

SCCWRP Director's Report

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FALL 2026 ISSUE

State Board approves regional biological regulatory approach

A biology-based approach for protecting the health of streams has been approved for implementation in the San Diego region – a landmark development that is based on more than a decade of research by SCCWRP and its partners to build the scientific foundation for regional, biology-based management of stream ecosystems.

The California State Water Resources Control Board approved the regulatory approach for protecting stream health in August, capping six years of in-depth stakeholder discussion and debate following the San Diego Regional Water Quality Control Board's 2020 decision to adopt the approach. At the time of State Board approval, both regulatory and regulated stakeholders expressed support for implementing this approach across the San Diego region.

Throughout the six years, SCCWRP continued to advance scientific understanding of bioassessment's role as a tool for protecting the health of diverse stream ecosystems – insights that have helped improve management confidence in the use of biology-based approaches in regulatory programs.

The San Diego Regional Board's approach – codified as a water quality objective in a basin plan amendment – relies on the California Stream Condition Index (CSCI), a tool co-developed by SCCWRP more than a decade ago, to generate a single numerical score reflecting the overall health of a stream reach based on the composition of bottom-dwelling invertebrates observed there. Stream sites with CSCI scores that fall below 0.79 – which is a threshold derived from scores at minimally disturbed reference sites – are considered to be in biologically poor condition.

Unlike traditional chemistry- and toxicology-based approaches to regulating stream health, bioassessment-based approaches focus on evaluating the health of biological communities that are sensitive to changes in stream water quality and other environmental stresses.

Following San Diego Regional Board adoption of the regulatory approach

Contents

6 | Updates by Thematic Area

12 | New SCCWRP Publications

12 | Quarter in Review

14 | SCCWRP Personnel Notes

15 | SCCWRP Spotlights

Cover photo: Streams that have been modified for flood control purposes, such as Arroyo Trabuco in southern Orange County, pictured, tend to receive uniformly lower bioassessment scores than other stream types. The California State Water Resources Control Board has approved a biology-based approach to regulating the health of streams in the San Diego region, of which Arroyo Trabuco is a part.

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Calendar

Thursday, November 5
CTAG quarterly meeting
(In-person meeting)

Friday, December 4
Commission meeting
(In-person meeting)

in 2020, SCCWRP worked alongside both regulatory and regulated stakeholders to address multiple questions and concerns about applying a bioassessment-based approach to regulate watershed health. These issues included:

» **Modified channels**: Streams that flow through channels that have been modified via hardening, straightening and other changes tend to receive lower CSCI scores than streams in unmodified channels. As a result, stakeholders expressed concerns about applying a bioassessment-based approach to regulating modified channels, especially if improving bioassessment scores in these streams were to be dependent on removing or extensively modifying channel hardening features that provide flood control protections. SCCWRP found that while bioassessment scores in modified channels correlate with differences in water quality and degree of flow alteration, the correlation is much weaker than for streams in natural channels (SCCWRP Technical Report #1434, #1437). The finding sheds important light on the efficacy of pursuing improvements to water quality as a management strategy for boosting a modified stream's CSCI scores. Ongoing SCCWRP research is working to develop more advanced stress-response modeling tools to further probe the issue. SCCWRP also has begun evaluating if potential physical habitation restoration projects in engineered channels – such as adding native riparian vegetation and other in-stream habitat, creating naturalistic side channels, and re-creating natural channel forms – can improve stream bioassessment scores without compromising flood-control functions. This research will help managers better understand if one or more of these management options is viable, and if so, what types of stream settings might be good candidates.

» **Intermittent streams**: The types of organisms that live in intermittently flowing streams can be substantially affected by natural stream drying, as some species lack adaptations to help them survive periods of dryness between flow events. As a result, stakeholders expressed concerns that a bioassessment-based approach to regulating intermittent streams could potentially misinterpret the absence of these species as signs of biological degradation. SCCWRP found that bioassessment scores in Southern California intermittent streams are comparable to perennial streams, and moreover, low scores in intermittent streams can confidently be interpreted as signs of degradation. At the same time, natural drying may lower bioassessment scores for intermittent streams in Northern California (SCCWRP Technical Report #1434, #1419). Ongoing SCCWRP research is working to establish a statewide approach for interpreting CSCI scores in intermittent streams.

The San Diego Regional Board's regulatory approach applies to both perennially and intermittently flowing streams. All natural and engineered channels with soft or natural stream beds are included, but streams that are deemed "fully hardened" as a result of being lined with concrete, rock and similar materials are excluded.



Aquatic insects like the larval dragonfly, above, that are sensitive to human-triggered environmental changes are the focus of routine statewide assessments of a stream's biological health. SCCWRP has built a scientific foundation for California to take a biology-based approach to protecting stream health.

Bioassessment-based approaches to managing stream health are increasingly being incorporated into management programs statewide. For example, the most recent statewide Integrated Report used CSCI scores to identify impaired water bodies that are not supporting aquatic life beneficial uses; future reports are expected to use CSCI scores to identify healthy "Category 1" water bodies that support all uses. Much of the vetting for this approach that has occurred across Southern California is now being expanded statewide, with SCCWRP research helping the Water Boards to determine where and how to apply this approach.

As the bioassessment-based regulatory approach is implemented across the San Diego region, watershed managers across Southern California and beyond are increasingly expected to turn to the SCCWRP science that underlies this approach to help identify effective options for improving and protecting the biological health of streams statewide.

For more information, contact Dr. Raphael Mazor.

Bight '23 assesses estuary, eelgrass health using function-based approach

The Southern California Bight 2023 Regional Monitoring Program (Bight '23) has completed the first assessment of the ecological health of Southern California's estuaries and eelgrass beds – a regional-scale demonstration for how to evaluate both ecological functioning and causes of degradation for these fragile coastal habitats.

The two-part Bight '23 assessment – published in August as the final reports of the Estuary Wetland Assessment and Submerged Aquatic Vegetation (SAV) study elements – marks the first time either habitat type has been included as a standalone study element in the regional monitoring program. Estuaries and eelgrass beds are among the most degraded habitats across Southern California's coastal environments, even as monitoring efforts to track their condition have historically been underdeveloped.



The Southern California Bight 2023 Regional Monitoring Program has successfully assessed the ecological health of Southern California's estuaries, including Batiquitos Lagoon in Carlsbad, above, as well as eelgrass beds, using standardized frameworks that focus on assessing ecological functioning and causes of habitat degradation.

The SCCWRP-facilitated Bight '23 estuary and eelgrass assessments mark the latest in a series of successful demonstrations of the standardized assessment framework originally developed and piloted through the California Estuary Monitoring Program (CalEMP); the framework assesses the health of these environments based on their ecological functioning.

Historically, estuary health has been assessed using more simplistic, readily observable measures of condition. While easier to conduct, traditional assessments are less directly tied to the beneficial-use goals that estuary managers are working to protect. By contrast, the function-based approach evaluates how well an estuary or eelgrass bed performs ecological functions, such as supporting marsh plant communities, providing bird habitat, and keeping pace with sea level rise.

Prior to the regional-scale Bight '23 assessments, the framework was piloted across 16 estuaries statewide through CalEMP, as well as applied at a site-specific scale to five sites across the Santa Monica Bay estuary.

The framework has now been found to work at the statewide, regional and sub-regional scales – a key milestone as researchers work to sustain a coordinated, statewide estuarine monitoring network intended to answer management questions.

Because the Bight '23 assessment approach can accommodate multiple types of estuaries and data sources, Bight '23 was able to leverage data from multiple ongoing monitoring programs to assess 19 estuaries across the region.

Overall, the region's estuaries were found to be in moderate to good condition. Bight '23 identified sea-level rise resilience as a systemic, region-wide vulnerability, with no site scoring in the High Function category – largely because estuaries lack room to migrate upland. Meanwhile, marsh plant communities were found to be generally in good condition across Southern California estuaries.

The function-based assessment also illustrated that overall site condition is not driven by a single factor or function. Even with assessing three functions during this survey, researchers found that the evaluation provided only a partial view of overall estuary condition.

The SAV study element, which evaluated eelgrass condition at 59 sites using a newly developed condition index scoring tool, found that more than half of the region's eelgrass were in good or best observed condition. The assessment also found that acreage alone does not equal healthy function – an important insight for managers implementing the California Eelgrass Mitigation Policy, which mandates no net loss of eelgrass function.

The Bight '23 findings are expected to help guide the newly approved Southern California Wetlands Recovery Project (WRP) Regional Monitoring Program, which uses a 37-site sentinel site network to track wetland health over time.

Researchers are exploring how to leverage the baseline Bight '23 assessment data to track regional estuarine condition over time, likely by tapping into the recently developed statewide network of estuary monitoring programs nested under CalEMP, including the WRP Regional

Monitoring Program and the statewide Estuary MPA (Marine Protected Areas) Monitoring Program.

Especially important will be tracking the effectiveness of management actions to protect and preserve wetland areas.

California has spent more than $600 million over the past two decades on coastal wetland restoration and protection, but these efforts have largely been site-specific and siloed, with managers historically lacking rigorous assessment tools and a unified monitoring program through which to assess the effectiveness of management interventions.

For more information, contact Dr. Jan Walker.

Training for accreditation assessors facilitates adoption of pesticide screening method

SCCWRP has trained a group of assessors who accredit environmental laboratories in California to evaluate laboratory proficiency in a new statewide method for monitoring up to 140 pesticides simultaneously – the final step in a three-year, SCCWRP-led effort to facilitate adoption and routine use of the screening method statewide.

During a three-day workshop held in October at SCCWRP, 20 accreditors from California's Environmental Laboratory Accreditation Program (ELAP), along with third-party assessors, received hands-on training on how to use the method to screen and analyze field-collected samples for pesticides. The training paves the way for ELAP to begin accrediting environmental laboratories across California to use the new method in the coming months.



SCCWRP's Sydney Dial-Sauers prepares a sample to be analyzed for pesticides. SCCWRP has helped pave the way for California to begin accrediting environmental laboratories in the use of a new screening method that can monitor up to 140 pesticides simultaneously. The method is an alternative to the laborious, chemical-specific approaches that managers have traditionally used to monitor pesticides in aquatic systems.

The multi-pesticide screening method reduces the need for managers to rely on a diverse range of siloed processing and analysis methods to monitor pesticides. These legacy methods require multiple samples to be taken, each needing to be processed in different ways by different methods, with samples incompatible across analysis instrumentation. Moreover, the pesticide-specific measurement approach may not identify all pesticides that may be present in the sample.

By enabling up to 140 commonly used pesticides to be detected using a single laboratory processing step, the new pesticide screening method makes it practical and cost-effective for environmental managers across California to increase routine monitoring of a broad range of pesticides.

The screening method was originally developed by the U.S. Geological Survey (USGS) and refined in 2020 in coordination with the Central Valley Regional Water Quality Control Board and USGS. A wide range of pesticides is being continually and increasingly used across the 38 million acres that make up the Central Valley region – not just to agricultural lands, but also managed forest lands – underscoring the need for improved pesticide screening methods.

Although the U.S. Environmental Protection Agency already has developed methods and guidance for measuring individual legacy pesticides like DDT – as well as other types of contaminants like polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs) – there is comparatively little federal guidance on how to efficiently and simultaneously monitor multiple current-use pesticides.

The new pesticide screening method uses a single lab processing step to produce a sample compatible with two common instrumental analysis techniques: gas chromatography/mass spectrometry (GC/MS) and liquid chromatography/tandem mass spectrometry (LC/MS/MS). It is designed for use with grab water samples, pump samplers and passive sampling devices that sorb contaminants like pesticides in water bodies.

To help pave the way for statewide accreditation of the new method, SCCWRP developed standard operating procedures (SOPs) and coordinated a multi-laboratory study to validate the method's effectiveness.

The SCCWRP-led assessor training workshop in October was the final step that must be completed for ELAP to begin formally assessing laboratory proficiency using the new method.

Already, researchers are adapting the method to screen for pesticides and non-pesticide contaminants in other settings, including to support an ongoing, SCCWRP-led study measuring the efficiency of routine street sweeping in removing contaminants that would otherwise enter storm drains. For this study, the screening method is being used to analyze tire wear contaminants from the street sweeping samples.

Researchers have also begun exploring how to expand the method to monitor pesticides in urban and industrial environments, including post-fire monitoring efforts.

For more information, contact Dr. Charles Wong.

Statewide flows framework applied to support groundwater recharge decision-making

SCCWRP and its partners have demonstrated how a statewide scientific framework designed to help managers determine the environmental flow needs of California streams can also help shape groundwater management practices statewide – a key step toward helping California meet its water-supply targets without degrading stream health.

The case study, described in a SCCWRP technical report published in October, shows how to use the California Environmental Flows Framework (CEFF) to determine how much of a stream's wet-weather flows can be diverted to support groundwater recharge, while still protecting the ecological benefits provided by the flows.

Under the statewide Flood-Managed Aquifer Recharge (Flood-MAR) strategy, California limits wet-season diversions supporting groundwater recharge to ensure the diversions do not risk compromising the ecologically important benefits that stream flows provide, including connecting channels to floodplains and supporting native aquatic life.

The case study helps build a scientific foundation for managers to pursue increasing these wet-season diversions to support groundwater recharge, while simultaneously accounting for the ecological importance of these flows as well as site-specific priorities and conditions.

The approach piloted during the SCCWRP-led case study is expected to help California achieve a statewide mandate to expand California's water supplies by 9 million acre-feet by 2040. The California Department of Water Resources, which is charged with implementing this 2026 mandate from Governor Gavin Newsom, is identifying a toolbox of approaches to help streamline flow-diversion decisions, with CEFF viewed as one potential pathway.



Courtesy of Environmental Science Associates

A river diversion system, above, redirects the flow of water in Scott River in Northern California to an irrigation ditch, left, for agricultural use. Researchers recently completed a case study that applied the California Environmental Flows Framework (CEFF) to determine how much of a stream's wet-weather flows can be diverted to support groundwater recharge. Increasing these diversions is a strategic mandate across drought-prone California.

In parallel, SCCWRP and its partners also are exploring how to use CEFF to better understand how groundwater pumping practices can affect surface stream flows and surface water temperatures during dry weather. When groundwater is pumped in an unsustainable manner, the practice can trigger alterations to both flows and temperature across connected surface-level streams. Thus, this separate, ongoing study represents the dry-weather corollary to the wet-weather diversion study – illustrating how to use CEFF to evaluate ecological effects across hydrologic conditions.

CEFF, which was co-developed by SCCWRP and unveiled in 2021, provides a rigorous, standardized approach for determining how to allocate limited surface flows to balance both human and ecosystem needs for flowing water. In recent years, management interest in CEFF as a climate adaptation planning tool has been growing. CEFF and the tools developed through the wet-weather diversion case study, for example, can help managers plan for the high-volume flows expected from Southern California's upcoming El Niño wet-weather conditions, including identifying ways to make the

most of periods of excess water to provide flood control, recharge groundwater, and protect ecosystem benefits.

During the case study, which kicked off in March, researchers applied CEFF to three streams across Northern California to determine how much of the stream's wet-weather flows can be diverted to support groundwater recharge, while still protecting the ecological benefits provided by the flows.

Researchers also compared CEFF to other diversion approaches, including a cumulative wet-weather approach ("80/50 rule") and the State Water Board's permitting approach for Flood-MAR projects ("90/20 rule").

Researchers found that each approach involved different tradeoffs. The 90/20 rule offered streamlined permitting, but made less water available for groundwater recharge – and during short, scattered windows. The 80/50 rule allowed longer, more continuous diversions that were simpler to manage, but resulted in greater alteration of ecologically important high-flow events in the streams evaluated.

By contrast, CEFF-based criteria allowed for diversion volumes comparable to the 80/50 rule while better preserving ecologically significant high-flow events in the streams evaluated.

Key to CEFF's management utility is that it does not prescribe a single approach for how to balance flow diversions with a stream's environmental flow needs. Rather, CEFF enables managers to adopt a toolbox approach to evaluate diversion strategies based on site- and project-specific considerations and management priorities.

Building on the study's findings, SCCWRP and DWR have begun initial conversations with local landowners and groundwater agencies, including in Napa County, about using CEFF to identify wet-weather flow volumes that could be diverted to support groundwater recharge. Researchers' goal is to incorporate these CEFF diversion analyses into water-rights applications seeking approval for increased flow diversions – a critical next step toward CEFF being able to guide real-world groundwater management decisions.

For more information, contact Dr. Kris Taniguchi-Quan.

Updates by Thematic Area

SCCWRP Research Themes BIOASSESSMENT • ECOHYDROLOGY • EUTROPHICATION • CLIMATE RESILIENCY • CONTAMINANTS OF EMERGING CONCERN • MICROBIAL WATER QUALITY • STORMWATER BMPs • REGIONAL MONITORING

BIOASSESSMENT

Effort launched to use eDNA-based methods to inform golden mussel monitoring in water spreading ground

SCCWRP and its partners have launched an effort to use environmental DNA (eDNA)-based monitoring methods to improve early detection of an invasive freshwater mussel species in water supply systems – insights that could help managers decide where to direct their limited traditional monitoring resources.

The project, which kicked off in September at a water spreading ground facility in Azusa, involves using the DNA that organisms shed into their environment, known as eDNA, to screen for early signs of the presence of golden mussel. The eDNA monitoring data, in turn, could help managers decide where to deploy plankton net tows and settlement plates, as well as where to conduct microscopic examinations.



A field crew collects samples at the San Gabriel Canyon Spreading Grounds in Azuza to screen for the presence of golden mussel. SCCWRP and its partners are studying how to use environmental DNA-based monitoring methods to improve early detection of the highly invasive freshwater species, which can clog reservoir pipes and pumps, and spread through California's water delivery systems.

Golden mussel is a highly invasive freshwater species that has been found in more than a dozen water bodies across California since being discovered in the San Francisco Bay Delta in 2024. It is especially a threat in reservoirs because it can clog pipes and pumps, and it spreads easily through California's water delivery systems.

Automated eDNA sampler deployed to enhance real-time HABs monitoring

SCCWRP and the Kerckhoff Marine Laboratory in Orange County have begun exploring how to use an autonomous device that collects environmental DNA (eDNA) samples to enable real-time monitoring of early signs of harmful algal blooms (HABs) in Southern California coastal waters – an early effort to incorporate molecular technology into routine coastal monitoring.

The pilot project, which kicked off last summer, involves deploying an automated eDNA prototype sampling device off Newport Beach Pier to continuously collect water samples for eDNA processing and analysis in a laboratory. The sampling device was developed by the U.S. Geological Survey and Monterey Bay Aquarium Research Institute (MBARI).

The eDNA sampling device is deployed adjacent to an Imaging FlowCytobot (ICFB) managed by the Orange County Sanitation District, enabling researchers to collect paired eDNA samples and hourly ICFB images of phytoplankton; the goal is to understand if ICFB imaging could be used to trigger targeted eDNA sampling during early signs of a bloom event.

eDNA, which is the DNA that organisms shed into their environment, offers a promising complement to traditional field collection and identification of aquatic organisms, including toxin-producing algal blooms.

Stakeholder feedback being solicited on new national framework for assessing societal benefits of aquatic resources

SCCWRP has begun soliciting stakeholder feedback on a newly developed national framework that rapidly evaluates the health of streams and other aquatic resources through the lens of the human services they provide, including recreation, hazard reduction, water supply and cultural uses.

The ecosystem services framework, which researchers began gathering feedback on in September, establishes a standardized approach for quantifying eight ecosystem services; the framework incorporates readily available geospatial data and data from rapid condition assessments (e.g., the California Rapid Assessment Method, or CRAM, in California).

Historically, managers have lacked a rapid assessment framework for evaluating the societal benefits provided by aquatic resources alongside their ecological health.

Stakeholder outreach began in September during a workshop in Montana. A second workshop is planned at SCCWRP on November 3, 2026 and will include a remote attendance option; to RSVP, contact Dr. Eric Stein. The third and final workshop is planned for January 2027 in Florida.



Researchers deploy an Imaging FlowCytobot (ICFB), left, and automated eDNA prototype sampling device, right, off Newport Pier in Orange County to collect paired samples – part of an effort to explore how phytoplankton images and eDNA sampling data could be used in tandem to detect early signs of harmful algal blooms (HABs) in Southern California coastal waters.

ECOHYDROLOGY

California flows framework helping British Columbia shape future of environmental flows management

SCCWRP has begun advising water resources managers in British Columbia, Canada, on how to determine the environmental flow needs of streams using a standardized scientific framework developed in California – insights that could help the province develop its own approach for managing limited flow resources.

During a Canadian environmental flows workshop in October, SCCWRP's Dr. Eric Stein and Dr. Kris Taniguchi-Quan shared how the California Environmental Flows Framework (CEFF) – which was co-developed by SCCWRP and unveiled in 2021 – is helping California to balance both human and ecosystem needs for flowing water. The framework has been used in a range of different management contexts across California, including dam-regulated rivers, flow diversions to support cannabis cultivation, and urbanized watersheds.

For SCCWRP, the collaboration offers an opportunity to learn how to engage tribal communities in the process of applying an approach like CEFF to balance the many competing demands on limited flow resources.

Just as California a decade ago lacked a rigorous, standardized method for determining the environmental flow needs of streams, British Columbia is presently grappling with how to balance multiple competing requests for new water uses and diversions.

EUTROPHICATION

SCCWRP assumes management of pier monitoring station for statewide HABs network

SCCWRP has taken over management of a coastal pier monitoring station for California's 18-year-old harmful algal blooms (HABs) network – a transition that underscores SCCWRP's commitment to ensuring the long-term continuity of coastal HAB monitoring data sets statewide.

Routine sampling at the Newport Pier station, which transitioned from the University of Southern California to SCCWRP last summer following a key retirement, supports California's Harmful Algal Bloom Monitoring and Alert Program (HABMAP). The monitoring network, which was co-developed by SCCWRP in 2008, collects HABs data via weekly sampling at piers statewide. The goal is to document the environmental conditions that accompany ecologically disruptive bloom events in coastal waters.

SCCWRP already had been supporting HABMAP by leading sample analysis in Southern California for a HAB toxin known as domoic acid.

Since its inception, HABMAP has been generating foundational monitoring data sets that have helped researchers, resource managers and marine mammal rescue centers prepare for and manage toxin-producing bloom events; these seasonal events can lead to mass strandings of sickened marine mammals. HAPMAP data, for example, have indicated comparatively low bloom activity for Southern California for 2026 – consistent with the dearth of mammal strandings documented this year.

CLIMATE RESILIENCY

Validation methods updated, enhanced to guide performance evaluations for coastal OAH modeling tools

A research team that has been modeling how land-based nutrient discharges into Southern California coastal waters influence ocean acidification and hypoxia (OAH) has updated the evaluation methods it is using to validate the performance of the OAH modeling tools – a key step toward increasing community confidence and acceptance of the tools' predictive capabilities.

The method updates, completed in September and reviewed by a subcommittee of the SCCWRP Commission's Technical Advisory Group (CTAG), call for evaluating the modeling tools against a wider range of ocean processes and leaning more heavily on real-world measurements – including data from moored sensors and underwater gliders – to gauge how well the tools predict real-world conditions.

This effort aligns with recommendations from an independent panel of scientific experts that reviewed the OAH modeling work in 2024.

Researchers will apply the updated modeling validation methods to existing model simulations spanning 1997-2017, with a goal to improve documentation of the tools' performance and identify priority areas for further evaluation; the findings are expected to be presented to the independent expert panel when it is reconvened next year.

Acidification modeling tools used to evaluate mCDR's potential to alleviate effects of changing seawater chemistry

SCCWRP and its partners have successfully applied coastal ocean modeling tools to study the potential of marine carbon dioxide removal (mCDR) technology to both reduce carbon dioxide levels in the atmosphere and simultaneously elevate pH conditions in Southern California coastal waters.

The modeling study, completed in August, represents a key demonstration for how to apply the ROMS-BEC (Regional Ocean Modeling System + Biogeochemical Elemental Cycling) modeling system – which was originally used to predict the trajectory of OA and hypoxia along the West Coast – to also evaluate potential solutions for offsetting atmospheric carbon dioxide levels.



Courtesy of National Oceanic and Atmospheric Administration

A pteropod, or sea snail, with pit marks on its shell, shows signs of shell dissolution in response to changing seawater chemistry. Researchers have applied coastal ocean modeling tools originally used to predict the trajectory of West Coast ocean acidification and hypoxia (OAH) to assess whether an experimental, renewable-energy technology known as direct ocean capture and carbon storage (DOCCS) can be used to offset intensifying OA at a regional scale.

Researchers assessed whether an experimental, renewable-energy technology known as direct ocean capture and carbon storage (DOCCS), if it were to be scaled and deployed across Southern California coastal waters, could elevate pH conditions in surface waters across the region – a change that researchers hope could help offset the effects of coastal ocean acidification. The field-deployable DOCCS instrument that was the focus of the study uses electrodialysis technology to directly capture and remove carbon dioxide from seawater, enabling the ocean to naturally draw down more carbon dioxide from the atmosphere to rebalance.

The modeling work serves as an initial, proof-of-concept study that can help inform future potential DOCCS deployment planning and siting decisions.

EMERGING CONTAMINANTS

Bight '23 leverages harmonized measurement methods to monitor microplastics regionally

The Southern California Bight 2023 Regional Monitoring Program's Trash study element has successfully applied a set of recently harmonized methods for measuring microplastics levels in the coastal ocean to conduct a first-of-its-kind regional assessment of how microplastics contamination has spread across the seafloor and accumulated in the bodies of shellfish.

The microplastics assessment, which Bight '23 participants signed off on in August, leveraged microplastics sampling methods co-developed by SCCWRP to generate high-quality, directly comparable Southern California measurement data for sediment and shellfish tissue. Researchers have historically been forced to assign a high degree of uncertainty to microplastics measurement data generated via various sample collection and analysis methods.

The study's findings, which are described in a pair of draft manuscripts submitted to two journals for publication, serve as a proof of concept for how California could build capacity to routinely monitor microplastics levels in coastal environments.

In April, the Bight '23 Trash study element published its final assessment report on the spread of larger-sized, non-microplastic trash items across Southern California's coastal ocean.

STORMWATER BMPs

Second round of field sampling launched to quantify street sweeping's effect on runoff water quality

SCCWRP and its partners have launched a second phase of field sampling for an ongoing study working to measure the influence of routine street sweeping in removing pollutants that would otherwise enter storm drains and contribute to runoff pollution.

The second phase, which kicked off in September targeting 10 sites across the Upper San Gabriel River and Rio Hondo watersheds, builds on an initial round of field sampling completed across Southern California last summer to build regional-scale understanding of street sweeping's effects on runoff water quality.

The more intensive sampling effort within a smaller geographic area will improve statistical confidence in the regional-scale study; the data also will be used by the Los Angeles County consultant Craftwater Engineering to calibrate watershed modeling tools intended to predict where and how to deploy street sweeping and other non-structural BMPs (best management practices) to maximize runoff water-quality benefits.

The study involves comparing levels of runoff pollution that have been collected from pairs of roadway segments, where one segment has been swept and the other segment has deliberately not been swept.

Street sweeping is a type of non-structural BMP that is a routine part of stormwater management programs in communities across Southern California, but what has historically been unclear is what portion of stormwater pollutants – sediment, nutrients, trace organics and heavy metals, microplastics and bacteria – are removed from roadways via street sweeping.

Prototype model developed to open 'black box' of BMP mechanistic processes

SCCWRP and its partners have developed an initial prototype of a modeling tool for predicting how a ubiquitous class of stormwater BMPs known as biofiltration systems removes dissolved copper from stormwater runoff – a key milestone in an ongoing study working to improve understanding of the specific mechanistic internal processes driving BMP pollutant removal.



Street sweeping is a stormwater management strategy commonly used to prevent pollutants from entering storm drain systems. Researchers recently launched a second phase of field sampling for a study that is measuring the influence of routine street sweeping in removing pollutants that would otherwise enter storm drains and contribute to runoff pollution.

The prototype mechanistic model, which SCCWRP completed an initial validation phase on in October in partnership with researchers at the Catholic University of America, shows promise for being capable of predicting how biofiltration systems treat dissolved copper in Southern California.

Researchers compared modeling predictions to data collected during the ongoing study's laboratory phase, when researchers identified two easily measurable biofiltration media properties – cation exchange capacity and bulk density – as strong indicators of the media's capacity to remove dissolved copper from stormwater runoff.

Based on the initial model validation work, researchers have moved into a second phase that involves scaling up and validating the model using field-collected BMP performance data.

The mechanistic inner processes by which structural BMPs like biofiltration systems remove contaminants have historically been a "black box" – with researchers routinely measuring the runoff entering and exiting the BMP, but not focusing what happens inside the BMP as this runoff is being treated, including understanding the influence that different BMP design specifications have on performance.

Regional stormwater center forges connections, shares best practices across five Southwestern states

A regional knowledge center co-led by SCCWRP has begun sharing best-practices stormwater management approaches and forging connections among siloed stakeholders across the U.S. Southwest in recent months – including fielding more than a dozen requests for support from five states.

Since hosting an inaugural workshop in June to set its strategic directions, the Southwest Stormwater Center (SWSC) has been asked to provide the latest research and guidance on topics ranging from how to design performance monitoring networks for stormwater BMPs (best management practices) to where to find data to support runoff management modeling tools. The Center has met with regulators, stormwater discharge permittee groups and departments of transportation, among others; SCCWRP alone has been asked to give five formal presentations on specific topics.

The Center, which is co-led by SCCWRP and the Desert Research Institute in Nevada, was established by the U.S. Environmental Protection Agency to serve Southern California, Nevada, Arizona, and New Mexico; it focuses on bridging gaps between isolated but regionally relevant information sources by synthesizing, harmonizing, consolidating and sharing technical knowledge, tools, and resources across five topic areas: BMP design and assessment, stormwater planning, stormwater capture and use, funding and financing, and stakeholder engagement.

The Center intends to develop and publish regionally relevant resources to its website.

REGIONAL MONITORING

Five-year workplan finalized for statewide estuary monitoring program

SCCWRP and its partners have developed a workplan covering the next five years of coordinated estuary monitoring under the California Estuary Monitoring Program (CalEMP) – a milestone that reflects the program's evolution from a pilot monitoring project to a long-term program tracking the ecological health of California's coastal wetland ecosystems.

The 2027-2031 workplan, finalized in October in partnership with the California Ocean Protection (OPC) and the California Department of Fish and Wildlife, outlines key estuary monitoring priorities to help create a statewide picture of estuary health over the next five years.

CalEMP is the statewide umbrella program that brings enhanced structure and organization to California's regional estuary monitoring programs, including the Southern California Wetlands Recovery Project (WRP) Regional Monitoring Program. The monitoring program will also directly inform California's 2032 Marine Protected Area (MPA) Decadal Management Review.

Field sampling under CalEMP's 2027-2031 workplan is expected to begin in spring 2027 and will target 21 estuaries statewide.



Courtesy of Central Coast Wetlands Group, Moss Landing Marine Labs

The recently established California Estuary Monitoring Program (CalEMP) has developed its 2027-2031 workplan for tracking the ecological health of California's coastal wetland ecosystems, including Morro Bay Estuary, above. The workplan reflects the program's evolution from pilot project to a cyclical, long-term monitoring initiative.

New SCCWRP Publications

Journal Articles

Hajibabaei, M., F. Leese, C. Abbott, H. Araki, D.J. Baird, P. Beja, K. Deiner, H. Doi, N. Fahner, K.D. Goodwin, M.E. Hunter, R.P. Kelly, K. Klymus, M. Kondoh, N.O. Mapholi, T. Minamoto, X. Pochon, T.M. Porter, S. Theroux, A. Trujillo-González, A.Watts, H. Yamanaka, X. Zhang, J. Darling, K. Meissner. 2026. The International eDNA Standardization Task Force (iESTF): toward development of inclusive international standards for eDNA biodiversity monitoring. *Metabarcoding and Metagenomics* DOI: 10.3897/mbmg.10.193334

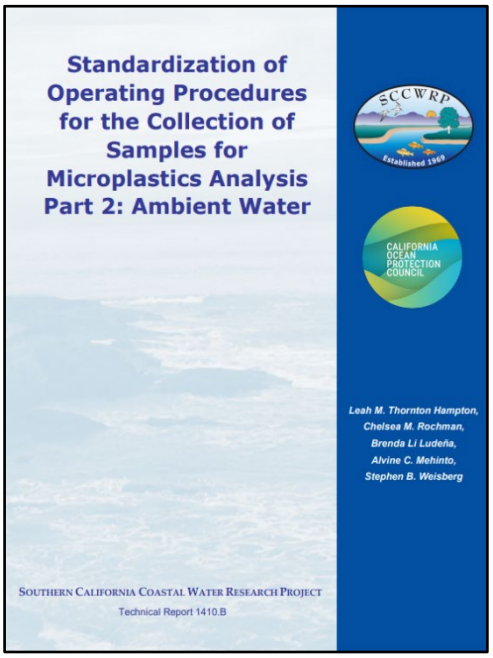
Walker, J.B., R.S. Smith, K.M. Beheshti, K.K. Johnston, C.R. Whitcraft, J.A. Crooks, M. Grubbs, H.M. Page, S. Schroeter, E.D. Stein, K.A. Uyeda. 2026. Comparison of Coastal Wetland Vegetation Assessment Methods in Southern California. *Estuaries and Coasts* 49:162.

Journal Articles (Accepted)

Nissen, K., M. Borst, E. Fassman-Beck. Quantifying Sources of Error in Bioretention Water Balance Monitoring. *Journal of Sustainable Water in the Built Environment*.

Technical Reports

Stowe, E.S., D.D. Hernandez-Abrams, A.E. Harris, T.M. Swannack, K.E. Buenau, K. Irving, S. Jumani, M.D. Porter, V.M. Quintana, M.P. Dougherty, K.N.S. McCain,



SCCWRP and its partners have published a technical report outlining standard operating procedures for collecting samples from ambient water bodies for microplastics analysis – the third in a series of microplastic collection methods to be standardized to facilitate generation of high-quality, microplastics data statewide. The two initial methods to be standardized – sediment and aquatic biota – are described in an earlier technical report.

K.R. Runyon, D.L. Smith, S. Kyle McKay. 2026. Updating Ecological Modeling Within the US Army Corps of Engineers (USACE): Exploring Innovative Approaches and Implementation Strategies. Technical Report 1500. U.S. Army Engineer Research and Development Center. Vicksburg, MS.

Taniguchi-Quan, K.T., J. Wiener, J. Ayers, B. Gibbons, A. Le Compte-Santiago. 2026. Operationalizing Functional Flows to Inform and Evaluate Flood-Managed Aquifer Recharge (Flood-MAR) Diversion Approaches. Technical Report 1501. Southern California Coastal Water Research Project. Costa Mesa, CA.

Thornton Hampton, L.M., C.M. Rochman, B. Li Ludeña, A.C. Mehinto, S.B. Weisberg. 2026. Standardization of Operating Procedures for the Collection of Samples for Microplastics Analysis Part 2: Ambient Water. Technical Report 1410.B. Southern California Coastal Water Research Project. Costa Mesa, CA.

Tupitza, J., D.J. Gillett, A. Le Compte Santiago, J.B. Walker, C. Whitcraft, H. Lyford. 2026. Southern California Bight 2023 Regional Monitoring Program: Volume VIII. Submerged Aquatic Vegetation (SAV). Technical Report 1488. Southern California Coastal Water Research Project. Costa Mesa, CA.

Walker, J.B., E.D. Stein, A. Le Compte Santiago, K. Beheshti, X. Boone, J. Crooks, N. De Wet, K. Johnston, D. Lazarus, D. Robinette, R. Smith, C. Whitcraft. 2026. Southern California Bight 2023 Regional Monitoring Program: Volume IX. Estuary Wetland Assessment. Technical Report 1489. Southern California Coastal Water Research Project. Costa Mesa, CA.

Quarter in Review

Conference Presentations

Frieder, C.A., C. Deutsch. Quantifying the impact of ocean acidification on the aerobic habitat of marine organisms. The Ocean in a High-CO_2 World, 6th International Science Symposium. October 13-16, 2026. Wellington, New Zealand.

Guillemette, R. A Novel Method for Dissolved eDNA Recovery Reveals Drivers of Fraction-Specific eDNA Degradation. Global eDNA Conference. October 28-30, 2026. Seattle, WA.

Mazor, R.D. Using biodiversity to assess the health of California's Streams. California Biodiversity Day. September 9, 2026. Riverside, CA.

Mehinto, A.C. Region-wide Assessment of Sediment Quality in Southern California Embayments. California Stormwater Quality Association (CASQA) 2026 Annual Conference. October 26-28, Sacramento, CA.

Schiff, K. Rapid Assessment of Biofilters throughout Los Angeles County. California Stormwater Quality Association Annual

Meeting. October 26-28, 2026. Sacramento, CA.

Schiff, K. Using web cams for research and monitoring. California Ocean Observing System WebCOOS Annual Meeting. July 21, 2026. La Jolla, CA.

Smith, J. Restore America Estuaries. Beyond bloom detection: a holistic response framework for domoic acid events in southern California. Coastal & Estuarine Summit. September 22-25, 2026. San Francisco, CA.

Smith, J. Toxins, Closures, and Stranding Events: CalHABMAP's Sentinel Role in Coastal Public Health. California Ocean Observing Systems Summit. October 12-14, 2026. Santa Barbara, CA.

Smith, J., A. Lie, S. Lillywhite, R.M. Kudela, K. Negrey, M. Peacock, M. Sutula, A.C. Mehinto. Regional Multi-Toxin Bioaccumulation in Coastal Bivalves Across the Southern California Bight. 13th U.S. Symposium on Harmful Algae. October 25-29, 2026. Cedar Rapids, IA.

Smith, J. From bloom ecology to exposure: an ecological framework for HAB-associated illness. North American Congress of Clinical Toxicology. October 21-24, 2026. San Diego, CA.

Steele, J. Linking Indicators of Fecal Contamination to Human Health Risk in Southern California Stormwater. National Beach Summit. October 28-30, 2026. Traverse City, MI.

Steele, J. A Microbial Sequencing Approach to Identify Contamination from Sewers in an Urban Watershed. National Beach Summit. October 28-30, 2026. Traverse City, MI.

Stein, E.D., K. Taniguchi-Quan, S. Yarnell, T. Grantham, B. Lane, B. Stanford. California Environmental Flows Framework (CEFF): A Consistent and Coordinated Approach for Establishing Flow Criteria. Environmental Flows Conference. October 7-9, 2026. Kelowna, British Columbia, Canada.

Stein, E.D. Southern California Wetland Recovery Project Regional Monitoring Program: Monitoring to Support Regional Objectives and Restoration. Coastal & Estuarine Summit. September 22-25, 2026. San Francisco, CA.

Taniguchi-Quan, K., E.D. Stein. Applying the California Environmental Flows Framework to Inform Diverse Water Management Decisions. Environmental Flows Conference. October 7-9, 2026. Kelowna, British Columbia, Canada.

Theroux, S. Filling California DNA Reference Library Gaps: How hard can it be? Global eDNA Conference. October 28-30, 2026. Seattle, WA.

Tupitza, J. Mass appeal: linking target species biomass to eDNA detections. Global eDNA Conference. October 28-30, 2026. Seattle, WA.

Walker, J.B. California Estuary Monitoring Program: Evaluating Ecosystem Function in California Estuaries. Coastal & Estuarine Summit. September 22-25, 2026. San Francisco, CA.

Walker, J.B. The California Estuary Monitoring Dashboard: A Function-Based Tool for Assessing Estuarine Condition Statewide. 2026 Enhancing State and Tribal Programs (ESTP) National Workshop. September 1-3, 2026. Via webinar.

Xin, D., E. Fassman-Beck, E., D. Nguyen. BMP Hydrology Calculator: A web tool for analyzing rainfall, runoff, and infiltration in stormwater BMPs. California Stormwater Quality Association (CASQA) 2026 Annual Conference. October 26-28, 2026. Sacramento, CA.

Xin, D., E. Fassman-Beck, S. Dial-Sauers, D. Nguyen, J. Gray. Field monitoring of microplastics in urban runoff and biofilters: Treatment performance and design implications. Americal Chemical Society Fall 2026 National Meeting. August 23-27 2026. Chicago, IL.

Conference Posters

Lie, A.Y., S. Lillywhite, J. Smith. Domoic Acid and Microcystins Occurrence Across Freshwater-Coastal Connections in Southern California Coastal Waterbodies. 13th U.S. Symposium on Harmful Algae. October 25-29, 2026. Cedar Rapids, IA.

Xin, D., E. Fassman-Beck, J. Gray, J., Quantifying the Impact of Street Sweeping on Runoff Quality under Controlled Rainfall in Southern California. California Stormwater Quality Association (CASQA) 2026 Annual Conference. October 26-28, 2026. Sacramento, CA.

Other Presentations

Fassman-Beck, E. Data-Driven, Unbiased Metrics to Evaluate BMP Water Quality and Hydrologic Mitigation Performance. Minnesota Stormwater Seminar Series. September 10, 2026. Minneapolis, MN.

Fassman-Beck, E., A. Jong-Levinger. How much runoff can turf replacement BMPs save? Field studies to measure benefits. H2o for HOAs annual workshop. October 15, 2026. Rancho Santa Margarita, CA.

Frieder, C.A. Diving Deeper Into California's Coast and Ocean Report – Episode 1: Kelp. California Ocean Protection Council Below the Surface webinar series. September 14, 2026. Via webinar.

Mehinto, A.C. Southern California Bight '23 Shellfish Bioaccumulation. California Water Quality Monitoring Council Safe to Eat Workgroup. October 28, 2026. Via webinar.

Schiff, K. History of Stormwater Research at SCCWRP. Los Angeles Regional Water Quality Control Board Meeting. September 15, 2026. Via webinar.

Schiff, K. Results from the Bight '23 Regional Monitoring Program. California Stormwater Quality Association Monitoring and Science Committee. October 12, 2026. Via webinar.

Stein, E.D., J.S. Brown. Evaluation of Mitigation and Voluntary Restoration Project Resiliency: Approach and Sample Application. U.S. Environmental Protection Agency National Mitigation Workgroup. October 20, 2026. Via webinar.

Taniguchi-Quan, K., J. Wiener, B. Gibbons, J. Ayers, A. Le Compte-Santiago. Operationalizing functional flows to inform and evaluate Flood-MAR diversion approaches. California Environmental Flows Workgroup Meeting. August 11, 2026. Via webinar.

Taniguchi-Quan, K., E.D. Stein. California Environmental Flows Framework (CEFF): Applications and Opportunities for the San Diego Region. San Diego Regional Water

Quality Control Board Meeting. October 14, 2026. San Diego, CA.

Theroux, S. Decoding California's Intertidal Zone One Species at a Time. September 30, 2026. NOAA Omics Seminar Series. Via webinar.

Theroux, S. California Intertidal Biodiversity DNA Barcode Library Project. Western Association of Marine Labs (WAML) Fall Members Meeting. October 16, 2026. Corona del Mar, CA.

Thornton Hampton, L.M., K. Kelly, A.C. Mehinto. Building California's Microplastics Strategy: Milestones & Next Steps. Great Lakes Commission Ad Hoc Committee on Plastic Pollution Intensive Work Session. July 22, 2026. Via webinar.

Thornton Hampton, L.M. Building the Microplastic Monitoring Toolbox to Address Management Needs. Newport Bay Executive Committee. September 16, 2026. Irvine, CA.

Thornton Hampton, L.M., H. Baribeau, C. Wong, A.C. Mehinto. California's Path Towards Monitoring Microplastics in Drinking Water. Great Lakes Legislative Caucus Annual Meeting. September 28, 2026. Marquette, MI.

Walker, J.B. The California Estuary Monitoring Dashboard: A Function-Based Tool for Assessing Estuarine Condition Statewide. California Estuary Monitoring Workgroup. September 16, 2026. Via webinar.

Walker, J.B. Monitoring for management: A modular, ecosystem function-based assessment framework for estuarine condition. California Water Quality Monitoring Council Meeting. August 27, 2026. Sacramento, CA.

Xin, D. What happens inside a BMP? Unpacking stormwater treatment mechanisms for better engineering. SoCal Society of Environmental Toxicology and Chemistry (SETAC) Fall 2026 Meeting. September 24, 2026. Costa Mesa, CA

SCCWRP Personnel Notes

Commission



Joone Kim-Lopez, the recently appointed Director and General Manager for the City of Los Angeles Bureau of Sanitation, became a SCCWRP Commissioner in July, replacing Sarai Bhaga.

CTAG



Dr. **Skylar Gerace**, Environmental Scientist for the Los Angeles Regional Water Quality Control Board, was appointed a CTAG Alternate Representative in September, replacing Adam Taing, who served in the role for two years. Stefani Daryanto will continue to serve as the agency's lead CTAG Representative.

Scientific Leadership

Dr. **Ryan Guillemette** has been appointed to the program committee for the Society of Environmental Toxicology and Chemistry (SETAC) North America 48th Annual Meeting.

Dr. **Alle Lie** has been appointed chair of the California Water Quality Monitoring Council's California Cyanobacteria and Harmful Algal Bloom Network (CCHAB) mitigation subcommittee.

Dr. **Alvina Mehinto** has been appointed chair of the program committee for the Society of Environmental Toxicology and Chemistry (SETAC) North America 48th Annual Meeting.

Dr. **Joshua Steele** has been appointed a technical advisor for the California Ocean Protection Council and Ocean Science Trust Marine Heat Wave & El Niño Task Force.

Dr. **Kris Taniguchi-Quan** has been appointed a guest editor of the Freshwater Science section for the journal *Frontiers in Environmental Science*.

Dr. **Danhui Xin** has been appointed a guest editor of the Organic Geochemistry section for the journal *Frontiers in Geochemistry*.

New Faces



Dr. **Daniel McCoy**, who just completed a postdoctoral fellowship at the Carnegie Institution for Science in Pasadena, joined SCCWRP in October as a Scientist in the Biogeochemistry Department. He specializes in ocean biogeochemical modeling to investigate how nutrient inputs influence coastal ecosystems.

Promotions



Alondra Gonzalez, a part-time IT assistant who has worked at SCCWRP since 2024, was promoted in September to a full-time Business Analyst. She recently graduated with an M.S. in applied mathematics from California State University, Fullerton.

SCCWRP COMMISSIONER SPOTLIGHT

Engineer driven by meaningful community impacts

For more than 30 years, Jolene Guerrero has been dedicated to identifying what a project needs and bringing together the right people and resources to accomplish it – an approach she has used to help advance Los Angeles County Public Works' stormwater management efforts.



Jolene Guerrero

Guerrero spent her first 14 years at the County as a project manager, overseeing a wide range of water, transportation, and aviation projects. When a new municipal stormwater permit was issued in 2012, she shifted her focus to developing watershed planning documents for building stormwater projects .

This work also served as the foundation for the County's Safe, Clean Water Program for capturing and recycling stormwater.

"Being part of the first plans that laid out the program got me really engaged in stormwater management," said Guerrero, who is now LA County Public Works' Deputy Director of Water Resources. "I really enjoyed being part of a solution that is important to all of our residents."

Guerrero became a SCCWRP Commissioner in February 2026, replacing Adam Ariki after his retirement

In her role, Guerrero oversees five divisions responsible for water resource management, including planning, engineering, operations and maintenance for the L.A. County Flood Control District. She also manages the County's Waterworks Districts, which serve about 270,000 customers across Los Angeles County.



Jolene Guerrero attends a World Cup soccer game with her husband Francisco and daughter Marisa at SoFi Stadium in Inglewood.

Jolene Guerrero

Job: Deputy Director, Water Resources, Los Angeles County Department of Public Works (since January 2026)

SCCWRP role: Commissioner (started February 2026)

Prior jobs: *30 years with Los Angeles County*: Assistant Deputy Director, Water Resources (2020-2026); Civil Engineer (1997-2020); Engineer, Lindmark Engineering (1995-1997)

Education: B.S. civil engineering, Loyola Marymount University (1995)

Residence: Pico Rivera

Hometown: Omaha, Nebraska

Family: Husband Francisco, an engineer for Los Angeles County Sanitation Districts; daughter Marisa, a civil engineer

Hobbies: Reading; kickboxing; running; visiting Disneyland

"Whether it's protecting neighborhoods from flooding, delivering clean drinking water, or keeping our beaches clean, the work we do has meaning to our residents," Guerrero said. "That's what keeps me motivated."

Guerrero's commitment to protecting water resources began long before her career with the County. When she was in high school, Guerrero and her family moved from Omaha, Nebraska, to Lake Elsinore during an intense drought. Seeing its effects firsthand inspired her to pursue a career focused on protecting water resources and the environment.

Guerrero received a B.S. in civil engineering from Loyola Marymount University. After graduating, Guerrero worked for a small private engineering firm that specialized in environmental work. She then found an opportunity to join L.A. County Public Works as a civil engineer and has remained there since.

Since joining the SCCWRP Commission, she has enjoyed working alongside partners from across multiple sectors and learning about emerging science that SCCWRP is working on.

"Most of the work I do is administrative or dealing with strategic relations and legislation, so it's refreshing to be able to think technically once in a while," Guerrero said. "Knowing where the industry and science are going helps me be creative and innovative about the way we manage stormwater."

In her free time, Guerrero participates in a book club that she has been a part of for more than 15 years. As a Disney fan, Guerrero also enjoys going to Disneyland and hopes to some day visit every theme park around the world.

CTAG SPOTLIGHT

Manager balances human use, resource protection

Nicole Wilson has long been drawn to the intersection of natural resources and human activities.



Nicole Wilson

While attending graduate school in Scotland, Wilson became interested in using holistic approaches to understanding aquatic systems and the challenge of balancing human use with environmental protection.

That interest led her to a career in water quality policy and environmental management, where she focuses on protecting aquatic ecosystems while supporting the people who depend on them.

"We need to be able to mitigate human impact while sustainably supporting how we use these environmental resources," Wilson said. "I became interested in using management approaches that use science in a way that informs policy to answer these complex questions."

Wilson, who is the Coastal Resilence Program Manager at the California Ocean Protection Council (OPC), became the agency's Alternate CTAG Representative in July 2026.

In her role, Wilson works on sea level rise adaptation planning, coastal resilience, and sustainable blue economy effots as part of OPC's Climate Team. She also supports other strategic initiatives for stormwater, coastal and marine water quality, and plastic pollution.

Before joining OPC, Wilson spent four and a half years in environmental consulting, where she managed stormwater quality programs and supported municipalities with regulatory compliance and permit implementation.



Nicole Wilson photographs marine wildlife off the coast of Oban, Scotland.

Nicole Wilson

Job: Coastal Resilience Program Manager, California Ocean Protection Council (since July 2026)

SCCWRP roles: Alternate CTAG Representative (started July 2026)

Prior jobs: Project Scientist, Larry Walker Associates (2023-2026); Project Intern, Larry Walker Associates (2022)

Education: M.S. marine ecosystems management, University of St Andrews (2021); B.S. marine biology and biological oceanography, University of California, Santa Cruz (2019)

Residence: Berkeley

Hometown: La Crescenta

Hobbies: Spending time with family and friends; hiking; kayaking; traveling; wildlife photography; arts and crafts

"Stormwater is intrinsically tied to human activities, which makes it a really complex space to manage," Wilson said. "Being exposed to that work has really helped me round out my understanding of water quality management."

Wilson received her M.S. in marine ecosystems management from the University of St Andrews and B.S. in marine biology from UC Santa Cruz.

Growing up in Southern California, Wilson and her family spent a lot of time outdoors. Whether Wilson was hiking in the mountains or spending the day at the beach, that time in nature sparked her appreciation for the natural world and her desire to protect it.

"We have all of these beautiful natural resources in California, and it's easy to take that for granted," Wilson said. "Curiousity begets curiousity, so the more I got into it, the more I was drawn to wanting to preserve these spaces."

Wilson is excited be a part of CTAG and connect with others who share her passion for aquatic science and resource management. She looks forward to having opportunities to exchange knowledge and learn from both SCCWRP and other member agencies.

Wilson describes herself as a "hobby generalist" who enjoys trying new things. Most recently, she has been very interested in arts and crafts and has been enjoying painting and linocut printing. In her free time, Wilson also enjoys kayaking, traveling, and wildlife photography.

SCCWRP PARTNER SPOTLIGHT

Geologist advances tools to monitor coastal change

When Dr. Jonathan Warrick began his postdoc at the U.S. Geological Survey (USGS), his research focused on the upper reaches of watersheds, tracing how sediment and pollutants travel downstream to the ocean.



Dr. Jonathan Warrick

More than two decades later, his work has shifted toward the coast.

Warrick leads the USGS Remote Sensing Coastal Change project, where he and his team use aerial photography, photogrammetry, satellite imagery and other technologies to measure and monitor how the Pacific coastline changes over time.

"We're now using these techniques to track how beaches respond to the upcoming El Niño," Warrick said. "We're coming up with new types of metrics to be able to better understand what's going on."

Though his research focus has evolved, Warrick has long been drawn to the connection between the land and sea. Growing up in Costa Mesa, he often rode his bike along the Santa Ana River and followed it to the ocean.

He initially pursued an undergraduate degree in mathematics but soon realized the problems he wanted to solve weren't in a textbook. While watching the sunset over Morro Bay after a surf session, he knew he wanted study the interface between land and sea to find solutions to environmental problems.

Warrick received his Ph.D. in marine science from UC Santa Barbara, M.S. in civil and environmental engineering from the University of Wisconsin-Madison, and B.S. in soil science from Cal Poly San Luis Obispo.



Dr. Jonathan Warrick prepares to surf off San Onofre State Beach in San Diego County.

Jonathan Warrick, Ph.D.

Job: Research Geologist, Pacific Coastal and Marine Science Center, U.S. Geological Survey (since 2004)

SCCWRP role: Research partner on Bight regional monitoring and coastal shoreline change

Prior jobs: Postdoctoral Fellow, U.S. Geological Survey (2002-2004); Assistant Professor, Whittier College (2002-2003); Staff Engineer, Komex H20 Science Inc. (1997-1998); Staff Engineer, URS Greiner Woodward Clyde Consultants Inc. (1996-1997)

Education: Ph.D. marine science, University of California, Santa Barbara (2002); M.S. civil and environmental engineering, University of Wisconsin-Madison (1995); B.S. soil science, California Polytechnic State University, San Luis Obispo (1993)

Residence: Santa Cruz

Hometown: Costa Mesa

Family: Wife Sherie, project manager for an environmental consulting firm; children Jess, a musician, and Ella, a dancer

Hobbies: Surfing; hiking; enjoying art and music

"I really wanted to understand how what we do on land impacts the ocean and realized there was no one degree that could do that," Warrick said. "I can put on an oceanography, hydrology, or soil science hat on to understand the processes across those systems."

During his postdoc at the USGS, Warrick participated in the 1998 cycle of the Southern California Bight Regional Monitoring Program with SCCWRP to investigate how stormwater runoff plumes affect water quality in the ocean.

He has maintained a close relationship with SCCWRP ever since. Most recently, he and SCCWRP worked on the California Ocean Protection Council's 2026 California Coast and Ocean Report.

"The Bight Program really was a perfect project to collaborate with SCCWRP on that allowed me to see the wonderful work SCCWRP does," Warrick said. "It really got me hooked on working with SCCWRP."

In his free time, Warrick enjoys spending time outdoors, especially surfing and hiking. He is also an avid supporter of the arts and enjoys attending live concerts with his wife.

SCCWRP STAFF SPOTLIGHT

Ocean modeler focuses on tackling local issues

As someone who loves working with his hands, Dr. Daniel McCoy originally pictured himself as a field researcher.



Dr. Daniel McCoy

McCoy spent weeks at a time at sea collecting data as an oceanographer for the University of Hawai'i. But he soon realized that collecting observations was only one part of understanding the ocean. Learning to process and visualize those data through coding opened his eyes to new ways of exploring ocean patterns, eventually leading him toward data science and modeling.

"I always saw models as a powerful tool for us to be able to answer questions about the ocean that we may not have immediate answers to," McCoy said. "They give us a better understanding of what the ocean can look like and help us make predictions about how it might change in the future."

McCoy joined SCCWRP in October as a Scientist in the Biogeochemistry Department and splits his time between working at SCCWRP and UCLA. He is focused on using ROMS-BEC (Regional Ocean Modeling System-Biogeochemical Elemental Cycling) modeling tools to study how changing ocean chemistry affects California coastal waters.

McCoy received his Ph.D. and M.S. in atmospheric and oceanic sciences from UCLA, and his B.S. in global environmental science from the University of Hawai'i at Manoa. He recently completed his postdoctoral fellowship at the Carnegie Institution for Science, where he used modeling tools to study how microbial metabolisms shape the ocean's nitrogen and carbon cycles.

McCoy's path to oceanography began far from the coast. Growing up in Salt Lake City, he became fascinated with geology and rock formations, which sparked a broader interest in the natural world.



Dr. Daniel McCoy passes an iceberg during a research expedition to the West Antarctic Peninsula in 2017.

Daniel McCoy, Ph.D.

Job: Scientist, SCCWRP Biogeochemistry Department (started October 2026)

Prior jobs: Postdoctoral Fellow, Carnegie Institution for Science (2023-2026); Graduate Researcher, University of California, Los Angeles (2017-2023); Research Associate, University of Hawai'i at Manoa (2012-2017)

Education: Ph.D. atmospheric and oceanic sciences, University of California, Los Angeles (2023); M.S. atmospheric and oceanic sciences, University of California, Los Angeles (2020); B.S. global environmental science, University of Hawai'i at Manoa (2011)

Residence: Santa Monica

Hometown: Salt Lake City, Utah

Family: Wife Alexandra, a nurse for the U.S. Department of Veterans Affairs; dog Honey, a 9-year-old Border Collie

Hobbies: Surfing; skiing; camping; fishing; spending time outdoors; playing and watching soccer

While he always imagined becoming a geologist, a high school oceanography class changed his trajectory. He was fascinated by how complex the ocean was, and that curiosity followed him when he later moved to Hawai'i for college.

"Once I moved to Hawai'i, the ocean became this super exciting new thing for me," McCoy said. "When I learned that the ocean was stratified, I immediately saw parallels with the rock layers I was obsessed with in my childhood. After that, I was hooked."

When McCoy was considering potential grad schools, he connected with Dr. Daniele Bianchi at UCLA, who was impressed by McCoy's seagoing background and coding experience. McCoy went on to join Bianchi's lab, where he used observations and modeling tools to better understand the ocean's elemental cycles.

During his time at UCLA, he met Dr. Faycal Kessouri and Minna Ho, whose work at SCCWRP introduced him to a more applied approach to ocean modeling focused on solving local environmental problems.

"I'm excited to be able to solve problems in my own backyard and be an oceanographer for my community," McCoy said. "Being at SCCWRP lets me connect with other people who are trying to tackle issues we face here in Southern California."

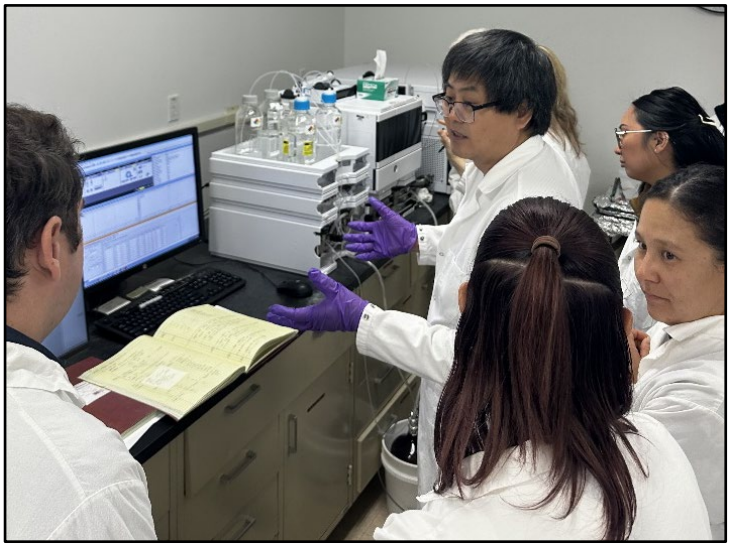
In his free time, McCoy enjoys spending time outdoors with his wife and their dog Honey. After moving to Hawai'i, McCoy learned how to surf and has now been surfing for almost 20 years. He is also an avid soccer fan and roots for Chelsea FC.

SCCWRP SCENES

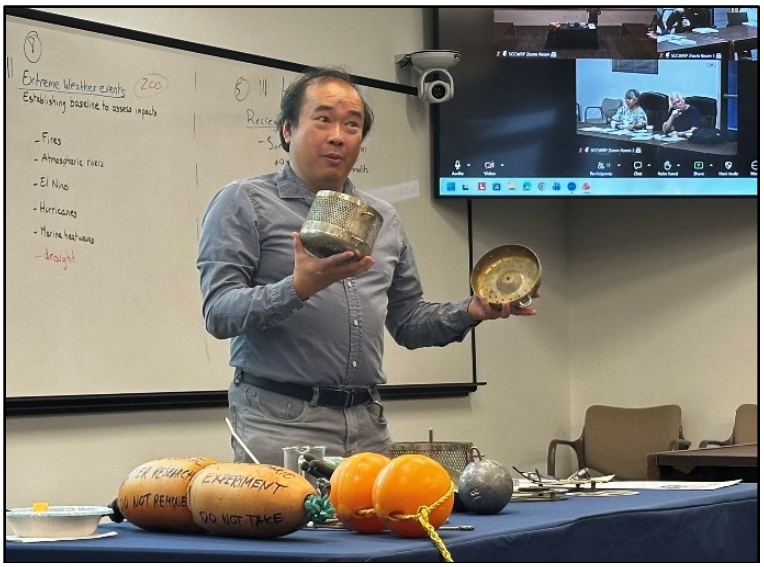
Educating assessors on a new laboratory method

Assessors who accredit environmental laboratories in California received training on a new statewide method for monitoring up to 140 pesticides simultaneously during a three-day workshop co-presented by SCCWRP in October. About 20 accreditors from California's Environmental Laboratory Accreditation Program (ELAP), along with third-party assessors, attended the workshop, which included presentations and live demonstrations in SCCWRP's laboratories on how to use the method to screen and analyze field-collected samples for pesticides.

The workshop is part of a series of SCCWRP-led trainings for ELAP assessors that began in 2023. Past trainings have focused on a suite of commonly used fish bioassay toxicity tests, methods for measuring PFAS in drinking water and environmental matrices, the *Ceriodaphnia dubia* toxicity test, and methods for measuring harmful algal bloom (HAB) toxins.







Clockwise from top right, SCCWRP's Sydney Dial-Sauers demonstrates how to prepare water samples for analysis using a new statewide method for monitoring up to 140 pesticides simultaneously; SCCWRP's Dr. Charles Wong showcases a Chemcatcher passive sampling device during a training workshop for the new method; and SCCWRP's Dr. Wayne Lao explains how to interpret high-performance liquid chromatography analysis data.