

# RECENT SURVEY ON THE DISTRIBUTION OF THE AFRICAN MANATEE

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## ABSTRACT

The survey was made in travelling west African countries in 1980 and 1981 mainly on the distribution of African manatee, *Trichechus senegalensis*.

It was confirmed that the manatees were inhabiting the Senegal River system.

Manatees were distributed sparsely between Guinea-Bissau and Liberia through Sierra Leone and abundantly from Ivory Coast to Nigeria extending to Mali. Considerable numbers were in Cameroon and Gabon. The most abundant area was in the Niger River and its tributaries with connected swamps.

According to the literature, the southern limit of the distribution is in Angola, but we were not able to enter the country to confirm it.

## INTRODUCTION

A fundamental thing for the study of an animal distribution is to determine whether only one or more than one species are present. In an attempt to answer the species question, the senior author examined the sirenian collection at the British Museum (Natural History) in 1973. Also, through the kind cooperation of Dr. Chales Roux (Museum Nationale d'Histoire Naturelle, Paris), the senior author studied the skeleton of a male manatee in Abidjan, Ivory Coast and found no evidence that more than a single species of African manatee exists. This agrees with previous findings (Hatt, 1934; Kaiser, 1974; Rice, 1977; Husar, 1978).

Since then, the senior author has visited Dakar and Abidjan twice for preparatory survey on the status of the animals. In the summer (July-August) of 1980 and the winter (January-March) of 1981, the present authors shared in area to perform extensive field survey.

Brief report on the survey was aurally presented by the senior author at the marine mammal symposium, International Theriological Congress III on 17 August 1982 in Helsinki. The present report was rewritten with some corrections, particularly the estimation of living numbers were to be left to the future studies.

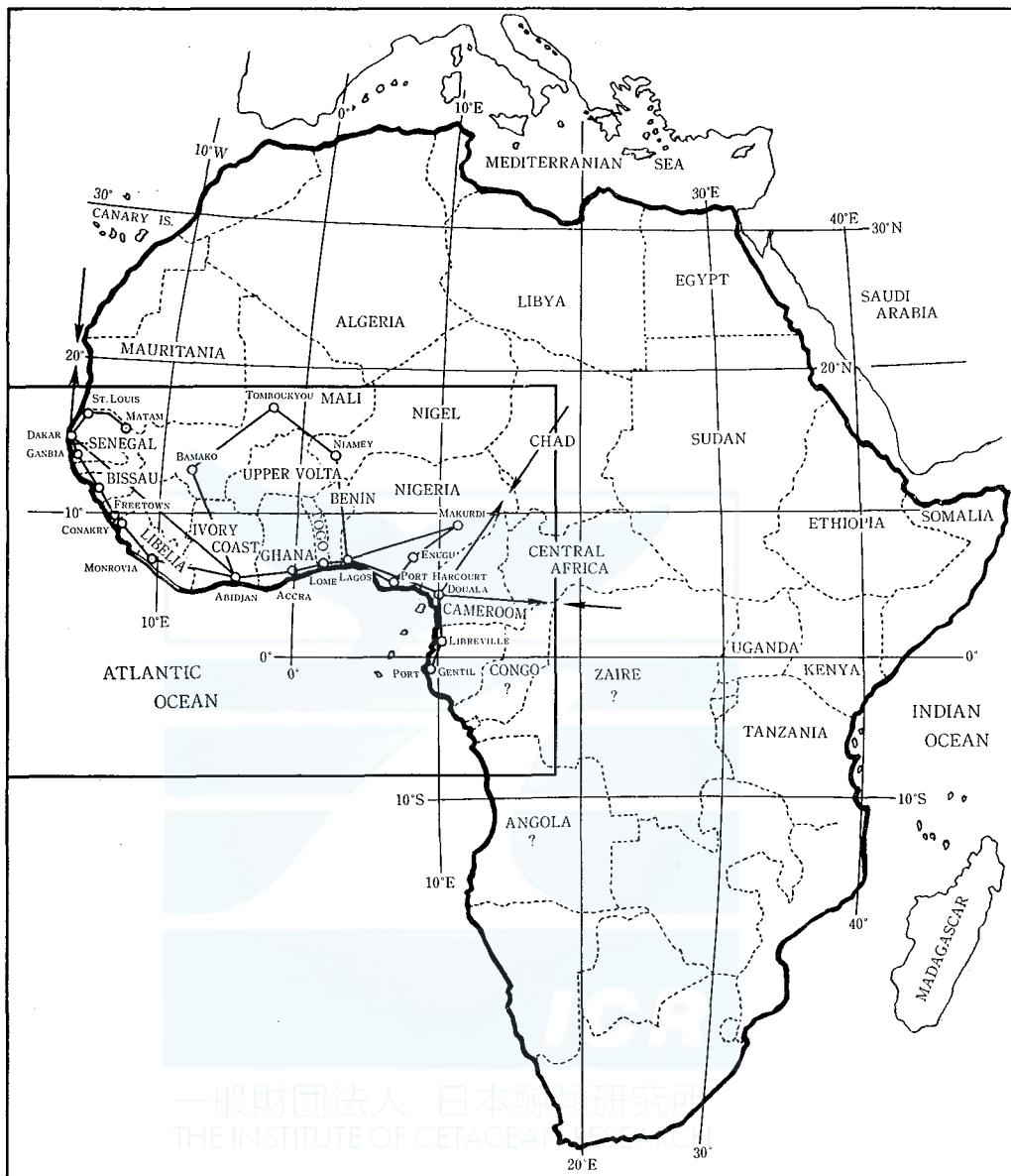


Fig. 1. Traveling route of the survey.

## METHOD

The principal method of survey was to collect information through interviewing local zoologists or biologists, fishermen at market places and general inhabitants by showing photographs of the animal. Information on the climate and other environmental conditions were also recorded. The group members often walked

into the river valley, swamps or other places where manatees might occur. One of the most difficult problem was to identify the animals in muddy colour who quietly submerged in the water for most of the day and surfaced to breathe by exposing only a small portion of the muzzle tip.

#### DATA COLLECTION

##### *Senegal (République du Sénégal)*

Investigation on geographical and environmental conditions along the Senegal River was made to determine the northern and western limit of the distribution of the manatee. Two group members flew from Dakar to Saint Louis and one of them further proceeded to Richard Toll, Podor, Matan along the border between Senegal and Mauritania.

The Senegal River is very broad at its mouth where sand bar stretches to the sea and blocks high waves, so the water around the estuary is calm. Since the area (Saint Louis as its center) is heavily industrialized, it seemed difficult for manatees to inhabit. Naturally no report of manatee sightings were obtained in this area. Similarly, we were unable to collect data of recent years in Dakar district.

This area which used to be a quiet lagoon has now turned to dry land. Recent extreme dry weather apparently affected the river and subsequently the manatee habitat.

Survey at Richard Toll was greatly facilitated by Dr. Morel, French ornithologist stationed there, through the cooperation of Dr. Alioune Ndiaye of Dakar. According to Dr. Morel's information, manatees are decreasing, but a considerable number of animals are still inhabiting Lac de Cuiers. At Matan, no report was obtained to indicate the existence of manatee.

The Senegal River meets a flow from Lac de Cuiers and winds widely on its way to Podor. The river is incredibly dark brown in colour and flowing further to the vast land of savannah. There seemed to be little possibilities of the animals feeding on water grass, because no forage would be available in this area. Therefore it seemed that manatees were not able to live there, at least from Lac de Cuiers to Matan except in the secluded parts of Lake Lac de Cuiers and swamps. Native people of Matan gave us no report of living manatees. Matan is so hot in July that even Dakar people feel it too hard. Environmental condition seemed to be too severe for manatees to survive in summer. However since the head waters of Senegal River is said to be connected with that of the Niger River in the vicinity of Bamako during rainy seasons, there is possibility of some manatees are recruited from the Niger to the Senegal. Based on what we have heard and on the examination of local conditions, a rough estimate of the manatee population in Senegal, would be a few hundred.

##### *Gambia (Republic of the Gambia)—Liberia (Republic of Liberia)*

We only collected data that manatees were inhabiting the Gambia River. To collect clear evidences of manatees existance there, our stay was too limited in

Bissau (*República da Guiné-Bissau*), Conarkry (*Republique Populaire Révolutionnaire de Guinée*), Freetown (*Republic of Sierra Leone*) and Monrovia (*Republic of Liberia*).

#### *Ivory Coast (Republique de Cote D'Ivoire)*

In the Ivory Coast geographical feature altered during August under influence of tropical rainbelt which shifts to the north in summer in the northern hemisphere (Beadle, 1978). In Abidjan, we exchanged all available information and knowledge on manatees with Dr. Francis Laugine, French veterinarian and director of the Abidjan Zoo. With his assistance, we used cars and a small plane of Cesna type for survey. We sighted considerable number of manatees in various rivers, swamps and lagoons. This area holds a large population of manatees as well as the Niger does. The number of the animals in this country may amount to several thousands. There were some suspicions that manatees were caught and eaten by native people. Catch of manatees had been prohibited since the time of French domination and was still in effect. But poachers catch and eat manatees without leaving any evidence of carcass or bones and keep the fact secret for long time. So there is no effective procedure of conservation. The situations are similar to dugong catch regulation in Indo-Pacific (Nishiwaki et al., 1981). Dr. Laugine plans a project of manatee research which may start in near future.

#### *Ghana (Republic of Ghana) with information about Togo (Republique Togolais) and Benin (Republique Populaire du Benin)*

Investigation in Ghana was enhanced through the cooperation of Dr. Kazumori Minami of the Noguchi Memorial Institute for Medical Research, University of Ghana, and Dr. R. Kumar, Indian entomologist, of the Department of Zoology, University of Ghana. Survey in the Lake Volta area was carried out under their guidance. According to Dr. J. Vanderpuye, Ghanian researcher of Volta Basin Research Project, no manatee inhabits the Akosombo dam area. Mr. A. K. Opoku of the Volta River Development Authority, informed us that he heard a few years ago that there had been abundant manatees in Asukawkaw River Arm, east coast of Lake Volta, about 9 km north to Akosombo. Dr. E.Q.A. Asibey of the Department of Game and Wildlife, Ministry of Forestry, told us that manatee catch was prohibited by law, and because of that, reports of local manatee catches hardly reached to the government officer. However, one catch was reported in the West Arm of Lake Volta in 1964 and another in Central Three Corner area in 1980, and some animals were seen in the River Tano (west Ghana) sometime before, but none at present. During the construction of Akosombo dam which was completed in 1965, (Obeng, 1969), series of manatee skeletons were excavated, which are kept at the Department of Zoology, University of Ghana: photographs of them were taken.

In the former description (Happold, 1975), the manatee distribution was reported along the coast line of Ghana, but no fisherman in Cape Three Point, Elmina, Cape Coast, Accra, and of Tema, reported occurrences of the animal in the sea. Although someone told us that an individual or individuals of such animal were caught by fishing net in Angola, there was no dependable evidence of the in-

cient. It was suspected, therefore, that the report might have been of dolphins or sharks. Togo and Bennin seemed to be quite different in political, economic and other features. There is little possibility of the manatee distribution, partly because there is no big river such as the Niger or the Congo (Zaire) Rivers in their territories.

Through the assistance of Japan International Cooperation Agency (JICA), we were able to obtain some information in a relatively short period of time.

#### *Mali (Republique du Mali) and Niger (Republique de Niger)*

In the vast desert area of extremely dry Mouritania (*Republique Islamique du Mouritanie*), northern Mali and the major land of Niger, exceptional green patches can be seen in Mandingo Plateau in the up stream of the Senegal River. The upper Niger River also reaches to this high plateau area with its central town named Bamako, Mali. Although the river is not very wide at Bamako area, volume of the river water fluctuates largely between dry and rainy seasons. The Niger River flows to northeast and continues into the wilder area, forming Inland Niger Delta, and reaches to Tombouctou (Timbuktu). After Tombouctou, the river gradually turns to southeast and crosses the border to Niger.

Collected data in the area indicate that considerable number of manatees are in the Inland Niger Delta, and some are inhabiting the lower stream neighbouring to Neamey, but the population size is scarcely known. The river basin is the only place in the dry desert area for manatees to survive.

#### *Nigeria (Federal Republic of Nigeria)*

Investigation in this country resulted us something through the help of local scientists. Dr. C. B. Powell of the School of Biological Sciences, University of Port Harcourt, gave us a valuable report that abundant population of manatees had been in Lake Kainji located in the middle flow of the Niger River and its tributary of the Benue River. However, over killing caused the manatees to decrease in number and now there may be a few hundred in the lake.

An important and reliable information was provided to us by Mr. A. B. Wilson of the Nigerian Institute for Oceanography and Marine Research. He told us that there were still many manatees in the Benue River. Although Dr. Powell spoke as a few hundred, his estimation was likely a few thousand. Dr. Akihiro Takihara, Medical Officer of the Embassy of Japan to Nigeria, told us that he saw some manatees kept alive by local people near by Makurde located on the side of the Benue River.

People said that occurrences of manatees had been counted before (Happold, 1975), but the number has been decreasing. Mr. Wilson informed us that an animal was tangled in a fisherman's net at Port Harcourt. He identified the animal as a manatee by seeing our photographs. If it is true, his report sounds like a manatee was taken from the sea, but the fact was that, Port Harcourt is located on the river side, a little up stream from the mouth. Brackish waters may be flowing in from time to time, but salinity of waters is low in the very wide estuary. Some individ-

uals might be washed out to the sea with strong current, against the animal's swimming effort.

#### *Cameroon (République Unie du Cameroun)*

The coastline of Cameroon faces the Gulf of Guinea, and it may be divided geographically into two sections; high rocky coast of volcanic lava in the northwest and low swampy and sandy coasts in the south (Ngwa, 1967). Because of this difference in topography, the west section (former British Cameroon) appears to have no manatees in small and rapid rivers flowing down from the Mount Cameroon (altitude 4070 m, active volcano). A small Zoo (Zoological Garden) has been established at Victoria, but its caretakers knew nothing about manatees in the district (South-West Cameroon). Fishermen in this town had some knowledge of the animal, called "Maiga", but they denied its occurrences.

There is a well-developed estuary, near the commercial capital of Douala, into which two rivers (R. Mungo and R. Wouri) are flowing, and the local residents informed us that there were manatees in the upstream of the River Mungo. However, the littoral district is heavily populated and urbanized, so it is hardly considered that there are large number of manatees. The Museum of Douala has a pictorial display of a manatee as one of the significant components of the local fauna.

There may remain a considerable number of manatees in the Sanaga River System, which is the largest in the country. Local residents interviewed at a river-side market at Edea described that the animal, called "Maga", lived along the entire river except in the rapids, and that the manatees were eating grasses in the river. Although it is prohibited to kill manatees by law, they occasionally catch them for meat in order to entertain visiting dignitaries, with special permissions. It appeared that, from what the people described, there were wide-spread incidents of poaching activities, at least near the population centers. It is also told that there was a licensed manatee hunter, Mr. Ngoye Samuel, at Mal Jeown near Mouanko village, south of Douala, who possessed a special permit for manatee hunting, which might be for local festivity.

#### *Gabon (République Gabonaise)*

In the vicinities of Libreville, the capital of Gabon, manatees had been caught very rarely from Baie de Mondah and Estuaire du Gabon. This report is based on personal communication between the group members and the missionary people at Donguila, and Dr. Domart, Direction des Chasses et Piches, Ministerie de l'Agriculture. The manatee is called as "Manga" in Gabon.

Approximately 150 km south to Libreville lies the city of Port-Gentil which is located at the mouth of River Ogoué, the largest river in Gabon. Mr. Bayona of Ogoué Marine Service, who regularly commute between the city and off-shore oil-rigs for servicing, informed us that he had not seen any manatee at sea, although seen large number of whales and dolphins passing in dry seasons. The local fishermen at Port-Gentil and also those at the neighbouring place of Ntchengue village mentioned that manatees were common in the River Ogoué and in the several con-

nected lakes located between Port-Gentil and Lambaréne. Several individual persons informed equally that the manatees were also common in the southern coastal lagoons, such as Lagune Nkomi or Fernan Vaz, near Omboué and Lagune Ndogo, near Sette Cama. According to Mr. Jean Wack of Libreville, who worked as a timber merchant soon after the World War II and travelled frequently along the River Ogoué, manatees were abundant there before. He described that some experienced fishermen would lie in ambush for the animals in the river because manatees had moved onto a certain particular route every time in search of the food, species of aquatic plants.

Since Gabon is less extensively developed, it holds vast rain-forest area and river basins with relatively smaller population of about 1.3 million people in about 270,000 km<sup>2</sup> (density about 5/km<sup>2</sup>) (Hancock, 1978), there may be large population of manatee in some of the above-mentioned localities. One of the group member went into the wilder swampy Ivindo River area where manatees may inhabit abundantly. One of our problems was that though experienced scientists may find the muzzle tip or a part of the body in muddy water and estimate abundance in the area, it is very difficult for them to count number of the animals. Relatively dense distribution of animals was presumed. A rough estimate of manatees may be several thousands.

The government has prohibited manatee hunting, but the situation was the same as everywhere, there seemed to have no efficient measures to prevent local poachings.

#### *Angola (República Popular de Angola) and Congo (République Populaire du Congo)*

As we were refused to enter into Angola and Congo because of political instability due to the civil war, no survey was carried out in those two countries. Only information collected through Dr. Akihiro Takihara was that manatees were seen in Stanley Pool, a lake nearby Kinshasa, Zaire (*République du Zaïre*). No manatee was said to be seen in the Ubangi River, a big tributary of the Congo (or Zaire) River, which flows from the territory of Central African Republic (*Empire Centrafricain*), passing through Bangui, crossing the border to Congo and flowing into Stanley Pool.

The town of Lubumbashi is located near the border of Zambia (*Republic of Zambia*). A report came from the area that manatees, called "Manga" were seen in remote rivers and swamps. However, since the body length of the animals reported were 30–150 cm, it was so doubtful that we concluded the report was false.

The southern and the eastern limit of manatee distribution is still unconfirmed.

#### DISCUSSION AND SUMMARY

As a result of the recent survey in the west African countries, it is clear that the most abundant distribution of manatee is in the Niger River and its tributaries and associated swamps. The rivers which hold secondarily abundant populations are the Sanaga and the Ivindo Rivers, in Cameroon and Gabon, respectively. The nor-

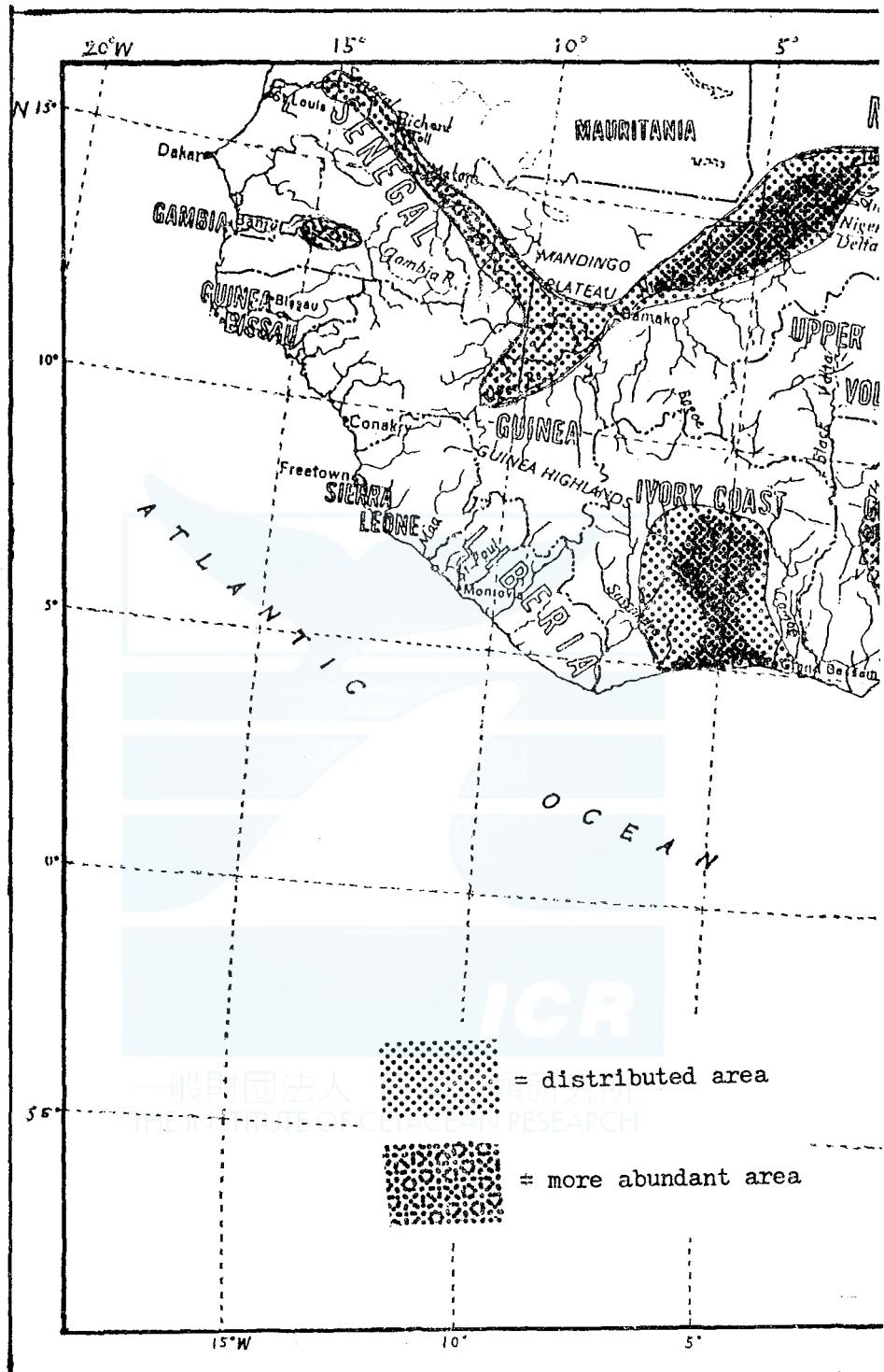
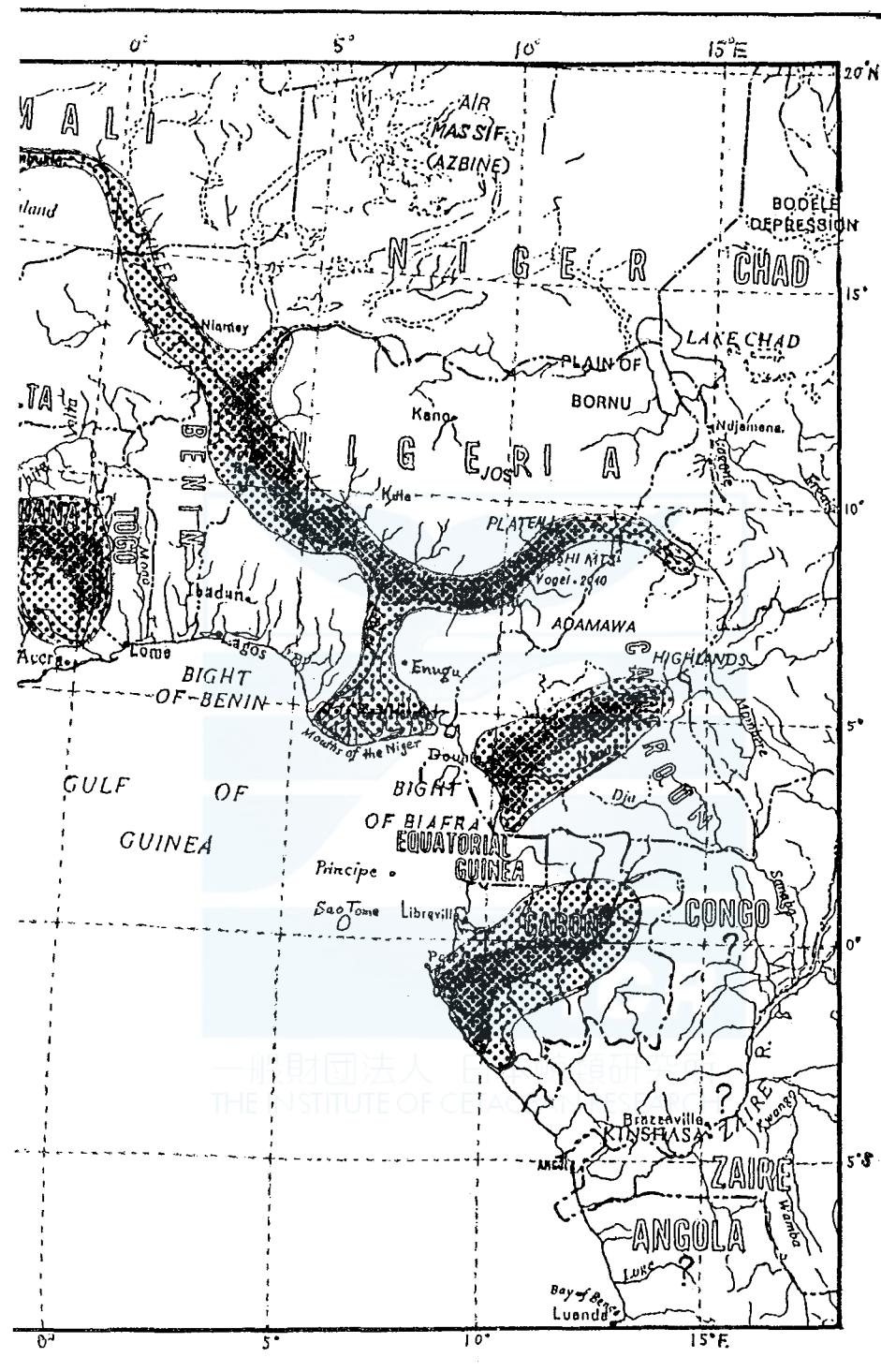


Fig. 1. Distribution of the African

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manatee (*Trichechus senegalensis*).

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thern and the western limit of distribution is in the Senegal River system. However, dispersing and fading distribution in both the western and the northern parts of the river were so scarce that we had once thought that it might be better to report the Inland Niger Delta in Mali as the northern limit and the Gambia River as the western limit.

The African manatee was proved to have a delicate sense to avoid salt water, which unlike the American manatee, *Trichechus manatus*, which inhabits marine environment as well as estuarine and freshwater habitat (Odel et al., 1978; Erdman, 1970; Hartman, 1979). Some local reports telling manatees were observed at sea were supposedly false and disregarded in our records. We thought that dolphins, whales or sharks might have been mistaken for manatees in those cases.

Based on the all collected data, we drew a distribution map of the African manatee in west Africa trying to show recent status of the animal and hoping that it would be a reference to some conservation measures.

The Niger River flows through extensive areas crossing the borders of countries, merges with other rivers, and is very long. If conservation of the African manatee would be planned, conservation strategy by a single country would not be effective. A conserved population in one country may be poached in other territories. Only properly organized extensive and long standing project would work for this purpose. Almost every country we visited, prohibits the manatee hunting by law. But we were informed in many places that the actual status and condition of manatees and poaching incidents had scarcely reached Government Officials because of people's fear of punishment. It should be noted that research projects by scientists stationing in the field for long periods, and who are able to establish good terms with tribal chiefs and general local people of the district, are most desirable, Dr. Laugini in Abidjan is a good example. Sufficient collection of local reports and workable conservation plans would be available by those people.

While travelling many lands of severe natural conditions where many people were nearly starved, we realized that the conservation of this species must be very difficult because of delicious meat and easy hunting by local people. Saving those people from poor status by developing agricultural and other improvement and progress must have superior priority than establishment of conservation measures on manatee. However if we wait until these conditions are fulfilled, it should be too late for conservation of the African manatee.

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