ABSTRACT

Assessment of Ecological Vulnerability to Climate Variability on Coastal Fishing Communities: A Study of Ungwana Bay and Lower Tana Estuary, Kenya

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Fisheries resources are important in supporting the livelihood of many coastal communities especially in the developing tropical countries. Fisheries resources however, continue to face unprecedented pressure from the impacts of climate change, and this presents both ecological and socio-economic challenges to the dependent communities. This paper assessed the ecological vulnerability to climate variability of artisanal fishing communities in Ungwana Bay and the Lower Tana Delta in Kenya, using selected fin fish species. A combination of approaches were adopted and used to identify and determine exposure, sensitivity, and adaptation indicators. These included a critical review of existing literature, socio-economic survey, and computation of temperature and rainfall variation using long term data from 1983 to 2015. The method of Equal Weights (EW) was applied to all indicators after normalization. The data was normalized in a scale of 0–1, where 0 indicated low vulnerability level and 1 high vulnerability. By using composite index, the selected Ngomeni and Ozi fishing communities within the larger Ungwana Bay and Lower Tana Delta indicated high levels of vulnerability of 0.9 and 0.8 respectively. Due to high vulnerability level and poor adaptation capacity by the local fishing communities in the selected study sites, we recommend government and non-governmental agencies to reinforce community based organizations (CBOs) activities on ecological conservation and social network creation to promote short and long term adaptation measures.

Keywords: Ecological vulnerability, Climate variability, Coastal fishing communities, Ungwana Bay, Lower, Tana Estuary, Adaptation indicators