

ABSTRACT

Extensive and intensive, harvesting of earthworms and polychaetes from wetland substrate, for artisanal hook fishery, affect structural and functional integrity of these critical habitats. Cultured Black Soldier Fly larvae (BSF, *Hermitia illucens*), are suggested as sustainable alternatives. This study compares bait and landed fish properties of wild earthworm (*Eisania* sp) and polychaete (*Marphysa mossambica*), with cultured BSF larvae as bait, in hook fishery. Participating fishers, were supplied with known quantity of bait, and the duration and quantity of fish obtained, monitored. Hook casting, attractiveness and killing power, as well as fish quality and quantity, were computed and compared among sites and bait. Results reveal significant ($P < 0.05$) differences in bait and landed fish properties. Lower bait casting (8.8%), but higher attractiveness (0.96) and killing power (55%), were obtained using polychaete in marine habitats, than either earthworms or BSF. Similarly, higher fish landings ($0.59 \text{ kg} \cdot \text{hr}^{-1}$), were obtained using polychaete, than comparable BSF or earthworm ($< 0.1 \text{ kg} \cdot \text{hr}^{-1}$). We surmise that wild baitworms, are easier to handle, attract and land more fish, leading to higher variety and abundant landed fish, than cultured BSF larvae. Lower performance of BSF is attributed to; poor response of target fish to imprinted physical and chemical attributes of the bait. This may imply that fishers, have limited justification for substituting cultured BSF, with conventional wild baitworm in artisanal fishery. Further elucidation of drivers to bait choice and performance coupled with improvement in cultured bait quality might, provide sustainable solutions.