











The mangrove forest as a feeding ground and nursery habitat for the ichthyofauna: Mida Creek in Kenya.

Gajdzik Laura, Vanreusel Ann, Koedam Nico, Reubens Jan and Muthumbi Agnes Wangui

February 2013

Introduction



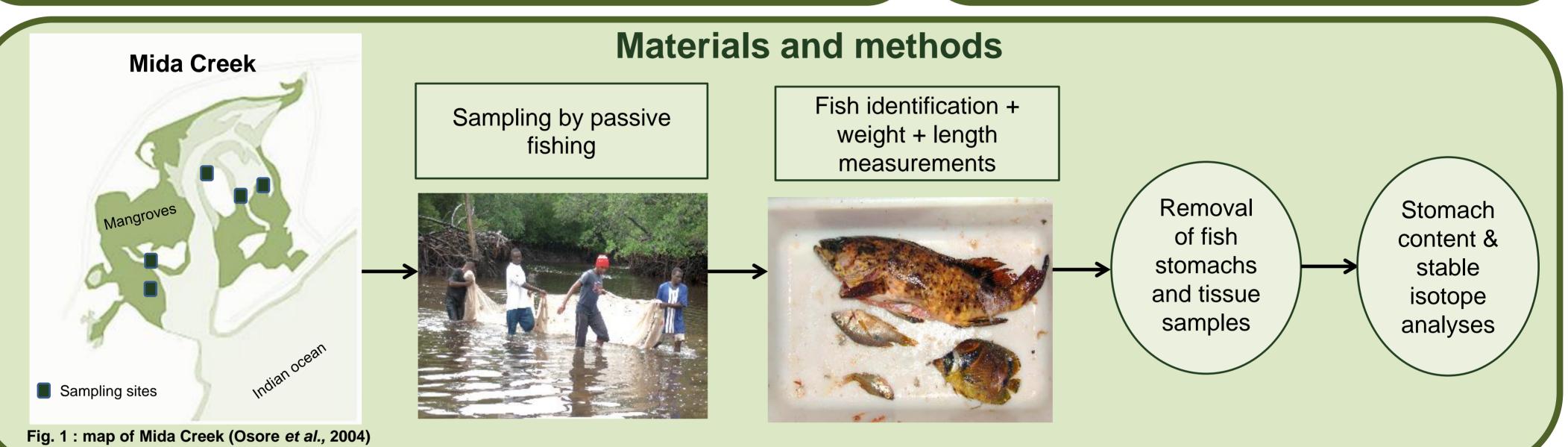
Mangrove forests exhibit a high diversity of bony fish but 4 common families are found in Kenyan mangroves: Gerreidae, Atherinidae, Gobiidae and Clupeidae.

Some earlier but limited evidence were found sustaining the nursery and feeding function of mangroves (e.g. Lugendo et al., 2006).

Objectives Identify the fish assemblage of Mida Creek Describe the functions provided by mangroves in relation to the ichthyofauna:

Nursery habitat

Feeding ground &



Fish species composition

In July 2011, 29 fish species were recorded, 18 species each contributing to <1 % of a total catch of 939 teleost specimens.

One gregarious species, Spratelloides delicatulus, represented 70% of total fish composition followed by *Ambassis* natalensis with 9%.

It represents the typical situation for a tropical system: one or two dominant species and many less abundant species. (Kimani et al., 1996; Mirera et al., 2010)

More data needed based on a consistent sampling strategy to standardise the comparison of the fish assemblage caught in diverse Kenyan mangroves.

Results and discussion

Trophic interactions: feeding functions

Based on nitrogen and carbon isotopic signatures and on stomach content results, fish species can be separated in two groups reflecting their trophic mode:

(1) a mixed diet with piscivorous preference for Sphyraena barracuda & Synodus variegatus.

(2) a zoobenthivorous/omnivorous regime for 12 species.

Fish diet does not rely on primary producers but on invertebrates. However some species can adapt their diet or are defined as opportunists. (e.g. Monodactylus argenteus) (Nyunja et al., 2002)

Nursery function through population structure

Data showed that 6 species were (almost) exclusively represented by juveniles.

These include:

Sphyraena barracuda, Monodactylus argenteus, Synodus variegatus, Gerres oyena, Spratelloides delicatulus and Lutjanus ehrenbergii.

They are considered as transient SPECIES (Lewis & Gilmore, 2007),

Four other species showed a high abundance of adults (73% to 80%). Two species could be designated as mangrove residents: Sphaeramia orbicularis (Mees et al., 1999) and Ambassis natalensis.

Conclusion

Families of small-sized fish (Clupeidae and Ambassidae) dominated the ichthyofauna in Mida Creek.

A majority of fish belongs to zoobenthivorous/omnivorous trophic mode; mainly feeding on invertebrates. However, two species (Sphyraena barracuda and Synodus variegatus) appeared to be carnivorous, especially piscivorous. A main question that needs to be further investigated in East African mangroves:

are the invertebrates, which were preyed upon by fish, exclusively dependent on carbon sources of mangrove forests?

Juveniles were numerically much more abundant than adult specimens in the whole area. Mida Creek might have so a similar function as habitats for juveniles as do estuaries.

