**EFH Report Update**

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I have conducted exploratory analyses of the RACE survey data and directed snow crab fishery observer data. To prepare data for exploration, I have matched separate sea surface temperature, grain size, and ice cover data to the survey data. I am exploring multiple options for incorporating the observer data as a covariate into future species distribution models that will predict the snow crab distributions for the following year. I have also explored several options for species distribution modeling including both statistical and machine learning methods. Models are being developed for legal and sublegal male crab and immature and mature female crab. Preliminary boosted regression tree results indicate the importance of depth to sublegal and legal male snow crab abundance while for immature and mature female crab latitude was the most important. To test the predictive capabilities of these models under more anomalous conditions, the models are currently being trained on pre-2014 survey data, which was collected during cooler years. Following this, the models will be tested on the remaining data, which was collected during warm years. For cross validation, we will use a leave-one-group-out approach, where each year of data will be considered the group. To facilitate continued progress, I am meeting regularly with my project collaborators and am soliciting feedback from others working on SDMs.