**Rationale:** Identifying how animals use available prey resources and the environmental and ecological drivers of resource use are fundamental for effective species and ecosystem management. Species commonly shift their distributions to remain in optimal environmental conditions and therefore it is hypothesized that species exhibiting diet fidelity will be most susceptible to shifting prey biomass. Analysis of stable isotopes provides a time-integrated perspective of a consumer’s diet, reflecting the energy pathway upon which a species relies and will differentiate the range of dietary resources available to consumers and thus aid in ascribing species biomass estimates to specific habitats. The proposed research will enhance ongoing management by providing needed information on data poor species including: (1) important resource pools that support biomass of various life-stages and (2) spatial hotspots of potential fisheries and human interactions. Results will provide a baseline representation of New York's nearshore food web that can be used to forecast foraging hotspots under expected climate regimes.

**Objectives:**

1. Estimate the contribution of specific energy pathways and forage species to shark and finfish biomass.

2. Quantify key trophic linkages and determine the functional roles of forage species and predators.

3. Evaluate temporal trends and forecasts how, for example, climate- (i.e., temperature increase) and demography (i.e., body-size, age structure driven migratory patterns) change prey distributions.

4. Develop spatiotemporal isoscapes to model overlap in predator-prey distributions and foraging hotspots for predators.