Fisher dependence, use and value of elasmobranchs in southwestern Indian Ocean small-scale fisheries

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The vulnerability of small-scale elasmobranch (ray and shark) fishers in the southwestern Indian Ocean is exacerbated by convergence of the inherent vulnerabilities of fishers and fisher households, elasmobranch resources and the coastal ecosystems upon which they all rely. This study provides an assessment of the dependence of fishers, and fisher households, on elasmobranch resources and the broadscale socio-economic context of these fisheries. Face-to-face interviews (n=521) with fishers were conducted at 23 sites across Kenya, Zanzibar and northern Madagascar, collecting data relating to fisher and fisher household demographics, fisheries activity and perceived drivers of elasmobranch use and value. In addition, use (sale, sustenance or bait) and value data (n=2908) were collected at landing sites over 12 months in 2016-17. Fisher dependency on elasmobranch resources was linked to financial capital and fishing experience, which were also found to influence proportional adult (≥18 years) engagement in income generating employment and relative household dependence on fisheries for income. The findings suggest that elasmobranch dependent households tend towards specialist livelihood strategies relative to the rest of the fishery, and may therefore be less resilient to social, economic and environmental shocks. Further, the findings suggest that infrastructure and access to external markets are linked to commercial demand for elasmobranch products, primarily for shark and shark-like rays which appear to be supply-limited, in the region. A management strategy based on market governance targeted above the fisher level may be effective in altering fisher behaviour and dependence on elasmobranch resources. However, such strategies risk impoverishing those fishers most dependent on these resources given their specialised livelihoods. Targeted programs to increase livelihood diversity, including alternative livelihoods may provide a pathway through which to decrease the vulnerability of these fishers to external shocks as well as decreasing the fisheries pressure on the regions vulnerable elasmobranch resources.