

Ph.D. and Masters Positions in Fisheries Oceanography

The East Carolina University (ECU) Fisheries Oceanography Lab run by Dr. Rebecca Asch is currently recruiting new Ph.D. and Masters students to join our research group for the 2019-2020 academic year. We anticipate accepting 1-2 new graduate students to join our team. The Asch Lab's research program focuses on interactions between fisheries, plankton ecology, and climate change and climate variability. Our research approach combines fieldwork, time series analysis, and ecosystem modeling, with different projects spanning local-to-global and subseasonal-to-centennial scales. For more information about the Asch Lab, please see: http://www.ecu.edu/cs-cas/biology/Rebecca_Asch.cfm. Also the most up-to-date list of Asch Lab publications is available at: https://www.researchgate.net/profile/Rebecca_Asch.

We seek students who are highly self-motivated, independent, and creative thinkers that are enthusiastic about pursuing a career in marine ecology, oceanography, and/or fisheries management. A strong background in quantitative ecology, computer programming (*e.g.*, MATLAB, R, Python), and/or multivariate statistics is desired, but not required. There are several ongoing and soon to be initiated projects that a prospective student could develop into a dissertation or thesis:

- Â· **Modeling climate change impacts on mismatches between the timing of fish reproduction and prey availability for larval fishes.** The Asch Lab is using Earth System Models (ESMs) to understand how the seasonal timing of plankton blooms will shift under climate change and how such shifts may impact the survival of larval fishes. We are looking to expand this line of research to gain a more detailed understanding of the climate change responses of different plankton functional types included in ESMs.
- Â· **Examining seasonal variations in predator-prey interactions among larval fishes and mesozooplankton in Beaufort Inlet, North Carolina.** This project will build off existing research in the Asch Lab examining how climate variability affects the seasonal timing of larval fish ingress into Beaufort Inlet, as well as a recently established time series where we are using ZooScan to identify zooplankton taxa in an automated fashion via a machine learning algorithm. The prospective student could expand on this research through either: (1) an examination of prey selectivity among the larvae of commercially and ecologically important fishes, or; (2) investigating how the morphometric condition of larvae varies over time as a function of seasonality, fish growth, temperature, and zooplankton abundance. Both of these projects will contribute towards understanding how seasonal mismatches between the phenology of zooplankton and larval fishes may affect recruitment to fisheries.
- Â· **Forecasting the seasonal timing of spawning migrations of anadromous fishes.** A forecast model for the striped bass population in the Roanoke River will be developed based on historical data on environmental variables and spawning activity. Forecasts will then be validated and refined through fieldwork, with a final, operational forecast product to be delivered to fisheries managers and the fishing community.

We also welcome applications from students who are interested in developing their own research ideas into a thesis or dissertation, as long as those ideas are closely connected with the overarching research foci of the Asch Lab.

Information on graduate programs in the ECU Department of Biology is available at: <http://www.ecu.edu/cs-cas/biology/BiologyGrad/index.cfm>. Doctoral students can apply to work in the Asch Lab either through either the Interdisciplinary Doctoral Program in Biological Sciences (IDPBS) or the Coastal Resources Management (CRM) Program. Graduate students

accepted to one of these programs will be funded through either a research or teaching assistantship. The priority deadline to apply for graduate admissions in the ECU Department of Biology is January 15, 2019. However, prospective students should contact Rebecca Asch by email (aschr16@ecu.edu) in advance of this deadline, preferably by mid-December. This email should include: (1) a brief statement describing your research interests and career goals; (2) A C.V. or resume, and; (3) an unofficial academic transcript.