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

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February 2013

Introduction
- Mangrove forests shelter diverse terrestrial and aquatic organisms.
- 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: Feeding ground & Nursery habitat

Materials and methods
- Sampling by passive fishing
- Fish identification + weight + length measurements
- Removal of fish stomachs and tissue samples
- Stomach content & stable isotope analyses

Fig. 1: map of Mida Creek (Osore et al., 2004)

Results and discussion
- 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.

- 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 cyena, 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.