

Melanie Jackson Osborn

John A. Knauss Sea Grant Congressional Affairs Fellow
1401 Constitution Ave.; Washington, D.C. 20230
Melanie.Jackson@noaa.gov ; www.jacksonmelanie.com
(908) 230-6898

Education

- | | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8/2016-5/2019 | University of Maryland Center for Environmental Science (UMCES),
Marine Estuarine Environmental Science Program (MEES)
Horn Point Laboratory, Cambridge, MD
Ph.D. |
| 9/2013-8/2016 | University of Maryland Center for Environmental Science (UMCES),
Marine Estuarine Environmental Science Program (MEES)
Horn Point Laboratory, Cambridge, MD
M.S. |
| 8/2008-5/2012 | University of Miami
Rosenstiel School of Marine and Atmospheric Science, Coral Gables, FL
B.S. Marine Science and Biology |
| 1/2011-7/2011 | University of Copenhagen
Study Abroad, Copenhagen K, Denmark
Advanced in Danish language |

Objective

To use my broad scientific knowledge, administrative and communication experience to advance the collaborative stewardship and management of coastal ecosystems and resources

Research and Professional Experience

2/2019-2/2020 NOAA Office of Legislative and Intergovernmental Affairs,
Sea Grant John A. Knauss Marine Policy Fellow

- Preparing, researching issues, planning, developing, and organizing policy resources for Congressional briefings to communicate NOAA leadership's views on pending policy to meet resource management goals
- Overseeing Congressional outreach for NOAA's Office of Education and several National Ocean Service programs, including National Marine Sanctuary designations, expansions, and protection and Section 312 Evaluations for the Coastal Zone Management Programs and National Estuarine Research Reserves
- Ensuring that all oral and formal written policy communication documents in response to Congressional requests are timely, strategic, clear, and organized in a convincing manner depending on the audience

8/2016-5/2019

University of Maryland Center for Environmental Science, Cambridge, MD

Graduate Research Assistant, Oceanography

Advisor: Dr. Jeff Cornwell

Project: A comparison of denitrification rates on restored oyster reefs and multiple aquaculture gear types

- Measured nutrient fluxes on Harris Creek, Choptank River, Nanticoke River, and Lake Okeechobee
- Designed novel tripod/diaphragm pump setup to collect dissolved gas and nutrient samples from discrete water depths
- Conducted nutrient flux experiments following *in situ* acclimation and *ex situ* incubation of intact segments of restored oyster reef
- Performed nutrient flux incubations with intact sediment cores and single oysters collected from an on-bottom aquaculture lease
- Analyzed and interpreted results collected from a spectrophotometer, automated colorimeter, infrared-based analyzer, and membrane inlet mass spectrometer
- Deployed an Aquadopp for velocity measurements above a restored oyster reef
- Performed large scale oyster reef and oyster aquaculture incubations to quantify nitrogen removal
- Operated a gas chromatograph for the determination of greenhouse gas fluxes (N₂O and CO₂)
- Analyzed samples for aquatic denitrification using MIMS N₂:Ar and DIC-respiration samples with an infrared-based analyzer (Apollo SiTech)
- Coordinated biogeochemical research for the stakeholder-driven *OysterFutures* collaborative consensus solutions process
- Shared resources with stakeholders from federal and state agencies through technical scientific reports and communication materials to predict the success of alternative oyster restoration strategies and natural resource protection;
- Guest lectured for Washington College classes: Field Methods in Environmental Science (ENV 292) and Biogeochemistry (ENV 312)

9/2017-3/19

Chesapeake Biogeochemical Associates

Environmental Consultant, Laurel, DE

- Measured nutrient fluxes from Jamaica Bay, New York and the Delaware River, Delaware
- Analyzed environmental samples for aquatic denitrification using a membrane inlet mass spectrometer and DIC-based respiration samples with an infrared-based analyzer (Apollo SiTech) to support resource management actions

9/2018-11/18

Chesapeake Bay Foundation

Public Outreach Workshop Speaker, Cambridge, MD

- Developed and implemented 3 public education workshops (Cambridge, Annapolis, and St. Mary's, MD) that cover various aquaculture methods and the ecological, economic, and consumer benefits of shellfish aquaculture.

9/2013–8/2016 **University of Maryland Center for Environmental Science, Cambridge, MD**
Graduate Research Assistant, Oceanography
Advisor: Dr. Patricia Glibert
Project: Determining the effect of NH_4^+ on algal community composition and physiology in nutrient polluted waters

- Measured nutrient fluxes in the San Francisco Bay Delta
- Analyzed phytoplankton community composition with FlowCAM and flow cytometry
- Measured algal physiology with WATER-PAM WALZ
- Executed enrichment experiments and stable isotope techniques in the Anacostia River and West Lake, Hangzhou, China

8/2012–7/2013 **New Jersey Department of Environmental Protection, Hackensack, NJ**
AmeriCorps Watershed Ambassador at Hackensack Riverkeeper

- Performed environmental education outreach presentations to K-12 and college level on the watershed
- Conducted biological and visual stream assessments and trained volunteer stream monitors
- Organized river cleanups after Hurricane Sandy and assisted in immediate relief efforts
- Received Rutgers paraprofessional training on storm water management
- Conducted illegal fishing assessments and recorded undisclosed Combined Sewer Overflows
- Led primary subwatershed study on biodiversity of macroinvertebrates in streams

1/2009–5/2012 **Rosenstiel School of Marine and Atmospheric Science (RSMAS), Key Biscayne, FL**
Research Assistant, Marine Biology
Undergraduate Advisor: Dr. Sharon Smith

- Performed research on the R/V *Melville* for five weeks in the Costa Rica Dome
- Deployed and recovered MOCNESS, Live zooplankton tows, and CTD
- Performed research for senior thesis published at RSMAS titled “Distribution of Eucalanidae (copepod) within the Costa Rica Dome Area of the Eastern Tropical Pacific Ocean”
- Conducted egg production experiments
- Identified and dissected zooplankton samples from the Costa Rica Dome and Arabian Sea
- Received training in hazardous and laboratory safety

Manuscripts in Preparation

Jackson, M., Yang, J., Li, Y., Tong, M., and P.M. Glibert. Influence of nitrogen form on phytoplankton community composition in West Lake, Hangzhou, China. *Frontiers in Freshwater Science* (in prep).

Cornwell, J.C., Owens, M.S., **Jackson, M.**, and M.L. Kellogg. A conceptual model for estimating denitrification from oyster restoration and aquaculture. *Limnology and Oceanography Letters* (in prep).

Peer Reviewed Publications

Solomon, C.M., **Jackson M.**, Glibert P.M., and G. Vazquez. The “forgotten river” of Chesapeake Bay forgotten no more: eutrophication status and expectations for recovery of the Anacostia. *Environmental Monitoring and Assessment*.

Jackson, M., Owens, M.S., Cornwell, J.C., and M. Lisa Kellogg. 2018. Comparison of methods for determining biogeochemical fluxes from a restored oyster reef. *PLOS one*. doi: 10.1371/journal.pone.0209799.

Ji Q, Frey C, Sun X, **Jackson M**, Lee Y, Jayakumar A, Cornwell JC, and BB Ward. 2018. Nitrogen and oxygen availabilities control water column nitrous oxide production during seasonal anoxia in the Chesapeake Bay. *Biogeosciences*.

Jackson, M.L., and S.L. Smith. 2016. Vertical distribution of Eucalanoid copepods within the Costa Rica Dome area of the Eastern Tropical Pacific. *Journal of Plankton Research*. doi: 10.1093/plankt/fbv117.

Honors and Awards

John A. Knauss Marine Policy Fellow (2019)

Debbie Morrin-Nordlund Memorial Travel Award (2018)

Atlantic Estuarine Research Society- Outstanding Graduate Student Oral Presentation (2018)

Ryan Saba Student Fellowship (2018)

Midshore Riverkeeper Conservancy Award (2017, 2018)

Horn Point Laboratory Student Travel Award to Ocean Science Meeting (2016)

Waterfowl Chesapeake Fellowship (2015)

National Science Foundation East Asia and Pacific Summer Institutes (2015)

Explorers Club Washington Group- Young Explorers (2015)

New Jersey Clean Communities Excellence in Education Award (2013)

Segal AmeriCorps Education Award (2013)

Departmental Honors in Marine and Atmospheric Science (2012)

Teaching Experience

Field Methods in Environmental Science (ENV 292), *Reoccurring Guest Lecturer* (Washington College)

Biogeochemistry (ENV 312), *Reoccurring Guest Lecturer* (Washington College)

Scientific Writing and Communication (MEES 608D), *Teaching Assistant* (UMCES)

Land Margins Interactions (MEES 610), *Teaching Assistant* (UMCES)

Field and Sea Experience

- 2010 R/V *Melville*: FLUX and Zinc Experiments Cruise, Eastern Tropical Pacific (35 days)
- 2010 Scientific Diving Certification, RSMAS (2010-2011)
- 2010 Tropical Field Biology Course (RSMAS) in Braulio Carillo Parque National, Costa Rica
Recorded changes in flora and fauna backpacking from Volcan Barva to La Selva
Biological Station (9 days)

Invited Talks

Impacts of oyster aquaculture harvest on sediment biogeochemistry and its potential for nutrient reduction in estuarine and coastal systems. Melanie Jackson, Michael S. Owens, and Jeffrey C. Cornwell. 2018 Gordon Research Conference on Ocean Biogeochemistry. Hong Kong, CN.

Oyster-associated denitrification: between a rock and another hard place (i.e. shell). Melanie Jackson, Michael S. Owens, and Jeffrey C. Cornwell. 2018 AERS. Rehoboth Beach, DE.

Comparison of two flux measurement approaches for the determination of nutrient fluxes over a restored oyster reef, Chesapeake Bay (USA). **Melanie Jackson**, Michael S. Owens, Lawrence P. Sanford, M. Lisa Kellogg, and Jeffrey C. Cornwell. 2018 Ocean Sciences. Portland, OR.

A confirmation that oyster clumps perform the majority of nutrient fluxes on restored oyster reefs. **Melanie Jackson**, Michael S. Owens, Jeffrey C. Cornwell, M. Lisa Kellogg. 2017 CERF. Providence, RI.

Determining the effect of NH_4^+ on algal community composition and physiology in nutrient polluted waters. **Melanie Jackson**, Jingjing Yang, Youmai Li, Mengmeng Tong, Patricia M. Glibert. 2015 Zhejiang University, Institute of Marine Biology, Hangzhou, CN.

Determining the effects of changes in nitrogen pollution on algae community composition and physiology in West Lake Hangzhou. **Melanie Jackson**, Jingjing Yang, Youmai Li, Mengmeng Tong, Patricia M. Glibert. 8th US-China Young Scientist Forum, 2015 National Science Foundation: East Asia and Pacific Summer Institutes, Beijing, CN.

Poster & Meeting Participation

Impacts of oyster aquaculture on sediment biogeochemistry and its potential for nutrient reduction in estuarine and coastal systems. Melanie Jackson, Michael S. Owens, and Jeffrey C. Cornwell. 2018 Gordon Conference in Biogeochemistry. Hong Kong, CN.

Nitrogen removal via denitrification in restored Chesapeake Bay oyster reefs. Michael S. Owens, Jeffrey C. Cornwell, Melanie Jackson, and M. Lisa Kellogg. 2018 AERS. Rehoboth Beach, DE.

OysterFutures: testing a transdisciplinary approach and collaborative process for fisheries management. Elizabeth North, Michael Wilberg, Jeff Blair, Jeffrey C. Cornwell, Matthew Damiano, Rasika Gawde, Taylor Goetz, Chris Hayes, Raleigh R. Hood, **Melanie Jackson**, Robert M. Jones, and Lisa A. Wainger. 2018 Ocean Sciences. Portland, OR.

Estimating “Enhancement” of denitrification via the addition of oysters: A holistic view of the problem. Jeffrey C. Cornwell, Michael S. Owens, **Melanie Jackson**, and M. Lisa Kellogg. 2017 CERF. Providence, RI.

OysterFutures: testing a collaborative process for developing oyster fishing regulations in Chesapeake Bay. Elizabeth North, Michael Wilberg, Jeffrey C. Cornwell, Jeff Blair, Matthew Damiano, Rasika Gawde, Taylor Goelz, Troy Hartley, Chris Hayes, Raleigh R. Hood, **Melanie Jackson**, Robert Jones, Jane Thomas, and Lisa A. Wainger. 2017 CERF. Providence, RI.

OysterFutures: applying a spatially-explicit model and testing a collaborative process for developing oyster fishing regulations in Chesapeake Bay. Elizabeth North, Michael Wilberg, Jeff Blair, Robert Jones, Chris Hayes, Lisa Wainger, Jeffrey Cornwell, Matthew Damiano, Rasika Gawde, Taylor Goelz, Troy Hartley, Raleigh Hood, and **Melanie Jackson**. 2017. Workshop on Chesapeake Fisheries: From Oysters to Economics. Morgan State University, MD.

Facilitating success: using a stakeholder workgroup process to develop management recommendations for Chesapeake Bay oysters. Michael Wilberg, Jeff Blair, Robert Jones, Elizabeth North, Matthew Damiano, Rasika Gawde, Christopher Hayes, Raleigh Hood, **Melanie Jackson**, Jeffrey Cornwell, Lisa Wainger, Troy Hartley, and Taylor Goelz. 2017 American Fisheries Society. Tampa, FL.

Nitrogen form impacting phytoplankton across scales in China’s West Lake: from nitrogen-metabolism to community composition. **Melanie Jackson**, Jingjing Yang, Youmai Li, Mengmeng Tong, Patricia M. Glibert. 2016 Ocean Sciences Meeting. New Orleans, LA.

Mentoring

Washington College student (Nicole Blanco)

Annapolis Area Christian School high school student (Kyrstin Pedrick)

Zhejiang University undergraduate students (Chenyi Tong, Shijia Wu, and Xiaofei Li)

Hainan University undergraduate students (Yang Sui and Ying Jia)

Zhejiang University graduate students (Jingjing Yang and Youmai Li)

Gallaudet University undergraduate students (Anna McCall and Amberlin Hines)

Association Memberships

Atlantic Estuarine Research Society (AERS)

American Society of Limnology and Oceanography (ASLO)

Coastal and Estuarine Research Federation (CERF)

Activities

Society for Women in Marine Science (SWMS) @ HPL- cofounder (2018-2019)

Tour Guide- (UMCES) (2013-2018)

ShoreRivers (previously Midshore Riverkeeper Conservancy) watershed board member- (2017-2018)

- *Green Drinks Networking Event Coordinator at Horn Point Laboratory (2017)*

National Socio-Environmental Synthesis Center (SESYNC) Graduate Student Pursuit Workshop- (January 2018)

University System of Maryland Student Council- (2016-2018)

Environmental Sustainability Council- (UMCES) (2015-2018)

Graduate Student Council CoChair- (UMCES) (2016-2018)

○ *Stewarded student-led initiatives on Diversity, Inclusivity, and Mental Health*

Dorchester YMCA dance instructor (2013-2018)

New Student Liaison- (HPL-UMCES) (2015-2016)

Graduate Student Organization Representative- (UMCES) (2013-2014)

Rho Rho Rho- Marine and Atmospheric Science Honor Society, Public Relations and Media

Chair for UMiami Ocean Kids outreach event (2008-2012)

Delta Phi Epsilon Omega Chapter- Standards board (2009-2012)

University of Miami SCUBA club (2008-2012)