Gulf of Alaska - Seabirds

Resolving the Annual Pelagic Distribution of Tufted Puffins in the Gulf of Alaska Using Geolocator Technology

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We initiated a two-year, integrative field and laboratory study in 2018 that is examining the at-sea distribution and marine habitat use by Tufted Puffins (*Fratercula cirrhata*) in the Gulf of Alaska (GOA) during the non-breeding season. Populations of Tufted Puffins throughout the GOA have historically been considered at least stable or increasing. However, new analysis suggests these populations are now declining and are predicted to do so in the future. While much is known about Tufted Puffin breeding ecology, the species' migratory routes and wintering areas are currently not specifically known but have been noted as important to determine for management purposes. Our work relies on geolocator tracking technology – small archival tags mounted on plastic leg bands that measure light levels, which can be used to discern the latitude and longitude positions of animals. Geolocators weigh only a tiny fraction of a puffin's body weight and can therefore be deployed on these birds for extended periods of time. In June 2019, we recovered a first set of geolocators that were deployed on Tufted Puffins breeding at Middleton Island during July 2018. We recovered 16 of 30 geolocators representing a 53% recovery rate. Here, we present a preliminary analysis of migration and wintering areas used by Tufted Puffins of the GOA between 2018 and 2019 based on geolocator data. We examine differences between males and females in over-winter marine distributions. The GOA has experienced rapid ocean-climate changes in recent years (since 2014) due to an anomalous marine heatwave, which may be currently redeveloping. Resolving little known aspects of Tufted Puffin ecology is important for better understanding the species vulnerability to rapid changes in the marine environment.