

**Fish Farmers' Perception of Climate Variabilities and Effects on Fish Production in Bosso Local Government Area, Niger State, Nigeria**

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was carried out to investigate fish farmers' perceptions of climate variabilities and the impacts on fish production in Bosso Local Government Area, Niger State. Structured questionnaire was used to obtain information from the respondents for socio-economic characteristics of the fish farmers in the study area showed that, 87% of respondents were males in their married, with 5 to 20years of fish farming experience. The results on the climate in the study area showed variabilities in rainfall patterns, and increase in temperature and wind speed. Respondents in the study area perceived climate change, variability, environment. Climate change, variability, environment.

International panel on climate change defines climate change as a change in climate which is attributed directly or indirectly to human activities which alter the composition of the global atmosphere and natural climatic variabilities observed over a long period of time. Climate variability on the other hand, is referred to as, variabilities in the mean state and other conditions of the climate on all spatial and temporal scales beyond that of natural or anthropogenic external forces. (FAO, 2008), stated that, due to the increasing change in climate and its impacts, billions of people especially those in developing countries will face changes in rainfall patterns that will contribute to water shortages or floodings, rising temperature which will cause a shift in aquatic organisms distributions. This will affect fish farmers because for a successful aquaculture, there is need for adequate water supply, stable rainfall, wind speed and direction, proper drainages and reservoirs. Nigeria and all its states are highly vulnerable along its 800km coastal line that is prone to sea level rise and the risks of fierce storms (Ajana 2000). This study investigated fish farmers' perceptions of climate variabilities and the impacts on fish production in Bosso Local Government Area, Niger State, Nigeria.

**Methods**

100 questionnaires were administered to randomly selected fish farmers in Bosso Local Government Area, Niger State. Out of which a few were not attended to by the respondents. The questionnaires were structured to include; socio-economic profile of the farm, fish production activities, perception of farmers on climate variables and their responses. A list of existing materials obtained from Nigerian Meteorological Agency (NIMET), Niger State, Nigeria which included meteorological data; temperature, rainfall and wind records from 1994-2014 were collected. Statistical analysis was used for analysis of the primary data generated and presented as frequencies and percentages also; data were analyzed using descriptive analysis, and results presented in frequencies and percentages. The chi-square test. Statistical differences were obtained at  $P \geq 0.05$ . The mean, standard deviation, standard error, and analysis of variance (ANOVA) was used for comparison of temperature, rainfall and wind data obtained were determined. Analysis of variance (ANOVA) was used to determine the variations in the means over the years. Multiple range tests (post-hoc) were also employed using Duncan's test (DMRT).

**Discussion**

The socio-economic characteristics of the fish farmers in Bosso Local Government Area, Niger State in Table 1. Most of the respondents were males accounting for about 87% of the population. This indicated that, more males are involved in fish farming than females. This was in line with the finding of George (2010), that, more males are involved in fish farming because of the laborious nature of fish farming operations, which are very tedious for females to perform. Marital status revealed that, most respondents were married (61%) while 33% were single; this indicated that, fish farming was a major source of income for the majority engaged in fish farming. For educational qualification, 58% had secondary education. This was in agreement with the report of Agwu and Anyanwu (1996), who reported that, an increase in the educational status of farmers positively influence their perceptions and adoption of improved technologies and practices. The study revealed that, majority (71.9%) of the respondents had about 5-10years of fish farming experience, and 19% had less than 5 years experience. This indicated that, those with less years of experience were new in fish farming and this may affect the sustainability of fish farming and fish production.