft Staff Report. The proposed approach, including the use of the 10th percentile threshold, was found Scientific Peer Review to be scientifically sound.

Comment:

Support Statement: Having a Single CSCI Threshold as an Objective Ignores the Variability in Biological Condition Measurements and does not Account for Climate Change

A single threshold contradicts much of USEPA’s recommended guidance for setting biological criteria which states that as impaired surface waters improve, states should reclassify those waters to reflect a refined designated use with a higher level of biological integrity. This provides a mechanism for progressive water quality improvement. A single threshold and lack of tiered uses removes the mechanism to progressively improve biological integrity. The single bright-line threshold means that the regulatory difference between an impaired waterbody and unimpaired waterbody is a margin of 0.01 CSCI unit, which ignores the natural variability of biological

measurements and that biological condition represented by CSCI scores is a gradient. The biological condition in a waterbody does not suddenly become impaired once the CSCI score drops below 0.79. Having a score below 0.79 only means that the waterbody is possibly altered from reference condition.

The State Water Resources Control Board's (State Water Board) effort to implement a Statewide Biostimulatory/Biointegrity Project (using benthic macroinvertebrates and algae) recognizes that a range of CSCI scores can be associated with good biological conditions. As part of the statewide effort, a Biological Condition Gradient (BCG) model has been developed. The BCG analyses indicate that a single CSCI threshold, such as the 10th percentile of reference (0.79), should not be construed as a bright-line to determine impairment, but rather that sites considered as meeting the same narrative biological and ecosystem standard of structure and ecological function, can span a wide range of CSCI scores (see Figure 2).

Additionally, CSCI scores at a single site can range significantly over time, with high quality sites scoring above the proposed biological objective during some years and below in other years. Figure 3 shows measured data from the Santa Margarita River Watershed. Even in high quality waterbodies that are likely near reference condition (waterbodies in blue at the top of the chart), CSCI scores vary over time and can fall below the Proposed Objective in some years.

The peer reviewers for the Proposed Objectives, while generally supporting the objectives, noted in several cases the need to clarify or consider natural variability when developing the objectives. Dr. Cao had the following comments:

- S4.4.3, P41, Par 1, “however, due to . . . Figure 5).” Some other factors may also contribute to the uncertainty in CSCI, including sampling variability, modeling errors, and unknown random processes.”
- S4.4.4, P44, “regarding natural occurrence factors. As I mentioned earlier, a CSCI score slightly lower than the 10 percentile may be due to sampling variability. If so, re-sampling may be needed to confirm the result.”
- P18, Par 3, “when a CSCI score reference sites.” Two questions: i) how is interannual variability calculated? Over how many years? ii) how to define “similar reference sites”? In the case of O/E Index, stream groups are defined. One may take the sites in a group to which a test site is predicted to belong with the highest probability as “similar reference sites”. However, in the case of CSCI, no stream groups are defined. Clarify.”

Dr. Edwards noted that: “Streams with scores below the criteria will be confirmed through an additional process to ensure that the stream is truly different than the reference site.”

In support of Dr. Cao's and Dr. Edwards' positions, Dr. Lytle noted the following:

- "One challenge for the methodology -- a challenge that is common to most biomonitoring studies -- will be how to account for natural seasonal and interannual variability in benthic invertebrate community structure."
- "Some clarification on how the methodology could account for known seasonal and inter-annual variances in community composition could be discussed. For example, it is well known that there is a degree of turnover or detectability in invertebrate communities from year to year (McElravy et al. 1989 J. North American Benthological Society, Resh et al. 2005 Freshwater Science), which will lead to some differences in community structure and possibly condition. Similarly, California and other Mediterranean climate streams exhibit a seasonal oscillation in community composition with EPT (Ephemeroptera, Plecoptera, Trichoptera) more dominant during winter and wet years and OCH (Odonata, Coleoptera, Hemiptera) increasing in summer or dry periods (Bonada & Resh 2013 Hydrobiologia, Tonkin et al. 2017 Ecology). The latter point may be addressed somewhat by standardization of sampling timing (as is discussed in section 4.5 and in Ode 2016b), but the occurrence of wet or dry year types may affect the results as well."

Finally, the states of Arizona, Ohio and Maryland recognized that having a single threshold value was not appropriate for setting numeric biological integrity objectives. In all three cases, ranges and additional thresholds were included to account for natural variability. In Arizona, lower scores that were confirmed by a higher score, were not considered impaired. In Ohio, the criteria include a range of values that are considered to be an "insignificant departure" based on the "variability inherent to each index."⁵ In Maryland, the attainment of the biological objectives for integrated reporting purposes is based on a calculation that uses the average interannual variability of the index (between 9 and 13%) to develop a minimum assessment threshold. The minimum assessment threshold is between 0.35 and 0.5 units below the objective depending on the index. Waterbodies are not considered impaired unless scores fall below the minimum assessment threshold that is lower than the water quality objective to reflect natural variability.

The selection of a single numeric value also does not account for climate change and natural temperature and flow variations that can have significant impacts on biological integrity. As noted in EPA's Final Report: Consequences of Global Climate Change for Stream Biodiversity and Implications for the Application and Interpretation of Biological Indicators of Aquatic Ecosystem Condition, climate change is likely to have significant impacts on reference biological condition scores, resulting in their inability to attain the biological objectives.

"From a bioassessment context, our analyses indicate that climate induced changes in local biodiversity could significantly compromise the applicability of currently used biological indices. These indices are based on measures of departure between observed taxa and those expected to occur under reference conditions. Most bioassessment programs in the USA base assessments of individual site condition on estimates of reference conditions derived from data collected between 1980 and 2010.

By 2100, climate induced changes in biotic composition would result in many reference sites being assessed as biologically impaired (Fig. 11c) relative to currently estimated reference conditions.”

61. Response 61:

Please see Response #5 regarding the use of the CSCI threshold, as well as Response #3, #6, and #43 regarding the use and applicability of the BCG. And, please see responses to the full Scientific Peer Review comments.

The comments referred to in the comment by Dr. Cao were regarding implementation of the objective. Scientific Peer Review comments received supported the proposed Stream Biological Objective as scientifically sound. For example, Dr. Cao concluded:

“Some other factors may also contribute to the uncertainty in CSCI, including sampling variability, modelling errors, and unknown random processes. However, 10th percentile appears appropriate as the threshold.”

The full comment from Dr. Edwards is as follows:

“The CSCI score will be used as the biological objective to determine compliance. The CSCI utilizes both a multimetric index and a ratio of observed-to-expected taxa (Mazor et al 2016). The CSCI threshold criteria will be established at 0.79, which is the lower 10th percentile of all reference streams. The CSCI method has been validated and published in the peer reviewed literature (Mazor et al 2016). The lower 10th percentile is a reasonably conservative threshold for identifying unimpaired streams and reflects the reality of balancing the potential for generating false positives and false negatives. Streams with scores below the criteria will can be confirmed through an additional process to ensure that the stream is truly different than the reference site. The assumptions and methods to set the water quality objective as a percentile of reference using the California Stream Condition Index is scientifically sound, incorporates a margin of safety, and will identify sites that have a degraded biological condition. The allowance of site-specific scientific information on the physical, chemical, and biological condition of specific sites to prevent false positive identifications of impairment is scientifically sound.”

Please see Response #16 regarding clarifications made in the process for identifications of false positives.

Please see Response #44 regarding the setting of biological objectives by other states.

The use of a CSCI threshold is resilient to climate change. The State of California maintains a reference condition management program for streams that conducts annual bioassessment sampling of a network of reference sites, including those used in CSCI development. As discussed in the draft Staff Report, the 10th percentile can and should be updated if/when determined that climate change is resulting in modifications of the ability of the proposed threshold to determine impacts to stream communities from local

anthropogenic sources independent of climate change. Scientific Peer Review found the approach to be scientifically valid in regard to climate change. For example, peer reviewer Dr. Lytle stated:

“The reference approach is well-formulated and likely to be robust to variability across site conditions and changes due to land use and climate change.”

Comment:

Support Statement: The Proposed Objective is Based on an Inappropriate Reference Threshold Derivation for Southern California

While the CSCI score for an individual site sample is derived from analogous reference streams, the CSCI numeric objective threshold of 0.79 is derived from the 10th percentile of the entire statewide reference pool data set distribution. This statewide distribution contains many non-analogous reference sites, as the statewide reference pool encompasses sites from all regions of California, including extreme northern California and the Sierra Nevada Mountains which are much different than reference streams in xeric southern California. Including non-analogous sites from these other regions in the pool used to derive the numeric criteria skews the 10th percentile of the distribution upward, resulting in an overly conservative CSCI threshold of 0.79 for the San Diego Region xeric streams. This topic was addressed by Dr. Mazor of SCCWRP during the Public Workshop on May 15, 2019. Dr. Mazor indicated that if only the state bioassessment sites were used for the San Diego Region, then in fact a more conservative value than even 0.79 would result. This appears to be because so many of the reference sites in the San Diego region are in the mountains at high elevations. However, Dr. Mazor did indicate that looking at a wider area of southern California than just San Diego would result in a less conservative value. This alternate approach further discussed below is requested by the Copermitttees to be considered in lieu of the proposed 0.79 CSCI threshold.

A more appropriate CSCI numeric objective would be derived from streams physically, hydrologically, and geographically most similar to San Diego Region streams. Figure 3 of the Mazar et al (2016) paper describing the development of the CSCI, distinguishes the sites primarily in the southern California coastal xeric region (Group 8) from sites in the transverse ranges (mountains) of southern California, (Group 10) as distinct biological clusters. Based on the output of the CSCI analysis tool for a typical San Diego Region stream, these two cluster groups are overwhelmingly the most “analogous” sites within the statewide reference pool. The 10th percentiles for these two clusters are quite different at 0.66 (Group 8, coastal xeric) and 0.80 (Group 10, mountains). The 10th percentile CSCI score of the combined distribution of these two more appropriate and analogous reference groups for the San Diego Region, would result in a numeric objective threshold of 0.69. The difference in these two reference groups from other sites in the statewide reference pool is highlighted in the Mazar et al (2016) paper in which it is stated that Groups 8 through 11, which are all predominantly in the southern portions of the state, “were generally drier and hotter than other groups, whereas groups 1 through 5, predominantly in mountainous and northern regions, were relatively wet and cold”. The paper also stated that Group 8 had the lowest number of expected taxa (with capture probabilities >0.5) among all groups across the state (7 taxa), and that Groups 8, 10, and 11 were the only statewide cluster groups where the median expected taxa was less than 10. The four groups in the southern portion of the state also display other distinctly different biological characteristics than the remaining seven groups. Some of these differences are illustrated in the table below.

The technical justification for using a single Statewide threshold (as provided in the Draft Staff Report Appendix 1, S1) is the lower error rate of the predictive model (the current CSCI model) versus the null model (non-predictive model), with the error rate being the percent of sites considered reference that fall below the 0.79 numeric threshold (i.e. false positive). While the predictive CSCI model did bring down the error rate, the South Coast sites used in this analysis are a composite of the southern California coastal xeric region and transverse ranges. In Figure 4 of the Mazar et al (2016) paper, the South Coast mountain and xeric regions are separated for analysis purposes. These two regions have among the largest variability in reference O/E and CSCI scores, and validation data suggests that the South Coast mountain reference sites are biased upwards, while the South Coast xeric (coastal) reference sites are biased downward. If the same analysis performed in Appendix S1 were performed separately on South Coast xeric and mountain sites, the results would look much different. The error rates (i.e. reference sites not meeting the 0.79 CSCI criteria) for the South Coast xeric sites would be much higher than the other regions.

Additionally, many states, some much less geographically and climatically diverse than California, have recognized the need for regional thresholds within their state to accommodate the various differences in ecoregion, geography, or habitat type. Currently Mississippi, Alabama, Idaho, Colorado, New Mexico, Indiana, Illinois, Ohio, Minnesota, Montana, Wisconsin, and North Carolina all have multiple intra-state benthic macroinvertebrates thresholds, and Massachusetts and Michigan are currently in the process of developing variable indices and thresholds by ecoregion. So, a precedent has certainly been set by other states for regional indices and approved of by USEPA. For these reasons, the selection of 0.79 as a single, bright line biological objective is not clearly linked to beneficial use protection, does not account for interannual and natural variability in biological integrity measurements or climate change impacts, and was not derived using the most representative reference data for the San Diego Region.

Recommendation 1 Summarized: Change the Proposed Numeric Biological Objectives from 0.79 to 0.69, to better represent the dry portions of southern California. To account for natural variability and climate change, include a new provision that states: Waterbodies with CSCI scores within 0.6 (0.63) of the objective are considered attaining the objective.

62. Response 62:

Please see Response #5 regarding use of a single CSCI threshold. The proposed Stream Biological Objective was found to be scientifically sound by the Scientific Peer Review.

Many other states have developed regional thresholds due to the use and development of unmodeled indices and thresholds. For example, the state of Arizona developed different thresholds for biological objectives because the same unmodeled index is used across natural gradients, resulting in natural bias in metric scores (Please see Response #44). As identified in the draft Staff Report, in earlier years the State of California developed regional indices of biotic integrity (and thresholds). The shortcomings of this approach were identified early on in the statewide biological objective efforts, and the State of California funded the development of a modeled index (the CSCI) specifically to control for these natural factors and avoid the development of unmodeled regional indices.

Comment:

Recommendation 2: The Proposed Objectives Should Include Alternative Approaches for Modified/Engineered Channels

The Copermittees support protection of high-quality waters and improving waterbody conditions where possible and appropriate. However, the Copermittees have concerns that the objectives as written are not achievable in all waters and the implementation provisions provided in Chapter 4 do not adequately address the acknowledged constraints on biological integrity in these waterbodies.

Support Statement: Analogous Reference Sites for Modified Channels have not been Determined

The CSCI analysis tool uses analogous sites within the statewide reference pool to derive its reference score. However, many modified channels in urbanized settings do not have appropriate analogs within the reference pool, even though they may share similar characteristics (elevation, watershed area, temperature and precipitation patterns, etc.). This problem of identifying analogous reference sites for modified streams is acknowledged in Section 5.1 of the Draft Staff Report. Section 5.1 indicates that in highly modified systems a healthy benthic macroinvertebrate community considered equivalent to reference is typically precluded as a result of physical habitat constraints (e.g. concrete channels, and natural bottomed channels in which regular channel clearing occurs). However, even with this acknowledgment, the Proposed Objectives as written applies to modified channels.

In the 1990 Biological Criteria National Program Guidance for Surface Waters, USEPA noted that least impacted sites in developed regions could be used to establish objectives rather than requiring a return to pristine conditions. The Guidance stated: “An important benefit of a regional reference system is the establishment of a baseline condition for the least impacted surface waters within the dominant land use pattern of the region. In many areas a return to pristine, or presettlement, conditions is impossible, and goals for waterbodies in extensively developed regions could reflect this. Regional reference sites based on the least impacted sites within a region will help water quality programs restore and protect the environment in a way that is ecologically feasible.” The changes to USEPA water quality standards regulations adopted in 2015 describe an approach that can be applied in the adoption of biointegrity objectives in the San Diego region that will yield consistency with both the Clean Water Act and the CWC. This approach is in alignment with the national goal described in Section 101(a)(2) of the Clean Water Act which is “water quality that provides for the protection and propagation of fish, shellfish and wildlife and for recreation in and on the water, whenever attainable. (emphasis added)”

The approach described in the Federal Register notice for the 2015 regulations is first to determine whether the desired aquatic life uses can be attained. USEPA recommends the consideration of the six factors described in 40 CFR 131.10 (g) in the determination of attainability. Those six factors are:

1. Naturally occurring pollutant concentrations prevent the attainment of the use; or
2. Natural, ephemeral, intermittent or low-flow conditions or water levels prevent the attainment of the use, unless these conditions can be compensated for by a sufficient volume of effluent discharge without violating state conservation requirements to enable uses to be met; or
3. Human-caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied, or would cause more environmental damage to correct than to leave in place; or

4. Dams, diversions, or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the waterbody to its original condition or to operate such modification in a way that would result in the attainment of the use; or

5. Physical conditions related to the natural features of the water body preclude attainment of aquatic life protection uses; or

6. Controls more stringent than those requires by Sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact. For waters that cannot meet the desired condition (i.e., in this case, waters that are not able to achieve a CSCI score of 0.79), USEPA recommends the establishment of different beneficial use descriptions and categories which reflect the highest attainable use for the category of water body (or the specific water body) in question. In developing information to support the evaluation of use attainability, USEPA recommends (a) the identification of current and expected conditions of the water body, (b) the evaluation of the effectiveness of best management practices, including treatment options and (c) the use of water quality models, load calculations and other predictive tools. In discussing the highest attainable uses in water bodies, USEPA describes such uses as those that are attained when the most protective, attainable criteria are achieved.

Examples of sub-categorical use designations that have been approved by USEPA include:

- Limited warm water aquatic life use
- Effluent dependent waters
- Effluent dependent fisheries
- Effluent dependent non-fish bearing waters

In each of these cases, it was determined that it would not be feasible for these waters to attain the same aquatic life assemblage that was expected of waters assigned the full aquatic life beneficial use designation.

63. Response 63:

The proposed Stream Biological Objective is consistent with federal guidance. Please see Response #1 regarding the clarification of the scope of the Stream Biological Objective.

The comment statement that there are not sufficient analogous reference sites for modified channels inaccurately portrays the method of using a reference approach for setting water quality objectives. The modification of the channel bottom is in itself an anthropogenic stressor.

The cited 1990 USEPA reference supports the proposed approach, which uses a scientifically defined reference condition based on low anthropogenic stressors as discussed in the draft Staff Report. The sites used in the development of the CSCI are not “pristine, or presettlement” and include streams that were/are subject to a low level of anthropogenic stressors.

Federal regulations at 40 CFR 131.10(g) sets forth considerations and the process for the designation or removal of beneficial uses. The six factors cited in the comment

pertain to use attainability analyses for de-designating existing uses, which is not the purpose of the proposed BPA. Nonetheless the proposed Stream Biological Objective and implementation plan do account for natural hydrology, natural sources of degradation, human-caused channel lining, and the potential for restoration of modified, but un-lined, channels.

Comment:

Support Statement: The Statewide Biostimulatory/Biointegrity Project Includes Consideration of Alternative Approaches for Modified Channels and has Developed Tools that should be Considered when Developing the Proposed Objectives

Support Statement: Implementation Actions Necessary to Attain the Proposed Objectives in Modified Channels Have Not Been Identified and May Not Be Available

Support Statement: Required Implementation Actions for Modified Channels are Unclear

*Note: The comment also includes additional information on pages 12-15 of the comment letter. The San Diego Water Board considered this information and the below response includes this consideration. The comment included the following recommendation:

Recommendation 2 Summarized: Remove constrained/engineered channels from this policy and consider a separate facilitated stakeholder process to develop a separate policy to address constrained/engineered channels, or wait for the Statewide Biointegrity/Biostimulatory Plan to determine the approach for addressing these channels.

If this approach is not taken, revise Chapter 4 to include the following:

- Compliance schedule or other mechanism to clearly outline the expectations that constrained waterbodies may not meet the biological objectives until channel modifications and other sources of “pollution” have been addressed. The time frame for these changes might be decades.
- For waterbodies that are identified as impaired due to channel modification (i.e. pollution), TMDLs will not be developed to address pollutants listed solely to address biological objectives until the channel modifications or other sources of pollution are addressed.
- Clearly state that MS4 Permittees are only responsible for addressing pollutants that are impacting biological integrity and will not be required through a NPDES permit to address channel modifications.

64. Response 64:

Please see Response #1. In response to this and other comments, the proposed Stream Biological Objective has been modified to clarify the applicability of the Stream Biological Objective in regard to channel hardening. The inclusion of these streams in a

biological objective will be considered when more information regarding their restoration potential and feasibility is available. The San Diego Water Board will consider the appropriate process for doing so at a future date. This may occur as part of a future triennial review process.

Comment:

Recommendation 3: Challenges with Meeting Proposed Objectives in Flood Control Channels

The Proposed Objectives and Draft Staff Report indicate that hardened/modified channels will be included in this policy and will be expected to eventually meet the Proposed Objectives. In addition to water quality matters, many Copermittees also operate the local flood control facilities with the purpose to protect people, property and watersheds from damage or destruction caused by flood and stormwater. Flood control facilities have been legally funded and constructed consistent with all required federal, state, and local regulatory authorizations and permits, and can include concrete and other structural materials which do not and were not designed to support a biological community. In order to ensure hydraulic capacity and the design of flood protection, such engineered and hardened conveyances also require regular maintenance. Such maintenance requires the removal of excess sediment and plant materials that interfere with hydraulic function and capacity. Therefore, the establishment of a biological community within these systems conflicts with the intended, essential, and legally authorized purpose of these facilities. In many cases a concrete channel cannot be modified without increasing the risk of flooding.

The Draft Staff Report and the Substitute Environmental Document did indicate that site specific conditions would be considered prior to project implementation. However, this consideration has not been clarified in the Proposed Objectives, and Copermittees are concerned of potential liability to either not meeting their flood control mandates or potentially not meeting receiving water limitations. In short, flood control conveyances cannot reasonably be expected to support a biological community that meets the biological objective. The Proposed Objectives should clarify how non-compliance with the objective will be addressed in these channels.

Recommendation 3 Summarized: In addition to the changes requested in the previous comment, provide an option for the Copermittees to request an exemption to meeting the water quality objectives when actions necessary to attain the water quality objective would conflict with health and safety protection requirements. The exemption would need to be approved by the Regional Water Board Executive Officer.

65. Response 65:

Please see Response #1 regarding clarifications of applicability of the proposed Stream Biological Objective. The maintenance activities described in the comment are subject to obtaining CWA Section 401 Water Quality Certifications and/or Waste Discharge Requirements (WDRs) under Porter-Cologne. The 401 Certification (generally issued by the Executive Officer) and/or WDRs (issued by the San Diego Water Board), will ensure that proposed discharges of dredge and fill material protect existing beneficial uses, regardless of the adoption of the Stream Biological Objective. While the scope of the proposed Stream Biological Objective has been modified as described in Response #1, it should be noted that biological objectives can be used to more accurately assess the potential impacts associated with proposed dredge and fill activities, and thus more accurately prescribe compensatory mitigation requirements.

Comment:**Recommendation 4: Challenges with Causal Assessments**

In the Draft Staff Report, the Regional Water Board highly encourages the use of rapid causal assessment methods be applied where stream benthic communities are considered to not meet biological objectives. Rapid causal assessments may also be required by dischargers for source identification monitoring and assessment if receiving water monitoring continuously indicates a discharge may be causing or contributing to an exceedance of numeric biological objectives when compared to upstream monitoring results. This implementation approach relies on the ability to determine if dischargers are causing or contributing to low CSCI scores and then identifying the causes of the lowered scores. However, the policy appears to oversimplify the ability to determine the causes of lowered CSCI scores and implement strategies to address those causes. Little evidence has been shown demonstrating the precision with which causal assessments can accurately identify biological stressors impacting CSCI scores, potentially leading to ineffective and resource wasting implementation actions.

The 2012 pilot program under the State's original Biological Objective Program demonstrated that EPA's Causal Assessment procedures, while scientific and thorough, were much better at ruling out causes of impairment than determining the cause of impairment. More recent efforts to improve and streamline this procedure have been undertaken by SCCWRP and the City of San Diego, however these methods are still under development and their effectiveness at determining the cause of benthic macroinvertebrate community degradation is still being evaluated. The reality of many biological impairments is that they are likely caused by multiple factors, including both pollutants and pollution. There is the very real possibility that many of these causal assessments will result in an inconclusive determination.

Given the challenges in determining the cause of the lowered CSCI scores, it will be difficult for the Copermitees to identify the actions that need to be taken to achieve the receiving water limitation. Additionally, if the primary or significant cause of the lowered scores is pollution, the Copermitees would likely not be able to address the issue through actions covered by the Phase I MS4 Permit. Thus, it may be premature to have receiving water limitations established based on numeric biological objectives that depend upon causal assessment tools that have not been fully evaluated.

To address these concerns, Chapter 4 should be modified to clarify that a clearly defined cause of the lowered CSCI scores needs to be identified prior to requiring additional actions from MS4 permittees. Additionally, a requirement that causal assessments that clearly identify pollutants, and not pollution, are causing lowered CSCI scores be developed prior to a TMDL being developed to attain a biological objective.

Recommendation 4 Summarized: Modify the proposed Chapter 4 Basin Plan language to include the following:

- Phase I MS4 Permit receiving water limitations are not set equal to the proposed biological objective, but rather only included for pollutants identified through a causal assessment as contributing to lowered CSCI scores. The proposed biological objective would be used for the prioritization process in the Water Quality Improvement Plans, but not as a receiving water limitation.
- The Regional Water Board should conduct a complete causal assessment prior to the waterbody being listed on the 303(d) list. Waterbodies for which pollution is identified as a cause of the biological impairment should only be listed in Category 4c until such time as the pollution is addressed and additional work is needed to attain the biological objective.

66. Response 66:

The San Diego Water Board has modified the proposed Stream Biological Objective applicability regarding hardened channels (see Response #1). While the science and tools regarding causal assessment are constantly evolving, tools regarding causal assessment are published and available for use. Additional updated information regarding rapid causal assessment and screening tools has been added to the draft Staff Report for clarity (see Gillett et al. 2019, Beck et al. 2019, Beck et al. 2019b).

The Regional Phase I MS4 permit already requires the consideration of bioassessment results when setting WQIP priorities and goals, and permittees are already using bioassessment results and rapid causal tools to do so (Orange County 2017). Please see Response #2, #32, and #47. In addition, the WQIP prioritization process accommodates the commenter's concern regarding whether or not data exists in order to assess sources of the receiving water conditions (see Responses #32 and #55). As new information becomes available through monitoring or other sources, the Copermittees in each watershed management area have included an adaptive management process. In addition, when new information becomes available, the Phase I MS4 Permit incorporates an update process to accommodate the information in the prioritization process.

The inclusion of the Stream Biological Objective as a receiving water limit provides the San Diego Water Board with the ability to protect the biological condition of receiving waters from discharges not in compliance with permits. In addition, the inclusion of the Stream Biological Objective as a receiving water limit provides the flexibility for a permittee(s) to target WQIP and/or conduct alternative compliance on those pollutants that are the most important causative or potential causative stressors to aquatic life beneficial uses. This is expected to result in more effective compliance with NPDES permits, including the Regional MS4 permit. See Responses #2, #32, #47 and #54.

Furthermore, as discussed in the draft Staff Report, the current regulatory process for permit implementation and the restoration of chemically impaired waters addresses pollutants on a pollutant-by-pollutant basis, including for TMDL development, exclusive of a pollutant's impact on the end biological condition. This currently occurs for every pollutant with a water quality objective. This process will change with the Stream Biological Objective. This process will identify those pollutants that are causing biological impairment in order to focus efforts to protect or restore beneficial uses.

In regard to the comment regarding TMDL development and the Integrated Report, the description of the program of implementation in the Chapter 4 portion of the proposed BPA requires a causal assessment be done for TMDL development. It is not appropriate to commit that a TMDL will not be developed when both pollutants and pollution are resulting in impairment of a beneficial use(s). Nor is it appropriate or consistent with the Listing Policy or CWA to require a causal assessment be conducted prior to listing a waterbody as impaired. The Listing Policy requires the association of impairment with a pollutant using pollutant-specific guidelines.

Comment:

Recommendation 5: Challenges with Applying a Numeric Objective to Seasonal Streams

As set forth in this policy, numeric biological objectives are currently only applicable to perennial and seasonal streams. The Proposed Objectives define seasonal streams as “any freshwater stream that is expected to be inundated with flowing water for at least four weeks between the months of February and October, except during periods of atypical or extreme drought....Seasonal streams do not include those streams that only exhibit ephemeral flow, which is flow that occurs only during or immediately following (e.g. 24-48 hours) rainfall events”. From a practical perspective, it is extremely difficult to apply this definition given the gradient of possible flow regimes and year-to-year variability. It is problematic from a policy perspective to not know if a stream is “in” or “out” of the application of a numeric objective. A seasonal stream could be dry for multiple years (flow for longer than 4 weeks only 1 out of 5 years), and a field crew in most probabilistic one-visit sampling programs is not going to know the typical life history of a stream’s flow duration. Furthermore, if a stream is flowing during a field visit, the crew will sample it. This could potentially result in a CSCI score for stream thought of as a typical seasonal stream, when, in reality, it is an ephemeral stream with an extended flow.

A high proportion of streams in the San Diego Region are considered seasonal according to the definition given. A study published by SCCWRP (Mazor et al., 2012/14) identified 73% of streams in the San Diego Region as being seasonal. The study also stated that these stream types support benthic macroinvertebrate communities that are distinct from those found in perennial streams, and that multi-metric indices designed to assess the health of benthic macroinvertebrates community were applicable to these stream-types, as long as they flow long enough for the establishment of all benthic communities. It has been documented by Mazor et al (2014) and others, that biologic metric scores can remain relatively steady in seasonal streams across a season. However, as was pointed out in Section 4.7.1 of the Draft Staff Report, they become much more variable and can decline quickly as the stream reaches the end of its drying cycle, particularly in moderate and high stressed non-perennial sites, which are more common in urban areas where the majority of bioassessment sampling for permit compliance takes place. The point on the hydrologic cycle from beginning of flow to drying is typically not known during a field bioassessment, and historic site reconnaissance has shown that streams often cease to flow more quickly than anticipated. The Draft Staff Report addresses stream habitats that are acceptable for sampling (Section 4.5), however the flow duration of many streams is not known. The Proposed Objective does not adequately address benthic macroinvertebrate community changes near the end of their flow cycle, and in fact seems to indicate in Figure 15 of the Draft Staff Report that reduced flow at the end of a drying cycle does lower the CSCI score.

While it is clear that a representative and accurate CSCI score can be derived from a seasonal stream during some portions of its flow duration, it has not been demonstrated that this is also true as a seasonal stream nears the end of its flow cycle. Sampling a stream near the end of its flow may lead to improper 303d listings based on inaccurate CSCI scores not representative of a seasonal stream's true biological potential.

Several of the questions of concern with the application to seasonal streams were included in the peer review responses. For example, Dr. Monk wrote: "The authors of the Draft Report highlight the recommendations of Mazor et al. 2015 with typical sampling periods depending on stream types and whereby a minimum of a four-week sampling delay from the start of stream flow/last storm resetting event is used prior to sampling to allow for recolonization and stabilized community composition. However, later in Section 4.5, the authors refer to a "two, and preferably, three week" delay following a storm event so clarification is needed here. Further paragraph 2 on page 62 mostly duplicates information from earlier paragraphs within Section 4.5 and could be incorporated with that earlier text."

For these reasons, more clarity is needed on the identification of seasonal streams and the procedures for applying the objectives to streams where the CSCI scores are likely impacted by high variability in natural flow conditions.

Recommendation 5 Summarized: The Policy needs to acknowledge the possible limitations of using CSCI scores in seasonal streams and provide flexibility in the application of CSCI to seasonal streams. A confirmation sample should be allowed for seasonal streams when the score is below the proposed biological objective to ensure that the score was representative of appropriate sampling conditions. Additionally, more clarity on the sampling time and methods for assessing whether conditions are appropriate should be included to avoid sampling streams near the end of the flow cycle.

67. Response 67:

Please see Response #8, #24, #25, and #46 regarding applicability to seasonal streams. Additional clarifying information has been added to the proposed Stream Biological Objective and draft Staff Report as discussed in these responses.

Comment:

Recommendation 6: Proposed Objectives Do Not Meet CWC Section 13241/13242 Requirements

The proposed Basin Plan amendment would establish a water quality objective (i.e. “formal minimum standard”) for surface waters in the region which requires attainment of a CSCI score of 0.79. The Basin Plan amendment, Draft Staff Report, and Substitute Environmental Document are clear that, where discharges are determined to cause or contribute to degradation (i.e. a CSCI score of less than 0.79), permit and TMDL requirements will be established which require attainment of this CSCI index value in those waters.

These proposed actions raise serious issues with regard to the Regional Water Board’s fulfillment of requirements stipulated in the CWC that are associated with the establishment of water quality objectives. The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (§§ 13000 et seq.) governs water quality regulation in California. It establishes the policy that “activities and factors which may affect the quality of the waters of the state shall be regulated to attain the highest water quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible.” (§ 13000, emphasis added). Section 13241 of the CWC requires that:

“Each Regional Water Board shall establish water quality objectives in water quality control plans as in its judgment will ensure the reasonable protection of beneficial uses and the prevention of nuisance; however, it is recognized that it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses. Factors to be considered by a Regional Board shall include, but not necessarily be limited to, all of the following:

- (a) Past, present, and probable future beneficial uses of water.
- (b) Environmental characteristics of the hydrologic unit under consideration, including the quality of water available thereto.
- (c) Water quality condition that could reasonably be achieved from the coordinated control of all factors which affect water quality in the area.
- (d) Economic considerations.
- (e) The need for housing within the region.
- (f) The need to develop and use recycled water.”

Section 13242 of the CWC requires that:

“The program of implementation for achieving water quality objectives shall include, but not be limited to:

- (a) A description of the nature of actions which are necessary to achieve the objectives, including recommendations for appropriate action by any entity, public or private.
- (b) A time schedule for the actions to be taken.
- (c) A description of surveillance to be undertaken to determine compliance with objectives.”

The Substitute Environmental Document includes text which purports to address CWC Section 12341 requirements; it does not address CWC Section 13242 requirements. The subject text describes the regulatory mechanisms (permits, TMDLs, non-TMDLs, enforcement actions) that would be used to compel dischargers to achieve the proposed water quality objective. The text also makes general reference to actions that would be employed (e.g. monitoring, pollutant and flow controls, in-stream restoration actions). The Substitute Environmental Document implies, but does not demonstrate, that all waters in the region will eventually meet the proposed objective. This information is insufficient in fulfilling the requirement of CWC Section 13241.

With regard to the requirement of CWC Section 13241 (a), the Substitute Environmental Document fails to address the fact that some waters of the region do not currently achieve, and may not “probably” achieve, the beneficial use defined by attainment of the CSCI score of 0.79. This failure to clearly acknowledge and quantify the status of beneficial uses is a fundamental flaw which hampers the overall CWC Section 13241 and Section 13242 analysis offered in the Substitute Environmental Document. Such a determination would require consideration of actual data for waters in the region and quantification (e.g. an estimate) of the percentage of waters that do and do not currently meet the objective.

With regard to the requirement of CWC Section 13241 (c), the Substitute Environmental Document falls far short of a credible assessment of the achievability of the proposed objective in all waters in the region. As a first step, the assessment should include a determination whether the objective is currently achieved in all waters (i.e., fulfillment of CWC Section 13241 (a) requirements, as described above). As a next step, the assessment should include information regarding the ability for waters that do not currently meet the objective to achieve the objective as a result of remediation actions. This information should be based on some form of tangible analysis (e.g. case examples where such results have been observed to occur and information to indicate that remediation measures will be effective). The assessment must also include an analysis to demonstrate whether such measures are reasonable (i.e. feasible, proven, cost-effective, affordable). Finally, the assessment should identify waters that are not expected to ever meet the objective. This finding should inform the program of implementation for such waters, as required under CWC Section 13242.

With regard to the requirement of CWC Section 13241 (d), the Substitute Environmental Document includes arguments that the adoption of the Basin Plan amendment will not increase costs due to savings that will occur due to a reduction in existing permit and TMDL requirements. These arguments are non-specific and include questionable assumptions regarding (a) the ability to identify causative factors for waterbodies which do not attain the desired CSCI value of 0.79 and (b) changes in existing requirements (e.g. chemical specific NPDES permit or TMDL requirements) as a result of implementation of the proposed biological objective. With respect to (a), there is little evidence that causal assessments will yield specific solutions that lead to attainment of the proposed objectives. With respect to (b), such changes require significant regulatory actions which may or may not be approved and implemented. Therefore, the assumed economic benefits of the proposed objectives are unlikely to occur, and the economic analysis provided in the Substitute Environmental Document is insufficient in its detail and conclusions.

With regard to the requirements of CWC Section 13242, the failure to satisfy CWC Section 13241 requirements (i.e. the failure to identify measures that will lead to the achievement of the proposed water quality objectives in all surface waters in the region) precludes satisfaction of the CWC Section 13242 requirements. Based on information developed for the Statewide Biostimulatory/Biointegrity Plan, it is not clear how it will be possible to demonstrate that meeting the tenth percentile of comparable reference streams in all wadeable streams can be attained through the proposed program of implementation. Although meeting the proposed numeric biological objectives in all wadeable streams is an inspirational goal, an inspirational goal is not good public policy and is not consistent with current regulations for setting appropriate objectives.

Recommendation 6 Summarized: The Substitute Environmental Document fails to provide adequate information to address pertinent CWC requirements. Beyond this legal and technical failure, the lack of an approach to deal with surface waters that do not currently achieve the desired CSCI index value represents a fundamental flaw in the proposed water quality objective and associated program of implementation. This fatal flaw must be addressed prior to adoption of the proposed Basin Plan amendment.

Modifying the Proposed Objectives as outlined in the introduction to the letter based on the approach proposed by the California Stormwater Quality Association would provide a mechanism to gather the information necessary to address the CWC requirements for waterbodies that are not currently meeting reference conditions and establish appropriate implementation procedures or objectives to reasonably protect beneficial uses.

68. Response 68:

Please see Response #1 regarding the clarification of the proposed Stream Biological Objective's scope of applicability. Please see Response #9, #32, #50, and #51 regarding consideration of CWC 13241 and 13242. Information in the draft Staff Report for the proposed Stream Biological Objective, which includes the SED, satisfies CWC 13241 and 13242.

The comment relative to section 13241(d) regarding potential cost savings associated with the implementation of the Stream Biological Objective is not accurate. Existing causal assessment methods are sufficient to identify primary causative stressors to focus program implementation (see Responses #66 and #98), and although no cost-benefit analysis is required in consideration of economic factors, it is expected that any additional costs required by conducting causal assessment would avoid? outweigh the costs associated with development and implementation of unnecessary TMDLs, as discussed in the SED, as well as the development of unneeded BMPs. In addition, the San Diego Water Board disagrees with the comment that changes in response to implementation are speculative and may or may not occur. The draft Staff Report at section 4.5 and section 1.9 of the SED provide ample support for finding that the water quality conditions are reasonably achievable with the control of factors that impact water quality, and the comment fails to provide contrary evidence to support its assertion. Additional language has been added to these sections of the draft Staff Report and SED for clarity in this regard. Lastly, program implementation considerations that use biological assessment results have begun to be included in current regulatory programs.

g) Commenter: Calleguas Creek TMDL Group

Comment:

The Stakeholders support the goal of the proposed Biological Objectives to protect and restore biological integrity of waters. The Stakeholders agree that the assessment of biological communities provides a comprehensive measure of biological integrity that extends beyond the existing paradigm of analyzing for individual chemicals. However, the Stakeholders have concerns that the approach outlined in the proposed Biological Objectives will not effectively achieve these goals.

The Stakeholders therefore request that the San Diego Regional Board consider either delaying adoption of the objectives until after the State Water Resources Control Board (SWRCB) has adopted the Statewide Biointegrity and Biostimulatory Plan (Statewide Plan) or only adopt the proposed objectives for high quality waterbodies at this time and include an implementation approach that supports integrated watershed evaluations to identify appropriate actions for other waterbodies while the Statewide Plan is being developed. Once the Statewide Plan is adopted, the San Diego Regional Board could consider other objectives for non-reference waterbodies if the Statewide Plan is not considered sufficient to address the goals of the project. The following comments provide support for this proposed approach.

69. Response 69:

Please see Response #43. Delaying until a statewide approach is approved is not appropriate. A statewide approach and schedule for setting an objective to protect biological integrity is presently unknown.

In response to the comment regarding a watershed approach, some additional language has been added to support watershed planning in Chapter 4 of the proposed Stream Biological Objective.

Comment:

Comment #1: Proposed Biological Objectives do not align with the Statewide Biointegrity Plan approach or incorporate key lessons and information produced during the development of the Statewide Biointegrity and Biostimulatory Plan.

Over the last several years, advisory groups to the Statewide Plan have developed and communicated a significant base of knowledge aimed at producing scientifically sound statewide biological objectives. In October 2018, State Water Resources Control Board presented their proposed approach to developing the "Biostimulatory Substances Objective and Program to Implement Biological Integrity." The same framework was reiterated in December 2018 and February 2019 in presentations to the Science Panel. The framework presented is summarized below:

Amendment to the Inland Surface Waters Enclosed Bays and Estuaries (ISWEBE) Plan to:

- Establish a framework to control eutrophication and support biological integrity in all waterbodies
- Focus on wadeable streams

Likely Key Components:

- Narrative biostimulatory water quality objective
- Indicators and thresholds for biostimulatory substances and conditions
- Biological integrity assessment methods
- Implementation approaches

The SWRCB is considering a number of implementation approaches, including (from the October 2018 presentation):

- Approaches to treat constrained channels differently.
- Watershed-based causal assessment and source control options
- Watershed-based credit trading

The SWRCB also posed the following questions in the presentation:

- Will constrained channels be addressed prior to or during implementation actions?
 - Example: different thresholds and/or a process for determining site-specific thresholds

- Will there be a phased approach to implementation focusing on less developed waterbodies?
- What would the watershed approach look like and how will it integrate with existing regulatory programs?

The implementation approaches being considered by the SWRCB are a result of many years of scientific studies, stakeholder discussions, and expert technical panel input. However, the San Diego Regional Board's proposed Biological Objectives do not include any consideration of the implementation approaches being evaluated for the Statewide Plan.

The Stakeholders are particularly concerned that the proposed Biological Objectives default to the use of a single CSCI threshold for all waterbodies to determine biological impairment, including channels in modified landscapes. The SWRCB has developed tools that indicate modified channels may not be capable of attaining the 10th percentile of reference score, regardless of BMP implementation or stream restoration, simply due to the existence of urban and agricultural land uses. The Stakeholder Advisory Committee for the Statewide Plan has provided significant input on the challenges associated with selecting a single numeric threshold for biological integrity and the Technical Advisory Committee has provided numerous examples of alternative approaches that could be implemented to address identified concerns. As a result, the Statewide Plan has moved away from setting a numeric objective for biointegrity; instead, other options, including different thresholds or expectations for modified channels, are being evaluated.

In addition, recognizing the challenges associated with addressing waterbodies in the developed landscape, the Statewide Plan tasked the Southern California Coastal Water Research Project (SCCWRP) and other technical experts with developing a number of technical work projects, such as the Channels in Developed Landscapes manuscript and summaries on the Biological Condition Gradient. The proposed Biological Objectives do not appear to have considered the information included in those documents in developing the objectives. The Stakeholders request that the San Diego Regional Board consider the technical information developed for the Statewide Plan and use it to support the recommended approach for modifying the objectives as outlined in the beginning of the letter. As noted above, this approach would be consistent with the phased approach being considered by the SWRCB and could protect high quality waters and require other waterbodies to maintain existing conditions during phase 1 and addresses other waterbodies after the Statewide Plan has been developed. This approach would allow the San Diego Regional Board to move forward with adopting objectives that will prevent further degradation of waterbodies while the Statewide Plan is being developed, while allowing time for the implementation questions identified in the Statewide Plan to be effectively addressed.

70. Response 70:

Please see Response #34, #43, #44, and #51 regarding a phased approach and Responses #3, #6, and #43 for a discussion regarding consideration of the Channels in Developed Landscapes and BCG. Please also see Response #5 regarding the use of a single threshold.

Please see Response #43 for discussion of the various statewide efforts to consider biological metrics and our staff involvement over the years. While the State Water Board does have discretion to establish statewide objectives, each regional water board has the authority and responsibility to adopt objectives specific to its region. If the statewide biological objectives are eventually adopted, the State Water Board would consider whether or not to supersede each region's own biological objectives.

Comment:

Comment #2: Watershed assessments, rather than a discharger by discharger approach, would be more effective in attaining biological integrity goals.

The Stakeholders have developed and implemented six effective TMDLs in the Calleguas Creek Watershed. The Stakeholders have relied heavily on a collaborative watershed approach to solving complex water quality issues and implementing restoration solutions. Through this process, the Stakeholders have identified that many of the best opportunities for improving water quality and stream health are through actions that either involve multiple stakeholders (e.g. regional projects that capture runoff from urban and agricultural areas) or are undertaken for reasons not associated with requirements in individual permits (e.g. Arundo removal and improvement of wildlife corridors). In several cases, the Stakeholders have had to develop creative regulatory solutions to allow the watershed implementation actions to be implemented. Water quality objectives, TMDLs, and permit requirements have in some cases been a hurdle to implementing effective watershed solutions. As a result, the Stakeholders are concerned that the proposed Biological Objectives and the associated implementation actions will have unintended consequences for the ability of permittees to implement actions to achieve the goals of the project.

The implementation approach presented in the proposed Biological Objectives focuses on evaluating impacts and incorporating objectives into permits on a discharger-by-discharger basis. Multiple studies have been completed that show the challenges of this approach for effectively improving the biological health of waterbodies. For example, in *Global Review of the Physical and Biological Effectiveness of Stream Habitat Rehabilitation Techniques*, the authors reviewed over 345 studies of the effectiveness of stream rehabilitation techniques and identified that a lack of understanding of factors that could limit biotic production and watershed-scale processes was a key factor in the failure of many projects:

"Our review demonstrates that the failure of many rehabilitation projects to achieve objectives is attributable to inadequate assessment of historic conditions and factors limiting biotic production; poor understanding of watershed-scale processes that

influence localized projects; and monitoring at inappropriate spatial and temporal scales. We suggest an interim approach to sequencing rehabilitation projects that partially addresses these needs through protecting high-quality habitats and restoring connectivity and watershed processes before implementing instream habitat improvement projects."

The implementation approach for the proposed Biological Objectives does not recognize the importance of considering a holistic, watershed approach to identifying biological stressors and taking collaborative watershed-scale solutions to address these stressors. By setting a single numeric objective for assessing compliance, individual dischargers are put into the position of having to comply with the objectives based on the impacts their specific discharge or be deemed out of compliance with their permit conditions. This will likely lead to ineffective restoration activities and disincentives to develop holistic approaches to evaluating the best solutions for the watershed.

71. Response 71:

Please see Response #69.

The comment is correct that a watershed planning approach that identifies appropriate implementation measures and schedules can be a successful means of addressing biological degradation. In addition, this approach can be used for preventing degradation of high-quality areas where the proposed Stream Biological Objective is currently attained.

The proposed BPA does not preclude and will be an asset in watershed planning. The San Diego Water Board has supported many watershed planning efforts through grants and innovative permitting. The San Diego Water Board explicitly recognizes this in the WQIP provisions of the Regional MS4 Phase I Permit, development of TMDL implementation measures, and in the "A Framework for Monitoring and Assessment in the San Diego Region" endorsed by Resolution No. R9-2012-0069. Requirements for watershed-scale efforts are not appropriately specified in a Basin Plan Amendment except in cases of TMDLs. Rather, they are developed through a stakeholder approach to meet water quality objectives or beneficial uses, and nothing in the proposed BPA prohibits that. Furthermore, a watershed-based approach does not alleviate the responsibility of individual dischargers from conducting permit-required effluent and receiving water monitoring such that discharges of waste do not cause or contribute to exceedances of water quality standards.

The San Diego Water Board has included language in Chapter 4 in the Planning section to clarify that a watershed planning effort, consistent with existing Basin Plan implementation language, will be supported for protection and restoration of the Stream Biological Objective.

Comment:

Comment #3: Modify Discussion in the Staff Report Related to Calleguas Creek Watershed Metals and Selenium TMDL.

The Stakeholders appreciate the inclusion of the Calleguas Creek Watershed (CCW) Metals and Selenium TMDL as an example of the challenges associated with only using chemistry-based water quality objectives in addressing waterbody impairments. The example cited supports the concerns the Stakeholders have with implementing a numeric biological integrity objective. The Stakeholders identified that site-specific conditions warranted consideration of alternative copper objectives for some reaches of the watershed and therefore developed a site-specific objective for the watershed. The site-specific objective was needed because the Los Angeles Regional Water Quality Control Board (Los Angeles Regional Board) was under a Consent Decree to develop TMDLs for the watershed within a certain time period. Even though all parties, including the Los Angeles Regional Board, agreed that the site-specific objective would likely remove the impairment listing, the TMDL was still required to be developed because of the Consent Decree. The modification to the TMDL discussed in the proposed Biological Objectives Staff Report was simply a result of the timing constraints resulting from the fact that the TMDL was required to be adopted prior to the site-specific objective becoming effective. The key point is that once an objective exists and a waterbody is placed on the 303(d) list, it will need to be addressed through a TMDL and very little flexibility exists to modify this approach. Much unnecessary work could have been avoided had the Los Angeles Regional Board had the ability to not develop the TMDL under the Consent Decree timeline. Because the San Diego Regional Board is not currently under a similar legal deadlines, above mentioned information and lessons learned can be considered to develop Biological Objectives considering various watercourse conditions, e.g., natural versus modified channels, and require actions that have high probability of success to effectively address the identified problems in a cost-effective way. It is also important to note that the CCW Metals and Selenium TMDL was focused on addressing impairments in the lagoon and the tidally influenced portion of the waterbody where the saltwater metals objectives apply. Therefore, the biological integrity scores for the freshwater portions of the watershed that are referenced in the proposed Biological Objectives Staff Report were not considered because they are not applicable to the impairments. Copper and nickel objectives are not currently, and have not been historically, exceeded or identified as potential sources of toxicity in the freshwater portions of the waterbody. Therefore, the Stakeholders request that the CCW Metals and Selenium TMDL discussion be modified to remove the discussion of the lack of consideration of the biological integrity scores in the TMDL reopener.

72. Response 72:

Some additional language has been added to the draft Staff Report to include further TMDL discussion and clarification regarding the consent decree. The San Diego Water Board used Calleguas Creek as an example of how TMDLs, which are cost- and time-intensive to develop and have been developed on a case-by-case basis, may not improve beneficial uses because pollutant(s) related to the stressors may not be included and physical habitat condition is typically ignored.

The piecemealing of TMDLs on a pollutant by pollutant basis, as has been done under the consent decree, is a critical shortcoming in the regulatory framework that can be addressed by using biological objectives. This piecemealing is also counterintuitive to using a holistic watershed approach as suggested in prior comments. The Los Angeles Water Board's TMDLs developed under a consent decree are a valuable learning experience in regards to TMDL effectiveness because there was an inadequate effort in linking pollutants for the seven TMDLs throughout the watershed to overall receiving water aquatic life Beneficial Use attainment. Inadequate linking can result in efforts focused on addressing pollutants associated with minimal in-stream gains. The San Diego Water Board faces the same challenges with traditional TMDLs targeted at specific pollutants. So, rather than perceiving the 303(d) list as a rigid TMDL assembly-line, the San Diego Water Board uses the full Integrated Report, and not just the 303(d) list, to prioritize where TMDLs are needed to achieve meaningful outcomes and where other regulatory approaches would be more efficient to restoring aquatic life beneficial uses.

Comment:

Comment #4: Implementation approach relies too heavily on causal or other complicated assessments to determine if dischargers are causing or contributing to lowered CSCI scores and to clearly identify biological stressors.

The Stakeholders believe that the implementation approach included in the proposed Biological Objectives relies too heavily on the causal assessments or other, not clearly defined, assessment approaches, to determine if dischargers are causing or contributing to lowered CSCI scores and to identify the biological stressors are causing the lowered scores. The proposed Biological Objectives oversimplify the ability to determine causes for CSCI not attaining the single value threshold and whether or not dischargers are causing or contributing to the lowered scores. The Stakeholders believe that causal assessments are a critical component of the Biological Objectives, as accurately determining the cause of biological stressors will have a significant impact on the appropriate actions to be implemented to address lowered scores and the success of those actions in improving biological conditions. However, a 2012 pilot program of the EPA's Causal Assessment procedures, under the SWRCB Biological Objectives Program, found that the procedures achieved greater success at ruling out causes of impairments rather than determining the specific cause of impairment. Case studies summarized by EPA on their CADDIS website demonstrate that most successful causal assessments result in the identification of multiple stressors and multiple sources. Of the fourteen case studies summarized, ten causal assessments identified multiple stressors and sources as the cause, and several discussed the challenges in separating out and identifying specific causes.

The implementation approach in the proposed Biological Objectives relies on the ability of the San Diego Regional Board to make the assessment of the cause to determine the appropriate integrated reporting listing category for the waterbody. Then, once the cause is determined, individual dischargers have to determine if they are causing and contributing to lowered CSCI scores through methods that are not defined and have unclear effectiveness. Given the complexities of the causal assessment process and the lack of clearly defined methods for assessing whether discharges are causing or contributing to lowered CSCI scores, it seems unlikely that the proposed implementation approach will be successful. The proposed approach will likely lead to confusion regarding responsibilities and implementation requirements, incorrect 303(d) listings for waterbodies that cannot attain the objective simply by addressing pollutants, and the inability of dischargers to demonstrate compliance with the objectives. The challenges with simply identifying stressors and being able to clearly link them to individual dischargers support the need to consider an alternative approach to developing and implementing the proposed Biological Objectives.

73. Response 73:

A causal assessment is not required for discussion of impairments in the Integrated Report. The commenter appears to misunderstand the Integrated Report and section 303(d) listing process. The inclusion of biological objectives in the Basin Plan would not result in any changes in current waterbody assessment for the Integrated Report, as biological assessments are currently included in the State's Listing Policy as factors to consider. And the Listing Policy specifies that degradation must be **associated with a pollutant** to list under Category 5. Please see Response #28.

In regards to conducting causal assessments and source determination analysis, the approach in Chapter 4 mirrors that of existing TMDL development, which already requires an investigation into the level of impairment, source(s) of pollutants, and needed reductions to meet determined targets. However, instead of conducting such studies for every pollutant that does not meet WQOs, causal assessment for the Stream Biological Objective enables a focus upon those pollutants likely impairing the Beneficial Use(s).

There are published USEPA methods which serve as a baseline for conducting causal assessments, and more recent research as cited in the draft Staff Report has built upon the existing guidance. The commenter is correct that many USEPA causal assessments have identified multiple stressors as impacting poor biological condition. However, as the comment points out, causal assessment also has effectively ruled out potential stressors, which can reduce unnecessary investigation into pollutants and unnecessary TMDLs.

Comment:

Comment #5: Pre-determination of MS4 and agricultural dischargers as a "probable threat" is inappropriate and lacks justification.

In addition to the comments above supporting an alternative approach, the Stakeholders are very concerned about the presumption that storm drain (MS4) and agricultural dischargers are a "probable threat" to waterbody biological integrity. The Staff Report notes that MS4 and agricultural "dischargers have already been determined by the San Diego Regional Board to represent a probable threat to the Stream Biological Objective." The Stakeholders strongly disagree with the use of the "probable threat" language included in this context. No evidence is presented in the proposed Biological Objectives documents or San Diego Regional MS4 Permit that justifies designating all MS4 and agricultural dischargers as a "probable threat" without an appropriate assessment. The proposed Chapter 4 Basin Plan Amendment Section V.B.2 defines the term "probable threat" to mean: "the discharge is or has the potential to cause or contribute to a decrease in the CSCI score in the receiving water or downstream waters". Therefore, in order to be considered a probable threat, a waterbody must have a low CSCI. The Staff Report contains language in multiple sections that describes the process for determining if a discharge is a probable threat, yet it does not appear that this process has been completed for all MS4 and agricultural dischargers. This designation also assumes that physical modifications to the waterbody are not the cause of low CSCI scores, which is a determination that should be made using causal assessments. The Stakeholders believe that the use of probable threat in this case, sets a dangerous precedent to establish dischargers as probable threats without presenting justification in the form of a scientifically defensible assessment and request that this language be removed.

74. Response 74:

Please see Response #37 regarding revisions to the term "probable threat." In addition, it is incorrect that a stream must have a low CSCI score to support a "probable threat" determination by the San Diego Water Board and the commenter has not provided support for the conclusion that that such a determination "sets a dangerous precedent." The identification of elevated risk to the Stream Biological Objective associated with a discharge is included in the program of implementation to provide guidance and information regarding the level of regulatory activity that would be required to insure that dischargers are not causing or contributing to degradation of the Stream Biological Objective. Please see Response #1 regarding exclusion of hardened streambed segments from Stream Biological Objective applicability.

Comment:

Comment #6: Modify the Chapter 4 Implementation Language to Clarify the Requirements for the MS4 and Agricultural Permittees

Should the San Diego Regional Board not choose to pursue the recommended modifications to the Biological Objectives outlined in the previous comments, the Stakeholders request that the Chapter 4 Implementation Language be modified to clarify the obligations of the MS4 and agricultural permittees. Specifically, the Stakeholders request that the requirements to include the Biological Objectives as receiving water limitations and water quality benchmarks be removed and the actions required to address impairments due to pollution be clarified as follows:

- Remove the requirement for MS4 permit receiving water limitations and Agricultural Waste Discharge Requirement (WDR) water quality benchmarks to be set equal to the proposed biological objective. Instead receiving water limitations and water quality benchmarks would only be included for pollutants identified through a causal assessment as contributing to lowered CSCI scores.
- Clearly state that MS4 and agricultural Permittees are only responsible for addressing pollutants that are impacting biological integrity and will not be required through a NPDES permit or WDR to address channel modifications.
- Include a compliance schedule or other mechanism to clearly outline the expectations that constrained waterbodies may not meet the biological objectives until channel modifications and other sources of " pollution" have been addressed. The time frame for these changes might be decades.
- Include a requirement that the San Diego Water Board conduct a complete causal assessment prior to the waterbody being listed on the 303(d) list. Waterbodies for which pollution is identified as a cause of the biological impairment should only be listed in Category 4c until such time as the pollution is addressed. Once the pollution is addressed, if the Biological Objective is still not met, the waterbody could be moved to the appropriate Integrated Report category (e.g. Category 5).
- For waterbodies that are identified as impaired due to channel modification (i.e. pollution), TMDLs will not be developed to address pollutants listed solely to address biological objectives until the channel modifications or other sources of pollution are addressed.

The intent of the proposed policy is to regulate pollutants that may be impacting beneficial uses, as illustrated by a comparison of the CSCI to the Stream Biological Objectives; therefore, it is not necessary to incorporate the new objective as a receiving water limitation in the MS4 Permit or as a water quality benchmark in the agricultural WDR. When low CSCI scores are identified, the required cause or contribute assessments will be performed, and in some cases, specific pollutants will be identified within the receiving waters that are impacting CSCI scores. Pollutants already have established water quality objectives in the Basin Plan, and since compliance is ultimately based on the pollutants that are causing or contributing, there is no need for another layer of potential receiving water limitations liability. Should MS4 or agricultural discharges be determined to be causing or contributing to the impairment through discharges of the identified pollutants, requirements for those pollutants can be incorporated into the respective permits or required plans. If at least part of the cause of the low CSCI scores is determined to be pollution, inclusion of receiving water limitations or water quality benchmarks would create confusion as to the methods permittees would use to demonstrate they are not causing or contributing to the impairment. Including separate requirements for Biological Objective receiving water limitations and water quality benchmarks are duplicative of existing pollutant requirements and create confusion and potential liability for impairments due to pollution that cannot be easily remedied by the permittees.

75. Response 75:

Additional language regarding the implementation of the Stream Biological objective in NPDES permits and WDRs, including agricultural WDRs, relative to considerations for historic channel modification has been added to Chapter 4 (please also see Response #32 and #47). Please also see Response #1 regarding clarification of the scope of the proposed Stream Biological Objective.

Please see Response #66 regarding causal assessment and the Integrated Report. The suggested approach that waterbodies should only be placed in Category 4c and not 5 is not consistent with USEPA recommendations or San Diego Water Board actions. The San Diego Water Board has placed waterbodies into both 4c and 5 Categories, which follows USEPA guidance (see San Diego Water Board 2016).

Please see Responses #32, #47, #54 and #66 regarding receiving water limits. The comment does not explain how the implementation of the Stream Biological Objective as a receiving water limit would provide another layer of “potential receiving water limitation liability.” However, where a discharge is believed to be impacting a stream’s non-attainment of the biological water quality objective, focusing on the control of pollutants in a discharge that impact the stream’s condition relative to the Stream Biological Objective can be expected to be more economically efficient than addressing every individual pollutant exceedance on a chemical-by-chemical basis. Focusing on attainment of the proposed Stream Biological Objective will provide improved clarity of the problem and enable a discharger to distinguish what types and sources of stressors (stormwater or otherwise) are impacting beneficial uses, including those that may be exceeding chemistry water quality objectives.

Comment:

Additionally, as noted above, the Biological Objectives set the expectation that all waterbodies will attain reference conditions at some point in the future. While the Supplemental Environmental Document (SED) and statements at the Board workshops indicate that the intent of the Biological Objectives is not to require permittees to remove concrete and restore waterbodies, this intent is not clearly reflected in the objectives or implementation provisions as written and the objectives could easily be interpreted differently in the future. The implementation provisions in Chapter 4 do not provide clear clarification that different approaches or expectations will be set based on existing waterbody constraints or that long time frames are anticipated to be necessary to address waterbodies impaired due to pollution rather than pollutants. As a result, the Chapter 4 implementation discussion should be revised to more clearly align with the discussion in the SED and statements made at the workshops by San Diego Regional Board staff as noted in the bullets above.

76. Response 76:

Please see Response #1.

h) Commenter: Coalition of Non-Governmental Organizations

Comment:

We are an ad hoc coalition collectively representing over 100,000 Californians in virtually every county from San Diego and Imperial to Del Norte and Modoc. Our groups represent a diversity of fundamental missions (including but not limited to advocacy involving water quality and supply; environmental justice; rights of Indigenous Peoples; human health; avoiding toxics exposure; and air quality.) We vary greatly in membership size, geographic coverage area, and focus of advocacy efforts, but we all share the related goals of improving the quality of California's waterbodies and restoring its watersheds. We are thus pleased to join together to comment in strong support of the proposed "Basin Plan Amendment to Incorporate Biological Objectives" referenced above, now under consideration by the San Diego Regional Water Quality Control Board. The Basin Plan Amendment (BPA) to the San Diego Basin Plan incorporates as Water Quality Objectives (WQO) stream numeric Biological Objectives (BOs) based on the California Stream Condition Index (CSCI); issues guidance for development of numeric BOs in other waterbodies (for example, vernal pools); and includes an implementation plan for BOs.

We also wish to thank the San Diego Regional Water Quality Control Board Members and Staff for your leadership to date on development and implementation of scientifically sound Biological Objectives. We hope and expect that the proposed BPA will serve as a positive example for other regions (including Los Angeles and San Francisco Bay) to develop and implement strong, scientifically sound BOs, and for the State Water Resources Control Board to timely approve such BPAs as significant and much-needed steps towards improving water quality throughout California. We also address a few areas where the already strong draft Staff Report and CEQA Substitute Environmental Documents can be improved even further with additional clarifications, primarily to facilitate the efficient and predictable implementation of the proposed BOs.

77. Response 77:

Comment noted. The San Diego Water Board proposal does not set forth any requirement for another Regional Board or State Board to take any action regarding biological objectives. The San Diego Water Board is a regular participant in the ongoing State Water Board development of WQOs that apply on a statewide basis.

Comment:

Biological Objectives Based Upon the CSCI Are Necessary to Ensure the Biological Integrity of California's Waters.

Fifty years after the passage of California's landmark Porter-Cologne Water Quality Act ("Porter-Cologne"), the proposed numeric BOs for streams in the San Diego region would mark the first direct measures of beneficial uses ever adopted as Water Quality Objectives in California. Numerous beneficial uses of California waters are biological or ecological in nature, so direct measurement of the integrity of these uses is a major advance in fulfilling Porter Cologne's water quality mandates.³ Porter-Cologne allows designation of beneficial uses for purposes among which are "preservation and enhancement of fish, wildlife, and other aquatic resources ... " (See Cal. Water Code § 13050 subd. (f), *emph. added.*) The first section of the federal Clean Water Act (which is modeled on Porter-Cologne) similarly annunciates its purpose to restore and maintain the "chemical, physical, and biological integrity" of waters of the United States. (See 33 U.S.C. §1251, *emph. added.*)

Yet despite these clear statements of statutory purpose to protect and enhance the biological integrity of California's waters, up until now Water Quality Objectives (WQO) in California have focused almost exclusively on chemical parameters. Chemical WQOs provide a useful but incomplete metric for assessing biological integrity of waterbodies. Biological Objectives based on the CSCI are important additions to Basin Plan WQOs, because Biological Objectives integrate biological, chemical, and physical indicators into one overall score, which also integrates conditions over time. Chemical WQOs are more "snapshot" in nature and noncomprehensive as indicators of biological and ecological integrity. We therefore agree wholeheartedly with the finding (see Feb. 2019 Staff Report at page 21) that:

"[u]se of water chemistry alone in waterbody assessment does not adequately protect the biological integrity of waters due to the necessarily constrained temporal and spatial extent of chemical monitoring, the limited number of chemicals and matrices that can feasibly be monitored, cumulative and synergistic effects,4 sublethal effects, and the inability of chemistry-based assessment to detect impairment caused by pollution and not a pollutant (e.g. habitat modification)."

We further agree with the findings that BOs are necessary to fully implement water quality protections contained in Porter-Cologne and the Clean Water Act. See, for example, Feb. 2019 Staff Report at page 5 [chemical objectives alone are insufficient to ensure biological integrity of waters; BOs "provide direct measurement of the cumulative and integrated response of the biological community to all sources of stress"]; see also Feb. 2019 Staff Report at page 18 [Bos account for "living organisms exposed to multiple chemicals and other stressors;" and are a "broader evaluation of stressors" than chemical WQOs]. Further, the use of biological parameters to assess stream biological and ecological integrity relies on conditions in the stream environment itself and not in a laboratory, thus incorporating the synergistic and cumulative effects of many stressors that are difficult or impossible to replicate in a laboratory setting.

78. Response 78:

Comment noted.

Comment:

Biological Objectives in the Proposed BPA Are Scientifically Sound.

We agree with the unanimous conclusions of the independent Peer Review panel that the underlying methodology for deriving the numeric Biological Objectives for streams is scientifically sound. (See for example Apr. 2019 Peer Review Report at pages 58-60.) We likewise agree with the related conclusion that the BOs in the proposed BP A should protect beneficial uses. (See Apr. 2019 Peer Review Report at page 58.) We agree in particular with Peer Reviewer Cao that implementation of scientifically sound Biological Objectives such as those in the proposed BP A represents an "over-due change" in ensuring better protection (and, where necessary, restoration) of the ecological and biological integrity of California's waterbodies. (See Apr. 2019 Peer Review Report at page 55.) We also share Peer Reviewer Cao's opinion that the guidance is "concise and informative" and can successfully guide development of future BOs for other types of waterbodies, such as vernal pools. (See Apr. 2019 Peer Review Report at page 55.)

The CSCI reference approach results in scores reflective of human impacts on biological integrity, rather than natural variation, and therefore facilitates "apples to apples" comparisons and determinations of impairments. (See Feb. 2019 Staff Report at page 24.) Use of CSCI methodology results in "residual variation as a signal reflective of the degree and nature of anthropogenic stress at play." (See Feb. 2019 Staff Report at page 33) The biological condition of a stream is a comprehensive indicator of the integrity of the stream's water quality, habitat, and biota. Benthic macroinvertebrates are relatively stationary, ubiquitous, and respond quickly and in diverse ways to environmental stressors. These organisms thus represent an almost ideal indicator group for assessing the biological and ecological integrity of waterbodies. Further, using biological parameters to assess stream biological integrity relies on "real world" conditions rather than laboratory conditions. BOs based on the ecologically relevant CSCI metric thus inherently account for the effects of many synergistic variables (including chemical and physical stressors) that are difficult or impossible to replicate in a laboratory setting. We believe the inherent methodological difficulties in setting WQOs based on analysis of a pollutant studied in isolation under necessarily artificial laboratory conditions have contributed to the contentious nature of many BPAs adjusting existing chemical WQOs. (See footnote 4 above.) BOs based on the CSCI metric do not suffer from the inherent limitations of WQOs based on such laboratory studies. We believe the inherent comprehensiveness of BOs using the CSCI metric would represent a major improvement to the Basin Plan.

79. Response 79:

Comment noted.

Comment:

Broad Concerns: While Adoption of Biological Objectives Will Encourage Restoration of Hydromodified Streams, BO Implementation Should be Predictable, and Existence of BOs Must Not Excuse Inaction in TMDL Program Implementation.

Biological Objectives are necessary because chemical WQOs do not "detect impairment caused by pollution and not a pollutant (e.g., habitat modification)." (See Feb. 2019 Staff Report at page 21.) Adoption of CSCI-based Biological Objectives would help rectify this serious shortcoming in the current regulatory system. Throughout California, and in Southern California especially, many to most major streams have been severely hydromodified by channelization and concretization. Such waterbodies typically exhibit greatly reduced biological integrity, which is not always reflected in monitoring data for chemical parameters. We believe that many, if not most, heavily hydromodified streams would show evidence of impairment by pollution (e.g., channelization and concretization) reflected in low CSCI scores. In turn, low CSCI scores would likely lead to listing such streams as impaired under a Category 4C listing (meaning the stream segment would not necessarily require development of a Total Maximum Daily Load (TMDL), but the listing would encourage development of restoration or partial restoration plans to improve the CSCI score). While we recognize that attainment of BOs (and WQOs in general) in some streams impaired for hydromodification may be a long term project, we still support Category 4C listing of such streams and evaluation of potential restoration or partial restoration plans. As co-signatory San Diego Coastkeeper previously pointed out (see SOCK comments dated Feb. 22, 2018 on the Administrative Draft of Staff Report, at page 3), the

"possibility that some concretized streams may never fully attain the draft numeric BOs is not a reasonable argument for omitting such objectives from the Basin Plan and relegating them to guidance documents... [Failure to develop and implement numeric Biological Objectives] would ... unjustifiably ignore a powerful scientific tool developed over countless years by hundreds of dedicated researchers. Without the numeric goalposts, no one would take a hard look at stream restoration. Without the specificity and granularity of an objective, discrete CSCI score, both slight improvements and slight degradation would likely be overlooked."

We believe use of BOs will help encourage stream restoration, and thereby also ultimately promote attainment of WQOs. A major indirect but foreseeable benefit of BOs should therefore be the long-term reduction in the amount of litigation against dischargers over allegedly causing or contributing to the failure to meet WQOs, especially in hydromodified streams. (We note many members of this ad hoc coalition have brought multiple lawsuits that include such allegations in the industrial stormwater and MS4 permitting contexts.)

Despite the many demonstrable benefits of BOs, we are nonetheless concerned that the current wording of the draft Staff Report could encourage misuse of BOs to deprioritize development of TMDLs for pollutants, particularly in concretized streams. (See Feb. 2019 Staff Report at page 90.) It is not good public policy to defer development of TMDLs for pollutants simply because a stream is also impaired because of pollution (e.g., hydromodification.) There is a significant risk that hydromodified streams could simply be "written off" for an indefinite but potentially lengthy period of time under a regulatory system where a Category 4C listing improperly serves to deprioritize implementation of TMDLs. Reducing pollution and reducing pollutants should not be made mutually exclusive. Addressing both pollution and pollutants will prove necessary to adequately protect and enhance water quality and beneficial uses in California.

Relying on BOs to defer development of TMDLs could also cause adverse environmental justice (EJ) impacts given the disproportionate proximity to concretized streams of communities that face high environmental burdens. These communities also disproportionately include low income residents and people of color. We request additional analysis or clarification of these important EJ issues in the final Staff Report (or, in the alternate, a clear commitment in the final Staff Report to continue implementation of TMDLs where water quality is impaired by pollutants in stream segments also listed in Category 4C because of pollution.)

80. Response 80:

Please see Response #1 regarding the restoration of streams placed in Category 4c, as well as exclusion of hardened streambed segments from the proposed Stream Biological Objective. The Stream Biological Objective is not intended to be used to defer the development of TMDLs. The reality of the TMDL program is that the number of impaired waterbodies far outweighs available resources to develop TMDLs. Thus, the San Diego Water Board considers many factors when prioritizing TMDL development, such as impacted core beneficial uses (e.g. safe to drink, safe to swim, safe to eat, ecosystem health), environmental justice (EJ), potential alternative remediation actions, impairment scope and duration, and other factors. The modification of the proposed Stream Biological Objective is not expected to deter TMDL development in streams as described by the comment, but allow for the consideration of additional information when prioritizing TMDL development and determining if a TMDL is the correct course of action for addressing impairment(s).

Environmental Justice is a critical component of the San Diego Water Board's mission and the board has specifically included EJ in the San Diego Water Board Practical Vision. Following adoption of the proposed Stream Biological Objective, the San Diego Water Board will seek additional information regarding existing concrete channels, including EJ considerations such as mentioned by the commenter. For example, in Resolution No. R9-2015-0020 the Board stated that projects which benefit EJ communities will be given priority for funding from supplemental environmental projects and requests from the cleanup and abatement account.

Comment:

At the April 18, 2019 Workshop, several municipal and county dischargers argued that the BO implementation plan, which envisions the adoption of BOs followed by (possible) incorporation of numeric BOs into discharge permits as Receiving Water Limitations (RWL), would result in immediate permit non-compliance and enforcement liability for discharges into hydromodified streams. We disagree. In the context of BOs, any RWL would foreseeably be incorporated into permits to forbid discharges that "cause or contribute" to violations of a Biological Objective. Since the impairment results from hydromodification (e.g, channelization and concretization), discharge of any pollutants otherwise in compliance with permit conditions would not "cause or contribute" to the channelization or concretization of the receiving waters. Therefore, discharges otherwise in compliance with RWLs would still be in compliance with modified RWLs if numeric BOs are incorporated into discharge permits. The purported compliance/liability issue is thus not a valid reason for opposition to adoption of the proposed BPA.

We believe the draft Staff Report and Substitute Environmental Document (SED) provide concise findings supported by substantial evidence, and overall lay a very strong foundation for the adoption of the proposed BPA. Nonetheless, we request conditional BO compliance language in the implementation plan (including but not limited to "may" or "as appropriate," both of which appear frequently) be made more definitive, or at a minimum the context of the qualifying words should be more fully explained. While we recognize the need for a degree of flexibility to accommodate unforeseen problems in BO implementation, we are concerned the net result of using so many qualifiers in the implementation plan would lead to a level of agency discretion that could create uncertainty over implementation of BOs and undermine their effectiveness.

81. Response 81:

The comment describing implementation of the Stream Biological Objective as a receiving water limitation is accurate.

The implementation plan is required to be a description of the program of implementation for the water quality objective (please see Response #2, #32 and #47 as examples). The description of the program of implementation includes general implementation requirements on a program-by-program basis and has been drafted with specificity where feasible.

Flexibility in the description of the program of implementation has been included because project-specific permitting requirements will be subject to future public participation processes and are typically not appropriate for inclusion within the Basin Plan. Thus, the inclusion of less definitive language where deference to San Diego Water Board public processes is suitable.

Comment:

Specific Concerns: A Few Additional Clarifications Would Improve Implementation of the Proposed BPA.

We believe the following sections of the Staff Report and/or Substitute Environmental Document (SED) would be improved with additional clarifying language, primarily to enhance certainty in implementation of the numeric BOs:

We request the final SED include the up-to-date status of any CEQA-required consultations with Indigenous Peoples, and any proposed actions (including any follow up outreach and engagement by the Regional Board) resulting from such consultation.

82. Response 82

See Response #81. In addition, the San Diego Water Board followed the tribal consultation process required by CEQA, and this information will be included in the final proposed BPA package when presented at the board hearing.

Comment:

It would be helpful to include more information about site-specific BOs, such as by explaining potential waterbodies for which site-specific BOs might be developed and under what circumstances (e.g., vernal pools, or existence of relatively few reference sites). Site-specific objectives should be the exception, and not the general rule. This issue was effectively addressed by Mr. Loflen at the April 18 Workshop, so including such information in the final Staff Report/SED should require very little additional effort. (See Feb. 2019 Staff Report at page 20.)

83. Response 83

Additional clarifying language regarding development of future objectives has been added to the draft Staff Report (Section 3).

Comment:

We recommend including additional information on how the reference pool would be updated over time, particularly in the context of climate change, and what type of public process would accompany the updating of reference sites. (See Feb. 2019 Staff Report at page 33.)

We also recommend a general reassessment in 3-5 years to enable refinements to the Basin Plan, or to resolve any issues that might arise in implementation of BOs.

Also, we request clarification as to whether a single CSCI score would be used to show compliance or non-compliance with BOs, for what length of stream, and over what time period. (See generally Feb. 2019 Staff Report at page 33.) We ask that the general reassessment include information on the number of exceptions and site-specific objectives requested, the number granted, and analysis of whether such exceptions or other forms of relief undermine or risk undermining the effective implementation of BOs.

We are concerned that the current language in the implementation plan might encourage frequent requests for second-tier analysis of sites scoring below the 10th percentile CSCI. We recommend including additional language to clarify that such analysis would be limited to relatively rare specific situations (for example, low CSCI scores caused by naturally-occurring TDS in springs; or fires caused by lightning as opposed to human activities). (See Feb. 2019 Staff Report at page 35 and again at page 44.)

Because identification of reference sites likely becomes more accurate over time, the Regional Board should consider, for example, the usefulness of eventually using the 5th percentile CSCI as the initial BO impairment threshold. Also, we ask for clarification on how any such decisions would be made (e.g. during triennial reviews, as BPAs, by approval of the Executive Officer, or some other manner). (See Feb. 2019 Staff Report at page 39.)

We also request additional clarifying language on how additional evidence submitted to the Regional Board regarding whether a low CSCI score is "natural in origin" would qualify as "significant" and how such evidence may differ from "substantial" evidence required elsewhere. (See Feb. 2019 Staff Report at pages 44-45.)

84. Response 84

Please also see Response #15 and #25. As stated in the draft Staff Report (section 4.6), updating the CSCI-based Stream Biological Objective will occur through the basin planning process. Basin plan amendments typically are a product of the triennial review process which includes a prioritization process that considers, among other things, board staff resources and is subject to public participation. The updating of reference sites and evaluation of reference site results is not expected to occur through a San Diego Water Board basin plan amendment because it is conducted by State of California scientists as part of the Reference Condition Management Program.

In response to this and other comments, additional language has been added to Chapter 4 regarding the consideration of additional evidence for naturally depressed CSCI scores.

In regard to "compliance" with the Stream Biological Objective, whether a stream is meeting the Stream Biological Objective would be determined in accordance with the Listing Policy. General guidance for permit-specific requirements is included in the Chapter 4 permitting section.

Comment:

We believe use of the 10th percentile CSCI as the initial threshold for impairment is justified. The inclusion of seasonal streams within the BOs for streams is also justified. Nonetheless, we recommend inclusion of additional citations to support use of CSCI (and the 10th percentile score) as a basis for BOs (and first-tier thresholds for impairment). We note the peer review report contains many such citations (in addition to itself being a citable source of support). (See Feb. 2019 Staff Report at page 37.)

85. Response 85

Comment noted. The proposed BPA Scientific Peer Review is part of the administrative record.

Comment:

We believe additional clarification or guidance (and elimination of a typo) would be helpful to understand alternative analytical methodologies and thresholds of applicability "as further scientific ... science is developed." (See Feb. 2019 Staff Report at page 44.)

We agree that evidence of physical habitat alteration, coupled with lack of impairments using traditional chemical WQOs, indicates that the water body in question could be a good candidate for restoration activities. (See Feb. 2019 Staff Report at page 47.)

We request additional clarity on how "long term incremental improvement" in hydromodified streams would be defined, and inclusion of examples of how actions to ensure long term incremental improvement might be implemented. (See Feb. 2019 Staff Report at page 73; see also above discussing concerns with potential for "writing off" certain concretized streams for potentially long periods of time.)

86. Response 82

The typo has been corrected. Please see Response #1 regarding restoration and the modification of the Stream Biological Objective. Additional information has been added to the draft Staff Report regarding tools that could be used to document incremental improvement (e.g. Beck et al. 2019).

Comment:

We request additional clarification on how "probable threat" would be defined. (See Feb. 2019 Staff Report at page 75.)

87. Response 87

Please see Response #37 regarding changes made for the term “probable threat.”

Comment:

Conclusion: We Strongly Support the Adoption of the proposed BPA.

We reiterate our strong support for the proposed Basin Plan Amendment to the San Diego Basin Plan to incorporate Biological Objectives, and we again thank the San Diego Regional Board for its leadership on developing protective and scientifically sound Biological Objectives. We request that the additional information discussed above be provided before the adoption hearing to build on the very strong foundation provided by the Feb. 2019 Staff Report and SED. While long overdue, the proposed BPA is nonetheless a significant step forward for the San Diego region and indeed for all of California. We look forward to the resolution of any remaining issues; an expeditious schedule for the adoption hearing for the proposed BPA; and the timely subsequent approval by the State Water Resources Control Board, the California Office of Administrative Law, and the federal Environmental Protection Agency.

88. Response 88

Comment noted.

i) Commenter: Riverside County Flood Control and Water Conservation District

Comment:

The Riverside County Flood Control and Water Conservation District (District), the County of Riverside, and the Cities of Temecula, Murrieta and Menifee (collectively, the Riverside CoPermittees) appreciate the opportunity to provide comments on the proposed Basin Plan Amendment (BPA) to incorporate Biological Objectives for perennial and seasonal streams in the San Diego Region (Proposed Biological Objectives).

The Riverside Co-Permittees support as a concept the assessment of benthic macro invertebrate (BMI) community health to evaluate the relative quality of the aquatic life beneficial use. However, we have numerous remaining questions regarding how implementation of the Biological Objectives will impact our programs. The Co-Permittees appreciate that San Diego Water Board staff met and discussed many of these questions at the May 17, 2019 workshop. Nonetheless, answers to many of the key questions raised during the discussion were largely deferred to future permit development and implementation, were not clearly articulated or comprehensive, and require the Regional Board to address various issues "case-by-case" in the future. We have attached in Table I lists of multiple key questions from the CoPermittees that have not been fully addressed or explained in the proposed BPA or the Staff Report. These questions in Table 1, which are incorporated into these comments, have left stakeholders to guess at possible implementation scenarios and outcomes. As a result, these comments and those provided by other regulated stakeholders in the San Diego Region and by the California Stormwater Quality Association (CASQA) are quite lengthy and complex.

89. Response 89

Comment noted. Specific responses to comments are included below.

Comment:

Previous Comments Not Addressed

The District provided comments on the previous Administrative Draft of the proposed BPA on February 22, 2018. A copy of this letter is attached. Those comments included many of the same questions that still remain unanswered, and many of the same concerns that the Co-Permittees still have, including: conflict between the Proposed Biological Objectives and the statutory flood control mission of the District; the unrealistic expectation for modified channels to meet reference-analogous biological conditions; the low probability that any stream restoration projects will achieve the objectives; the use of inconclusive causal analyses; and how the objectives will be brought into permits. We urge staff to release their responses to these earlier comments as soon as possible so that stakeholders have a clearer understanding of staff's position on these issues.

90. Response 90

The San Diego Water Board, on January 22, 2018, released an administrative draft of the proposed Stream Biological Objective. The administrative draft was not released for rulemaking purposes, but to solicit early feedback on the proposed BPA through the submittal of public comments. As specified during the release of the administrative draft, staff was soliciting feedback and would not be providing a written response to comments received. The San Diego Water Board also held a public workshop on the administrative draft on February 14, 2018, to solicit additional feedback on the administrative draft. In response to the feedback received, the San Diego Water Board made changes to the proposed Stream Biological Objective and released a formal draft for rulemaking purposes on February 28, 2019.

Comment:

Current Concerns

We have specific technical concerns based on our understanding of the science regarding the Biological Objectives themselves and how they could be implemented; regulatory and legal concerns regarding the application of the Objectives, including to modified streams; concerns about conflicts with the legislative authority and mission of the District and the impact of implementation on crucial flood control infrastructure; and concerns as to the achievability of the Proposed Objectives as discussed in the Staff Report and in the Draft Substitute Environmental Document (DSED).

The Water Board is proposing to adopt a San Diego Region-only set of biological objectives. Both the District and the County of Riverside operate in three different Water Board regions: the San Diego, Santa Ana, and Colorado River Regions. The District and County in particular believe that a uniform state-wide set of Biological Objectives, such as has been under consideration by the State Water Board in its development of the Statewide Biostimulatory and Biointegrity Plan, would be preferable to the development and implementation of biological objectives for only the San Diego Region.

In addition, the particular difficulties in establishing biological communities in modified or "constrained" channels is of particular concern to the District in its role as the designated flood control agency for Riverside County. This flood control role cannot be delegated or impaired by any other agency, as the Legislature specifically established the District to perform this role. The District is concerned that because modified channels, by their nature, cannot support a BMI community that would meet the numeric criteria in the Objectives, the logical outgrowth of the Proposed Biological Objectives would be the required destruction of such channels and return to an unmodified state in an effort to achieve the Objectives. This concern is also related to potential conditions applying to the maintenance of such channels through a 401 certification.

Our current concerns also discuss various other technical issues with the Proposed Biological Objectives, including how a "seasonal" waterbody is defined, the suggested use of more representative reference sites for the San Diego Region, that the numeric biological objective should not be a single threshold value but should consider the range of natural variability, and that use of a causal assessment is technically challenging and not always effective.

The Riverside Co-Permittees also set forth legal issues, including with respect to the analysis of the Section 13241 and 13242 factors required for Basin Plan Amendments, comments on the analysis of CEQA factors discussed in the DSED, and issues relating to compliance determination for MS4 permittees.

Support for CASQA's Comments

The Riverside Co-Permittees strongly support the eleven comments and respective recommendations submitted by CASQA on June 1, 2019. In order to minimize and simplify the descriptions of these comments and recommendations, we refer to and excerpt key text from the CASQA letter, and hereby incorporate it into these Riverside Co-Permittee comments, by reference, in its entirety. CASQA's primary issues with the Proposed BPA and approach are that it:

- a. Deviates from the statewide process to develop similar objectives;
- b. Does not consider the work developed through the State Board's Biostimulatory/Biointegrity process;
- c. Does not consider approaches from other states;
- d. Does not include a regulatory framework for implementation;
- e. Leaves a significant disconnect between the Proposed BPA (Chapter 4) and the Draft Staff Report; and
- f. Does not comply with the Porter Cologne Water Quality Control Act (Porter-Cologne).

91. Response 91

Please see CASQA comments for responses to CASQA comments.

Please see below for specific responses to concerns/comments.

Comment:

Summary of Recommendations

While we understand that the San Diego Water Board wishes to set a high standard for the acceptable biological condition of streams in the region, the Co-Permittees and other stakeholders need clear and achievable goals and guidance in order to plan and implement effective watershed management actions through our programs, and to comply with regulatory requirements. The Riverside Co-Permittees therefore make the following specific requests of the San Diego Water Board with respect to the Proposed BPA:

First, that it defer adoption of San Diego Region-specific biological objectives and await completion of the State Water Board's Biostimulatory/Biointegrity process.

Second, if the Board is not willing to defer adoption of region-specific biological objectives, that it work cooperatively with the State Water Board and stakeholders to develop the objectives and implementation plan and delay adoption of objectives as appropriate.

Third, if the Board does not wish to follow either of the first two recommendations, that it:

1. Develop and implement the biological objectives in a phased program, applying any numeric threshold only to waterbodies that met reference criteria. If/When numeric standards are adopted, they should be based on a pool of reference sites and other archetypal site categories using data from San Diego Region-specific sites.
2. Exclude modified channels from application of the objectives, at least until further information is developed regarding the ability of such channels ever to meet numeric objectives, using bio-objective metrics that are appropriate for modified and/or urban-impacted streams consistent with findings of SCCWRP's Channels in Developed Landscapes study and the State Water Board's Biological Condition Gradient approach.
3. Address and incorporate into the biological objectives process the specific recommendations contained in the Riverside Co-Permittee and CASQA Comment Letters, including relating to clarification in the meaning "seasonal" streams, use of more representative reference sites within the San Diego Region, adopt a numeric objective which considers the range of natural variability, reassess the use of causal assessments for implementation, address the legal and policy issues raised in the Riverside County and CASQA Comment Letters, including with respect to compliance liability and review of Water Code 13241/13242 factors, the environmental review in the DSED and other issues.

92. Response 92

Please see Response #43 for a discussion of the current statewide efforts. The proposed Stream Biological Objective has been modified to occur in a phased approach by changing the objective (see Response #1) to specifically exclude certain “modified channels.” This does differ from the commenter’s proposed phased approach. The suggestions to apply the threshold only to sites that meet reference criteria and to use only San Diego Region sites to develop a numerical standard are not appropriate for the proposed Stream Biological Objective because it does not meet the goals of the project (see Responses #2, #5, #17, and #62). In addition, the suggested use of prescribed tools to set numeric criteria for the Stream Biological Objective are not warranted (see Responses #3, #6, and #43).

Specific responses to recommendations under 3.3 are included below.

Comment:

1.0 Questions And Concerns Regarding Scope And Implementation Of Proposed Biological Objectives

Many of the questions in Table 1 were also raised before the State Water Board during the initial stages of development of the Statewide Biological Integrity Plan (now the Statewide Biostimulatory and Biointegrity Plan). In a presentation entitled Biological Objectives Assessment Framework & Implementation Issues, numerous questions regarding the development and application of the Biointegrity Plan were identified, including many of the questions noted above. As a result of these questions, the State Water Board shifted from the development of a numeric biointegrity objective to a plan for assessment of biointegrity with the possibility for a narrative objective. It is critical these questions be addressed prior to adoption of the Proposed Biological Objectives. Without clarity on how the Objectives will be implemented, the Co-Permittees will not be able to effectively identify implementation actions, communicate needed actions to decision makers and the public, or understand the implications for their programs.

Similarly, the Co-Permittees recommend that, if the San Diego Water Board still plans to proceed with development of San Diego Region-specific Biological Objectives, the Water Board adopt a phased approach to development of the objectives. In the first phase, a narrative objective with a numeric threshold would be applied to waterbodies that meet reference criteria. Implementation and monitoring actions would be developed for waters that do not meet reference criteria to ensure biological conditions do not degrade. During the first phase of implementation, the Water Board and interested stakeholders would work through a process to answer the questions noted above and identify the appropriate approach to address waterbodies not meeting the reference criteria. The second phase can use the information developed in the first phase to adopt an approach as a second phase of the objectives or the Water Board could defer to the Statewide Biointegrity/Biostimulatory Plan to address the identified issues.

To answer implementation questions and to help connect the Staff Report and the Proposed BPA, the Riverside Co-Permittees support the recommendation in Comment #1 of the CASQA Comment Letter, which is that the San Diego Water Board "should develop a flow chart/framework that clearly outlines how the Proposed BPA will be applied, assessed, and implemented and what the corresponding requirements are." (See CASQA Comment Letter at 4.) The Riverside Co-Permittees also request that Board staff address the questions raised in Table 1 of these comments.

93. Response 93

Please see Response #43 and #92. To clarify, the State Water Board has not released draft policy for public review.

Comment:

2.0 The Proposed Biological Objectives Require All Waterbodies To Attain Reference Conditions, Regardless of Existing Constraints; Research Demonstrates That This Is Likely Not Feasible

The Co-Permittees have concerns that the Proposed Biological Objectives as written are not achievable in all waters and the implementation provisions provided in Chapter 4 do not adequately address the acknowledged constraints on biological integrity in these waterbodies. By assigning the same numeric criteria (i.e., ≥ 0.79 CSCI score) to all streams in the region, it would hold modified channels and engineered streams (i.e. flood control channels) to a reference standard that is extremely difficult or impossible to attain.

Many of the current waterbody constraints in the region existed at the time the first Basin Plan was developed. Permanent flood control structures cannot, as a rule, be modified without endangering life and property; therefore, the expectations for these waterbodies need to be adjusted to reflect the actual biological conditions achievable in such systems. The Proposed Biological Objectives need to address such water courses separately from natural streams. The information being developed for the Statewide Biointegrity/BioStimulatory Plan could provide a framework for developing alternative approaches for constrained waterbodies, which is a factor supporting the Riverside Co-Permittees' request that the San Diego Water Board defer further action on the Proposed BPA pending completion of the State Water Board's efforts in this area.

Under the BioStimulatory/BioIntegrity Plan, the Southern California Coastal Water Research Project's (SCCWRP) "Channels in Developed Landscapes" project has classified stream segments based on their probability of being constrained (i.e., low probability of meeting the 0.79 CSCI threshold) or unconstrained, based on surrounding land use factors. This approach distinguishes settings where permanent or semi-permanent landscape features related to legal development combine to constrain biological condition independently of water quality and, thus, where management measures focusing on water quality are less likely to improve biological integrity. The modeling tool can be used, among other things, to (1) identify the stream segments in a region that are unlikely to obtain reference-level CSCI scores owing to development, and (2) predict expectations for CSCI scores (as a range of likely scores) for streams that fall into this category. This project demonstrated that many stream segments are considered constrained (up to 31% of South Coast California streams) and would likely not meet a 0.79 CSCI threshold based strictly on surrounding land use factors.

*Note: The comment also includes additional information on pages 6-9 of the comment letter. The San Diego Water Board considered this information and the below response includes this consideration.

94. Response 94

In response to this and other comments, the proposed Stream Biological Objective has been modified to exclude hardened streambed segments at this time (see Response #1). The commenter's suggested use of the Beck et al. model is not appropriate or consistent with the publication. Please see Response #43 regarding the use and applicability of the Beck et al. model. Please see Responses #2 and #17 regarding analogous reference sites and Responses #1 and 80 regarding restoration potential. Please also see the Scientific Peer Review response regarding restoration potential (Section 2.1).

Comment:**3.0 Proposed Biological Objectives Introduce A New Waterbody Definition (Seasonal) That Will Be Challenging To Identify**

Under the Proposed Biological Objectives, the narrative biological guidance in the San Diego Region will be applicable to all surface waters, but numeric biological objectives would apply only to perennial and seasonal streams. The Objectives define seasonal streams as "any freshwater stream that is expected to be inundated with flowing water for at least four weeks between the months of February and October, except during periods of atypical or extreme drought.... Seasonal streams do not include those streams that only exhibit ephemeral flow, which is flow that occurs only during or immediately following (e.g., 24-48 hours) rainfall events."

From a practical perspective, it is extremely difficult to definitively classify streams into one stream type given the gradient of possible flow regimes and year-to-year variability. From a policy perspective, Permittees need to know if a stream is subject to a numeric objective. A seasonal stream could be dry for multiple years (e.g., flow for longer than 4 weeks only 1 out of 5 years), which could lead field crews in most probabilistic one-visit sampling programs to not know the typical life history of a stream's flow duration.

Furthermore, if the stream is flowing during a field visit, the crew will sample it. This could potentially skew the CSCI score for a stream if it is thought of as a typical seasonal stream, when it is actually an ephemeral stream with an extended flow.

A high proportion of streams in the San Diego Region are considered "seasonal" according to the definition. A study published by SCCWRP (SCCWRP, 2012) identified 73% of streams in the San Diego Region as being seasonal. The study also stated that these stream types support BMI communities that are distinct from those found in perennial streams, and that multi-metric indices designed to assess the health of BMI were applicable to these stream-types as long as they flowed long the establishment of all benthic communities. It has been documented by Mazor et al. (2014) and others that biologic metric scores can remain relatively steady in seasonal streams across a season. However, as noted in Section 4.7.1 of the Draft Staff Report, the scores become much more variable and can decline quickly as the stream reaches the end of its drying cycle. This is particularly true for moderate and high stressed non-perennial sites, which are more common in urban and rural areas where the majority of bioassessment sampling for permit compliance takes place. The point on the hydrologic cycle from beginning of flow to drying is typically not known during a field bioassessment, and historic site reconnaissance has shown that streams often cease to flow more quickly than anticipated. The Draft Staff Report addresses stream habitats that are acceptable for sampling (Section 4.5), though the flow duration of many streams is not known. Furthermore, the Proposed Biological Objectives do not adequately address BMI community changes near the end of their flow cycle and, in fact, seem to indicate in Figure 15 of the Draft Staff Report that reduced flow at the end of a drying cycle does lower the CSCI score.

While it is clear that a representative and accurate CSCI score can be derived from a seasonal stream during some portions of its flow duration, it has not been demonstrated that this is also true as a seasonal stream nears the end of its flow cycle. Sampling a stream near the end of its flow may lead to improper 303d listings based on inaccurate CSCI scores not representative of a seasonal stream's true biological potential. The policy should acknowledge the limitations of using CSCI scores in "seasonal streams" and provide flexibility in the application of CSCI to "seasonal streams."

There are, in addition, many uncertainties and vagueness with respect to how the proposed BPA would interpret key definitions in the Proposed Biological Objectives. To address the concerns with the new "seasonal stream" definition, the Riverside Co-Permittees support CASQA's concerns expressed in Comment #11 of the CASQA Comment Letter and CASQA's recommendation. In that comment, CASQA recommends that the San Diego Water Board clarify the difference between "seasonal streams" and "intermittent streams," and if the technical basis for using intermittent streams applies equally to seasonal streams; define "typical," "atypical," and "extreme drought" water years, and clarify the temporal extent and frequency of this determination; define "dry year" and "wet year" water years, and clarify the temporal extent and frequency of this determination; clarify the Board's expectation as to how a Permittee should determine if a waterbody is perennial, seasonal, or ephemeral if there are no rain or stream gauges currently installed at the waterbody; clarify that any determination of waterbody types or water years is based on readily available data; and remove "seasonal streams" from the types of waterbodies that the numeric biological objective applies to until there is clarity on how the definitional issues would be addressed. (CASQA Comment Letter at 18-19.)

95. Response 95

Please see Responses #8, #24, #25, and #46. Additional language has been added to the draft Staff Report (Section 4.5.1) to clarify the term seasonal stream. Scientific Peer Review found the proposed inclusion of seasonal streams to be scientifically sound and appropriate.

Comment:

Proposed Biological Objective Should Be Calculated Using More Representative Reference Sites For The San Diego Region

While the Riverside Co-Permittees request that the San Diego Water Board defer development of the BPA in favor of a statewide approach, in the event that the Board proceeds with the BPA, the Co-Permittees believe that more consideration needs to be given to utilizing the appropriate reference pool in Southern California and refining the CSCI model threshold for the region. Refinement of the CSCI needs to be considered to support accurate assessments within this region and to demonstrate that the Proposed Biological Objectives are based on sound science.

Under the current "reference stream approach," reference sites used to set the biological expectation for all sites within the San Diego Region are contained within the State's Reference Condition Management Program (RCMP). The network of perennial stream sites within the RCMP pool have been screened using GIS land-use attributes to include only those with minimal to no anthropogenic influences within the upstream catchment. To determine the CSCI score for any individual stream site being sampled in the San Diego Region, a "modeled reference site" was developed using the distribution of a sub-set of unaltered analogous streams from the RCMP reference pool. This sub-set of reference streams are those selected from the RCMP reference pool that are most analogous (similar) to the individual stream being sampled in terms of latitude, longitude, elevation, watershed area, longterm temperature and precipitation, and underlying geology.

While the CSCI score for an individual site sample is derived from analogous reference streams, the CSCI numeric objective threshold of 0.79 is derived from the 10th percentile of the entire statewide reference pool data set distribution. This statewide distribution contains many non-analogous reference sites, as the statewide reference pool encompasses sites from all regions of California, including extreme northern California and the Sierra Nevada Mountains, which are much different than reference streams in xeric southern California. Including sites from these other non-analogous regions in the pool used to derive the numeric criteria skews the 10th percentile of the distribution upward, resulting in an overly conservative CSCI threshold of 0.79 for the San Diego Region's xeric streams. A more appropriate regional CSCI numeric objective would be derived from streams physically, hydrologically, and geographically most like San Diego Region streams. Figure 3 of the Mazar et al. (2016) paper describing the development of the CSCI, distinguishes the South Coast xeric (Group 8) and mountains (Group 10) as distinct biological clusters. Results of the CSCI analyses for a typical San Diego Region stream, shows two clusters as overwhelmingly the most "analogous" within the statewide reference pool. The 10th percentile of CSCI scores for these two clusters are 0.66 (Group 8) and 0.80 (Group 10). By combining data from these two more appropriate reference groups for the San Diego Region, the 10th percentile CSCI numeric objective threshold from this distribution would be closer to 0.69. A more appropriate regional CSCI numeric objective derived from a subgroup of reference sites that are physically, hydrologically, and geographically most like San Diego streams should be considered.

Many states, some much less geographically and climatically diverse than California, have recognized the need for regional thresholds within their state to accommodate the various differences in ecoregion, geography, or habitat type. Currently, Mississippi, Alabama, Idaho, Colorado, New Mexico, Indiana, Illinois, Ohio, Minnesota, Montana, Wisconsin, and North Carolina all have multiple intra-state BMI thresholds, and Massachusetts and Michigan are currently in the process of developing variable indices and thresholds by ecoregion. As such, these states have set a precedent for regional indices approved by USEPA.

The Riverside Co-Permittees concur with the observation in the CASQA Comment Letter (at 2) that the "Proposed BPA does not consider the various alternatives adopted by other states for addressing biological criteria, including the extensive use of narrative objectives with numeric guidance (nineteen states) as well as how other states addressed similar critical scientific, regulatory, and technical issues."

96. Response 96

Please see Responses #5 and #62 regarding use of a regional CSCI threshold. Please see Response #44 regarding the use of thresholds by other states. Scientific Peer Review found the inclusion of a single threshold based on the statewide CSCI to be scientifically sound, with some peer reviewers highlighting its strength over regional approaches.

Comment:

Proposed Biological Objective Should Not Be A Single Threshold Value and Should Consider The Range Of Natural Variability

The Proposed Biological Objectives translate the narrative statement as a single bright-line numeric biological objective for assessing biological integrity of perennial and seasonal streams within the San Diego Region. The BMI community is used as the single line of evidence to assess if biological integrity meets the narrative objective, with the CSCI used as the sole measure of compliance. This bright-line approach to determining impairment does not consider the natural variability of CSCI scores at a given site over time. Rather than use a percentile of unaltered analogous streams from the reference pool distribution to define a bright-line CSCI threshold of impairment across all stream types, the State Water Board has developed a Biological Condition Gradient (BCG) model. These BCG analyses indicate that a CSCI threshold, such as the 10th percentile of reference (0.79), should not be construed as a bright-line to determine impairment, but rather that sites considered as meeting the same narrative biological and ecosystem standard of structure and ecological function can span a wide range of CSCI scores (Figure 3).

The Riverside Co-Permittees, moreover, support the comments of CASQA regarding the adoption of a narrative objective or range rather than a "bright line" single value, as set forth in Comment #s 2, 6, and 7 of the CASQA Comment Letter. In particular, CASQA emphasizes the need for the Proposed BPA to consider the work done by the State Water Board in its development of the Biostimulatory Substances Objective and Program as well as to recognize the "inherent limitations of water body segments in highly developed landscapes" and to use SCCWRP's Channel in Developed Landscapes Model to assist in defining the expected biological conditions.

The Riverside Co-Permittees also support the recommendation of CASQA that "due to the strict sampling requirements associated with obtaining a representative CSCI score and the scour and disruption to the biological community that can occur during storm events, application of the Stream Biological Objective should be further restricted and only apply between March 1 and August 15 and not during wet weather events or the three weeks following a storm event." CASQA Comment Letter at 3. See also CASQA Comment #3.

97. Response 97

Please see Response #3, #6, and #43 regarding the use of tiered objectives or the BCG approach.

The language regarding sampling requirements in Sections 4.5.1 and 4.7 of the draft Staff Report has been updated for clarity.

Comment:

Proposed Biological Objectives Rely Heavily On Technically Challenging And Expensive Causal Assessments For Effective Implementation

In the Draft Staff Report, the use of rapid causal assessment methods are recommended for NPDES permittees where stream benthic communities are considered as not meeting biological objectives. This implementation approach relies heavily on a permittee's ability to determine if its dischargers are causing or contributing to lowered CSCI scores and then identifying the causes of the lowered scores. However, this approach oversimplifies the permittees' ability to determine the causes of lowered CSCI scores and implement strategies to address those causes. The 2012 pilot program under the State Water Board's original Biological Objective Program demonstrated that EPA's Causal Assessment procedures, while scientific and thorough, were much better at ruling out than determining the cause of impairment. While recent efforts to improve and streamline the causal assessment method have been undertaken by SCCWRP and the City of San Diego, these efforts are still under development and their effectiveness at determining the cause of BMI community degradation is still being evaluated. In actuality, many biological impairments are likely caused by multiple factors, including both pollutants and "pollution." Thus, there is a very real possibility that many causal assessments will result in an inconclusive determination. This is another reason why the Riverside Co-Permittees believe it is premature to adopt numeric biological objectives that depend upon imprecise tools for evaluating the causes of the biological impairments.

The Riverside Co-Permittees also endorse the comments of CASQA (Comment #8 at 14-15) regarding the need for more clarity concerning the use of causal assessments, the effectiveness and limitations of such assessments, and how the information that is generated from them would be used, depending on the range of plausible outcomes. In particular, the Co-Permittees agree with CASQA's recommendation that the San Diego Water Board should "clarify when rapid causal assessment methods would be used versus EPA's CADDIS-based approach, identify the limitations of the methodologies, explain how the resulting information would be used, and explain how multiple stressors, would be prioritized and addressed within the regulatory framework." CASQA Comment Letter at 15.

98. Response 98

Please see Response #66 regarding causal assessment.

The comment mischaracterizes causal assessment. The State of California conducted a USEPA Causal Analysis/Diagnosis Decision Information System (CADDIS) tool evaluation (Schiff et al. 2015) published as "Causal Assessment Evaluation and Guidance for California." The use of traditional causal assessment in the San Diego Region was determined to successfully identify the likely causes of impairment. Schiff et al. 2015 states the following:

"RECOMMENDATIONS FOR FUTURE WORK

While we recommend CADDIS for Causal Assessment, it is not perfect. Particularly for use in California, there are several shortcomings that, if addressed, will improve the quality and speed of Causal Analysis, while at the same time reducing the overall cost and uncertainty in the results. These recommendations fall into two broad categories: comparator site selection algorithms and development of new assessment tools."

The recommended shortcomings have been addressed via the development of better comparator site selection methods, as well as new assessment tools. These have been scientifically published and included as scientific references cited in the draft Staff Report. The use of more rapid causal assessment will result in faster evaluations of likely cause. The identification of sites as being impacted due to pollutants and pollution is a critical component of conducting causal assessments, as would be the determination that the likely cause is unknown or inconclusive. A description of the use of causal assessment is included in Chapter 4 for specific programs, including for the Integrated Report, TMDLs and Alternative, and Permitting and Compliance.

Comment:

7.0 The Proposed Biological Objectives Raise Legal And Policy Concerns

In addition to the technical comments set forth above, the Riverside Co-Permittees also have legal and policy concerns with the Proposed Biological Objectives and the supporting documentation.

7.1. The Legislature Has Placed with the District the Obligation to Protect the Lives and Property of Riverside County Residents from Flood Waters

In 1945, the Legislature adopted the Riverside County Flood Control and Water Conservation District Act (Stats. 1945, Ch. 1122), Water Code uncoded Act 1000 (Deering's), which established the District and set forth its core mission: "to provide for the control and conservation of flood and storm waters and for the protection of water courses, watersheds, public highways, life and property in said district from damage or destruction from such waters." *Id.*

In exercising that authority, the District has the power to, among other things, "acquire, by purchase, lease, construction, or otherwise, or contract to acquire, lands, rights of way, easements, privileges, and property of any kind, whether real, personal, or mixed, and to construct, maintain, and operate any and all works of improvements within or without the district necessary, convenient, or property to carry out any of the objects or purposes of this act..." Water Code uncoded Act 1000 at § 9.

Acting under its authority vested by the Legislature, the District has constructed a system of modified channels, basins, and other flood control facilities to reduce the impacts of flood waters on Riverside County residents. These channels and other facilities must be routinely maintained to ensure that their flood control capabilities remain as designed at all times. Thus, vegetation, rocks, sediment and other debris must be removed from flood control facilities on a regular basis. The channels, moreover, have been built pursuant to all applicable legal authority, including required environmental mitigation.

As a recent example of what is required to "protect from flood damage," the District is a partner in the Murrieta Creek project, a multi-purpose flood control, environmental restoration and recreation project along 7.5 miles of Murrieta Creek tributary to the Santa Margarita River. The project's major features include about seven miles of channel improvements, three bridge replacements, a 270-acre detention basin with 163 acres of wetland restoration, and a 49-acre recreation park (USACE Website: <http://www.spl.usace.army.mil/Media/News-Stories/Article/620445/work-on-murrieta-creek-projectbegins/>).

This project will cost approximately \$167 million and will require over 20 years to complete. It incorporates significant environmental features and habitat-friendly designs and requires the District to maintain a total of 233 restored acres. Even so, stream reaches within this project would likely not meet the proposed narrative or numeric biological objectives due to their modified character. This is evidenced by information developed by the SCCWRP "Channels in Developed Landscape" discussed above and as referenced in the CASQA letter. Based on that modeling, most of the District's facilities and Murrieta Creek would be possibly constrained or likely constrained waterbodies. As discussed above, meeting the proposed numeric biological objectives, even with restoration, is not likely given the surrounding land uses and modified channels.

These flood control channels and other improvements are designed to meet specified flood control requirements. Without such modifications, watercourses would require much wider riverbeds, which would encroach on existing commercial and residential properties and place the occupants at risk. The topography and climate of Riverside County pose special flood control challenges, as the most populous western and southwestern portions of the County are located downstream from coastal mountains, which are inundated by often intense Pacific Ocean storms during the winter months. Even with flood control infrastructure in place, the Temecula area, for example, suffered significant flooding damage as recently as 1993.

Significantly, nowhere in the Porter-Cologne Water Quality Control Act, Water Code §§ 13000 et seq., the statute governing the amendment of Basin Plans, is there any legislative authority for the State Water Board or regional water boards to exercise their powers to address flood control. The Boards clearly have the authority and duty to address the quality of water within the state, but not its control for purposes of flood alleviation. In Riverside County, that authority lies exclusively with the District, though each municipality also has flood control responsibilities as part of its police powers, such as through maintenance of storm sewers.

It is for these reasons that the District's ability to "retrofit" modified waterbodies back to an unimproved state is greatly limited. Without channelization of watercourses, potentially thousands of County residents would be threatened with loss of their properties and potentially injury or death.

99. Response 99

The stated objects and purpose of the Riverside County Flood Control and Water Conservation District Act (Chapter 1122 Statutes of 1945 Act 6642 of State Legislature) are as follows:

“The objects and purposes of this act are to provide for the control of the flood and storm waters of the district and the flood and storm waters of streams that have their source outside of the district, but which streams and the waters thereof flow into the district, and to conserve the waters for beneficial and useful purposes by retarding, spreading, storing, retaining and causing to percolate into the soil within the district, these waters, or to save or conserve in any manner all or any of these waters and protect from these flood or storm waters, the watercourses, watersheds, public highways, life and property in the district, and to prevent waste of water or diminution of the water supply in, or unlawful exportation of water from the district, and to obtain, retain and reclaim drainage, storm, flood and other waters for beneficial use in the district.”

The comments are focused specifically on cases where the District has made an active decision to focus its objects and purpose by doing in-stream channel modification specifically to protect adjacent property. The proposed BPA does not change any designated beneficial uses in streams within the Riverside County Flood Control and Water Conservation District. Hardened channels have been excluded from the proposed BPA (see Response #1); however other channels modified for flood control would be subject to the Biological Stream Objective because such streams can attain the proposed Stream Biological Objective with the application of various management measures, primarily the implementation of BMPs to protect and restore in-stream physical habitat and chemical integrity by managing discharges before they reach receiving waters. As described in the draft Staff Report and Implementation Chapter, where the main cause of impairment is not discharges of pollutants that exceed permitted levels, the Water Board will evaluate non-permit mechanisms for restoration.

For the comments regarding the Murrieta Creek Project, the use of the Beck et al. 2019 tool is not appropriate to determine if the proposed Stream Biological Objective can be met (see Response #43). Prior research has found that the Stream Biological Objective is able to be met in streams that have local-scale armoring but still retain a soft-bottom substrate and good water quality. Additional language in this regard has been added to the Section 4.5 of the draft Staff Report.

Comment:

7.2 The Implementation Plan Requirements of Water Code Section 13242 Are Not Satisfied Water Code Section 13242 requires that in adopting a BPA, a regional water board must set forth the "program of implementation for achieving water quality objectives," which must include, but not be limited to:

- (a) A description of the nature of actions which are necessary to achieve the objectives, including recommendations for appropriate action by any entity, public or private.
- (b) A time schedule for the actions to be taken.
- (c) A description of surveillance to be undertaken to determine compliance with objectives.

The Chapter 4 Implementation plan for the Proposed Biological Objectives does not satisfy these requirements. First, the plan sets forth no "description of the nature of actions" with respect to how the Objectives would apply, including how it would apply to modified channels. See also Comment #4 in the CASQA letter at 8-9, discussing the failure of Chapter 4 to set forth the nature of actions necessary to achieve the stream biological objective.

With respect to modified channels, Chapter 4 states that "TMDLs to address pollutants may be determined to be a lower priority in low elevation concrete-lined streams, as the physical habitat modification would need to be addressed for beneficial use restoration, and such restoration may require a longer time scale than that used in TMDL implementation to address pollutants." Chapter 4 at 9. Chapter 4 indicates further that where a water segment "is impaired due to pollution" (defined to include man-made or man-induced alteration of the watercourse, such as through channel hardening), the water board "will place the water segment into Category 4C (impaired due to pollution, no TMDL required). Id. There is no discussion as to what actions would be required for these water segments, or discussion of any approach regarding how the segments ultimately would be required to meet the numeric objective.

Similarly, there is no "time schedule" for actions to be taken to address the impairment or a "description of surveillance." This is also noted in the CASQA Comment Letter at 9.

Similarly, the Draft Staff Report also provides no clear additional guidance to stakeholders with regard to how modified channels are to be addressed. The report notes that "for impairment due to pollution, such as channel modification via hardening, longer-term restoration of the watershed hydrologic regime is needed in order to provide for in-stream habitat restoration." Draft Staff Report at 90. Citing requirements in MS4 Permits for the San Diego Region requiring redevelopment activities to mitigate changes in hydrology associated with redevelopment projects and retrofit requirements relating to the rehabilitation of streams and channels within areas of existing development, the report concludes that "[t]hese existing requirements are expected to gradually address pollution over time and allow for instream habitat restoration to occur at various time scales, due to difference in existing stream condition, independent of the traditional TMDL process." However, the retrofit studies performed by the Riverside Co-Permittees do not call for the wholesale replacement of modified channels, nor could

they. For the reasons discussed above, such channels are required to protect life and property.

Such expectations do not constitute a "description of the nature of actions which are necessary to achieve the objectives," especially given the constraints posed on retrofitting by the flood control requirements imposed by the Legislature on the District. Given the increased (and in light of California's increasing population and lack of affordable housing necessary) growth of the western half of Riverside County, including that portion lying within the San Diego Region, it is not foreseeable that modified channels would be restored to a natural state at any time.

Chapter 4 provisions and Draft Staff Report show that Water Board staff implicitly recognized the difficulty of trying to address implementation of the Proposed Biological Objectives. If the San Diego Water Board intends to proceed with the region-specific Biological Objectives, the Riverside Co-Permittees join with the recommendation in the CASQA Comment Letter (at 11) that the Chapter 4 implementation provisions be modified to clearly set forth a description of what specific actions are required of which agencies to implement the Objectives, as well as to set forth a time schedule for achieving the Objectives.

7.3 Water Code Section 13241 Factors Have Not Been Adequately Addressed

California Water Code § 13241 requires:

Each regional board shall establish such water quality objectives in water quality control plans as in its judgment will ensure the reasonable protection of beneficial uses and the prevention of nuisance; however, it is recognized that it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses. Factors to be considered by a regional board in establishing water quality objectives shall include, but not necessarily be limited to, all of the following:

- (a) Past, present, and probable future beneficial uses of water.
- (b) Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.
- (c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.
- (d) Economic considerations.
- (e) The need for developing housing within the region.
- (f) The need to develop and use recycled water.

The failure of the DSED to address the impacts of applying the Proposed Biological Objectives in modified channels is reflected in the treatment of the Section 13241 factors. First, in the discussion of Section 13241(b), the DSED does not recognize the entire environmental characteristics of the hydrographic unit under consideration because it fails to address modified channels. The discussion on page 114 of the DSED only mentions waterbody segments identified with impairments associated with a pollutant or pollutants. As previously discussed, the Water Board considers modified

channels to be impaired by "pollution," that is, their character as modified channels with engineered design and/or concrete materials.

Second, concerning Section 13241(c), consideration of water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area, the brief statement at page 114 in the DSED regarding the estimated "almost 30 percent of the streammiles are estimated to be similar-to-reference and in condition," fails to support an inference that achieving the 0.79 CSCI score is attainable through the San Diego region. See CASQA Comment Letter at 7-8. As the CASQA Comment Letter notes, there is no analysis as to how the score will be achieved or as to which waterbodies it would apply, whether it can be achieved through a program of implementation on controllable factors nor is there any consideration of historic land use develop, water supply, and flood control. CASQA Comment Letter at 7.

With regard to that last factor, there is no discussion of the fact that even controlling for water quality factors, the very nature of modified channels means that there would be little ability for the channels ever to achieve the 0.79 CSCI score required by the Objectives. This is because the nature of the channels, not the quality of the water within, precludes such achievement. Moreover, to achieve the Objectives would, as discussed above, essentially require the removal of flood control improvements, a step which hardly would "reasonably be achieved." None of these issues is discussed in the DSED.

The Riverside Co-Permittees are also in agreement with the CASQA Comment Letter (at 8) in which it recommends revisions to the analysis of the Water Code § 13241(c) factor to address the six bulleted issues set forth therein.

Third, in the discussion of economic considerations (required by Section 13241(d)), the DSED again ignores the financial impacts of removing flood control improvements in order to address the alleged "pollution" represented by such improvements. Necessarily, the costs to do so, in terms of not only demolition but also the wholesale removal of homes and businesses within the now greatly widened floodplain of the water course, would be staggering. None are discussed in the DSED, which references only BMP costs for unrelated projects. The Riverside Co-Permittees note that the DSED indicates that in-stream habitat restoration to restore degraded biological conditions in channels is "not required under this Basin Plan Amendment." However, in the case of modified channels, such habitat restoration ultimately would be required to ensure that such channels could meet the Objectives.

Fourth, there is no discussion in the DSED of the impacts on housing (Section 13241(e)) if, as a result of the implementation of Biological Objectives on modified channels, housing will be threatened by flooding or be required to be removed out of a newly naturalized floodplain.

Again, these deficiencies argue for the San Diego Water Board to join with stakeholders and the State Board to work to adopt an approach to biological objectives which is

applicable statewide and which recognizes the limitations in applying a single objective to all waterbodies.

100. Response 100

Please see Response #1 regarding clarification of the proposed Stream Biological Objective to exclude hardened channels. Please see Responses #9, #51, and #68 regarding satisfaction of the CWC section 13241 and 13242 factors.

Comment:

7.4 The Environmental Impacts Review is Deficient

The DSED correctly states the requirements for environmental analysis as part of a Certified Regulatory Program and the applicable exemptions from the specific provisions of the California Environmental Quality Act (CEQA) concerning initial studies, negative declarations, and environmental impact reports. (Pub. Res. Code § 21080.5; State CEQA Guidelines § 15250). The environmental review and public comment procedures required under the State Water Board's regulatory program are deemed equivalent to a review under CEQA. However, this does not mean that a water board can ignore the substantive provisions of CEQA, including providing a sufficient project description describing the whole of the action; analysis of the physical environmental impacts, including direct, indirect, and cumulative impacts; and the incorporation of mitigation measures and alternatives that could reduce the project's significant environmental impacts. (See Pub. Res. Code § Page 19 21080.5(d)(3); Pesticide Action Network N. Am. v. California Dep't of Pesticide Regulation (2017) 16 Cal.App.5th 224; Ebbetts Pass Forest Watch v. Department of Forestry & Fire Protection (2008) 43 Cal.4th 936). Unfortunately, the DSED does not adequately meet these requirements.

1. Proposed Project Description

CEQA requires an agency to describe the entire project being proposed that has the potential to result in either a direct physical change to the environment or a reasonably foreseeable indirect change to the environment. (State CEQA Guidelines § 15378). This is necessary in order to ensure the entirety of the environmental impacts are evaluated. The agency may not narrow the project description in order to limit the scope of environmental review and thus minimize the project's potential impacts. Consequently, the project description must include all relevant parts of a project, including any future activities that are foreseeable consequences of the approval of the project. (Laurel Heights Improvement Ass'n v Regents of Univ. of Cal. (1988) 47 Cal.3d 376; City of Santee v County of San Diego (1989) 214 Cal.App.3d 1438). The project description need not include related activities that would have independent utility or purpose from the proposed project.

Here, implementation of the Proposed Biological Objectives would result in significant changes in how the District has to manage their flood control operations, particularly to channelized streams now facing the potential need to have those channels somehow "restored" in order to meet the Objectives. As noted above, this would require the destruction of channelized reaches and, because the resulting flood control benefits would be lost, the condemnation of homes and businesses within the resulting new flood plain. But for the actions taken on the part of the San Diego Water Board, these additional projects would not be required. Therefore, the Water Board may not permissibly avoid this requirement by stating these actions are either too "speculative" or argue that the required project activities should not be addressed in the DSED as they would be deemed future enforcement actions for violations of the Biological Objectives. The Water Board must make a good faith effort to evaluate the "whole of the action" tied to adoption of the Biological Objectives and cannot avoid this requirement by artificially narrowing the project description.

2. Environmental Impacts

As stated prior, the Water Board is required to evaluate the direct, indirect, and cumulative impacts that may occur as part of the entire project, here the adoption and implementation of the Proposed Biological Objectives. However, by so limiting the project description, the Water Board has effectively created a scenario where the Board can merely discuss the potential impacts on a qualitative basis and ignore any real impact discussion or required mitigation measures. This effectively taints the entire analysis and leaves open all impact categories to require further review and analysis. Lacking a sufficient project description, coupled with the Water Board's inadequate impact analysis, the Riverside Co-Permittees are unable at this time to sufficiently evaluate or raise specific issues on each individual impact category, the potential for physical environmental impacts, or what suitable mitigation measures should apply.

101. Response 101

In regard to the comment about the project description, the draft SED fulfills the requirements set forth in 23 CCR § 3777 and the environmental analysis is supported by substantial evidence in the draft Staff Report. In accordance with the requirement in 23 CCR § 3777 to include a brief description of the proposed project, the proposed project is described in the draft Staff Report, chapters 1 and 2, as well as the draft SED at sections 1.1 and 1.2. The description of the proposed BPA project is adequate to allow for, and supports, a thorough environmental review that includes reasonably foreseeable methods of compliance and to determine what, if any, potential environmental impacts may be associated with the proposed BPA.

The commenter's assessment that the Stream Biological Objective would require the "loss of flood control benefits" and "the condemnation of homes within the resulting new flood plain" is not grounded in substantial evidence or fact. First, as stated in the draft Staff Report (including the SED), the reasonably foreseeable methods of compliance include new and existing BMPs that target specific pollutants and for hydromodification control. As described in Response #99, implementation is expected to include the flood control measures outside of receiving waters, such as for the siting, design, and implementation of flow-control stormwater BMPs to comply with the Regional MS4 NPDES permit requirements to control stormwater discharges from the MS4 into receiving waters. In addition, discharges of dredge and fill material to waters of the U.S. and State are subject to regulatory review and approval by the San Diego Water Board, and it is not reasonable to assume the San Diego Water Board would require such activities as described in the comment to occur. In addition, please see Response #1 describing revisions to the proposed BPA to exclude hardened streambed segments from Stream Biological Objective applicability.

As described by the draft Staff Report and referenced in the comment letter, streams with localized armoring (e.g. banks) are capable of meeting the Stream Biological Objective when discharges into those streams are mitigated to a sufficient physical and chemical quality. Thus, it is not expected that such in-stream restoration will be required to occur to meet the Stream Biological Objective. However, in-stream restoration has been included as a reasonably foreseeable method of compliance because the San Diego Water Board is aware such activities occur, and entities may choose to conduct stream restoration that may result in restoration of attainment of the Stream Biological Objective. In summary, the proposed BPA description adequately represents the scope of the proposed BPA and identifies reasonably foreseeable methods of compliance.

Comment:

3. Alternatives Analysis

An alternatives analysis must contain sufficient information about each project alternative to permit an evaluation of the relative merits of the alternatives, and the project and the analysis must include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. (State CEQA Guidelines §15126.6). The information and analysis must be sufficient to allow for informed comparison of the impacts of the project against those of the alternatives. (See Kings County Farm Bureau v City of Hanford (1990) 221 Cal.App.3d 692). Here, the San Diego Water Board has failed to meet the CEQA standard as it relates to the level of detail required in an alternatives analysis. While the DSED does address a number of alternatives, the analysis focuses more on how the alternative does not meet all of the project's objectives and therefore deems the alternatives to not be the "preferred alternative." In fact, it is unclear from the analysis if these alternatives are part of an alternatives analysis at all, or if this is merely a discussion as to alternatives considered but rejected for detailed analysis. As discussed above, the Riverside Co-Permittees submit that the San Diego Water Board has several alternatives to the adoption of region specific biological objectives, including deferring to the State Water Board's Biostimulatory Substances Objective, meeting with stakeholders and State Water Board staff to fully vet the Biological Objectives in light of the many concerns and questions that have arisen concerning its development (see CASQA Comment Letter at 2) or, if the San Diego Water Board still intends to adopt a region specific biological objectives, to adopt a phased approach to implementing such an approach. Upon review of the Water Board's alternative analysis pursuant to Section 1.8 of the DSED, it would appear that no alternatives were brought forward for any meaningful analysis or comparison against the proposed project.

102. Response 102

The scope and level of alternative analysis included in the SED is adequate for the proposed BPA. Additional clarifying language has been added to Section 1.8 of the SED regarding the scope and applicability of the alternatives analysis relative to the applicable regulations and requirements.

Comment:

4. Recirculation of the DSED

As discussed prior, the Riverside Co-Permittees believe there are fundamental errors and lack of detail in the DSED, and that the document does not meet the basic standards of a sufficient environmental document in order to allow meaningful public review and informed decision-making. The DSED has narrowed the description of the proposed project, resulting in too limited a discussion of the potential impacts with no meaningful mitigation. The DSED also fails to set forth a suitable alternatives analysis. For those reasons, the DSED should be redrafted and recirculated for public review pursuant to State CEQA Guidelines § 15088.5.

103. Response 103

Please see Response #102 for discussion of the alternatives analysis and Response 101 regarding the adequacy of the project description for the proposed BPA. See also Response #9, #50, #51 and #68. The comments do not provide new information and the information in the record does not otherwise support any of the bases to require recirculation of the SED (see 14 CCR section 15088.5).

Comment:

7.5 Concerns Concerning Compliance Determination

As also discussed in the CASQA Comment Letter (Comment #5 at 10), the Biological Objectives appear to place dischargers, including MS4 dischargers such as the Riverside Co-Permittees, in jeopardy of being in potential violation of their permits by adopting the numeric biological standard as a receiving water limitation and by denoting the MS4 discharges as a "Probable Threat" to the achievement of such receiving water limitation. The Riverside Co-Permittees have several comments concerning this issue.

First, there is no support in the record for making the determination, as was done in the Draft Staff Report, that "Phase I discharges have already been determined by the San Diego Water Board to represent a probable threat to the Stream Biological Objective." As noted in the CASQA Comment Letter at 19, the Draft Staff Report's citation to general findings does not rise to citing a finding that is supported by the evidence. Moreover, the term "Probable Threat" is not the same standard as "causing or contributing," the usual formulation for discharges that may violate a receiving water limitation. A discharge that may have "the potential" to cause or contribute to an exceedance, is not a discharge that causes or contributes to such an exceedance. As recommended by CASQA, the term should be removed from Chapter 4.

Second, given the many concerns, expressed in this letter, the CASQA letter and by other stakeholders in previous comments and workshops, about the development and implementation of the numeric biological standard, plus its inapplicability to developed streams, the San Diego Water Board should instead follow the recommendation of CASQA (at page 20) to revise the approach to MS4 permittees and, within the five years after the effective date of the biological objective, "evaluate the causal assessments and Regional Phase I MS4 permittee data to determine if the discharge(s) are causing or contributing to an exceedance of the Stream Biological Objective." CASQA letter at 20.

104. Response 104

Please see Response #37 regarding the term probable threat and receiving water limits language. Clarifications in the implementation chapter (Chapter 4) have been made in response to this and similar comments.

Comment:

7.6 Concerns Regarding "Pollution" as "Hardening"

The Riverside Co-Permittees endorse the comments of CASQA (CASQA Comment Letter at 21) concerning the fact that equating "pollution" to the modification or "hardening" of a watercourse does not appear within the test of Clean Water Act § 502(19) and in fact does not comport with the definition of "pollution" appearing within the Water Code. The Co-Permittees agree with CASQA's recommendation that the definition of "pollution" should be removed from the Proposed BPA or that the language "e.g., a dam or channel hardening" be removed from the definition.

105. Response 105

Pollution, as defined by the CWA is "the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water." (40 CFR sec 130.2) USEPA includes stream channelization within examples of pollution in guidance for listing requirements pursuant to sections 303(d), 305(b) and 314 of the Clean Water Act (see USEPA 2005).

"Segments should be placed in Category 4c when the states demonstrates [sic] that the failure to meet an applicable water quality standard is not caused by a pollutant, but instead is caused by other types of pollution... Examples of circumstances where an impaired segment may be placed in Category 4c include segments impaired solely due to lack of adequate flow or to stream channelization." (USEPA 2005, p.56)

Channelization and channel modification are terms that generally describe stream channel engineering undertaken for flood control and/or reduction of channel migration. They are considered types of non-point source pollution by the USEPA because they can create conditions of pollution, for instance by directly or indirectly destroying streambed habitats. A discussion regarding stream channelization is already included in the San Diego Water Board Basin Plan (Chapter 4: Flood Control), which identifies impacts from, and examples of, stream channelization.

Comment:

7.7 Concerns Regarding Section 401 Certifications

The application of the Proposed Biological Objectives is not appropriate for 401 Certifications or Waste Discharge Requirement (WDR) permit programs and therefore, should not be applied to these programs. The implementation framework lacks guidance or criteria for the Board to use when determining when the Proposed Biological Objectives applies to a project requiring a 401 certification/WDR and how it would be used to determine mitigation. Many flood control facility projects require 401 certifications/WDRs for construction activities, and once constructed, many facilities also need 401/WDR clearances in order to properly maintain the facilities in the as-built condition. If compliance with the Biological Objectives leads to denials or delays of 401 certifications or WDRs, the communities the District is charged with protecting will potentially be left at risk. Flood risks may increase due to delays in construction of new facilities or maintenance of existing facilities that are essential for protecting life and

property.

This comment can be addressed if the San Diego Water Board is prepared to follow the recommendations for a phased approach to the implementation of the Objectives.

106. Response 106

The implementation of the Stream Biological Objective through CWA 401 Certifications and WDRs will provide meaningful data on the pre-project stream condition relative to aquatic life beneficial uses. This will allow for more accurate determination of whether a proposed project will protect existing water quality standards and if the proposed avoidance and mitigation measures are adequate. The Stream Biological Objective will also be helpful in evaluating aquatic life impacts from ongoing maintenance activities within existing surface waters.

The Stream Biological Objective can be helpful in determining the need and quantity of compensatory mitigation required to prevent a loss of Beneficial Uses and meet State of California no net loss of wetland requirements (State of California Executive Order W-59-93).

Since the Stream Biological Objective will provide more clarity regarding impacts and required mitigation, this proposed BPA will not create delays for CWA 401 Certification projects. Emergency CWA 401 Certifications will not have delays associated with the Stream Biological Objective because pre-project monitoring is not required.

Comment:

8.0 Recommended Modifications And Edits If The Phased Approach Is Not Taken

While the Riverside Co-Permittees strongly support the recommendations contained herein and in the CASQA Comment Letter concerning either deferral of the Proposed BPA in favor of a statewide approach to biological objectives or the proposed phased approach discussed above, if the San Diego Water Board chooses not to take that approach, the Co-Permittees request the following modifications at a minimum to address some of their primary concerns. While the Co-Permittees are not sure these modifications will address all concerns because of the number of questions identified above, they support addressing the following key concerns.

8.1. Remove Receiving Water Limitation Requirements

While the Co-Permittees support the use of CSCI scores to help prioritize implementation actions, use of the numeric biological objective as a receiving water limitation is problematic and will raise compliance concerns unless the questions regarding implementation identified above are addressed. As noted above, the Co-Permittees request that the references to receiving water limitations be removed from the Chapter 4 Implementation Plan.

8.2 Clarify MS4 Monitoring Requirements

Based on statements made at the April 18, 2019 workshop and in subsequent conversations with Water Board staff, it appears that existing MS4 monitoring requirements are likely to be sufficient for most waterbodies. The Co-Permittees request that the monitoring language in Chapter 4 be modified to clarify that the existing MS4 monitoring program is anticipated to be sufficient in most cases. The language should also include the goals of the monitoring program and the method that MS4 permit writers should use to assess if monitoring program modifications are needed to address the goals.

8.3 Clarify Expectations for Implementation Actions Required in the MS4 Permit

The Chapter 4 language should be clarified to make it clear that MS4 permittees are only responsible for addressing pollutants discharged from their MS4 system that are causing or contributing to lowered CSCI scores. The language should clearly state that restoration actions will not be required by the MS4 permit but could be done on a voluntary basis if desired by the permittees to meet permit requirements.

8.4 Include Information about the Expected Time Frame for Attainment of the Proposed Biological Objectives

As noted in the Draft Staff Report and DSED, it is likely that many decades may pass before the Proposed Biological Objectives can be attained in all waterbodies (and, for the reasons discussed above, it is probable that some highly modified waterbodies may never attain the objective). However, Chapter 4 does not contain any compliance schedules or discussion of the time frame for attainment. As a result, the Proposed Biological Objectives are required to be met immediately in all waterbodies. This does not appear to be the intent, as expressed in the Draft Staff Report. Language in Chapter 4 should be added to include a compliance schedule or discussion of the anticipated time schedule for attainment that reflects a realistic time frame.

8.5 Include Acknowledgement of Options for Addressing Waterbodies Impaired Due to "Pollution"

Chapter 4 should include a discussion of the options for addressing modified and constrained channels. These options should include Use Attainability Analyses (UAA) to modify or remove designated aquatic life uses to support an alternative or site-specific biological objective. The UAA should clearly allow for development of a subset or tiered aquatic life beneficial use even where the current aquatic life beneficial uses are existing. The Basin Plan Amendment should clearly acknowledge that these options will be considered by the Water Board if sufficient information is developed to support the modifications.

8.6 Clarify that the Proposed Biological Objectives Only Apply During the Sampling Period

Due to the strict sampling requirements associated with obtaining a representative CSCI score and the scour and disruption to the biological community that can occur during storm events, application of the Stream Biological Objective should be further restricted and only apply between March 1 and August 15 and not during wet weather events or the three weeks following a storm event. This comment is set forth in the CASQA Comment Letter.

8.7 Add an Averaging Period and Allowable Exceedance Frequency

USEPA guidelines for development of water quality criteria require criteria to include an averaging period and allowable exceedance frequency. The Proposed Biological Objectives do not contain either of these required components. Chapter 3 should be revised to include an averaging period and allowable exceedance frequency.

8.8 Modify the Proposed Numeric Threshold to be More Representative of San Diego Region Reference Conditions

As noted in the comments above, if analogous reference sites for the San Diego Region only were used to develop the Proposed Biological Objectives, the numeric value may be lower than the proposed value based on the statewide dataset. Additionally, a number of potential analogous reference sites have been identified by the City of San Diego and proposed for consideration by the San Diego Water Board in developing the biological objectives. The Riverside Co-Permittees request that the additional data provided by the City of San Diego and only the sites from the statewide dataset that are analogous to waterbodies in the San Diego Region be used to develop the numeric threshold presented in the Basin Plan Amendment. The Co-Permittees also request that the language be clarified to note that the objective is the narrative statement and the numeric threshold is an interpretation of the narrative objective and can be modified over time as more reference data are collected.

Suggested Text Revisions

To assist the Water Board in its consideration of the Riverside Co-Permittees' comments, we have attached a redlined version of the Chapter 3 Basin Plan Amendment and Chapter 4 Basin Plan Implementation provisions with language reflecting our comments.

107. Response 107

The proposed Stream Biological Objective has been modified to take a phased approach, with changes to the proposed Stream Biological Objective for the first phase as described in Response #1.

In response to 8.1, please see Responses #66 and #75.

In response to 8.2 and 8.3, please see Responses #2, #32, and #47.

In response to 8.5, please see Responses #1 and #80. Consideration of modification of beneficial uses is done through the Triennial Review process.

In response to 8.6, please see Response #56

In response to 8.7, please see Response #53

In response to 8.8, please see Responses #5 and #62

No redline/strikethrough text was received.

Comment:

Monitoring and Assessment

1 How would Co-Permittees determine which waterbodies meet the definition of seasonal stream?

2 What, if any, additional monitoring would be needed and who would do the work?

3 What is the expected monitoring frequency needed for waterbodies that have already been assessed?

108. Response 108

1: Additional language regarding identification methods for seasonal streams has been added to Section 4.5.1 of the draft Staff Report for clarity.

2/3: The comment does not provide information regarding the purpose of the monitoring. Assuming this is in regard to Phase I MS4 monitoring, historic bioassessment monitoring frequencies in Phase I permits have largely been sufficient to assess the condition of perennial and seasonal streams (e.g. see PSA 2016). However, modified frequencies and locations may be proposed based on WQIP development and implementation.

Comment:

Impairments

4 How would an impairment assessment be conducted, and would the cause of the impairment need to be identified prior to the assessment?

5 What is the spatial and temporal application of the monitoring results for determining an impairment?

6 What happens if a TMDL/TMDL alternative is established for a pollutant identified through a causal assessment, and that pollutant target is met and the biological integrity is improved, but still does not meet the objective?

7 What happens to waterbodies that are placed on the 4C list, particularly if they are also placed on the 303(d) list?

8 Would existing 303(d) listings be modified since a causal assessment has not been completed?

9 How are waterbodies that meet reference criteria, but are not meeting the biological objective addressed? Will they be listed as impaired?

109. Response 109

4/5: See Response #53.

6: If TMDL-derived effluent limits are met, but the Stream Biological Objective is still not met, the Board would likely reassess and investigate the CSCI scores and information related to the impairment. Based on this assessment, the San Diego Water Board could take a number of regulatory or non-regulatory actions to address the impairment (if impairment is still determined) as outlined in the Impaired Waters Guidance, including but not limited to revisions to effluent limits, enforcement actions, revisions to the TMDL or water quality standard, allocation of restoration funding, etc.

7: The Stream Biological Objective would be applied consistent with the Listing Policy and CWA, as is currently done. Waterbodies placed on the 4c list are identified as likely impaired due to pollution that is not a pollutant. As pollution is not subject to a TMDL, these waterbodies will be evaluated by the San Diego Water Board for potential restoration using non-NPDES permitting methods, collaborative partnerships, nonpoint source pollution grants, and other discretionary funding opportunities. Where a waterbody is also 303(d) listed as impaired, that waterbody will be evaluated for potential TMDL development. The San Diego Water Board considers a number of factors when developing TMDLs, such as beneficial uses impaired, environmental justice, and types of impairment.

8: A causal assessment is not required to list waterbodies as impaired under section 3.9-3.11 of the Listing Policy. See Response #53

9: The reference criteria are a set of scientifically published (Ode et al. 2016) GIS-based metrics that are used to screen sites to a level of likely low anthropogenic impact. However, it is possible for such “reference” sites to have local-scale impacts not detected by GIS screening (e.g. illegal marijuana cultivation, grazing). Sites that meet reference screening criteria but do not meet the Stream Biological Objective will be evaluated for impairment listing in accordance with the Listing Policy. If they meet requirements for listing as impaired, they will be placed on the 303(d) list.

Comment:

MS4 Permit Compliance

10 What modifications to an approved Water Quality Improvement Plan (WQIP) would be needed to incorporate the Proposed Biological Objectives?

11 How should the Permittees prioritize resources to address lowered CSCI scores and how would this align with the compliance requirements in the current MS4 permit?

12 What is the "comparator site approach"? What is the methodology to be used and how is this different than the "reference approach"?

13 How would a discharger address identifying the "cause and contribute" component of the analysis in a waterbody with multiple potential sources?

14 How can MS4 Permittees demonstrate that they are not causing or contributing to a biological objective exceedance in a modified channel?

15 What is the relationship between wet weather discharges and biological objectives that are measured during the dry season?

16 What are the expectations to obtain coverage under MS4 Permit Provision B.c.3 and how would permittees demonstrate reasonable assurance?

17 What happens if a restoration project does not result in attainment of the objectives?

18 The DSED notes that the adoption of the biological objectives will not cause any change in the type of compliance methods that have been or will be implemented. The Riverside Co-Permittees request a more detailed explanation about what staff means by this statement, especially as it relates to restoration.

19 The Draft Staff Report indicates that restoration could be implemented as a voluntary element of WQIP implementation and other non-regulatory means. Can you clarify how the voluntary approach relates to the restoration elements of the MS4 permit requirements?

20 The BPA references "rapid causal assessment methods" as well as USEPA causal assessment methods (CADDIS). What are all of the tools/methodologies that may be used for causal assessments/stressor identification analyses and under what conditions should each be used? What are the rapid assessment tools?

21 What happens if the waterbody has multiple potential causes of the impairment or the cause(s) can't be identified?

22 Who is responsible for conducting causal assessments?

23 What evidence is required to substantiate that low CSCI scores are due to natural conditions at a site?

110. Response 110

10: Please see Response #32 and #47 regarding WQIPs.

11: The current Regional Phase I MS4 permit requires the Stream Biological Objective be considered when determining priority water quality conditions for the WQIP. This is not expected to change. See Response #32.

12: Clarifications have been made to the text regarding the applicability of using a comparator site approach. A comparator site approach uses a comparator site uninfluenced by a discrete point-source discharge (typically upstream) to evaluate discharge impacts on the Stream Biological Objective. The comparator site approach is currently used in NPDES permits (not Phase I stormwater), such as R9-2015-0002.

13: Using discharger could use a comparator site approach as described in Chapter 4. Please also see Response #54.

14: Please see Response #1 for hardened streambeds and Response #54. The Regional Phase I MS4 permit includes language regarding compliance with receiving water limitations.

15: The comment asks for the relationship between wet weather discharges and the Stream Biological Objective, which are monitored for during the spring-summer period. Please see Response #56. Stormwater and non-stormwater discharges from MS4s include pollutants that impact the chemical, physical, and biological condition of receiving waters. The appropriate timing for sampling for the Stream Biological Objective is in the spring-summer period. However, the benthic macroinvertebrate community is reliant upon streams having adequate physical and chemical conditions year-round. The effects of fall and winter storms that occur outside the sampling period can result in habitat degradation in streams, as well as transport pollutants that impact benthic macroinvertebrates. This has been documented in the scientific literature, in the Riverside County MS4 Permittees own monitoring and reporting program, through monitoring and research done by the SMC (of which Riverside County Flood Control and Water Conservation District is a member), and in past Phase I MS4 permits (e.g. R9-2010-0016).

16: There is no section B.c.3 in Order R9-2013-0001 (including amendments). Assuming the question is referring to B.3.c, the requirements and expectations would be consistent with any current WQO in the Basin Plan.

17: The comment lacks sufficient detail by which to respond. The answer would be dependent upon the type of the restoration action. Any stream in which the Stream Biological Objective applies will be identified as impaired in the Integrated Report if it does not meet a 0.79 CSCI Score.

18: Please see Response #1 regarding changes to the Stream Biological Objective and stream restoration. The compliance methods that have been or will be implemented are discussed as reasonably foreseeable methods of compliance in the SED. If MS4 discharges are causing a condition of pollution, the Water Board may choose from various responses outlined in the Water Code consistent with the Water Quality Enforcement Policy.

19: The SED included stream restoration as a reasonably foreseeable method of compliance, though it is not considered to be required to occur to meet the Stream Biological Objective. It was included because many entities may choose to conduct stream restoration activities to protect and restore beneficial uses, and to improve receiving water conditions for pollutants by restoring the natural assimilative capacity of streams where it has been lost. Section B.3 of the Phase I Regional MS4 permit does not specify the goals that may be set, or the manner of compliance to meet those goals.

20: Additional updated language has been added describing causal assessment and tools. Please also see Response #66 and #98. More rapid causal assessment tools have been developed, such as the Stream Quality Index for the SMC (Beck et al. 2019), which can be used in a variety of programs, such as permitting, integrated reporting, TMDL and alternative TMDL development, grants, etc. Such tools could be used by Copermitees as part of the WQIP process, should they choose to use them.

21: Identifying a waterbody as impaired and subsequent actions will be consistent with the Listing Policy (see Response # 28). When a waterbody is impaired due to multiple pollutants or sources, or the cause(s) cannot be identified, the San Diego Water Board will initiate investigation into sources and causes of impairment.

22: Please see prior response regarding causal assessments in this comment response.

23: The San Diego Water Board will rely on scientific evidence to substantiate the presence of natural conditions that preclude the attainment of the Stream Biological Objective. This can include physical, chemical, and biological scientific information and studies. Please see Response #16.

Comment:
Modified Channels

24 What happens to waterbodies that cannot attain the biological objectives due to physical constraints?

25 If discharges are eliminated and CSCI scores do not improve as a result, will the waterbody be considered to be in attainment?

26 What implementation strategies will result in improvements in biological integrity in

these waterbodies such that they can meet the objective?

27 How would responsibilities for addressing historic channel modification be assigned?

111. Response 111

24 and 27: Please see Response #1

25: Please see Response #1 regarding modified channels. In general, if the Stream Biological Objective is not met, and known discharges into the stream are not present, then the discharge would not be causing or contributing to the non-attainment of the Stream Biological Objective in the receiving water. It is expected that the San Diego Water Board would likely initiate an investigation into other potential sources of the non-attainment, including natural conditions.

26: Please see Response #1

j) Commenter: San Diego Region Irrigated Lands Group

Comment:

The San Diego Regional Irrigated Lands Group is a non-profit entity organized to provide third-party services to farmers within the jurisdiction of the San Diego Water Board. Through a third party, agricultural operators can satisfy the requirements of Order R9-2016-0004 General Waste Discharge Requirements for Discharges from Commercial Agricultural Operations (GWDR). Please reference our comment letter of February 23, 2018 on the Administrative Draft of Proposed Basin Plan Amendment to Incorporate Biological Objectives. We believe those comments remain valid.

112. Response 112

Please see Response #90 regarding the process for comments on the administrative draft.

Comment:

The GWDR program is in its early years of implementation and has a robust bioassessment monitoring requirement, including biological data. In the near future all third-party groups will launch their initial bioassessment monitoring at 13 sites selected by the San Diego Water Board. The program implementation will demand substantial effort and cost for local producers. We believe it is important to allow this program to become established and create multiple years of data before requiring revisions to the GWDR and individual farm Water Quality Protection Plans as suggested in the Proposed Basin Plan Amendment to Incorporate Biological Objectives.

113. Response 113

Comment noted. The timeframe for incorporation into the WDRs has been updated to reflect the WDR permit reissuance process.

Comment:

Another concern is with the ability to separate the impacts that are exclusive to agriculture or other land uses. In a region continuing to urbanize, agricultural uses are increasingly surrounded by urban development, impermeable surfaces, public parks, dedicated open space, and horses kept for personal use. It will be critically important that the establishment of biological objectives accounts for mixed uses and does not saddle the farm community with curing unmet objectives that have gone into failure due to uses other than farming.

Thank you for this opportunity to comment and we look forward to continuing to work with the San Diego Water Board on protecting the region's waters.

114. Response 114

Comment noted. Please see Response #1 regarding modification of the Stream Biological Objective, as well as Responses #66 and #98 regarding conducting causal assessment to determine potential sources. Please also see Response #116 below. Additional language to support taking a watershed approach for the Stream Biological Objective has been added to the proposed BPA, consistent with existing language in Chapter 4 of the Basin Plan.

Comment (from February 2018):

The San Diego Regional Irrigated Lands Group (SDRILG) supports the importance of biological integrity in waterbodies but wants an approach that is easy to understand and communicate to the members we serve and supports prioritization of efforts in accordance with the San Diego Water Board's Practical Vision. The current Administrative Draft presents a complicated scheme of compliance that is not easily understood. It will be difficult for growers to understand if stream segments are in or out of compliance.

115. Response 115

To determine whether a stream is meeting the Stream Biological Objective, bioassessment and calculation of the CSCI score would be necessary. In response to comments, Chapter 4 has been modified to include a permit section that discusses WDRs for commercial agricultural operations.

Comment:

Further, the actions required to address any identified biological impairments are unclear. It is also unclear how this could impact a Water Quality Restoration Program Plan (WQRP). We and our grower members are concerned that additional bioassessment monitoring may be required in the future as part of the already extensive monitoring program required under Order No. R9-2016-004, General Waste Discharge Requirements for Discharges from Commercial Agricultural Operations for Dischargers that are Members of a Third-Party Group in the San Diego Region (Ag Order). We believe the already mandated testing regime in the Ag Order and possible requirement for the implementation of WQRP's is comprehensive and should be allowed to play out.

116. Response 116

Please see Response #53 regarding the role of the Integrated Report to identify impairments, as well as Responses #66 and #98 regarding causal assessment.

The proposed BPA is not requiring changes to the existing bioassessment monitoring program in the agricultural permitting program. Please see Responses #2, #32, and #47 regarding permit language changes. However, since the Stream Biological Objective is expected to be incorporated as an additional water quality benchmark, and the Stream Biological Objective can provide a better assessment of beneficial use attainment and protection rather than chemistry alone, the San Diego Water Board could, as part of the public WDR renewal process, consider modifying water quality benchmarks and resulting requirements to focus on the Stream Biological Objective. Data from existing bioassessment activities would be considered during that process. In addition, existing tools could be used to evaluate stressors related to permitted discharges and prioritize BMPs to target pollutants of concern for specific agricultural activities and/or watershed areas.

Comment:

Another concern is that the objectives as proposed are unattainable in some waterbodies and do not support effective prioritization and implementation to restore waterbodies. SDRILG suggests that modifications to the proposed objectives be developed that use the latest information developed by the Southern California Coastal Water Research Project (SCCWRP) for the State Water Resource Control Board's Biostimulatory/Biointegrity Plan and information and approaches used by other states to create objectives that can address the concerns identified above and result in more efficient and effective restoration of waters. The suggested approach is to use a narrative objective with numeric guidance that considers the best attainable condition for waterbodies to guide implementation actions. The suggested modification would support the use of the biological objectives as a line of evidence in prioritizing and restoring waterbodies, rather than a hard objective for determining impairments. Further, this approach will result in the biological objectives being complementary to current chemical objectives instead of being an additional independent regulatory requirement.

117. Response 117

The Stream Biological Objective can be achieved in the waterbodies to which it would apply. Please see Response #1 regarding revisions to the Stream Biological Objective. Please also see Responses #3, #43, #66, and #98 regarding the use, applicability, and appropriateness of existing bioassessment tools for prioritizing permitting implementation rather than setting biological objectives. Please also see Response #53 regarding impairment determination.

k) Commenter: California Stormwater Quality Association

Comment:

On behalf of the California Stormwater Quality Association (CASQA), thank you for the opportunity to provide comments on the proposed Basin Plan Amendment to the Water Quality Control Plan for the San Diego Basin to Establish Biological Water Quality Objectives for Perennial and Seasonal Streams (Proposed BPA). CASQA is a nonprofit corporation with approximately 2,000 members throughout California and is dedicated to the advancement of stormwater quality management through collaboration, education, implementation guidance, regulatory review, and scientific assessment. Our membership comprises a diverse range of stormwater quality management organizations and individuals, including cities, counties, special districts, industries, and consulting firms.

CASQA understands that the Proposed BPA was developed, in part, as a priority project as identified in the *Prioritized List of Suggested Basin Plan Revisions Developed through the 2014 Basin Plan Review* (Issue 1). As described within the document, “[t]he Basin Plan should be amended to incorporate a narrative biological objective for water bodies in the San Diego Region such as: Waters of the State shall be of sufficient quality to support native aquatic species without detrimental changes in the resident biological communities. The San Diego Water Board should establish numerical measures by which to interpret the narrative objective.” It is CASQA’s understanding that the San Diego Regional Water Quality Control Board’s (Regional Water Board’s) goal and intent of adopting the Stream Biological Objective is “to utilize biological assessment (“bioassessment”) to better protect and restore waters by facilitating a broader evaluation of the effects of stressors that extends beyond the existing regulatory convention of analyzing for individual chemicals.” CASQA understands this need and supports the protection of biological integrity as a part of the overall regulatory framework.

118. Response 118

Comment noted.

Comment:**Primary Issues and Recommendation**

As biological objectives have not yet been established within California, the Proposed BPA, including the proposed Stream Biological Objective, has the potential to be precedent setting and is therefore of great interest to stormwater permittees throughout the state.

119. Response 119

Actions by a regional water board are not precedential for other regions or the State Water Board. We do recognize the CSCI is a biological metric that can be used statewide for a consistent evaluation of a stream's benthic integrity. CWC section 13241 provides authority for each regional water board to determine how to apply that metric in their region. Existing regional water boards have and use narrative and numeric biological objectives for streams, lakes, rivers, and other water bodies in their Basin Plans.

Comment:

Therefore, CASQA is concerned with the significant number of fundamental and material issues with the Proposed BPA. Process issues include:

- **Deviation from the Statewide Process to Develop Similar Objectives:** The Proposed BPA does not provide justification for (1) deviating from the State Water Resource Control Board's (State Water Board) Statewide Biostimulatory Substances Objective and Program To Implement Biological Integrity (Biostimulatory/Biointegrity Process) and (2) potentially adopting a water quality objective that may be fundamentally different, if not in conflict with, the approach being developed by the State Water Board;
- **Lack of Consideration for the Work Developed Through the Biostimulatory/Biointegrity Process 1:** The Proposed BPA does not account for or address the years of scientific and technical advancements, the tools that have been established, or the critical regulatory, scientific, and technical issues that have been identified as requiring further development before a proposed objective can be developed by the Biointegrity/Biostimulatory Process;
- **Lack of Consideration of Approaches from Other States:** The Proposed BPA does not consider the various alternatives adopted by other states for addressing biological criteria, including the extensive use of narrative objectives with numeric guidance (nineteen states) as well as how other states addressed similar critical scientific, regulatory, and technical issues;
- **Lack of a Regulatory Framework for Implementation:** The Proposed BPA does not address how the Stream Biological Objective should be incorporated into the regulatory framework so that it is reasonably achievable and can be integrated into existing programs and priorities. Further, the BPA does not consider how the lack of a regulatory framework may jeopardize a permittee's ability to reasonably comply with permit

provisions; and

- **Significant Disconnect Between the Proposed BPA (Chapter 4) and the Draft Staff Report:** As further described in the detailed comments, there is an apparent disconnect between the approach described within the Draft Staff Report and Chapter 4 of the Proposed BPA. This disconnect is material in that it is unclear what is being proposed by the Regional Water Board.
- **Lack of Compliance with the Porter Cologne Water Quality Control Act (Porter-Cologne):** When adopting new water quality objectives, the Regional Water Board must fully comply with the mandates of Porter-Cologne, and Basin Plan Amendments must clearly explain how the new objectives will be applied and implemented by the Regional Water Board through its various permitting authorities.

Although these and other related issues are further described below, CASQA's overarching recommendation is that the Regional Water Board take the comments and questions received as a part of the Proposed BPA comment period and convene a stakeholder process with the State Water Board and other interested parties so that the issues and concerns can be fully vetted and the regulatory framework and expectations established so that they are achievable, implementable, and understandable.

Such processes have been successfully implemented before and are especially valuable where new and unique objectives are being established. For example, the State Water Board used a large stakeholder-based approach to develop sediment quality objectives (SQOs) and is using a similar approach for the Biointegrity/Biostimulatory Process. These efforts result in developing advanced solutions to very complex scientific, regulatory, and technical challenges. In addition to developing a more robust objective, these processes result in significant support from many stakeholders, including permittees, environmental nonprofits, and regulators alike.

120. Response 120

Responses to the specific comments are addressed below. In general, the proposal to convene a statewide stakeholder process is likely to result in significant delay (for example the SQO stakeholder process took approximately 6 years) and is not warranted or necessary when the San Diego Water Board is prepared to move forward with the proposed Stream Biological Objective at this time. The San Diego Water Board has had the benefit of and considered efforts from the various incarnations of State Water Board biological integrity workgroups in developing the proposed BPA and local interested parties have had opportunities to provide comments. Further, the Scientific Peer Review has determined the proposed BPA approach is scientifically sound.

Regarding "Deviation from the Statewide Process to Develop Similar Objectives" please see Response #43.

Regarding “Lack of Consideration for the Work Developed Through the Biostimulatory/Biointegrity Process” please see Responses #3, #6, and #43. The Stream Biological Objective development did consider work from this process.

Regarding “Lack of Consideration of Approaches from Other States” please see Response #44.

Regarding “Lack of a Regulatory Framework for Implementation” Chapter 4 represents the framework for implementation. Please see Responses #1, #2, #32, and #47.

Regarding “Significant Disconnect Between the Proposed BPA (Chapter 4) and the Draft Staff Report” modifications to Chapter 4 have been made for additional clarity.

Regarding “Lack of Compliance with the Porter Cologne Water Quality Control Act (Porter-Cologne)” please see Responses #9, #50, #51, and #68.

Comment:

Summary of Major Comments

CASQA appreciates that establishing biological objectives and preparing an associated implementation plan is multifaceted and complex. Our comments and recommendations have been developed considering the complexity associated with establishing and achieving biological objectives and the need for clear implementation requirements.

CASQA’s overarching concerns with the Proposed BPA are summarized below with additional detail provided within the comments.

*Note: The below comments have been numbered in brackets [] by the San Diego Water Board for clarity to correspond to CASQA’s specific comment numbers which are addressed in separate Water Board responses.

[1]• The permittees have numerous outstanding questions about the framework that the Proposed BPA envisions for the application, assessment, and implementation of the Stream Biological Objective and the resulting decision-making process and regulatory requirements. In order to provide necessary clarity, it is recommended that the Regional Water Board develop a flow chart/framework. (Supported by Comment #1)

[2]• The Proposed BPA proposes the adoption of a numeric biological objective that would apply to all San Diego Region waterbodies with aquatic life beneficial uses. CASQA is concerned that this broad application of a numeric objective does not properly consider differing types of waterbodies and their ability to reasonably achieve the objective. Rather than adopting a numeric objective, CASQA recommends that the Regional Water Board consider adoption of a narrative objective that can then be interpreted based on site specific conditions of the various waterbodies. Or, to the extent that the Regional Water Board decides not to adopt a narrative objective, the Regional Water Board should consider restricting application of the Stream Biological

Objective to those waterbodies that meet reference condition or have a realistic chance of meeting reference condition. (Supported by Comment #2)

[3]• Due to the strict sampling requirements associated with obtaining a representative CSCI score and the scour and disruption to the biological community that can occur during storm events, application of the Stream Biological Objective should be further restricted and only apply between March 1 and August 15 and not during wet weather events or the three weeks following a storm event. (Supported by Comment #3)

[2,6,7]• The Stream Biological Objective does not appear to fully consider the extensive body of work and critical issues that have been developed and identified through the State Water Board's Biostimulatory/Biointegrity Process. CASQA strongly believes that, in order to achieve the goals and intent of the project as stated in the Draft Staff Report⁴ and establish a biological objective that can be reasonably achieved within the San Diego Region, an alternative biological objective should be considered (a narrative objective or a range rather than a "bright line" single value) and an alternative implementation approach should be considered. (Supported by Comments #2, #6, #7)

[4]• The technical and policy analyses within the Draft Staff Report (Appendix 2) do not meet the California Water Code (CWC) §13241/13242 requirements and, thus, (a) do not demonstrate that the water quality condition (i.e., the 0.79 CSCI score) could reasonably be achieved from the coordinated control of all factors that affect water quality in the area, and (b) do not include the description of the specific actions that are necessary/required from each of the permittees and the commensurate timeline(s) it would take to achieve the proposed Stream Biological Objective. (Supported by Comment #4)

[5,9,10]• There appears to be a disconnect between the approach and language within the Draft Staff Report (Appendix 2) and the approach and language within the Proposed BPA Chapter 4: Implementation. As a result, the permittees have numerous questions and concerns as to how the Stream Biological Objective would be implemented and are unclear as to the Regional Water Board's expectations. The language within Chapter 4 needs to be clarified so that the permittees understand how the Stream Biological Objective will be applied to the range of waterbodies within the San Diego Region, what specific implementation actions are required of the stormwater permittees, what the timelines are for the implementation actions and achievement of the Stream Biological Objective, and what the compliance determination pathways are so that the permittees understand and can meet the requirements and protect water quality. (Supported by Comments #5, #9, #10)

[8,11]• CASQA has a number of technical concerns and requested definitions/clarifications for the Proposed BPA. (Supported by Comments #8, #11)

121. Response 121

The summary of overall comments is appreciated. Specific responses to the above comments are set forth below.

Comment:

Comment #1. The Regional Water Board should develop a flow chart / framework that clearly outlines how the Proposed BPA will be applied, assessed, and implemented and what the corresponding regulatory requirements are.

During the State Water Board's Biostimulatory/Biointegrity Process, one of the critical components that was identified by the Stakeholder Advisory Group was the need to develop a framework that clearly identified the assessment and implementation decision making process and the results of those decisions within the regulatory framework.

Although the Stakeholder Advisory Group flow chart/framework is still draft, it assisted in a better understanding and communication amongst the parties as it related to:

- How assessment tools would be used, and results interpreted;
- How decision-making processes would occur;
- How implementation actions were related/built on each other; and
- What the follow up regulatory actions would be.

Given the confusion and sheer number of questions that remain about the functionality of Chapter 4 of the Proposed BPA, CASQA strongly recommends that the Regional Water Board develop a similar flowchart / framework.

CASQA Recommendation:

Develop a flowchart/framework that graphically shows how the Chapter 4 decision making processes will occur as well as how the various components are interconnected and will be implemented.

122. Response 122

Chapter 4 sets forth the proposed program of implementation for the Stream Biological Objective and describes how the objective is expected to be implemented through the various affected water board regulatory and non-regulatory (e.g. grants) programs. While the implementation chapter is clear, the San Diego Water Board will consider developing a flow chart for use during the public hearing.

Comment:

Comment #2. Given the complexity of biological objectives, the range of stream conditions within the San Diego Region, and holistic watershed-based approaches that will need to be undertaken in order to improve stream conditions where needed, the Regional Water Board should consider an alternative approach for the establishment and implementation of the Stream Biological Objective for the San Diego Region.

CASQA is actively working with State Water Board staff, the Southern California Coastal Water Research Project (SCCWRP) staff (technical consultant to the State Water Board), and the regulated community in contemplating, vetting, and identifying an approach for establishing biological objectives, as well as identifying implementation

alternatives for addressing a wide range of associated issues. Based on the knowledge that CASQA has gained through the State Water Board's process, CASQA believes strongly that the Regional Water Board should consider an alternative approach to adopting a widely applicable numeric biological objective. CASQA firmly believes that the Regional Water Board can still meet its intended goals as outlined within the Draft Staff Report through an alternative approach.

The Regional Water Board identifies the following goals and intent of the establishment of the Stream Biological Objective as follows [emphasis added]:

- 1) The goals and intent of the project are to protect and restore the biological condition of receiving waters. Protection includes 1) ensuring those waters that are meeting objectives do not degrade, resulting in loss of Beneficial Use(s) and impairment, and 2) ensuring those waters with some form of existing impairment do not further degrade and lose additional Beneficial Use(s).
- 2) Where existing historic activities, such as stream channel hardening, may already cause degradation of the biological condition of receiving waters subject to a discharge(s) today, these historic activities do not preclude discharges from meeting other water quality objectives for chemistry and toxicity. This consideration is important since discharges do extend downstream beyond the initial discharge point to other waterbodies, such as estuaries, bays, reservoirs, and the ocean.
- 3) Restoration of waters where long-term historic land use decisions have restricted the ability for current discharges to meet the Stream Biological Objective will require long-term incremental improvement through existing implementation programs (e.g. Section 5.3.3 Phase I Storm Water, Section 5.5).

One alternative for consideration is to adopt a narrative objective and then include in the implementation plan how the narrative objective should be interpreted (similar to the approach utilized in the Sediment Quality Objectives adopted by the State Water Board). However, if the Regional Water Board proceeds with adopting a numeric biological objective such as the proposed Stream Biological Objective, CASQA recommends that application of the biological objective apply first to waterbodies that meet reference condition or have a high likelihood of achieving reference condition. Application of the objective to other waterbodies should only occur after careful evaluation and consideration to determine if other waterbodies have the ability to achieve compliance with the numeric objective. For example, the numeric biological objective could apply to waterbodies through a phased approach, as described in the table below.

*Note: The comment also includes additional information on pages 5-6 of the comment letter. The San Diego Water Board considered this information and the below response includes this consideration.

123. Response 123

In response to this and other similar comments, the San Diego Water Board has modified the Stream Biological Objective. See Response #1. Please see Responses #34, #43, #44, and #51 regarding proposed phased approaches. In addition, the San Diego Water Board considered the use of a narrative objective and numeric implementation process, similar to the SQOs referenced in the comment, but rejected the alternative because the numeric objective clearly identifies the expected condition for streams, and provides more flexibility in implementation through consideration and use of site-specific factors and tools. Notably, the SQO supporting science was developed concurrently with the objective-setting process, which made the use an overarching narrative objective more appropriate in that context.

Comment:

Comment #3. The Stream Biological Objective should distinguish between dry and wet weather conditions and clearly identify when the objective applies.

CASQA has concerns that the Stream Biological Objective does not properly address the differences between dry weather conditions and storm events and the appropriate application of the Stream Biological Objective during those two very distinct flow conditions. As proposed, the Stream Biological Objective does not account for the differences between wet and dry weather conditions and/or specify when the Objective applies. The variable nature of stormwater runoff presents unique challenges in accurately characterizing water quality and potential receiving water impacts, such as scour, that needs to be specifically considered in the applicability, implementation and assessment provisions for the Stream Biological Objective.

In addition, the Stream Biological Objective was developed based on monitoring data that was collected in accordance with required sampling protocols, which are focused on conditions that are not influenced by storm runoff, to try to ensure that the composition of the biological community is intact. As a result, the Stream Biological Objective should not apply during wet weather events and the three weeks after the storm event. This is critical because there is no evidence that the proposed Stream Biological Objective can be attained outside of the recommended sampling period or during wet weather events.

CASQA Recommendation:

Revise Chapter 3 of the Proposed BPA to clearly identify that the Stream Biological Objective is only applicable between March 1 and August 15 and not during wet weather events or the three weeks following a storm event.

124. Response 124

The WARM and COLD aquatic life beneficial uses of water apply throughout the year, and the proposed Stream Biological Objective would be used to ensure the reasonable protection of those uses. The CSCI score may be temporally depressed if sampling occurs during inappropriate times, for example due to high flow storms, and the SOPs for sampling for the CSCI ensure that the proposed Stream Biological Objective would

be evaluated appropriately. Please see Response #56 regarding wet weather applicability. Additional language has been added to the draft Staff Report (Sections 4.5.1 and 4.7) regarding sampling process and timing in accordance with the SOPs.

Comment:

Comment#4.

California Water Code (CWC) §13241/13242 requirements must be fully addressed within the supporting documentation.

As a part of the water quality objective adoption process, the Regional Water Board must comply with CWC §13241/13242 and should strongly consider the United States Environmental Protection Agency (EPA) water quality standards regulations described in 40 CFR 131.10(g). As described below, CASQA is concerned that the §13241/13242 requirements have not been fully addressed, especially the analysis necessary for the Regional Water Board to consider the factor specified in CWC §13241(c), which states as follows: “[w]ater quality conditions that could reasonably be achieved from the coordinated control of all factors which affect water quality in the area.”

Further, when adopting water quality objectives, the Regional Water Board is also required to adopt a program of implementation that includes “[a] description of the nature of actions which are necessary to achieve the objectives, including recommendations for appropriate action by any entity, public or private.” (CWC 13242(a).) The program of implementation must also include “a time schedule for the actions to be taken.”

Each of the concerns are further described below.

CWC §13241

CWC §13241 states that:

Each regional board shall establish such water quality objectives in water quality control plans as in its judgment will ensure the reasonable protection of beneficial uses and the prevention of nuisance; however, it is recognized that it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses.

Factors to be considered by a regional board in establishing water quality objectives shall include, but not necessarily be limited to, all of the following:

- (a) Past, present, and probable future beneficial uses of water.
- (b) Environmental characteristics of the hydrologic unit under consideration, including the quality of water available thereto.
- (c) Water quality conditions that could reasonably be achieved from the coordinated control of all factors which affect water quality in the area.
- (d) Economic considerations.
- (e) The need for housing within the region.
- (f) The need to develop and use recycled water.

Although the Draft Staff Report (Appendix 2) claims to address the factors for consideration as required by CWC §13241 in Sections 1.1.6 and 1.9, in fact, the

document fails to include sufficient information to address the factors described above, especially CWC §13241 c). Rather, the analysis is a brief, two-sentence statement on page 114, which states:

“In the San Diego Region, almost 30 percent of the stream-miles are estimated to be similar-to-reference and in good condition based on probabilistic surveys (see section 1.3.1). While many of these sites occur within minimally disturbed areas, other sites are located in areas where discharges associated with municipal, construction, and industrial storm water, irrigated agriculture, and other anthropogenic activities occur (Figure 3).”

In short, the Draft Staff Report finds that, because 30 percent of the stream miles are estimated to be similar to reference, and a small portion of those sites are in areas influenced by anthropogenic activities, then by extension the Stream Biological Objective of 0.79 CSCI score, which is associated with unaltered reference, must be achievable throughout the entirety of the San Diego Region. This simple statement fails to properly consider how the 0.79 CSCI score will be achieved throughout the region, and in all waterbodies to which the objective would apply. It also fails to consider if achieving this score is reasonable through a program of implementation on controllable factors. Moreover, the statement provided in the Draft Staff Report does not consider historic land use development to meet many other public health and safety issues such as adequate water supply availability and flood control. Accordingly, the Draft Staff Report is incomplete in its analysis, and does not meet the mandates of CWC §13241.

For cities, counties, districts, and other regulated entities, adoption of the objective without proper consideration will result in the need for all entities to comply with this objective even though the Stream Biological Objective may not be reasonably achievable in ALL waterbodies. Moreover, as noted in Comment #7, the State Water Board’s Biostimulatory/Biointegrity Process has produced, through coordination with SCCWRP, the Channel in Developed Landscapes modelling tool that indicates that a reference-based objective may not be achievable in all waterbodies due to landscape constraints.

Another fundamental concern with the CWC §13241(c) discussion in the Draft Staff Report is that it does not identify the types of control measures that would be required for the waterbodies in question to achieve the Stream Biological Objective, and the Draft Staff Report does not evaluate these measures to determine if implementation thereof would, in fact, be reasonable/feasible for all waterbodies and result in attainment of the Stream Biological Objective.

At a minimum, the CWC §13241(c) analysis should include the following:

- An analysis based on the steps below as they apply to dry weather conditions (when there is enough flow to support representative monitoring) that have not been impacted by a storm event. It is assumed that there would not be a similar, separate analysis for wet weather conditions since the proposed Stream Biological Objective does not apply to ephemeral streams or during conditions that are influenced by storm events. Thus,

the analysis should clearly identify that it is focused on dry weather only due to the applicability of the Stream Biological Objective. (See Comment #3)

- An analysis to determine if the proposed Stream Biological Objective is currently achieved in all waterbodies (within a full range of conditions from reference-based waterbodies to waterbodies in fully developed landscapes).
- If the analysis identifies waterbodies where the proposed Stream Biological Objective is not achieved, what are the types of actions and/or controls that would be required of the permittees (per sector), as a part of the regulatory framework.
- An analysis to demonstrate that the necessary controls to achieve the proposed Stream Biological Objective are reasonable and feasible (proven, cost-effective, affordable, etc.).
- For those waterbodies where the proposed Stream Biological Objective is not currently achieved, an analysis to determine if the proposed Stream Biological Objective could reasonably be achieved in all waterbodies through the implementation of coordinated controls on all factors that affect water quality in that waterbody.
- As a result of this analysis, identification of the waterbodies that are unable to achieve the proposed Stream Biological Objective, and perhaps an alternative water quality condition that can be reasonably achieved.

In order to fully understand the impact of the proposed Stream Biological Objective throughout the region, and to determine if the Stream Biological Objective provides for reasonable protection of beneficial uses, the analysis should include case studies covering the range of waterbodies within the region and where the types of proposed, required controls have achieved the proposed Stream Biological Objective. Ultimately, the results of the CWC §13241 analysis needs to inform the program of implementation that is required pursuant to CWC §13242.

125. Response 125

Please see Response #1 regarding modification of the proposed Stream Biological Objective. Please see Responses #9, #32, #50, #51, and #68 regarding satisfaction of the factors in CWC sections 13241 and 13242. Please see Response #43 regarding use and applicability of the Beck et al. tool. Please see Responses #9 and #63 regarding use of 40 CFR section 131.10(g). In addition, contrary to the commenter's assertion, the draft Staff Report considers the CWC section 13241 and 13242 factors and identifies types of management measures expected to be implemented by permittees to ensure their discharges do not cause or contribute to conditions of pollution.

Additional information has been added to the CWC 13241 section in the SED for clarity, including references to other sections of the draft Staff Report where relevant information is located.

The commenter requests that case studies be implemented for the range of waterbodies in the region to show that proposed controls result in a stream's attainment of the Stream Biological Objective. Case studies relating implementation of specific controls to the Stream Biological Objective are not likely informative in this context

because biological integrity in a stream is the product of cumulative compliance across multiple regulatory programs tributary to the stream. The CSCI score represents an integrated response to many factors, whereas the commenter appears to seek a correlation of a single action.

As stated in the SED and Staff Report, there is evidence that the Stream Biological Objective can be achieved in waterbodies throughout the San Diego Region through the control of the factors that impact water quality. Streams in existing developed areas are capable of meeting the proposed Stream Biological Objective in areas where the quality of water discharged to streams is regulated by the San Diego Water Board. The Stream Biological Objective can be reasonably achieved through the coordinated control of all factors which affect water quality in the area. This includes control of fully hardened channels through in-stream restoration, though these have been excluded from the Stream Biological Objective at this time until additional information on the timeframe for restoration is available (see Response #1).

The use of a case study to examine the success of specific individual controls is not appropriate, as the achievement of the Stream Biological Objective is reliant on effective cumulative actions in the tributary watershed to address pollutants of concern. In order to conduct such a case study, a causal assessment would need to be done to identify specific pollutants responsible for a low CSCI score, then loading capacities determined, load reductions and sources identified, and then programs modified to meet those loads of specific pollutants with concurrent monitoring of implementation and receiving water improvement. In other words, the commenter appears to suggest postponing adoption of the BPA in order to conduct the sort of multi-year, status quo TMDL approach often opposed by MS4 permittees and in the Staff Report as an inefficient way to restore and protect aquatic life beneficial uses.

Lastly, the proposed Stream Biological Objective includes an implementation pathway in the unlikely event that evidence shows an individual waterbody is unable to reasonably achieve the Stream Biological Objective through the control of all factors which affect water quality in the area. The Listing Policy and Impaired Waters Guidance provide the appropriate pathway for the Regional Board to address such a situation. References to the Listing Policy and Impaired Waters guidance are included in Chapter 4.

Comment:

CWC §13242

CWC §13242 states that:

The program of implementation for achieving water quality objectives shall include, but not be limited to:

- (a) A description of the nature of actions, which are necessary to achieve the objectives, including recommendations for appropriate action by any entity, public or private.
- (b) A time schedule for the actions to be taken.

(c) A description of surveillance to be undertaken to determine compliance with objectives.

Although the Draft Staff Report claims to address CWC §13242 in Section 1.9.2, this section generally refers to Chapter 4 of the Proposed BPA (Implementation Plan) and Section 5 of the Staff Report and states that “the program of implementing the proposed water quality objective is through assessment in integrated reporting, monitoring to prevent antidegradation, establishment or modification of monitoring and assessment in NPDES permits and WDRs, CWA §401 Certification, and TMDLs.” Thus, according to CWC §13242, the foundation of the implementation program seems to be primarily focused on monitoring and reporting; however, there is no actual description of the nature of actions that would be imposed on the permittees to achieve compliance with the proposed objective, and no time schedule is provided for implementation of specific actions that need to be taken by the regulated entities. In fact, the Time Schedule for Implementation of Stream Biological Objective (Table TBD, Chapter 4, pg. 3), does not identify any actions beyond a 5-year timeframe for the permittees.

Issues that CASQA has identified within Chapter 4 of the Proposed BPA (Implementation Plan) include the following:

- Section II. Time Schedule for Implementation of the Stream Biological Objective
Although this section states that it outlines the time schedule for the implementation of the proposed Stream Biological Objective, this section and Table TBD, does not include any time schedules for the implementation of the control actions or time necessary to meet the proposed Stream Biological Objective (e.g., for Permitting, Regional Phase I Permit). This section must include the time necessary for implementation of the actions required pursuant to the permits/WDRs and how much time is expected to achieve the proposed Stream Biological Objective within all applicable waterbodies.

Within Table TBD it indicates that the Regional Water Board will be implementing the General Monitoring and Assessment actions; however, within Section III, these requirements also seem to apply to the permittees. In addition, in section V.B.3, there are specific monitoring requirements for the permittees that are not included within the table. This should be reconciled within Table TBD along with the requisite timeframes for implementation.

Within the Permitting section V.B.3, there is discussion of the minimum permit requirements for discharges that pose a probable threat; however, it is not clear what the specific control actions are that will be required. For the purposes of satisfying the requirements of CWC §13242, the specific implementation actions and controls that the permittees will have to take, and implement should be identified along with the timeframe for implementation in order to achieve compliance with the proposed Stream Biological Objective.

As a result, consistent with CWC §13242, Chapter 4 of the Proposed BPA must be revised such that it recognizes the results of the CWC §13241 analysis and describes

the nature of actions that need to be taken by the appropriate party, the time schedule for those actions, and the description of the requisite monitoring.

To conduct this analysis, EPA recommends the following: (a) the identification of current and expected conditions of the water body, (b) the evaluation of the effectiveness of best management practices, including treatment options and (c) the use of water quality models, load calculations and other predictive tools. For waterbodies that cannot meet the desired condition (for example, the unaltered reference condition of 0.79 CSCI score), EPA recommends the establishment of different beneficial use descriptions and categories which reflect the highest attainable use for the category of water body.

CASQA Recommendation:

- The Draft Staff Report must include an analysis of the CWC §13241 factors, and in particular an evaluation with respect to sub-section (c), to demonstrate that the proposed numeric water quality objective for perennial and seasonal streams can be reasonably achieved from the coordinated control of all factors which affect water quality in the area.
- The Proposed BPA must include a program of implementation in Chapter 4 that complies with CWC §13242 such that it is clear what specific actions are required of what entities/agencies, and a time schedule for taking actions and for achieving the proposed Stream Biological Objective (see also the issues bulleted above related to the time schedule for implementation).

126. Response 126

The draft Staff Report includes a detailed program for implementation as required by CWC section 13242. Please also see Responses #9, #32, #50, #51, and #68 regarding compliance with CWC sections 13241 and 13242.

Comment:

Comment #5. The Proposed BPA does not recognize that Permittees will be in Immediate Non-Compliance once the Stream Biological Objective is Approved and Effective.

According to Chapter 4 of the Proposed BPA (Implementation Plan – Table TBD: Time Schedule for Implementation of Stream Biological Objectives), the implementation actions and compliance dates for Regional Phase I MS4 Permittees are:

Within 5 years of the effective date of the Stream Biological Objective, the San Diego Water Board will modify the Phase I MS4 Permit to include implementation requirements to incorporate the CSCI and Stream Biological Objectives; and

Phase I MS4 Permittees may elect to comply with the Stream Biological Objective using the “alternative compliance pathway option.” However, 12 months prior to submittal of the report of waste discharge (ROWD), Phase I MS4 Permittees must notify the

Regional Water Board if they wish to utilize or update an alternative compliance pathway option to incorporate numeric goals, water quality improvement strategies, and schedules for the Stream Biological Objective.

Since the Proposed BPA indicates that the Stream Biological Objective would be applied as a receiving water limitation (if adopted) and the Staff Report includes a finding that Regional Phase I MS4 Permittees are predetermined to be a probable threat (thus causing or contributing to a decreased CSCI score) (Comment #11), Regional Phase I MS4 Permittees that discharge to water bodies with CSCI scores less than 0.79 will be immediately out of compliance with the Receiving Water Limitations permit requirements and in jeopardy of third party lawsuits if the Stream Biological Objective is adopted as proposed.

While CASQA does not believe that this is the intent of the Regional Water Board, language must be modified so that immediate non-compliance is not an unintended consequence. Thus, to the extent that the Regional Water Board moves forward to adopt the Stream Biological Objective as proposed, CASQA recommends changes to avoid immediate non-compliance by permittees.

CASQA Recommendation:

Delete the determination that the Phase I permittees represent a probable threat to the Stream Biological Objective.

The Regional Water Board should not universally apply the Stream Biological Objective as a receiving water limitation. Instead, the Stream Biological Objective should be addressed through the Discharge Limitations (consistent with B.1 of Chapter 4 of the BPA).

127. Response 127

The proposed implementation plan (Chapter 4) of the proposed BPA does not support the assertion that MS4 permittees discharging to a stream that does not meet the Stream Biological Objective are at risk for immediate non-compliance. See Responses #32, #47 and #54.

Please also see Responses #37, #66, and #75 regarding the term probable threat and receiving water limitations, and Response #66 and #98 regarding the use of causal assessments to determine sources that could be suppressing CSCI scores.

Comment:

Comment #6. The Proposed BPA should consider the body of work resulting from the State Water Board's process for the development of a Biostimulatory Substances Objective and Program to Implement Biological Integrity (Biostimulatory/Biointegrity Process).

As noted above, for the last several years, CASQA has been actively engaged as a formal stakeholder in the discussions / development of the Biostimulatory/Biointegrity

Process. This process was developed because it is the State Water Board's first attempt to define biological objectives for California. Further, the stakeholder process was created due to the complexity in defining the biological conditions in the diverse ecoregions throughout the state, and to evaluate the range of regulatory and policy alternatives for consideration. As one would expect, this transparent and inclusive stakeholder-based process has identified a number of issues that should be addressed when adopting biological objectives. Notably, CASQA has been working with State Water Board staff and the regulated community as a whole in contemplating, vetting, and identifying possible approaches and alternatives for addressing a wide range of associated issues.

Some of the key scientific reports and manuscripts that have been developed through the State Water Board's process should also be considered within the San Diego Region's process. These key documents include the following:

- Sutula M., Mazor R. and Theroux S. et al. authors. October 2018 Draft Version. Scientific Bases for Assessment, Prevention, and Management of Biostimulatory Impacts in California Wadeable Streams. Southern California Coastal Water Research Project Technical Report Number 1048
- Beck, M. W., RD Mazor, S Johnson, K Wisenbaker, J Westfall, PR Ode, R Hill, C Loflen, M Sutula, ED Stein. In Review. Prioritizing management goals for stream biological integrity within the developed landscape context. Submitted to Freshwater Science
- Paul M.J., Jessup B., Brown L., Carter C., Cantonati M., Charles D.F., Gerritsen J., Herbst D., Howard J., Isham B., Lowe R., Mazor R., Mendez P., O'Dowd A., Olson J., Pan Y., Rehn A., Spaulding S., Sutula M., Stancheva Hristova R., and Theroux S. In Prep. Development of benthic macroinvertebrate and algal biological condition models for California streams. For submission for Freshwater Science.

Other policy and implementation considerations that also need to be considered by the Regional Water Board in setting biological objectives specific to the San Diego Region include the following:

- Use of a narrative objective rather than a specific numeric objective.
- Phased implementation that first focuses on water bodies that meet or are highly likely to meet the proposed biological objective.
- Establishment of indicators and thresholds or ranges that are appropriate for California streams, and those within the San Diego Region.
- Thresholds and implementation approaches that are appropriate for constrained channels.
- Process for addressing multiple causal assessment indicators.
- Watershed-based causal assessment and source control options.
- Watershed-based credit trading.

CASQA Recommendation:

Although the State Water Board process to develop Biostimulatory/Biointegrity Process is still underway, the Regional Water Board should consider the body of work that has been completed and vetted through scientific panels and stakeholder groups over the

past few years as well as the range of outstanding issues and alternatives (see the bulleted list above).

128. Response 128

The body of work from the State Water Board's efforts regarding biostimulatory and biointegrity objective development was considered in the development of the proposed BPA. Please see Response #3, #6, and #43 regarding the potential use of the tools cited in the comment. Please also see Response #1 regarding modification of the proposed Stream Biological Objective. Scientific Peer Review found the proposed approach, including use of tools such as those mentioned in the comment, to be scientifically sound. Please see Response #123 regarding the proposed phased approach.

Comment:

Comment #7. The Proposed BPA should recognize the inherent limitations of water body segments in highly developed landscapes and utilize SCCWRP's Channel in Developed Landscapes Model to assist in defining the expected biological condition.

One of the key challenges and discussion items within the Stakeholder Advisory Group in the State Water Board's Biostimulatory/Biointegrity Process is the issue of channels in developed landscapes and if / how biological objectives should be applied and assessment results interpreted within heavily modified water body segments. To assist in evaluating potential approaches, SCCWRP developed a statewide landscape model and manuscript [SCCWRP Manuscript] "Prioritizing management goals for stream biological integrity within the developed landscape context." The Channel in Developed Landscapes Model (Model) "estimates ranges of likely scores for a macroinvertebrate-based index that are typical at a site for the observed level of landscape alteration."

Some of the key findings from this work effort include the following:

- “Stream management goals for biological integrity may be difficult to achieve in developed landscapes where channel modification and other factors impose constraints on in-stream conditions.” (pg 2)
- “...achieving a reference condition of biological integrity (i.e., having structure and function comparable to natural habitat for the same region, Karr et al. 1986) may be challenging if site-specific conditions place limits on spatial and temporal scales that can be effectively managed (Chessman and Royal 2004, Chessman 2014).” (pg 3)
- “The landscape model can be used characterize the extent of biologically constrained channels in urban and agricultural landscapes”and...”provides a tool to determine how managers can best prioritize limited resources for stream management by focusing on segments where recommended actions are most likely to have the intended outcome of improving or protecting the biological condition.” (pgs 28-29)
- “The approach also leverages information from multiple sources to develop a context for biological assessment that provides an expectation of what is likely to be achieved based on current land use development.” (pg 29)
- “The availability of geospatial and bioassessment data at the national level suggests that these tools can easily be applied to inform management decisions at other locations where altered landscapes may limit biological integrity.” (Abstract)

As part of this work effort, SCCWRP worked with a local stakeholder group from the San Gabriel River watershed to evaluate how the model results could be used to identify and prioritize local management decisions based on the biological expectation of the stream segments. The scores were used to determine the applicable management response given the constraints on the segment and expected biological condition. For example:

- “....most of the sites in the lower watershed [highly modified] scored within their expected ranges [from the modeling effort], and were therefore, given a low priority for restoration.” (pg 2)
- “In contrast, two low-scoring sites in the undeveloped upper watershed were prioritized for causal assessment and possible future restoration, whereas the three high-scoring sites were prioritized for protection.” (pgs 2-3)

However, rather than considering application of the Channel in Developed Landscape Model to determine feasibility of complying with the proposed Stream Biological Objective, the Draft Staff Report (Appendix 2) appears to only consider use of the Model within the context of the Tiered Aquatic Life Use (TALU) or Biological Condition Gradient (BCG) Alternative (Alternatives Analysis, Section 1.8.5), which is rejected as an alternative. Some of the rationale used for this rejection includes the following:

*Note: The comment also includes additional information on pages 12-14 of the comment letter. The San Diego Water Board considered this information and the below response includes this consideration.

129. Response 129

Please see Response #1 regarding modification of the proposed Stream Biological Objective. Please see Response #43 regarding the Beck et al. model. Please see Response #102 regarding alternative analysis and Responses #3, #6, and #43 regarding alternative thresholds.

Comment:

Comment #8. The Proposed BPA should provide more clarity regarding the use of Causal Assessments, the effectiveness and limitations of such assessments in determining causal factors, and how the information that is generated from them would be used, depending on the range of plausible outcomes.

As a part of Chapter 4 (Implementation Plan), the Proposed BPA discusses the use of rapid causal assessment methods (see Comment #11) as well as the use of EPA's Causal Analysis/Diagnosis Decision Information System (CADDIS). In general, it is unclear when the Regional Water Board would propose the use of the rapid causal assessment methods versus EPA's CADDIS-based approach, the limitations of the methodologies, timing of performing a causal assessment in relationship to establishing an effluent limitation, and how multiple stressors would be addressed within the regulatory framework. In addition, CASQA is concerned that the approach, as currently written within the Proposed BPA, may oversimplify the ability of causal assessments to identify a singular and/or clear cause for a lowered CSCI score.

For example, through the State Water Board's Biostimulatory/Biointegrity Process, SCCWRP developed a Causal Assessment Evaluation and Guidance Document for California¹³ that included four case studies (Garcia River,¹⁴ Salinas River,¹⁵ San Diego River,¹⁶ and Santa Clara River¹⁷). Some of the key lessons learned from the case studies are as follows:

- "In [the] four test cases, we identified a subset of candidate causes, albeit with varying degrees of confidence. Equally as important, we identified several unlikely candidate causes, enabling stakeholders to bypass non-issues and focus follow-up work on candidate causes of greatest importance." (pg.viii)
- "However, some candidate causes were left undiagnosed when insufficient, uncertain, or contradicting evidence emerged. Subsequently, iterative steps in diagnosing and confirming candidate causes will likely result, especially where multiple stressors can result in cumulative impacts." (pg viii)
- "There are at least three important considerations when adapting CADDIS to California.

- o First is selecting appropriate comparator sites. Comparator sites are a key ingredient of the Causal Assessment approach. They enable the comparison of data relevant to candidate causes between the impacted site of interest (the test site) and a site with higher quality condition. The traditional localized (i.e., upstream-downstream) approach to selecting comparator sites met with limited success in California, largely because of the ubiquitously altered watersheds in our four test cases.

o Second is the distinction between evaluating data from within the case versus data from elsewhere. Data from within the case provides the primary lines of evidence for evaluating candidate causes (i.e., spatial/temporal co-occurrence, stressor-response from the field). Data from outside the case provides context for interpreting these primary lines of evidence, such as ensuring concentrations are high enough to induce biological effects (stressor-response from other field studies or from the laboratory). When comparator sites are inadequate for revealing meaningful lines of evidence from within the case, such as in our case studies from California, data from outside the case still provided the necessary information for evaluating candidate causes. Therefore, additional work to develop new assessment tools such as species sensitivity distributions, tolerance intervals, dose-response studies, relative risk distributions, or in-situ stressor response curves will dramatically improve the utilization of data from elsewhere.

o The third important consideration is summarizing the case. Often times, this may be the only piece of documentation that managers will ever see. Incorporating the myriad of data analytical results for the numerous lines of evidence can be overwhelming. Narrative summary tables are used herein for our four case studies, which can be very descriptive and are consistent with CADDIS guidance. However, the narrative summaries lack much of the quantitative attributes stakeholders would prefer when making important decisions, so future efforts should develop methods or approaches for providing certainty in the diagnostic outcome.” (pgs viii-ix)

• “Currently, Causal Assessments are not necessarily simple or straightforward. It must be recognized that there is a learning curve associated with implementation of any new process.” (pg ix) CASQA Recommendation:

o The Regional Water Board should clarify when rapid causal assessment methods would be used versus EPA’s CADDIS-based approach, identify the limitations of the methodologies, explain how the resulting information would be used, and explain how multiple stressors, would be prioritized and addressed within the regulatory framework.

130. Response 130

Please see Responses #66 and #98 regarding the use and applicability of causal assessment tools. The proposed amendments to Chapter 4 of the Basin Plan specifies when the use of CADDIS would and would not be appropriate. The use of causal assessment for TMDL purposes would be done in accordance with the Impaired Waters Policy.

Comment:

Comment #9. The Proposed BPA does not seem to contemplate how the permittees and other stakeholders would need to work together in order to assess and affect watershed-wide change.

According to Chapter 4 of the Proposed BPA (Implementation Plan), it appears that each permittee (Phase I Municipal Stormwater permittees, owners and operators of commercial agricultural operations, dredge and fill material dischargers subject to a CWA §401 certification and/or WDRs, and/or enrollees under regional or statewide General Permits) would be required to implement the following:

- Conduct Receiving Water Biological Assessments (V.A.2);
- Monitor and Assess discharges as well as receiving waters (V.B.4); and
- Implement control measures where the permittee is found to be causing or contributing to a decreased CSCI score.

Rather than requiring each permittee to conduct all of the above, CASQA recommends that the Proposed BPA include an approach that allows for watershed-based assessment, collaboration, and implementation among all parties and not just through the Water Quality Improvement Plans (WQIPs). Such an alternative is necessary considering the limited resources of each of the permittees, and the need to not duplicate efforts. Moreover, it makes practical and technical sense to work within a watershed-wide scale to understand the issues and constraints such that implementation efforts can affect change within watershed to achieve the desired outcome. Without this type of coordinated approach, CASQA is concerned that individual efforts attempting to bring receiving waters into attainment with the biological objectives will be unsuccessful.

CASQA Recommendation:

Revise the approach for monitoring, assessment, and implementation to be watershed-based to promote collaboration and coordination between the Regional Water Board and permittees.

131. Response 131

Please see Response #71.

Some additional language has been added to Section IV of Chapter 4 of the proposed BPA to reference the watershed planning process currently in the Basin Plan.

Comment:

Comment #10. The compliance determination language is unclear and inconsistent with other BPA language (such as the ability to use the alternative compliance option) and should be structured so that it is clear what the compliance pathways are for the range of permittees and scenarios that may occur with the Stream Biological Objective.

The Proposed BPA states that the Regional Water Board will determine compliance with the Stream Biological Objective using a “comparator site approach,” which is defined as a comparison of the biological condition of the receiving water to the biological condition of the receiving water uninfluenced by the discharge. The compliance determination section is within the Permitting section; thus, for CASQA’s members, it identifies how the Regional Water Board will determine compliance with the proposed Stream Biological Objective for stormwater permittees.

CASQA’s concerns are as follows:

- There is no defined methodology for the “comparator site approach” including, but not limited to, (1) the timeframe for this analysis; (2) the number of data points needed; (3) need for analysis to be conducted for every discharge location; (4) deeming two reaches of receiving waters similar for the purposes of the analysis such that the only modified variable is the discharge into the receiving water; and, (5) determining the driving cause behind the decreased CSCI score (compared to information from a causal assessment/stressor identification analysis).
- As currently expressed in the Proposed BPA, if the results of the comparator site approach indicate that discharge to a site is related to the decreased CSCI score, the Permittee would be “out of compliance” with the permit. Given the complexity of biological systems, this approach could result in a Permittee being deemed out of compliance with its permit even though the receiving water may not be meeting the Stream Biological Objective due to multiple reasons and/or the attainment of the Stream Biological Objective can only occur through long-term, watershed-based improvements. This approach appears to be inconsistent with the Regional Water Board’s intent considering that that the Draft Staff Report recognizes that achievement of the Stream Biological Objective may take long-term efforts
- This section of the Proposed BPA includes other sections “Determining when there is an Exceedance of the Stream Biological Objective,” “Determining when Further Investigation of a Potential Exceedance is Required,” and “Process for Conducting Biological Objective Evaluation.” However, it is unclear how these sections relate to one another as well as how the information developed as a part of causal assessments would be considered within this framework. “Restoration of waters where long-term historic land use decisions have restricted the ability for current discharges to meet the Stream Biological Objective will require long-term incremental improvement through existing implementation programs.” (pg.73, Draft Staff Report)
- This section does not include recognition or language from section VI.A, which indicates that “Phase I MS4 Dischargers may elect to comply with receiving water limitations and prohibitions using the “alternative compliance pathway option” in the Phase I MS4 Permit.

CASQA Recommendation:

o The Regional Water Board should reevaluate this section and define a step-wise process that would be used to determine if a regulated party's discharge is causing or contributing to a decreased CSCI score and how that information would be used to determine permit compliance.

132. Response 132

The comment is correct that different types of permits have different permit requirements under the CWA. Additional clarifying language has been added to the permitting section of Chapter 4 of the proposed BPA to distinguish between compliance for Phase I (Section VI, which does not propose using a comparator site approach), vs other NPDES permits (Section V, which proposed a comparator site approach). Please see Response #47 for additional implementation discussion.

Comment:

Comment #11. The Proposed BPA should include definitions for the terms that are used, identify how they are related to one another (where applicable), and specify what technical analyses would be used to satisfy a requirement (where applicable).

The Proposed BPA introduces several new terms and/or references technical analyses that need to be completed without clearly identifying the established methodologies that should be used to satisfy the requirement. The requested clarification applies to the following terms:

- **Seasonal Streams** Seasonal streams are defined within the Proposed BPA, Chapter 3 as “freshwater streams that are expected to be inundated with flowing water for at least four weeks between the months of February and October, except during periods of atypical or extreme drought. Seasonal streams have sufficient flows to conduct bioassessment sampling for stream aquatic benthic macroinvertebrates in most years. Seasonal streams do not include those streams that only exhibit ephemeral flow, which is flow that occurs only during or immediately following (e.g. 24-48 hours) rainfall events.”

Seasonal Streams vs. Intermittent Streams

It is unclear why the Regional Water Board is establishing a new term “seasonal streams” instead of using the more common term “intermittent streams”, what the differences are between the two terms, and if there is a direct relationship between “seasonal streams” and the use of “intermittent streams” to establish the technical basis for the application of the proposed objectives. In fact, these terms seem to be used interchangeably and/or in concert with one another throughout the Draft Staff Report. Examples include, but are not limited to, the following [emphasis added]:

- o Section 4.1 Introduction – Footnote #2 “This includes perennial streams that flow year-round and intermittent streams that may flow from a few weeks to months during a typical rainfall year...”

- o Section 4.5 Applicable Waterbodies

“Research by the CSCI’s authors (Mazor et al. 2014, Mazor, Rehn, and Stein in Mazor et al. 2015, Figure 9, Figure 10) that occurred up to and simultaneous to the CSCI’s

publication found that the CSCI and sampling protocols overwhelmingly work for seasonally intermittent streams in the San Diego Region.”

“Thus, both perennial and regularly seasonal intermittent streams can be sampled for the CSCI.”

o Figure 9 – “Comparison of CSCI distributions at perennial and intermittent (nonperennial) reference sites in the San Diego Region (R9) and for perennial reference sites across southern California. CSCI scores showed no bias against intermittent streams.”

*Note: The comment also includes additional information on pages 18-19 of the comment letter. The San Diego Water Board considered this information and the below response includes this consideration.

133. Response 133

Please see Response #8, #24, #25, and #46 regarding seasonal streams and Response #25 for an explanation of the categories of streams and waterbodies to which the proposed Stream Biological Objective applies. The term “seasonal stream” is used in the Stream Biological Objective because other terms, such as “intermittent stream” or “nonperennial stream” have often been used inconsistently throughout the region, have included streams that exhibit ephemeral flow regimes, or are defined differently by other entities. Scientific Peer Review found the inclusion of seasonal streams as defined to be scientifically sound and appropriate. Some additional language has been added in the draft Staff Report (Section 4.5) for clarity among/between terms.

Comment:

• Probable Threat

Probable Threat vs. Cause or Contribute

The Proposed BPA uses the term “probable threat” throughout Chapter 4. Although it appears that the term is defined as “if the discharge is or has the potential to cause or contribute to a decrease in the CSCI score in the receiving water or downstream waters as identified in the ROWD or determined by the San Diego Water Board,” there is no description as to the methodology and temporal or spatial data that would be used to make this determination.

It is also unclear why this new term is needed, when it seems to embody the term and general approach that is used to determine if a discharge is “causing or contributing” to an exceedance of water quality objectives. This language goes beyond the “cause or contribute” language and will result in confusion as to how this is demonstrated without a clear linkage to stream health.

Blanket Determination that Phase I Permittees are Deemed a Probable Threat

The Draft Staff Report (page 78) states that "...Phase I discharges have already been determined by the San Diego Water Board to represent a probable threat to the Stream Biological Objective." To support this statement, the Draft Staff Report then provides a general reference to the findings and fact sheet for Order R9-2013-0001. However, it is unclear what findings and portions of the fact sheet this statement is referencing since there are no citations. Besides this reference, the Draft Staff Report fails to include any supporting analysis or information to support this finding of probable threat. Without additional information, the Regional Water Board has abused its discretion because the findings are not supported by the evidence. (See, *Asociacion de Gente Unica por el Agua v. Central Valley Regional Water Quality Control Bd.* (2012) 210 Cal.App. 4th 1255, 1281.)

Based on the limited information provided, it is unclear what (if any) biological and corresponding causal assessments were conducted throughout the San Diego Region to support a finding of this magnitude. Further, no information is provided to support the Regional Water Board's overarching conclusion that all 21 of the San Diego County Copermittees, all 12 of the Orange County Copermittees, and all 5 of the Riverside County Copermittees are causing or contributing to a depressed CSCI scores within their local waterbodies.

Immediate Non-Compliance with Receiving Water Limitations

In addition, since the Regional Water Board has indicated that the Stream Biological Objective will be applied as a receiving water limit, by making the blanket determination that the Phase I municipal stormwater permittees are a probable threat within the Draft Staff Report, the Regional Water Board places the municipal stormwater permittees in immediate non-compliance with the Receiving Water Limitations of the Regional Phase I MS4 Permit once the Stream Biological Objective is effective.

CASQA Recommendation:

- o Delete the term "probable threat" and, instead, use the more common term within existing municipal stormwater NPDES permits "cause or contribute."
- o Identify the process used and data and information necessary for making a cause or contribute determination for the Stream Biological Objective.
- o Delete the determination that the Phase I permittees represent a probable threat to meeting the Stream Biological Objective.
- o Within the Chapter 4 Table (TBD) Time Schedule for Implementation of Stream Biological Objective, revise the approach used for Regional Phase I MS4 Permit to be the consistent with the other permittees and add the language "Within 5 years after the effective date of the Stream Biological Objective, the San Diego Water Board will evaluate the causal assessments and Regional Phase I MS4 permittee data to determine if the discharge(s) are causing or contributing to an exceedance of the Stream Biological Objective."

134. Response 134

Please see Response #37 regarding clarification of the term probable threat, as well as Response #66 and #75 regarding receiving water limitations. Please see Responses #32, #47 and #54 addressing concerns regarding immediate non-compliance. The request to revise the Chapter 4 Table (TBD) is not appropriate as the determination of a “probable threat” (now “elevated risk”) is not a determination of causing or contributing to an exceedance of the Stream Biological Objective as the commenter requests. The request for the San Diego Water Board to evaluate permit compliance with receiving water limitations in the Chapter 4 language is not a necessary change.

Comment:

• Rapid Causal Assessment Methods

The Draft Staff Report states that rapid causal assessment methods may be used for a wide range of analyses including cause or contribute assessments (pg. 82), evaluation and prioritization of stream segments (pg. 83), 303(d) listing and de-listing processes (pg. 86), identification of potential mitigation sites (pg. 93), assess sources relative to discharges associated with agricultural activities (pg. 96), and source identification monitoring (pg. 103). However, it is unclear what the referenced rapid causal assessment methodologies are, how the methodologies should be applied, and results interpreted for each of the abovementioned analyses, and if they have been formally peer reviewed and tested for that application. The Draft Staff Report (Appendix 2) states “several agencies have developed rapid causal assessment tools...that work on a site-specific basis at much lower costs than the traditional EPA CADDIS approach (City of San Diego 2015b, SCCWRP 2016, Gillet et al. under review).” (pg. 119). It is unclear if the rapid assessment methodologies have been completed and to what extent they have been used for a wide range of pollutants within California or elsewhere.

The Proposed BPA discusses the role of “rapid causal assessment methods” in the following sections:

- o Chapter 4 – III.B “The San Diego Water Board may use rapid causal assessment methods for water segment assessment, as well as for evaluating a water segment’s recovery potential, developing timeframe(s) for potential restoration targets, and selecting potential restoration methods and mitigation measures.” (Proposed BPA, pg. 7, emphasis added.)
- o Chapter 4 – Footnote 16 “Rapid causal assessment, physical in-stream habitat modeling, and traditional stressor identification methods may be used for the impact evaluation. Formal EPA causal assessment (i.e. CADDIS) is generally not appropriate for use in permit impact evaluations and is not required.” (Proposed BPA, pg. 14, emphasis added.)

Although rapid causal assessment seems integral to the monitoring and assessment component of the Stream Biological Objective, the Proposed BPA fails to include or provide detail regarding the expected rapid causal assessment methodologies that should be used. Rather, CASQA understands that these assessment methods are currently under development. Prior to use and application of any such methods in

a regulatory process, the rapid causal assessment methods need to be subject to public review and comment as well as peer review.

CASQA Recommendation:

- o Identify the specific rapid causal assessment methods that would be used within the monitoring and assessment components of the biological objectives.
- o Identify how the rapid causal assessment methods should be applied and interpreted for use in cause or contribute assessments, evaluation and prioritization of stream segments, 303(d) listing and de-listing processes, identification of potential mitigation sites, assessment of sources relative to discharges associated with agricultural activities, and source identification monitoring.
- o Circulate the methods for public review and comment and ensure that the methods are widely applicable to a broad range of pollutant classes, have been subject to peer review, and make publicly available the results of the peer review.

135. Response 135

Please see Response #66 and #98 regarding causal assessment. Scientific Peer Review for the Stream Biological Objective found the proposed use of causal assessment to be scientifically sound. The use of causal assessment as an implementation tool does not require additional public review and comment, or peer review (note that several rapid causal assessment tools are published in peer-reviewed scientific journals). The use of causal assessment for TMDL development associated with Basin Planning would undergo a separate public and peer review process.

Comment:

• Pollution

The Proposed BPA defines the term “pollution” in Chapter 4, Section III.C footnote 9 (page 7) as “the manmade or man-induced alteration of the chemical, physical, biological, and radiological integrity of water, e.g. a dam or channel hardening” and cites CWA § 502(19). However, the term “e.g. a dam or channel hardening” does not appear within CWA § 502(19). Further, the term pollution is defined in California law to mean “... an alteration of the quality of the waters of the state by waste to a degree which unreasonably affects either of the following: (A) The waters for beneficial uses. (B) Facilities which serve these beneficial uses.” (CWC §13050(l)(1).) Under its NPDES authority, the Regional Water Board has the authority to issue permit restrictions and requirements on point sources that discharge a pollutant to a water of the U.S. NPDES permits are not used to address conditions of pollution that are not related to the discharge of a pollutant. Similarly, Porter Cologne authorizes the water boards to permit waste discharges, and a pollution condition is one associated with waste. Considering the Regional Water Board’s limited legal authorities for addressing conditions of pollution unrelated to a discharge of a pollutant or waste, the Proposed BPA needs to clearly explain its intent with respect to pollution that is unrelated to a discharge of a pollutant or waste. Currently, the Proposed BPA is unclear as to this connection, and does not explain the need for defining pollution in the Proposed BPA itself.

CASQA Recommendation:

o Remove the definition of pollution from the Proposed BPA, or, at the very least, remain consistent with the CWA citation and remove the language “e.g. a dam or channel hardening”.

136. Response 136

Please see Response #105.

Comment:

• Potential Temporary/Permanent Impact

In Chapter 4, Section V.A.2 (Contents of a Receiving Water Biological Assessment), the Proposed BPA includes the term “potential temporary or permanent impacts;” however, these terms are not defined, so it is not clear what the thresholds are to determine if an impact is temporary or permanent and/or what approach or methodology should be used to make this determination.

In addition, the only place where this terminology appears within the Draft Staff Report is in Section 5.6 Clean Water Act §401 Water Quality Certifications. If this term and analysis is only meant for 401 certifications, this should be clarified within Chapter 4.

CASQA Recommendation:

o The Proposed BPA should define the terms “potential temporary impact” and “permanent impact”, clarify which regulated entities must make the determination, and state the approach and methodology for the analysis as well as the thresholds for interpretation of results.

137. Response 137

The terms temporary and permanent impact within Section 5.6 are used because they are commonly used in the CWA Section 401 Certification process (e.g., see 2019 State Water Board amendments to Water Quality Control Plans to include State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State), and they are only intended to apply to that section. An appropriate discussion of the terms is included in the draft Staff Report. The determination of the scope and magnitude of these permanent and temporary impacts to beneficial uses is evaluated by the San Diego Water Board during the 401 Certification/WDRs application process consistent with CWC dredge and fill regulations and implementing policy.

Comment:

• Natural in Origin, Natural Condition, Background Condition

The Proposed BPA includes several terms that are not defined and are unclear how they relate to one another [examples include, emphasis added]:

o Chapter 3 – “However, where the cause of a low CSCI score is natural in origin, compliance with the biological objective may be determined using an alternate analytical method approved by the San Diego Water Board...”

o Draft Staff Report (pg 45) – “Anthropogenic modification that results in the unnatural

presence of an otherwise naturally occurring factor or stressor that impacts CSCI scores will not be considered “natural in origin.”

- o Chapter 4, III.B – “For water segments where the Stream Biological Objective applies but no CSCI data is available, or if the CSCI data is inappropriate due to natural conditions, a water segment will continue to be placed on the 303(d) list in accordance with section 3.9 of the Listing Policy or other applicable sections.”

- o Chapter 4, V.A.2 – “Discussion of any natural or background conditions that may affect the receiving’s water’s CSCI score (if known).”

- o Chapter 4, V.B.2 – “If there is no CSCI score for a receiving water or the use of a CSCI score is inappropriate due to natural conditions, the San Diego Water Board will determine probable threat on a case-by-case basis.”

- o Chapter 4, V.C – “Where the San Diego Water Board has determined that the CSCI is inappropriate due to natural conditions, the San Diego Water Board will consider alternative evidence of biological condition....”

With the exception of the brief discussion of “natural in origin” within the Draft Staff Report, there is no discussion or clarification of “natural condition” or “background condition” and there is no clarification or examples given to assist in understanding how these terms are defined and how they relate to one another.

CASQA Recommendation:

- o The Proposed BPA should define the terms “natural in origin”, “natural conditions”, and “background condition”, give examples of what would be considered natural in origin, natural background, or background condition, and how these terms relate to or differ from one another. Note: Until such time as the terms are defined, CASQA cannot provide additional insight or comment as to the use of the terms within the Proposed BPA.

138. Response 138

Section 4.4.4 of the draft Staff Report includes a discussion of naturally occurring factors that may result in a low CSCI score. Additional clarifying language regarding implementation for this scenario has been added to Chapter 4 of the proposed BPA (Section IV). While Scientific Peer Review acknowledged this approach as scientifically sound, there were questions regarding the level of specificity in the proposed Chapter 3 language. As a result, the language regarding natural in origin has been moved to Chapter 4 of the proposed BPA, and additional language has been added to clarify that determinations will be made in accordance with the Listing Policy and Impaired Waters Policy.

I) Commenter: Central Valley Clean Water Association

Comment:

The Central Valley Clean Water Association (CVCWA) appreciates the opportunity to provide public comments on the Proposed Basin Plan Amendment to Incorporate Biological Objectives into the Water Quality Control Plan for the San Diego Region. CVCWA is a non-profit association of public agencies located within the Central Valley region that provide wastewater collection, treatment, and water recycling services to millions of Central Valley residents and businesses. We approach these matters with the perspective of balancing environmental and economic interests consistent with state and federal law.

The California Association of Sanitation Agencies (CASA) joins with CVCWA in the submission of these comments on the Proposed Basin Plan Amendment. For 60 years, CASA has been the leading voice for public wastewater agencies on regulatory, legislative and legal issues. CASA is an association of local agencies engaged in advancing the recycling of wastewater into usable water, generation of renewable energy, and other valuable resources. Through these efforts CASA's members help create a clean and sustainable environment for Californians. CVCWA is an active participant in the State Water Resources Control Board's (State Water Board) ongoing efforts to develop a Biostimulatory Substances Objective and Program to Implement Biological Integrity (Biostimulatory and Biointegrity Policy) applicable to wadeable inland surface waters of California, including the San Diego region. Rather than wait for the State Water Board to produce the Biostimulatory and Biointegrity Policy and use the data developed in that effort to inform its actions, the San Diego Regional Water Quality Control Board (San Diego Water Board) has decided to move forward with its own approach to establishing objectives to protect the biological integrity of surface waters.

Although not directly applicable to CVCWA's members, this action causes concern because the San Diego Water Board's proposed Basin Plan Amendment would set biological objectives at levels that are too low to be reasonably attained in numerous water bodies. Furthermore, the San Diego Water Board's approach fails to identify relevant data and evidence to support thorough analyses of the current water quality in the region; the attainability of the proposed water quality objective (WQO); past, present and future beneficial uses of all surface waters; and the projected impacts the proposed WQO will have on the region's water quality. CVCWA is also concerned that the proposed Basin Plan Amendment fails to consider data and other information that is readily available from the overlapping State Water Board process.

Similarly, CASA does not routinely comment on matters within individual regions, except in circumstances such as this, where the proposed regional action could have significant statewide implications. To the extent that the San Diego Water Board's actions related to the Proposed Basin Plan Amendment could affect or interfere with how the State Water Board develops and implements its Biostimulatory and Biointegrity Policy, or could be replicated in other regions, all of CASA's members statewide have a significant interest in the development and implementation of the Proposed Basin Plan Amendment.

139. Response 139

Please see Response #77 regarding an earlier comment on statewide implications. Regional Water Boards already have and use narrative and numeric biological objectives for streams, lakes, and rivers in their Basin Plans. The proposed regional BPA does not interfere with the State Water Board's efforts, and in fact has considered and used information from that process. As stated in the Executive Summary for this Report, the San Diego Water Board has been involved in the State Water Board's statewide biological integrity efforts since 2008 and has been an active participant in the statewide process on both stakeholder and technical advisory groups.

Comment:

Proposed Biological Water Quality Objectives

The proposed Basin Plan Amendment would establish a biological water quality objective (described as a "formal minimum standard" in the accompanying Substitute Environmental Document [SED]) for both perennial and seasonal surface waters in the region that would require attainment of a California Stream Condition Index (CSCI) score of 0.79. The CSCI is a biological metric used to "score" the condition of benthic macroinvertebrate (BMI) communities in perennial wadeable streams and rivers. As stated in Section 1 of the Staff Report, "the goal and intent of the Biological Objectives project is to use biological assessment ... to better protect and restore waters using biological metrics to directly measure beneficial use attainment." The proposed Basin Plan Amendment, Staff Report, and SED are clear that where discharges are determined to cause or contribute to degradation (i.e., a CSCI score of less than 0.79), permit and TMDL requirements will be established which require attainment of this CSCI index value in those waters. However, the proposed Basin Plan Amendment and its supporting materials do not provide the required analyses for basin plan amendments as set forth in the Water Code, and as a result do not accurately portray the impacts or reasonableness of actually achieving the proposed biological WQO.

Major Comments

The proposed Basin Plan amendment and accompanying Staff Report and SED have the following significant problems which must be remedied:

Failure to adequately consider the ability to attain the proposed water quality objective in the perennial and seasonal streams of the San Diego Region

From both a practical and a legal perspective, the San Diego Water Board is obligated to consider whether the proposed biological water quality objectives can be achieved in all of the perennial and seasonal surface waters in the region. (Wat. Code, § 13241(c) [requiring consideration of “[w]ater quality conditions that could reasonably be achieved”]; see also Wat. Code § 13000 [“[T]he waters of the state shall be regulated to attain the highest water quality which is reasonable. . .”].) A first step is an evaluation and accounting of waters that currently reliably achieve or do not reliably achieve the proposed objective (i.e. a CSCI score of 0.79). Then, if the water does not achieve the proposed objective, the San Diego Water Board would determine the degree to which the proposed objective is not achieved. Information available through the work performed by the Southern California Coastal Water Research Project (SCCRWP) for the State Water Board’s Biostimulatory and Biointegrity Policy effort would enable such an evaluation. The database compiled by SCCWRP containing CSCI data and other factors used in the policy development contains 5,890 records of sample results from sites across California. These records indicate that, State-wide, 57.6% of the measured CSCI scores are 0.79 or greater.

Measurements in Region 9 occurred at 318 unique sites, of which 52.2% have average CSCI scores greater than 0.79, and 40.6% of sites have a minimum measured CSCI score greater than 0.79. There are a number of water bodies corresponding to those 318 unique sites that will fall into the category of not meeting the proposed objective. Currently, however, such readily available information is not presented in the Basin Plan Amendment, staff report, or SED, and has apparently not been considered in drafting the proposed Basin Plan Amendment. Thus, the proposed Basin Plan Amendment fails to include available information that would illustrate the extent to which water bodies would be able to achieve the proposed WQO.

140. Response 140

Existing CSCI scores measure current conditions, rather than potential condition, and the draft Staff Report includes examples of streams that have been restored to achieve the proposed Stream Biological Objective. Next, streams with a CSCI score less than the proposed Stream Biological Objective (0.79) will not always require a TMDL be developed. There is little information regarding the restoration timeframe of stream segments with hardened streambeds (See Executive Summary of this Report: Applicability to Physically Hardened “Modified” Streams). Therefore, while these can and should be restored through removal of the hardened streambed, they have been excluded from the proposed BPA (see Response #1). First, as described in the Impaired Waters Policy there are alternatives that may be more appropriately implemented to restore impairments and such alternatives have been used in the San Diego Region for other waterbody restoration initiatives (e.g. Loma Alta Slough, Famosa Slough, San Diego Bay Shipyards, etc.). Second, a TMDL is not required for waterbodies impaired only by pollution as defined by USEPA, (e.g. Category 4c impairment).

The comment references CWC section 13241(c), which states:

“Factors to be considered by a regional board in establishing water quality objectives shall include, but not necessarily be limited to, all of the following:

(c): Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.”

Please see Response #9, #50, #51, and #68 regarding consideration of the factors in CWC section 13241. The San Diego Water Board has modified the proposed Stream Biological Objective (see Response #1). The San Diego Water Board’s evaluation of the section 13241 factors included consideration of water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the region, and additional information has been added to the draft Staff Report SED appendix to further add to and clarify this consideration.

The comment suggests the San Diego Water Board use the SCCWRP database, which contains CSCI data. The San Diego Water Board did use SCCWRP database results from both the Surface Water Ambient Monitoring Program (SWAMP) and SMC, which is referenced in section 1.3.1 of the SED. The SMC sampling design also includes a probabilistic approach, which is more accurate for the determination of stream miles than targeted sampling.

Comment:

Lack of a policy approach and program of implementation in surface waters that currently do not meet and probably will not ever meet the proposed biological WQO [sic]

Because information has not been articulated regarding the number of surface waters that do not currently, and probably would never, meet the proposed biological water quality objective, an associated regulatory policy approach and program of implementation to address such waters has also not been described. This is a fundamental flaw with the proposed Basin Plan Amendment. Water Code section 13242 requires the San Diego Water Board to develop a program of implementation that describes the step “necessary to achieve the [water quality] objectives” The proposed Basin Plan Amendment glosses over the fact that water bodies might not meet the proposed WQO and fails to outline the actions that must be taken to ensure that water quality eventually complies with the proposed WQO.

The State Water Board process for developing its Biostimulatory and Biointegrity Policy recognizes streams may have physically constrained habitat limiting the possible CSCI score. In the work plan to develop the subject policy, the State Water Board acknowledges that the “biological objectives should be flexible enough to accommodate different biological expectations for different types of systems including unaltered streams, moderately, and even highly modified streams.” In the most recent Stakeholder Advisory Group (October 2018) the State Water Board noted that the statewide Biostimulatory and Biointegrity Policy will include consideration of alternative approaches for constrained channels. To support this consideration, the State Water

Board has developed supporting technical tools that should be considered when developing the San Diego Biological Objectives.

One of the tools developed for the State Water Board's process is a model Predicting Biological Integrity of Streams Across a Gradient of Development in California Landscapes,1 or "Developed Landscapes Project." The model predicts which CSCI scores are possible in a waterbody given a range of potential non-water quality constraints. Anthropogenic and natural landscape features can constrain biological condition (such as impervious surfaces, non-native vegetation cover, road density and crossings, elevation, geology) and were used to create categories considered by the tool. The model calculates the range of CSCI scores that are likely for a given site and can also predict the probability of achieving a particular CSCI score, based on the physical constraints. The model results and corresponding CSCI measurements for the Santa Margarita Watershed are presented in Figure 1, with the bars representing the range of expected scores and circles corresponding to the measured values. It is notable how variable the CSCI scores are at any individual site, calling into question what is considered compliance, i.e. whether all measurements are greater than 0.79, whether the average is greater than 0.79, or whether any measurement is above 0.79. The red and dark red bars correspond to channels unlikely to achieve a 0.79 CSCI score (the average of samples is likely to be less than 0.79), or the range of potential CSCI scores is unlikely to exceed 0.79 (the maximum measurement is likely to be less than 0.79). The modeled ranges of CSCI scores consider constraints due to local geography and development, which are semi-permanent or permanent features. Without changing these features, improved water quality will likely not result in increasing the CSCI score above 0.79.

141. Response 141

Please see Response #1 regarding the modification of the Stream Biological Objective. There commenter has not provided evidence to support the comment that "surface waters in the region probably will not ever meet the proposed water quality objective." On the contrary, the program of implementation in Chapter 4 of the proposed BPA describes the nature and types of actions that will achieve the proposed Stream Biological Objective. Additional supporting information is set forth in the draft Staff Report. The proposed BPA satisfied all elements of CWC section 13241 and 13242. See also Responses #9, #32, #50, #51, and #68.

The proposed Stream Biological Objective includes a discussion regarding the use of tools developed. Please see Response #43 regarding the potential use and applicability of the Beck et al. tool, for which San Diego Water Board staff is included as a co-author. Please also see Responses #3, #6, and #43 regarding the use of alternative thresholds.

Comment:

Failure to fully acknowledge or address its responsibilities under the California Water Code in setting water quality objectives

Section 13241 of the Water Code provides that:

Each regional board shall establish water quality objectives in water quality control plans as in its judgment will ensure the reasonable protection of beneficial uses and the prevention of nuisance; however, it is recognized that it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses. Factors to be considered by a regional board shall include, but not necessarily be limited to, all of the following:

- (a) Past, present, and probable future beneficial uses of water.
- (b) Environmental characteristics of the hydrologic unit under consideration, including the quality of water available thereto.
- (c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.
- (d) Economic considerations.
- (e) The need for housing within the region.
- (f) The need to develop and use recycled water.

Section 13242 of the Water Code requires that:

The program of implementation for achieving water quality objectives shall include, but not be limited to:

- (a) A description of the nature of actions which are necessary to achieve the objectives, including recommendations for appropriate action by any entity, public or private.
- (b) A time schedule for the actions to be taken.
- (c) A description of surveillance to be undertaken to determine compliance with objectives.

The SED includes text which is intended to address Water Code section 12341[sic] requirements, however, does not attempt to address Water Code section 13242 requirements. The SED describes the regulatory mechanisms (permits, TMDLs, non-TMDLs, enforcement actions) that would be used to compel dischargers to achieve the proposed biological water quality objective. The SED also makes general reference to actions that would be employed (e.g. monitoring, pollutant and flow controls, in-stream restoration actions). The SED implies, but does not demonstrate, that all waters in the region will eventually meet the proposed objective. This information is insufficient in fulfilling the requirement of Section 13241.

Specifically, the SED fails to address the fact that some waters of the region do not currently achieve, and may not “probably” achieve, the beneficial use defined by attainment of the CSCI index score of 0.79. As mentioned above, Water Code sections 13241(a) and (b) require the San Diego Regional Board to discuss the current uses and conditions of the subject water bodies. Additionally, the California Environmental Quality Act (CEQA) requires a discussion of the current environmental conditions for a given project, or the “baseline” environmental conditions. This failure to clearly acknowledge and quantify the status of beneficial uses is a fundamental flaw which hampers the overall Water Code section 13241 analysis offered in the SED, as well as impairs the SED’s ability to evaluate the degree of environmental impact associated with the proposed Basin Plan Amendment under CEQA. In order to meet legal requirements, the proposed Basin Plan Amendment and SED must consider actual data for waters in the region, quantify (i.e., estimate) the percentage of waters that do and do not currently meet the proposed objective, and examine the degree to which specific waters do not meet the proposed objective.

The SED also falls far short of a credible assessment of the achievability of the proposed objective in all waters in the region as required by Water Code section 13241(c). After determining whether and where the proposed WQO is achieved in waters, the assessment should then discuss the ability for waters that do not currently meet the objective to achieve the objective through certain remediation actions. This information should be based on some form of tangible analysis, for instance case examples where improvements in water quality have been seen and information to indicate that proposed remediation measures will be effective. The assessment must also include an analysis to demonstrate whether such measures are reasonable (i.e., feasible, proven, cost-effective, affordable). Finally, the assessment should identify waters that are not expected to ever meet the objective, despite the implementation of remediation actions. This finding should inform the program of implementation for such waters, as required under Section 13242.

The SED includes arguments that the adoption of the Basin Plan amendment will not increase costs due to savings that will occur due to a reduction in existing permit and TMDL requirements. However, these arguments are non-specific and include questionable assumptions regarding: (1) the ability to identify causative factors for water bodies which do not attain the desired CSCI value of 0.79; and (2) changes in existing requirements (e.g. chemical-specific NPDES permit or TMDL requirements) as a result of implementation of the proposed biological objective. With respect to (1), there is little evidence that causal assessments will yield specific solutions that lead to attainment of the proposed objectives. With respect to (2), such changes require significant future regulatory actions which may or may not be approved and implemented. Therefore, the assumed economic benefits of the proposed objectives are not certain to occur, and cannot be treated as certain. The economic analysis provided in the SED is insufficient in its detail and conclusions because it fails to consider economic impacts that may result if the assumptions listed in the SED do not become reality.

The SED's insufficient analysis of Water Code section 13241 requirements (i.e., the failure to identify measures that will lead to the achievement of the proposed water quality objectives in all surface waters in the region) precludes satisfaction of Water Code section 13242 requirements. By failing to provide a comprehensive analysis of the objective and whether it will or could be met in various water bodies in the San Diego area, there is no starting point of water quality from which to develop an adequate program of implementation.

In summary, the SED fails to provide adequate information to address pertinent Water Code requirements. Beyond this legal and technical failure, the lack of an approach to deal with surface waters that do not currently achieve the desired CSCI index value represents a fundamental flaw in the proposed water quality objective and associated program of implementation. This flaw must be addressed prior to adoption of the proposed Basin Plan amendment.

142. Response 142

The proposed Stream Biological Objective has been modified to exclude stream segments that have been fully hardened (see Response #1). Please see Responses #9, #51, #68, and #142 regarding CWC sections 13241 and 13242.

Comment:

Reliance on causal assessment tools which are unproven and unlikely to identify solutions as implied in the proposed Basin Plan Amendment, Staff Report, and SED

With regard to causal assessment tools, the SED states the following:

Work in the San Diego region found the USEPA CADDIS tool to show promise but be overly cumbersome and not cost effective (Chiff et al. 2015). More recent rapid causal assessment methods have been developed by the City of San Diego with Tetra Tech, and by SCCWRP, which automates the process and uses existing predictive modeling and extensive bioassessment datasets (City of San Diego 2015b, Gillett et al under review).

Given the inherent difficulty in successfully identifying the causes and corrective measures needed to improve CSCI scores in a given water body, the SED appears to be overly optimistic regarding the effectiveness of the tools in question. This raises the following questions:

What is the track record of proposed causal assessment tools in identifying causes and management measures needed to improve CSCI scores to the proposed objective?

What happens if these tools are not successful, i.e. when cause cannot be determined?

What assurance or evidence exists that solutions derived from efforts to comply with the proposed biological objectives will have influence over ongoing regulatory requirements or processes in permits and TMDLs?

These questions should be addressed in the SED, given the reliance of the proposed approach on the causal assessment step.

Recommendation

CVCWA and CASA recommend that the San Diego Water Board decline to adopt the Basin Plan Amendment in its current form, and direct staff to remedy the above-described problems in a revised version of the Basin Plan Amendment that addresses these issues holistically.

Again, CVCWA and CASA appreciate the opportunity to review the proposed Basin Plan Amendment for biological WOQs, Staff Report, and SED, and to provide these comments. We are available to connect with your staff to discuss our comments and approaches to address the deficiencies we have described.

143. Response 143

Please see Responses #66 and #98 regarding causal assessment.

As stated in the discussion of CWC section 13241 in the draft SED, the alternative to using causal assessment would be to develop TMDLs for all pollutants, under the assumption doing so would address any/all biological impairments. The results from causal assessment are expected to be used in permitting, development of the CWA 305b/303d Integrated Report, responses to impairments consistent with the Impaired Waters Policy, and Basin Plan amendments. All are subject to public Water Board processes as described in Chapter 4 of the proposed BPA and the draft Staff Report, and referenced in the SED.

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