Some aspects of Stock Characteristics of Small and Medium Pelagic Fishery of the Kenya Coast

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Abstract
Background
The small and medium pelagic fishery in Kenya is multi-species, multi-gear and multi-fleet. Fishing gear used include: cast nets, gill nets, beach and reef seines, hook and line vertical line, long line and trolling line, and more recently the use of ring nets. The use of ring nets and reef seines has become common along the Kenya coast. Scientific data for these fishing gears is still inadequate despite already having the draft final Ring Net Fishery Management Plan, and the small and medium pelagic management strategy in place. The aim of this study was to establish a baseline survey for the ring net fishery to support the fishery management plan and to be in line with Ecosystem Approach to Fisheries (EAF) recommended by the FAO.

Methods
The study was conducted along the Kenyan coast where ring net and reef seine fishing operate to contribute scientific information needed to support development of management plans for ringnet gear and small and medium pelagic fishery. A series of shore-based catch assessment surveys were conducted for Vanga, Gazi, Takaungu, Kilifi and Uyombo areas along the Kenyan coast where ring net and reef seine fishing operate. Growth parameters, mortality estimates, selection analysis, yield models and species-gear-site combinations were determined using standardized methods. Species identification was done using van der Est, 1981; Smith and Heemstra, 1986; Lieske and Myers, 1994. The individual fish total length was measured to the nearest cm using a fish measuring board.

Results
Results indicated relatively low catch-per-unit-effort (CPUE, Ring net: 296.5 ± 38.3; Reef seine: 55.1 ± 7.7 kg vessel¹ day⁻¹) and this differed (p < 0.05) among the fishing areas. Catch composition was different between the vessel-gear combinations. Overall species richness was higher for the reef seines compared to the ring nets. Majority of the species landed were
demersal and reef associated species, and mostly under-sized individuals. In view of the narrow range of natural mortality coefficient, \( E_{MSSY} \), \( E_{0.1} \) and \( E_{opt} \), recorded herein, it could be indicative that size and growth rate do not influence natural death in the small and medium pelagics.

**Conclusion**

Current findings should be treated as indicative with more data likely to make a better-informed status of the ring net small and medium pelagic fisheries resources. Thus, long-term data surveys are needed to update the recorded findings for further application in management plans.

**Key words:** Ring net; Catch-Per-Unit-Effort; Catch composition; growth; mortality; Kenya.