

GEORGE E. BONEILLO, PH.D.

Coastal Carolina University
Department of Marine Science
PO Box 261954
Conway, SC 29526
Email: GBoneillo@coastal.edu
Office: 843-349-5068

Education:

- 2010 Ph.D., Biological Oceanography. Old Dominion University. Advisor: Dr. Margaret R. Mulholland. *Dissertation Title:* Interannual differences in nutrient dynamics during a brown tide bloom (*Aureococcus anophagefferens*) and the interaction with bacteria.
- 2000 B.Sc., Marine Biology & Biological Oceanography. Long Island University, Southampton Campus.

Employment:

- 2019- Senior Lecturer, Coastal Carolina University
2012-2019 Lecturer, Coastal Carolina University
2011-2012 Adjunct Faculty, Tidewater Community College
2007-2010 Teaching Assistant, Old Dominion University
2001-2006 Research Assistant, Old Dominion University
2000-2001 Research Assistant, Southampton College of Long Island University

Cruise Experience:

- 2001, 10 day cruise, R/V Suncoast, Gulf of Mexico
2002, 10 day cruise, R/V Walton Smith, Gulf of Mexico
2003, 20 day cruise, R/V Cape Hatteras, Sargasso Sea
2004, 20 day cruise, R/V Endeavor, Sargasso Sea
2005, 05 day cruise, R/V Seawolf. Long Island Sound
2006, 06 day cruise, R/V Hugh R. Sharp, North Atlantic

Lectures & Labs taught at Coastal Carolina University:

MSCI 476/476L Marine Plankton (Lecture and Laboratory)

This course explores the structure and function of planktonic communities. The role of phytoplankton, zooplankton and bacteria are examined in detail. Concepts such as: mineral cycling, energy flow, predator/prey relationships, trophic interactions as well as spatial and temporal dynamics are investigated in lecture, discussion, and an integrated laboratory setting.

MSCI 376/376L Sea Turtle Biology (Lecture and Laboratory)

A comprehensive investigation of the evolution, biology, and ecology of sea turtles (order Chelonia) will be covered in this course. Topics to be focused on include: phylogeny, molecular evolution, anatomy, reproduction, ontogenetic changes, sensory capabilities, navigation, feeding behaviors, diving physiology, thermal biology, ecological roles, and matters of conservation. The laboratory demonstrates the topics and principles presented in lecture, involves field research, and conservation and regulatory interest site visitation.

MSCI 510/510L Earth Systems (Lecture and Laboratory)

Earth Systems Science Is the Interdisciplinary Study of The Interaction Between the Earth's Biosphere, Atmosphere, Hydrosphere, And Geosphere. Lecture, Lab, And Discussion Topics Include Origin of The Solar System and Earth, Earth's Interior and Plate Tectonics, Climate, Oceans, Geological Resources, Ecosystems, And A Major Focus on Global Environmental Change and Sustainability.

MSCI 305/305L Marine Chemistry (Lecture and Laboratory)

An introduction to the chemistry of seawater, marine organisms and sediments. The impact of humans on the biogeochemistry of the ocean is emphasized. Laboratories involve the collection and chemical analysis of sea water. Techniques of solving word problems are developed during recitation.

MSCI 302/302L Marine Biology (Lecture and Laboratory)

Study of the adaptive and evolutionary mechanisms by which organisms are able to occupy the various marine habitats. The evolutionary development of the diversity of marine organisms.

MSCI 101/101L The Sea (Lecture & Laboratory)

A non-technical introduction to oceanography for non-majors. Stresses basics of marine science and their relationship to people.

MSCI 111L Introduction to Marine Science (Laboratory)

An introduction to the general theory and principles of marine science covering the physical, biological, geological, and chemical characteristics of seawater and sediments.

MSCI 112L Origin and Evolution of the Marine Environment (Laboratory)

The ocean basins have come to their present state through a multitude of geological, chemical, physical, atmospheric, and biological processes operating on a range of time and spatial scales. The primary objectives of this course are for the student to understand these processes, to understand the "the earth system history" as we know it today and to be able to apply this knowledge to the past, present, and future, both in very short and very long time periods.

Publications:

Boneillo, G.E., and M.R. Mulholland. 2014. Interannual differences in nutrient dynamics during brown tide (*Aureococcus anophagefferens*) blooms in a coastal embayment. *Estuaries and Coasts* 37 (Suppl 1): S147–S163

Mulholland, M. R., A. Rocha, and G.E. Boneillo. 2011. Thymidine and leucine incorporation by phytoplankton: implications for bacterial productivity estimates in coastal waters. *Estuaries and Coasts* 34: 310-325.

Filippino, K.C., M.R. Mulholland, P.W. Bernhardt, G.E. Boneillo, R.E. Morse, M. Semcheski, H. Marshall, N.G. Love, Q. Roberts and D.A. Bronk. 2011. The bioavailability of effluent-derived organic nitrogen along an estuarine salinity gradient. *Estuaries and Coasts* 34: 269-280.

Mulholland, M.R., G.E. Boneillo, P.W. Bernhardt, E.C. Minor. 2009. Comparison of nutrient and microbial dynamics over a seasonal cycle in a Mid-Atlantic coastal lagoon prone to *Aureococcus anophagefferens* (Brown Tide) blooms. *Estuaries and Coasts* 32: 1176-1194.

Mulholland, M.R., R.E. Morse, G.E. Boneillo, P.W. Bernhardt, K.C. Filippino, L.A. Procise, J.L. Blanco-Garcia, H.G. Marshall, T.A. Egerton, W.S. Hunley, K.A. Moore, D.L. Berry and C.J. Gobler. 2009. Understanding causes and impacts of the dinoflagellate, *Cochlodinium polykrikoides*, blooms in the Chesapeake Bay. *Estuaries and Coasts* 32: 734-747.

Mulholland, M. R., G. Boneillo and E. C. Minor. 2004. A comparison of N and C uptake during brown tide *Aureococcus anophagefferens* blooms from two coastal bays on the east coast of the USA. *Harmful Algae* 3: 361-376.

Gobler, C. J., G. E. Boneillo, C. Debenham and D. A. Caron. 2004. Nutrient limitation, organic matter cycling, and plankton dynamics during an *Aureococcus anophagefferens* bloom in Great South Bay, NY. *Aquatic Microbial Ecology* 35: 31-43.

Gobler, C.J., and G. E. Boneillo. 2003. Impacts of anthropogenically-influenced groundwater seepage on water quality and phytoplankton dynamics within a coastal marine ecosystem. *Marine Ecology Progress Series* 255:101-114.

Mulholland, M. R., G. Boneillo, P. Bernhardt, E. Cornfeld, A. M. Watson and E. Minor. A comparison of photosynthetic and heterotrophic carbon acquisition by *Aureococcus anophagefferens*. In: Steidinger, K. A., J. H. Lansberg, C. R. Tomas and G. A. Vargo (eds.), *Harmful Algae 2002. Proceedings of the Xth International Conference on Harmful Algae*. Florida Fish and Wildlife Conservation Commission and Intergovernmental Oceanographic Commission of UNESCO.

Presentations and published abstracts:

Palek, Z., and **Boneillo, G.** 2019. Effect of Hurricane Florence on Winyah Bays Planktonic Population. Presented at 2019 Coastal Carolina University Undergraduate Research Competition; Conway, SC. (April 16-17, 2019).

Wingar, J., Abel, D., **Boneillo, G.**, and Yancey, Y. 2019. Osmoregulation in Juvenile Sandbar Sharks (*Carcharhinus plumbeus*) in Winyah Bay, SC. Presented at Southeastern Estuarine Research Society Meeting; Wilmington, NC. (March 7-9, 2019).

Myers, J., and **Boneillo, G.** 2019. Assessment and comparison of distribution and impacts of microfiber plastics between coastal South Carolina and Bimini, Bahamas. Presented at Southeastern Estuarine Research Society Meeting; Wilmington, NC. (March 7-9, 2019).

Myers, J., and **Boneillo, G.** 2019. Assessment and comparison of distribution and impacts of microfiber plastics between coastal South Carolina and Bimini, Bahamas. Presented at Carolina University Honors Research Symposium. Conway, SC. (April 30, 2019).

LeRoy, K. and **Boneillo, G.** 2019. Microfiber concentrations in sand from nesting sea turtle beaches in Costa Rica, South Carolina, and Florida. Presented at Coastal Carolina University Department of Marine Science Fall Research Symposium; Conway, SC. (December 2019).

Davis, S., and **Boneillo, G.** 2019. The Potential for *Skeletonema costatum* to Negatively Impact Juvenile Fish in Winyah Bay, SC. Women in STEM Fellowship Research Symposium; Conway, SC. (November 18, 2019).

Boneillo, G., Hogge, A., Myers, J., Wise, K., and Moravitz, N. 2018. Quantifying microplastic distribution in coastal waters of South Carolina. Presented at 2018 Ocean Sciences Meeting; Portland, OR (February 12-16, 2018).

King, D., Boneillo, G., Guentzel, J. 2018. Abundance and Distribution of Microplastic Particles in Winyah Bay, South Carolina. Presented at 2018 Ocean Sciences Meeting; Portland, OR (February 12-16, 2018).

Stoughton, M., Boneillo, G., Guentzel, J. 2018. Practical Methodologies for Beach Plastic Education. Presented at 2018 Ocean Sciences Meeting; Portland, OR (February 12-16, 2018).

Ward, E., Rosch, E., Parker, S., and Boneillo, G. 2018. Histological Analysis of Limb Bud Development During Regeneration in Fiddler Crabs. Presented at Southeastern Estuarine Research Society Meeting; St. Augustine, FL (March 8-10, 2018).

Myers, J. 2018. Assessment and comparison of distribution and impacts of microfiber plastics between coastal South Carolina and Bimini, Bahamas. Presented at 2018 Coastal Carolina University Undergraduate Research Competition; Conway, SC. (April 11-12, 2018).

Froscheiser, K. 2018. Microplastics in *Crassostrea virginica* and *Mytilus edulis* living in South Carolina Estuaries. Presented at 2018 Coastal Carolina University Undergraduate Research Competition; Conway, SC. (April 11-12, 2018).

Myers, J., and Boneillo, G. 2018. Assessment and comparison of distribution and impacts of microfiber plastics between coastal South Carolina and Bimini, Bahamas. Presented at Coastal Carolina University Department of Marine Science Fall Research Symposium; Conway, SC. (December 3, 2018).

Sgambati, R., and Boneillo, G. 2018. A comparison of phytoplankton nutrient limitation between the marsh and beach environments of Waties Island, SC. Presented at Coastal Carolina

University Department of Marine Science Fall Research Symposium; Conway, SC. (December 3, 2018).

Boneillo, G., Akers, M., Smith, R., and Monahan, G. 2017. Phytoplankton communities and nutrient dynamics in Winyah Bay, S.C. Presented at Southeastern Estuarine Research Society Meeting & Benthic Ecology Meeting; Myrtle Beach, SC. (April 12-16, 2017).

Hancock, I., Boneillo, G. 2017. Nutrient Limitation of Phytoplankton Communities in Long Bay, South Carolina. Presented at Southeastern Estuarine Research Society Meeting & Benthic Ecology Meeting; Myrtle Beach, SC. (April 12-16, 2017).

Dunmeyer, K., Orr, K., Eaton, B., Ward, E., and Boneillo, G. 2017. Distribution of microplastics in the coastal waters of Myrtle Beach, SC. Presented at Southeastern Estuarine Research Society Meeting & Benthic Ecology Meeting; Myrtle Beach, SC. (April 12-16, 2017).

King, D., Boneillo, G., Guentzel, J. 2017. Abundance and Distribution of Microplastic Particles in Winyah Bay, S.C. Presented at Southeastern Estuarine Research Society Meeting & Benthic Ecology Meeting; Myrtle Beach, SC. (April 12-16, 2017).

Akers, M., Smith, R., Monahan, G., and Boneillo, G. 2017. Phytoplankton communities and nutrient dynamics in Winyah Bay, S.C. Presented at 2017 Coastal Carolina University Undergraduate Research Competition; Conway, SC. (April 11-12, 2017).

Hancock, I., Boneillo, G. 2017. Nutrient Limitation of Phytoplankton Communities in Long Bay, South Carolina. Presented at 2017 Coastal Carolina University Undergraduate Research Competition; Conway, SC. (April 11-12, 2017).

Dunmeyer, K., Orr, K., Eaton, B., Ward, E., and Boneillo, G. 2017. Distribution of microplastics in the coastal waters of Myrtle Beach, SC. Presented at 2017 Coastal Carolina University Undergraduate Research Competition; Conway, SC. (April 11-12, 2017).

King, D., Boneillo, G., Guentzel, J. 2017. Abundance and Distribution of Microplastic Particles in Winyah Bay, S.C. Presented at 2017 Coastal Carolina University Undergraduate Research Competition; Conway, SC. (April 11-12, 2017).

Guentzel, J., King, D., Boneillo, G. 2017. The abundance and distribution of microplastic particles in Winyah Bay, South Carolina. Presented at Emerging Contaminants in the Aquatic Environment Conference; Champaign, IL. (May 31-June 1, 2017).

Hogge, A., and Boneillo, G. 2017 Microfiber prevalence in small bodied marine fish in South Carolina. Presented at Coastal Carolina University Department of Marine Science Fall Research Symposium; Conway, SC. (November 28, 2017).

King, D., Boneillo, G., Guentzel, J. 2017. Abundance and Distribution of Microplastic Particles in Winyah Bay, S.C. Presented at Coastal Carolina University Department of Marine Science Fall Research Symposium; Conway, SC. (November 28, 2017).

Pawlowski, A., Ebert, S., McDonald, R., Moravitz, N., O'Dowd, S., Wise, K., and Boneillo, G. 2017. Plankton dynamics in Winyah Bay, S.C. Presented at Coastal Carolina University Department of Marine Science Fall Research Symposium; Conway, SC. (November 28, 2017).

Boneillo, G.E., B.M. Adam, C.R. Manns, K.I. Moon, R.A. Wood, S.S. Brooks, S.L. Brown, K.M. Woodford and C.R. Wright. Nutrient and phytoplankton dynamics in Winyah Bay, SC. Presented at Southeastern Estuarine Research Society Meeting; Bluffton, SC. (March 10-12, 2016)

Boneillo, G.E., S.S. Brooks, S.L. Brown, K.M. Woodford and C.R. Wright. Phytoplankton and nutrient dynamics in Winyah Bay, SC. Presented at Ocean Sciences Meeting; New Orleans, LA (February 22-26, 2016).

Burge, E., Guentzel, J., Abel, D., Boneillo, G., Fribance, D., Fuss, K., Hill, J., Koepfler, E., Libes, S., Rosch, E., Viso, R. Young, R. "The Experienced@Coastal program provides structured research opportunities for undergraduates in marine science." Presented at The Coastal & Estuarine Research Federation Meeting; Portland, OR. (November 8-12, 2015)

Boneillo, G. E., M. R. Mulholland. Interannual, seasonal, and diel differences in nutrient dynamics during brown tide blooms (*Aureococcus anophagefferens*). Presented at the Coastal and Estuarine Research Federation Conference in Portland, Oregon (November 1-5, 2009).

Boneillo, G. E., M. R. Mulholland. Interannual Differences in Nutrient Dynamics during a Brown Tide Bloom. Presented at Atlantic Estuarine Research Society Spring Meeting, Ocean City Maryland (March 5 - 7, 2009).

Boneillo, G. E., M. W. Lomas, P. W. Bernhardt, and M. R. Mulholland. Interannual differences in nutrient dynamics during blooms of *Aureococcus anophagefferens*, a flow cytometry approach. Presented at American Society of Limnology and Oceanography, Orlando, FL (March 2-7, 2008).

Bernhardt, P W; Mulholland, M R; Gobler, C; Morse, R; Boneillo, G; Filippino, K C; Procise, L; Ecosystem impacts of a *Cochlodinium polykrikoides* bloom in a mid-atlantic estuary. Presented at American Society of Limnology and Oceanography, Orlando, FL (March 2-7, 2008).

Boneillo, G. E., M. W. Lomas, P. W. Bernhardt, and M. R. Mulholland. Nitrogen uptake by *Aureococcus anophagefferens* versus co-occurring bacteria during a bloom, a flow cytometry approach. Presented at American Society of Limnology and Oceanography, Santa Fe, NM (February 4-9, 2007).

Boneillo, G., M. R. Mulholland, and P. W. Bernhardt. Interannual differences in nutrient dynamics during a brown tide bloom (*Aureococcus anophagefferens*). Presented at the Estuarine Research Federation Biannual Meeting, Norfolk, VA (Oct. 16-21, 2005).

Watson, A. M., M. R. Mulholland, P. Bernhardt, A. Rocha and G. Boneillo. Interannual differences in the relative uptake rates of dissolved organic carbon and nitrogen by mixotrophic

dinoflagellate species in the Lafayette River, Virginia, 2002-2003. Presented at the XIth International Conference on Harmful Algae, Cape Town, South Africa (November 15-19, 2004).

Mulholland, M. R., G. Boneillo, P. Bernhardt, and E. C. Minor. Factors promoting brown tide blooms in Virginia's coastal bays. Proceedings from the Virginia Water Research Symposium, Blacksburg, VA (October 4-6, 2004).

Mulholland, M. R., G. Boneillo, P. W. Bernhardt and E. C. Minor. Interannual and inter-site differences in brown tide (*Aureococcus anophagefferens*) bloom physiology. Presented at the American Society of Limnology and Oceanography's Summer Meeting, Savannah, GA (June 13-18, 2004).

Mulholland, M. R., G. Boneillo, P. W. Bernhardt and E. C. Minor. Interannual and inter-site differences in brown tide (*Aureococcus anophagefferens*) bloom physiology. Presented at the Atlantic Estuarine Research Society Spring Meeting, Salisbury, MD (Mar 25-27, 2004).

Watson, A. M., M. R. Mulholland, P. Bernhardt, A. Rocha, S. Reynolds and G. Boneillo. The relative importance of DOM uptake, grazing and photosynthesis over diel cycles in the mixotrophic dinoflagellate, *Akashiwo sanguinea*, in the Lafayette River, a tributary of the Chesapeake Bay. Presented at the Second Symposium on Harmful Algal Blooms in the US at Woods Hole, Massachusetts (9 – 13 December, 2003).

Boneillo, G., M. R. Mulholland, P. Bernhardt, and E. C. Minor. Competition for organic resources: bacteria versus *Aureococcus anophagefferens*. Presented at the Second Symposium on Harmful Algal Blooms in the US at Woods Hole, Massachusetts (9 – 13 December, 2003).

Rocha, A., M. R. Mulholland, P. Bernhardt, A. M. Watson, G. Boneillo, S. Reynolds. Uptake of thymidine and leucine phytoplankton: implications for bacterial productivity estimates. Presented at the Estuarine Research Federation Annual Meeting, Seattle, WA (Sept. 14-18, 2003).

Watson, A. M., M. R. Mulholland, P. Bernhardt, A. Rocha, S. Reynolds, G. Boneillo. The relative importance of phototrophy, osmotrophy, and phagotrophy to dinoflagellate nutrition over seasonal time scales. Presented at the Estuarine Research Federation Annual Meeting, Seattle, WA (Sept. 14-18, 2003).

Mulholland, M. R., G. Boneillo, P. Bernhardt, E. Minor, J.-P. Simjouw and C. Lee. Competition for organic resources: bacteria versus *Aureococcus anophagefferens*. Presented at the Estuarine Research Federation Annual Meeting, Seattle, WA (Sept. 14-18, 2003).

Henry, A., M. R. Mulholland, P. Bernhardt, A. M. Watson, G. Boneillo. Nutrient Uptake Kinetics in Two Virginia Estuaries. Presented at the AGU Fall Meeting, San Francisco, CA (December 6-10, 2002).

Mulholland, M. R., G. Boneillo, P. Bernhardt, E. Cornfeld, A. M. Watson and E. Minor. A comparison of photosynthetic and heterotrophic carbon acquisition by *Aureococcus*

anophagefferens. Presented at the Xth International Conference on Harmful Algae, St. Petersburg, FL (October 21-25, 2002).

Boneillo, G. and C. J. Gobler. 2001. Ecosystem level impacts of anthropogenically influenced groundwater inputs on a coastal embayment. Presented at American Society of Limnology and Oceanography, Albuquerque, NM (Feb. 12-16, 2000).