

CURRICULUM VITAE

James G. Sanders
Professor Emeritus
Skidaway Institute of Oceanography
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EDUCATION

- 1973 B.S. Duke University, Zoology
- 1975 M.S. University of North Carolina, Marine Sciences. Thesis: Variations and interactions of manganese and phytoplankton in Calico Creek, North Carolina, under the direction of W.J. Woods
- 1978 Ph.D. University of North Carolina, Marine Sciences. Dissertation: Interactions between arsenic species and marine algae, under the direction of H.L. Windom.

PROFESSIONAL EXPERIENCE

- 2018-Present Professor Emeritus, Skidaway Institute of Oceanography, University of Georgia
- 2016-2018 Professor, Skidaway Institute of Oceanography, Department of Marine Sciences University of Georgia
- 2013-2016 Executive Director and Professor, Skidaway Institute of Oceanography, University of Georgia
- 2001-2013 Director and Professor, Skidaway Institute of Oceanography
- 2002-2013 Professor, School of Biology, Georgia Institute of Technology, Atlanta, GA
- 2002-2013 Adjunct Professor, Marine Sciences, University of Georgia, Athens, GA
- 2003-2018 Adjunct Professor, Savannah State University, Savannah, GA
- 1999-2001 Department Chair and Professor, Ocean, Earth and Atmospheric Sciences, Old Dominion University, Norfolk, VA
- 1981-1999 Center Director, The Academy of Natural Sciences, Estuarine Research Center, St. Leonard, MD, 1983-1999. Curator, The Academy of Natural Sciences, Estuarine Research Center, 1990-1999. Associate Curator, 1985-1990. Assistant Curator, 1981-1985
- 1981-1989 Adjunct Associate Professor, University of Maryland, Center for Environmental and Estuarine Studies, Chesapeake Biological Laboratory, Solomons, Maryland, 1985-1989. Adjunct Assistant Professor, 1981-1985

1980-1981 Visiting Assistant Professor, University of Maryland, Chesapeake Biological Laboratory
1978-1980 Postdoctoral Investigator, Woods Hole Oceanographic Institution, Woods Hole, MA

SELECTED AWARDS AND APPOINTMENTS

Certificate of Appreciation for contributions toward the development of state policy for restoring water quality in the Patuxent River; awarded by Maryland Governor H. Hughes, 1981.

Member, Environmental Commission of Calvert County, Maryland, 1981-1988; Chairman, 1983-1985.

Member, University of Maryland Sea Grant College Scientific Advisory Committee, 1983-1990.

Member, International Evaluation Group for the Swedish Environment Protection Board, 1984-1988.

Member, Science Advisory Board, Maryland Department of Natural Resources Power Plant Research Program, 1987-1999.

Treasurer, Estuarine Research Federation, 1994-1997; Associate Editor, ESTUARIES, 1995-1999.

Trustee, Chesapeake Research Consortium. Institutional Trustee, 1993-1995, 1999-2001,
Secretary, 1995-1999, Institutional Principal, 1995-1999.

Member, Scientific and Technical Advisory Committee, EPA Chesapeake Bay Program, 1996-2001.

Member, Board of Directors, American Chestnut Land Trust, 1997-1999.

Member, VA Graduate Marine Science Consortium, Academic Advisory Panel, 1999-2001.

Member, Editorial Board, ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY, 2001-2003

Member, Board of Governors, Consortium for Oceanographic Research and Education, 1999 – 2007;
Executive Committee, 2003-2007.

Member, Board of Trustees, Consortium for Ocean Leadership, 2008 – 2014, 2015-2016;
Executive Committee, 2009-2011, 2012-2014; Treasurer, 2012-2014, 2017-2018; Member, Ocean Futures
Committee, 2013-2016

Member, EPA Science Advisory Board, 2007-2014
Ecological Processes and Effects Committee, 2003-2009
Hypoxia Advisory Panel, 2006-2007
Chair, Advisory on EPA's Report on the Environment, 2009-2010; 2012-2014
Chair, Great Lakes Restoration Initiative Action Plan Panel, 2011-2012

President, National Association of Marine Laboratories, 2008-2009

Member, South Carolina Sea Grant Program Advisory Board, 2005-Present

Member, Board of Directors, South East Coastal Ocean Observing Regional Association, 2007-2009

Member, Georgia Sea Grant Advisory Board, 2015-2016

PUBLICATIONS

- 1978 Sanders, J.G. The sources of dissolved manganese to Calico Creek, North Carolina. *Estuarine Coastal Mar. Sci.* 6: 231-238
- Sanders, J.G. Enrichment of estuarine phytoplankton by the addition of dissolved manganese. *Mar. Environ. Res.* 1: 59-66.
- Sanders, J.G. The sources of dissolved manganese to Calico Creek, North Carolina: A reply. *Estuarine Coastal Mar. Sci.* 7: 579-580.
- 1979 Sanders, J.G. Microbial role in the demethylation and oxidation of methylated arsenicals in seawater. *Chemosphere* 8: 135-137.
- Sanders, J.G. The concentration and speciation of arsenic in marine macro-algae. *Estuarine Coastal Mar. Sci.* 9: 95-99.
- Sanders, J.G. The importance of salinity in determining the morphology and composition of algal mats. *The Bot. Mar.* 22: 159-162.
- Sanders, J.G. and E.J. Kuenzler. Phytoplankton population dynamics and productivity in a sewage-enriched tidal creek in North Carolina. *Estuaries* 2: 87-96.
- Sanders, J.G. Effects of arsenic speciation and phosphate concentration on arsenic inhibition of Skeletonema costatum (Bacillariophyceae). *J. Phycol.* 15: 424-428.
- 1980 Ryther, J.H. and J.G. Sanders. Experimental evidence of zooplankton control of the species composition and size distribution of marine phytoplankton. *Mar. Ecol. Prog. Ser.* 3: 279-283.
- Sanders, J.G. and H.L. Windom. The uptake and reduction of arsenic species by marine algae. *Estuarine Coastal Mar. Sci.* 10: 555-567.
- Sanders, J.G. Arsenic cycling in marine systems. *Mar. Environ. Res.* 3: 257-266.
- Sanders, J.G. and J.H. Ryther. The impact of chlorine on the species composition of marine phytoplankton. In: R.L. Jolley, W.A. Brungs, and R.B. Cumming (eds.), *Water chlorination: Environmental impact and health effects*, vol. 3. Ann Arbor Sci., Ann Arbor, MI, p. 631-639.
- 1981 Sanders, J.G., J.H. Ryther, and J.H. batchelder. Effects of cooper, chlorine, and thermal addition on the species composition of marine phytoplankton. *J. Exp. Mar. Biol. Ecol.* 49: 81-102.
- Sanders, J.G., J.H. Batchelder, and J.H. Ryther. Dominance of a stressed marine phytoplankton assemblage by a copper-tolerant marine pennate diatom. *Bot. Mar.* 24: 39-41
- Windom, H.L. and J.G. Sanders. Arsenic geochemistry in a controlled marine ecosystem. *Ind. J. Mar. Sci.* 10: 309-313.
- 1982 Sanders, J.G. Chlorination of estuarine water: the occurrence and magnitude of carbon oxidation and its impact on trace metal transport *Environ. Sci. Technol.* 16: 791-796.

- Sanders, J.G. and P.S. Vermersch. Response of marine phytoplankton to low levels of arsenate. *J. Plankton Res.* 4: 881-893.
- 1983 Sanders, J.G. Role of marine phytoplankton in determining the chemical speciation and biogeochemical cycling of arsenic. *Can. J. Fish. Aquat. Sci.* 40: 192-196.
- 1984 Sanders, J.G. The longevity of algal inhibition after chlorination of estuarine water. *Environ. Sci. Technol.* 18: 383-385.
- 1985 Sanders, J.G. and R.W. Osman. Arsenic incorporation in a salt marsh ecosystem. *Est. Coastal Shelf Sci.* 20: 387-392.
- Sanders, J.G. and S.J. Cibik. Adaptive behavior of euryhaline phytoplankton communities to arsenic stress. *Mar. Ecol. Prog. Ser.* 22: 199-205.
- Sanders, J.G. and S.J. Cibik. Reduction of growth rate and resting spore formation in a marine diatom exposed to low levels of cadmium. *Mar. Environ. Res.* 16: 165-180.
- Sanders, J.G. Arsenic geochemistry in Chesapeake Bay: dependence upon anthropogenic inputs and phytoplankton species composition. *Mar. Chem.* 17: 329-340.
- 1986 Abbe, G.R. and J.G. Sanders. Condenser replacement in a coastal power plant: copper uptake and incorporation in the American oyster, *Crassostrea virginica*. *Mar. Environ. Res.* 19: 93-113.
- D'Elia, C.F., J.G. Sanders, and W.R. Boynton. Nutrient enrichment studies in a coastal plain estuary: Phytoplankton growth in large-scale, continuous cultures. *Can. J. Fish. Aquat. Sci.* 43: 397-406.
- Newell, A.D. and J.G. Sanders. The relative copper binding capacities of dissolved organic compounds in a coastal-plain estuary. *Environ. Sci. Technol.* 20: 817-821.
- Sanders, J.G. Direct and indirect effects of arsenic on the survival and fecundity of estuarine zooplankton. *Can. J. Fish. Aquat. Sci.* 43: 694-699.
- Sanders, J.G. The physiological ecology of seaweeds: a companion for traditional phycology texts (book review). *Bartonia* 52: 82.
- Sanders, J.G. Alteration of arsenic transport and reactivity in coastal marine systems after biological transformation. *Rapp. P.-v. Reun. Cons. int. Explor. Mer* 186: 185-192.
- 1987 D'Elia, C.F. and J.G. Sanders. Scientists don't make management decisions (and why we wish that sometimes we did . . .) *Mar. Poll. Bull.* 18: 429-433.
- Riedel, G.F., J.G. Sanders and R.W. Osman. The effect of biological and physical disturbances on the transport of arsenic from contaminated estuarine sediments. *Estuarine Coastal Shelf Sci.* 25: 693-706.
- Sanders, J.G., S.J. Cibik, C.F. D'Elia and W.R. Boynton. Nutrient enrichment studies in a coastal plain estuary: Changes in phytoplankton species composition. *Can. J. Fish. Aquat. Sci.* 44: 83-90.

- Sanders, J.G. and G.F. Riedel. Control of trace element toxicity by phytoplankton. In: J. A. Saunders, L. Kosak-Channing and E. E. Conn, eds., *Recent Advances in Phytochemistry*, vol. 21. Plenum Press, New York, p. 131-149.
- Sanders, J.G. Contaminant effects on primary producers in Chesapeake Bay. In: S. K. Majumdar, L. W. Hall, Jr. and H. M. Austin, eds., *Contaminant Problems and Management of Living Chesapeake Bay Resources*, Pennsylvania Academy of Sciences, p. 394-416.
- Sanders, J.G. and G.R. Abbe. The role of suspended sediments and phytoplankton in the partitioning and transport of silver in estuaries. *Continental Shelf Res.* 7: 1357-1361.
- 1988 Abbe, G.R. and J.G. Sanders. Rapid decline in oyster condition in the Patuxent River, Maryland. *J. Shellfish Res.* 7: 57-59.
- Cibik, S.J., J.G. Sanders, and C.F. D'Elia. Interactions between insolation and nutrient loading and response of estuarine phytoplankton. In: *Oceans '88 Proceedings*, p. 29-34.
- Sanders, J.G. and S.J. Cibik. Response of Chesapeake Bay phytoplankton communities to low levels of toxic substances. *Mar. Poll. Bull.* 19: 439-444.
- Sanders, J.G. and G.F. Riedel. Chemical and physical processes influencing bioavailability of toxics in estuaries. In: M.P. Lynch and E.C. Krome (eds.), *Perspectives on the Chesapeake Bay: Recent Advances in Estuarine Sciences*. CRC Publication # 127, p. 87-106.
- Sanders, J.G. and G.F. Riedel. The use of enclosed ecosystems for the study of cycling and impact of trace elements. In: *Oceans '88 Proceedings*, p. 23-28. IEEE Press.
- 1989 D'Elia, C.F., J.G. Sanders, and D.G. Capone. Analytical chemistry for environmental sciences: a question of confidence. *Environ. Sci. Technol.* 23: 768-774.
- Riedel, G.F., J.G. Sanders and R.W. Osman. The role of three species of benthic invertebrates in the transport of arsenic from contaminated estuarine sediments. *Exp. Mar. Biol. Ecol.* 134: 143-155.
- Sanders, J.G. and G.R. Abbe. Silver transport and impact in estuarine and marine systems. In: G. Suter and M. Lewis, (eds.), *Aquatic Toxicology and Environmental Fate: Eleventh Volume*, American Society for Testing and Materials STP 1007, p. 5-18.
- Sanders, J.G., R.W. Osman and G.F. Riedel. Pathways of arsenic uptake and incorporation in estuarine phytoplankton and filter-feeding invertebrates, *Eurytemora affinis*, *Balanus improvisus*, and *Crassostrea virginica*. *Mar. Biol.* 103: 319-325.
- 1990 Abbe, G.R. and J.G. Sanders. Pathways of silver uptake and accumulation by the American oyster (*Crassostrea virginica*) in Chesapeake Bay. *Estuar. Coast. Shelf Sci.* 31: 113-123.
- Lindsay, D.M. and J.G. Sanders. Arsenic uptake and transfer in a simplified estuarine food chain. *Environ. Toxicol. Chem.* 9: 391-395.
- Sanders, J.G., G.R. Abbe and G.F. Riedel. Silver uptake and subsequent effects on growth and species composition in an estuarine community. *Sci. Tot. Environ.* 97: 761-769.

- 1991 Connell, D.B., J.G. Sanders, G.F. Riedel, and G.R. Abbe. Pathways of silver uptake and trophic transfer in estuarine organisms. *Environ. Sci. Technol.* 25: 921-924.
- Porcella, D.B., G.L. Bowie, J.G. Sanders, and G.A. Cutter. Assessing Se cycling and toxicity in aquatic ecosystems. *Water Air Soil Poll.* 57-58: 3-11.
- Riedel, G.F., D.P. Ferrier, and J.G. Sanders. Uptake of selenium by freshwater phytoplankton. *Water Air Soil Poll.* 57-58: 23-30.
- Sanders, J.G., G.F. Riedel, and G.R. Abbe. Factors controlling the spatial and temporal variability of trace metal concentrations in *Crassostrea virginica* (Gmelin). Pages 335-339 in M. Elliott and J.P. Ducrotoy (eds.) *Estuaries and Coasts: Spatial and Temporal Intercomparisons*. Olsen & Olsen, Helstedsvej.
- Sanders, J.G., G.F. Riedel, and D.P. Ferrier. Changes in community structure of Chesapeake Bay phytoplankton when exposed to low levels of trace metals: Management implications. Pages 451-460 in J.A. Mihursky and A. Chaney (eds.) *New Perspectives in the Chesapeake System: A Research and Management Partnership. Proceedings of a Conference 4-6 December 1990*, Baltimore MD. Chesapeake Research Consortium Publication No. 137.
- 1992 Sanders, J.G. and G.F. Riedel. Sources, cycling and fate of contaminants in Chesapeake Bay. *Wat. Sci. Technol.* 26: 2645-2652.
- 1993 Sanders, J.G. and G.F. Riedel. Trace element transformation during the development of an estuarine algal bloom. *Estuaries* 16: 521-532.
- 1994 Abbe, G.R., J.G. Sanders and G.F. Riedel. Silver uptake by the oyster (*Crassostrea virginica*): Effect of organism size and storage sites. *Est. Coast. Shelf Sci.* 39: 249-260.
- Sanders, J.G., G.F. Riedel and R.W. Osman. Arsenic cycling and impact in estuarine and coastal marine ecosystems. Pages 289-308 in: J.O. Nriagu, (ed.) *Arsenic in the Environment, Part I: Cycling and Characterization*. John Wiley and Sons, NY.
- 1995 Riedel, G.F., G.R. Abbe and J.G. Sanders. Silver and copper accumulation in two estuarine bivalves, the eastern oyster (*Crassostrea virginica*) and the hooked mussel (*Ischadium recurvum*) in the Patuxent River estuary, Maryland. *Estuaries* 18: 445-455.
- 1996 Bowie, G.L., J.G. Sanders, G.F. Riedel, C.C. Gilmour, D.L. Breitburg, G.A. Cutter, and D.B. Porcella. Assessing selenium cycling and accumulation in aquatic ecosystems. *Wat. Air Soil Poll.* 90: 93-104.
- Riedel, G.F. and J.G. Sanders. The influence of pH and media composition on the uptake of inorganic selenium by *Chlamydomonas reinhardtii*. *Environ. Toxicol. Chem.* 15: 1577-1583.
- Riedel, G.F., J.G. Sanders, and C.C. Gilmour. Uptake, transformation, and impact of selenium in freshwater phytoplankton and bacterioplankton communities. *Aquatic Microb. Ecol.* 11: 43-51.
- 1997 Riedel, G.F., J.G. Sanders and R.W. Osman. Biogeochemical control on the flux of trace elements from estuarine sediments: Water column oxygen concentrations and benthic infauna. *Est. Coast. Shelf Sci.* 44: 23-38.
- 1998 Sanders, J.G. and G.F. Riedel. Metal accumulation and impacts in phytoplankton. In: W. Langston and M. Bebianno (eds.), *Metal metabolism in aquatic environments*. Chapman and Hall, London, pp. 59-76.

- Riedel, G.F. and J.G. Sanders. Trace element speciation and behavior in the tidal Delaware River. *Estuaries* 21: 78-90.
- Riedel, G.F., G.R. Abbe and J.G. Sanders. Temporal and spatial variations of trace metal concentrations in oysters from the Patuxent River, Maryland. *Estuaries* 21: 423-434.
- 1999 Connell, D.B. and J.G. Sanders. Variation in cadmium uptake by estuarine phytoplankton and transfer to the copepod, *Eurytemora affinis*. *Mar. Biol.* 133: 259-265.
- Riedel, G.F., R.W. Osman, and J.G. Sanders. Biogeochemical control on the flux of trace elements from estuarine sediments: effects of seasonal and short-term hypoxia. *Mar. Environ. Res.* 47: 349-372.
- Breitburg, D.L., J.G. Sanders, C.C. Gilmour, C.A. Hatfield, R.W. Osman, G.F. Riedel, S.P. Seitzinger, and K.G. Sellner. Variability in responses to nutrients and trace elements, and transmission of stressor effects through an estuarine food web. *Limnol. Oceanogr.* 44: 837-863.
- 2000 Abbe, G.R., G.F. Riedel and J.G. Sanders. Factors that influence the accumulation of copper and cadmium by transplanted eastern oysters (*Crassostrea virginica*) in the Patuxent River, Maryland. *Mar. Environ. Res.* 49:377-396.
- Riedel, G.F., S.A. Williams, G.S. Riedel, C.C. Gilmour and J.G. Sanders. Temporal and spatial patterns of trace elements in the Patuxent River: A whole watershed approach. *Estuaries* 23: 521-535.
- 2002 Laursen, A.E., S.P. Seitzinger, R. DeKorsey, J.G. Sanders, D.L. Breitburg, and R.W. Osman. Multiple stressors in an estuarine system: effects of nutrients, trace elements, and trophic complexity on benthic photosynthesis and respiration. *Estuaries* 25: 57-69.
- 2003 D'Elia, C.F., W.R. Boynton and J.G. Sanders. A watershed perspective on nutrient enrichment, science and policy in the Patuxent River, Maryland: 1960-2000. *Estuaries* 26: 171-185.
- Riedel, G.F. and J.G. Sanders. The interrelationships among trace element cycling, nutrient loading, and system complexity in estuaries: A mesocosm study. *Estuaries* 26: 339-351.
- Riedel, G.F., J.G. Sanders, and D.L. Breitburg. Seasonal variability in response of estuarine phytoplankton communities to stress: Linkages between toxic trace elements and nutrient enrichment. *Estuaries* 26: 323-338.
- Wiegner, T.N., S.P. Seitzinger, D.L. Breitburg and J.G. Sanders. The effects of multiple stressors on the balance between autotrophic and heterotrophic processes in an estuarine system. *Estuaries* 26: 352-364.
- 2008 Dale, V.H. and 21 others, including J.G. Sanders. Enhancing the ecological risk assessment process. *Integrated Environ. Assess. Management* 4: 306-313.
- 2009 Boesch, D.F., W.R. Boynton, L.B. Crowder, R.J. Diaz, R.W. Howarth, L.D. Mee, S.W. Nixon, N.N. Rabalais, R. Rosenberg, J.G. Sanders, D. Scavia and R.E. Turner. Nutrient enrichment drives Gulf of Mexico hypoxia. *EOS, Trans. Am. Geophys. Union* 90: 117-118.

- 2010 Dale, V.H., C. Kling, J.L. Meyer, J.G. Sanders, and 22 others. Hypoxia in the Northern Gulf of Mexico. Springer, New York, 340 p.
- 2016 Schaffner, L.C., T.W. Hartley and J.G. Sanders. Moving Forward: 21st Century Pathways to Strengthen the Ocean Science Workforce Through Graduate Education and Professional Development. *Oceanography* 29(1):36–43, <http://dx.doi.org/10.5670/oceanog.2016.09>.
- 2018 Diaz, J.M., Holland, A., Sanders, J.G., Bulski, K., Mollett, D., Chou, C.W., and Duhamel, S. Dissolved organic phosphorus utilization by phytoplankton reveals preferential degradation of polyphosphates over phosphomonoesters. *Frontiers in Marine Science* 5:380.
- 2019 Diaz, J.M., Steffen, R., Sanders, J.G., Tang, Y., and Duhamel, S. Preferential utilization of inorganic polyphosphate over other bioavailable phosphorus sources by the model diatoms *Thalassiosira* spp. *Environ. Microbiol.* doi:10.1111/1462-2920.14630

PRESENTATIONS (Recent)

June 1994, IAGLR-ERF '94, Windsor, Ontario. Chairman for the session on Processes that influence contaminant cycling and impact.

First author on "Trace element uptake and transport in estuarine phytoplankton blooms."

Second author on "The influence of water column oxygen concentrations and benthic infauna on the flux of trace elements from estuarine sediments," presented by G. F. Riedel.

September 1994, Second international conference on transport, fate and effects of silver in the environment, Madison, WI, "Comparison of silver, cadmium, copper and arsenic uptake by phytoplankton."

May 1995, Maryland Department of Natural Resources, CBRM Seminar Series, "Trophic response to trace element contamination."

November 1995, ERF Biennial Meeting, Corpus Christi, TX, "The importance of understanding ecological complexity to predicting effects of multiple stressors on coastal systems."

November 1995, SETAC Annual Meeting and 6th World Congress, Vancouver, B.C., Second author on "High concentrations of trace metals in oysters from the Patuxent River, MD," presented by G.F. Riedel.

September 1996, ECSA 26/ERF 96, Middelburg, The Netherlands, "Factors that influence partitioning of trace elements to estuarine phytoplankton and subsequent transfer to higher trophic levels."

Second author on poster "The importance of understanding ecological complexity to predicting effects of multiple stressors on coastal systems."

November 1996, SETAC Annual Meeting, Washington D.C., "Trace element interactions and transport in estuarine dinoflagellate blooms."

February 1997, ASLO Aquatic Sciences Meeting, Santa Fe, NM, "Effects of multiple stressors on estuarine phytoplankton and resulting influences on higher trophic levels."

Session Co-chair, “Effects of multiple stressors on marine and freshwater ecosystems.”

October 1997, ERF Biennial Meeting, Providence, RI, “Trace element partitioning in estuaries: prediction of phytoplankton uptake and transfer to higher trophic levels.”

Session chair, “Bioassays in estuarine research.”

November 1998, SETAC Annual Meeting, Charlotte, NC, “The effects of multiple stressors on estuarine ecosystems: seasonal variability in response of phytoplankton communities.”

February 1999, ASLO Aquatic Sciences Meeting, Santa Fe, NM, “The effects of multiple stressors on estuarine ecosystems: seasonal variability in response of phytoplankton communities to trace elements.”

September 1999, ERF Biennial Meeting, New Orleans, LA, “Seasonal variability in trace element uptake and impact to estuarine phytoplankton communities.”

Session Chair, “Indicators of Stress and Change.”

November 1999, SETAC Annual Meeting, Philadelphia, PA, “Seasonal variability in response of estuarine phytoplankton communities to As and Cu stress.”

November 2001, SETAC Annual Meeting, Baltimore, MD, “Uptake, transformation, and ecological consequences of arsenic interactions with phytoplankton.”

February 2004, ASLO/TOS Ocean Research Conference, Honolulu, HI, fourth author on “Arsenic and phosphorus in the western Atlantic: New data for an old problem.”

February 2007, ASLO Aquatic Sciences Meeting, Santa Fe, NM, third author on “Arsenic toxicity and phytoplankton dynamics in the Sargasso Sea.”

November 2007, ERF Biennial Meeting, Providence, RI, Session organizer and presenter— “The EPA’s Gulf of Mexico Hypoxia Assessment.”

February 2008, ASLO/AGU/TOS Ocean Sciences Meeting, Orlando, FL, third author on “Species specific responses to arsenic toxicity and phosphate limitation.”

March 2009, University of Georgia, “Linking arsenic biogeochemistry, phosphorus limitation and phytoplankton dynamics in coastal and oceanic surface waters.”

March 2010, New College of FL, Sarasota FL, “Stressors in estuaries: multiple sources, multiple trophic levels and multiple stakeholders.”

May 2010, GA Soil and Water Conservation Society, Jekyll Island, GA, “The EPA’s Gulf of Mexico Hypoxia Assessment—and what about Georgia?”

January 2011, Savannah Council on World Affairs, Savannah, GA, “The world’s ocean in the 21st century.”

March 2012, Florida Gulf Coast University, Ft. Myers, FL, “Stressors in estuaries.”

May 2017, Seim, H., Sanders, J., Brown, O., & Eslinger, S. “Ten years of SECOORA, a look back.” *2017 SECOORA annual meeting*. Melbourne, FL.

August 2017, Holland, A., Sanders, J., Mollett, D., Duhamel, S., Tang, Y. & Diaz, J. “Compound-specific degradation of phosphorus sources by the marine diatoms *Thalassiosira* spp.” Goldschmidt Conference, Paris, France.

PROFESSIONAL SERVICE

PROPOSAL REVIEWS

National Science Foundation (Biological Oceanography, Chemical Oceanography, Biotic Systems and Resources, Environmental Biogeochemistry, Geology and Paleontology, U.S.- Japan Cooperative Program, Science and Technology Centers, Field Stations and Marine Labs), NOAA, Sea Grant Program (DE/NJ, MA, NY, MD, NC), NOAA-NURP, NOAA- COP, NOAA-ECOHAB, Environmental Protection Agency, Hudson River Foundation, DE Office of Water Programs, MD Department of Natural Resources, San Francisco Bay Interagency Ecological Study Program, National Environmental Research Council (United Kingdom), NSERC (Canada), GA Water Resources Institute

PANEL REVIEWS

National Science Foundation, Ocean Sciences, Biological Oceanography Panel, 1987
NSF, Environmental Geochemistry & Biogeochemistry, 1996
NSF, Field Stations and Marine Labs, 2000, 2004, 2005, 2015
MD Sea Grant Program, Scientific Advisory Committee, 1983-1990
VA Graduate Marine Science Consortium, Acad. Advisory Panel, 1999-2001
Environmental Protection Agency, Office of Research and Development
-Distinguished Visiting Scientists Review Panel, 1986
-Environmental Biology Review Panel, 1986-1995
-National Centers Program, 1992
MD Department of Natural Resources Science Advisory Board, 1987-1995
Electric Power Research Institute, Environmental Programs, Review Panel for trace element projects, 1986-1995
Swedish Environment Protection Board, Review Panel for the ESTHER Project, 1984-1988
Hudson River Foundation, 1999
NOAA, Coastal Ocean Program, Multiple Stressors Panel, 2002
Department of Defense, SERDP, 2006
SC Sea Grant, 2011, 2013
NOAA, Knauss Fellowship Program, 2015

MANUSCRIPT REVIEWS

Limnology & Oceanography, Environmental Science and Technology, Estuarine, Coastal and Shelf Science, Marine Environmental Research, Environmental Toxicology and Chemistry, Estuaries, Canadian Journal of Fisheries and Aquatic Sciences, Canadian Journal of Botany, Journal of Plankton Research, Journal of Great Lakes Research, Science of the Total Environment, Marine Biology, Water, Air & Soil Pollution, Journal of Phycology, Journal of Marine Research, Archives of Environmental Contamination and Toxicology, Aquatic Geochemistry.

CONSULTATIONS (Recent)

- Kellogg Brown & Root Services, general consultation re science research activities, 2009
- University of Connecticut, possible marine-related, state/university partnerships in the Groton region, 2012
- Outside member, 5 year review of the Center for Galapagos Studies, University of North Carolina, Chapel Hill, 2016

SERVICE TO THE UNIVERSITY OF GEORGIA

- Member, Provost’s Advisory Council, 2013 – 2016

- Member, Vice President for Finance and Administration Search Committee, 2013 – 2014
- Chair, Nanoscale Science and Engineering Center (NanoSEC) Program Review Committee, 2013 -2014
- Faculty Mentor (with Joye): J. Diaz, 2015-Present
- Faculty Mentor (with Yager): E. Harvey, 2015-Present
- Member, PTR guidelines committee, Department of Marine Sciences, 2016
- Member, PTR committee for M. Moran, 2016

TEACHING (Recent)

While at Old Dominion University:

OCEN 640: Advanced Biological Oceanography (graduate, PhD-level)

OCEN 695: Topics: Coastal Ecology (graduate, PhD-level)

While at Skidaway Institute of Oceanography:

GEO 8020 (UGA)/CEE/EAS 6761 (GIT): Contaminated Sediments (graduate, PhD-level; team-taught by distance learning)

MCSI 5202 (SSU): Coastal Oceanography (graduate, MS-level; team-taught)

STUDENT SUPERVISION (Recent)

Postdoctoral advisor for Silke Rick, ANS, 1998-2001

MS advisor for Esther Cornfeld, ODU (graduated 2002)

PhD Committee for the following students:

Ki-Hoon Song, PhD candidate, SUNY-Stony Brook, Marine Sciences (graduated Dec 2000)

Shannon Messeck, ODU (graduated Dec 2002)

MS Committee for William Bounds, ODU (graduated Dec 2001)

GRANTS AND CONTRACT AWARDS

Over \$27,000,000 in funding for research since 1981. Continuous funding for research programs from NOAA, EPA, and NSF. Funding has been diverse, with funds from federal (~\$22,000,000), state (\$500,000) and private (\$4,400,000) sources. Current Awards:

NSF. Ship Operations, R/V Savannah. 2018-2023. Estimated \$2,500,000. PI.

NSF. Oceanographic Technical Services. 2018-2023. Estimated \$150,000. Co-PI.