1056-92-1763   **Abdul-Aziz Yakubu*** (`ayakubu@howard.edu`), Howard University, Department of Mathematics, 2441 6th Street, NW, Washington, DC 20059. *The Impact of Periodic Proportional Harvesting Policies on TAC-Regulated Fishery Systems.*

Loss of marine species affects the ability of the ocean to resist the spread of diseases, produce seafood, filter nutrients, store CO_2, etc. In a 2006 Journal of Science article, a group of economists and ecologists warned that the world's fish supply will run out by 2048. In this talk, we use mathematical models to study the impact of constant and periodic fishing pressures on the persistence of exploited fisheries systems. As case studies, we use Pacific Halibut and Georges Bank Cod stock data to show that under mild environmental conditions and current fishing exploitation levels, it is likely that the Pacific Halibut will persist while the cod is endangered. However, in the presence of increased weather extremes both species are endangered. We will also introduce a bioeconomic model for examining the net present value and dynamics of harvest under the optimal periodic proportion policies for the exploited fisheries systems. (Received September 22, 2009)