

FACT SHEET

Stock Assessment of Small and Medium Pelagic Fisheries along the Kenyan Coast

Fishery description

The full potential of small and medium pelagic fisheries along the Kenya coast is not yet known. As such pelagic resources are believed to be under-exploited due to lack of capacity by the artisanal fishers. Ring nets and reef seines, are surrounding gears similar to purse seines but manually operated. So far these are the most suitable gears for catching pelagic fishes. Introduced in the early 1990s in Vanga, South coast Kenya, their use and numbers have increased, currently at 31 and 89 ring nets and reef seines respectively with a crew ranging between 8 and 40 per vessel. Target species belong to the families Scombridae (trevallies), Sphyraenidae (barracudas) and Hemiramphidae (halfbeaks), although demersal and reef associated species are also landed. This fact sheet gives the current status of the pelagic fisheries resources using shore-based catch assessments.

Study objectives

- to determine the spatio-temporal abundance and composition of catch associated with ring net and seine net fishing gear; and
- to conduct some aspects of stock status of selected and most abundant target fish species.



Ring nets and reef seines are operated from Vanga to Kipini by local and foreign migrant fishers. This study reports findings for Vanga, Gazi, Takaungu, Kilifi and Uyombo.

Results

On average ring nets land more fish per vessel (Catch per Unit Effort, CPUE) in a day than reef seines.

Gear type	CPUE (kg vessel ⁻¹ day ⁻¹)
Ring net	296.5 ± 38.3
Reef seine	55.1 ± 7.7

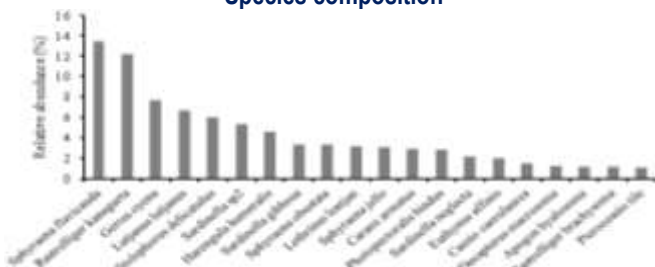
Annual catches of small and medium pelagic

Data source	Annual landing (kg year ⁻¹)
KMFRI 2001-2008	2 164 606
Ring net Plan	620 000 – 2 852 000
Ring net this data	1 600 840 – 2 075 760
Reef seines this data	

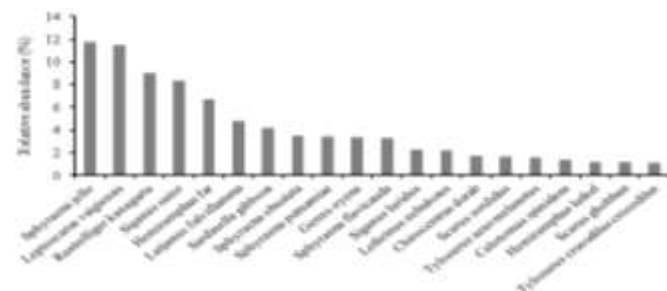
Economic value

Overall total annual catch of small and medium pelagic is between 2,445 and 3,194 t. with a current market value of between **USD 2,355,067** and **3,076,686** annually (Exchange rate: USD 1 = 103.8 as at September 2015) ≈ **KES. 240,000,000**.

Species composition



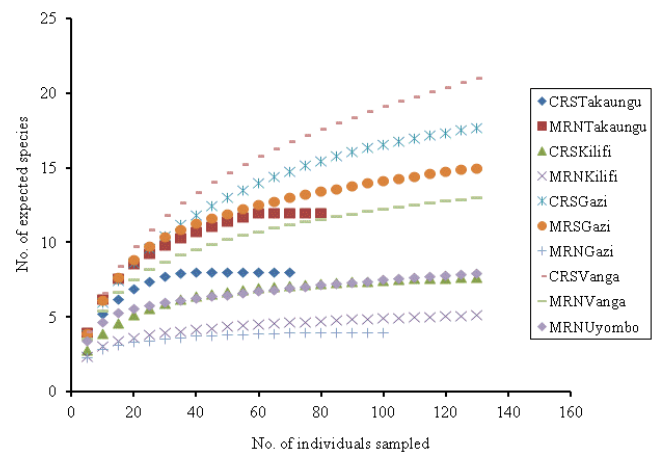
Most abundant fish species from *mashua*-ring net



Most abundant fish species from canoe-reef seine

The overall number of fish species sampled in this study was 192 from a total of 15,150 individuals landed. Top 20 most abundant species was dominated by small and medium pelagics in both ring net and reef seine samples.

Species diversity by vessel-gear-area



- Catches from canoe-reef seines for Vanga and Gazi were the most diverse, landing highest expected number of fish species from 5 species in less than 20 individuals to more than 15 species in 140 individuals landed.
- Catches from *mashua*-ring net for Gazi and Kilifi were the least diverse, landing less than 5 species in less than and more than 20 individuals landed.

What is the current stock status of selected and most abundant pelagic fish species?

Species	F _{CURR}	F _{MSY}	SSB/SSB ₀ at F _{CURR}	SSB/SSB ₀ at F _{MSY}	Stock status
<i>Sphyraena jello</i>	2.1	1.1	0.036	0.133	Below limit SSB (-21.4%); Below SSB _{MSY} (-9.7%)
<i>Sphyraena obtusata</i>	2.8	0.8	0.018	0.230	Below limit SSB (-23.2%); Below SSB _{MSY} (-21.2%)
<i>Sphyraena flavicauda</i>	0.8	0.6	0.137	0.211	Below limit SSB (-11.3%); Below SSB _{MSY} (-7.4%)
<i>Rastrelliger kanagaruta</i>	1.2	0.5	0.072	0.271	Below limit SSB (-17.8%); Below SSB _{MSY} (-19.9%)
<i>Hemiramphus far</i>	0.5	0.6	0.262	0.217	Above limit SSB (+1.2%); Above SSB _{MSY} (+4.5%)

SSB_{current} = Current Spawning Stock Biomass; SSB₀: Unexploited Spawning Stock Biomass; F_{MSY}: Fishing effort at Maximum Sustainable Yield

Management Plans for Small and Medium Pelagic Fisheries Resources

- The Small and medium pelagic fisheries management plan – completed and already endorsed but lacks management regulations.
- The final draft ring net fishery management plan – More scientific information needed to back-up the proposed management regulation, and yet to be gazetted.

Management Recommendations

- The species *S. jello* and *S. obtusata* are currently overfished in the inshore waters as indicated by higher current fishing mortalities than that at Maximum Sustainable Yield (MSY). The current SSB of 40 t (*S. jello*) and 49.3 t (*S. obtusata*) are much lower than the recommended 20% of Steady State Biomass (SSB) of 1000 t and 2700 t respectively, that are supposed to be maintained.
- It is recommended that the current fishing effort be reduced.

Performance indicators (stock indicators & reference points)

- Fishing effort (Number of ring nets and reef seines)
- Mean fish sizes
- Annual total landings



Sphyraenidae (Barracudas)

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