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Sara Amato* (sara.amato@assumption.edu), **Lauren Moore**, **Kaitlin Ragosta**, **Shelby Stowe**, **Sarah Gaichas**, **Burt Tilley** and **Andrea Arnold**. *Modeling the Spatio-Temporal Dynamics of Interacting Fish Species in the Northeast Continental Shelf*.

Knowledge of the population dynamics of marine species is vital to understanding ocean sustainability. This project aims to develop and analyze spatio-temporal single-species and multi-species models for studying fish population dynamics in the Northeast Continental Shelf, specifically Atlantic cod and Atlantic herring. We formulate partial differential equation models and integrodifference models that take into account species interactions between Atlantic cod and Atlantic herring. We determine a method to compare our single-species and multi-species models, to provide information to the Northeast Fisheries Science Center on whether either species would benefit from being assessed with a multi-species model. All models consider species' behavior, including seasonal migrations. We employ statistical approaches such as nonlinear filtering to estimate model parameters and quantify uncertainty in model predictions, comparing the results to synthetic data. (Received September 26, 2018)