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First documentation of the capture and release of a manatee in the Rogolié River wetland (Ntoum, Gabon)

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Abstract

A large number of marine mammals are seriously threatened by fisheries. Although the issue of by-catches in fisheries is a major threat to marine mammals, it has not yet been tackled in a concrete way in Gabon. Artisanal fishing accounts for 95% of fishing activity. Their impact on vulnerable megafauna can therefore be significant, either as bycatch or as target species. However, detailed information on the composition of fisheries catches is limited because of a lack of monitoring and reporting due to limited financial and logistical capacity. The aim of this paper is to document a rare phenomenon of the release of an African manatee (*Trichechus senegalensis*) caught in fishing nets at the mouth of the Rogolié River in the Gabon estuary.

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Introduction

Of all sirenians species the West African manatee (*Trichechus senegalensis*) is the least well known biologically (Reynolds and Odell 1991). The species is considered vulnerable by the IUCN (Keith Diagne, 2015) due to the persistence of a wide range of threats, primarily of human-induced. This species occurs in most of the coastal marine waters, brackish estuaries, and adjacent rivers along the West African coast from southern Mauritania (16°N) to the Cuanza and Longa Rivers in Angola (9°S) (Dodman *et al.* 2008; Perrin 2001; Powell 1996; Grigione 1996; Nishiwaki 1984; Husar 1978; Robinson 1971; Blancou 1960; Beal 1939). Gabon may have one of the highest densities of Manatees remaining in Africa (Nkollo 2022; Powell 1996). The decline of the *Trichechus senegalensis* population has been largely attributed to hunting and incidental capture in fishing nets (Dodman *et al.* 2008; Blancou 1960; Cadenat, 1957).

Bycatch in fishing gear is also a major threat in all African countries, and even when caught alive, most manatees caught incidentally are not released, but killed (Nkollo 2017; Mbina 2001).

The aim of this note is to document the phenomenon of accidental captures and rescue efforts for the African manatee, a vulnerable species. We believe that the lessons learned from this event can be beneficial to manatee conservation stakeholders and can contribute to the development of better manatee release practices.

Materials and methods

Study area

The Rogolié wetland is located at 0° 12' 22" N N and 09°41'52"E, in the south-west of the administrative province of Estuaire in Gabon (Fig. 1). The average altitude of the region is 250m above sea level. Average annual rainfall is between 2,600mm and 2,400mm. Average annual temperatures vary between 25 and 27°C. Rainfall is distributed seasonally, with a "dry season" between June and September and a rainy season from October to May. The area has extensive mangrove vegetation.

The Rogolié River follows an overland channel down to the river. The main river flows through the village of Nzamaligué, where local communities fish to support themselves.

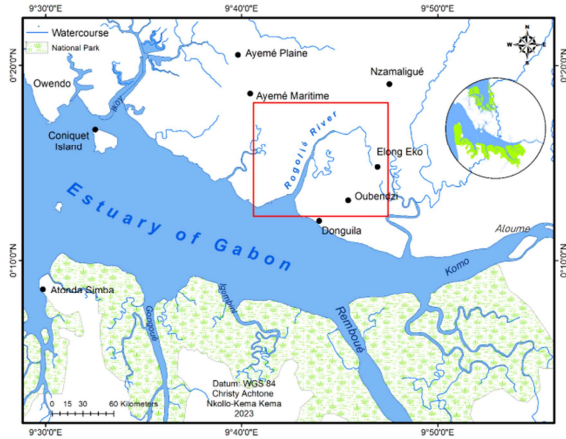


Fig. 1. Location of the Rogolié wetland.

Method

However, the threats on manatee in Gabon are not well documented. Data on manatee bycatch of manatee remain scarce in Gabon in especially in the Rogolié river wetland. This is the first report of a case of capture by the local community of a West African manatee in the Rogolié Wetland in Gabon. This is the only case of capture of a manatee in Gabon where the response included collection of some morphometrics data, the characterization of fishing technique, and the catch and released effort by local fishermen.

Results

On 16 February 2023, a volunteer member received a call reporting a manatee bycatch in the Rogolié wetland located near of Nzamaligué village (0°18'23"N; 9°46'16"E), 9 km South of the town of Ntoum, Gabon (Fig. 1).

This area is dominated by two species of mangroves: *Rhizophora harissonii* and *Avicennia germinans* (Okanga guay *et al.*, 2019). This wetland is characterized by several rivers including the Rogolié River. In addition, we also have made a video from 00:1:55 on manatee bycatch. Moreover, we're realized a focus group with fishermen on manatee by catch. Questions were related to time of by catch

observation, number of by catch fishing practices, fishing gear, fishing effort, fishing location. A survey was conducted with fishermen to collect data on catch location and vegetation.

The incidental catch observed was a West African manatee '*Trichechus senegalensis*'. This event was recorded at approximately 01:00 PM on 13 February 2023 at Rogolié Wetland, Ntoun area, Gabon (Fig. 2). At the time of the observation of incidental catch, the average water temperature in this area was 29.3°C¹ and weather was sunny.

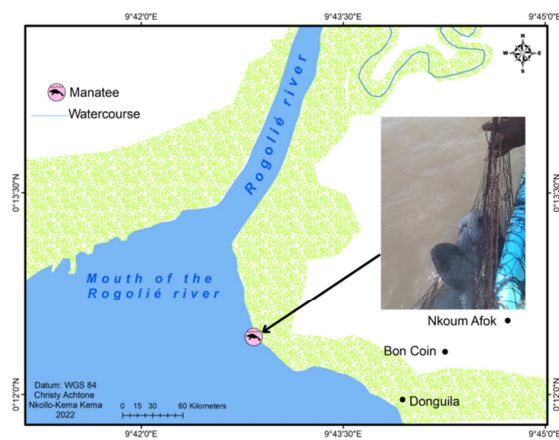


Fig. 2. Bycatch observed at the mouth of the Rogolié River.

The by-catch was made on an ebb tide with gillnet. The length of the animal was estimated to be about 200cm. It weighed approximately 150kg. The animal showed various small and large scars.

The fishing gear was made of cotton with a mesh size of 70cm and a length of 300m. The manatee was captured accidentally during a fishing practice called 'La traine'. The nets work by catching fish by the gills or by entangling them in the mesh. The net is placed more or less vertically in the water column with a line of floats at the top and sinkers at the bottom. The net is partially suspended from the surface by additional buoys that are attached to the float line at regular intervals. Gillnet drifted with the fishing boat for 2 hours. The net was removed and the manatee was found in close proximity to the fish. The fishes

observed in gillnets were Giant African threadfin '*Polydactylus quadrifilis*'. The fishermen reported that the manatee going to eat the fish in gillnets. After an effort of 1 minute 55, the team of fishermen and a volunteer member from local NGO «Aquatic Species», have freed the manatee. They pulled the manatee out of the water including the upper part from the head to flank. This operation was intended to immobilize the animal. After 15 min minutes, the team split in two. The first team located towards the tail of the manatee, kept the net immobile. The second team worked to get the manatee's head out of the net. Then, the team worked to get the manatee's sides out. Finally, the team removed the tail of the manatee that was entangled in the net. The net was removed from the water with the fish.



Fig. 2. Manatee in fishing net.

Discussion

Weighing only about 150kg, the released individual was a juvenile. For all mermaids, gillnets are a very trapping devices (Marsh *et al.*, 2011). Animals become entangled in them and can end up suffocated or drowned. Entanglement in nets occurs regardless of the age, sex or size of the animal (Marsh, 1994). However, the danger is much greater for calves, as they have less strength to free themselves (Auil, 1998).

¹ (<https://seatemperature.info/libreville-water-temperature.html>)

Furthermore, although by-catch in artisanal fisheries is a major risk factor for the species, it has been little studied so far in Africa. This is due to the fact that artisanal fishing is often carried out informally.

It is very difficult to follow the catch statistics, whether they are fishing catches or by-catches. On the other hand, for formal artisanal fisheries, on-board observer programs, as is the case in the offshore trawler program at are very difficult to implement, due to logistical and financial constraints.

Thus, despite the manatee is fully protected in Gabon according to Law 164/PR/MEF of 19 January 2011, it is very rare to see a manatee released from the nets, so particular attention should be paid to the extent of manatee by-catch in artisanal fisheries in Gabon.

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