

## **Bottom shrimp trawling impacts on species distribution and fishery dynamics; Ungwana Bay fishery Kenya before and after the 2006 trawl ban**

*Cosmas Munga, Stephen Ndegwa, Bernerd Fulanda, Julius Manyala, Edward Kimani, Jun Ohtomi, Ann Vanreusel*

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### **Abstract**

The Malindi–Ungwana Bay fishery Kenya is one of the most important marine fisheries of the Western Indian Ocean. There are two fishing grounds: Formosa and Malindi, with a designated 5-nM no-trawl zone offshore. However, the fishery was faced with numerous resource use conflicts and a decline in catches, culminating in a trawl ban in 2006. This study analyses catches and fishery dynamics before and after the 2006 trawl ban. Results show that artisanal landings declined before the ban, but rapidly recovered within 2 years after the ban was imposed. However, shrimp landings in the artisanal fishery remain low. Commercial shrimp landings gradually declined before the ban: ~550 t in 2001 to 250 t in 2006, and the shrimp: fish bycatch ratio was 1:1.5 compared to early reports of 1:7 in 1999. SIMPER analyses shows that 6 and 16 families (groups) accounted for 91.0 and 90.2% of the similarity in catch within the Formosa and Malindi fishing grounds, respectively. Formosa was important for Claridae, Cichlidae and Protopteridae, while Malindi recorded Carangidae, Siganidae, Carcharhinidae and Lethrinidae as the main families. Future studies should therefore embark on analyses of the factors driving the spatio-temporal distributions of the species and assess the impacts of bottom trawling on fishery dynamics before the trawl ban can be lifted.