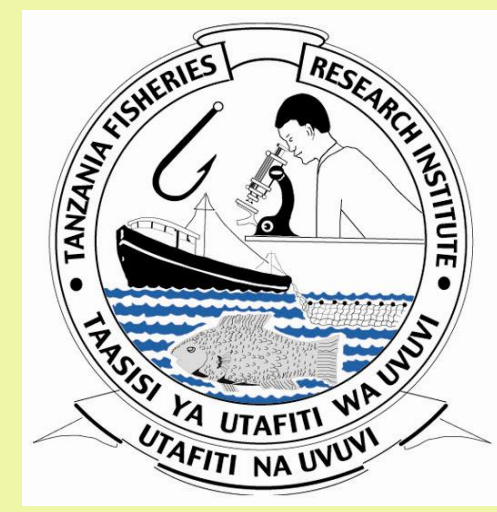


Assessment of demersal fish stock in the SWIOFP countries: The shallow water demersal fish trawl survey in Tanzania



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INTRODUCTION

Demersal fishes constitute the largest category of reported fish landings in LMEs of South Western Indian Ocean (SWIO). The SWIO demersal fish catches comprise over 600 fish species, about which very little is known, and none of the relevant species are managed on a collective regional level.

It is well known that *"You cannot manage what you haven't measured and you cannot adapt to change unless you can recognize a change"*. With this regard SWIOFP component 3 assessed shallow and deep water demersal fish in eight SWIO countries (Fig.1)



Fig 1. SWIOFP representative countries

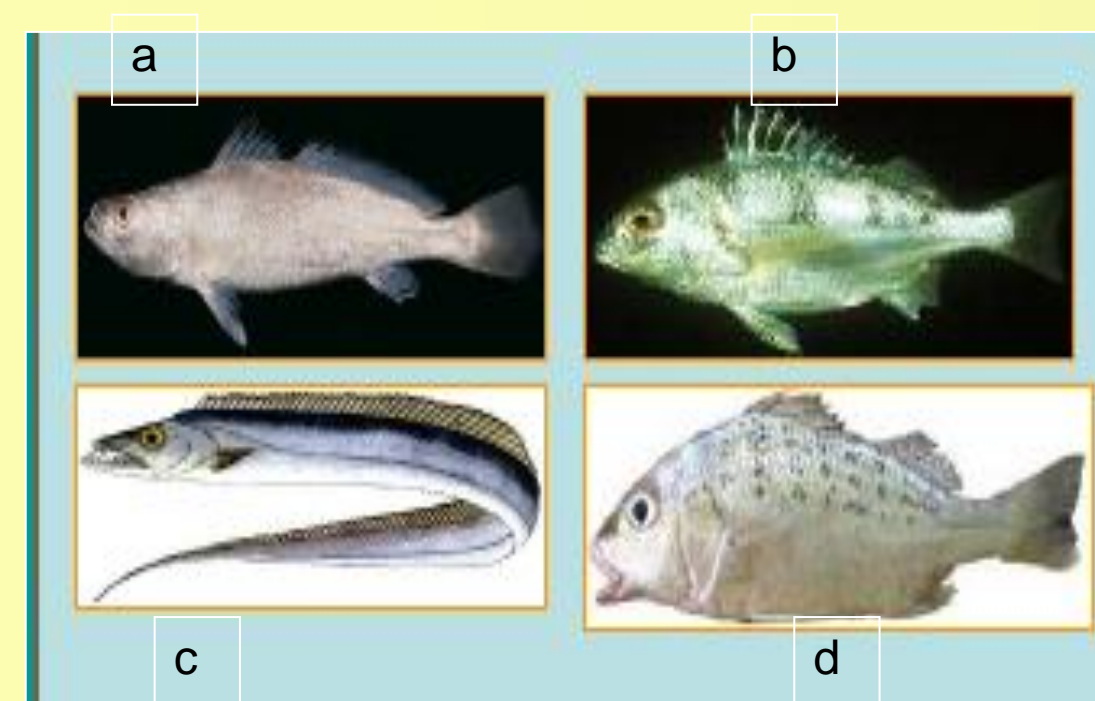


Fig 2: (a) *O. rubber* (b) *P. kakaan*, (c) *T. lepturus* and (d) *P. maculatum*

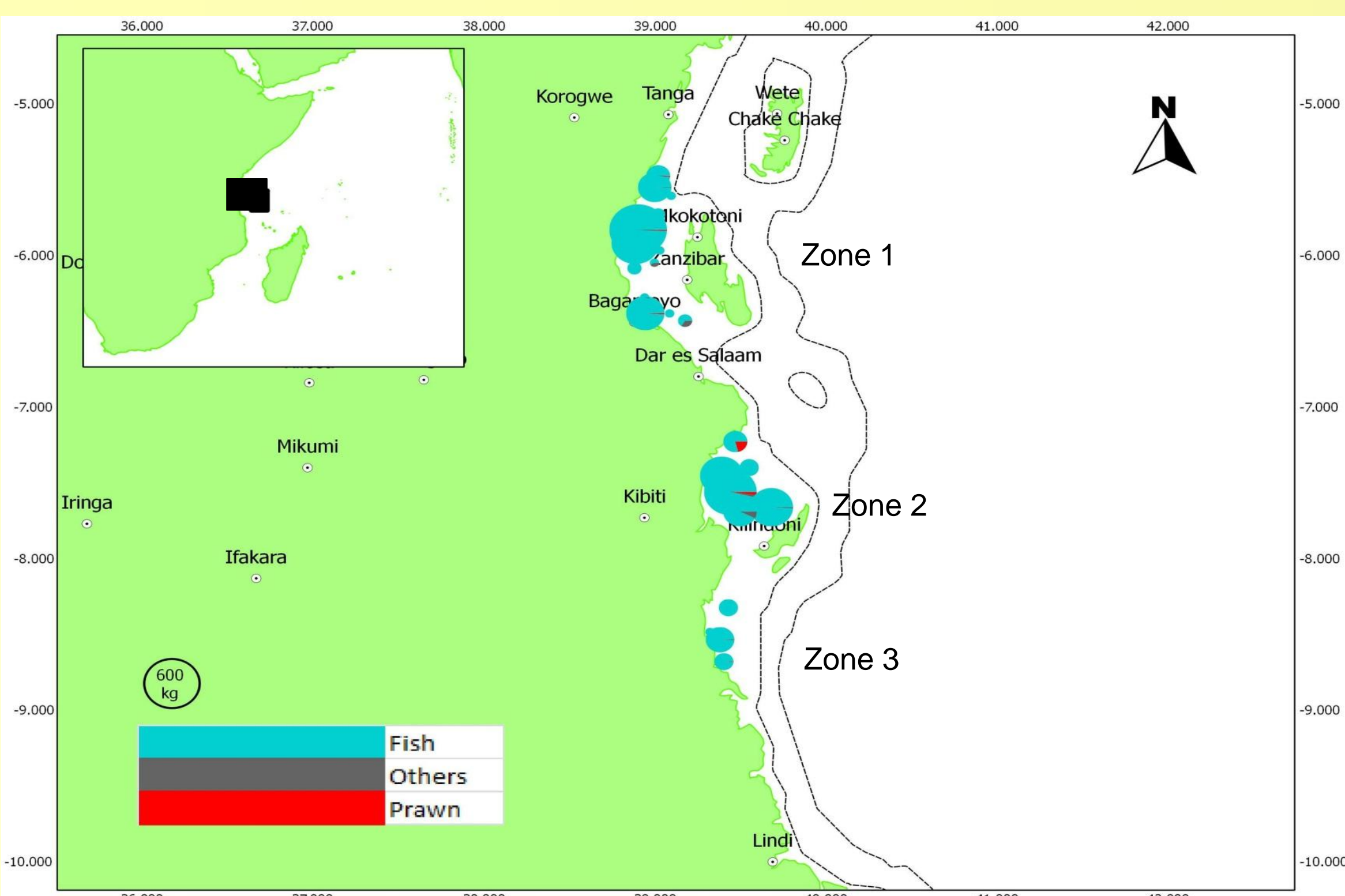
This study is part of SWIOFP shallow water demersal fish which was conducted in Tanzania .

Objective

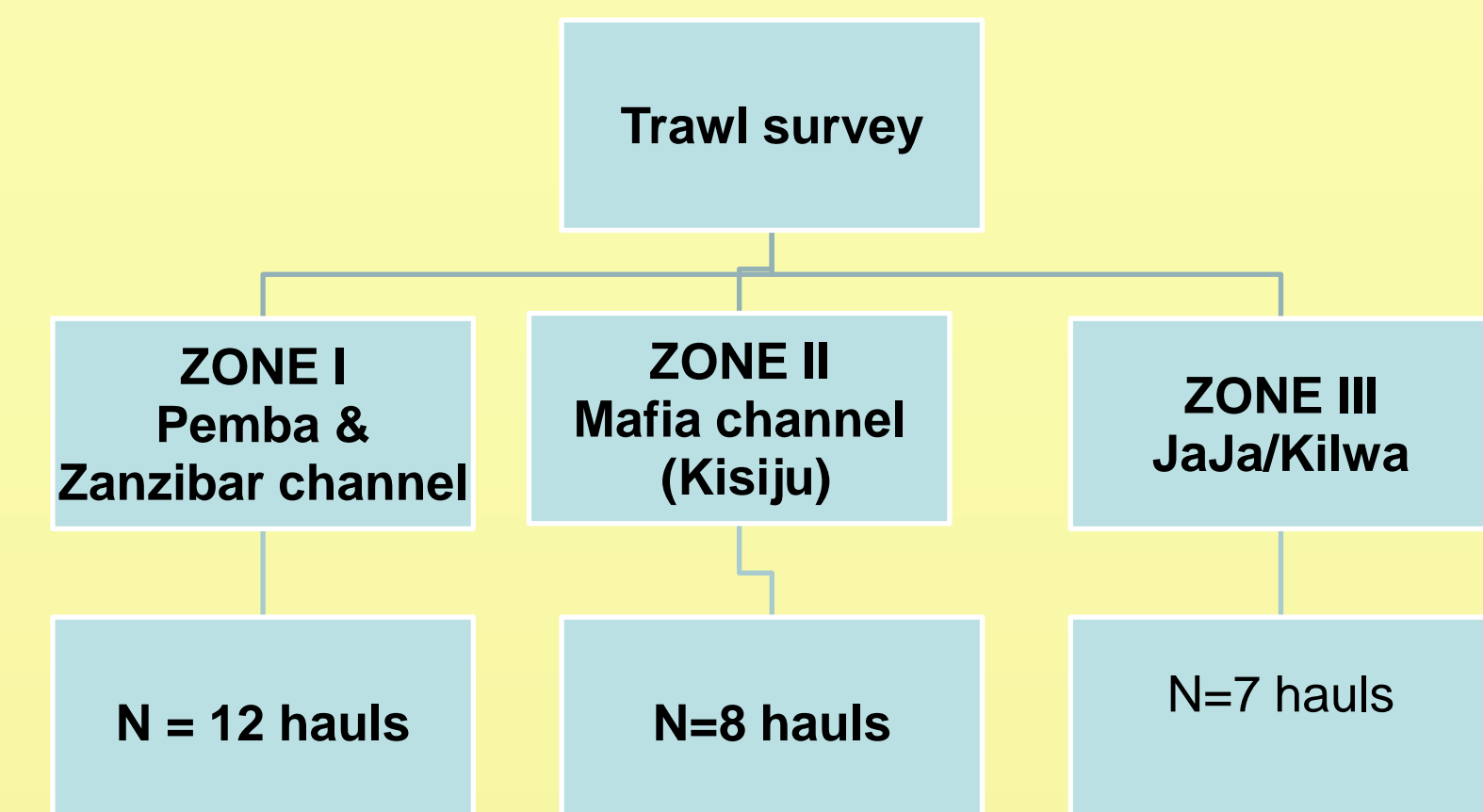
To determine species composition, distribution and abundance of the demersal fish stock in 3 fishing zones along the coast of Tanzania.

MATERIALS METHODS

Fig. 3. Study site



SAMPLING DESIGN



ASSESSMENT

1. Abundance indices

Swept area method

a. Species composition

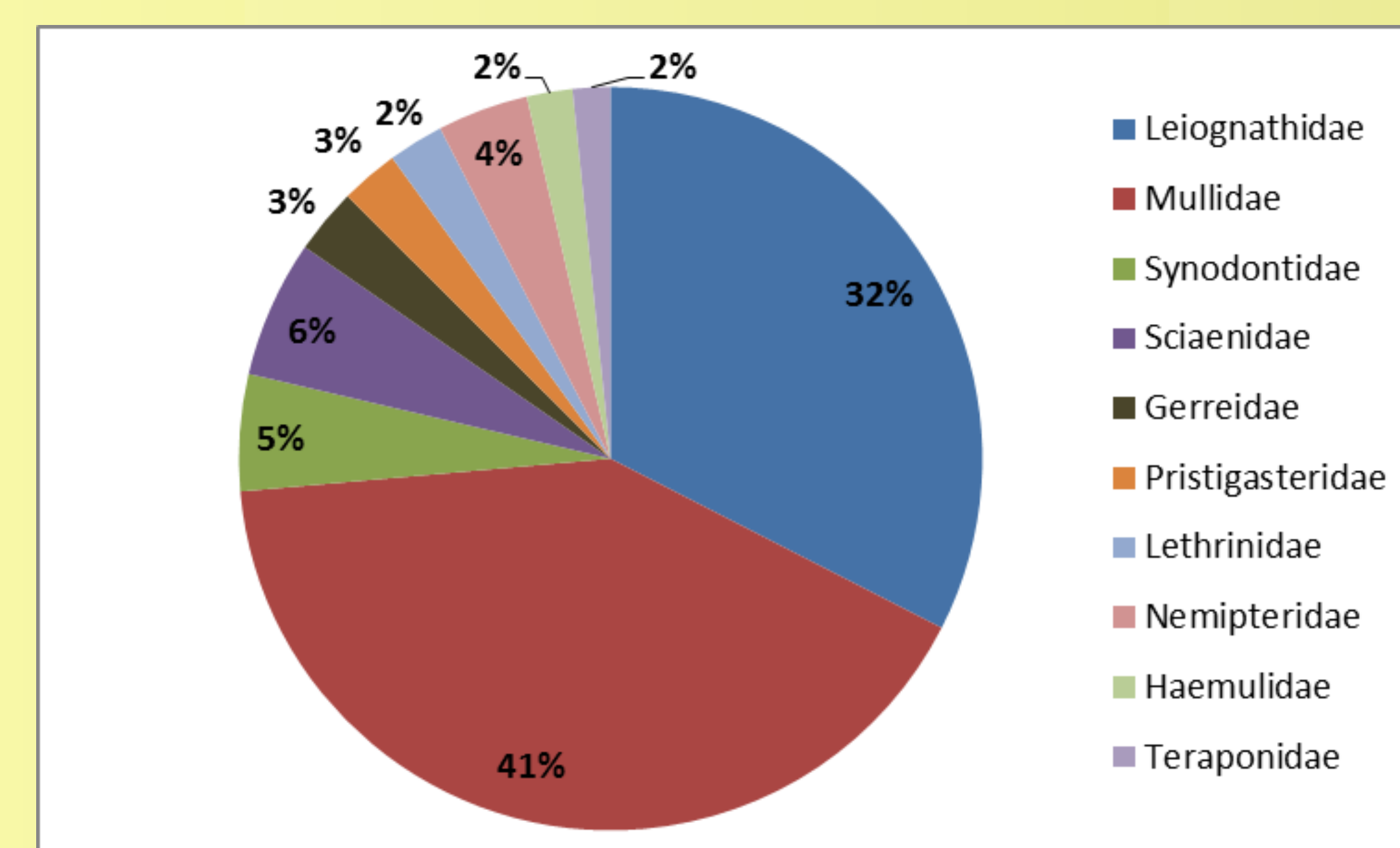
b. Catch rates

c. Biomass



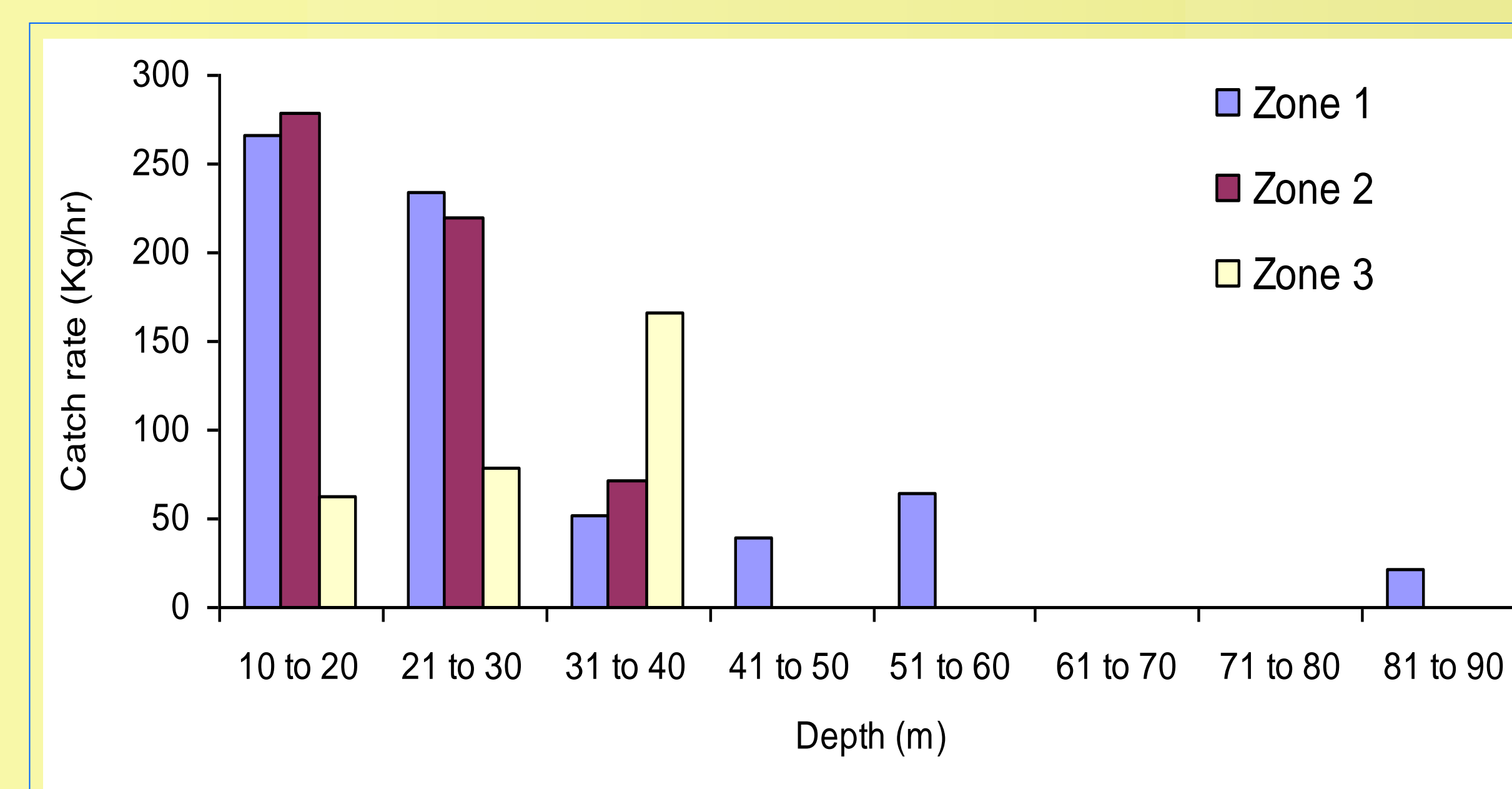
RESULTS

Fig 4. Fish family composition in % by number



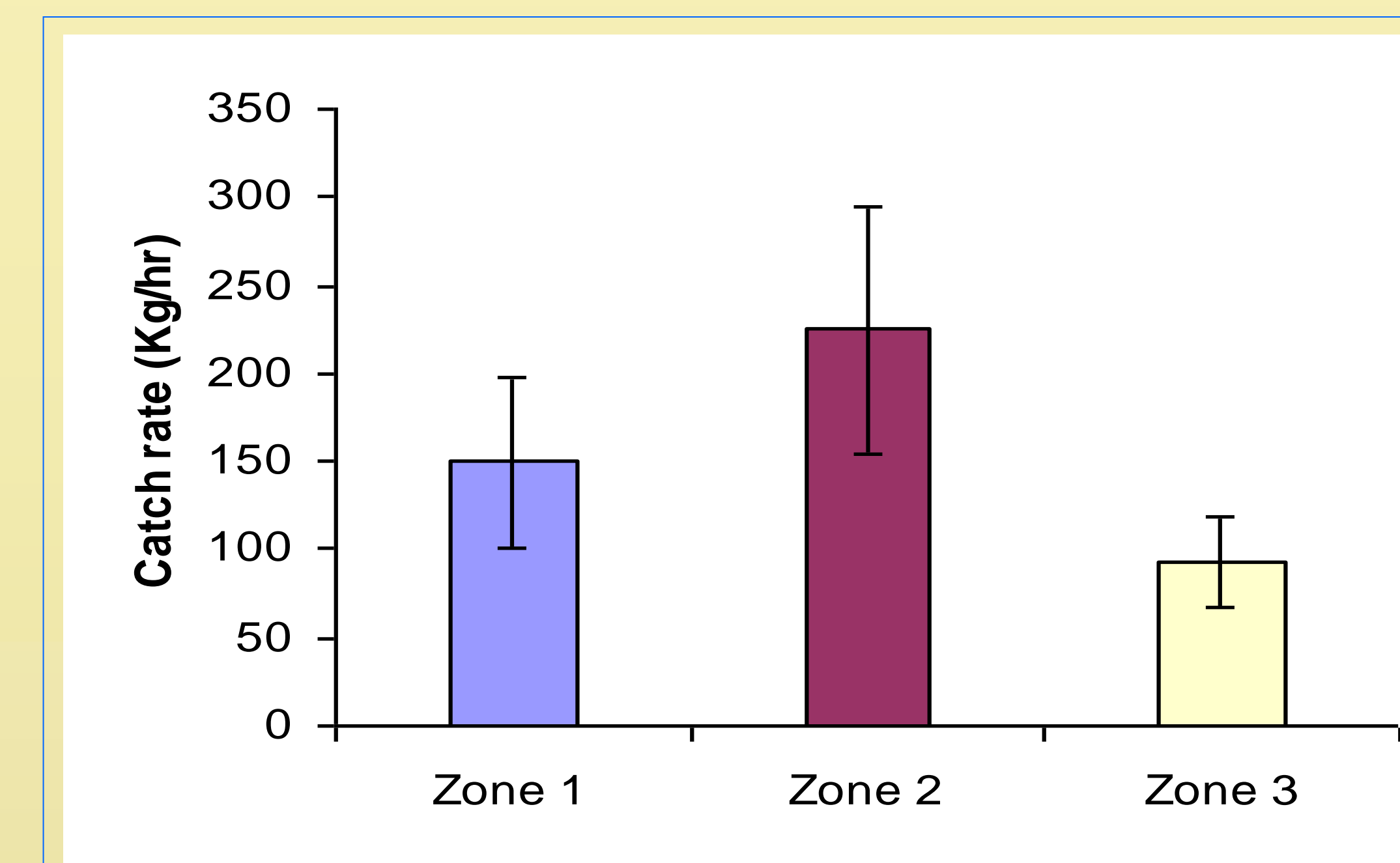
Most fish caught were from families of *Leignathidae* and *Mullidae*

Fig 5. Fish catch rate (Kg/hr) by depth strata



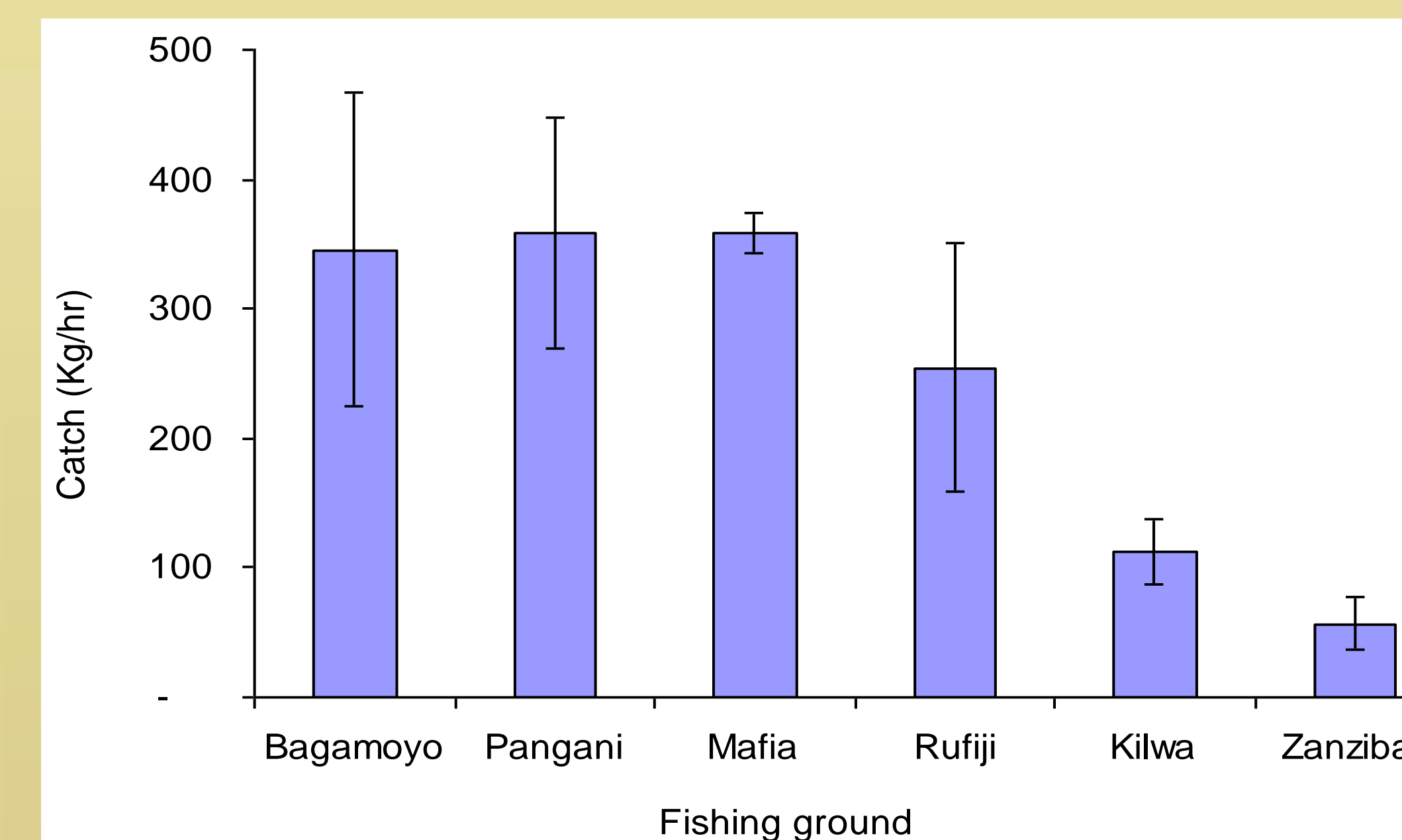
Most fish were caught in shallow water between 10m & 40m

Fig 6. Fish catch rate Kg/hr



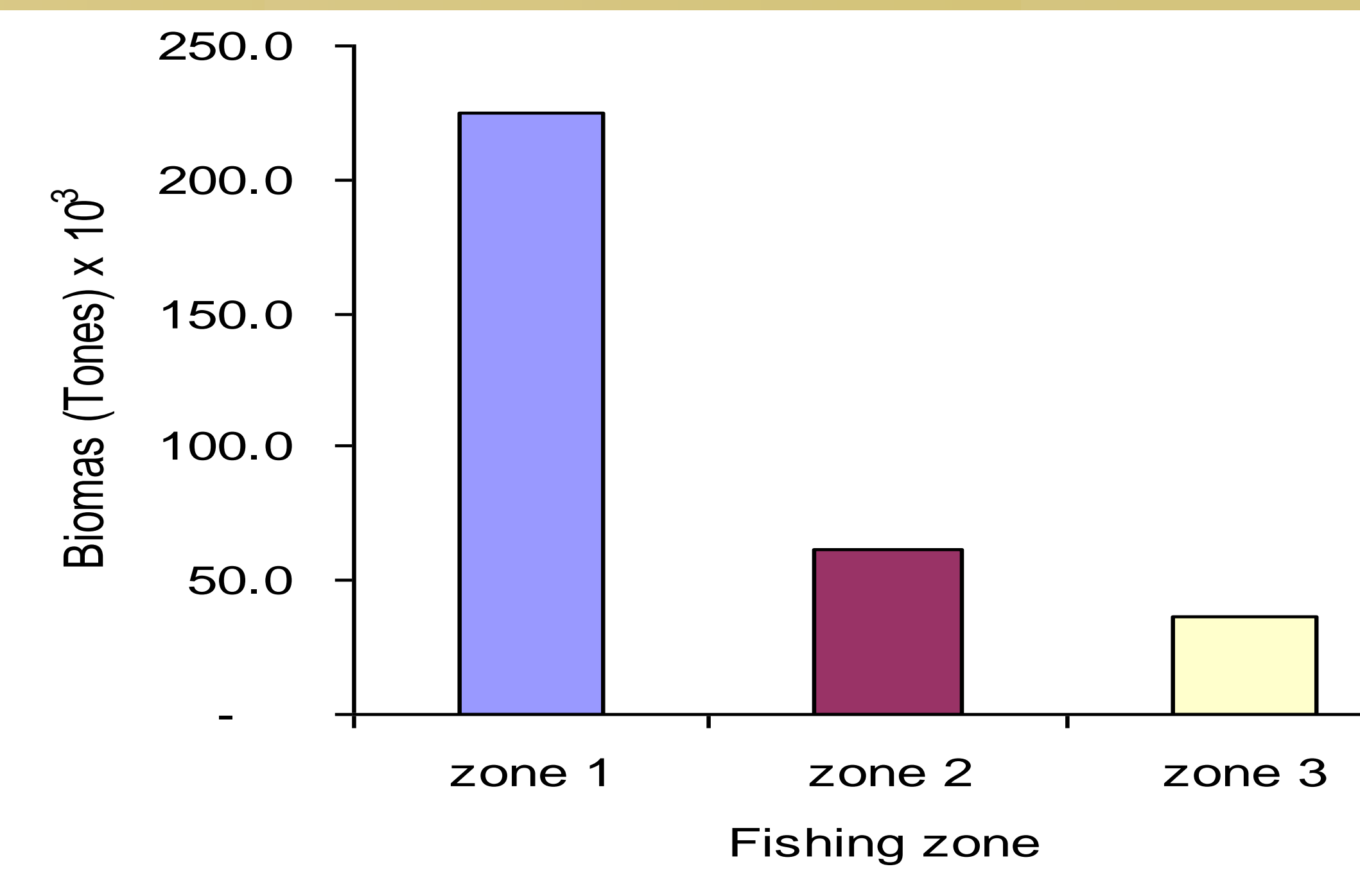
Fishing Zone 1 and fishing zone 2 were more productive relative to zone 3. Error bars = SE

Fig 7. Fish Catch rate Kg/hr



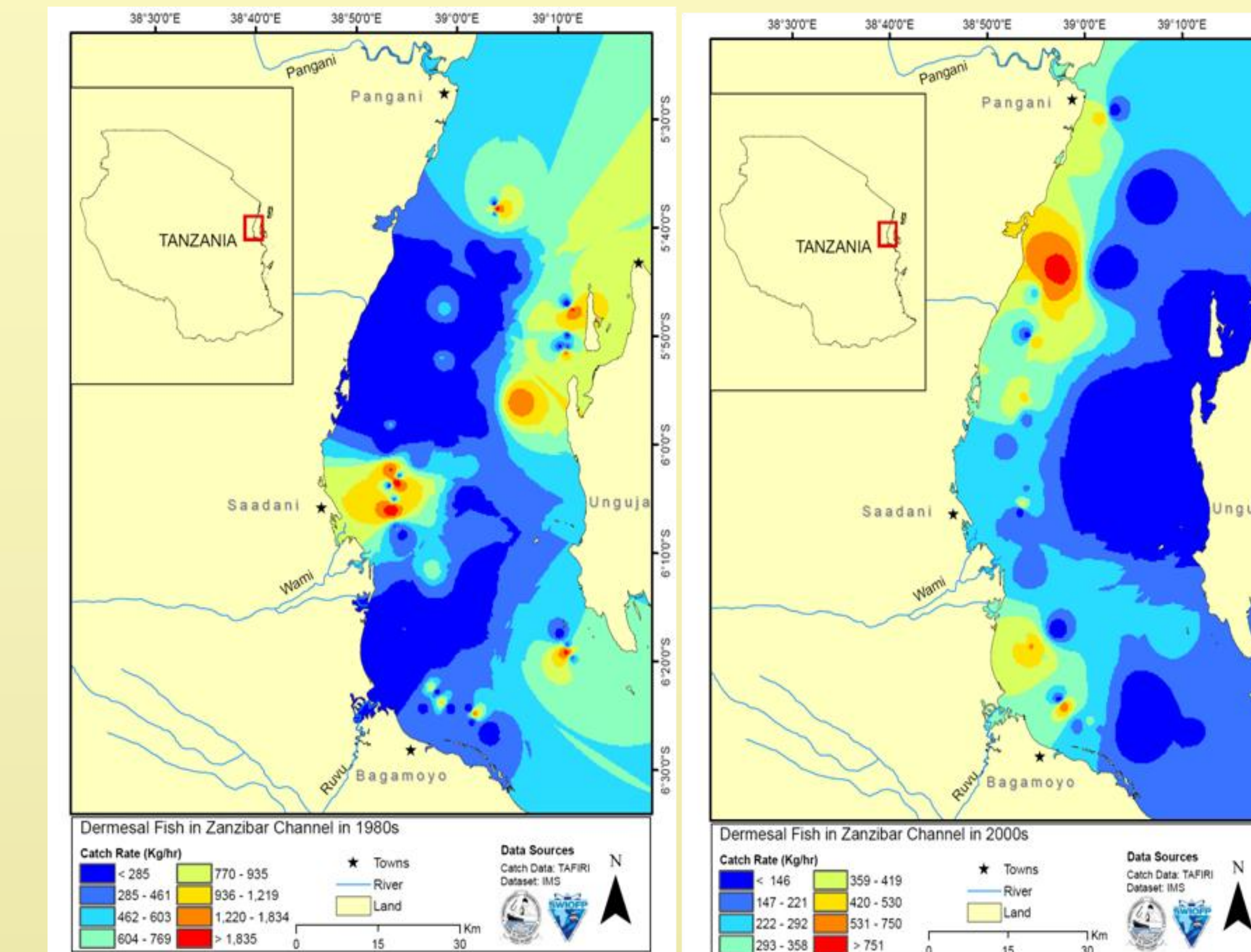
Zanzibar and Kilwa fishing grounds had relatively lower catch rates. Error bars = SE

Fig 8. Fish biomass (tonnes)



Bagamoyo fishing grounds had higher potential values of fish compare to Mafia and Kilwa fishing grounds

Fig 9. Spatial maps of Fish catch rate Kg/hr 1980s Vs 2000s



The maximum fish catch rate have declined three times between 1980s and 2000s

CONCLUSION

- Most fish caught were from families of *Leignathidae* and *Mullidae* found in shallow waters between 10m and 40m (Fig 4 & 5).
- The most productive fishing grounds were Mafia and Bagamoyo (Fig 6 & 8). Zanzibar fishing grounds were found not suitable for trawling (Fig 7).
- Comparison of abundance indices indicator (catch rates 1980s VS 2000s) suggested shallow water demersal fish stock along the Tanzanian coast has declined three time folds (Fig 9).
- The fishery which is characterized by small sized fish (*Leignathidae* and *mullidae*) and decreased catch rates is said to be vulnerable and such fishery needs an immediate management interventions such as formation of (national/regional) Strategic Management Plan SAP.

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