Title: **Fishing induced environmental change and the value of biodiversity in a multi-species fishery**

Author(s): Wisdom Akpalu

Abstract: It is well known that fishing activities may affect the structure of aquatic habitats and consequently determine the diversity, composition and productivity of the associated biota. The direct effect of fishing activities is on the habitat structure and the indirect effects occur when the fishing activity initiates shifts in the relationships between those organisms responsible for habitat development and degradation. Fishery scientists have therefore advocated for ecosystem-based approach to fishery management to meet long-term management goals. However, while improving marine environments and maintaining biodiversity may increase stability and resilience of ecological systems, it has opportunity cost of reducing total biomass production. This is because, if the species diversity is large, of which the growth of some species are suboptimal, the average growth rate of the total biomass will be lower. This paper models the complex interrelationships among species and the relationship between per capita biomass growths, and fishing induced environmental change and biodiversity. It was found that the equilibrium stock and harvest levels are much higher under fishery management with full information relative to the state of ignorance.