

AQUATIC TOURISM POTENTIALS OF OKOMU NATIONAL PARK, NIGERIA

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ABSTRACT

This study was carried out to assess aquatic resources of Ovia river for nature tourism development in Okomu National park. Aquatic tourism over the years has been derogated in Nigeria as well as in some other underdeveloped nations, which often renders experts' and researchers' interest in the field distressed. It is a subset of ecological tourism, which is regarded as a sustainable tourism. It constitutes interactions of interrelated communities of renewable resources such as flora, fauna in watersheds and soils. Sampling was done using graded monofilament gillnets of various sizes with mesh size ranging from 38mm-178mm and longlines with different hook sizes of assorted baits. Also, monitoring and recording of landings from fisher folks in the fishing terminals of the river were recorded. The number of individuals for each species were counted and recorded. Identification was made using morphometric features and meristic counts for fish and other standard methods. Nine thousand, six hundred and fifty-seven organisms were collected out of which 6983 (72.3%) are fin fishes and 2674 (27.7%) were shell fishes. Eleven fin fish families comprising 19 species and 2 species of the same family of shell fish were identified.

Okomu National Park has high aquatic tourism potential based on the rich and abundant aquatic resources identified in Ovia river.

Keywords: Aquatic tourism, Okomu National Park, Species abundance and diversity

Introduction

Okomu National Park (Decree 46 of 1999), formerly a Forest Reserve, is situated in the lowland tropical rainforest of Edo State, southwestern Nigeria. The park contains some of the richest and relatively undisturbed high forest ecosystems in West Africa and is endowed with unique and rare biodiversity of international significance. It contains the relics of endangered wildlife species such as forest elephant (*Loxodonta africana cyclotis*), chimpanzee (*Pan troglodytes*), leopard (*Panthera pardus*) and Red-capped Mangabey (*Cercocebus torquatus*) whose conservation status are of local and global concern. At the same time, wildlife or "bushmeat" constitute a significant portion of the animal protein consumed by those living in the peripheral communities. Animal parts used in traditional medicine and a number of identified medicinal plants, form an important component of the consumptive and non-consumptive (ecotourism) utilization importance of the Park in southern Nigeria.

The highly endowed Park has been under the siege of high level of illegal incursion in the form

of logging, expansion of rubber and oil-palm plantations and a growing human population involved in farming and hunting. All these are done to reduce the biomass of tree canopies causing a major threat to the water shed system automatically reducing the strength of rivers, the Park drains into (Lutz, 1998). National Park authorities are now faced with challenges of conserving the area, its resources and proposing effective management strategies and tourism identified as one of the potent tools in solving those challenges.

Tourism development could partly be achieved with the harnessing of natural resources, fauna and flora as well as the landmarks that can serve as touristic attractions that are all over the nation and its protected areas. Most effort at developing ecotourism in Nigeria has been focused on wildlife with less attention on the aquatic resources of tourism potential. Hence, the need to assess aquatic resources of Okomu National Park, Nigeria. The strength of rivers in and around the Park both in depth and volume depends mainly on the capacity of the tropical forest to successfully drain into them

depicting a perfectly managed watershed system. Apparently, such areas of exceedingly low level of anthropogenic activities usually show communities of organisms that are dependent on each other and on their environment, which all live in aquatic ecosystems (Alex & David, 1999).

Materials and Methods

Study Area

The Okomu National Park (Decree 46 of 1999), formerly the Okomu Forest Reserve, is located in Edo State of Nigeria about 75km west of Benin City and lies between latitudes 6°14'55.21"N and longitude 5°16'01.31" E at an elevation of 110ft. It covers a land mass area of approximately 19,712 hectares in an area of 1082 km². The climate of Okomu is tropical, with well-marked rainy and dry seasons. The mean annual rainfall is 2,100mm with rain falling mainly between March and October. The highest rainfalls occur in June, July and September and mean monthly temperature is 30.2°C. The Park consists of semi-deciduous, humid, lowland rainforest and

is representative of the rapidly disappearing ecosystem of southwestern Nigeria. Freshwater swamp forests are found along the rivers. Ovia river drains through Nikorogha, a community in Babiu range sector of the Park.

Methods of Data collection

Stratified random sampling was used in Ovia river. It was divided into three regions, the upper, middle, and the lower courses (Southwood and Henderson, 2000; ISO, 2005). Landings from Artisanal fisher folks and sampling using gillnet and longlines were monitored and recorded. Identification into family and species was done using morphometric features and meristic counts for fish and other standard methods as described by Holden and Reed (1972), Reeds *et al.* (1967) and Fischer *et al.* (1981). Also, interview and structured questionnaires were used to obtain some other relevant information from local fisher folks and indigenous dwellers. The number of individual fish species was expressed as percentage composition of total fish.

RESULTS

Table 1: Identified fish (Fin and Shell) families and species in Ovia river

Family	Species
<i>Schilbeidae</i>	<i>Schilbe intermedius</i>
<i>Mormyridae</i>	<i>Gnathonemus tamandua</i>
	<i>Mormyrus tapirus</i>
	<i>Mormyrops deliciosus</i>
	<i>Gnathonemus abadii</i>
	<i>Marcusenius psittacus</i>
	<i>Hyperopisus bebe</i>
<i>Cichlidae</i>	<i>Hemichromis fasciatus</i>
	<i>Oreochromis aureus</i>
	<i>Papycrocranus afer</i>
<i>Pantodontidae</i>	<i>Xenomystus nigri</i>
<i>Channidae</i>	<i>Parachanna obscura</i>
<i>Anabantidae</i>	<i>Ctenopoma kingsleyae</i>
<i>Bagridae</i>	<i>Clarotis laticeps</i>
<i>Gymnarchidae</i>	<i>Gymnarchus niloticus</i>
<i>Hepsetidae</i>	<i>Hepsetus odoe</i>
<i>Distichodontidae</i>	<i>Ichthyborus monody</i>
<i>Mochokidae</i>	<i>Synodontis ocellifer</i>
	<i>Synodontis vermiculatus</i>
<i>Palaemonidae</i>	<i>Macrobrachium vollenhoven</i>
	<i>Macrobrachium macrobrachion</i>

Table 2: Diversity of organisms in Ovia river (Okomu National Park)

Diversity index	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8
Shannon index (H)	3.63	3.58	3.58	3.62	3.66	3.75	3.56	3.74
Evenness	1.09	1.08	1.08	1.09	1.1	1.13	1.07	1.13

Table 3: Seasonal Occurrence of identified species in Ovia river

Encountered species (late December-March)	Major high catches	Species available all year
<i>Clarotis laticeps</i>	<i>Hemischromus fasciatus</i>	<i>Papyrocranus afer</i>
<i>Ctenopoma kingsleyae</i>	<i>Schilbe intermedius</i>	
<i>Gnathonemus abadii</i>	<i>Marcusenius psittacus</i>	<i>Clarotes laticeps</i>
<i>Gnathonemus tamandua</i>	<i>Synodontis ocellifer</i>	
<i>Gymnarchus niloticus</i>		
<i>Hemischromis fasciatus</i>	<i>Parachanna obscura</i>	
<i>Hepsetus odoe</i>	<i>Macrobrachium macrobrachion</i>	<i>Parachanna obscura</i>
<i>Hyperopisus bebe</i>	<i>Hyperopisus bebe</i>	<i>Mormyrus tapirus</i>
<i>Ichthyborus monodi</i>		
<i>Macrobrachium vermiculatus</i>	<i>Oreochromus aureus</i>	<i>Gnathonemus tamandua</i>
<i>Macrobrachium vollenhoven</i>		
<i>Marcusenius psittacus</i>	<i>Papyrocranus afer</i>	
<i>Mormyrus deliciosus</i>	<i>Clarotes laticeps</i>	<i>Macrobrachium macrobrachion</i>
<i>Mormyrus tapirus</i>		
<i>Oreochromis aureus</i>	<i>Ctenopoma kingsleyae</i>	<i>Gymnarchus niloticus</i>
<i>Papyrocranus afer</i>	<i>Gnathonemus abadii</i>	<i>Schilbe intermedius</i>
<i>Parachanna obscura</i>	<i>Gymnarchus niloticus</i>	<i>Synodontis ocellifer</i>
<i>Schilbe intermedius</i>	<i>Mormyrus tapirus</i>	<i>Oreochromus aureus</i>
<i>Synodontis ocellifer</i>		
<i>Synodontis vermiculatus</i>		
<i>Xenomystus nigri</i>		

Table 4: Abundance richness diversity index

Species Name	Richness (%)
<i>Schilbe intermedius</i>	8.60
<i>Gnathonemus tamandua</i>	6.80
<i>Mormyrus tapirus</i>	7.80
<i>Ctenopoma kingsleyae</i>	6.30
<i>Synodontis ocellifer</i>	6.10
<i>Synodontis vermiculatus</i>	2.30
<i>Hyperopisus bebe</i>	7.30
<i>Papyrocranus afer</i>	3.80
<i>Xenomystus nigri</i>	1.00
<i>Mormyrus deliciosus</i>	1.20
<i>Clarotes laticeps</i>	1.60
<i>Oreochromis aureus</i>	3.10

Table 4 contd.

Species Name	Richness (%)
<i>Hemischromus fasciatus</i>	3.10
<i>Gymnarchus niloticus</i>	0.32
<i>Hepsetus odoe</i>	0.12
<i>Marcusenius psittacus</i>	4.50
<i>Gnathonemus abadii</i>	7.20
<i>Parachanna obscura</i>	0.90
<i>Ichthyborus monodi</i>	0.20
<i>Macrobrachium vollenhoven</i>	1.90
<i>Macrobrachium macrobrachion</i>	25.86
Total	100.00%

Discussion

As observed in table 2, the Shannon index values of abundance were between the range of 3.58 to 3.75; consequently, having the lowest and highest level of evenness at 1.08 to 1.13 respectively. This showed a strong and high community complexity and corroborates the work of Magurran, (2004) for biological diversity of values ranging between 0 (indicating low community complexity) and 4 (indicating high community complexity). This study was carried out in March, which represents the low catch season in the area due to the dry season. As a result, not all species were recorded though among those available at this period some are available all-year round while others join at other seasons. The sum of 9657 organisms was collected out of which 6983 were fishes and 2674 were prawns. Total of nineteen species of fish distributed within eleven different families and two prawn species were collected and identified.

Conclusion

In conclusion, this study revealed that Ovia river of Okomu National Park has high diversity and abundance of fish species, which shows that it has relatively good water quality. The Park, though small in size compared to other established ones, has strength mainly in trail and game viewing and results of this study further revealed other aspects of its ecological importance which can be added to the already existing management itinerary.

Recommendation

Conservation managers must recognize the need to adopt an inclusive approach which takes into account interests of stakeholders (any individual, group or community living within the influence of the Park or likely to be affected by a management decision or action,) and, as far as possible, encourage their involvement in all aspects of management and planning.

REFERENCES

- Adetayo, J.A and Kusemiju, K. (1994). Some aspect of the biology of pink shrimps, *Penaeus notialis* in Lagos Lagoon, Nigeria. *Journal of science Resources and Development*. (1): pp 80-84.
- Alexandra, David E. (May 1999). *Encyclopedia of Environmental Science*. Springer. ISBN 0-412-74050-8.
- Ernst Lutz (1998). *Agriculture and the environment: perspectives on sustainable rural development*. World Bank Publications. p. 179. ISBN 0-8213-4249-5. <http://books.google.ca/books?id=MdfBcIEyEDE&pg=PA179>. Retrieved 4 November 2010.
- Fischer, W.G. Bianchi and W.B. Scott (1981). *FAO Species sheets for Fisheries Purposes. Eastern Central Atlantic; Fishing areas 34 & part of 47. Food and Agriculture of the United Nations*.
- Hopkin M. & Reed W (1991). *West African Fresh Water Fish*. West African Nature Hand book. Published by London (Nig) Ltd.
- ISO, 2005(E). *ISO/FDIS 16665 :(2005) Water quality – Guidelines For quantitative sampling and sample processing of marine soft-bottom macrofauna*.
- Ita, E.O., Mohammed, A., Omorinkoba, W.S., Bankole, N.U. and Awojoodu, S. (1986): *A Preliminary Report on the immediate post-impoundment fishery survey of Shiroro reservoir, Niger State, Nigeria Kainji Lake Res. Inst. 1985 Annual Report :25-29*,
- John Terborgh (2002). *Making Parks work: strategies for preserving tropical nature*. Island Press. p. 64ff. ISBN 1-55963-905-9. <http://books.google.ca/books?id=6sQtZ7XRGUwC&pg=PA64>. Retrieved 4 November 2010.

- Okomu National Park, Edo State. *Hospitality Nigeria*. http://hospitalitynigeria.com/okomu_park.php. Retrieved 4 November 2010.
- Shannon C.E and Weaver W. (1949) The mathematical theory of communication. Urbana, IL: University of Illinois Press. Cited Magurran, A.E., 2004, measuring biological diversity, Blackwell Publishing: oxford, UK 256p
- Southwood T. R. E & Henderson P. A. 2000: Ecological Methods, (3rd Edition). Wiley-Blackwell science, Oxford. ISBN: 978-0-632-05477-0. Paperback. 592 pp.
- World Wildlife Fund (15 February 2007). "Nigerian lowland forests". *Encyclopedia of Earth*. http://www.eoearth.org/article/Nigerian_lowland_forests. Retrieved 5 November 2010 Galveston, University of Texas Medical Branch.