

# SOUTHERN CALIFORNIA COASTAL OCEAN OBSERVING SYSTEM

## Spring 2023 Newsletter

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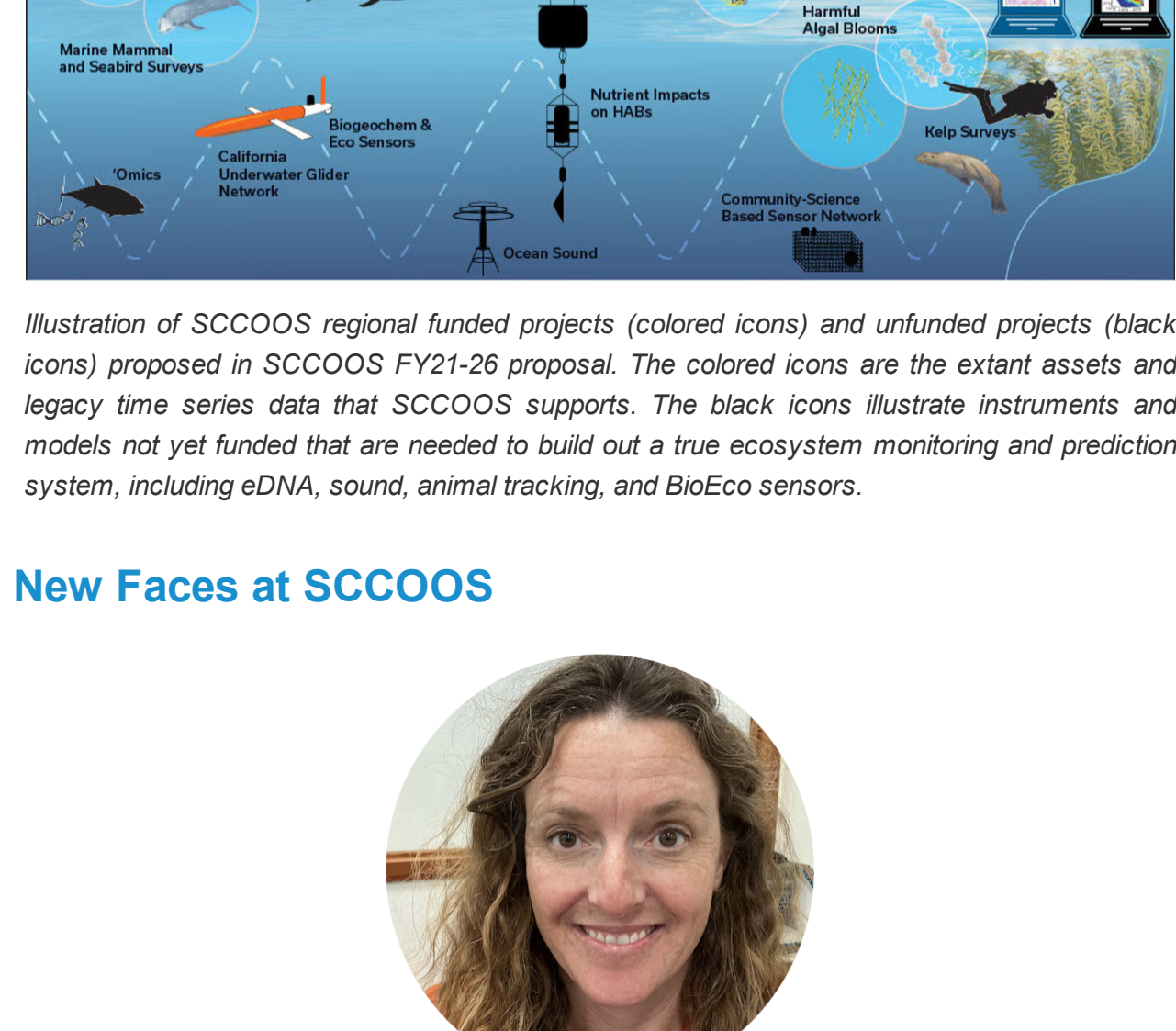
Find regularly updated information about [Funding](#), [Events](#), [Jobs](#), [Student Opps](#), and [more on the SCCOOS website](#) and on [Twitter!](#)

### Dr. Richard Spinrad, Under Secretary of Commerce for Oceans and Atmosphere & NOAA Administrator, Visits SCCOOS

SCCOOS met with Dr. Richard (Rick) Spinrad, Nicole LeBoeuf, and Carl Gouldman on Wednesday, February 15th at Scripps Institution of Oceanography to showcase our long-term high-quality ocean observing assets and stakeholder success stories. We reviewed SCCOOS legacy and history, including California's initial investment towards HF Radar and the aging infrastructure, including that 79% of California's HFRs are over 15 years old and 20% have exceeded the 20-year normal service life. SCCOOS also discussed the critical need for investments in ecosystem models in support of Coastal Resilience and a [Climate Ready Nation](#).

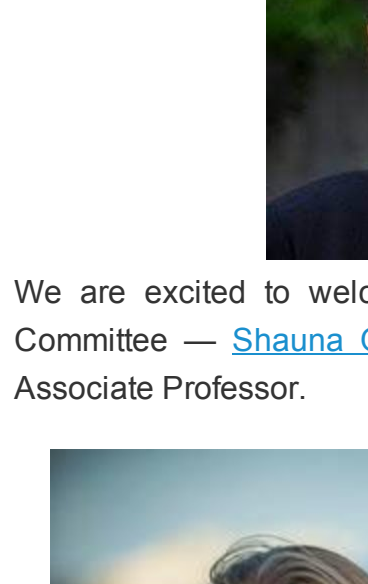


Left to right: Daniel Rudnick, Ph.D., (SIO), Nicole LeBoeuf (NOS), Richard Spinrad, Ph.D., (NOAA), Clarissa Anderson, Ph.D., (SCCOOS/SIO), Carl Gouldman (IOOS) and Mark Otero (SIO).



On February 15th, Dr. Dan Rudnick, Professor of Oceanography at SIO, gave Dr. Spinrad a tour of the Spray Gliders built in his lab that are supported by SCCOOS and CeNCOOS. Dan Rudnick is Chair of SCCOOS Executive Steering Committee and a member of the U.S. IOOS Advisory Committee.

### SCCOOS 2021-2026 Strategic Plan

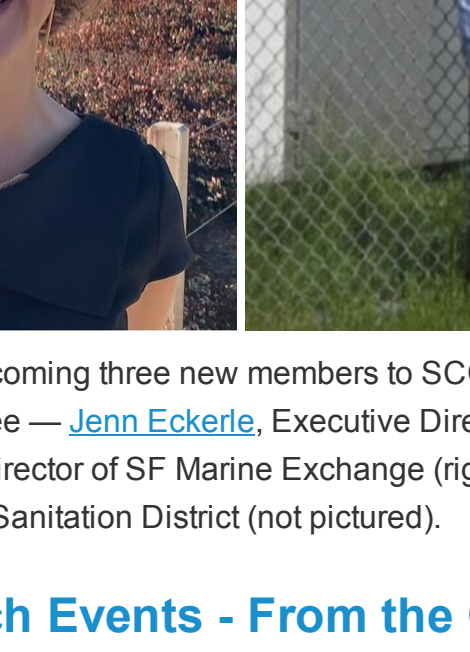


If you haven't checked it out already, we encourage you to view our new [2021-2026 Strategic Plan!](#) The Strategic Plan provides a high-level summary of the four SCCOOS subsystems, the societal applications that our funded projects address, and testimonials from some of our key partners and stakeholders. We also address our vision for growth over the next five years that responds directly to the needs of Southern California coastal communities. You can view the Strategic Plan [online](#) or download the [pdf](#).



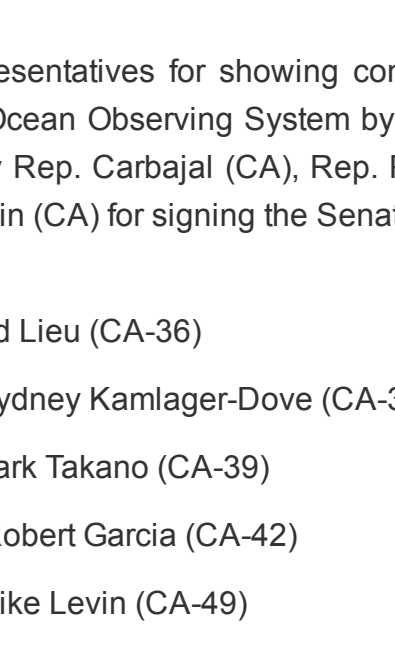
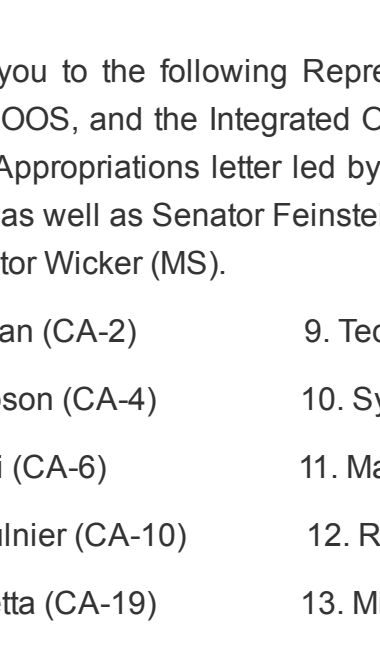
Illustration of SCCOOS regional funded projects (colored icons) and unfunded projects (black icons) proposed in SCCOOS FY21-26 proposal. The colored icons are the extant assets and legacy time series data that SCCOOS supports. The black icons illustrate instruments and models not yet funded that are needed to build out a true ecosystem monitoring and prediction system, including eDNA, sound, animal tracking, and BioEco sensors.

### New Faces at SCCOOS



**Danielle Muller, Program Assistant and Outreach Coordinator, SCCOOS**

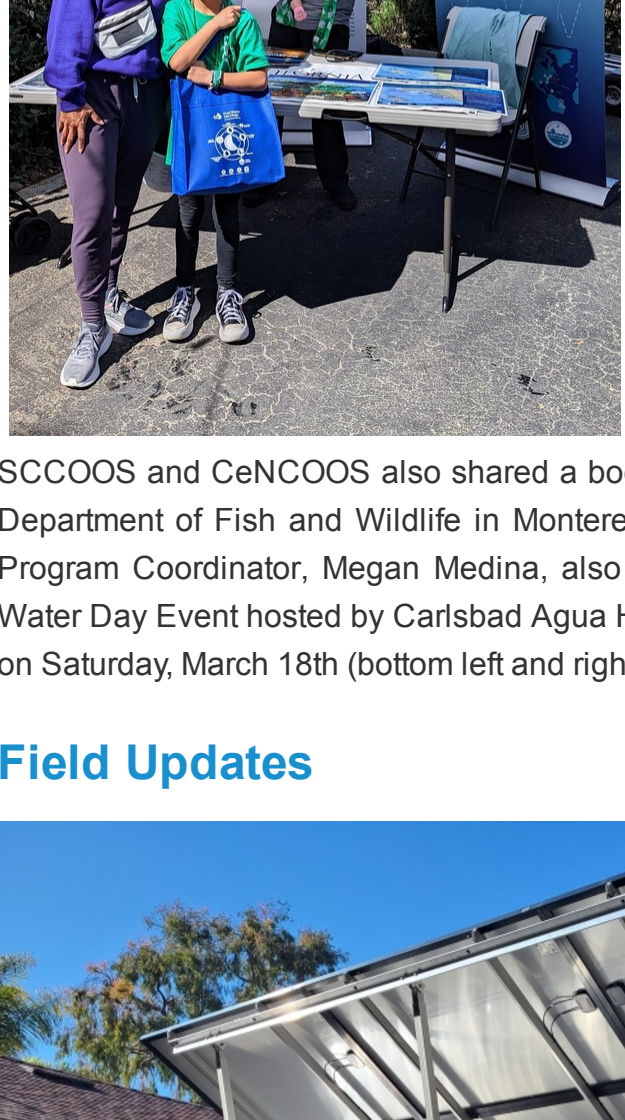
After a five-year hiatus, we are happy to welcome Danielle Muller back to the SCCOOS Program Office. Danielle will be assisting SCCOOS and CA Sea Grant with program governance, management, and stakeholder outreach and education. Feel free to give her an OOS welcome at [dmmuller@ucsd.edu](mailto:dmmuller@ucsd.edu), she looks forward to connecting with you all again!



We are excited to welcome two new members to the SCCOOS Executive Steering Committee — [Shauna Oh](#), CA Sea Grant Director, and [Dr. Kristen Davis](#), UC Irvine, Associate Professor.



We are also welcoming two new Principal Investigators — [Dr. Nyssa Silbiger](#), Associate Professor at CSU Northridge (left), and [Dr. Chris Lowe](#), Professor at CSU Long Beach (right). Nyssa is taking over operations at the Santa Monica Pier Automated Shore Station and Chris is deploying four new real-time buoys over the next two years, contributing to the current Southern California Acoustic Telemetry Tracking Network, to increase real-time acoustic detection of white sharks and environmental monitoring in southern California.



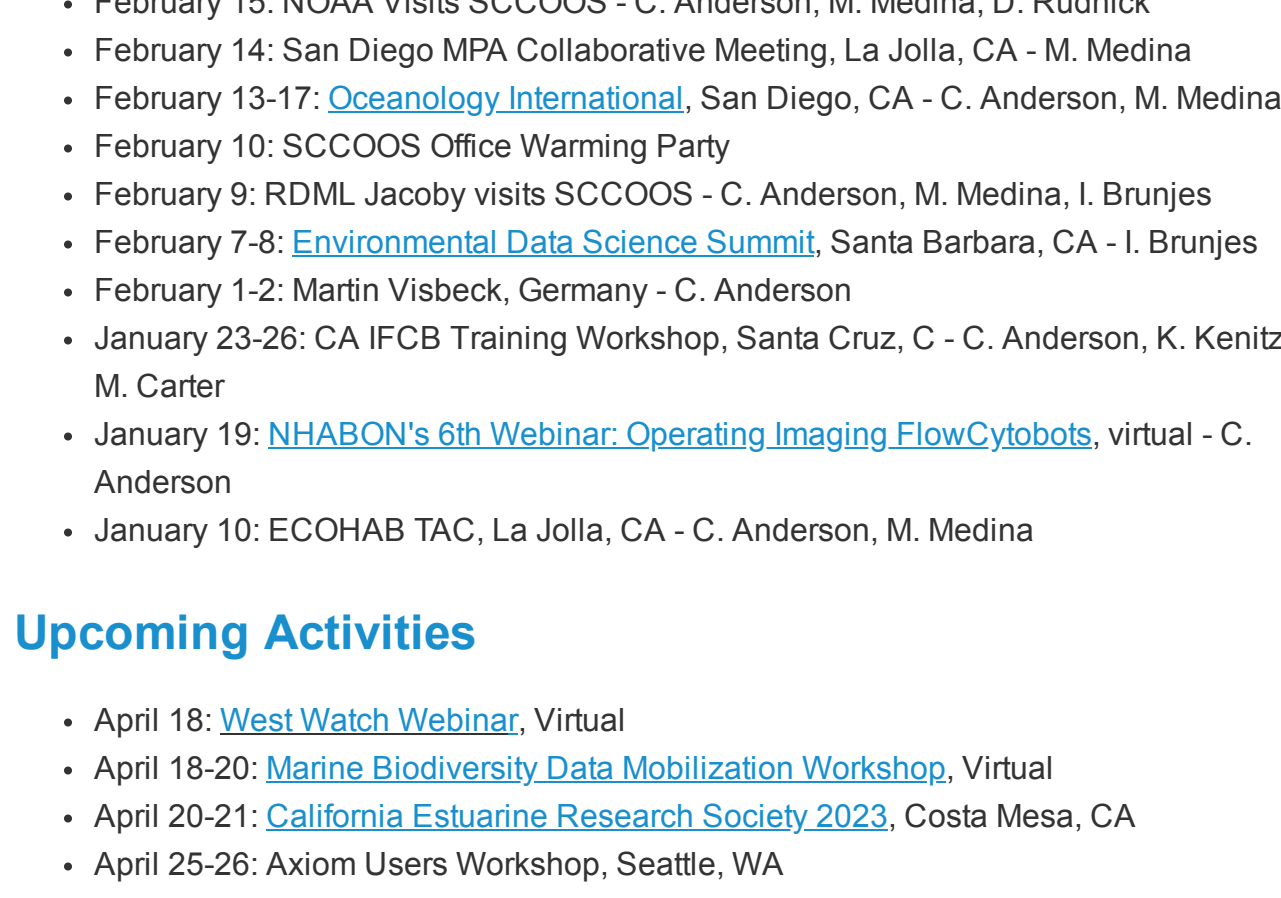
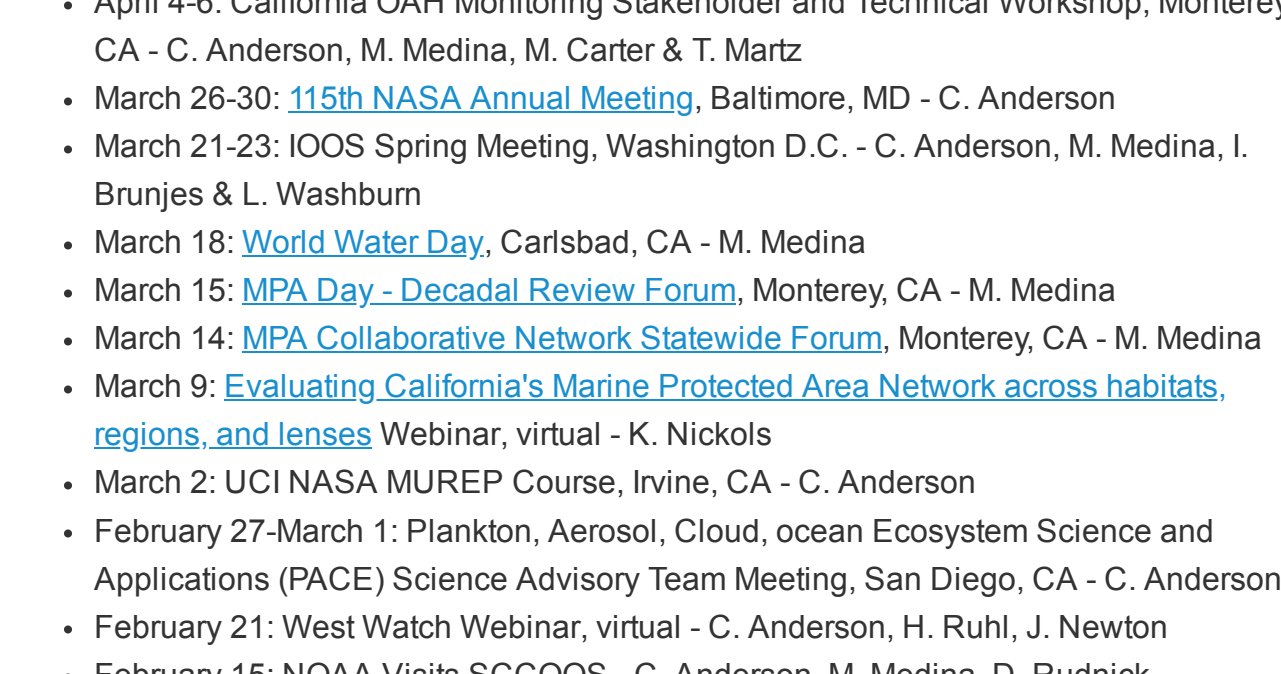
Lastly, please join us in welcoming three new members to SCCOOS and CeNCOOS Joint Strategic Advisory Committee — [Jenn Eckertle](#), Executive Director of the Ocean Protection Council, [Scott Humphrey](#), Director of SF Marine Exchange (right), and Laura Terriquez, Scientist at Orange County Sanitation District (not pictured).

### SCCOOS Outreach Events - From the Coast to the Hill

SCCOOS Program Office met in Washington D.C. for the first time since March 2020 for the IOOS annual Spring Meeting and Hill visits with members of Congress. On March 23rd, SCCOOS met with 10 California offices to request funding to maintain 11 IOOS Regional Associations (RA) core observations (\$50M) to sustain operational support, as well as infrastructure funding (\$25.5M) to upgrade and modernize RAs gliders, radars, moorings, and shore stations ([FY24 IOOS Association Request](#)). After 20 years in operation, many of SCCOOS technologies have exceeded their service life. For example, 90% of California's High-Frequency Radars are over 15 years old and 20% have exceeded the normal service life of the equipment of 10 years. The Bipartisan Infrastructure Act / Infrastructure Investments and Jobs Act (IIJA; P.L. 117-58) will fund part, but not all, of this need. We anticipate a total of \$35.75 million from the IIJA over the next five years. Our \$25.5 million request of Congress represents the unmet need (\$101.3 million) spread over the next four years.

A special thank you to the following Representatives for showing continued support of SCCOOS, CeNCOOS, and the Integrated Ocean Observing System by signing the FY24 Dear Colleague Appropriations letter led by Rep. Carabai (CA), Rep. Pingree (ME), and Rep. Posey (FL), as well as Senator Feinstein (CA) for signing the Senate Dear Colleague letter led by Senator Wicker (MS).

- |                            |                                  |
|----------------------------|----------------------------------|
| 1. Jared Huffman (CA-2)    | 9. Ted Lieu (CA-36)              |
| 2. Mike Thompson (CA-4)    | 10. Sydney Kamlager-Dove (CA-37) |
| 3. Doris Matsui (CA-6)     | 11. Mark Takano (CA-39)          |
| 4. Mark DeSaulnier (CA-10) | 12. Robert Garcia (CA-42)        |
| 5. Jimmy Panetta (CA-19)   | 13. Mike Levin (CA-49)           |
| 6. Jim Costa (CA-21)       | 14. Scott Peters (CA-50)         |
| 7. Salud Carbajal (CA-24)  | 15. Sara Jacobs (CA-51)          |
| 8. Julia Brownley (CA-26)  | 16. Juan Vargas (CA-52)          |



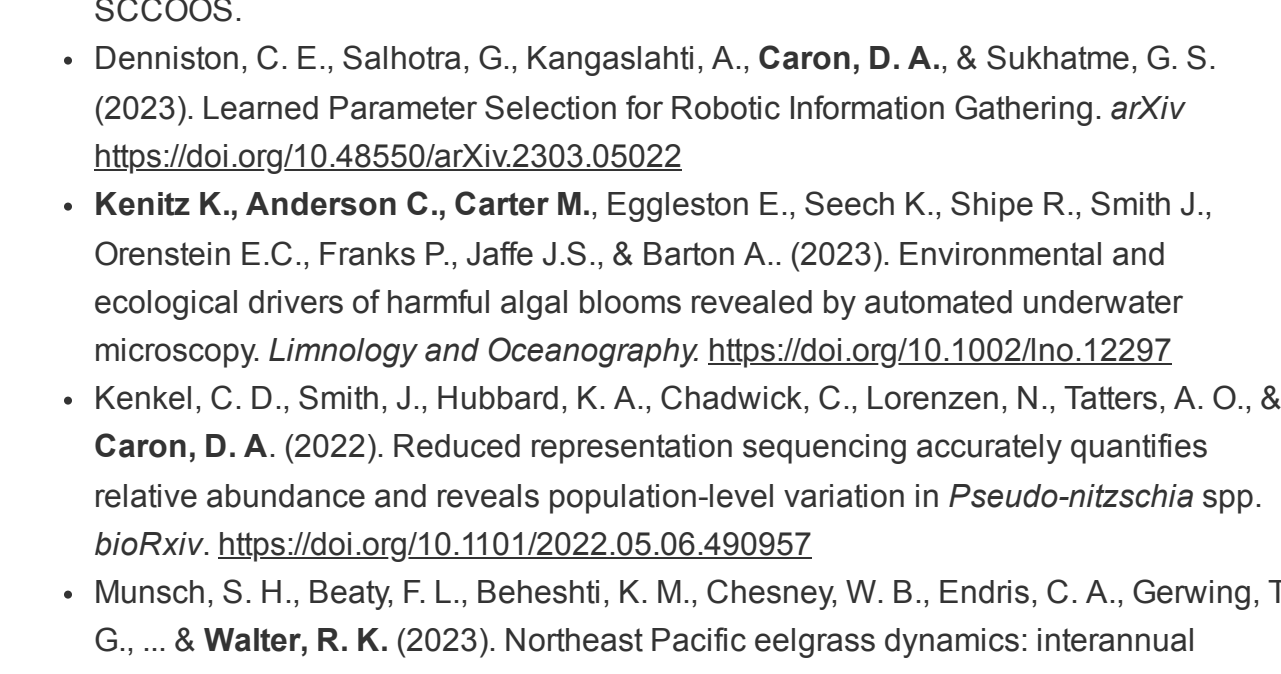
SCCOOS and CeNCOOS also shared a booth at the MPA forum hosted by the California Department of Fish and Wildlife in Monterey, CA on March 15th (top image). SCCOOS, Program Coordinator, Megan Medina, also provided educational materials at the World Water Day Event hosted by Carlsbad Agua Hediunda Lagoon Foundation in Carlsbad, CA on Saturday, March 18th (bottom left and right images).

### Field Updates



University of California, Santa Barbara, new solar trailer to power a high-frequency radar (HFR) for surface current measurements.

SCCOOS recently purchased a new mobile solar trailer that will power a high-frequency radar (HFR) that measures surface ocean currents. The trailer is located at UCSB. This replaces an older trailer that was positioned to fill an HFR coverage gap offshore of the Gaviota coast during the 2015 Refugio oil spill. Currents measured from the trailer assisted first responders in monitoring the movement of the spill in coastal waters off southern California.



Tom Fougere, McLane Labs, demonstrating how to use the Linux OS & Linux Web User Interface with the Imaging FlowCytobot (IFCB; left). IFCB with the case removed for hands-on training with McLane Labs lead engineers (right)

The [California Imaging FlowCytobot \(IFCB\) Network](#) got together for the first time since the inception of the Ocean Protection Council-funded project, "[Implementation of an Automated Early Warning System for Harmful Algal Bloom Events in California](#)." The project PIs and technicians met at UC Santa Cruz for a 2.5-day training workshop hosted by lead engineers from McLane Labs. The group discussed best practices and challenges for operating the IFCBs (an *in situ* phytoplankton imaging system) and the next steps for data processing, data classification, and data visualization tools.

### Where Else SCCOOS Has Been Spotted

SCCOOS has co-organized, participated in, and presented at several virtual workshops over the past few months. Meeting programs, notes, and presentations are linked below.

- April 10-14: R/V Carson, ECOHAB field campaign - C. Anderson
- April 18-20: California OAH Monitoring Stakeholder and Technical Workshop, Monterey, CA - C. Anderson, M. Medina, M. Carter & T. Martz
- March 26-30: [115th NASA Annual Meeting](#), Baltimore, MD - C. Anderson
- March 21-23: IOOS Spring Meeting, Washington D.C. - C. Anderson, M. Medina, I. Brunjes & L. Washburn
- March 18: [World Water Day](#), Carlsbad, CA - M. Medina
- March 15: [MPA Day - Decadal Review Forum](#), Monterey, CA - M. Medina
- March 14: [MPA Collaborative Network Statewide Forum](#), Monterey, CA - M. Medina
- March 9: [Evaluating California's Marine Protected Area Network across habitats, regions, and lenses](#) Webinar, virtual - K. Nickols
- March 2: UCI NASA MUREP Course, Irvine, CA - C. Anderson
- February 27-March 1: Plankton, Aerosol, Cloud, ocean Ecosystem Science and Applications (PACE) Science Advisory Team Meeting, San Diego, CA - C. Anderson
- February 21: West Watch Webinar, virtual - C. Anderson, H. Ruhl, J. Newton
- February 15: NOAA Visits SCCOOS - C. Anderson, M. Medina, D. Rudnick
- February 14: San Diego MPA Collaborative Meeting, La Jolla, CA - M. Medina
- February 13-17: [SCCOOS International](#), San Diego, CA - C. Anderson, M. Medina
- February 10: [SCCOOS Office Warming Party](#)
- February 9: RDML Jacoby visits SCCOOS - C. Anderson, M. Medina, I. Brunjes
- February 7-8: [Environmental Data Science Summit](#), Santa Barbara, CA - I. Brunjes
- February 1-2: Martin Visbeck, Germany - C. Anderson
- January 23-26: CA IFCB Training Workshop, Santa Cruz, C - C. Anderson, K. Kenitz, M. Carter
- January 19: [NHABON's 6th Webinar: Operating Imaging FlowCytobots](#), virtual - C. Anderson
- January 10: ECOHAB TAC, La Jolla, CA - C. Anderson, M. Medina

### Upcoming Activities

- April 18: [West Watch Webinar](#), Virtual
- April 18-20: [Marine Biodiversity Data Mobilization Workshop](#), Virtual
- April 20-21: [California Estuarine Research Society 2023](#), Costa Mesa, CA
- April 25-26: Axiom Users Workshop, Seattle, WA
- May 1-3: ECOHAB TAC, Sitka, AK
- May 8-12: [Offshore Technology Conference](#), Houston, TX
- May 14-15: [NASA Carbon Cycle Meeting](#), College Park, MD
- May 19: [CIMMS SAC Meeting](#), Santa Barbara, CA
- May 30: SCCOOS Board of Governors and Executive Steering Committee Meeting, Costa Mesa, CA
- June 4-9: [ASLO Aquatic Sciences Meeting](#), Mallorca, Spain
- June 12-15: [OCB2023 Summer Workshop](#), Woods Hole, MA/hybrid
- June 27-29: [IOOS Advisory Committee](#), Monterey, CA
- July 10-14: [First User Conference on Marine Protected Areas](#), San Diego, CA
- July 21: [CIMMS SAC Meeting](#), Ventura, CA
- September 11-24: [ICES Annual Science Conference](#), Bilbao, Spain
- September 24-27: [Eastern Pacific Ocean Conference](#), South Tahoe, CA
- October 23-27: IFCBWorks23, Woods Hole, MA
- October 26-28: [SACNAS: Build community. Create a legacy.](#) Portland, OR
- November 5-11: [International Conference on Harmful Algae](#), Hiroshima, Japan
- November 12-16: [Coastal and Estuarine Research Federation \(CERF\) Biennial Conference](#), Portland, OR

### Recent Publications

SCCOOS Principal Investigators are in bold.

- Amador, A., Merrifield, S., and **Terrill, E.** "Assessment of atmospheric and oceanographic measurements from an autonomous surface vehicle." *Journal of Atmospheric and Oceanic Technology* (2022). <https://doi.org/10.1175/JTECH-D-22-0060.1>
- Asokan, A. (2023). The First 10 Years: Measuring The Success Of California's Underwater Parks. NRDC. - References Rhul CeNCOOS and SCCOOS MPA paper
- Bartoloni, S.E., **Walter, R. K.**, Wewerka, S.N., Higgins, J., O'Leary, J.K., Bockmon, E.E., Spatial distribution of carbonate chemistry and hydrodynamic controls in a low-inflow estuary. *Estuarine, Coastal, and Shelf Science*. <https://doi.org/10.1016/j.eccs.2022.108195>
- **Bell, T. W.**, Cavanaugh, K. C., Saccomanno, V. R., Cavanaugh, K. C., Houskeeper, H. F., Eddy, N., ... & Gleason, M. (2023). Kelpwatch: A new visualization and analysis tool to explore kelp canopy dynamics reveals variable response to and recovery from marine heatwaves. *Plos one*. <https://doi.org/10.1371/journal.pone.0271477>
- Bresnahan, P., Briggs, E., Davis, B., Rodriguez, A. R., Edwards, L., Peach, C., ... & **Merrifield, M.** (2023). A Low-Cost, DIY Ultrasonic Water Level Sensor For Education, Citizen Science, And Research. *Oceanography*. <https://www.jstor.org/stable/27200038>
- Cavanaugh, K. C., Cavanaugh, K. C., Pawlak, C. C., **Bell, T. W.**, & Saccomanno, V. R. (2023). CubeSats show persistence of bull kelp refugia amidst a regional collapse in California. *Remote Sensing of Environment*. <https://doi.org/10.1016/j.rse.2023.113521>
- Charles S. Colgan Center & Castelletto Anthony. (2023). The US Integrated Ocean Observing System (IOOS): A Prototype User Valuation. - References all RAs; SCCOOS.
- Dennison, C. E., Sathirata, K., Kangaslahti, H., **Caron, D. A.**, & Sukhatme, G. S. (2023). Learned Parameter Selection for Robotic Information Gathering. *arXiv* <https://doi.org/10.48550/arXiv.2303.05022>
- **Kenitz K., Anderson C., Carter M.**, Eggleston E., Seech K., Shippe R., Smith J., Orenstein E. C., Franks P., Jaffe J.S., & Barton A. (2023). Environmental and ecological drivers of harmful algal blooms revealed by automated underwater microscopy. *Limnology and Oceanography* <https://doi.org/10.1002/lno.12297>
- Kenkel, C. D., Smith, J., Hubbard, K. A., Chadwick, C., Lorenzen, N., Tatters, A. O., & **Caron, D. A.** (2022). Reduced representation sequencing accurately quantifies relative abundance and reveals population-level variation in *Pseudo-nitzschia* spp. *bioRxiv*. <https://doi.org/10.1101/2022.05.06.490957>
- Munsch, S. H., Beaty, F. L., Beheshti, K. M., Chesney, W. B., Endris, C. A., Gerwing, T. G., ... & **Walter, R. K.** (2023). Northeast Pacific eelgrass dynamics: interannual expansion distances and meadow area variation over time. *Marine Ecology Progress Series*. <https://doi.org/10.3354/meps14248>
- Sangsefidi, M., Bagheri, K., Davani, H., & **Merrifield, M.** (2023). Data analysis and integrated modeling of compound flooding impacts on coastal drainage infrastructure under a changing climate. *Journal of Hydrology*. <https://doi.org/10.1016/j.jhydrol.2022.128823>
- **SCCOOS Progress Report July 1, 2022 - December 31, 2022.**
- Taherkhani, M., Vitousek, S., **Walter, R. K.**, O'Leary, J., & Khodadoust, A. P. (2023). Flushing Time Variability in a Short, Low-Inflow Estuary. *Estuarine, Coastal, and Shelf Science*. <https://doi.org/10.1016/j.eccs.2023.108277>
- Werb, B. E., & **Rudnick, D. L.** (2023). Remarkable Changes in the Dominant Modes of North Pacific Sea Surface Temperature. *Geophysical Research Letters*. <https://doi.org/10.1029/2022GL101078>

### Funding and Job Opportunities

- [Program Officer](#), Ocean Visions.



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