Matthew Poach

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Education:

Doctor of Philosophy in Oceanography (wetland biogeochemistry focus) **1999**
Department of Oceanography and Coastal Sciences, Louisiana State University

Bachelor of Science in Biological Oceanography **1989**
Florida Institute of Technology

Professional Experience:

Research Marine Chemist **2018 - present**
NOAA-NMFS, Milford, CT
Conducting research on the interaction between shellfish and the marine environment. Currently conducting field research to determine growth rates of surfclams along coastal Cape Cod and to assess how regional environmental factors affect their growth.

Research Marine Chemist **2009 - 2018**
NOAA-NMFS, Sandy Hook, NJ
Managed the Ocean Acidification analytical laboratory at the James J. Howard Marine Sciences Center. Established and monitored the pH and pCO_2 treatment levels for experiments studying the effects of Ocean Acidification on commercially important fish of the Mid Atlantic Bight. Led the effort to monitor the chemistry of the Mid Atlantic Bight and associated coastal ecosystems.

Environmental Analyst II **2005 - 2009**
Massachusetts Department of Environmental Protection, Springfield, MA
Conducted water quality sampling of the watersheds in western Massachusetts with an emphasis on bacterial source tracking studies. Conducted NPDES compliance inspections of select wastewater treatment plants.

Research Soil Scientist **1999 - 2005**
USDA-Agricultural Research Institute, Florence, SC
Provided leadership for investigations involving the use of constructed wetlands to remove nitrogen from swine wastewater. Designed and constructed artificial floating wetlands to investigate their ability to improve the water quality of agricultural ponds. Organized and supervised field experiments.

Ph.D. Student Fellow and Researcher **1991 - 1999**
Louisiana State University, Baton Rouge, LA
Compared biological and chemical characteristics of created and natural wetlands in the Atchafalaya Delta and related those characteristics to physical characteristics of the wetlands. Research provided insight into natural wetland development and methods to improve wetland restoration/ creation.

Professional Affiliations:

Chair, Science and Technical Advisory Committee **2015 – 2017**
Barnegat Bay Partnership, Toms River, NJ
Presided over quarterly meetings, approved and provided input for meeting agendas, and called special meetings as needed. Led the revision of BBP's Research Prospectus, which described the research needs and priorities for the Barnegat Bay watershed. Provided input with regard to the Barnegat Bay Estuary based on his expertise and NOAA's interests. Provided expert advice to the BBP on the procurement and field placement of sensors to measure bay pH and pCO_2.

Publications:

Poach M, Morse R, Meseck SL, Alvarado A, Reichert-Nguyen J, McFarland K, Elliott H, Kellogg ML, Luckenbach MW, Rose JM. 2024. Nutrient reduction by eastern oysters exhibits low variability associated with reproduction, ploidy, and farm location. Marine Pollution Bulletin, https://doi.org/10.1016/j.marpolbul.2024.116286.

Bayer SR, Cubillo AM, Rose JM, Ferreira JG, Dixon M, Alvarado A, Barr J, Bernatchez G, Meseck SM, **Poach M**, Pousse E, Wikfors GH, Bricker S. 2024. Refining the Farm Aquaculture Resource Management Model for Shellfish Nitrogen Removal at the Local Scale. Estuaries and Coasts. https://doi.org/10.1007/s12237-024-01354-7

Pérez-Pérez NM, **Poach M**, Stevens B, Smith SL, Ozbay G. 2023. Diet and temperature effects on the survival of larval Red Deep-Sea Crabs, *Chaceon quinquedens* (Smith, 1879), under laboratory conditions. Journal of Marine Science and Engineering, 11(5):1064. https://doi.org/10.3390/jmse11051064

Pousse E, **Poach ME**, Redman DH, Sennefelder G, Hubbard W, Osborne K, Munroe D, Hart D, Hennen D, Dixon MS, Li Y, Milke LM, Wikfors GH, Meseck SL. 2023. Juvenile Atlantic Sea Scallop, *Placopecten magellanicus*, energetic response to increased carbon dioxide and temperature changes. PLOS Climate 2(2): e0000142. https://doi.org/10.1371/journal.pclm.0000142.

Rosenau NA, Galavotti H, Yates KK, Bohlen CC, Hunt CW, Liebman M, Brown CA, Pacella SR, Largier JL, Nielsen KJ, Hu X, McCutcheon MR, Vasslides JM, **Poach M**, Ford T, Johnston K, Steele A. 2021. Integrating high-resolution coastal acidification monitoring data across seven United States estuaries. Front Mar Sci., 19:1-679913. https://doi.org/10.3389/fmars.2021.679913.

Pousse E, **Poach ME**, Redman DH, Sennefelder G, White LE, Lindsay JM, Munroe D, Hart D, Hennen D, Dixon MS, Li Y, Meseck, SL. 2020. Energetic response of Atlantic surfclam Spisula solidissima to ocean acidification. Marine Pollution Bulletin, 161: 111740.

Poach M, Munroe D, Vasslides J, Abrahamsen I, Coffey N. 2019. Monitoring coastal acidification along the U.S. East coast: concerns for shellfish production. Bull. Jap. Fish. Res. Edu. Agency, 49: 53-64.

Saba GK, Goldsmith KA, Cooley SR, Grosse D, Meseck SL, Miller AW, Phelan B, **Poach M**, Rheault R, StLaurent K, Testa JM, Weis JS, Zimmerman R. 2019. Recommended priorities for research on ecological impacts of ocean and coastal acidification in the U.S. Mid-Atlantic. Estuarine, Coastal and Shelf Science, 225: 106188. https://doi.org/10.1016/j.ecss.2019.04.022

Goldsmith KA, Lau S, **Poach ME**, Sakowicz GP, Trice TM, Ono RC, Nye J, Shadwick EH, St. Laurent KA, Saba GK. 2019. Scientific considerations for optimizing acidification monitoring in the U.S. Mid-Atlantic Bight. Estuarine, Coastal and Shelf Science, 225: 106189. https://doi.org/10.1016/j.ecss.2019.04.023.

Busch DS, O'Donnell MJ, Hauri C, Mach KJ, **Poach ME**, Doney SC, Signorini S. 2015. Understanding, characterizing, and communicating responses to ocean acidification: challenges and uncertainties. Oceanography; Special Issue: Emerging Themes in Ocean Acidification Science, 28(2):30-39, http://dx.doi.org/10.5670/oceanog.2015.29.

Chambers RC, Candelmo AC, Habeck EA, **Poach ME**, Wieczorek D, Cooper KR, Greenfield CE, Phelan BA. 2013. "Ocean acidification effects in the early life-stages of summer flounder, *Paralichthys dentatus*. Biogeosciences Discussions, 10: 13897-13929.

Poach ME, Ro KS, Hunt PG. 2013. Chapter 25: Wind Tunnel Method for Measurement of Ammonia Volatilization. In: DeLaune RD, Reddy KR, Richardson CJ, Megonigal JP (eds.) Methods in Biogeochemistry of Wetlands. p. 473–483.

Poach ME and Faulkner SP. 2007. Effect of river sediment on phosphorus chemistry of similarly aged natural and created wetlands in the Atchafalaya Delta, LA. Journal of Environmental Quality, 36: 1217-1223.

Poach ME, Hunt PG, Reddy GB, Stone KC, Johnson MH, Grubbs A. 2007. Effect of intermittent drainage on the treatment of swine wastewater by marsh-pond-marsh constructed wetlands. Ecological Engineering 30: 43-50.

Shappell NW, Billey LO, Forbes D, **Poach ME**, Matheny TA, Reddy GB, Hunt PG. 2007. Estrogenic activity and steroid hormones in swine wastewater processed through a lagoon constructed-wetland system. Environmental Science and Technology, 41: 444-450

Hunt PG, **Poach ME**, Matheny TA, Reddy GB, Stone KC. 2006. Denitrification in marsh-pond-marsh constructed wetlands treating swine wastewater at different loading rates. Soil Science Society of America Journal, 70:487-493.

Poach ME, Hunt PG, Reddy GB, Stone KC, Johnson MH, Grubbs A. 2004. Swine wastewater treatment by marsh-pond-marsh constructed wetlands under variable nitrogen loads. Ecological Engineering, 23: 165-175.

Poach ME, Hunt PG, Reddy GB, Stone KC, Matheny TA, Johnson MH, Sadler EJ. 2004. Ammonia volatilization from marsh-pond-marsh constructed wetlands treating swine wastewater. Journal of Environmental Quality, 33: 844-851.

Poach ME, Hunt PG, Vanotti MB, Stone KC, Matheny TA, Johnson MH, Sadler EJ. 2003. Improved nitrogen treatment by constructed wetlands receiving partially nitrified liquid swine manure. Ecological Engineering, 20: 183-197.

Hunt PG and **Poach ME**. 2002. State of the art for animal wastewater treatment in constructed wetlands. Water Science Technology, 44(11-12): 19-25.

Poach ME and Faulkner SP. 1998. Soil phosphorus characteristics of created and natural wetlands in the Atchafalaya Delta, LA. Estuarine, Coastal and Shelf Science, 46: 195-203.