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Year in Course: 2nd (Junior)

Topic: Stable Isotope Analysis of Sea Turtles

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Title: Cold Stunned Sea Turtle Diet Analysis in Cape Cod Bay from 2015-2020

Abstract:

As water temperatures drop in November, Kemp's Ridley, Loggerhead, and Green sea turtles strand on the coast of the northwest Atlantic ocean. The foraging ecology of these sea turtles remains an understudied area of research. In this study, we aim to assess the diet of these turtles using a multi-tissue stable isotope analysis and a gut content analysis of cold stunned Kemp's ridley, loggerhead, and green sea turtles stranded from 2014 to 2018. Stable isotope ratios of carbon and nitrogen were measured in blood, front and rear flipper, liver, muscle, skin, and scute tissue samples. Prey contribution to these turtles' diet will be estimated using a two-isotope Bayesian mixing model. We predict an elevated level of Nitrogen isotope ratios in Kemp's ridley and loggerhead turtles compared to green turtles due to the carnivorous loggerheads and Kemp ridleys' carnivorous diet and the greens' herbivorous diet. We anticipate empty stomachs due to starvation while stranded, and a variety of foraging strategies, migration patterns and trophic positions between these species. Data collected from this study will add to the knowledge of these turtles' prey species and aid managers in the preservation of these species as a mitigation strategy for these turtles' extinction.

