

**Minutes of the Regular Commission Meeting of the
Southern California Coastal Water Research Project Authority (SCCWRP)**

**Held at the offices of the Authority:
3535 Harbor Blvd., Costa Mesa, California 92626**

**March 5, 2021
9:00 AM**

COMMISSIONERS PRESENT

Tina Yin — *U.S. Environmental Protection Agency, Region 9*
Karen Mogus — *State Water Resources Control Board*
Mark Gold — *California Ocean Protection Council*
Renee Purdy (Vice Chair) — *Los Angeles Regional Water Quality Control Board*
Hope Smythe — *Santa Ana Regional Water Quality Control Board*
David Barker — *San Diego Regional Water Quality Control Board*
Mas Dojiri — *City of Los Angeles*
Robert Ferrante — *Los Angeles County Sanitation Districts*
Jim Herberg — *Orange County Sanitation District*
Peter Vroom — *City of San Diego*
Arne Anselm — *Ventura County Watershed Protection District*
Paul Alva — *Los Angeles County Department of Public Works*
Amanda Carr — *County of Orange*
Todd Snyder (Chair) — *County of San Diego*

OTHER COMMISSIONERS

Justine Kimball — *California Ocean Protection Council*
Martha Tremblay — *Los Angeles County Sanitation Districts*
Lan Wiborg — *Orange County Sanitation District*

STAFF PRESENT

Stephen Weisberg — *Executive Director*
Bryan Nece — *Administrative Officer*
Wes Beverlin — *Legal Counsel*
Ken Schiff — *Deputy Director*
John Griffith — *Department Head*
Alvina Mehinto — *Department Head*
Eric Stein — *Department Head*
Martha Sutula — *Department Head*
Charles Wong — *Department Head*
Elizabeth Fassman-Beck — *Principal Engineer*
Nina Bednarsek — *Senior Scientist*
Bowen Du — *Scientist*
Christina Frieder — *Scientist*
Minna Ho — *Scientist*
Faycal Kessouri — *Senior Scientist*
Syd Kotar — *Research Technician*

Scott Martindale — *Communications Director*
Raphael Mazor — *Principal Scientist*
Karen McLaughlin — *Senior Scientist*
Paul Smith — *Network Administrator*
Joshua Steele — *Scientist*
Susanna Theroux — *Senior Scientist*
Kristine Taniguchi-Quan — *Scientist*
Jan Walker — *Scientist*

Executive Director Weisberg described operating procedures for the remote meeting, which was conducted as a Zoom webinar. Audience members were invited to address the Commission by making a request via the Zoom Q&A box.

Commission Chair Todd Snyder called the meeting to order at 9:02 AM

CONSENT AGENDA

- 1. Minutes of Meetings Held December 4, 2020**
- 2. Quarterly Financial Statement for the Period Ended December 31, 2020**
- 3. Quarterly Statement of Investments at December 31, 2020**
- 4. Minutes of CTAG Meetings Held February 4, 2021**

Commissioner Carr motioned to approve Consent Items 1-4, and Commissioner Dojiri seconded the motion. The Commission approved the motion by roll call vote, with an abstention from Commissioner Alva on all agenda items and Commissioner Smythe on Agenda Item 1.

REGULAR AGENDA

5. Personnel and Finance Committee Report

Peter Vroom, Chair of the Personnel and Finance Committee, reported that the Committee reviewed a draft of the annual SCCWRP salary resolution that will come before the Commission for approval in June 2021. The draft salary resolution calls for a 1.6% cost-of-living increase for salary ranges, as well as increases to comply with California's minimum-wage laws. Vroom reported that three of SCCWRP's four POTW member agencies already have signed the Joint Powers Agreement that extends SCCWRP's existence for five years, from July 2021 to June 2026. Vroom said the Committee conducted the Executive Director's annual performance review. Commission Chair Snyder will meet with him in the coming weeks to discuss the outcome and discuss his contract renewal.

6. Executive Director's Report

Executive Director Weisberg reported that SCCWRP has remained in strong financial health throughout the COVID-19 pandemic. He said that while individual SCCWRP staff members have contracted the COVID-19 virus, there are no known instances of workplace-related

transmission, and SCCWRP has developed multiple health-and-safety protocols to protect employee health. Weisberg introduced Christina Frieder, a SCCWRP Scientist in the Biogeochemistry Department who started in February 2021 and will focus on SCCWRP's ongoing work to model the effects of coastal ocean acidification and hypoxia in Southern California's ocean, especially potential ways to offset these seawater chemistry changes via innovative solutions like kelp farming.

Weisberg said SCCWRP has continued to function well despite not being able to hold important scientific consensus-building meetings in person. He highlighted three areas where SCCWRP has made important progress: (1) SCCWRP is facilitating an international study to standardize methods for measuring microplastic particles in multiple matrices; the study is informing development of an upcoming State Water Board policy to be released in summer 2021 that will require microplastics to be monitored in drinking water. The microplastics measurement study is evaluating which characteristics of microplastics particles and which measurement methods (and variations of these methods) have the biggest influence on researchers' ability to obtain high-quality, comparable measurements. Researchers also are evaluating which levels and types of microplastics could pose health risks from ingestion. Weisberg said the Commission will learn more about this study and other microplastics work during a presentation scheduled for the Commission's June 2021 meeting. (2) SCCWRP is leading a committee established by the California Water Quality Monitoring Council to examine how the State could develop capacity to monitor wastewater influent to track COVID-19 infection rates in communities and sewersheds across California. The committee will examine how to coordinate existing COVID-19 virus monitoring efforts at POTWs, as well as how to leverage data effectively. (3) SCCWRP has initiated a new partnership with the Santa Ana Regional Water Quality Control Board to examine the ionic strength of total dissolved solids and other materials in water in terms of effects on stream biota – an area of study where Commissioners previously have expressed interest.

Weisberg reported that SCCWRP's 2019-2020 Annual Report will focus on chronicling the history of the past two decades of stormwater management in California – a topic that has previously not been well-documented. The articles will be written using the same approach that SCCWRP took to chronicle its own history during the agency's 50th anniversary in 2019, with historical interviews to be conducted with long-time members of Southern California's stormwater management community to build an authoritative, comprehensive historical narrative. SCCWRP intends to delay production of the Annual Report to June 2021 to allow extra time to complete these interviews.

7. CTAG Report

Executive Director Weisberg announced that Sam Choi from the Orange County Sanitation District, who has served as CTAG Vice Chair for the past year, has been elected CTAG Chair. Choi reported that outgoing CTAG Chair Neil Searing has rotated to the position of CTAG Past Chair, and Emily Duncan from the Los Angeles Regional Water Quality Control Board has been elected CTAG Vice Chair. Choi reported that CTAG held an intersessional research planning workshop in January 2021 to update SCCWRP's long-term research plan for its Contaminants of Emerging Concern research theme; the virtual workshop, which was

spread across two days and was the first such CTAG workshop to be held remotely, encompassed both harmful algal blooms (HABs) and antibiotic-resistant bacteria (ARB) genetic material. CTAG reached agreement on priorities for the future directions of CEC research; SCCWRP will memorialize the workshop in writing in the coming months by updating its CEC thematic Research Plan. Choi reported that CTAG has decided to form a subcommittee that will explore how to potentially develop a ninth thematic research area for SCCWRP centered around environmental risk assessment; CTAG is expected to make a final decision later this year. Choi reported that CTAG has been working with SCCWRP and the San Francisco Estuary Institute to develop a multi-part webinar and workshop series scheduled for April-May 2021 that will educate SCCWRP member agencies and other stakeholders on how to quantify and understand uncertainty in a set of West Coast coastal ocean acidification and hypoxia models.

8. Contract Review

Executive Director Weisberg presented eight contracts, all of which have values of \$250,000 or less and thus do not require Commission approval. All eight contracts were presented to ensure consistency of the agency's directions with the Commission's intentions.

- 1) San Gabriel River Regional Monitoring Program (through Aquatic Bioassay & Consulting Laboratories) (\$49,200)
San Gabriel River Regional Monitoring Landscape Modeling
- 2) Orange County Public Works (\$30,000)
Stormwater Monitoring Program Review and Guidance
- 3) County of San Diego (through Wood) (\$45,950)
Los Coches Watershed Lab Analysis
- 4) City of San Diego (through Wood) (\$4,000)
Tourmaline Bacteria Report Review
- 5) University of Washington's Earthlab (\$61,231)
Puget Sound Lab Analyses
- 6) Woods Hole Oceanographic Institution (\$13,755)
Coordinating HABs Virtual Conference
- 7) Ocean Protection Council (through UC San Diego) (\$20,000)
Imaging FlowCytoBot (IFCB) Deployment
- 8) County of San Diego (through Weston) (\$159,000)
Turf Replacement BMP to Reduce Dry Weather Runoff

The Commission did not raise any objections to the contracts.

9. COVID-19

Executive Director Weisberg introduced this presentation by explaining that SCCWRP has expanded its efforts to support development and implementation of a wastewater-based surveillance system for California based on the Commission interest in this topic expressed at their last meeting. Department Head Griffith began this presentation by explaining that while wastewater-based epidemiology shows immense promise, a key challenge is overcoming differences and variations in measurement methods among the many laboratories that are generating these data sets; this variability can impede efforts to generate high-quality, comparable data sets. SCCWRP is studying multiple potential sources of measurement variability – which span sampling methods to viral RNA quantification methods – with a goal of providing guidance on how to optimize these methods. Griffith reported on SCCWRP’s findings to date. First, the two largest sources of measurement variability are attributed to (1) freezing then thawing influent samples, which reduces sensitivity by up to four orders of magnitude, and (2) heat treatment (i.e., pasteurization), which reduces sensitivity by up to three orders of magnitude. Griffith also reported that when virus concentrations are low in a sample, direct extraction methods may be an inferior option to filtration methods, with filtration methods being more sensitive. Regarding the frequency of sampling required to reliably track trends in community infection rates, Griffith said sampling only once per week is insufficient to establish robust relationships; sampling is recommended at least three times a week. SCCWRP is continuing to investigate other sources of measurement variability, including whether sampling influent vs. settled solids is a better choice. SCCWRP also is working with collaborators to sequence the virus to monitor the spread of SARS-CoV-2 variants.

Commission Vice Chair Purdy said she appreciates that SCCWRP has been providing routine updates on this important project and several Commissioner reiterated interest in hearing updates on this topic at future meetings.

10. Interpreting Biological Responses to Modeling Results

Executive Director Weisberg introduced this presentation and the three that follow (Agenda Items 11, 12, and 13) by explaining that SCCWRP has been working for several years to build coupled physical-biogeochemical ocean models that predict how ocean acidification and hypoxia (OAH) will change along the West Coast under both natural and various potential management activities, ranging from atmospheric CO₂ reduction to reducing local nutrient discharges to cultivating coastal kelp farms. SCCWRP has worked extensively with CTAG and other stakeholders to evaluate the model’s performance. SCCWRP is presently updating its initial modeling development – which characterized Southern California conditions in the 1990s – to reflect present-day OAH inputs and conditions. Weisberg also indicated that SCCWRP is increasing its attention on how to translate the model output, which describes ocean chemistry, into how such changes will affect biological communities. Weisberg described the next three presentations: The first will focus on updating the model and validating its performance, the second presentation will focus on biological response thresholds, and the third presentation will focus on the central role that regional monitoring is playing in providing data to validate the model’s performance.

11. ROMS-BEC Nutrient Modeling Update

Department Head Sutula began the first presentation by explaining that after about eight years of model development and validation work, SCCWRP is now transitioning to the model application phase. To support this transition, SCCWRP is completing a modeling update using observational data from the more recent period 2013-2017. SCCWRP will then use the model to predict how the trajectory of OAH is expected to change in response to potential management scenarios, including enhanced nutrient management and increased water recycling. Because of the uncertainty associated with this modeling work – both the uncertainty associated with the model’s OAH predictions, as well as the uncertainty associated with predicting biological responses – SCCWRP and CTAG are organizing a multi-part webinar series and workshop to educate stakeholders about how to evaluate and consider uncertainty in the context of the future management decisions that will be made based on this work.

Asked by Commission Chair Snyder about whether the modeling work is considering the effects of climate change and whether the model can tease apart the relative influence of nutrients from urban vs. agricultural runoff, Sutula said the models are considering changes in source water concentrations and circulation changes, but modelers are not planning to tease apart the relative contributions of nutrients from urban vs. agricultural runoff. Asked by Commissioner Smythe if land-use changes are being considered in the OAH modeling work, Sutula said riverine inputs (which are influenced by land-use changes) represent only a small fraction of all land-based nutrient discharges, and thus are not a focal point of the modeling work. Asked by Commissioner Gibson if the model can evaluate the influence of potential additional carbon inputs from future coastal fish farming operations, Sutula said that the model can be used to study exactly these types of scenarios. Commissioner Gold applauded the modeling work, noting that it is successfully leading managers to key conversations in which they consider using the model to predict the effects of an array of different management scenarios.

Commissioner Herberg said he needed to leave the Commission meeting early and that Commissioner Wiborg would be taking his place.

12. Understanding Critical Thresholds at Which Biota Respond to Acidification

Senior Scientist Bednarsek introduced this presentation by explaining that researchers are working to connect modeling-predicted changes in coastal OAH to biological effects on marine communities. Researchers are using multiple approaches to get at these answers, including laboratory experiments that replicate the dynamic environmental conditions of the coastal ocean, field observations, and expert consensus on the biological thresholds at which marine organisms experience adverse effects from changing seawater chemistry. Over the past three years, SCCWRP has developed a data base of 40,000 data points from extensive literature reviews, and held three workshops where experts conducted a meta-analysis to develop 35 thresholds across multiple life stages for three types of organisms (pteropods, echinoderms, and decapods). At those workshops, researchers also assigned confidence ratings to the OAH biological thresholds, which will help managers decide which thresholds they will use to inform future management decisions. Bednarsek next described a range of studies that SCCWRP is conducting in its relatively unique laboratory

setting that allows for measurement of biological response under a range of temporally variable exposure conditions. She finished by describing the organization's most recent work, again taking advantage of SCCWRP's specialty facilities, by examining how OA response is affected by co-occurring stressors, such as temperature and hypoxia.

Asked by Commissioner Gold to describe what levels and types of variability exist in the biological data, Bednarsek said seasonal upwelling is the single biggest source of variability; other sources of variability include addressing higher trophic levels, where enhanced mobility complicates the exposure portfolio.

13. Regional Monitoring for Biological Effects of Acidification

Senior Scientist McLaughlin explained that ongoing modeling work to evaluate how OAH conditions will change in Southern California and how biological communities will be adversely affected needs to be ground-truthed with field-collected regional monitoring data. The Southern California Bight Regional Monitoring Program serves as one of the key ways that this ground-truthing is occurring. By analyzing historical Bight data to develop hindcasts of historical species distributions over time, researchers are able to compare these species distributions to modeling predictions. To increase the amount and types of species distribution data available, the Bight program is partnering with NOAA's Pacific Marine Environmental Laboratory and California Cooperative Oceanic Fisheries Investigations (CalCOFI), which are generating data further from shore and also enhancing Bight '18 data collection efforts. Meanwhile, DNA metabarcoding analyses are helping to fill in data gaps on species abundances. Overall, regional monitoring is serving as one leg of a three-legged stool that is extending the value of both modeling work and laboratory experiments.

Asked by Commissioner Gold if OAH-related field measurements collected during Bight '18 have been published, McLaughlin said the COVID-19 pandemic has delayed some chemistry data sets, but that the paired analyses of biology data are continuing. Commissioner Carr applauded the OAH modeling presentations, noting that they reflect the methodical steps that SCCWRP is taking to get the answers managers need – a sentiment echoed by Commissioner Dojiri. Commissioner Vroom said his staff will be excited to see the PowerPoint slides from these presentations, which Weisberg indicated will be posted to SCCWRP's website. Asked by Commissioner Dojiri about how SCCWRP is working with the Southern California Ocean Observing System (SCOOS), Sutula said the partnership runs deep, with SCOOS data extensively leveraged to help build and evaluate OAH models. Asked by Commissioner Wiborg about additional opportunities to engage with SCCWRP on the modeling work, Sutula said one forum is the upcoming, CTAG-led modeling uncertainty workshop; SCCWRP also would be happy to present this work to any SCCWRP member agency upon request.

14. Other Business and Communications

None

15. Future Meeting Agenda Items

Executive Director Weisberg said the Commission had previously requested a microplastics theme for its June meeting, with presentations covering multiple aspects of SCCWRP's ongoing work to build statewide capacity to monitor microplastics and interpret the monitoring data. Weisberg said SCCWRP will also provide an update on the latest progress toward building statewide capacity to monitor COVID-19 community infection rates through wastewater-based epidemiology, which the Commission had previously requested for every meeting the rest of this year. Weisberg also reminded the Commission they had asked for a presentation about the northward spread of *Vibrio* bacteria into the Southern California region, but suggested that would be better in September pairing it with two other microbiology presentations that would be ready then.

16. Public Comments

None

17. Adjournment

Commission Chair Todd Snyder adjourned the meeting at 11:31 AM until the next Commission meeting on June 11, 2021 at 9:00 AM.

Attest:

Bryan Nece
Secretary