

# THE MAPUTO BAY ECOSYSTEM

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Foreword by the President of WIOMSA

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*José Paula and Salomão Bandeira*

# Recreational and sport fishing in Maputo Bay

Marcos Pereira and Rudy Van der Elst

**Any city that is located on a coastal bay** is likely to have a recreational fishery. Maputo is just such a city. With its rich bay and protected access to the sea, its citizens and visitors can take advantage of fishing as a leisure or sporting activity. Moreover, with a bit of skill and the proverbial good luck a recreational angler can add to the family's food security. Although recreational fishing takes on several forms, all of them share the common feature of fishing for leisure and not for financial reward. Any fisher who sells his catch cannot honestly claim to be a recreational angler, even though recreational angling can have huge economic benefits. Recreational angling in Maputo can be divided into three main facets as described by David *et al.* (1996): (i) shore-based angling; (ii) deep sea angling; and (iii) spearfishing. Each of these can be further split into a "sport" component where recreational anglers compete in specially organised fishing tournaments. A distinction can also be made between domestic angling and tourist anglers who are mostly associated with resorts.

**Shore-based angling** is mainly conducted along the *Marginal* waterfront in Maputo. A study was conducted on socio-economic and biological aspects on this fishery by Pereira *et al.* (2003) who reported that

typically, with rod and reel, the average catch per unit effort (CPUE) was 0.52 fish gear<sup>-1</sup> hour<sup>-1</sup> equivalent to 0.13 kg gear<sup>-1</sup> hour<sup>-1</sup>. Most of the catch comprised estuarine species, the most desirable by weight being *Argyrosomus japonicus*, *Pomadasys commersonnii* and *Crenidens crenidens*, while the more numerically common but less preferred species included *Halichoeres* sp. and *Leiognathus equula*.

**Deep sea angling** is conducted mainly by ski-boats (Figure 1B) that range from 5 to 9 m in length and are equipped with powerful motors and often sophisticated fishing gear. This fleet of about 50 active boats operates from several club-controlled launch sites to access fishing grounds located at least 10 nautical miles (~18.5 km) from Maputo. Most grounds are outside the Bay, in waters up to the 200 m deep, with Baixo Danae, Baixo Jeremias and Baixo Santa Maria being some of the most popular spots (Figure 2). In many cases the fishing is purely for leisure and a range of demersal and pelagic species may be caught, sometimes similar in composition to the catches taken by artisanal and semi-industrial fishers. However, deep sea anglers often hold tournaments that take on a role of sport fishing. Pereira (2005) presented data collected from eight such deep sea fish-



ing tournaments held by Clube Marítimo de Desportos. Each one of these tournaments took place over two consecutive days. About 13 species were regularly caught but the king mackerel (*Scomberomorus commerson*) and tuna (mainly yellowfin (*Thunnus albacares*) and kawakawa (*Euthynnus affinis*)) dominated the catches both in numbers caught and weight (cumulatively these species accounted for 81.1% and 78.2%, respectively). Other targeted species included dorado (*Coryphaena hippurus*), wahoo (*Acanthocybium solandri*), and billfishes (sailfish – *Istiophorus platypterus* and black marlin – *Makaira indica*). Deep sea anglers fared much better than their shore-based colleagues in terms of CPUE. An average of  $86.4 \pm 18.1$  (SD) anglers attended each tournament, fishing out of  $20.6 \pm 3.9$  (SD) boats. The average catch was  $114.5 \pm 54.8$  (SD) specimens/tournament (range 48–193 fish), with an average weight of  $896.2 \pm 491.4$  (SD) kg per tournament (range 383 – 1,737 kg). Each boat with about four anglers thus caught about 5.5 fish amounting to 42.4 kg per tournament.

**Spearfishing** is a less common but more challenging form of recreational fishing. Although no specific study has been done it is quite popular with some and involves free-diving and use of a rubber propelled underwater gun. As the Bay is largely turbid, spearfishers operate in clearer waters beyond the Bay such as Baixo Danae, the wreck at the northern point of Inhaca Island (Ponta Mazondue), Baixo Santa Maria Cockburn and Baixo Ribeiro. The potential selection of species is wide as seen from data collected at Ponta do Ouro, where David *et al.* (1996) reported that trevallies (family Carangidae) composed most of the catches (both in terms of numbers and weight), followed by other pelagic species such as the king mackerel (*Scomberomorus commerson*), barracudas (*Sphyraena* spp.) and reef fishes, particularly rubberlips (*Plectorhynchus* spp.) Spearfishers also hold sport tournaments and main-

tain trophy records, such as the four world records recently established by spearfishers based at Clube Naval de Maputo (Figure 1A).

Clearly the deep sea anglers are more productive than the shore fishers. However, shore angler catches in Maputo appear relatively higher than similar urban situations in South Africa where even lower catch rates for similar species were reported. At Richard Bay for example, Beckley *et al.* (2008), reported only 0.064 fish per angler hour<sup>-1</sup> or 0.030 kg per angler hour<sup>-1</sup>, while Everett and Fennessy (2007) reported 0.08 fish per angler hour<sup>-1</sup> or 0.11 kg per angler hour<sup>-1</sup>. Pradervand *et al.* (2003) estimated shore angler landings in Durban Bay as 0.071 fish per angler hour<sup>-1</sup> equal to 0.034 kg per angler hour<sup>-1</sup>. Notwithstanding their low CPUE, these studies concluded that the economic value of these fisheries ranged from 0.5 to 1 Million USD per annum in each bay.

Although it may be premature to draw direct comparisons from the available data, it seems that Maputo Bay recreational angling is a socio-economic asset worthy of development within a sustainable ecosystem approach. However, this requires a management framework. During the Maputo surveys it was found that the anglers' knowledge of the prevailing legislation on recreational and sports fisheries was very limited. Mozambique fisheries regulations list a number of species as fully protected and in most cases this was respected. However, the legal recreational limit of ten specimens per day per angler was at times not adhered to by both shore and deep sea anglers. Similarly, the list of restricted species included in the regulation (such as rock cods: two specimens per angler day<sup>-1</sup> and parrotfishes: one per angler day<sup>-1</sup>), was largely ignored and seldom enforced.

Recreational and sport fishing in Maputo has a long tradition, dating from at least the 1940's. The first Mozambique-caught fish to be recognized by the International Game Fish Association (IGFA) as a

world record was caught in Maputo Bay – a brindle bass (*Epinephelus lanceolatus*) weighting 226 lb (102.5 kg) on 26 March 1955, although this species is now under threat and red-listed by IUCN. Recreational angling is a growing sub-sector not only in Maputo,

but in Mozambique in general. Accordingly, it warrants more attention from researcher and managers if it is to continue providing the people of Maputo with sustainable access to quality leisure pursuits and valuable resources in their Bay.



**Figure 1.** (A) A new spearfishing world record established in 2010 – a 12.2 kg talang queenfish (*Scomberoides commersonianus*), (B) typical monohull boat equipped for offshore sport fishing in Maputo Bay. Photographs by Fenias Muhate (A) and Danilo Abdula (B).



**Figure 2.** Map showing the location of the most popular recreational and sport fishing spots in and around Maputo Bay.

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