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Modelling the Vulnerability of Fisheries and Aquaculture to Climate Change Impact

Emeka Ogbonna John, Gabriele Hörstgen-Schwark

Georg-August-Universität Göttingen, Dept. of Animal Sciences, Germany

Abstract

Climate change as result of global warming remains one of the major threats to aquaculture, fisheries and dependent communities worldwide. Vulnerability of aquaculture and fisheries to climate change is a function of exposure, sensitivity, and adaptive capacity of the community in question. Vulnerability of fish farmers is largely determined by the differences in socio-economic conditions among communities. This study aims to determine factors influencing the vulnerability of fishers and fish farmers to climate change impact in Africa. The objectives are twofold: first, to develop indicators influencing vulnerability and to determine how they influence vulnerability, secondly, to compare the vulnerability of fishers and fish farmers in different regions of Africa. Using the most recent data twenty-seven countries in Africa were evaluated using seventeen indicators, which are allocated into the three components of vulnerability; the exposure, sensitivity and adaptive capacity. Results shows that vulnerability of fisheries and aquaculture to climate change impact is driven by poverty, low human development index and high occurrence of natural disasters. The most vulnerable regions in Africa are the west, central, East and North Africa regions. The southern regions of Africa tend to be less vulnerable to climate change impact on fisheries and aquaculture. Our result shows that establishment of marine protected area and investment in poverty alleviation will decrease vulnerability to climate change impact on fisheries and aquaculture. The findings from this research will enable the formulation of policy recommendations to help strengthen the livelihoods of small-scale fisheries and aquaculture in Africa.

Keywords: Aquaculture, climate change, fisheries

Contact Address: Emeka Ogbonna John, Georg-August-Universität Göttingen, Dept. of Animal Sciences, Christophorusweg 12, 37075 Göttingen, Germany, e-mail: emekaogbonna.johm@stud.uni-goettingen.de