

Association between Small-Scale Fishery Participation and Severe Household Food Insecurity: The case of Kenyan fishing communities on Lake Victoria

Erika Gavenus

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Background: Capture fisheries around the world are showing signs of overexploitation, raising concern for how fishery collapses will potentially affect human health. For lakeside and coastal communities, small-scale fisheries provide a primary source of income and nutrient-rich foods. Therefore, concerns for the collapse of small-scale fisheries are especially salient with both direct and indirect links to local household food security. Household food insecurity has been associated with the health consequences of macro- and micronutrient deficiencies including reduced physical growth, poor cognitive development and greater susceptibility to infections. Management approaches aimed at preventing the collapse of small-scale fisheries often operate through limiting legal access to fisheries, which could hold its own implications for household food security. Conversations about the appropriate way forward for managing and protecting small-scale capture fisheries often assert that fishers and their households are particularly at risk. However, limited research has explicitly analyzed the relationship between fishery participation and household food security.

Objective: Using the case of small-scale capture fisheries of Lake Victoria this thesis aims to assess the hypothesis that participation in small-scale capture fisheries by the male head of household reduces the occurrence of severe household food insecurity.

Methods: Cross-sectional data from 248 households on Takawiri Island and Mfangano Island, Kenya were utilized in this analysis. These households are part of a larger cohort being followed longitudinally for two years by the Research on Environmental and Community Health project. Data come from baseline household visits conducted between December 2012 and February 2013. Household food security status was assessed using the Household Food Insecurity Access Scale (HFIAS) and considered as a binary outcome of *severe household food insecurity* or *other food security status*. Fishery participation of the male head of household was primarily considered as a categorical predictor based on fishery role of *non-fisher*, *fishing laborer*, or *other fisher*.

Results: The majority (67%) of study households experienced severe household food insecurity, and 68% of male head of households reported participation in the small-scale fishery. Of the 168 fishers, 56% reported working as laborers and 44% reported having another role in the fishery. Controlling for household size, household assets, and region of residency, participating in the fishery as a laborer significantly increases a household's odds of severe food insecurity in comparison to non-fishers (OR=2.10 [1.04, 4.23]).

Conclusions: The results do not support the hypothesis that participation in the small-scale fishery by the male head of household reduces the occurrence of severe household food insecurity. Conversely, the results suggest that participating in the fishery as a laborer increases the occurrence of severe household food insecurity. This provides a cautionary case for assuming that the food security benefits, and similarly the implications of fishery collapses and management decisions, are distributed equally among the households of fishing communities.