Adaptive capacity and coping strategies of small-scale coastal fisheries with regard to historical changes in fish landings

* M.O. Silas, S.S. Mgeleka, P. Polte, M. Sköld, R. Lindborg, M. de la Torre-Castro & Martin Gullström
Tanzania Fisheries Research Institute (TAFIRI), Tanzania and Department of Ecology, Environment and Plant Sciences, Stockholm University, Sweden
Tanzania Fisheries Research Institute (TAFIRI), Tanzania and Department of Ecology, Environment and Plant Sciences, Stockholm University, Sweden
Institute of Baltic Sea Fisheries, Thünen-Institute, Germany
Department of Aquatic Resources, Institute of Marine Research, Swedish University of Agricultural Sciences, Lysekil, Sweden
Department of Physical Geography, Stockholm University, Sweden
Department of Physical Geography, Stockholm University, Sweden
Department of Ecology, Environment and Plant Sciences, University, Sweden
nyabanda@yahoo.co.uk

Small-scale fisheries along the coast of Eastern Africa are expected to adapt to fish catch fluctuations because of climatic variability and changes during past years. Many reports show increased incidences of intense and irregular rainfall patterns coupled with increased frequencies of drought. Severe climate events in combination with anthropogenic activities may hence compromise functions and resilience of ecosystems and associated species, ultimately increasing the sensitivity of fisheries productivity. Based on historical fisheries data over a three-decadal period (1984-2015) and information from interviews with local fishermen, we assessed how communities of small-scale fisheries across the Tanzanian coast have been coping and adapting to combined impacts of climate extremes and fishing pressure, and their response to future impacts. Our findings revealed a decline of fisheries catch per unit effort (CPUE) from artisanal fishers since the last decades coupled with fish community composition changes in local fishing grounds. We found a 50% reduction in catch per vessel and catch per fisher from 1984 to 2013, with about 15% of the species highly affected. The majority of fishers have changed fishing grounds from nearshore to more remote offshore areas due to a general perception that nearshore areas have suffered from disturbance while offshore areas are still productive. This has, in turn, led to a clear switch in major gear type utilisation from beach seine to ring net. With a progressively continuous decline in fishery catches to a predictive level of 50% of the current catch level, there is a general perception that artisanal fishers will continue fishing prior to livelihood alternatives. These findings compel the need of building adaptive capacity to local fishers for better decision making upon selection of alternative strategies to climatic impacts.