

**SCIENCE ADVISORY PANEL REPORT TO THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD FOR REVIEW
OF TECHNICAL PRODUCTS UNDER CONSIDERATION TO SUPPORT THE BIOINTEGRITY-BIOSTIMULATORY POLICY**

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Expert Panel Members

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The State Water Resources Control Board (State Water Board) is proposing to adopt a statewide water quality objective for Biostimulatory Substances (including nutrients) and a program to implement it as an amendment to the Water Quality Control Plan for Inland Surface Water, Enclosed Bays and Estuaries of California (ISWEBE Plan). As a part of this project, the State Water Board intends to establish a plan to protect and restore biological integrity. Collectively, these components are herein referred to as the Biostimulatory-Biointegrity Policy (Policy).

A Science Advisory Panel (SAP) was formed to provide ongoing advice and peer review of the scientific products developed by the Technical Team of consultants, led by Southern California Coastal Water Research Project (SCCWRP). A Science Plan was developed that articulates the conceptual approach and technical activities to support the Policy. During June 2017, the SAP met for the first time to review and provide input on the Science Plan. Subsequently, the SAP met via webinar twice to provide guidance on the development of the Algal Stream Condition Index (ASCI). In September 2018, the technical team completed the products, sponsored three webinars to provide an overview of findings, and distributed the products to the Stakeholder Advisory Group (SAG) and Regulatory Advisory Group (RG) members for their review and feedback. Six biointegrity and biostimulatory technical products have been recently completed and have been provided to the SAP for review (Table 1). Water Board staff submitted a series of charge questions that were to be considered in our in-depth review of each of these products. Members of the RG and SAG provided written comments on the products in advance of the second SAP public meeting, held December 12, 2018. The Technical Team made presentations summarizing the goals, methods, and key findings of each of the products at this meeting. SAG sector leads were asked to provide a list of issues and concerns with these products that could be considered by the SAP in their review.

We then undertook a comprehensive review of each of these products over the period of December 15, 2018 - January 30, 2019. Each SAP member was asked to lead the review of one of the six products and incorporate, to the extent practicable, the input and feedback from other panelists on that product. Drafts of these products were provided to Water Board staff in advance of a February 13, 2019 in-person meeting of the Panel with the SAG. As such, each report represents a general contribution from the SAP. The exception is the Biological Condition Gradient manuscript (Paul et al., in prep), in which there were sufficient differences of opinion among Panelists that we created two reports

reflecting majority and minority opinions on the products. Final versions of these reports are now submitted for Water Board staff for their consideration.

Table 1. List of Biointegrity and Biostimulatory Technical Products Reviewed by the SAP

BIOINTEGRITY PRODUCTS
<ol style="list-style-type: none">1. A Non-predictive Algal Index for Complex Environments (Also known as 'Algal Stream Condition Index' or ASCI), Theroux et al. in prep2. Development of Benthic Macroinvertebrate and Algal Biological Condition Gradient Models for California Wadeable Streams, Paul et al. in prep3. Prioritizing Management Goals for Stream Biological Integrity Within the Developed Landscape Context, Beck et al., in review
BIOSTIMULATORY PRODUCTS
<ol style="list-style-type: none">4. Scientific Foundation for Assessment of Biostimulatory Impacts to California Estuaries, Enclosed Bays, and Inland Waterbodies, Sutula SCCWRP Technical Report [TR] 8715. Synthesis of Biostimulatory Impacts on California Wadeable Streams, Sutula et al, SCCWRP TR 10486. Eutrophication Thresholds Protective of Biological Integrity in California Wadeable Streams, Mazor et al, in prep.

It has been our pleasure to serve the Water Board staff in this capacity as Science Advisors and we hope our feedback and recommendations are useful.