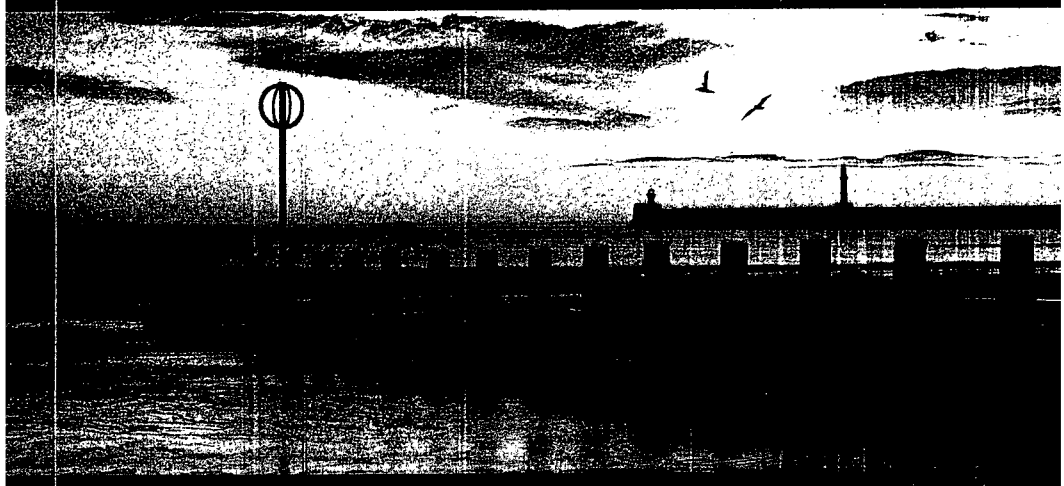
IIFET 2016 Scotland

International Institute for Fisheries Economics and Trade



11-15 July 2016
Aberdeen Exhibition and Conference Centre, Scotland, UK

09-B-2

Design marine protected areas (MPAs) for sea cucumbers in the coastal waters of Sri Lanka

Chamari Dissanayake[1,2] Gunnar Stefansson[2]
[1]University of Sri Jayewardenepura, Nugegoda, Sri Lanka, [2]University of Iceland, Reykjavik, Iceland

This study attempts to design MPAs to manage sea cucumbers in the coastal waters of Sri Lanka. A bio-economic model developed by Stefansson and Rosenberg (2005) was used in this study. In model simulation, area between 080170 - 060 500 N and 810 250 - 820 was considered and this area was assumed to form 5 x 5 rectangular grids. As population densities varied with depth, five vertical rectangles were assigned to represent depth categories; 0-5m, 5-10m, 10-15m, 15-20m, 20-25m. Initial biomass was set at 87 tons and historical fishing mortality was; Fhist = Fcrash where Fcrash = r = 0.4. The base model was run for 50 years before the onset of management to get internally consistent population structure. This model was simulated under different biological assumptions to understand the changes in biomass within next 15 years. Biomass recovery rate within and outside the MPAs is related to the larval dispersal rate. Biomass changes in depth categories were simulated under 90% larval dispersal rate and 6 contiguous closures. Prediction showed that biomass in deeper depths start to increase after 2-4 years, but it takes more than 10 years in shallow depths. Three times increase in current yield can be expected at the end of 15 years. Biomass fluctuations within and outside the MPAs were predicted under different closures and the highest biomass within MPAs can be expected when 15 contiguous rectangles are closed. Spatial management through MPAs is seen to have potential to rebuild the depleted sea cucumber populations.

09-B-3

Small-scale fishermen's views about the efficacy of area and seasonal closures in the Commonwealth of Puerto Rico

J Agar[1], M Shivlani[2]
[1]NOAA, Miami, Florida, USA, [2]Univ. of Miami, Miami, Florida, USA

Notwithstanding the increasing use of area and seasonal closures to promote the sustainable use of coral reef fisheries, few studies have examined the socio-economic performance of these management strategies. This study describes small-scale fishermen's views regarding the biological and socioeconomic performance of these management tools off Puerto Rico. Our findings, which draw from 150 in-person interviews, show that a significant proportion of fishermen believe that both area and seasonal closures are useful tools for protecting spawning aggregations and increasing fish abundance. The study also showed that despite these reported benefits fishermen's support for existing area and seasonal closures has only marginally increased over the years. This marginal change may be reflective of the economic impacts of displacement faced by fishing communities. Fishermen also stated that limited enforcement adversely impacts the efficacy of these management tools by dissipating conservation gains.