

POTENTIALS OF *Tarpon (Megalops) atlanticus* FOR SPORT FISHERIES AND ECOTOURISM DEVELOPMENT IN NIGERIA

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ABSTRACT ✓

The Atlantic Tarpon, *Tarpon (Megalops) atlanticus* is a marine fish of high commercial importance with a special fishery in western, central and south-western Atlantic Ocean where it is a very important game fish. The species provides sport fishery especially in the western Atlantic coast of America which has generated millions of dollars in tourism, employment and boat charters. Tarpon fishery in America is highly regulated and there are strict guidelines on capture, bag limits and fishing seasons. Tarpon puts up a spectacular fight when hooked, leaping up to 2-3m above water surface and landing with a smacking splash that can be heard one kilometer away. It is the leaping powers that make tarpon a favourite to anglers. In the coastal waters of south-west Nigeria especially for the natives of the coastal communities of Ondo State, *T. atlanticus* is a delicacy and of high economic value. Some local fishermen and fish farmers in the area stock Tarpon in their ponds purely for recreational purposes. Some of these tarpon farms were integrated with snack bars and served as tourist centres. Visitors including individuals and educational institutions frequent the fish farm during excursions and pay a stipulated fee per person as entry permit to the farm thereby generating more revenue to the farmer. This paper highlights the importance of Tarpon as a game fish and suggests strategies for development of its culture both as food fish and for ecotourism.

INTRODUCTION

The species, *Tarpon (Megalops) atlanticus* (Val.) occurs in the warm temperature, tropical and sub-tropical Atlantic Ocean generally from Mauritania to Angola in the Eastern Atlantic and from Nova Scotia to Brazil in the Western Atlantic (Irvine, 1947; Whitehead, 1978; Fischer *et al*, 1981, Whitehead *et al*, 1984 and Schneider, 1990). Tarpon or 'Silver King' as is commonly known is the oldest and first marine species to be declared a game fish (IGFA, 1987). In Western Atlantic, Gulf of Mexico and Caribbean, Tarpon is a famous game fish supporting recreational fisheries, highly appreciated by anglers and fetched millions of USA dollars annually ((Hureau, 1984, Zerbi, 1999, Figueroa and Zerbi, 2002). Although the species occur in Nigerian coastal waters especially in South West Nigeria, the potentials for sport fisheries and eco-tourism are not yet developed. Only very few farmers culture Tarpon now unlike in the 80s and 90s when a booming tarpon-fingerling trade existed in the coastal communities of Ondo State (Ezenwa *et al*.1985 and Anyanwu, 2004). Nigeria is endowed with natural habitats that can be developed into international tourist centres. Presently many Nigerians are seeking for out-door relaxation centres and aquatic parks or holiday resorts can occupy this niche. This paper highlights the potentials of *T. atlanticus* as a game fish and suggests strategies for development of its culture both as food fish and for ecotourism.

BENEFITS OF ECO-TOURISM

Eco-tourism like any industry has both merits and demerits The International Union for Conservation of Nature (IUCN), defined eco-tourism as a responsible travel and visitation to relatively undisturbed natural areas in order to enjoy and appreciate nature that conserves the environment and sustains the well-being of the local people. The United Nations declared 2002 as the International Year of Ecotourism (IYE - www.mier.org.my/newsarticles/archives). Ecotourism according to the International Ecotourism Society (TIES) covers all travels to natural areas that conserves the environment, contributing at the same time to the welfare of the local society. The benefits of ecotourism can be broadly categorized as economic, socio-cultural and physical. The most direct economic benefits are the improvement in employment and income. The world tourism council estimates that travel and tourism provides employment for more than 100 million people worldwide responsible for over 7% of world capital investment.

The World Tourism Organization (WTO) and The British Columbia statistics reviewed that tourism injected \$9.5 billion into the British Columbia economy with 22.5 million visitors and generated 11,980 direct jobs (The British Columbia Statistics, 2000). Domestic and international tourism contributed in net terms approximately \$6 billion to the Queensland economy. A tourist dollar is a new dollar injected into the local economy with greater the economic benefits that can come from employment as porters, cooks, and guides in hotels and in transportation, as well as tour operators/guides and travel agencies. Ecotourism is a labour intensive industry and creates many job opportunities, especially for young people and part-time workers. In tourism, hospitality and recreation industries alone, there are 50 categories of employment and approximately 200 classifications of occupations. There are tremendous opportunities for the establishment of new products, facilities infrastructures (road, social amenities etc) which all lead to a major source of local economic input from tourism (Mock and O'Neil, 1996). Eco-tourism involves four sectors: the tourists, the host communities, the environment and the tourism industry. NGOs, such as WWF, the Ecotourism Society, IUCN, etc can produce codes to catalyze and strengthen efforts to promote environmentally responsible tourism.

Tourism highlights the need for proper management of the environment and through effective policies and planning; it can ensure that the environment of an area is preserved. It is also a catalyst for residential development. Ecotourism can stimulate the establishment of a new and improved transport services to and within a regional area. Ecotourism provides economic incentives and promotes conservation of wild lands, generates income for park management and brings needed income to rural populations. It promotes conservation, has low negative visitor impact and provides for beneficially active socioeconomic involvement of local populations (Wall, 1997). Odunlami (2003) reported that the Argungu Fishing Festival is an attraction spot for many tourists now and Kebbi State government is poised to develop it to a world class event.

ECO-TOURISM POTENTIALS OF TARPON

Tarpon are pelagic species and wide ranging animals found in shallow waters, bays, estuaries, mangrove lined lagoons and rivers in the eastern Atlantic. They are euryhaline species and can inhabit marine, brackish and freshwater environments. They are large, beautiful, silvery fish that reach up to 250cm and weigh up to 161kg with average lifespan of about 55 years (Plate 1). Tarpon possess a swim bladder attached to their esophagus which enables them to take in atmospheric air and hence can live in oxygen poor waters (Anyanwu, 2004).



Plate 1: Atlantic Tarpon – *Tarpon (Megalops) atlanticus*

Bond (1979) reported that sport fishing in developed countries provide excellent use of leisure time as well as revenue generation. Approximately US \$ 465 million was generated annually in Florida through recreational fisheries which target *T. atlanticus* as the most important game species (Zerbi, 1999). Permit system in the Tarpon Fisheries requires anglers to pre-purchase a \$50.00 permit for every one tarpon harvested. This process has resulted in a great increase in catch-release fishing for Tarpon with a legally yearly harvest of approximately 100 fish per year (Crabtree et al. 1995). The world record for tarpon caught using hook and line, weighed 128kg from lake Maracaibo Venezuela. In Africa, Tarpon sport fisheries is not developed. However, sizes ranging from 99 - 112.60kg were commonly caught at Port Michael in Gabon and they won 1st position during the 11th Annual International Game Fish Association Fishing Contest (IGFA, 1987). When hooked, tarpon puts up a spectacular fight leaping up to 2-3 meters above water surface and landing with a smacking splash that can be heard one kilometer away (IGFA 1987). It is the leaping powers that make tarpon a favourite to sport fishermen.

The adult female tarpon is highly fecund producing over 12 million eggs at a time. The eggs, fry, fingerlings, juveniles, and adults are present in the coastal waters of south west Nigeria especially Ondo State (Anyanwu and Kusemju, 2006, 2007). Tarpon could be cultured in brackishwater, freshwater and marine environment and grow fast when stocked with Tilapia as prey (Anyanwu 2004). The large scales are used in ornamental work and in preparation of artificial pearls. These attributes make Tarpon a good candidate for the establishment of aquatic parks for eco-tourism because it can easily be sighted in the water and would generate revenue for a long period of time.

Some local fishermen in Lagos State stocked tarpon in their ponds purely for recreational purposes. Those tarpon farms were integrated with snack bars and serve as tourist centres (Plates 2 and 3). Visitors to the fish farm on excursions were charged a fee of N50-N100 per person as an entry permit into the farm (Anyanwu, 2004)

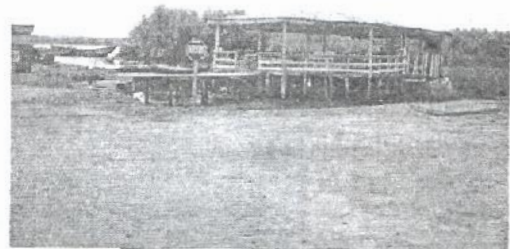
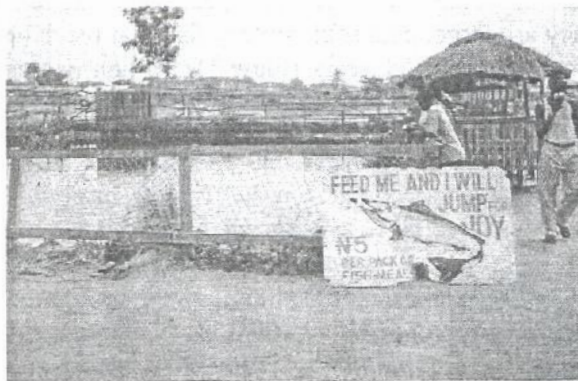


Plate 2: Tarpon pond

(Tarpon Farm established mainly for eco-tourism and relaxation, located near Ojo-Alaba International Market, Lagos State)

Plate 3 Relaxation bar in the Tarpon Farm

STRATEGIES FOR DEVELOPMENT OF ECOTOURISM POTENTIAL OF TARPON

Ecological based tourism in Nigeria is at the early stage of development and its promotion can be enhanced through:

Establishment and maintenance of Tarpon farms for sport fishing and relaxation purpose. Lakes, reservoirs and other water bodies can be re-stocked with Tarpon. Fishing tournaments or festivals like that of Argungu can be organized for such water bodies. Establishment and maintenance of Tarpon farms in our national parks, zoos other games reserves, e.g. Yankari Games Reserve, Obudu Cattle Ranch, Botanical Garden in Obafemi Awolowo University, Ife, Zoological Garden in University of Ibadan. Provision of nature-based and eco-tourism facilitates by State Governors, private sector and non-governmental organizations.

Organization of Local and international workshops and seminars on the eco-tourism potentials of Tarpon

Empowerment of the national, state and private institutions responsible for sustainable tourism namely: The Federal Ministry of Commerce and Tourism, The Nigerian Tourism Development Corporation (NTDC), The National Parks Board, Federal Environmental Protection Agency (FEPA), The State Tourism Boards, and The Local Government Tourism Committee.

There are laws and other regulatory bodies which seek to ensure sustainable tourism and have set aside specific areas or reserves for eco-tourism and native-based tourism.

T. atlanticus has great potentials for eco-tourism and sport fisheries development in Nigeria. Development of aquatic parks and fountains or ponds stocked with tarpon can contribute positively to the conservation of the ecosystem, natural resources, wild life and fishes as well generation of revenue and creation of employment. There is need to establish well designed Tarpon farms for eco-tourism and production of fish for human consumption.

REFERENCES

- Anyanwu P.E. 2004. Biology and culture potential of Atlantic Tarpon, *Tarpon atlanticus* in South West Nigeria. Ph D Thesis, University of Lagos. 295p.
- Anyanwu P.E. and Kusemiju K. 2006. Distribution and seasonal abundance of *Tarpon atlanticus* in the coastal waters of Western Nigeria: Paper presented at the 2nd International Tarpon-Bonefish Symposium IGFA. Dania Beach, Florida, USA.
- Anyanwu P.E. and Kusemiju K. 2007. The Nigerian Tarpon: Resource Ecology and Fishery. Chapter 9. p115 - 128: *Biology and Management of the World Tarpon and Bonefish Fisheries*. J.S. Ault (Editor). CRC Press Taylor & Francis Group, LLC, Boca Raton, Florida. 441p.
- British Columbia statistics, (2000). Tourism Indicators, Tourism Monitor, Annual, 2000. www.sms.si.edu/irlspec/megalo_atlant.htm.
- Crabtree, R. E., Cyr, E.C. and Dean, J. M. 1995. Age and growth of *Tarpon (Megalops atlanticus)* from South Florida waters. Bull. 93 (4):619-628.
- Ezenwa, B., Alegbeleye, S., Ugwumba, A. and Anyanwu, P. (1985): Cultivable fish seeds in Nigerian waters: A research survey 1978 – 1985. Proceedings of Annual Conference of Fisheries Society of Nigeria (FISON). pp 99 – 112.
- Figueroa M. and Zerbi A. (2002): Age, growth and reproduction of Tarpon in Puerto Rico. *Contr. Mar. Sc.* 35: 102 – 103.
- Fischer, W., Bianchi, G. and Scott, W.B. (1981): FAO Species Identification Sheets for Fishery Purposes. East Central Atlantic Fishing area 34, 47 (in part). Vols. 1-7. FAO, Rome.
- Hureau J.C. (1984): Megalopidae. Fishes of the North Eastern Atlantic and Mediterranean. UNESCO Paris. 1: 226 – 227.
- IGFA. (1987): *World record of game fishes*. IGFA (International Game Fish Association), Florida, USA. 327pp.
- Irvine, F. R. (1947): *The fishes and fisheries of Gold Coast*. Crown Agents, London. 243 pp.
- Mock, J. and O'Neil, K. (1996). Survey of ecotourism potential in Pakistan's biodiversity project area (Chitral and northern areas): Consultancy report for IUCN, Pakistan.
- Odonlami, S.S.S (2003). An Assessment of the Ecotourism Potential of Yankari National Park, Nigeria. Ecoclub.com E-Paper Series, Nr. 7, April 2003.
- Schneider, W. (1990): FAO species identification sheets for fishery purposes. Field guide to the commercial marine resources of the Gulf of Guinea. 268pp.
- Wall, G. (1997). Is ecotourism sustainable? *Environmental Management*. 21(4): 483-491.
- Whitehead, R. (1978): Megalopidae. In: *FAO Species Identification Sheets for Fishery Purposes*. (W. Fischer, ed.). Western Central Atlantic. FAO Fish Area, 42. Vols. 1-3. FAO, Rome.
- Whitehead, P.J.P., Bauchot, M-L., Hureau, J-C., Nielsen, J. and Tortonese, E. (1984): Fishes of the North - eastern Atlantic. UNESCO Report, Vol. 1. 510pp.
- Zerbi, A. (1999) : Ecology and biology of juveniles of two groups of fishes exploited in sport fisheries in Puerto Rico: The Snook, (*Centropomus*) and the Tarpon (*Megalops atlanticus*). Ph. D. Thesis, Universite D'Aix-Marseille II.