Estimating the Sperm Whale Population Density in the Gulf of Mexico to Study the Effect of Oil Spill

Nabendu Pal, PhD
Department of Mathematics
University of Louisiana at Lafayette

Abstract

There has been a lot of interest in the Gulf of Mexico marine biology due to the disastrous British Petroleum (BP)'s Deep Horizon Oil Rig explosion and the subsequent oil spill for nearly five months. Attention is being focused on studying marine creatures to see how the oil spill has affected the surrounding ecosystem. As a part of this investigation we are looking into the passive acoustic data obtained by submerged sensors to estimate certain marine mammal populations, particularly sperm whales and beaked whales. The acoustic data obtained after the oil spill is used to estimate the population density of each species, and then compared with those available from the historical data. In this talk we will discuss the estimation method along with the model assumptions.