

ABSTRACT

Using Volunteered Geographic Information (VGI) to model blue whale (*Balaenoptera musculus*) foraging habitat, this thesis assesses the utility of citizen science in cetacean research and marine spatial management. A unique and new data source on whale locations, observation data collected voluntarily by whale-watching vessels, was procured, compiled, and digitized. The utility of this newfound dataset was investigated through its use in probabilistic habitat suitability analyses and description of species phenology. A statistical analysis of whale observations was used to quantify seasonal variability of three common baleen whale species within the study area. Among these, blue whales exhibit the highest degree of seasonal variability with a mean seasonal abundance occurring in late July. Maximum entropy modeling was used to illustrate potential blue whale foraging areas based on three environmental variables: bathymetry, sea surface temperature, and chlorophyll-a concentrations. Spatial patterns of whale observations recorded by whale watchers and scientists indicate a strong habitat preference of steep bathymetric features in and around the 300-m isobath. Models using whale-presence data collected by whale-watchers were compared to similar models using science-quality whale observation data. Differences between these models are minimal and the results of the comparison support the usefulness of citizen science in cetacean research.