**Faculty and Student Research Highlights**

The PHEDS marine science faculty and students include members from the Department of Public and International Affairs, Department of Mathematics and Statistics, Cameron School of Business, and College of Health and Human Services. Research and grant highlights include:

- **Dr. Peter Schuhmann (CSB):** The Economic Value of Recreational Catch Improvements in the Cape Fear River Basin, Phase II - Linking Improvements in Migratory Fish Passage to Economic Benefits of Fisheries in the Cape Fear River, NOAA National Marine Fisheries Service, $58,100, 2018-2020.

- **Dr. Mark Lammers and Dr. James Blum (MAS):** Reefs in Space and Time (with co-PIs McNamara and Brown), NOAA CIOERT, $154,823, 2017-2018.

- **Dr. Mark Lammers (MAS):** Machine Learning for auto-classification of particle types in holographic imagery, NOAA CIOERT, $18,000 (subaward on $234,000 Novel Technology to Explore the Mesopelagic Ocean), 2018.

- **Dr. Jennifer McCall (CHHS):** Development of user-friendly fluorescence based assays for marine toxins, NIH NIEHS, $1,467,906, 2018-2020.


- **Masters of Coastal and Ocean Policy (PIA) graduate students have** analyzed a wide range of policy issues from fisheries to offshore energy to public health (led by Dr. Jessica Weinkle).

- **Dr. Mark Imperial and Dr. Kirstin Kinzer (PIA):** Comprehensive Planning in North Carolina’s Coastal Communities: A Guidance Manual for Local Governments, NC Department of Environmental Quality, Division of Coastal Management, $50,000, 2017

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**Research Topics**

- Adaptive Capacity & Resilience of Coastal Communities
- Bioassay Development for Harmful Algal Toxins
- Economic Valuation of Coastal and Marine Ecosystem Services
- Facilitating Recovery to Coastal Disasters
- Governance of Watersheds, Coastal Areas, and Fisheries
- Immunomodulatory Drug Discovery/Development from Marine Algae
- Machine Learning for Classification and Forecasting
- Mathematical and Statistical Analysis of Marine Science Systems
- Modeling and Predicting Human Response to Environmental Change

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**Julian Prato Valderrama, PhD Candidate, Universidad Nacional de Colombia (Dr. Peter Schuhmann, co-chair) Awarded Fulbright Colombia for thesis “Relationships between coral reef complexity and ecosystem services at Caribbean oceanic islands, Seaflower Biosphere Reserve, Colombia.”**

**Ashley Bissette, Honors in Clinical Research, (Dr. Jennifer McCall, advisor) Ashley presented her honors thesis “Antimicrobial Drug Discovery from Marine Algae” multiple times, including at a UNCW Board of Trustees meeting in 2019. She was one of 5 UNCW honors students selected for this honor.**

**Adam Silva and Olivia Bryson, MS Data Science (Dr. Lammers, chair). Adam and Olivia have been working with Chris Shank from the Bald Head Island Conservancy mapping nesting habits of sea turtles from data taken over the last 37 years. Check out a map of hatch success based on total eggs and number hatched. https://arcg.is/1rTe1X**


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**International Collaborations**

- **Harbor Branch Oceanographic Institute**
  - The Coastal Society
  - SeaTox Research Inc
  - Audubon North Carolina
  - Bald Head Island Conservancy
  - NOAA
  - North Carolina Wildlife Resources Commission
  - National Estuarine Research Reserves
  - Alcamia Corporation

- **Institut Louis Malardé, Papeete, French Polynesia**

- **University of the West Indies-St. Augustine**

- **Government of Barbados, Ministry of Maritime Affairs and Blue Economy**

- **Universidad Nacional de Colombia**

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**U.S. Industry, Institutional, and Governmental Collaborations**

**UNCW Data Science collaboration with Audubon North Carolina and the North Carolina Wildlife Resources Commissions to refine and analyze over 40 years of data regarding nesting sites and abundance of colonial waterbirds. Data were collected from the statewide Colonial Waterbird Census, which was initiated in the 1970s by UNCW professor emeritus Dr. James Parnell, and includes the Brown Pelican, White Ibis, and Least Tern.**

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**Contributions to Marine Science Curriculum**

Masters of Coastal and Ocean Policy (MCOP)

Program Mission: To seek creative, scientifically sound solutions to coastal and ocean governance problems through relevant research, regional engagement, and the education of future leaders committed to advancing the wise stewardship of coastal and ocean resources.

Interdisciplinary courses include:

- Topics in Biological & Environmental Science of Coastal Issues
- Topics in Geology, Geography, & Physics of Coastal Issues
- Environmental Economics
- Environmental Policy Analysis
- Seminar in Coastal and Ocean Policy