Dr. Martha Sutula

Department Head
Biogechemistry Department
Southern California Coastal Water Research Project

Education

Ph.D., coastal oceanography, Louisiana State University, 1999

M.S., public health, Tulane University School of Public Health & Tropical Medicine, 1994

B.S., chemistry, Purdue University, 1987

Professional Experience

Department Head, Southern California Coastal Water Research Project. Costa Mesa, CA. 2010-present
Senior Scientist, Southern California Coastal Water Research Project. Costa Mesa, CA. 2001-2010
Post-doctoral Research Associate, Tulane University Institute of Earth and Ecosystem Sciences. New Orleans, LA. 1999-2001
Research Assistant, Louisiana State University Department of Oceanography and Coastal Sciences. Baton Rouge, LA. 1995-1999
Research Assistant, Tulane University School of Public Health and Tropical Medicine. New Orleans, LA. 1993-1994
Project Manager, U.S. Environmental Protection Agency, Office of Pollution Prevention and Toxics, Risk Management Division. Washington, D.C. 1991-1993

Honors and Awards

Sigma Xi Scientific Honor Society (1999)
Gulf Estuarine Research Society Conference-Best Student Paper Award (1998)
Vice-President, Marine Environmental Researchers, Louisiana State University (1996-1997)
Chancellor's Fellowship for Doctoral Studies, Louisiana State University (1995)
Phi Beta Kappa (1986)

Chemical Industrial Society of Illinois Scholarship (1986)
Chemical Industrial Society of Illinois Scholarship for Outstanding Junior In Chemistry (1986)
Dean’s List, Purdue University (1983-1987)

Professional Appointments

Associate Editor, Elementa, Ecology and Earth Systems Division

Science Program Co-Chair, Coastal and Estuarine Research Federation Conference, Richmond 2021

National Academy of Sciences, Everglades Restoration Evaluation

Science Advisory Panel, Southern California Wetland Recovery Project

Professional Societies and Certifications

American Society of Limnology and Oceanography
Coastal and Estuarine Research Federation
California Estuarine Research Society
Pacific Estuarine Research Society
Society of Wetland Scientists
American Geophysical Union

Journal Articles

Killam, D., K. Bouma-Gregson, M. Sutula, R. Kudela, J. Hagy, S. Anderson, D. Senn. 2026. Revisiting chlorophyll a thresholds for San Francisco Bay: insights from observations of phytoplankton molecular abundance. *Harmful Algae* 154:103086.

Kessouri, F., M. Sutula, J. Smith, J. McWilliams, M. Sandoval-Belmar, D. Bianchi, P. Damien, M. Ho, R. Kudela, C. Anderson. 2026. Anthropogenic, climate, and meso and submesoscale influences on diatom productivity in the Southern California Bight, with implications for domoic acid producing harmful algal blooms. *Frontiers in Marine Science* 13:1729816.

Sandoval-Belmar, M., F. Kessouri, J. Smith, A.R. Moreno, C. Anderson, R.M. Kudela, M. Sutula, M. Ho, P. Damien, C. Benitez-Nelson, J.C. McWilliams, D. Bianchi. 2026. Urban eutrophication enhances domoic acid production by Pseudo-nitzschia in the Southern California Bight. *Harmful*

Algae 151:103023.

Singh, S., A.B. Gray, C. Murphy-Hagan, H. Hapich, W. Cowger, J. Perna, T. Le, H. Nogi, B. Badwal, K. McLaughlin, F. Kessouri, C. Moore, G. Lattin, L.M. Thornton Hampton, C.S. Wong, M. Sutula. 2025. Microplastic pollution in the water column and benthic sediment of the San Pedro Bay, California, USA. *Environmental Research* 269:120866.

Frieder, C.A., F. Kessouri, M. Ho, M. Sutula, D. Bianchi, J.C. McWilliams, C. Deutsch, E. Howard. 2024. Effects of urban eutrophication on pelagic habitat capacity in the Southern California Bight. *Frontiers in Marine Science* 11:1392671.

Kessouri, F., M. Sutula, D. Bianchi, M. Ho, P. Damien, J.C. McWilliams, C.A. Frieder, L. Renault, H. Frenzel, K. McLaughlin, C. Deutsch. 2024. Cross-shore transport and eddies promote large scale response to urban eutrophication. *Scientific Reports* 14:7240.

Gillett, D.J., R.D. Mazor, M. Sutula, A. Holt. 2024. Reach-scale models show heterogeneity of stream benthic invertebrate responses to eutrophication stress. *Ecological Indicators* 160:111791.

Ho, M., F. Kessouri, C.A. Frieder, M. Sutula, D. Bianchi, J.C. McWilliams. 2023. Effect of ocean outfall discharge volume and dissolved inorganic nitrogen load on urban eutrophication outcomes in the Southern California Bight. *Scientific Reports* 13:22148.

McLaughlin, K., R.D. Mazor, M. Sutula, K.C. Schiff. 2023. Regional assessment of trash in Southern California coastal watersheds, United States. *Frontiers in Environmental Science* 11:1210201.

Sandoval-Belmar, M., J. Smith, A.R. Moreno, C. Anderson, R.M. Kudela, M. Sutula, F. Kessouri, D.A. Caron, F.P. Chavez, D. Bianchi. 2023. A cross-regional examination of patterns and environmental drivers of Pseudo-nitzschia harmful algal blooms along the California coast. *Harmful Algae* 126:102435.

Moreno, A.R., C. Anderson, R.M. Kudela, M. Sutula, C. Edwards, D. Bianchi. 2022. Development, calibration, and evaluation of a model Pseudo-nitzschia and domoic acid production for regional ocean modeling studies. *Harmful Algae* 118:102296.

Frieder, C.A., C. Yan, M. Chamecki, D. Dauhajre, J.C. McWilliams, J. Infante, M.L. McPherson, R.M. Kudela, F. Kessouri, M. Sutula, I.B. Arzeno-Soltero, K.A. Davis. 2022. A Macroalgal Cultivation Modeling System (MACMODS): Evaluating the Role of Physical-Biological Coupling on Nutrients and Farm Yield. *Frontiers in Marine Science* DOI:10.3389/fmars.2022.752951.

Walker, J.B., D.J. Gillett, M. Sutula. 2022. Establishing biologically relevant sediment organic matter thresholds for estuaries and embayments of the Southern California Bight, USA. *Ecological Indicators* 143:1-12.

Mazor, R.D., M. Sutula, S. Theroux, M. Beck, P.R. Ode. 2022. Eutrophication thresholds associated with protection of biological integrity in California wadeable streams. *Ecological Indicators* 142:109180.

Elko, N., D. Foster, G. Kleinheinz, B. Raubenheimer, S. Brander, J. Kinzelman, J.P. Kritzer, D. Munroe, C. Storlazzi, M. Sutula, A. Mercer, S. Coffin, C. Fraioli, L. Ginger, E. Morrison, G. Parent-Doliner, C. Akan, A. Canestrelli, M. DiBenedetto, J. Lang, J. Simm. 2022. Human and ecosystem health in coastal systems. *Shore & Beach* 90:64-91.

Kessouri, F., K. McLaughlin, M. Sutula, D. Bianchi, M. Ho, J.C. McWilliams, L. Renault, J. Molemaker, C. Deutsch, A. Leinweber. 2021. Configuration and validation of an oceanic physical and biogeochemical model to investigate coastal eutrophication in the Southern California Bight. *Journal of Advances in Modeling Earth Systems* 13:e2020MS002296.

Bednarsek, N., R. Ambrose, P. Calosi, R.K. Childers, R.A. Feely, S.Y. Litvin, W.C. Long, J.I. Spicer, J. Strus, J. Taylor, F. Kessouri, M. Roethler, M. Sutula, S.B. Weisberg. 2021. Synthesis of Thresholds of Ocean Acidification Impacts on Decapods. *Frontiers in Marine Science* 8:651102.

McLaughlin, K., M.D.A. Howard, G. Robertson, C.D.A. Beck, M. Ho, F. Kessouri, N.P. Nezlin, M. Sutula, S.B. Weisberg. 2021. Influence of anthropogenic nutrient inputs on rates of coastal ocean nitrogen and carbon cycling in the Southern California Bight, United States. *Elementa: Science of the Anthropocene* 9:00145.

Sutula, M., M. Ho, A. Sengupta, F. Kessouri, K. McLaughlin, K. McCune, D. Bianchi. 2021. A baseline of terrestrial freshwater and nitrogen fluxes to the Southern California Bight, USA. *Marine Pollution Bulletin* DOI:10.1016/j.marpolbul.2021.112669 .

Kessouri, F., J.C. McWilliams, D. Bianchi, M. Sutula, L. Renault, C. Deutsch, R.A. Feely, K. McLaughlin, M. Ho, E.M. Howard, N. Bednarsek, P. Damien, J. Molemaker, S.B. Weisberg. 2021. Coastal eutrophication drives acidification, oxygen loss, and ecosystem change in a major oceanic upwelling system. *Proceedings of the National Academy of Sciences of the United States of America* DOI:10.1073/pnas.2018856118.

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Bittick, S.J., M. Sutula, P. Fong. 2018. A tale of two algal blooms: Negative and predictable effects of two common bloom-forming macroalgae on seagrass and epiphytes. *Marine Environmental Research* 140:1-9.

Sutula, M., R. Kudela, J.D. Hagy III, L.W. Harding Jr, D. Senn, J.E. Cloern, S. Bricker, G.M. Berg, M. Beck. 2017. Novel analyses of long-term data provide a scientific basis for chlorophyll-a thresholds in San Francisco Bay. *Estuarine, Coastal and Shelf Science* 197:107-118.

Howard, M.D.A., C. Nagoda, R.M. Kudela, K. Hayashi, A. Tatters, D.A. Caron, L. Busse, J.S. Brown, M. Sutula, E.D. Stein. 2017. Microcystin Prevalence throughout Lentic Waterbodies in Coastal Southern California. *Toxins* 9:231.

Weisberg, S.B., N. Bednarsek, R.A. Feely, F. Chan, A.B. Boehm, M. Sutula, J.L. Ruesink, B. Hales, J.L. Largier, J.A. Newton. 2016. Water quality criteria for an acidifying ocean: Challenges and opportunities for improvement. *Ocean and Coastal Management* 126:31-41.

Magrann, T., M.D.A. Howard, M. Sutula, D.S. Boskovic, W.K. Hayes, S.G. Dunbar. 2015. Screening Assessment of Cyanobacteria and Cyanotoxins in Southern California Lentic Habitats. *Macrothink Institute Environmental Management and Sustainable Development* 4:91-111.

Fetscher, A.E., M.D.A. Howard, R. Stancheva, R.M. Kudela, E.D. Stein, M. Sutula, L.B. Busse, R.G. Sheath. 2015. Wadeable streams as widespread sources of benthic cyanotoxins in California, USA. *Harmful Algae* 49:105-116.

Boehm, A.B., M.Z. Jacobson, M.J. O'Donnell, M. Sutula, W.W. Wakefield, S.B. Weisberg, E. Whiteman. 2015. Ocean acidification science needs for natural resource managers of the North American west coast. *Oceanography* 28:170-181.

Booth, J.A.T., C.B. Woodson, M. Sutula, F. Micheli, S.B. Weisberg, S.J. Bograd, A. Steele, J. Schoen, L.B. Crowder. 2014. Patterns and potential drivers of declining oxygen content along the Southern California coast. *Limnology and Oceanography* 59:1127-1138.

Sutula, M., L. Green, G. Cicchetti, N. Detenbeck, P. Fong. 2014. Thresholds of Adverse Effects of Macroalgal Abundance and Sediment Organic Matter on Benthic Habitat Quality in Estuarine Intertidal Flats. *Estuaries and Coasts* 37:1532-1548.

Howard, M.D.A., M. Sutula, D.A. Caron, Y. Chao, J.D. Farrara, H. Frenzel, B. Jones, G. Robertson, K. McLaughlin, A. Sengupta. 2014. Anthropogenic nutrient sources rival natural sources on small scales in the coastal waters of the Southern California Bight. *Limnology and Oceanography* 59:285-297.

McLaughlin, K., M. Sutula, L. Busse, S. Anderson, J. Crooks, R. Dagit, D. Gibson, K. Johnston, L. Stratton. 2014. A regional survey of the extent and magnitude of eutrophication in Mediterranean estuaries of Southern California, USA. *Estuaries and Coasts* 37:259-278.

Green, L., P. Fong, M. Sutula. 2014. How much is too much? Identifying benchmarks of adverse effects of macroalgae on the macrofauna in intertidal flats. *Ecological Applications* 24:300-314.

Solek, C.W., M. Sutula, E.D. Stein, C. Roberts, R. Clark, K. O'Connor, K.J. Ritter. 2012. Determining the health of California's coastal salt marshes using rapid assessment. *Wetland Science and Practice* 29:8-28.

Nezlin, N.P., M. Sutula, R.P. Stumpf, A. Sengupta. 2012. Phytoplankton blooms detected by SeaWiFS along the central and southern California coast. *Journal of Geophysical Research* 117:C07004.

Solek, C.W., E.D. Stein, M. Sutula. 2011. Demonstration of an integrated watershed assessment using a three-tiered assessment framework. *Wetlands Ecology and Management* 19:459-474.

Brown, J.S., M. Sutula, C. Stransky, J. Rudolph, E. Byron. 2010. Sediment contaminant chemistry and toxicity of freshwater in urban wetlands in southern California. *Journal of the American Water Resources Association* 46:367-384.

Fetscher, A.E., M. Sutula, J.C. Callaway, V.T. Parker, M.C. Vasey, J.N. Collins, W.G. Nelson. 2010. Patterns in estuarine vegetation communities in two regions of California: Insights from a probabilistic survey. *Wetlands* 30:833-846.

Stein, E.D., A.E. Fetscher, R.P. Clark, A. Wiskind, J.L. Grenier, M. Sutula, J.N. Collins, C. Grosso. 2009. Validation of a wetland rapid assessment method: Use of EPA's Level 1-2-3 Framework for method testing and refinement. *Wetlands* 29:648-665.

Sutula, M., E.D. Stein, J.N. Collins, A.E. Fetscher, R. Clark. 2006. A practical guide for the development of a wetland assessment method: the California experience. *Journal of the American Water Resources Association* 42:157-175.

Sanders, B.F., F. Arega, M. Sutula. 2005. Modeling the dry-weather tidal cycling of fecal indicator bacteria in surface waters of an intertidal wetland. *Water Research* 39:3394-3408.

Schiff, K.C., M. Sutula. 2004. Organophosphorus Pesticides in Storm-Water Runoff from Southern California (USA). *Setac Press* 23:1815-1821.

Sutula, M., T. Bianchi, and B. McKee. 2004. Effect of seasonal sediment storage and diagenesis in the lower Mississippi River on bio-availability of particulate phosphorus flux to Gulf of Mexico. Limnology and Oceanography 49:2223-2235.

Schiff, K. and M. Sutula. 2004. Organophosphorus pesticides in stormwater runoff from Southern California watersheds. Water Resources Management 23:1815-1821

Sutula, M., B. Perez, E. Reyes, J.W. Day Jr., and D. Childers. 2003. Spatio-temporal variability in material exchange between the Southeastern Everglades Wetlands and Florida Bay. Estuarine, Coastal, and Shelf Science 57:757-781.

Mitra, S., T. Bianchi, B. McKee, and M. Sutula. 2002. Black Carbon in the Mississippi River: Quantities and Sources. Environmental Science and Technology 11:2296-2302.

Sutula, M., J. Day, and J. Cable. 2001. Hydrological and nutrient budgets of freshwater and estuarine wetlands of Taylor Slough in Southern Everglades, Florida (USA). Biogeochemistry 56:287-310.

Book Chapters

Reed, D.J., C. Brown, A.D. Steinman, M. Sutula, D.H. Wardrop. 2022. Restoration in the Context of Climate Change. in: D.H. Wardrop, W.G. Boggess, C. Brown, C.B. Burke, P.M. Dixon, C.T. Driscoll, K.R. Reddy, D.J. Reed, A.D. Steinman, M. Sutula, J.R. Walters (eds.), *Progress Toward Restoring the Everglades: The Ninth Biennial Review—2022* pp. 137-168. National Academies of Sciences,

Engineering and Medicine. Washington, D.C..

Cloern, J.E., P.J. Barnard, E. Beller, J.C. Callaway, L. Grenier, E.D. Grosholz, R. Grossinger, K. Hieb, J.T. Hollibaugh, N. Knowles, M. Sutula, S. Veloz, K. Wasson, A. Whipple. 2016. Estuaries: Life on the edge. in: H. Mooney, E. Zavaleta (eds.), *Ecosystems of California* pp. 133-137. University of California Press. Berkeley, CA.

Day, J., F. Sklar, J. Cable, D. Childers, C. Coronado-Molina, S. Davis, S. Kelly, C. Madden, B. Perez, E. Reyez, D. Rudnick, M. Sutula. 2013. The salinity transition zone between the Southern Everglades and Florida Bay. in: J.W. Day, A. Yanez-Arancibia (eds.), *Gulf of Mexico: Origin, Waters, and Biota - Volume 4: Ecosystem-Based Management* pp. 1-24. Texas A&M University Press. College Station, TX.

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Technical Reports

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McLaughlin, K., J. Smith, M. Sutula. 2026. Recommendations for co-located monitoring of marine harmful algal blooms, ocean acidification and hypoxia, September 14-15, 2023, workshop proceedings. Technical Report 1462. Southern California Coastal Water Research Project. Costa Mesa, CA.

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Sutula, M., F. Kessouri, M. Ho, C.A. Frieder. 2026. Numerical Simulation of Potential Eutrophication Effects of Oil and Gas Produced Water Discharges on the Southern California Bight. Technical Report 1446. Southern California Coastal Water Research Project. Costa Mesa, CA.

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California Coastal Water Research Project. Costa Mesa, CA.

Sutula, M., F. Kessouri, C.A. Frieder, N. Lombardo. 2025. Quality Control Procedures for the Development, Validation and Science Applications of the Regional Ocean Modeling System with Biogeochemical Elemental Cycling Model (2019-2026). Technical Report 1444. Southern California Coastal Water Research Project. Costa Mesa, CA.

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Sutula, M., J. Butcher, S. Sarkar, S. Roy. 2022. Science Supporting Decisions on Management of Eutrophication in Elkhorn Slough Estuary. Technical Report 1259. Southern California Coastal Water Research Project. Costa Mesa, CA.

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Sutula, M., D. Senn, L. Fono, M. Ho, F. Karimpour, F. Kessouri, A. King, A. Latker, P. Markle. 2021. Approaches to Quantifying Uncertainty in Coastal Eutrophication Numerical Modeling: A Workshop Summary. Technical Report . Southern California Coastal Water Research Project. Costa Mesa, CA.

Smith, J., M. Sutula, K. Bourma-Gregson, M. Van Dyke. 2021. California Water Boards' Framework and Strategy for Freshwater Harmful Algal Bloom Monitoring: Full Report with Appendices. Technical Report 1141.B. California State Water Resources Control Board. Sacramento, CA.

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Sutula, M., D. Senn. 2017. Scientific Basis to Assess the Effects of Nutrients on San Francisco Bay Beneficial Uses. Technical Report 864. Southern California Coastal Water Research Project. Costa Mesa, CA.

Sutula, M., J. Largier, C. Beck, R. Roettger, L. Emler, M. Molina, M. Robart, K. McLaughlin. 2016. Natural Background Concentrations of Dissolved Oxygen and Algae in California "Reference" Estuaries. Technical Report 934. Southern California Coastal Water Research Project. Costa Mesa, CA.

Aminzadeh, S., M. Armsby, N. Bednarsek, J. Bishop, A. Boehm, C. Braby, F. Chan, R. Dunbar, R. Feely, B. Gaylord, L. Jewett, C. Krembs, K. Kroeker, R. Labiosa, T. Maloney, J. Phillips, B. Rappoli, M. Sakashita, D. Sivas, G. Somero, M. Sutula, D. Thomas, G. Waldbusser, S.B. Weisberg. 2016. Ocean Acidification: Setting Water Quality Goals. Technical Report 961. Stanford University. Stanford, CA.

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