

## Comparison of existing and spatio-temporal methods to apportion catch limits for subregional management of groundfish in the Gulf of Alaska

Management of fisheries relies on model predictions of the estimated biomass of stocks in order to determine how many fish can be safely harvested in a given year without negatively impacting the population. Consequently, continually seeking the most accurate and precise models possible for this use is always a goal of fisheries' managers. Towards that end, this study compares the current modeling approach to predict stock biomass, a random walk model, with a delta-GLMM spatiotemporal model implemented using the VAST package, for groundfish stocks in the Gulf of Alaska (GOA) that are managed using subregional catch allocation. These subregions in the GOA include 3 areas: western, central and eastern GOA. This analysis uses bottom trawl survey data collected by NOAA for two species of groundfish, Pacific Ocean Perch (*Sebastes alutus*) and Northern Rockfish (*Sebastes polypinus*). The performance of the random walk and delta-GLMM models will be evaluated by using jackknife resampling and several evaluation metrics, including a metric to quantify the amount of variation associated with each model's predicted biomass as well as a metric to evaluate how accurate the model predictions are in comparison to the survey data for each subregion.