Southern California Coastal Water Research Project Authority

Quarterly Director's Report
To the SCCWRP Commission

August 2013

(Detailing activities May 3 – August 1, 2013)

Stephen B. Weisberg
Executive Director

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HIGHLIGHTS

News:

SCCWRP Releases 2013-14 Research Plan

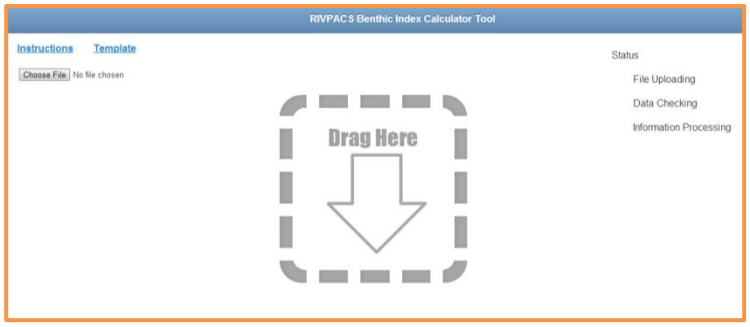
SCCWRP released its 2013-14 Research Plan in June. The new Research Plan encompasses 47 project areas, ranging from methodological and assessment tool development projects to regional monitoring of marine, estuarine, wetland, and stream environments. All but two projects have collaborators outside the agency, emphasizing SCCWRP's commitment to partnering and building scientific consensus. For more information about SCCWRP's Research Plan, please contact Ken Schiff.

SCCWRP external review planned for February 2014

Approximately every five years, the SCCWRP Commission holds a strategic planning meeting to review and guide the directions of the organization. In the past, information gathering to support these meetings has taken the form of external and internal surveys. This year, SCCWRP has identified a review panel of leaders at similar organizations who will meet February 5–7 to provide feedback for the Commission about performance of, and recommended directions for, the organization. The Panel will be chaired by Dr. Jerry Schubel of the Aquarium of the Pacific, and its members include Dr. Worth Nowlin of Texas A&M University, Dr. Fred Holland formerly of the National Oceanic and Atmospheric Administration's Hollings Marine Laboratory, Dr. Michael Barbour of Tetra Tech, Dr. Herb Windom of the Skidaway Institute of Oceanography and Gerry Thibeault formerly of the Santa Ana Regional Water Quality Control Board. For more information on the review, please contact SCCWRP Executive Director Steve Weisberg.

RIVPACS online calculation tool now available

SCCWRP has developed an online benthic index calculator tool based on the River Invertebrate Prediction and Classification System (RIVPACS) to support sediment quality assessment under California's Sediment Quality Objectives (SQO) program. The California SQO program uses chemical, toxicological, and benthic (bottom-dwelling) invertebrate community data to monitor sediment quality in bays and estuaries, where contaminants tend to accumulate. Before integrating these three "lines of evidence," practitioners must first summarize the benthic data into an index score using RIVPACS and three other regionally relevant indices. Indices convert complex information about the number and type of benthic invertebrate species found at a site into an easy-to-understand score of biological community health. The new online calculation tool was designed



to be more user friendly than other currently available RIVPACS calculation methods, with a simplified data entry method. For more information on the tool and its suggested usage, please contact Darrin Greenstein.

New SCCWRP fact sheet on ocean acidification

SCCWRP released its seventh in a series of fact sheets on topics of interest to coastal environment managers in Southern California. The most recent features general information about ocean acidification and describes what SCCWRP is doing to support monitoring and management efforts. All SCCWRP fact sheets are available electronically and printed copies can be requested by contacting Karen Setty. For more information on ocean acidification, please contact Dr. Karen McLaughlin.

SCCWRP Scenes:

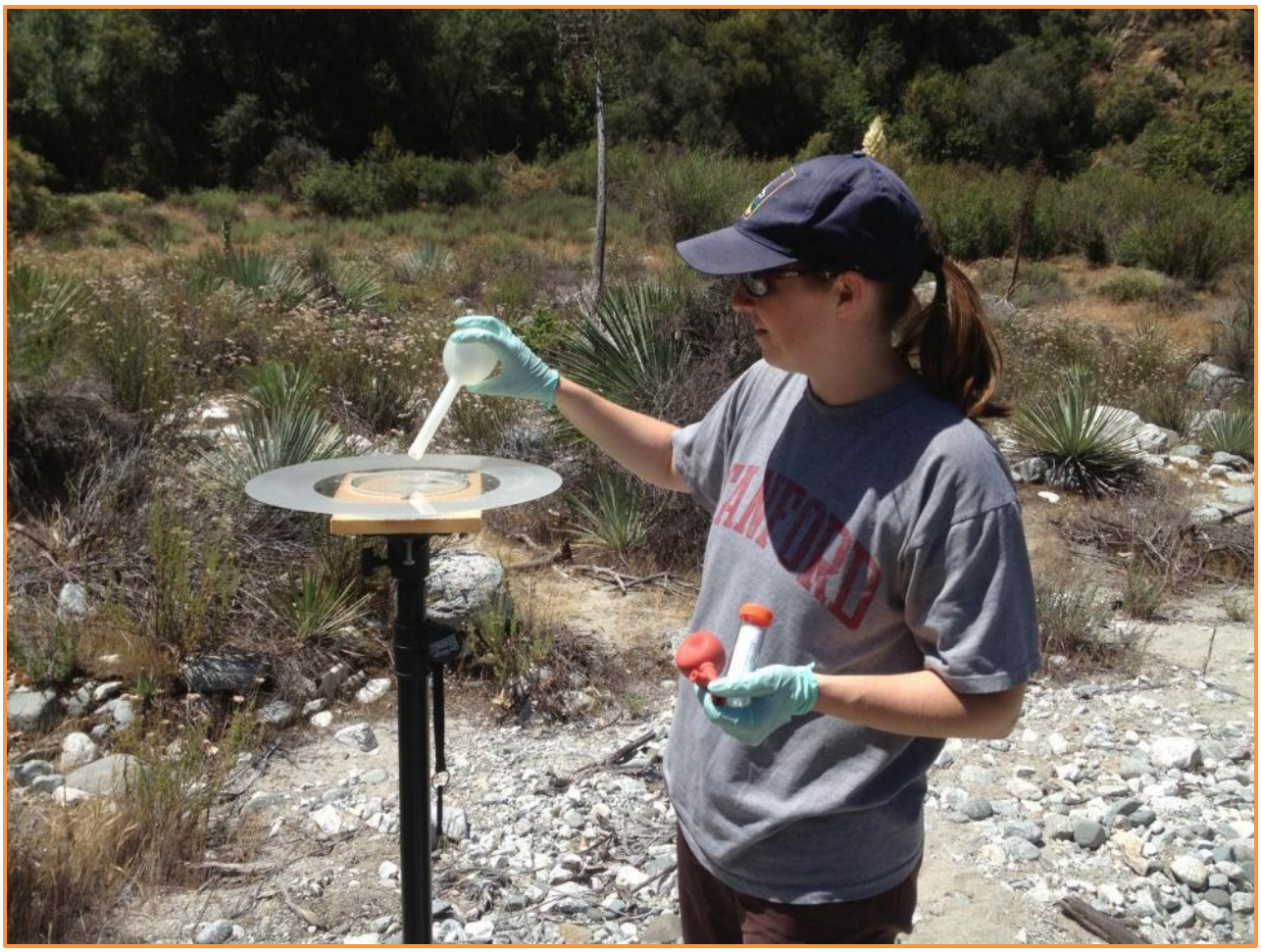


Photo credit: Liesl Tiefenthaler

SCCWRP scientist Dr. Karen McLaughlin collects a sample from an atmospheric deposition sampling device near Cattle Canyon Creek (in the East Fork of the San Gabriel River). She will use the data to characterize atmospheric nutrient deposition.

PEOPLE

Honors and Awards:

- Drs. Karen McLaughlin and Meredith Howard were promoted to the position of Senior Scientist in the Biogeochemistry Department.

McLaughlin

Howard

Personnel:

- Abel Santana was hired June 1 as a research technician in the Information Management & Analysis Department. Abel received his Bachelor's degree from California State University, Long Beach, where he is currently pursuing a Master's Degree.

Santana

- Michael Hang, a research technician in the Information Management & Analysis Department, left SCCWRP at the end of July to pursue his Master's degree at California State University, Monterey Bay.

Commission:

- Roger Bailey is the new Commissioner for the City of San Diego Public Utilities Department.
- Gary Hildebrand is the new Alternate Commissioner for the Los Angeles County Flood Control District.
- John Kemmerer is the new Environmental Protection Agency Commissioner.

Bailey

Hildebrand

Kemmerer

Commission's Technical Advisory Group:

- Nothing to report

Spotlight on Staff:

Dr. David Gillett — Ecologist

Dr. David Gillett is a scientist in SCCWRP's Biology Department, researching anthropogenic disturbances on fauna with a specialty in food web dynamics in estuarine and freshwater systems. David joined SCCWRP in 2010. His primary focus is assessing anthropogenic impacts on biological resources in marine, estuarine, and freshwater environments, developing new bioassessment tools, and applying bioassessment tools in new environments.

Gillett grew up in Pittsburgh, Pennsylvania with a younger sister, younger brother, and large extended family, most of whom still live in and around the city. His interest in marine biology started at a young age (even living in a land-locked city) from watching Jacques Cousteau's show on PBS and reading all the books he could find on the topic at the local library. He studied marine science as an undergraduate at Eckerd College in St. Petersburg, Florida, and then pursued a Master's degree in marine biology at the University of Charleston in South Carolina. He earned a PhD in Marine Science at the College of William & Mary's Virginia Institute of Marine Science.

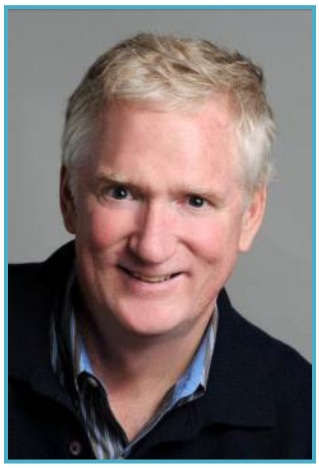
David looks at tackling ecosystem questions like puzzles and enjoys the field because it allows him to satisfy his natural curiosity. He has found working with SCCWRP fulfilling owing to the direct input SCCWRP scientists are able to provide to ecosystem managers as well as the potential for his research to influence policy, not only in California but also across the country. David is co-chairing the Bight '13 Contaminant Impact Assessment benthic infauna committee. He is also developing bioassessment tools for rocky reef/kelp forest ecosystems and estuarine environments and helping to build out the State Water Board's capabilities for causal assessment (interpretation of the cause behind poor bioassessment results) in streams and other habitats. Finally, he assists with SCCWRP's development of molecular techniques, such as DNA barcoding, for bioassessment.

Gillett currently lives near downtown Huntington Beach. He still calls Charleston one of his favorite places and loves Pittsburgh (if only it was on the ocean, sigh). He enjoys cooking, eating, listening to live music, and digging through used record stores, as well as outdoor activities such as disc golf, Ultimate Frisbee, camping, and hiking. Once he gets used to the cold water in California, he would like to get back into SCUBA diving.

For more information on Dr. Gillett and his research, please visit: http://www.sccwrp.org/AboutSCCWRP/SCCWRPStaff/GillettDavid.aspx.

Spotlight on Partners:

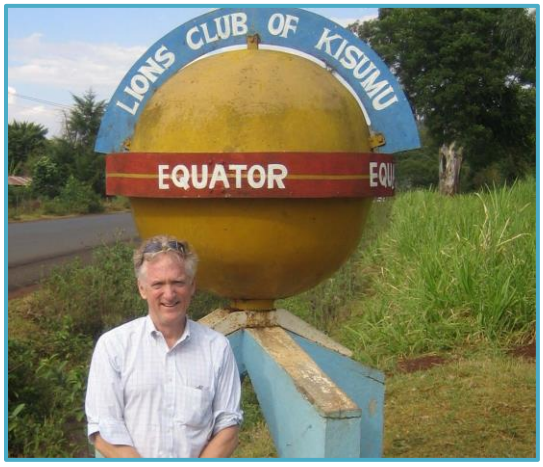
Dr. Jack Colford – University of California, Berkeley



Dr. Jack Colford is a professor in the School of Public Health at the University of California, Berkeley. His research interests include waterborne diseases, intervention trial design, and meta-analysis.

Born in Spokane, Washington, Jack grew up in an Air Force family traveling from place to place. He lived in North Dakota, South Dakota, Germany, and New Mexico. He originally set out to be a medical doctor, studying chemistry as an undergraduate at Santa Clara University and then attending medical school at Johns Hopkins. During his residency at the University of California, San Francisco and chief residency at Stanford University, he began a transition into the role of a scientist while studying infectious diseases and epidemiology in HIV/AIDS patients affected by *Cryptosporidium* (a waterborne pathogen) in the early 1990s. In 1993, the largest documented waterborne disease outbreak in US history occurred in Milwaukee, when *Cryptosporidium* in the public water supply sickened more than 400,000 people. Afterward, Colford received many invitations to speak at water quality meetings, and began shifting his career focus to domestic and international water and sanitation issues. After returning to school for a Master of Public Health and doctorate in epidemiology at the University of California, Berkeley, he became a professor there.

Colford is thrilled to have the opportunity to work with "a terrific spectrum of scientists and student across many disciplines." Among his collaborators, he has been working with Ken Schiff and John Griffith on SCCWRP's beach epidemiology studies for about 11 years in what he calls a "positive, long-term relationship." The UC Berkeley team traditionally implements the onsite and follow-up health surveys to detect symptoms associated with beach water exposure. He finds the science produced by SCCWRP very relevant to public health and appreciates the organization's focus on getting the right answer, rather than the easy answer. Jack is also leading a large, randomized trial on water, sanitation, and nutrition sponsored by the Gates Foundation to help reduce childhood mortality in Bangladesh and Kenya.



He currently lives in Palo Alto, where his four children attended a French language immersion school. One is still enrolled there, and the other three are gradually growing into adulthood as an actor in New York, a Stanford student studying political violence in Mali, and a political science student at Harvard. He takes the train to Berkeley on a regular basis and travels often for work. In his spare time, he enjoys relaxing by doing yoga and reading.

For more information on Dr. Colford and his research, visit: http://cega.berkeley.edu/faculty/jack-colford.

Spotlight on Commissioners:

Vicky Whitney – State Water Resources Control Board

Vicky Whitney is the Deputy Director for the State Water Resources Control Board's Division of Water Quality. She oversees both the groundwater and surface water branches, spanning Total Maximum Daily Loads, ocean and surface water quality standards, discharge permits, nonpoint sources, underground storage tanks and site cleanup, groundwater protection, and fiscal and administrative activities.

Vicky was born in San Francisco, where her mom's side of the family has a long history. She grew up in Millbrae (near the San Francisco airport) and got interested in water issues at age 14, writing to her Congressman to oppose construction of the New Melones Dam. Her high school chemistry teacher suggested she major in engineering, which she did as an undergraduate at the University of California, Davis. With a family history of public service and an interest in water issues, engineering, and California history, Vicky naturally found a career within the State's Water Boards. Right after graduation, she moved to Palm Desert to work at the Colorado River Basin Regional Water Board (Regional Board 7). There she met her husband, an Environmental Engineer, and they moved north to Sacramento two years later. Vicky worked with the Division of Water Rights on in-stream flow issues including those in the Delta for many years, and was the State Water Board's Deputy Director for Water Rights for seven years. When the State Water Board's four Division Chiefs rotated in the fall of 2010, she landed in the Water Quality Division and became a SCCWRP Commissioner.

Vicky stays interested because after 30 years working for the Water Board, she still learns something new every day. Current areas of joint effort with SCCWRP include beach monitoring, desalination, sediment quality monitoring, cyanobacteria, contaminants of emerging concern, wetland and riparian area monitoring, and hydromodification. One of her frustrations working in the Division of Water Rights was the lack of scientific information available to support policy decisions by the Board and by the courts. She says, "SCCWRP fills an important void by developing and presenting 'on the cusp' scientific research in a way that can be used by decision makers."

Vicky loves to travel (she is collecting continents, and has South America and Antarctica left) and has had many memorable nature experiences. This summer she is hosting a variety of travelers at her house from Couchsurfing.org. She enjoys crafting, baking, camping, kayaking, reading, and attending film, theatrical, and musical productions, and is working on improving her photography and ballroom dancing skills. Her daughter, Katheryn, is working for the State Water Board's Office of Research, Performance, and Planning. Her son, Steven, is a senior at CSU Long Beach.

Spotlight on CTAG:

Wanda Cross – Santa Ana Regional Water Quality Control Board

Wanda Cross supervises the Coastal Water Planning Section at the Santa Ana Regional Water Quality Control Board. The section's primary responsibility is developing and implementing total maximum daily loads (TMDLs) in Orange County. They also review, design, and conduct assessments and monitoring programs that study surface and ground waters for possible impairment. Wanda has represented her agency on CTAG since 2001.

Wanda was born in San Francisco, the middle of seven children. As a young adult, she became intensely interested in environmental stewardship when she started hiking and backpacking through California parks and mountains. Receiving a bachelor's degree in environmental studies at San Francisco State University, Wanda began her career in 1986 at the US Environmental Protection Agency, Region 9, where she coordinated with the San Diego and Los Angeles Regional Water Quality Control Boards (Regional Boards) staff on water quality standards development and review. She then transferred to the San Diego Regional Board, providing oversight on development, adoption, and revision of basin planning projects. After a move to the Santa Ana Regional Board in 1992, she managed the Nonpoint Source and Watershed Management Initiative programs. She has also worked in basin planning, CEQA, 401 water quality certification, permit compliance, and enforcement programs.

Wanda finds her work rewarding because the Water Boards must balance making the regulations and standards technically correct but at the same time reasonably feasible to achieve and making the process transparent to the public. Wanda's current focus is the Newport Bay watershed. She is working with SCCWRP's Ken Schiff and other stakeholders on a review of all ongoing monitoring efforts within the watershed area to help improve effectiveness, cost-efficiency, and data synthesis. She is also staying involved in the Bight '13 Contaminant Impact Assessment. Wanda enjoys working with SCCWRP particularly because of the professionalism expressed by the researchers and other staff, the camaraderie among CTAG representatives, and the potential to acquire greater understanding of technical and scientific issues. She supports the integrative scientific processes SCCWRP utilizes to attain a detailed understanding of coastal water quality issues, which lead to addressing many scientific, regulatory, and management concerns.

Wanda lives in Moreno Valley near Riverside with her husband of seven years. In her spare time, she enjoys volunteering, walking, reading, gourmet cooking, studying nutrition, and maintaining a strong spiritual base. Her three grown children, like her brothers and sisters, have scattered to the four corners of the US: she has family members in Seattle, New York, Virginia, Georgia, Houston, and a few still in California.

COMMUNICATIONS

Journal Articles — Published:

- Genomic and phenotypic response of hornyhead turbot exposed to municipal wastewater effluents. 2013. DE Vidal-Dorsch, SM Bay, C Ribecco, LJ Sprague, M Angert, C Ludka, E Ricciardelli, O Carnevali, DJ Greenstein, D Schlenk, KM Kelley, JA Reyes, S Snyder, B Vanderford, LC Wiborg, D Petschauer, R Sasik, M Baker, G Hardiman. *Aquatic Toxicology* 140-141:174-184.

- Evaluation of design-based sampling options for monitoring stream and wetland extent and distribution in California. 2013. LG Lackey, ED Stein. *Wetlands* 33:717-725.

- Bacteroidales terminal restriction fragment length polymorphism (TRFLP) for fecal source differentiation in comparison to and in combination with universal bacteria TRFLP. 2013. Y Cao, LC Van De Werfhorst, EA Scott, MR Raith, PA Holden, JF Griffith. *Water Research*.

Journal Articles — Published Online:

- Evaluation of molecular community analysis methods for discerning fecal sources and human waste. 2013. Y Cao, LC Van De Werfhorst, EA Dubinsky, BD Badgley, MJ Sadowsky, GL Andersen, JF Griffith, PA Holden. *Water Research* doi:dx.doi.org/10.1016/j.watres.2013.02.061.

- Refocusing Mussel Watch on contaminants of emerging concern (CECs): The California pilot study (2009–10). 2013. KA Maruya, NG Dodder, RA Schaffner, SB Weisberg, D Gregorio, S Klosterhaus, DA Alvarez, ET Furlong, KL Kimbrough. *Marine Pollution Bulletin* doi: dx.doi.org/10.1016/j.marpolbul.2013.04.027.

- Occurrence of contaminants of emerging concern in mussels (*Mytilus* spp.) along the California coast and the influence of land use, storm water discharge, and treated wastewater effluent. N Dodder, K Maruya, P Ferguson, R Grace, S Klosterhaus, M La Guardia, G Lauenstein, J Ramirez. *Marine Pollution Bulletin* doi: 10.1016/j.marpolbul.2013.06.041.

- Occurrence of contaminants of emerging concern along the California coast (2009–10) using passive sampling devices. D Alvarez, K Maruya, N Dodder, W Lao, E Furlong, K Smalling. *Marine Pollution Bulletin* doi:dx.doi.org/10.1016/j.marpolbul.2013.04.022.

- The Mussel Watch California pilot study on contaminants of emerging concern (CECs): Synthesis and next steps. K Maruya, N Dodder, S Weisberg, D Gregorio, J Bishop, S Klosterhaus, D Alvarez, E Furlong, S Bricker, K Kimbrough, G Lauenstein. *Marine Pollution Bulletin* doi: 10.1016/j.marpolbul.2013.04.023.

- Seasonal and annual dynamics of harmful algae and algal toxins revealed through weekly monitoring at two coastal ocean sites off southern California, USA. 2013. EL Seubert, AG

Gellene, MDA Howard, P Connell, M Ragan, BH Jones, J Runyan, DA Caron. *Environmental Science and Pollution Research* doi:10.1007/s11356-012-1420-0.

- Genomics in marine monitoring: New opportunities for assessing marine health status. 2013. SJ Bourlat, A Borja, J Gilbert, MI Taylor, N Davies, SB Weisberg, JF Griffith, T Lettieri, D Field, J Benzie, FO Glöckner, N Rodríguez-Ezpeleta, DP Faith, TP Bean, M Obst. *Marine Pollution Bulletin* doi: dx.doi.org/10.1016/j.marpolbul.2013.05.042.

- Comparison of Enterococcus species diversity in marine water and wastewater using Enterolert and EPA method 1600. 2013. DM Ferguson, JF Griffith, CD McGee, SB Weisberg, C Hagedorn. *Journal of Environmental and Public Health* doi:10.1155/2013/848049.

- Evaluation of design-based sampling options for monitoring stream and wetland extent and distribution in California. 2013. LG Lackey, ED Stein. *Wetlands* doi:10.1007/s13157-013-0429-6.

- Identifying reference conditions and quantifying biological variability within benthic macroinvertebrate communities in perennial and non-perennial Northern California streams. KB Lunde, MR Cover, RD Mazor, CA Sommers, VH Resh. *Environmental Management* doi: 10.1007/s00267-013-0057-1.

- Comparison of PCR and quantitative real-time PCR methods for the characterization of ruminant and cattle fecal pollution sources. 2013. MR Raith, CA Kelty, JF Griffith, A Schriewer, S Wuertz, S Mieszkin, M Gourmelon, GH Reischer, AH Farnleitner, JS Ervin, PA Holden, DL Ebentier, JA Jay, D Wangh, AB Boehm, T Gim Aw, JB Rose, E Balleste, WG Meijer, M Sivaganesan, OC Shanks. *Water Research* doi: dx.doi.org/10.1016/j.watres.2013.03.061.

Journal Articles — Accepted:

- Pre- and post-fire pollutant loads in an urban fringe watershed in Southern California. MP Burke, TS Hogue, A Kinoshita, J Barco, C Wessel, ED Stein. *Environmental Monitoring and Assessment*.

- Development and comparison of stream indices of biotic integrity using diatoms vs. non-diatom algae vs. a combination. AE Fetscher, R Stancheva, JP Kociolek, RG Sheath, ED Stein, RD Mazor, PR Ode, LB Busse. *Journal of Applied Phycology*.

- Nitrogen-fixing cyanobacteria (free-living and diatom endosymbionts): their use in Southern California stream bioassessment. R Stancheva, RG Sheath, BA Read, KD McArthur, C Schroepfer, JP Kociolek, AE Fetscher. *Hydrobiologia*.

- Impact of widely used assumptions on swimmer illness risk associated with marine water exposure and water quality indicators. B Arnold, K Schiff, J Griffith, J Gruber, V Yau, C Wright, T Wade, S Burns, J Hayes, C McGee, M Gold, Y Cao, S Weisberg, J Colford, Jr. *Epidemiology.*

- Towards establishing a human fecal contamination index in microbial source tracking. Y Cao, C Hagedorn, OC Shanks, D Wang, J Ervin, JF Griffith, BA Layton, CD McGee, TE Riedel and SB Weisberg. *International Journal of Chemical and Environmental Engineering Systems*.

Technical Reports:

- Development of Puget Sound benthic indicators: Report to the Washington State Department of Ecology. 2013. JA Ranasinghe, ED Stein, MR Frazier, DJ Gillett. Technical Report 755. Southern California Coastal Water Research Project. Costa Mesa, CA.

Conference Presentations:

Society of Freshwater Science — May 2013

- Using regional data to improve causal assessments of local biological impairments — DJ Gillett, K Schiff, A Rehn

Southern California Academy of Sciences — May 2013

- What is SCAITE? — JK Passarelli, B Power, D Diehl

American Society for Microbiology — May 2013

- Evaluation of alternative Enterococcus qPCR methods for recreational water monitoring — Y Cao, MR Raith, JF Griffith
- Wrack, Regrowth, Neither, or Both? A microbial source tracking case study at Mission Bay, CA — B Layton, Y Cao, MR Raith, JF Griffith
- Impact on beach management decisions using a single qPCR measurement vs. average of qPCR replicates — MR Raith, Kristine C de Leon, C Pham, Y Cao, JF Griffith
- Predominant *Enterococcus* species found among eelgrass and sea wrack at beaches in San Diego, California — D Ferguson, J Griffith, C Hagedorn, K De Leon, J Santy

Headwaters to Oceans (H2O) Conference — May 2013

- (Plenary) Designing resilient coastal landscapes: learning from the past, envisioning the future — R Grossinger, E Stein

Society of Wetland Scientists Conference — June 2013

- Design of a state-level probabilistic wetland and stream status and trends program — LG Lackey, ED Stein

Evolution and iEvoBio — June 2013

- Comparing four species delimitation methods applied to a DNA barcode data set of insect larvae for use in routine bioassessment — BP White, EM Pilgrim, LM Boykin, ED Stein, RD Mazor

Other Presentations:

- Karen McLaughlin gave a seminar entitled "Untangling the effects of anthropogenic versus natural nutrient sources in the Southern California Bight" on May 3 at the University of California, Irvine.

- Ken Schiff was an invited speaker for the Marine Biology Student Association on May 6 at California State University, Long Beach.

- Eric Stein co-organized a one-day training course through the Water Board Training Academy "College of Stormwater" on stream monitoring and assessment and presented a session on "Hydromodification monitoring: concepts and design recommendations" on May 9 in Sacramento, CA.

- Eric Stein co-organized a one-day training course through the Water Board Training Academy "College of Stormwater" on modeling for hydromodification assessment on July 17 at SCCWRP.

- Ashmita Sengupta gave a presentation entitled "A machine learning approach to modeling hydromodification" at the hydromodification training course on July 17 at SCCWRP.

- Martha Sutula gave a seminar entitled "Biogeochemical cycling and management of eutrophication in California's bar-built estuaries" on May 10 at the University of California, Irvine.

- Eric Stein gave an invited seminar entitled "Development and application of tools for assessing and managing the effects of hydromodification on stream channel structure in California" on May 13 at the University of California, Irvine.

- Eric Stein gave a presentation entitled "Impacts of wildland fire on water quality" at the 2013 fire summit "Water Resources and Watershed Protection Before and After a Fire" sponsored by the Southern California Regional Area Safety Taskforce (SCRAST) on May 15 in Diamond Bar, CA.

- Eric Stein was invited on behalf of the City and County of Los Angeles, the Consulate General of the Netherlands, and the Los Angeles Mayor's office to participate in a workshop and symposium entitled "Room for the River: Los Angeles" on May 16–17 in Los Angeles, CA.

- Eric Stein gave a presentation entitled "Assessments for stormwater monitoring and management" at the Bay Area Watershed Network watershed assessment workshop on May 20 in Oakland, CA.

- Steve Weisberg gave a lecture entitled "The Clean Water Act after 40 years: Has it been successful?" on May 21 at the University of California, Los Angeles.

- Steve Bay gave a presentation entitled “Impacts of contaminants on water and sediment quality in Southern California coastal waters” at the Newport Bay Conservancy spring workshop on contaminants and water pollution on May 22 in Newport Beach, CA.

- Martha Sutula gave a presentation entitled “Identifying thresholds of adverse effects of macroalgae on benthic invertebrates in estuarine tidal flats” at the Newport Bay Conservancy spring workshop on contaminants and water pollution on May 22 in Newport Beach, CA.

- Ken Schiff gave a presentation entitled “Regional monitoring for Areas of Special Biological Significance” for the California Water Quality Monitoring Council on May 29 in Costa Mesa, CA.

- Steve Steinberg gave a presentation on the California Environmental Data Exchange Network (CEDEN) to the California Water Quality Monitoring Council at their meeting held at SCCWRP on May 29.

- Steve Steinberg gave a presentation on CEDEN to the Surface Water Ambient Monitoring Program Roundtable on June 11 in Oakland, CA.

- Raphael Mazor gave a presentation on the physical habitat assessment work plan to the Surface Water Ambient Monitoring Program Roundtable on June 12 in Oakland, CA.

- Betty Fetscher presented the algal biomass and IBI score results from recent California probability surveys to the Surface Water Ambient Monitoring Program Roundtable on June 12 in Oakland, CA.

- Karen McLaughlin gave a presentation entitled “Tracking the fate of effluent nitrogen and nutrient cycling” at the Orange County Sanitation Department Diversion Workshop on June 13 at SCCWRP.

- Karen McLaughlin gave a seminar entitled “Extent and magnitude of eutrophication in Southern California Bight estuaries: Results of the Bight ‘08 Regional Survey” for the California Water Quality Monitoring Collaboration Network webinar on June 20.

- Ken Schiff gave a lecture on “Stormwater runoff and the urban stream syndrome” on June 27 at the University of California, Irvine.

- Marlene Hanken conducted a CEDEN training for State Water Resources Control Board staff on July 9 at SCCWRP.

- Eric Stein taught modules on ecosystem assessment and wetland restoration performance evaluation at the interagency national training course for mitigation banking and in-lieu fee programs offered to the US Army Corps of Engineers, US Environmental Protection Agency, and US Fish and Wildlife Service on July 9–10 at the National Training Center in Shepherdstown, WV.

- Ken Schiff gave a presentation on the synergy between the SCCWRP Research Plan and State Water Resources Control Board to the State Board's Division of Water Quality on July 11 in Sacramento, CA.

- Ken Schiff gave an invited webinar entitled "Biological objectives development in California" to Tri-TAC, a Technical Advisory Committee on State and Federal Issues affecting Publicly Owned Treatment Works, on July 15.

Professional Appointments:

- Steve Steinberg was appointed to the US Environmental Protection Agency's Exchange Network Communications Integrated Project Team.

- Steve Steinberg was selected as a Technical Program Co-chair for the 20th Annual California GIS (CalGIS) conference to be held in April 2014.

- Eric Stein was appointed to the PhD Committee for Ann Venables at Victoria University, Melbourne, Australia.

- Meredith Howard was appointed to the California Cyanobacteria Harmful Algal Bloom (CCHABs) Steering Committee.

Meetings & Workshops Held at SCCWRP:

Date	Meeting	SCCWRP Contact/ Sponsoring Agency
May 6	Rapid Plant Identification Course	Solek
May 7	Southern California Stormwater Monitoring Coalition: Executive Committee	Schiff
May 8	California Stream Condition Index Training	Mazor
May 10	Seminar: Dr. Kristen Davis — "PNWTOX - A biophysical model of Harmful Algal Blooms in the Pacific Northwest"	Weisberg
May 13	Bight '13 Nutrient Impact: Mooring Monitoring	Howard
May 14-16	Environmental Protection Agency Workshop on Benthic Infaunal indicators	US EPA Office of Research and Development
May 14	Bight '13 Contaminant Impact Assessment: Field Committee	Diehl

Date	Meeting	SCCWRP Contact/ Sponsoring Agency
May 15	Beach Water Quality Work Group	Weisberg
May 16	Bight '13 Information Management: Field Computer	Cooper
May 17	Bight '13 Contaminant Impact Assessment: Benthic Committee	Gillett
May 20	Bight '13 Contaminant Impact Assessment: Trawl Committee	Schiff
May 21	Historical Ecology: Beneficial Use Mapping	Stein
May 22	Bight '13 Contaminant Impact Assessment: Toxicology Committee	Bay
May 23	Phase II Small MS4 General Permit: Public Scoping Meeting	State Water Resources Control Board
May 28	Bight '13 Contaminant Impact Assessment	Schiff
May 29	California Water Quality Monitoring Council	Weisberg
May 31	Seminar: Dr. Marc Verhougstraete — "Microbial responses to land, environment, and hydrologic factors"	Griffith
June 3	Bight '13 Nutrient Impact	Howard
June 3	Southern California Association of Ichthyological Taxonomists and Ecologists	Diehl
June 4-5	University of California, Davis Extension Training Academy: Bioassessment College	Mazor
June 5	Southern California Society of Environmental Toxicology and Chemistry: Toxicity Advisory Group	Greenstein
June 11	CTD (Conductivity, Temperature, and Depth) Compliance Assessment Workgroup	Weisberg
June 12	Desalination Amendment Meeting	State Water Resources Control Board
June 14	Seminar: Dr. Rosalee Hellberg — "Climate change effects on seafood safety"	Weisberg

Date	Meeting	SCCWRP Contact/ Sponsoring Agency
June 17	Bight '13 Contaminant Impact Assessment: Chemistry and Information Management	Dodder
June 18	Causal Analysis/Diagnosis Decision Information System (CADDIS) Data Comparison with Los Angeles County Sanitation Districts	Gillett
June 19	Bight '13 Contaminant Impact Assessment: Field Committee	Diehl
June 24	Bight '13 Contaminant Impact Assessment	Schiff
June 26	Bight '13 Contaminant Impact Assessment: Toxicology Committee	Bay
July 2	Bight '13 Executive Advisory Committee	Schiff
July 3	Bight '13 Microbiology	Griffith
July 9	California Environmental Date Exchange Network	Merchain
July 15	Technical Advisory Committee on State and Federal Regulatory Issues Affecting Publicly-Owned Treatment Works (Tri-TAC): Bio-objectives Meeting	Schiff
July 16	Central Coast and San Diego Regional Water Quality Control Boards Kelp Survey Consortium	Schiff
July 16	Bight '13 Marine Protected Areas/Rocky Reef	Schiff
July 17	Water Board Training Academy: Hydromodification Training	Stein
July 23	Wet Weather Beach Epidemiology Team	Schiff

Upcoming Commission/CTAG Meetings:

- SCCWRP will host the next CTAG meeting on Thursday, August 8 from 9:00 to 4:00.
- SCCWRP will host the next Commission meeting on Friday, September 6 from 9:30 to 12:00.

PROJECTS

Note: The following progress updates describe accomplishments for each of SCCWRP's projects in the last quarter. Find more details about each project in SCCWRP's 2013–2014 Research Plan.

Projects with significant activity this quarter:

Traditional Toxicity Identification (TIE) Evaluation Methods

Southern California Bight Regional Monitoring Program

Wetland Status and Trends

New Projects:

Emerging Contaminant Prioritization

Nutrient Objectives in Lakes

Flow Criteria

Stressor Response Modeling

Mobile Data Acquisition Technologies

A. ENVIRONMENTAL ASSESSMENT METHOD/TOOL DEVELOPMENT

1. Chemistry Assessment

a. Analytical Methods for Toxaphene

Purpose: Develop analytical methods for quantifying toxaphene residues in environmental sample extracts

Update: SCCWRP staff continues analysis of laboratory intercalibration samples with fish tissue and spiked marine sediments.

Lead Investigator: Maruya

b. Non-targeted Analysis

Purpose: Develop analytical methods for identifying unknown contaminants of emerging concern (CECs) in tissue, sediment, and water samples

Update: SCCWRP staff and collaborators created a standard data processing method, then used this method to identify and verify approximately of 300 different contaminants from cetacean blubber samples. Over the next quarter, staff will export final versions of the mass spectra, compile them into a library, and then compare contaminant profiles among samples.

Lead Investigator: Dodder

c. Passive Samplers

Purpose: Evaluate whether passive samplers can be used in coastal sediments to monitor water quality and predict bioaccumulation and sediment toxicity

Update: SCCWRP staff and collaborators completed submission of a six-article series in the Journal *Marine Pollution Bulletin*. The articles spawned from the Society of Environmental Toxicology and Chemistry technical workshop on passive sampling methods for contaminated sediment management held November 2012 hosted at SCCWRP. Staff also deployed passive samplers to determine uptake and desorption kinetics of pre-loaded performance reference compounds. Next, staff members will retrieve and analyze field-deployed samplers, and then prepare for a series of fall/winter field sampling campaigns.

Lead Investigator: Maruya

New

d. Emerging Contaminant Prioritization

Purpose: Enhance availability of emerging contaminant occurrence data to enable continued prioritization within the state

Update: SCCWRP staff and collaborators developed a preliminary study design for investigating CEC occurrence and fate in Los Angeles area rivers. Also, SCCWRP helped assemble technical and stakeholder advisory committees to consult on the development and statewide implementation of CEC monitoring in receiving waters. Next, SCCWRP will collect water and sediment samples from Los Angeles area rivers, as well as host the kickoff meeting for the statewide CEC monitoring planning process.

Lead Investigator: Maruya

e. Bioanalytical Screening Tools

Purpose: Evaluate and optimize bioanalytical methods for monitoring CECs in recycled water and ambient waters that receive treated wastewater effluent and/or stormwater discharge

Update: SCCWRP staff and collaborators finalized protocols for a number of recycled water bioassays, then contributed data and methodology to an international intercalibration study using these bioassays. Next, SCCWRP will organize and initiate a second intercalibration study to investigate the bioassay response of recycled water samples from California and Arizona utilities.

Lead Investigator: Maruya

2. Toxicity Assessment

Highlight

a. Traditional Toxicity Identification (TIE) Evaluation Methods

Purpose: Develop and refine analytical methods for identifying the specific constituents responsible for toxicity in marine sediments

Update: SCCWRP staff has investigated a potential freshwater TIE method based on degradation of fipronil and pyrethroid pesticides. Samples of moderately hard dilution water were spiked with fipronil or cyfluthrin, incubated for 24 hours at a pH of 12, and then re-analyzed. Chemistry results indicated the pH treatment hydrolyzed approximately 90% of both compounds. While effective for degrading these current use pesticides, pH adjustment may also degrade other toxic compounds in the sample, complicating TIE treatments.

Lead Investigator: Bay

b. Molecular Tools for Toxicity Identification Evaluation

Purpose: Develop new methods for evaluating sediment toxicity via gene microarrays that reveal molecular-level responses in sentinel organisms (e.g., marine fish and invertebrates)

Update: SCCWRP staff and collaborators completed a report on the first-phase of an amphipod microarray interlaboratory study. Preparations are underway to conduct additional data analyses to compare differential gene expression results among laboratories. In addition, staff completed a quality assurance review of the sequencing and annotation work for a new test organism, the hornyhead turbot, a marine fish commonly found near ocean outfalls. The review identified more than 15,400 gene sequences of which approximately 10,000 have annotation available. Lastly, researchers collected hornyhead turbot from two sites (Dana Point and the Palos Verdes shelf) to study the new microarray. Turbot from Dana Point were exposed to PCBs and PBDEs in the laboratory to compare differential gene expression patterns in the liver for these two compounds. Extraction and analysis of the tissue samples will begin next quarter.

Lead Investigator: Bay

3. Biological Assessment

a. Rocky Reefs

Purpose: Develop an assessment index to interpret the ecological integrity of rocky reefs

Update: A Best Professional Judgment (BPJ) exercise is planned in coordination with the Bight '13 Marine Protected Area element. The BPJ exercise will identify the most important biological metrics for the rocky reef index and agree upon a set of validation sites. The initial workshop will invite rocky reef expert ecologists and biologists from throughout the region to SCCWRP in November or December 2013.

Lead Investigator: Schiff

b. DNA Barcoding

Purpose: Assess the efficacy of DNA barcoding for rapidly identifying marine and freshwater benthic invertebrate and algal species

Update: First, SCCWRP staff responded to comments received on two manuscripts submitted for a special issue of the journal *Freshwater Science* on barcoding application in freshwater bioassessment. Second, working with Bight '13 partners, staff collected samples for a marine sample preservation study to investigate the effect of short-term formalin exposure on barcode detection ability. Third, staff finished planning activities and collected samples for the environmental DNA (eDNA) study, which will test the ability to obtain DNA from a stream's water column and use the "mixed DNA" sample to elicit barcodes of the organisms residing in that stream reach. Finally, sample processing and analysis continued for the San Gabriel River study evaluating the application of barcoding to assess biological impacts by in-stream hydromodification structures.

Lead Investigator: Stein

c. Cyanobacteria

Purpose: Increase understanding of environmental drivers for cyanobacterial bloom occurrence and toxin production in streams and wetlands

Update: Work continued on a manuscript summarizing the effects of microcystin and saxitoxin expression on the benthos of Southern California wadeable streams. The Southern California Stormwater Monitoring Coalition (SMC), Surface Water Ambient Monitoring Program (SWAMP) Perennial Stream Assessment, and SWAMP Depressional Wetlands Assessment programs continue collecting samples to measure cyanotoxins in streams and freshwater wetlands, while the San Diego Regional Water Quality Control Board is sampling coastal lakes and estuaries.

Lead Investigators: Fetscher, Howard

d. Nonperennial Streams

Purpose: Develop and test bioassessment tools for use in arid/episodic and intermittent nonperennial streams

Update: SCCWRP staff completed a draft monitoring plan, classification system, and assessment approach for the arid/episodic streams. Fieldwork was conducted at reference sites throughout Southern California to test proposed indicators. Finally, staff and collaborators have begun to refine their approach to mapping nonperennial streams, testing modeling and mapping methods in a San Diego watershed based on antecedent rainfall and catchment characteristics. Continuous water level and conductivity data loggers are being tracked at 23 locations to helps support modeling and assessment.

Lead Investigators: Stein

4. Microbiological Assessment

a. Rapid Water Quality Indicators

Purpose: Develop and test application of rapid methods for enumerating indicator bacteria at high-risk beaches

Update: Planning is underway to train laboratories across the state to perform the rapid qPCR method for *Enterococcus* and for microbial source identification markers. Training will be held August 27–29 at SCCWRP.

Lead Investigator: Griffith

b. Microbial Source Tracking and Identification

Purpose: Develop and implement protocols for identifying microbial contamination sources to beaches throughout the state

Update: Analysis of dye testing data revealed faulty infrastructure at Doheny State Beach. A meeting with Doheny State beach stakeholders to discuss next steps was held June 6. In addition, the journal *Water Research* is publishing 12 manuscripts describing the results of the microbial source identification method evaluation in a special issue. Finally, staff is preparing a Source Identification Manual for the State Water Resources Control Board. This manual will be used for future source tracking investigations, fulfilling the mandate of AB 538.

Lead Investigator: Griffith

c. Quantitative Microbial Risk Assessment (QMRA)

Purpose: Apply QMRA to characterize the risk of illness to swimmers at a southern California marine beach impacted by nonhuman sources of fecal indicator bacteria

Update: SCCWRP staff met with staff from the San Francisco (2), Central Coast (3), and South Coast (4, 8, 9) Regional Water Quality Boards to identify the criteria for selecting an appropriate beach for QMRA. Work will begin when SCCWRP reaches a final grant agreement with the State Water Resources Control Board.

Lead Investigator: Schiff

5. Biogeochemical Cycling Assessment

a. Harmful Algal Blooms

Purpose: Improve understanding of conditions leading to *Pseudo-nitzschia* blooms and toxin production in Monterey Bay and San Pedro, California

Update: Spring field sampling and experiments for the Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) research program are being analyzed and another field sampling effort is being planned for the spring 2014.

Lead Investigator: Howard

b. Coastal Hypoxia

Purpose: Investigate trends in oxygen conditions in southern California waters and assess the relative importance of natural versus anthropogenic drivers

Update: SCCWRP staff completed work on one manuscript summarizing dissolved oxygen trends from quarterly discharger monitoring data and another manuscript reviewing hypoxia trends, causal factors, effects, and management implications in upwelling systems. They also continued work on a manuscript reviewing the physics, ecological effects and management implications of coastal hypoxia in upwelling systems.

Lead Investigator: Sutula

c. Ocean Acidification

Purpose: Improve ocean acidification monitoring capacity for the US West Coast and evaluate the role of different causal factors

Update: SCCWRP staff and collaborators continued development of standard operating procedures for monitoring ocean acidification utilizing several monitoring platforms: land-based, ship-based, moorings, and gliders. A subset of these protocols are being implemented through the Bight '13 Offshore Water Quality surveys to begin evaluating ocean acidification in the Southern California Bight. Staff is also helping to convert California Current Acidification Network (C-CAN) vision and core monitoring principles documents into manuscripts for publication.

Lead Investigator: McLaughlin

d. Causal Modeling

Purpose: Improve ocean acidification monitoring capacity for the US West Coast and evaluate the role of different causal factors

Update: SCCWRP staff is planning for a December 2013 modeling workshop that will identify impediments to development of West Coast-wide coastal biogeochemical models to evaluate the effects of nutrients on hypoxia and acidification.

Lead Investigator: Sutula

B. TECHNICAL SUPPORT FOR MANAGEMENT/REGULATORY PROGRAMS

1. Nutrient Objectives

a. Nutrient Objectives in Streams and Lakes

Purpose: Technical support for state nutrient objectives program by developing eutrophication indicators related to nutrient concentrations, algal/phytoplankton biomass, cyanobacteria/cyanotoxins, and algae and macroinvertebrate taxonomy

Update: SCCWRP staff completed analysis of statewide wadeable stream bioassessment data to: 1) identify tipping points or thresholds between algal biomass and benthic algal and invertebrate taxonomy, and; 2) validate existing SWRCB spreadsheet models linking nutrients to algal biomass in streams. Next, staff will begin development of refined nutrient-response models for wadeable streams, including dynamic simulation modeling of nutrient-algal relationships in the Santa Margarita River. Staff also completed compilation of existing lake data to determine whether sufficient information was available to model nutrient-response relationships in lakes. This analysis will begin in fall.

Lead Investigator: Sutula

c. Nutrient Objectives in Estuaries

Purpose: Support state nutrient objectives program by developing estuarine eutrophication indicators related to algae, nutrients, and dissolved oxygen

Update: SCCWRP staff drafted a work plan to conduct a study of macroalgae, phytoplankton biomass, and dissolved oxygen in minimally disturbed bar-built estuaries. Staff also initiated analysis of existing data from the San Francisco Bay-Delta to test existing phytoplankton assessment frameworks.

Lead Investigator: Sutula

2. Sediment Quality Objectives (SQOs)

Purpose: Support implementation of an assessment framework for evaluating the indirect effects of bay and estuarine sediment contamination on human health

Update: The Harbor Technical Workgroup (HTWG) met May 23 and June 19 to review proposed research for improving PCB bioaccumulation and fate models for the Ports of Los Angeles and Long Beach. The next HTWG meeting will be August 22. In addition, the SQO Advisory Committee met June 20. Meeting topics included an update on fish tissue data compilation for statewide application of the human health SQO assessment framework and discussion of key issues associated with sediment assessment and remediation planning. The next Advisory Committee meeting will be August 21.

Lead Investigator: Bay

New

3. Flow Criteria

Purpose: Define the relationship between stream flow and biological community impacts as measured by benthic macroinvertebrate communities

Update: SCCWRP staff is awaiting State Water Resources Control Board to issue the project grant agreement before initiating work.

Lead Investigator: Stein

4. Modeling

a. Modeling of BMPs

Purpose: Develop a toolkit of linked models that will optimize BMP density, type, and location at a watershed scale

Update: SCCWRP staff has been compiling data to support BMP performance. Staff and collaborators are initiating conceptual models for application in our test watershed.

Lead Investigator: Sengupta

New

b. Stressor Response Modeling

Purpose: Begin developing linked stressor-response models that managers can routinely use for protecting estuaries

Update: SCCWRP staff will initiate project activities this fall, beginning with identifying and selecting estuarine appropriate transport and fate models.

Lead Investigator: Sengupta

5. Freshwater Biological Objectives

Purpose: Support state bio-objectives program by developing biological condition assessment tools for perennial streams and rivers

Update: Three manuscripts documenting the technical progress of the Science Team were discussed at the Regulatory and Stakeholder Advisory Group meetings on June 4 and 5 in Sacramento, CA. SCCWRP is working on finalizing these manuscripts for submission to peer-reviewed scientific journals. Researchers also made progress on a related effort to develop a multi-metric index based on the Physical Habitat (PHAB) assessments done as part of routine bioassessment. An R-based reporting tool for physical habitat metrics was developed and validated by SCCWRP staff. Natural variability and reference expectations for these metrics were developed for use in a prototype index of habitat integrity. Development of the habitat integrity index will continue over the next quarter.

Lead Investigators: Stein, Schiff

C. REGIONAL MONITORING

1. Regional Marine Monitoring

Highlight

a. Southern California Bight Regional Monitoring Program

Purpose: Coordinate the Bight '13 Program to monitor regional environmental conditions

Update: Intensive effort continues within the planning committees and technical working groups to refine and implement logistics for each of five thematic areas: contaminant impact assessment, nutrients, microbiology, trash and debris, and Marine Protected Areas. The contaminant impact assessment and trash and debris elements have completed their pre-survey quality assurance activities including training and laboratory intercalibrations. Work plans, field and laboratory method manuals, information management documentation, and quality assurance plans have all been posted on the SCCWRP website. Sampling of 400 sites for over 300 indicators will take place between July 1 and September 30 for the contaminant impact assessment element. The microbiology element has also begun sampling and will continue through the wet season.

Lead Investigator: Schiff

b. Pollutant Sources Data Cataloguing

Purpose: Continue our long-term pollutant mass emission estimates from different sources to assess relative inputs and track trends in response to management actions

Update: SCCWRP staff continued working with member agencies to fill data gaps and complete their respective historical datasets.

Lead Investigator: Sutula

c. Areas of Special Biological Significance (ASBS)

Purpose: Evaluate BMP projects for reducing pollution inputs to ASBS and report to the California legislature on success of the Proposition 84 water bond program

Update: SCCWRP Staff are auditing each of the 14 ASBS water bond grantees' field monitoring programs to ensure high quality data are generated for estimating pollutant reductions. In addition, staff is facilitating three ASBS regional monitoring groups (Southern, Central, and Northern California). Sampling will conclude this winter.

Lead Investigator: Schiff

2. Regional Watershed Monitoring

a. Stormwater Monitoring Coalition (SMC) Regional Watershed Monitoring

Purpose: Support implementation of the SMC's regional watershed monitoring program for southern California's coastal streams and rivers

Update: Participating agencies are completing sampling for the fifth and final season of the first cycle of the SMC stream monitoring program. In total, the coalition has sampled more than 500 sites across every major Southern California watershed from the Ventura River to the Tijuana River, measuring over 300 indicators including biological condition, water and sediment chemistry, toxicity, and physical habitat. Final data submission from participating agencies, as well as data analysis and reporting, will begin this fall. The Bioassessment Workgroup has decided to use 2014 as a year to pursue new study questions prior to beginning a second five-year cycle in 2015. Evaluation of special study proposals for 2014 is now underway.

Lead Investigator: Schiff

b. Background Concentrations of Contaminants in San Diego Reference Streams

Purpose: Derive natural, background-level numeric targets for bacteria, nutrients, and heavy metals from unimpacted streams

Update: The second year's sampling of dry weather water quality in reference stream was completed. Data management and analysis will begin next quarter. Sampling for the newly added beach bacteria reference study will begin this fall.

Lead Investigator: Sutula

c. Atmospheric Deposition of Nutrients to Coastal Watersheds

Purpose: Refine measurement techniques and estimate rates of atmospheric nutrient deposition in southern California watersheds

Update: SCCWRP staff continued the field sampling campaign at five sites in San Diego County, some of which are co-located with reference sites (see *Background Concentrations of Contaminants in Reference Streams*). Sampling will conclude this summer.

Lead Investigator: McLaughlin

3. Regional Wetland Monitoring

Highlight

a. Wetlands Status and Trends

Purpose: Develop tools for tracking wetland conditions and support implementation of state and national wetland monitoring programs

Update: The project team continued to refine mapping SOPs and QA measures in order to reduce inter-team variability. This includes a focus on improving mapping protocols of difficult wetland types, which were generally under-represented in original mapping efforts. This effort will establish data quality objectives and expected levels of certainty for mapping during program implementation. Progress was also made on outreach in two areas. First, an informational meeting on program implementation with all the major Joint Ventures in California was held in May. Second, staff briefed Sandy Morey (CDFW Deputy Director, Ecosystem Conservation Division) as CDFW considers their role in long-term program stewardship.

Lead Investigator: Stein

b. Depressional Wetlands

Purpose: Develop and test assessment tools and a monitoring approach for depressional wetlands throughout the state

Update: SCCWRP staff completed this year's site reconnaissance and field sampling at depressional wetlands. The reconnaissance results were documented and distributed to the State and Regional Water Boards participating in this study. In brief, 719 sites were assessed using Google Earth, of which 98 were evaluated in the field, in order to identify 15 ponds that met the study requirements. Sampling was conducted between April 29 and May 2 for water and sediment chemistry, sediment toxicity, benthic diatoms, and macroinvertebrates. Surveys using the California Rapid Assessment Method (CRAM) will take place over the next quarter.

Lead Investigator: Stein

c. Historical Ecology

Purpose: Establish a framework for compiling historical data on watershed and wetland conditions, and evaluate changes in response to land use modification and resource management efforts

Update: Synthesis results from the north San Diego Lagoon historical ecology project are being refined based on input from the project Technical Advisory Committee (TAC). For the regional t-sheet mapping, the map attribution systems and crosswalk between historic and contemporary mapping was refined based on input from the TAC and the wetland managers group. The regional geodatabase of historic t-sheets is being finalized and long-term change assessment will be initiated over the next quarter.

Lead Investigator: Stein

D. INFORMATION MANAGEMENT AND ANALYSIS

New

1. Mobile Data Acquisition Technologies

Purpose: Extend the capabilities of field sampling programs using smart phone applications, image capture devices, and wireless sensors

Update: SCCWRP staff released a mobile application for Android devices that collects and submits field data for Bight '13. The application is currently in use for field data collection. Staff and collaborators have also begun testing a cell phone microscope for the collection of algae field imagery.

Lead Investigator: Steinberg

2. Seamless Data Sharing

Purpose: Facilitate data collection and submission to, as well as access data and analytical results from, a common server for use by the scientific and management communities

Update: SCCWRP staff continues to facilitate data submission and develop accessibility for the California Environmental Data Exchange Network (CEDEN) and other providers.

Lead Investigator: Steinberg

3. Dynamic Data Processing and Visualization

Purpose: Develop data visualization and geospatial visualization capabilities to support projects across SCCWRP's research portfolio and enhance management communication tools

Update: SCCWRP staff recently released an easy-to-use web-based benthic index calculator tool based on the River Invertebrate Prediction and Classification System (RIVPACS) to support sediment quality assessment under California's Sediment Quality Objectives (SQO) program. In addition, staff completed a mockup of the new "Safe to Drink" data portal, which will be reviewed by the California Water Quality Monitoring Council in August.

Lead Investigator: Steinberg

E. MEMBER AGENCY SUPPORT

2. Quality Assurance for Offshore Monitoring

Purpose: Prepare method quality objectives (MQOs) for quality assurance of regional and statewide ocean monitoring data

Update: Utilizing data from previous Bight surveys, staff statistically derived allowable error rates for taxonomic MQOs. These results were presented at the Southern California Ichthyological Taxonomists and Ecologists (SCAITE) meeting on May 6, as well as the Bight '13 field technical working group meeting on May 14, infauna technical working group meeting on May 17, and trawl technical working group meeting on May 20. The Bight '13 contaminant impact assessment planning committee approved the MQOs on May 28. Ultimately, the State Water Board will incorporate the MQOs developed and approved through the Bight program into the Surface Water Ambient Monitoring Program Quality Assurance Program Plan.

Lead Investigator: Schiff

3. Pilot Monitoring with Autonomous Underwater Vehicle (AUV)

Purpose: Test application of an AUV (glider) for ocean monitoring in southern California

Update: The SCCWRP glider completed 25 consecutive days around the Orange County Sanitation District (OCSD) outfall in support of a harmful algal bloom study conducted by SCCWRP, University of Southern California, and UC Santa Cruz researchers. SCCWRP redeployed the glider in May in coordination with the City of Los Angeles quarterly water quality monitoring survey. It completed only 15 days of successful monitoring. A programming glitch led to an emergency pickup in shallow water. A second emergency pickup was necessary when the glider got stuck in a kelp bed.

Lead Investigator: Weisberg

4. Effects of Ocean Outfall Diversion on Nutrient Cycling

Purpose: Assess changes in the Newport Coast nearshore waters related to nitrogen cycling and primary production resulting from diversion of the Orange County Sanitation District (OCSD) ocean outfall

Update: A project workshop was held June 13 at SCCWRP to present all of the data collected by the project participants. Data analysis continued this quarter and staff began manuscript preparation.

Lead Investigator: Howard

5. Newport Bay Watershed Model Monitoring

Purpose: Facilitate a critical review of current monitoring efforts in the Newport Bay Watershed to improve effectiveness, cost-efficiency, and data synthesis

Update: The second collaborative meeting with the watershed's stakeholders, including the Regional Water Quality Control Board, regulated agencies, nongovernmental organizations, health department, and landowners, occurred May 22. SCCWRP staff presented an inventory of current ongoing monitoring effort in this watershed, which consisted of 16 programs, 300 sites, 400 parameters, and nearly 33,000 individual measurements per year. Staff is working with stakeholders to find options for increasing efficiency and effectiveness of this effort. Study design options will be presented at the next stakeholder meeting on August 13.

Lead Investigator: Schiff

6. Water Quality Compliance Assessment for Offshore Outfalls

Purpose: Develop a shared water quality compliance assessment protocol for coastal southern California publicly owned treatment works

Update: The SWRCB's Water Quality Committee met June 11 and SCCWRP staff presented a new algorithm for identification of the chimney effect, where outrange (i.e., potentially non-compliant) data result from deeper, naturally hypoxic water being drawn into shallow areas by buoyancy of the plume. The committee also met independently of SCCWRP staff to discuss compliance issues, such as how many outranges are necessary before a site is determined to be out of compliance. Finally, SCCWRP staff made a presentation for how the committee might begin to address compliance with nutrient-related effects, which occur over a larger time and space footprint and therefore require a different assessment algorithm.

Primary Investigator: Weisberg