

# EVALUATION AND STATUT OF MANATEES (*Trichechus senegalensis*) OF OGOOUE BASSIN IN GABON (first draft)

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## ABSTRACT

*Available information from literature and the results of surveys and studies conducted between 1986 and 1995 on the distribution and biology of trichechus senegalensis show that, the West African manatee occurs in the middle and lower reaches of rivers from Senegal to the Quanza in Angola (Powell, 1996; Dodman ,1999). The same study reported that manatees are common in Gabon and the country may contain one of the highest densities of the species in Africa.*

*The last survey we conducted in the bassin of Ogooué River and in the interconnecting lakes between Port-Gentil and Lambaréné verified the existence of trichechus senegalensis, and differents informations collected around all Gabon by one of us confirm the presence of specie all over water plans with preference for coastal zone.*

*However, it is clear that this population is currrently suffering from the detrimental effects of uncheked hunting practises and habitat destruction. Findings also indicate that the manatee population has been declining in recent years*

## I. INTRODUCTION

In Gabon, the Lagoon and river ecosystems which yet occupy a privileged place in biologic diversity term, often carry a little interest for research and conservation. Thousands of plant and animal species live there and, a deficient knowledge of this diversity, could lead a probable regression of these species.

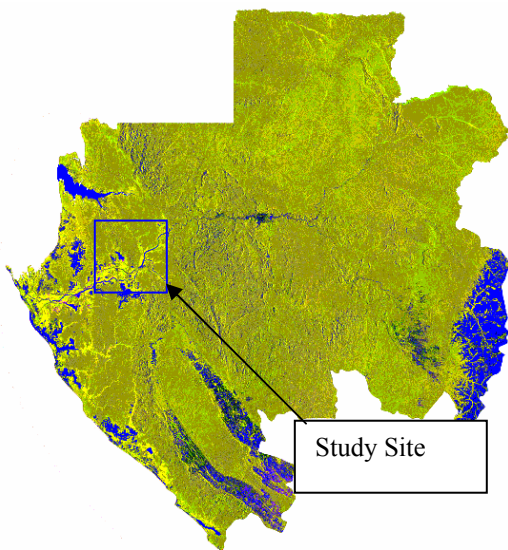
Although a lot of people are unanimous on the presence of manatee populations in several lakes and lagoons of Gabon, only some writings as those of Malbrant and Maclatchy (Faune de l'équateur africain francais, 1949) or Powell (the Distribution and Biology of West African manatee, 1996) mentioned them briefly.

Indeed, the most important data on the ecology of the manatees of West Africa are often assimilated to the results of study on the manatee populations of the west Indian , and of Amazony. The manatees of West Africa remain the less studied of the whole family of the Sirenians, yet, their presence is signalled in several streams and lagoons bordering the Atlantic facade from Senegal to Angola and passing by central Africa coasts Powell, (the Distribution of African Manatee, 1996). Signs of their presence have been shown in the Senegal , Niger, Benoue, Volta, Ebrie, Sanaga, Ogooue streams and the mouth of the Kouilou by P.L Dekeyser (Les mammiferes de l'Afrique noire francaises 1957).

Thus, in the assessments of the biologically important sites for the setting up of the new protected areas in Gabon, exploratory works on the manatee populations of West Africa (*Trichechus senegalensis*) have been led in the basin of the Ogooue in August 2001.

The main objectives of this assessment were to specify the existing data in this region, in order to put the first poles of a follow-up program in the future. However, in this study space and time have been voluntary limited because it was not matter to make a quantitative evaluation and deep investigations, but only to set up some bases for future works.

## II. STUDY SITE



### a- *Geography*

Edged by forests and savannas, the region of the lakes crossed by the stream Ogooue presents vast extents of waters that this stream nourishes by its two main arms, the Rembo Ogowe and the Rembo Ouango.

Situated at about 1° S and 10° E, the set of these lakes, of which most important are Azingo, Ezanga, Oguemoué, and the majestic Onangué lake with a surface of 160 km<sup>2</sup> deserves its name of "big lake", it is sprinkled of wooded islands and sandbanks in dry season. This geological region defines itself as being the inshore sedimentary basin, characterized by sea

deposits of which the age is between the medium cretaceous and the quaternary (Geographie et cartographie du Gabon ; EDICEF, 1983). Humidity in this region of the country remained very high. Big rains are located between October-November and, March - April during the two seasons of rains of the year with a yearly rainfall rate close to 2000mm and a yearly temperature varying around 35° C for the maxima and, 15° C for the minima (Geography and Cartography of Gabon; EDICEF, 1983)

### b- *Vegetation and fauna of the area*

At the same time aquatic and forest area, the region of the lakes is the good example of the biologic diversity of Gabon. This plant formation is intimately bound to the climat. Indeed, during the rainy season , waterways leave their beds , flood the surrounding surfaces and penetrate in the undergrowth, then with the dry season they are dried and that, in a cyclic rhythm comparable to the one of a mangrove swamp, but with a spatio-temporal difference. This ambivalence gives to this plant formation a specificity, because it contains a big amount of exploitable species that we cannot find elsewhere. Besides, we find on the banks of the Ogooue basin long creepers of and important extents of papyrus (*Cyperus papyrus*) that serve as shelter, food and breeding place for some fish and mammals. These humid lands mingled at the numerous marshes overflow with plant species scattered such as the Bahia (*Mitragyna ciliata*), the Bilinga (*Nauclea diderrichii*), the Assongho (*Anthostema aubryanum*), the Emien (*Alstonia congensis*), the Ebiara (*Berlinia bracteosa*), the Zingana (*Microberlinia brazzavillensis*)...

Let's note all the same that this zone suffer from a deforestation that damages it progressively. Besides, this vegetal formation, partially cohabit with big extents of savannas that are burnt every year by the local populations, preventing their colonization by the forest.

The aquatic fauna of these lakes is of sea origin; some sea fish have adapted to life in soft waters (Gabon; EDICEF-EDIG, 1983). The fauna of the region of the lakes was once one of the most varied and constituted a storeroom ecosystem for the country. People were able to see from their canoes year elephant gold has duikers drinking and the emergence of the hippos were has fantastic sight. Nowadays, hunting is there so intensive that the different species of known crocodiles have nearly disappeared from the country. The hippo population rarefy considerably. During our stay (six full days to crisscross the lakes from the rising of the day to sunset) we only notice three fast emergences that presented us some fearful animals. In the Onangue lake we noticed two young red-capped Mangabey (*Cercocebus torquatus*) in captivity, their master told us that he captured them in the surroundings, what could confirm the distribution of this species until the surroundings of the region, yet this one was normally known as being limited in the coastline part of the country. Let's specify that the big quantity of bushmeat being on the big markets of Lambaréné comes in majority from the surrounding region of the lakes. The avifaune once represented by the grey pelicans and the beautiful kingfishers, rarefy.

#### c - *Population*

Apart from Lambaréné the main city (close to 14 974 inhabitants), the region of the lakes of the Moyen Ogooue is surrounded with small villages of which the main activity, is centered on the fishing with nets, dragnets, lines or fishing rods. However, the important demand of bushmeat generated by the big centers that are Lambaréné and even Port-gentil encourages the poaching activities that intensify every day.

The natives of the lakes around Lambarene are the Myene (Galoa, Anjoumba), the Fang and their near neighbours, the Akele. Nowadays, populations from the south of the country who first arrived following the forest yards, and several West Africans hired for fishing activities are present in this region. This increase of the working population, put up a pressure on hunting activities in this region once bound to an éco-tourism development.

### III. METHODOLOGY

The data research on the field often represents an important quantity of work that includes on the one hand, convenient direct actions and on the other hand a collection so-called "indirect." It is to minimize this weight that we coupled these two systems of collection of data. In other words, to lead a preliminary assessment, a first research of data on the presence, the distribution and then the abundance of the populations of manatees is necessary, the most efficient means consist in making aerial skimmings by competent observers from an aircraft. This technique is applicable to the manatees because they must emerge periodically to breathe. However, here, it is not about estimating the size of the population or to determine its density, because it requires the use one of the two analytic methods commonly applied, it is to say, the method of the linear transects or the one of the transects in a group. Moreover, in this survey, it was rather matter of making some locations, or recognition flights. Thus, with a plane single-engined cessna 206, equipped with a GPS (Global Positioning System), we overflew the lakes of the south at a distance hovered flight while maintaining itself to an altitude of 100m for a speed contained between 150 and 200km/h. For all positive observations, the site, the hour and the features of the environment have been notified. The team was

composed of four observers among them, two having a good experience for this type of work. This skimming has been paired on the land by an interview - investigation led by fishers and local populations. As for the skimming, it was here about collecting maximum data thanks to people identified as those having a good experience in manatee. For the choice of people interviewed on the fish market of Lambaréné, we waited for the arrival of canoes transporting manatee meat or customers having a restaurant (often of the women). Manatee hunters in the villages are called manatee hunters persons unanimously recognized for their specialization in manatee hunting. Therefore, we finalized a questionnaire of reference, but some interviews have also been led in open discussions, because this method is less structured and is excellent to enlarge questions. Besides, it is the most compatible with the oral culture of the rural communities. By the means of these interviews, we tried to know the place occupied by manatees in the local populations culture (food, beliefs, fetishes), but also to collect complementary data about places and periods of reproduction, identification systems, seasons and hunting methods, local names existing, then the important parts, the relationships clans/totem, the impact of the situation on the bans linked to manatees.

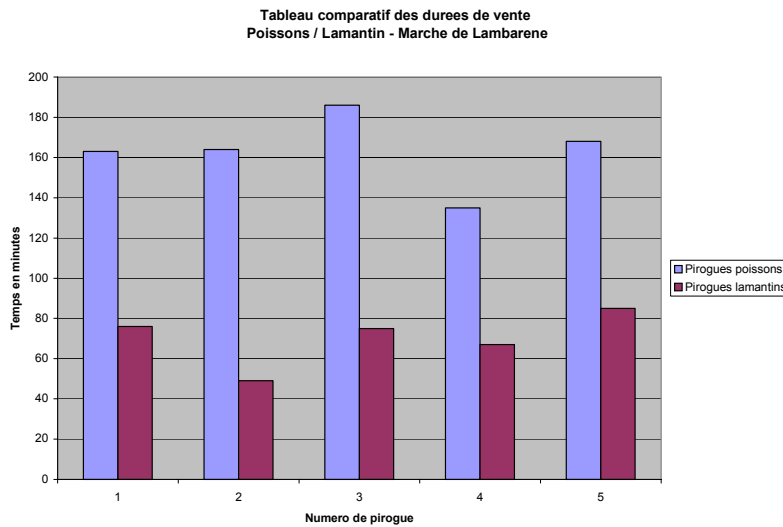
### III. RESULTS

In total, nine hours of skimming distributed into two days allowed us to observe 4 individuals. Representative enough result, when one knows the legendary discretion of these animals. Besides, it would seem that the big activity of hunt changed their day behaviours into nocturnal and let's specify also that the strong coloration of the brackish waters at this period of the year, doesn't permit an important visibility, so, the real size of the population remains difficult to determine. As for the results of our interviews that we wanted here more qualitative than quantitative, they rather us revealed a manatee population which declines little by little every day. Hunting manatees is a very lucrative activity for fishermen. On a sample of 10 fishermen (6 young and 4 aged people) questioned on the economic profitability between a canoe of fishes and another of manatee meat, they were all 10 unanimous that manatee meat was more lucrative, because sold at the fixed price of 1000 cfa francs the kg, whereas the kilogram of fishes knows fluctuations for example, from 700 cfa francs the initial price at the beginning of the selling to 300 frs with the passing of the time in the day. The time of sale recorded on the market of Lambarene gave us an average of 42mn for the Manatee, between the boarding of the canoe and the selling of the last kilogram of meat, and an average of 3h 06mn for a canoe of fishes, the average time of sale has been verified on a sample of 5 canoes of fish and 5 of manatee meat. Three different families of hunters questioned in three different lakes : Deguelie (lake of the North), Azingo (lake of the south), Onangué (lake of the south), confirmed that they captured 2 to 3 individuals per month, but 4 to 5 individuals especially in the months of December and August. Paradoxically, several restaurants in Lambaréné declare they don't sell Manatee meat that the demand is very weak, however, it has been noticed that the restaurants selling the meat of manatee are concentrated in the city center of Lambarene where the inhabitants of the lakes and villages along the Ogooue whocome to get a stock in food and fuel have their lunch, however, the declaring restaurants not to sell meat of manatee is rather close to the main

roads and is generally positioned facing the tourists and other travelers of passage, this to explain the preference of the manatee meat by the residents. The sale raising in December and August can be justified the period of the New Year's Eve parties and feast of the independence where families stock up in food .

### Ecology

The discretion and the rarity of observation, don't give us any enough information on this mamal. But the discussion with fishermen show us that the manatees of West Africa develop a lone and more nocturnal



behavior. It is surely a reaction consequent to the intensive poaching on this species, we especially found them around their zone of food where they are detected by the movements in the river vegetation, or by the rise of the mud when they move in less deep places . The manatees of the lakes of the basin of the Ogooue eat the plants that we find in abundance on the surroundings of the mouths and lakes, we also noticed some papyruses, and other species of plants with big leaves called < taco y manga > in omyene language, that grow in falling again in the lake, their food behavior seems more active in rainy season when waters are high and that the small plants are invaded by waters. In the dry season waters being low, they have some difficulties to nourish themselves because the plants meet are completely on dry land, so they are obligated to take refuge in the deepest parts of the lakes where the plants are available. According to our interview the mating season corresponds with the rise of waters. In the rainy season between October and April, the testimonies of one of the oldest hunters of manatees in the Onangue lake, meant us about movements of big groups of manatees that seem to continue during this period of time. This phenomenon made us think about a pursuit of females in oestrus by males, it is at this same period that they find some foetus at some individuals. If the period of gestation of the manatees of West Africa corresponds to the one of the manatees of Florida (12-13 months), these pieces of information can be taken into account as assertions.

### Threats on the manatee populations.

**The natural prédation:** Some died specimen observed on the jetty of the market of Lambarene (3 in total), presented some scars on their dorsal parts and cuts on their tails which imply the attacks of some carnivores such as crocodiles or even sharks. As far as

the attacks of the crocodiles and sharks on manatees are concerned, they are mentioned regularly by the fishermen at Sette-cama village, which is a sort of peninsula in the southwest of Gabon between the Atlantic ocean and the Ndougou lagoon.

***The human prédation:*** it is very intensive and will constitute the main reason of a possible disappearance of the species in a near future.

**Hunting methods :**

**The harpoon:** It is the most used method during the specialized time of manatees hunting. Harpoons are made of long stems of wood bound to a rope that ends by a float, the tip of wood is inserted in a metal of iron filed in a hooked shape. Once the manatee is seen, he "is tracked" by the hunter who follows it quietly while rowing without noise until the moment where he can throw the harpoon and can follow it how far, it will fail. Every fisherman is armed with a harpoon every time he moves on the lake.

***The net with big stitch:*** commonly named « Lambou » by the fishermen, this word which we didn't find the etymological source, describes a net of stitch 90, erected on the areas of food of the manatees and the small arms of retiring river on the lakes is manufactured locally by the villagers and generally used at the beginning of the rainy season when waters go up. The villagers used to say that every fisherman who respects himself possesses one.

***The dragnet:*** This method which consists in placing a net in semi-circle is used for the fishing, however if a manatee enters in accidentally, it becomes the most important target in the net, it will be necessary to put all strategies will be put together to put it out of the water where it will be harpooned approaching the shore.

***The rifle:*** As for all the other mammals, hunting with rifle concerns also manatees which once they emerge in surface are immediately shot

***The cage:*** This very old method is not used regularly, it consists in making a trap like those of elephants, except that here instead of a hole, it is rather a cage in a less deep zone in which one puts the grass, when the manatee enters in it triggers the gate made of dyed bamboo that comes to plant itself in the mud and prevent the manatee to come out again. This method is more used in dry season when waters are not deep and when the food becomes rare.

**Other threats:**

***Destruction of the habitat:*** The destruction of the banks, the exploitation of the forest resources while setting up some jetties, lead to the weathering of the feeding zones of the manatees.

***The pollution:*** Since no survey have been led, we cannot affirm that *Trichetus senegalensis* is as sensitive to the pollution as the other Sirenians, but it is probable.

## V. DISCUSSION

This survey brings for the first time in Gabon the scientific proof of an imminent presence of the manatee populations. It allows us to better see the present situation of the statut of the manatee populations in Gabon and even on the Atlantic facade of Africa. Of course, studies on the mammals of Gabon in general briefly point out the presence of the manatees in Gabon, but the one we led is the first that essentially focuses on manatees.

The present statut of the manatees in Gabon is very critical, poaching is very intensive and non controlled. The capture takes place in all seasons and the sales are organized freely in the markets. The inhabitants of this area recognize that these last ten years there had been an increase of captures, and it is surely due to a laxity of the law, since the manatee is an animal fully protected by the law 1/82 of July, 22 1982 relative to the protection of fauna in Gabon.

The evaluations on the importance of the size of the population in all waters of Gabon, remain to make for a better assessment , for it we cannot take the liberty to give hasty findings, even though they orient us to say that the Gabonese livestock is important, but that every year its reproduction capacity lowers by an increase of intentional catchings.

For the populations, it is certain that the respect of the laws if imposed by the concerned authorities, will be at least respected. Besides ten years ago, when they hunted the manatees, they made it discreetly and didn't expose themselves on the local market of Lambarene. These populations are formal that the absence of the manatees and hippopotamus provokes a rise of the vase that obstructs the mouths and complicate the circulation of the fishing products toward the big centers of Lambarene and Port-Gentil where they must be sold.

The biologic interest of the manatees is that their excrements can serve as manure for plants which constitute food for fish. In addition, manatees purify the river floors and can lead economic interest by the development of a profitable ecotourism. When these details are explained to the local populations, it seems to meet a certain motivation, however, an implication of the decision-makers and an integration of the local populations is necessary in the management of these resources.

## VI. RECOMMENDATION

- Facing a rise of the poaching of this species it is desirable to reinforce the laws protecting the manatees.
- Studies on the biology of the manatee populations of the western Africa should be undertaken, especially as this species remains badly known by the scientific world. To identify the potential dangers that can threaten this species, this in order to develop adapted measures of conservation .
- More retailed evaluations on this species should take place on all sites of their presence with an available data base.

- The management of fauna and the biologic conservation imply also a management of people, it is important to associate the native populations in the management of their resources.
- The proposition of a program of information that could encourage the sensitization of the local populations, the public, the authorities, the scientists and the professionals.
- A system of conservation must be studied for the survival of this species, a protection in the most busy zones would be a commendable initiative.
- The services of Waters and Forests Ministry must put more rigour by punishing the poachers.
- To make the balance of the actions to lead and means to put in this policy .
- To encourage projects of ecotourism integrating the manatees of West Africa, in order to cause an interest to the local level by generating a new source of incomes.
- To organize training in collaboration with waters and forests ministry and the other institutions implied in the conservation of the natural resources.

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