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ECOLOGY AND CONSERVATION STATUS OF THE WEST AFRICAN MANATEE (*TRICHECHUS SENEGALENSIS*) IN ENIONG CREEK, SOUTH NIGERIA

OGOGO A. U[1], ENIANG E. A[2], NCHOR A. A[3] & NKAMENYIN O. O[4]

[1,3]Department of Forestry & Wildlife Resources Management, University of Calabar, Calabar, Cross River State, Nigeria

[2,4]Department of Forestry and Wildlife, University of Uyo, Uyo, Akwa Ibom State, Nigeria

ABSTRACT

The West African manatee (*Trichechus Senegalensis*) is threatened with extinction. Information on its ecology is scanty. Manatee ecology in Eniong Creek, South South Nigeria was studied. Canoe cruises were made in three randomly selected days per week, two weeks per month in the lower, middle and upper sections of the creek for six months. Behavior, feeding habits and dung and gut contents were observed directly. Information from respondents was also obtained. Chi-square tests, regression analysis and percentages were used to analyse data. Results showed that the manatee fed on at least 15 different species of plants with Ficus spp identified by the highest percentage of respondents (94%). The number of manatee killed positively correlated (+0.96) with the number sighted in the same period. There was a decline in the population of manatee from 803 in 2002 to 264 in 2007. The decline was attributed to heavy poaching and habitat destruction. Playful behavior of the manatee included somersaulting, barrel rolling, head and tail standing, body surfing and upside down gliding making it attractive for ecotourism. Alternative livelihood options were recommended for the local people to stop them from poaching the manatee and destroying its habitat.

KEYWORDS: Manatee Ecology, Conservation Status, Eniong Creek, South, Nigeria

INTRODUCTION

The West African Manatee (Trichechus senegalensis) is critically threatened with extinction yet it is the least known aquatic mammal (Reynolds and Odell, 1991). Hunting by the local people and habitat destruction have drastically reduced the manatee population. *Trichechus senegalensis* is found in Coastal marine and estuarine habitats as well as fresh water rivers and creeks in the West Coast of Africa including areas in Gambia, Liberia, Guinea Bissau, Guinea, Gabon, the Republic of Congo (Powell 1990) Manatees are solitary animals and their rate of reproduction is slow. Females mature at about five years of age and males at about nine years of age (Marmontal and Reynolds 1992). Pregnancy occurs after mating and an average of one calf is born every two to five years. Twins are rare. The gestation period is between 12 to 13 months (Reynold and Powell 2002). After birth, mothers nurse their young with mammalian milk for one to two years. Manatees are herbivorous mammals they are however not obligate herbivores and will consume fish an invertebrate in some areas (Suhlivan, 2006). The West African manatee possess great potentials and attractions for eco-tourism and environmentalists due to their physical appearance, behavior, feeding and breeding habits. However, illegal hunting and habitat destruction continues to pose a serous threat to manatee survival in the West African sub-region.

No work has been done on the ecology and conservation of the manatee in the South South area of Nigeria. The rapid increase in human population and the resultant increase in the socio-economic activities of the people in this area necessitate a study of the ecology of the manatee in order to evolve adequate conservation strategies for this curious looking and interesting aquatic mammal.

MATERIALS AND METHODS

Eniong creek is 24.2mm long and lies between latitudes 50 04' and 50 13' N, and between longitudes 7047' and 7o58E. The creek was stratified into three sections: Lower, middle and upper. The lower section comprised of two villages, Obio Usiere in which 11 respondents were selected and Asang, which had 9 respondents. The middle section comprised of three villages: Obu, Obot-Apabio and Akani-Obio with 5 respondents each. The upper section also had three villages: Ikpanya, Opoto and Nkana with 5 respondents each. Canoe cruises were made in three randomly selected days per week in each of the three sections of the creek. The study was done on alternate weeks and lasted from April 2006 to November 2007 (19 weeks). Direct observation of the animal was made for its behavior and feeding habits in addition to information from respondents. Dung and gut contents were examined visually and by feeling them between the fingers. Plants were identified with the aid of "A Handbook of West African Weeds" (Akobundu and Agyakwa,1987). A team of three observers were used for each trip. A wooden canoe was used with one paddler using a wooden paddle to access the creek. This was to ensure that less noise was made as the team searched the creek for the manatee. One observer looked straight in the direction the canoe was going, while the other two looked one to the right respectively. The Global positioning system (GPS) was used to determine the sighted position of the manatee.

Four methods were used to determine the materials utilized as food by the manatee. These included: observing the animal actually feeding on the plant, observation of feeding evidence on the plant by the manatee, interview of fishermen and manatee hunters and examination of manatee dung and gut. Dung and gut contents were examined visually and by feeling them between the fingers.

Information on the behavior of the manatee, number of manatee killed, number of manatee sighted for the past six years (2002 to 2007) and cultural practices of the people that affect the habitat were collected from respondents through structured questionnaires. Chi-square test and percentages were used to analyse data. Tables were prepared from the data analysed.

RESULTS

Plant Species Utilized for Food by Manatee

Plant species utilized as food by manatee are given in table 1. A total of fifteen plant species were identified as food materials for the manatee. *Ficus spp.* was identified as food for the manatee by the highest number of 47 respondents (94%), while *Vossica cuspidate* was identified by he least number of 31 respondents or 62% of total.

Number of Manatee Sighted, Number Killed and Population Density of Manatee

Mean number of manatee sighted, number killed and population density of manatee in Eniongs Creek from 2002 to 2007 is given in table 2. It shows that there was a steady decline in the population of manatee from 803 sighted in 2002 to 264 in 2007.

Table1: Plant Species Utilized as Food by Manatee (*Trichechus Senegalenis*) as Given by Respondents

Plant Species	No of Respondents				Percentage			
	A	B	C	Total	A	B	C	Total
Echinochla stagnina	18	13	14	45	90	60	87	90
Leersia hexandra	17	9	9	35	85	60	60	70
Echinochloa cruspavonis	18	10	10	38	90	67	67	76
Nymphaea lotus	19	9	12	40	95	60	60	80
Ipomoea aquatica	19	9	12	40	95	60	80	80
Acroceras ziganioides	15	8	19	34	75	53	73	68

Table 1: Contd.,

Panicum subaldidum	15	8	9	32	75	53	60	64
Pistia stratiotes	19	12	12	43	95	30	80	86
Vossica cuspidate	15	8	8	31	75	53	53	62
Colocacia antiquorum	17	9	10	35	85	53	67	70
Leptochloa cearulescens	17	9	9	35	85	60	60	70
Manihot Palmata	16	11	9	36	80	73	60	72
Schoenoplectus senegalensis	19	12	10	41	95	80	66	78
Ficus spp	15	14	14	43	95	94	93	94
Echinochloa piram	15	9	11	35	75	60	73	70

Note: A, B and C are the lower, middle and upper sections of Eniong Creek

Table 2: Mean Number of Manatee Sighted, Number Killed and their Population Density from 2002 to 2007

Year	Mean no Sighted	No of Manatee Killed /km	Population Density/km^2
2002	803	8	100
2003	625	7	78
2004	691	7	111
2005	390	4	49
2006	347	5	43
2007	264	4	33
Total	**3120**	**35**	

Note: (1)Correlation coefficient = +0.96
(2)Prediction equation Y = 1.67 + 0.008X. Where Y is the prediction of the number of manatee killed from the number sighted (X)

Local Uses of Manatee Meat

Local uses of the manatee include the following:

The meat is used for food and is sold for cash.

The oil is used healing fractures in traditional medicine

The male reproductive organs especially the testicles are highly prized by the Hausas who use them to prepare charms and talisman. The oil is used for frying food and for baking.

The bones are used for decorating homes.

Killing of Manatee gives the hunter pride and fame.

Human Activities that Decimate Manatee Population

Activities responsible for the decline in manatee population are given in table 3. All the respondents (100%) agreed that poaching, deforestation, livestock grazing, use of chemicals in fishing and bush burning were responsible for the decline in manatee population.

Table 3: What Respondents Perceived as Activities Responsible for the Declining Population of Manatee

Activities	No of Respondents				
	A	B	C	Total	%
Poaching	20	15	15	50	100
Deforestation	20	15	15	50	100
Livestock grazing	20	15	15	50	100
Use of Chemicals in fishing	20	15	15	50	100
Bush Burning	20	15	15	50	100
Farming	19	14	14	47	94%
Use of Agro Chemicals	8	5	6	19	38%
Oil spillage	17	13	12	42	84%

Note: A, B and C are the lower, middle and upper sections of Eniong Creek

Playful Behavior of Manatee

Playful behavior of manatee is given in table 4.

A high percentage of respondents 92 – 96% have observed one or more of these behavioural activities which include somersaulting, barrel rolling, head and tail standing, body surfing and upside down gliding. Playful behavior of manatee makes it an interesting animal that can promote eco-tourism where it is found.

Table 4: Playful Behaviour of Manatee as Observed by Respondents

Playful Behaviour	Number of Respondent				
	A	B	C	Total	%
Somersaulting	20	14	14	48	96%
Barrel rolling	19	15	14	48	96
Head and tail standing	19	13	14	46	92
Body surfing	18	14	14	46	92
Upside down gliding	19	14	15	48	96
Total	**95**	**70**	**71**		

Note: A, B and C are the different sections of Eniong Creek

DISCUSSIONS

The large number of plant species (15) utilized by manatee suggest that manatee require areas with undisturbed vegetation and high biodiversity. Their feeding behavior is in line with the observations of Suhlivan (2006). Thus, land use practices like bush burning, farming, deforestation and livestock grazing are inimical to manatee survival. Most of the inhabitants of the area engage in slash and burn method of farming either as a full-time occupation or on part-time basis. This leads to the removal of vegetation that constitutes manatee food in addition to the reduction of the biodiversity of the plant species. Unchecked hunting and habitat destruction were also observed by Salkind (2006) to be responsible for the decline in manatee population. This suggests that effective conservation of manatee requires strategies that will protect both the animal and its habitat from wanton destruction by humans. According to Scheffer (1973), illegal hunting (poaching) of manatee is a more serious threat to the conservation of manatees. This activity was observed by Silva (2001) to be common in West Africa. The removal of vegetation through burning grazing and deforestation also causes siltation of the creek as well as making the area too open. Thus, poachers and other enemies of manatee easily sight the animal and decimate their population. The Local name of manatee (Efik/Ibibio) is “Itu”.

There are a number of superstitious believes about the manatee in the area. They include the following: (1) People join manatee cult to either become rich or to cause misfortune to others especially through boat boat mishap, (2) only people who are members of the manatee cult are able to kill manatee and (3) those who hunt manatee without first joining the cult will become poor. These believe must have helped to reduce the number of people who hunt the manatee thus helping to conserve it else the animal would have gone extinct in the area. Schuhmann (1995) observed that manatee have long maturity age, long gestation period, long Calving intervals and small calving size, producing only one calf at a time. This makes manatee highly susceptible to extinction as they cannot withstand heavy poaching and habitat destruction.

The manatee’s playful behavior makes it attractive for ecotourism. Tourists enjoy watching animals that engage in acrobatic displays more than animals that are docile in nature. These behavioural activities were also observed by Onderko (2006) and Schuhmann (1995). Thus manatee conservation could provide income and employment to the inhabitants of this area who have a large number of unemployed youths. The development of the creek for eco- tourism could bring revenue to the state government as well as to the natives.

CONCLUSIONS AND RECOMMENDATIONS

Manatee population in Eniong Creek is fast depleting due to heavy poaching and habitat destruction. There is lack of awareness among the local people about the laws prohibiting the killing of manatee. The animal has great potentials for eco-tourism.

It was recommended that enlightenment campaigns should be carried out in the area to educate the local people on the need to conserve the manatee. Enforcement of local conservation laws should be encouraged. The local people should be taught skill acquisition and empowerment programs. Government and Non – governmental agencies should initiate programmes for the conservation of manatee in the area.

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