**Estimating the population size of the North Atlantic right whale**

We propose to estimate the population size of the North Atlantic right whale using a Bayesian statistical method. Two challenges in estimating population size are (1) some whales that have been sighted are now dead, and (2) some living whales may never have been sighted. We account for the first issue by estimating the probability that each sighted whale is currently alive, given its sighting record in the NARWC sighting database. Based on these probabilities, we randomly simulate a dataset consisting of whales thought to be alive. We then apply to this dataset a method from statistical ecology for estimating the number of never-sighted individuals. This estimate is added to the number of whales thought to be alive to arrive at an estimate of population size. We then repeat this process 1000 times total, each time simulating a different dataset of whales thought to be alive and applying the method for estimating never-sighted individuals. We thus arrive at a posterior distribution of estimated population sizes that accounts for uncertainty in both the current status of sighted whales, and the number of never-sighted whales. Our work is in progress, and our team (mostly composed of statisticians and computer scientists, including six undergraduate students) is eager to receive feedback from the North Atlantic right whale community.