

## **The giant tiger prawn for sustainable livelihoods of fishers in the Niger Delta region, Nigeria**

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### **Abstract**

The Giant Tiger Prawn (*Penaeus monodon*) is the largest marine shrimp that has lived in the Niger Delta coastal waters since 1999. Its marketability and high income as compared to the indigenous shrimp species has attracted a growing number of fishers engaging in harvesting the prawn. Nigeria's shrimp industry depends on captured shrimps which generates about USD 57 million annually in foreign exchange. The species being rich in protein and low in fat is highly nutritious and on high demand. The species has high potentials of contributing to poverty alleviation in the rural fishing communities, majority of whom, lives below the poverty line of USD1.25 per day. This study seeks to establish the extent to which the livelihoods of the giant tiger prawn fishers have changed and how the value chain actors interact among themselves.

Key words: Fishers, livelihoods, Niger Delta, *Penaeus monodon*

### **Résumé**

La Géante Crevette Tigre Géant de crevettes (*Penaeusmonodon*) est la plus grande crevette marine qui a vécu dans les eaux côtières du delta du Niger depuis 1999. Sa commercialisation et le revenu élevé par rapport aux espèces de crevettes autochtones a attiré un nombre croissant de pêcheurs qui se livrent à la récolte de la crevette. L'industrie de crevettes du Nigeria dépend de crevettes capturées qui génèrent environ 57 millions de dollars américains par an en devises. Les espèces, en étant riches en protéines et faible en matière grasse, sont très nutritif et sur une forte demande. L'espèce a un haut potentiel pour la contribution à la réduction de la pauvreté dans les communautés rurales de pêcheurs, dont la majorité vit en dessous du seuil de pauvreté de 1,25 dollars par jour. Cette étude vise à établir la mesure dans laquelle les moyens de subsistance des pêcheurs des géantes Crevettes tigre ont changé et comment la chaîne de valeur des acteurs interagisse entre eux.

Mots clés: pêcheurs, les moyens d'existence, le delta du Niger, *Penaeus monodon*

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## **Background and literature summary**

The Giant Tiger Prawn is an invasive species to Nigerian coastal water. Recent studies show that *P. monodon* has a higher natural mortality than fishing mortality in Andoni River (Komi *et al.*, 2013), a situation implying that the prawn is under-fished. Given its economic value (FAO, 2011), the potential to contribute to poverty alleviation among the local communities is high. It however, doesn't mean that *P. monodon* is capable of solving all the issues related to food security and poverty in Niger Delta but being an economically important species; it should be seen as a natural resource and sustainably harvested. Unlike the Nile Perch that was introduced into Lake Victoria (Odada *et al.*, 2004), *P. monodon* unsolicitedly invaded the coastal waters of the Niger Delta Region from Gambian Shrimp farm (personal communication, Dr. Amiyé Francis, University of Port Harcourt 12<sup>th</sup> May, 2013). It appears a wicked problem as the species is both a threat and an opportunity, a threat to indigenous species and an opportunity for increased income of the fishers. The idea of eradicating them is unrealistic, domestication has been criticized due to the possibility of destroying the mangrove vegetation (Zabbey *et al.*, 2010), resulting in a dilemma for policy making (Kilelu *et al.*, 2011). This raises questions about the future of the prawn in sustaining the livelihoods of the local fishers, being that little knowledge exists on the contributions of the Giant Tiger Prawn to sustainable livelihoods of the rural fishers in the region. And knowledge on value addition, value chain actors and linkage to market are not well established.

## **Study description**

The study seeks to describe the perception of actors in terms of acceptability of the species, the extent to which members of a rural community are involved in fishing *P. monodon*, the roles played by different actors in the prawn industry in influencing the quantities of prawn harvested. It further describes how the influence of fishing methods affects the population of the giant tiger prawn, the extent to which the prawn fishers are investing the proceeds for improved standards of living, and support services received by fishers.

In operationalizing the concepts in the research, contribution of the species refers to; quantity of *P. monodon* demanded, quantity harvested and revenue generated from sales. Sustainable livelihood refers to; enabling environment- in terms of government policy and water quality for the species, increased household income, food availability, time element, ability to pay bills; school fees, medicals, shelter (rent), clothing, other investments, and support services which include; access to market information, transport, processing, and subsidies.

This study is based on three theoretical frameworks namely; The Sustainable Livelihood Framework, Agricultural Innovation Systems Approach and Actor Network Approach.

A cross sectional study design will be conducted in two purposively selected states of Niger Delta (Rivers and Cross Rivers states). Main Data Sources include key informants, fishers, and marketers. Data collection methods include individual interviews using interview guide, key informant interviews with leaders of fisher association, well experienced fishers so as to learn from their tacit knowledge. Focus group discussions consisting of 13 members, five

very established fishers, five average subsistent fishers and three “policy fishers” who are not full time fishers but are brokers. This is a sizeable odd number in the event of voting. Two Focus Groups will be constituted and will meet three times; before the research, during the research and after the research for feedback and restructuring. Conversations and observation (direct and participant) will also be used. Participant observation requires the investigator to be part of the process and activity of investigation.

**Sampling plan.** Population (Target Population); the target population includes all Giant Tiger Prawn fishers, fishing communities, merchants, consumers, Government agencies, Research Institutes and NGOs.

**Sampling method.** Cluster sampling techniques shall be adopted in sampling the target population since they are at well defined locations. Different sets of questionnaires will be administered to different categories of respondents e.g. Institutes, NGOs, Government agencies, etc. Sample size: 400 respondents (200 from each state) shall be sampled purposively.

**Data analysis procedure.** Quantitative data will be subjected to SPSS to generate percentages of fishers, fishing gear and revenue generated. Generation of emerging patterns and themes (Silverman, 2013) will be used to analyze qualitative data. The theme will form the topics and sub-topics. Ranking also will be used to identify community preferences/ acceptance for the shrimps/fish and fishing gear.

### **Research application**

The results from this research will establish the potential of the Giant Tiger Prawn for sustainable livelihoods of the fishers which will enhance the empowerment and social inclusion of fishers. It will contribute to food security, self reliance and informed decision by stakeholders.

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### **References**

- FAO. 2011. *Penaeus monodon* (Fabricius, 1798). Cultured Aquatic Species Information Programme. Food and Agriculture Organisation. [http://www.fao.org/fishery/cultured-species/Penaeus\\_monodon/en](http://www.fao.org/fishery/cultured-species/Penaeus_monodon/en).
- Kilelu, C.W., Klerkx, L., Leeuwis, C. and Hall, A. 2011. Beyond knowledge brokering: An exploratory study on innovation intermediaries in an evolving smallholder agricultural system in Kenya. *Knowledge Management for Development Journal* 7(1):84-108.

- Komi, G.W., Francis A. and Aleleye-Wokoma, I.P. 2013. Mortality and exploitation of *Penaeus monodon* in the Andoni River, Nigeria. *Journal of Natural Sciences Research* 3(15):58-67.
- Odada, E.O., Olugo, D.O., Ntiba, M. and Wandiga, S. 2004. Mitigation of environmental problems in Lake Victoria, East Africa: Causal chain and Policy options analyses. Royal Swedish Academy of Sciences. *AMBIO* 33(1-2):13-23.
- Silverman, D. 2013. *Doing qualitative research: A Practical Handbook* (4<sup>th</sup> ed.) SAGE Publications Asia-Pacific Pte Ltd, Singapore.
- Zabbey, N., Erondy, E.S. and Hart, A.I. 2010. Nigeria and the Prospect of shrimp farming: Critical Issues. *Livestock Res. for Rural Dev.* 22(11).