Oceanography Seminar

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"Swordfish and their environment: Efforts to incorporate environmental covariates into North Pacific swordfish stock dynamics"

Understanding how climate change will impact future stock dynamics of fish is an important component of stock assessments and fisheries management. However, understanding how the climate affects different species can be challenging. North Pacific swordfish (Xiphias gladius) population dynamics have been shown to correlate with several environmental and climatological covariates. A Vector Autoregressive Spatial-Temporal (VAST) model was used to analyze swordfish catch-per-unit-effort from the Hawaii-based longline fishery to provide insight on how the distribution of swordfish within the Hawaii fleets' fishing grounds changes annually. Results from our analysis suggest that adult fish density may change with the Southern Oscillation Index (SOI). Furthermore, the SOI has been shown to correlate strongly with recruitment success of swordfish, which are believed to spawn around Hawaii. In the 2018 North Pacific swordfish stock assessment, two environmental indices were included to help estimate recruitment to the stock: the SOI and an index of phytoplankton biomass, which may be representative of food availability for larval swordfish, based upon chlorophyll a measurements and sea surface temperature. Currently, research is being conducted to incorporate short-term projections of these climatological variables into stock projections for future catches of swordfish to estimate future recruitment and better understand how both fishing and climate change may impact the future of the swordfish stock.structures may result in strong currents across the sea level nodal lines. These wave forms are not unique to the North Shore of O'ahu as they can be found at other coastlines.

Thursday   November 8th, 2018   3:00p.m.   MSB 114

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