

Basin Plan Chapter 4 Implementation:

New Section: Framework for Program of Implementation for Biological Objectives

I. Introduction

Biology based water quality objectives, or biological objectives, are a critical component of the San Diego Water Board's regional water quality assessment and management strategy. Previously, San Diego Water Board programs operated under the paradigm that assessing the chemistry of discharges and receiving waters would be sufficient to restore or protect water quality. While a chemistry-based approach has been successful in certain instances for certain beneficial uses, it has a constrained effect for the protection and restoration of aquatic life beneficial uses¹. Adoption of biological objectives takes a more holistic approach to water quality because biological objectives provide a metric to assess the relationship between chemical, physical, and biological conditions. Implementation actions to comply with applicable biological objectives must consider the relationship between existing chemical and physical conditions as well as the impacts that potential changes to these conditions may have on aquatic life beneficial uses. Regulatory and permitting actions taken to comply with a biological objective will improve prioritization of existing board programs and resources by focusing on the most important chemical and/or physical conditions impacting beneficial uses.

The San Diego Water Board has adopted a biological objective for perennial and seasonal streams (Stream Biological Objective). The Stream Biological Objective establishes a numeric target for perennial and seasonal streams to achieve reference conditions,² as measured by the California Stream Index (CSCI).³ The CSCI uses benthic macroinvertebrate data to quantify whether, and to what degree, the ecology of a stream is altered from a reference condition. CSCI scores range for 0 (most stressed) to 1 or greater (similar to reference condition). Typically, increases in human activity such as roads, housing, and agriculture are associated with lower CSCI scores. The Stream Biological Objective is applied in addition to existing chemical, physical, or toxicological water quality objectives. The Stream Biological Objective provides a direct measure of attainment of designated aquatic life beneficial uses in perennial and seasonal streams.⁴

The San Diego Water Board has developed the following implementation program to integrate the Stream Biological Objective into the San Diego Water Board's regulatory programs. Where the Stream Biological Objective does not apply, the San Diego Water Board may still use biological monitoring and reporting on a case-by-case basis to assess attainment of designated aquatic life beneficial uses where appropriate (e.g., identifying stressor and sources of impairments, setting targets and goals for restoration of aquatic life uses, calculating and assessing harm/potential to harm).

¹ Aquatic life beneficial uses are WARM, COLD, SAL, EST, WILD, BIOL, RARE, MAR, MIGR, and SPWN.

² "Reference condition" means a set of ecological measurements from a population of relatively undisturbed streams in a similar environmental setting that establish a basis for making comparisons of biological condition among samples.

³ See Mazor et al. 2016

⁴ Aquatic life beneficial applicable to perennial and seasonal streams are WARM, COLD, SAL, EST, WILD, BIOL, RARE, MIGR, and SPWN.

II. Time Schedule for Implementation of the Stream Biological Objective

This section outlines the time schedule for the implementation of the Stream Biological Objective. In order for the Stream Biological Objective to be achieved, the following types of implementation actions are required:

1. Monitoring and assessment specific for the Stream Biological Objective (General Monitoring and Assessment).
2. Actions to protect and restore conditions when the Stream Biological Objectives are or are not met (Planning).
3. Actions to ensure regulated discharges meet the Stream Biological Objective (Permitting).

The time schedules for these implementation types, and their individual San Diego Water Board program components, are outlined in Table TBD⁵. “Effective Date” means the date the Stream Biological Objective is approved by USEPA pursuant to Clean Water Act (CWA) section 303(c)(3).

⁵ TBD based on the latest Basin Plan Table Numbering

Table TBD: Time Schedule for Implementation of Stream Biological Objective

Program Area	Implementing Party	Implementation Action & Compliance Dates
<i>General Monitoring and Assessment</i>		
Ambient Monitoring	San Diego Water Board	<ol style="list-style-type: none"> 1. Monitoring, coordination, and execution of special studies that conduct bioassessment at reference sites and impaired sites in the San Diego Region – Ongoing. 2. Recommend projects related to bioassessment of perennial and seasonal streams for Surface Water Ambient Monitoring Program (SWAMP) funds - ongoing.
Integrated Reporting - 303(d) List/305(b) Report	San Diego Water Board	<ol style="list-style-type: none"> 1. For waters where the Stream Biological Objective applies, degradation of biological populations and communities shall be interpreted consistent with the Stream Biological Objective upon the effective date of the Stream Biological Objective.
Education and Outreach	San Diego Water Board	<ol style="list-style-type: none"> 1. Beginning within 1 year after the effective date of the Stream Biological Objective.
<i>Planning</i>		
Restoration Planning - Total Maximum Daily Loads (TMDLs) and TMDL Alternatives ⁶	San Diego Water Board	<ol style="list-style-type: none"> 1. Use of the Stream Biological Objective in TMDL and TMDL alternative development will be evaluated following the adoption of the first Integrated Report that incorporates the Stream Biological Objective. 2. Reassessment of restoration planning priorities- ongoing after effective date of Stream Biological Objective.
<i>Permitting</i>		
Regional Phase 1 Municipal Separate Storm Sewer System (MS4) NPDES Permit (Phase 1 MS4 Permit)	San Diego Water Board; Phase 1 MS4 Permittees	<ol style="list-style-type: none"> 1. 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.

⁶ TMDL Alternative – a TMDL Alternative is a near-term plan, or description of actions, with a schedule and milestones that is assigned a lower priority for TMDL development because an alternative restoration approach is being pursued. Alternative restoration approaches include, but are not limited to, commitments to adjust permit limits or requirements, lists of nonpoint source conservation practices or “BMPs” to be implemented, and source water protection plans. (Benita Best-Wong, Director of EPA Office of Wetlands, Oceans, and Watershed, mem. to Water Division Directors, Region 1-10 and Robert Maxfield, Director, EPA Region 1 Office of Environmental Measurement and Evaluation, August 13, 2015.)

Program Area	Implementing Party	Implementation Action & Compliance Dates
		<ol style="list-style-type: none"> Phase 1 MS4 Dischargers may elect to comply with the Stream Biological Objectives using the “alternative compliance pathway option.”⁷ However, 12 months prior to submittal of the ROWD, Phase I MS4 Permittees must notify the San Diego 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 Objectives.
<p>Commercial Agricultural Operation Waste Discharge Requirements (WDRS)</p>	<p>San Diego Water Board; Owners and operators of commercial agricultural operations (e.g. farms and nurseries)</p>	<ol style="list-style-type: none"> Within 5 years of the effective date of the Stream Biological Objective, the San Diego Water Board will revise the Commercial Agricultural WDRs to include conditions (e.g. benchmarks) to implement the Stream Biological Objectives. Enrollees under the WDR shall, as necessary, update Water Quality Protection Plans (WQPPs) to address agricultural discharges that may affect achievement of the Stream Biological Objective. The time schedule for updating WQPPs will be determined as part of the WDR revision process.
<p>CWA § 401 Water Quality Certifications and/or WDRs for discharges of dredged and fill material</p>	<p>San Diego Water Board; Dredged and fill material dischargers subject to a CWA § 401 certification and/or WDRs.</p>	<ol style="list-style-type: none"> For waters where the Stream Biological Objective applies, the San Diego Water Board will require a Receiving Water Biological Assessment on a case-by-case basis upon the effective date of the Stream Biological Objectives. Beginning 2 years after the effective date of the Stream Biological Objectives, the San Diego Water Board will incorporate the CSCI as a performance target for compensatory mitigation where appropriate.
<p>San Diego Water Board Individual NPDES Permits</p>	<p>San Diego Water Board</p>	<ol style="list-style-type: none"> Within 5 years after the effective date of the Stream Biological Objective, the San Diego Water Board will evaluate individual NPDES permits to determine if the discharge is probable threat to the Stream Biological Objective. For discharges found to be a probable threat to the Stream Biological Objective, the San Diego Water Board shall modify, reissue, or adopt a permit with conditions implementing the Stream Biological Objectives as appropriate.

⁷ The Alternative Compliance Pathway Option is a watershed-based planning and implementation approach that allows Phase I MS4 permittees to be deemed in compliance with receiving water limitations. The requirements for the Alternative Compliance Pathway Option are outlined in section B.3.c of Order R9-2013-0001, as amended by Order Nos. R9-2015-0001 and R9-2015-1000.

Program Area	Implementing Party	Implementation Action & Compliance Dates
State Water Board General Permits	San Diego Water Board	<ol style="list-style-type: none"> 1. Within 5 years of the effective date of the Stream Biological Objective, the San Diego Water Board will evaluate new and existing enrollees to determine if discharges present a probable threat to the Stream Biological Objective. 2. For discharges found to be a probable threat to the Stream Biological Objective, the San Diego Water Board may modify monitoring and reporting requirements or require enrollment in an individual permit as necessary to ensure compliance with the Stream Biological Objective.
San Diego Water Board General Permits	San Diego Water Board	<ol style="list-style-type: none"> 1. Within 5 years after the effective date of the Stream Biological Objective, the San Diego Water Board will evaluate new and existing enrollees to determine if discharges present a probable threat to the Stream Biological Objective. 2. For discharges found to be a probable threat to the Stream Biological Objective, the San Diego Water Board may modify monitoring and reporting requirements or require enrollment in an individual permit as necessary to ensure compliance with the Stream Biological Objective.
All other San Diego Water Board Permits and enforcement actions	San Diego Water Board	<ol style="list-style-type: none"> 1. The San Diego Water Board will, as permit renewal opportunities arise and enforcement case are developed, consider implementation of the Stream Biological Objective on a case-by-case basis.

III. Monitoring and Assessment

This section describes the methods and programs that the San Diego Water Board uses to acquire water quality information on biological condition of perennial and seasonal streams. Biological monitoring is the best and most efficient evaluation of aquatic life beneficial uses. The San Diego Water Board assesses perennial and seasonal streams in the San Diego Region for aquatic life beneficial use attainment using the Stream Biological Objectives as follows:

A. Ambient Monitoring

Assessment of ambient monitoring data is a critical component in the implementation of the Stream Biological Objectives in planning and permitting programs. In the San Diego Region, multiple entities conduct stream bioassessment monitoring. These include governmental agencies, including the San Diego Water Board, regulated dischargers, and non-governmental organizations. The San Diego Water Board implements bioassessment monitoring in the San Diego Region through its Surface Water Ambient Monitoring Program (SWAMP). SWAMP monitoring is independent of permit-related monitoring and seeks to evaluate trends in water quality throughout the San Diego Region. The inclusion of ambient monitoring by the San Diego Water Board specific to biological objectives will be in the San Diego Water Board SWAMP 3-year contract following biological objectives approval. Dischargers into perennial and seasonal streams may also be required to conduct bioassessment under a discharge permit or as part of an enforcement action. This bioassessment data is reviewed by San Diego Water Board staff to determine compliance with water quality objectives, evaluate efficacy of best management practices, tailor appropriate discharge requirements, and assess corrective action. Biological monitoring and assessment, when required or conducted by the San Diego Water Board, will be done in surface waters in conjunction with chemical and physical measurements of receiving waters and, where applicable, of discharges.

B. Integrated Reporting

The Federal Clean Water Act (CWA) requires that California report on the quality of its surface waters every two years. The 305(b) Report assigns an Integrated Report Condition Category to all assessed water segments. The 303(d) List compiles water segments that do not meet, or are not expected to meet, applicable water quality standards by the next listing cycle. Together, these lists make-up the California Integrated Report (Integrated Report).

Development of the Integrated Report is the result of a collaborative process between the State and Regional Water Boards. The *Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List* (Listing Policy) describes the requirements for evaluating waters placed on the Section 303(d) List. In California, water segments may be placed on the 303(d) List for significant degradation in biological populations and/or communities if the degradation is associated with a pollutant (e.g. toxicants, temperature, dissolved oxygen, sediment). The relationship between the Listing Policy and the Stream Biological Objectives is as follows:

- **For water segments where the Stream Biological Objective applies**, a water segment may be placed on the 303(d) List if the water segment's CSCI score is less than the 10th percentile of reference calibration sites and this CSCI score is associated with a pollutant. Association with a pollutant is determined using the applicable sections of the Listing Policy, including but not limited to sections: 3.1, 3.2, 3.6, 3.7, and 6.1.5.9.

- **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.
- **For water segments where there are no applicable biological objectives,** assessment for placement on the 303(d) list will be conducted in accordance with the Listing Policy.

When a water segment is impaired due to a pollutant,⁸ the San Diego Water Board will place the water segment into one of the following Integrated Report categories: Category 5 (TMDL still required), Category 5-Alt (being addressed by action other than a TMDL), Category 4A (being addressed by approved TMDL), Category 4B (being addressed by EPA approved alternative restoration approach). Where a water segment is impaired due to pollution,⁹ the San Diego Water Board will place the water segment into Category 4C (impaired due to pollution, no TMDL required). 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. The number and type of potentially associated impairment sources will be utilized for San Diego Water Board TMDL prioritization in the Integrated Report (see Section IV, Planning).

Water segments will be removed from the section 303(d) list, if data demonstrates the Stream Biological Objective listing thresholds are not exceeded over the duration of the listing cycle or there are no longer associated pollutants applicable to the Stream Biological Objective impairment.

C. Education and Outreach

A critical component of monitoring and assessment efforts includes the sharing of bioassessment data with the public. Bioassessment data collected by the San Diego Water Board and required to be collected by regulated parties is publicly available data. Currently the San Diego Water Board uploads data it collects into the California Environmental Data Exchange Network (CEDEN), a publicly accessible database. The San Diego Water Board will also use education and outreach efforts to convey these results to the public. Such efforts include but are not limited to: development of watershed status sheets and/or San Diego Water Board informational items, presentations at conferences or stakeholder meetings, and participation in public events.

⁸ Pollutants are defined as dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water. (CWA § 502(6).)

⁹ Pollution for the purposes of the 303(d) List is the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water, e.g. a dam or channel hardening. (CWA § 502(19).)

IV. Planning

This section describes how the San Diego Water Board will incorporate water quality information on biological condition of perennial and seasonal streams into its water resource planning and decision making. The San Diego Water Board uses the planning process for the protection and restoration of waters meeting or not meeting water quality objectives. The planning process includes Regional Board initiatives such as the Basin Plan Triennial Review, TMDL and Basin Plan amendments, non-point source management planning, and the development and implementation of the Integrated Report.

Evaluation of the biological condition of waterbodies is critical to guide and prioritize appropriate planning implementation actions. Adoption of the Stream Biological Objectives enables the San Diego Water Board to co-evaluate stream physical habitat and hydrology, in addition to chemical water quality objectives. Assessment of physical habitat and hydrology will include metrics such as duration, magnitude, variability and frequency for hydrology and flow habitat, substrate type, riparian cover and channel cover for habitat. Other physical habitat and hydrologic metrics may be evaluated as appropriate given site and landscape characteristics. Combining the evaluation of physical and chemical components of stream integrity when implementing planning programs is expected to result in successful protection and meaningful restoration of beneficial uses in perennial and seasonal streams as described below.

A. TMDLs and other Actions to Restore Impaired Waters

The *Water Quality Control Policy For Addressing Impaired Waters: Regulatory Structure and Options* (Impaired Waters Policy) provides guidelines for developing and implementing TMDLs and water board TMDL programs. The San Diego Water Board determines the appropriate regulatory and/or non-regulatory actions to attain water quality objectives and restore aquatic life beneficial uses consistent with the Impaired Waters Policy. Adoption of a Stream Biological Objective does not affect implementation of the Impaired Waters Policy. Instead, the Stream Biological Objective provides clarity in determining the appropriate regulatory and/or non-regulatory actions to attain water quality objectives and restore aquatic life beneficial uses consistent with the Impaired Waters Policy.

1. Using the Stream Biological Objective to Guide TMDL and Alternative Restoration Strategy Development

The San Diego Water Board will use available data and information on biological condition to guide the selection and development of appropriate strategies for restoring impaired waters. The monitoring and assessment process will be used to identify streams that are meeting or not meeting the Stream Biological Objective (see Section III, Monitoring and Reporting). Where the Stream Biological Objectives are not met in a receiving water, an assessment of chemical and physical data will be conducted to determine the cause and associated sources of the impaired condition. Causal identification will use an approach based on using comparable reference and impacted sites, combined with the best available causal assessment science. The San Diego Water Board may also use the USEPA's Causal Analysis/Diagnosis Decision Information System (CADDIS) where appropriate. The San Diego Water Board has discretion when determining how to address impaired waters consistent with the Impaired Waters Policy. In most case, the San Diego Water Board will use one, or a combination of, the following tools and mechanisms to address biological impairments:

- If data shows the impairment is due to nonpoint sources, the San Diego Water Board will prioritize inclusion of the Stream Biological Objectives as a regional initiative in the California nonpoint source program implementation plan.

- 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 approaches to address the impairment.
- If data shows that impairment is associated with a chemical pollutant(s), development of a TMDL or TMDL Alternative will be required to address the pollutant(s) causing or contributing to the impaired condition.

Biological condition metrics also provide an opportunity for the San Diego Water Board to identify when a TMDL or TMDL Alternative will result in restoration of biological integrity within a meaningful timeframe given the physical condition of the waterbody. The San Diego Water Board will use the Stream Biological Objective to establish a minimum restoration goal or target for the TMDL and TMDL Alternatives in water segments where the Stream Biological Objective applies. The San Diego Water Board will consider the physical sources contributing to the impairment (e.g. habitat modification) in order to guide and prioritize the selection of waterbodies for TMDL or alternative restoration strategies. For example, using the Stream Biological Objective, 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.

2. Using the Stream Biological Objective to Review Existing Water Quality Objectives

The planning process is expected to identify the specific levels of pollutants that are causing or contributing to a Stream Biological Objective impairment. The San Diego Water Board intends to use this information to set load and/or concentration-based requirements at the levels necessary to restore biological condition. This process may also identify chemical water quality objectives in the Basin Plan that need to be modified. As a result, the San Diego Water Board expects adoption of the Stream Biological Objectives could result in the review and/or revision of existing chemical water quality standards to better represent site-specific conditions that are protective of beneficial uses. Any revisions of a water quality standard would require a Basin Plan amendment

3. Using the Stream Biological Objective for Protection Planning

State Water Board Resolution No. 68-16 requires the maintenance of the existing high quality of water unless a change in water quality “will be consistent with maximum benefit to the people of the State...” The San Diego Water Board will consider waters in compliance with the Stream Biological Objectives (i.e. waters with reference or near-reference condition) as high-quality waters subject to protection (See Section VII, Antidegradation Policy), and such waters will be considered a high priority during the San Diego Water Board’s planning process.

V. Permitting

This section describes how the San Diego Water Board will incorporate the Stream Biological Objective into its permitting program. The Stream Biological Objective is established for the protection of aquatic life beneficial uses applicable to perennial and seasonal streams (See Table 2-2, Beneficial Uses of Inland Surface Waters). The San Diego Water Board will use its permitting authorities to ensure that any authorized discharge does not prevent attainment of the Stream Biological Objective.

Applicability of the Stream Biological Objective

The Stream Biological Objective applies to all perennial and seasonal streams in the San Diego Region.

Standard Implementation Requirements

The Stream Biological Objective shall be incorporated into NPDES permits issued pursuant to CWA section 402, WDRs issued pursuant to California Water Code (CWC) section 13263, waivers of WDRs issued pursuant to CWC section 13269, and water quality certifications issued pursuant to CWA section 401 as follows:

A. Permit Application Requirements

1. Determining Whether an Application to Discharge Requires Submission of a Receiving Water Biological Assessment

CWC section 13260 requires any person discharging or proposing to discharge waste that could affect the quality of the waters of the state, other than into a community sewer system, to file a Report of Waste Discharge (ROWD). Submission of a ROWD starts the application process for issuance of a permit issued by the San Diego Water Board except where the ROWD is waived.

The San Diego Water Board will require new and existing discharge applicants to submit a technical report that characterizes the biological condition of the receiving water(s) (Receiving Water Biological Assessment) as part of a ROWD, if the applicant meets one of the following requirements:

- the discharge is to a seasonal stream, and the discharge duration is greater than 2 months, and the discharge is outside of the rainy season (Oct. 1st to May 30th); or
- the discharge is to a high-quality¹⁰ waterbody.

This ROWD requirement under this section are not applicable for Phase I MS4 or Agricultural dischargers, as special implementation requirements apply (see Section VI below). For discharges where there is an alternative application form to discharge (e.g. Notices of Intent to enroll in a general permit, waivers of WDRs, or 401 certification application), the San Diego Water Board will require a Receiving Water Biological Assessment on a case-by-case basis. The San Diego Water Board may also require submittal of a Receiving Water Biological Assessment if a discharge is proposed for a receiving water that possesses unique, uncommon, or environmentally sensitive biological characteristics¹¹.

¹⁰ As defined by State and Federal antidegradation policies. (See Section VII, Antidegradation Policies)

¹¹ Examples may include, but are not limited to, BIOL or RARE Beneficial Uses, waters with a documented presence of sensitive species, or waters with critical spawning or reproduction habitat.

2. Contents of a Receiving Water Biological Assessment¹²

At a minimum, the Receiving Water Biological Assessment must include:

- Discussion of the existing biological condition of the receiving water(s). This discussion should include CSCI scores if known. Where no CSCI scores are available, the San Diego Water Board may require the collection of data for CSCI scores, on a case-by-case basis.
- Discussion of potential temporary or permanent impacts to the biological condition of the receiving water from the discharge. This discussion should be supported by evidence.¹³
- Discussion of whether flow from the discharge will cause or contribute to a condition of erosion. This discussion should include an evaluation of the need for engineered stream channel modifications and identify erosion mitigation measures associated with the discharge and receiving water.
- Discussion of whether the discharge has the potential to cause a reduction in the biological condition in the receiving water via changes to hydrologic, physical, or chemical characteristics of the receiving water. This discussion should evaluate a decrease in the receiving water's CSCI score (if known).
- Discussion of any natural or background conditions that may affect the receiving's water's CSCI score (if known).
- Proposed best management practices to protect receiving water condition.

Proposed discharges to high-quality waters must also include:

- Discussion of baseline biological condition of the receiving water. Baseline water quality is the best water quality achieved since [Effective Date].
- Discussion of past, present, and probable beneficial uses of the receiving water.
- Discussion of the estimated severity and extent of water quality reduction as a result of the discharge.
- Discussion of any public benefit associated with the discharge (e.g. economic or social development).
- Discussion of negative economic or social costs associated with the discharge (e.g. increased taxes, decreased land value, loss of unique environmental resources, etc.)
- Discussion of a range of practicable discharge alternatives to reduce, eliminate, or compensate for negative impacts to the biological condition of the receiving water.

¹² The San Diego Water Board may waive any of these requirements at its discretion.

¹³ Evidence may include available and representative data and information receiving water conditions collected by SWAMP or other agencies and sources. Data is the numeric measurement of physical, chemical, or biological characteristics of the receiving water. Information includes any documentation (e.g. narrative or photographic evidence) that pertains to receiving water condition or attainment of designated aquatic life beneficial uses.

B. Permit Requirements

1. Establishing Discharge Limits for the Stream Biological Objective

The Stream Biological Objective shall apply as a receiving water limit. The Stream Biological Objective shall not be translated into or applied as an effluent limitation unless the following conditions are met:

- A clear causal relationship has been established linking the discharge and nonattainment of the Stream Biological Objective,
- The pollutants or physical factors causing or contributing to nonattainment of the Stream Biological Objective have been identified, and
- Loading studies have been completed to estimate the reductions in pollutant loading for the discharge that will restore the beneficial use(s).

2. Determining if a Discharge is a Probable Threat

The San Diego Water Board shall incorporate appropriate permit requirements¹⁴ to implement the Stream Biological Objective for any discharge that is a probable threat to the Stream Biological Objective.

A discharge is considered a probable threat to the Stream Biological Objective 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. 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. In making this determination, the San Diego Water Board will consider the magnitude, duration, and composition of the discharge, as well as the physical, chemical, and biological conditions of the receiving water and immediate downstream waters.

3. Minimum Permit Requirements for Discharges that Pose a Probable Threat to the Stream Biological Objective

Discharge limits and best management practices designed to meet chemical and physical water quality objectives are expected, in many cases, to be protective of the Stream Biological Objectives. Permit requirements will be based upon a determination of whether the biological condition is associated with the discharge or non-discharge factors (non-discharge factors include but are not limited to: in-stream channel modification, habitat modification, upstream discharges or diversions). At a minimum, the San Diego Water Board shall include waste discharge requirements that address any toxicity, hydrology, and nutrient related impacts to the receiving water unless the biological condition is solely a result of non-discharge factors. The San Diego Water Board may impose additional permit requirements to treat or control discharges that affect, or have the potential to affect, the biological condition of the receiving water. For example, where nutrient related stressors are causing or contributing to nonattainment of the Stream Biological Objective, the San Diego Water Board may require enhanced nutrient removal in the discharge.

¹⁴ Appropriate permit requirements include, but are not limited to, implementation of structural and non-structural BMPs, site-specific effluent limitations, and bioassessment monitoring.

4. Minimum Monitoring and Assessment for Discharges with Stream Biological Objective Permit Conditions

Monitoring and assessment programs in permits where the Stream Biological Objective is applied as a discharge limitation (i.e. a receiving water limit or effluent limit) will be used to assess compliance with the discharge limitation and to monitor effectiveness of best management practices. Bioassessment will be required in all permits where the discharge is a probable threat to the attainment of the Stream Biological Objective (Section V.B.2) or where a clear causal relationship has been established linking the discharge and nonattainment of the Stream Biological Objective (Section V.B.1).

Monitoring may be performed by individual permittees, through participation in a group monitoring coalition, or a combination of individual and group monitoring. For permit renewals, the San Diego Water Board will evaluate prior monitoring requirements to determine if these requirements can be reduced to off-set new costs associated with bioassessment.

Monitoring and assessment programs shall be designed to meet the following minimum requirements:

- Bioassessment shall be conducted at location(s) representative of the discharge(s) and at a comparator site uninfluenced by the discharge(s) (typically upstream).
- Samples and measurements taken for the purposes of bioassessment shall be representative of the volume and nature of the discharge.
- Bioassessment shall be conducted according to the methodology in the *Standard Operating Procedures (SOPs) for the Collection of Field Data for Bioassessments of California Wadeable Stream: Benthic Macroinvertebrates, Algae, and Physical Habitat*¹⁵ unless another bioassessment method is specified by the San Diego Water Board. The San Diego Water Board may approve equivalent bioassessment procedures at its discretion.
- Bioassessment must include sampling for the taxonomic analysis of benthic macroinvertebrate (BMI) assemblages, stream physical habitat data, and water chemistry.
- Water chemistry sampling must include sampling for turbidity (NTU), temperature (°C), specific conductivity (µS/cm), salinity (ppt), alkalinity (mg/L), pH, and dissolved oxygen (mg/L and % saturation).
- Bioassessment shall be conducted at a frequency of no less than once per permit term. Discharges identified as causing or contributing to an exceedance of the Stream Biological Objective must be evaluated more frequently.

The San Diego Water Board may require additional monitoring (e.g. water chemistry, toxicity, algae) on a case-by-case basis. When requiring additional monitoring, the San Diego Water Board shall consider the nature of permitted activity, constituent(s) of concern associated with the discharge, and the condition of the receiving water.

¹⁵ SWAMP-SOP-SB-2016-0001 (May 2016) available at https://www.waterboards.ca.gov/water_issues/programs/swamp/bioassessment/docs/combined_sop_2016.pdf.

C. Compliance Determination

The San Diego Water Board will determine compliance with the Stream Biological Objective using a “comparator site” approach. Under a comparator site approach, the San Diego Water Board compares the biological condition of the receiving water subject to the discharge to a site uninfluenced by the discharge. In most cases, the San Diego Water Board will compare the CSCI scores at a monitoring site downstream of the discharge relative to a comparative monitoring site (typically upstream). 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.

1. Determining When There is an Exceedance of the Stream Biological Objective

An exceedance of the Stream Biological Objective is demonstrated when:

- the CSCI score is less than the 10th percentile threshold in Chapter 3 of this Basin Plan; and
- the San Diego Water Board or the Discharger determine that the discharge is causing or contributing to the low CSCI score.

2. Determining When Further Investigation of a Potential Exceedance is Required

If the CSCI score is less than the 10th percentile threshold, the Discharger shall complete further investigation to verify impacts to the biological condition in the receiving water and to evaluate the potential stressors contributing to the low CSCI score as described in section V.C.3, *Process for Conducting a Biological Objective Evaluation*, below. The San Diego Water Board may waive a Biological Objective Evaluation if monitoring and assessment data indicates that an external factor, unrelated to a discharge, is causing or contributing to the low CSCI score.

3. Process for Conducting a Biological Objective Evaluation

The Biological Objective Evaluation will use receiving water data, site monitoring data, and discharge data together to evaluate whether a discharge is causing or contributing to nonattainment of the Stream Biological Objective and to provide active feedback on the efficacy of permit implementation.

At a minimum, a Biological Objective Evaluation shall include:

- an evaluation of the monitoring data of chemical and physical characteristics of the discharge, and
- an evaluation of the upstream and downstream receiving water conditions, including physical and chemical conditions.
- a description of actual or suspected factors causing or contributing to the observed condition, including any regulated or illicit discharge of the permittee and/or external factors.¹⁶
- a description of best management practices currently being implemented and their effectiveness, and

¹⁶ Rapid causal assessment, physical in-stream habitat modeling, and traditional stressor identification methods may be used for the impact evaluation. Formal USEPA causal assessment (i.e. CADDIS) is generally not appropriate for use in permit impact evaluations and is not required.

- if a regulated or illicit discharge of the permittee is a suspected or actual stressor, discussion of additional or improved best management practices to prevent or minimize the discharges of waste that may be causing or contributing to the observed condition.

VI. Special Implementation Requirements

A. Phase I Municipal Separate Storm Sewer Systems (MS4) Dischargers

Phase 1 MS4 Dischargers enrolled under the regional Phase 1 MS4 are required to develop and implement programs and plans using an adaptive management framework to select and address the highest priority water quality issues in their watershed.

To implement the Stream Biological Objective, the San Diego Water Board will revise the Phase I MS4 Permit to update provisions related to programs and plans as follows:

Phase I MS4 Dischargers shall be required to:

- consider the biological condition of the receiving water when identifying priority water quality conditions in each watershed. This consideration shall include an assessment of the receiving water's combined physical, chemical, and biological condition relative to storm water and non-storm water discharges.

The incorporation of Stream Biological Objective assessment in the WQIP process does not preclude Phase I MS4 dischargers from choosing other water quality conditions (e.g. human health, chemical pollutant impairments) as the highest priority water quality conditions in the watershed. However, CSCI scores, where applicable, should be used to guide selection and implementation of water quality improvement strategies to address high priority water quality conditions impacting the biological condition of the receiving water. Phase I MS4 Dischargers may also use CSCI scores to prioritize implementation actions. For example, a Phase I MS4 Discharger could target structural and nonstructural strategies that protect or restore aquatic life beneficial uses using the following preference hierarchy (for example purposes):

- Protect high quality sites that meet or exceed the Stream Biological Objective.
- Protect sites that meet the Stream Biological Objective but are vulnerable.
- Restore sites that do not meet the Stream Biological Objective.

Additionally, Phase 1 MS4 Dischargers may elect to comply with receiving water limitations and prohibitions using the “alternative compliance pathway option” in the Phase I MS4 Permit. Phase I MS4 Permittees electing to utilize or update an alternative compliance pathway to comply with the Stream Biological Objective, must notify the San Diego Water Board as required by the Phase I MS4 permit. If biological conditions in perennial and seasonal streams are identified as a high priority condition in the watershed, numeric goals, water quality improvement strategies, and schedules relating to the Stream Biological Objective must be updated pursuant in the applicable required watershed management plan¹⁷ pursuant to the reporting requirements of the Phase I MS4 Permit.

B. Agricultural Dischargers

Commercial Agricultural Dischargers in the San Diego Region are required to enroll in WDRs. These WDRs require enrollees to implement best management practices and conduct monitoring and reporting. To implement the Stream Biological Objective, the San Diego Water Board will revise the Waste Discharge Requirements to include a water quality benchmark for the Stream Biological Objective and include bioassessment in the Monitoring and Reporting Program at its discretion.

C. Dischargers of Dredged and Fill Material

The San Diego Water Board’s Dredge, Fill, and Wetlands Program regulates all discharges of dredged and fill material to Waters of the State,¹⁸ but has special responsibility for wetlands, riparian areas, and headwaters because these waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. For discharges of dredged and/or fill material to waters of the State where the Stream Biological Objective applies, CSCI scores may be used, on a case-by-case basis to evaluate avoidance and minimization of direct, indirect, and cumulative impacts from the discharge, to set performance standard(s) for restoration of temporally impacted aquatic life beneficial uses, and to determine successful compensatory mitigation for permanent loss of aquatic life beneficial uses.

VII. Antidegradation Policy

Any action that may result in a lowering of water quality must satisfy applicable requirements in the Federal and State antidegradation policies set forth in 40 C.F.R. section 131.12 (Federal Antidegradation Policy) and State Water Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality Waters in California (State Antidegradation Policy) (collectively Antidegradation Policies). In general, the Antidegradation Policies require that the existing water quality be maintained unless the San Diego Water Board makes sufficient findings to justify a lowering of water quality (See Chapter 3 and Chapter 5 of the Basin Plan).

The San Diego Water Board applies the Antidegradation Policies on a parameter-by-parameter basis. The San Diego Water Board therefore will consider the potential for degradation of the Stream Biological Objective separately from other parameters when approving any action with the potential to adversely affect the biological condition of a perennial or seasonal stream.

¹⁷ Presently defined as a Water Quality Improvement Plan, per Order R9-2013-001, or an equivalent applicable plan as it may be amended or reissued.

¹⁸ Waters of the State includes waters meeting the federal definition of “waters of the United States”.

The extent of biological condition information required to support an antidegradation analysis will depend on the specific conditions of the discharge. Administrative Procedures Update 90-004, (application of antidegradation requirements in NPDES Permitting), State Water Board Order WQ 2015-0075 (application of antidegradation requirements to stormwater discharges) and State Water Board Order WQ 2018-0002 (application of antidegradation requirements to nonpoint source discharges) provide guidance for the regional boards on the level of detail needed to support an antidegradation analysis in certain regulatory contexts. The San Diego Water Board will continue to use this guidance as appropriate. In some instances, use of best professional judgment and limited biological condition information may be sufficient to determine that a perennial and seasonal stream will not be degraded. If additional information on the biological condition is needed to evaluate compliance with the Antidegradation Policies, the San Diego Water Board may require a discharger to submit supplemental information on the biological condition of a receiving water as part of a Report of Waste Discharge (See section V.A.2, *Contents of a Receiving Water Biological Assessment*), or other technical report pursuant to CWC Sections 13267 or 13383.

The Antidegradation Policies will be implemented as described below.

A. Federal Antidegradation Policy

The Federal Antidegradation Policy is triggered by a reduction in water quality in a Water of the United States. If a perennial or seasonal stream meets the federal definition for Waters of the United States in 40 CFR 230.3(s), compliance with the Federal Antidegradation Policy would require consideration of the following factors as set forth in 40 C.F.R. § 131.12(a)(1-2):

- the existing water quality is adequate to achieve and maintain compliance with existing instream uses.¹⁹
- if the baseline quality of a waterbody “exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected” unless the San Diego Water Board makes findings that (1) any lowering is necessary to accommodate important economic or social development in the area in which the waters are located; (2) water quality adequate to protect existing uses is fully assured; and (3) “the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control”.²⁰

This provision has been interpreted to mean that, “[i]f baseline water quality is equal to or less than the quality as defined by the water quality objective, water quality shall be maintained or improved to a level that achieves the objectives.” (See State Water Board, Administrative Procedures Update, Antidegradation Policy Implementation for NPDES Permitting, 90-004 (APU 90-004), p. 4.) Therefore, in evaluating, whether existing water quality is adequate to achieve and maintain compliance with aquatic life beneficial uses, the San Diego Water Board will look at CSCI scores.

¹⁹ Existing instream uses are those designated beneficial uses that have actually been achieved since November 28, 1975.

²⁰ 40 C.F.R. § 131.12(a)(2). In situations where this provision applies, a separate federal antidegradation analysis is not required because the State Water Board has interpreted the State Antidegradation Policy to incorporate the federal antidegradation policy.

B. State Antidegradation Policy

The State Antidegradation Policy is triggered by a reduction in water quality in a Water of the United of the State that is considered “high quality.” If the baseline²¹ water quality in a perennial or seasonal stream exceeds the water quality necessary to achieve compliance with the Stream Biological Objective, then the San Diego Water Board may not authorize degradation of the water quality unless it finds (1) that the degradation is consistent with the maximum benefit of the people of the state, (2) will not affect a water’s present and anticipated beneficial uses, (3) will not result in water quality less than that prescribed in policies (i.e. lower than the Stream Biological Objective), and (4) will ensure the best practicable treatment or control (BPTC) of discharges.

For the purposes of the State Antidegradation Policy, a perennial or seasonal Stream with a baseline biological condition that is attaining reference conditions is considered “high quality”. Perennial and seasonal streams with a CSCI score greater than or equal to the 10th Percentile of the CSCI scores are attaining reference conditions.

The San Diego Water Board will evaluate whether there is a potential for a reduction in water quality by considering the potential for the *discharge* to cause a decrease in the CSCI score. A decrease occurs when a CSCI score(s) is lower than the expected inter-annual variability observed at similar reference sites. The San Diego Water Board recognizes that CSCI data is not always available for a given receiving water. In the absence of CSCI data, the San Diego Water Board will use best professional judgement to determine existing and baseline biological condition of the receiving water using all available and relevant information, including but not limited to CRAM scores, IBI scores for algae, IBI scores for benthic macroinvertebrates, or water and sediment chemistry data.

VIII. Compliance Assurance

The San Diego Water Board staff will ensure perennial and seasonal streams are meeting the Stream Biological Objectives through regular inspections of receiving waters, collection of biological data, review of discharger monitoring reports, and the review and analysis of other relevant data.

Where Stream Biological Objectives are not achieved, the San Diego Water Board will review compliance with relevant permits that discharge to the receiving water and review assessments from dischargers and other sources. The San Diego Water Board may assess compliance based on existing information or use discretionary authority to require other parties to provide data or information (e.g. CWC Sections 13225, 13267, 13383).

²¹ The baseline biological condition for the purposes of the Stream Biological Objective is the best CSCI score attained since [effective date of the Stream Biological Objective] unless a lower CSCI score was authorized through a regulatory action consistent with the Antidegradation Policies.

IX. Enforcement

The CWC authorizes the San Diego Water Board to enforce water quality laws, regulations, and plans to protect waters of the state (see e.g. CWC §§ 13304, 13350 and 13385). If the San Diego Water Board determines that there is a violation of the Stream Biological Objective, it will take progressive enforcement as outlined in the State Water Board's 2017 Enforcement Policy, or future amendments to this Policy. Where sufficient data exists, the San Diego Water Board will use Stream Biological Objective data in the penalty liability calculation process to assess the harm or potential harm to aquatic life beneficial uses for alleged discharge and non-discharge violation(s) relating to perennial and seasonal streams. The discharger may also be required to collect biological, chemical, and physical water quality monitoring data in order to make a potential for harm determination at the San Diego Water Board's discretion.

For enforcement actions that involve injunctive terms (e.g. a Cleanup and Abatement Order, Cease and Desist Order, Time Schedule Order) or an alternative to civil liability assessment (e.g. a compliance project, supplemental environmental project, enhanced compliance action), the San Diego Water Board will use Stream Biological Objective data as an evaluative and success measure where appropriate, including but not limited to: establishment of compliance milestones, determination of cleanup targets and goals, and development of compliance monitoring.

X. Financial Assistance

The State Water Board's Division of Financial Assistance (DFA) administers financial assistance programs that include loans and grants for constructing municipal sewage and water recycling facilities, remediation for underground storage tank releases, watershed protection projects, and for nonpoint source pollution control projects, etc. The San Diego Water may evaluate prospective projects for financial assistance and administers these grants and loans as contract managers. For San Diego Water Board administered environmental projects and grants that target aquatic-life beneficial uses, Stream Biological Objective data may be required on a case-by-case basis to establish performance milestones and metrics. The San Diego Water Board may also use Stream Biological Objective data to evaluate Cleanup and Abatement Account requests for funding projects in key areas, as identified by the San Diego Water Board, specifically for projects that focus on the restoration of degraded habitat and/or protection of ecosystem health.

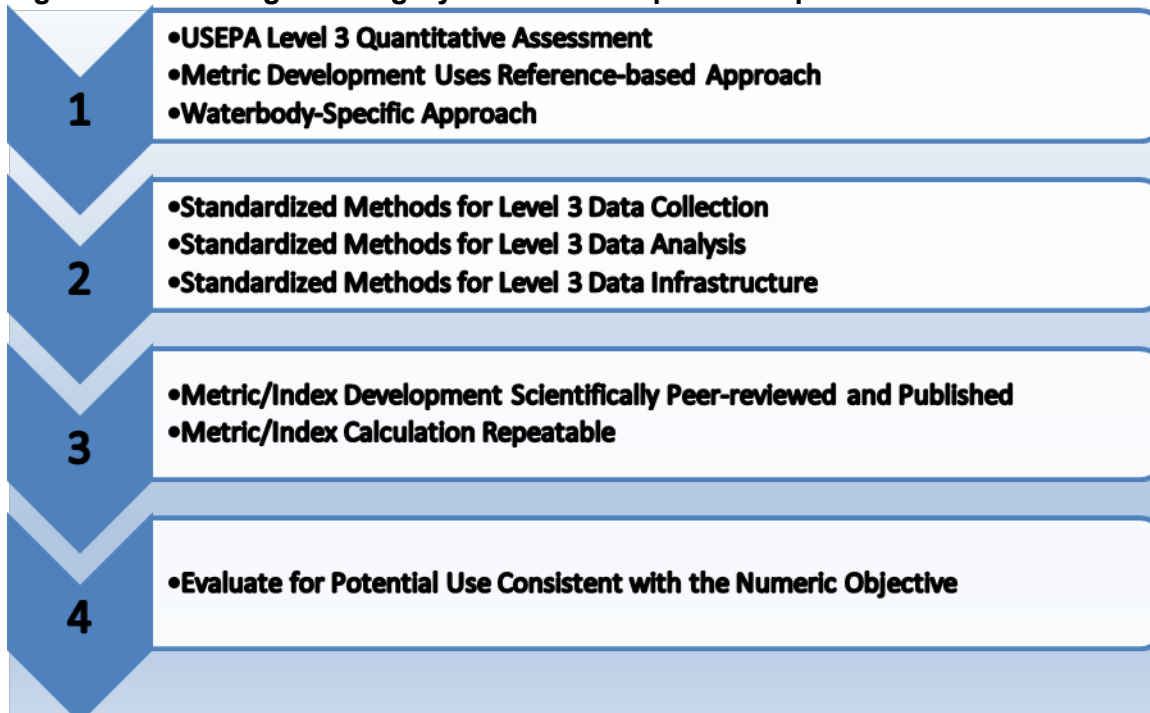
XI. Development of Future Biological Objectives

In the San Diego Region there are surface waters other than perennial and seasonal streams that have aquatic-life beneficial uses. The San Diego Water Board may develop future biological objectives on a categorical or waterbody specific basis as additional science-based biological integrity metrics or indices are developed or in response to periodic Basin Plan reviews. Future biological objectives shall be developed using the following guidance:

- 1) *Surface waters within the San Diego Region shall support an ecologically balanced and resilient community of organisms having a native species composition, abundance, and functional organization commensurate with that of unaltered analogous waters.*
- 2) Biological Integrity metrics or indices use to translate or develop a biological objective shall, to the greatest extent feasible, meet the following minimum requirements:
 1. be USEPA Level 3²² quantitative assessments;
 2. be published in a scientifically peer-reviewed journal;
 3. be specific to waterbodies or waterbody types; and
 4. be repeatable using standardized operating procedures.

See Figure TBD for a flow chart of the typical development process for development of biological integrity metrics or indices:

Figure TBD. Biological Integrity Metric Development Steps



²² Level 3 is "intensive site assessment" and uses intensive research-derived, multi-metric indices such as the Hydrogeomorphic Approach or Biological Assessments (USEPA 2004)