

ABSTRACT

Fishers are individuals or groups who directly depend on fishery resources for their livelihoods and subsistence. In Indonesia, fishers play a strategic role as the primary actors in capture fisheries production, meaning that the performance and sustainability of this sector are strongly influenced by the quality of fishers' human capital. In Pati Regency and Demak Regency, coastal communities are predominantly composed of small-scale fishers (SSF) operating vessels of less than 10 gross tons (GT). Fishers operating along the Juwana River and at the estuary of the Tuntang River are integral to the local fisheries system. The Juwana River, the largest river in Pati Regency, provides substantial fisheries potential that supports local livelihoods, while Morodemak Village functions as a key fisheries hub that significantly contributes to the coastal economy.

This research aims to: (1) explore the socio-economic conditions of small-scale fishers in the framework of blue economy, blue growth, and blue justice; (2) to measure the productivity of small-scale fisheries; (3) to analyze the transformation and adoption of information and communication technology (ICT) by fishers of scale; (4) to analyze the dynamics of small-scale fishers' interactions in fisheries communities; and (5) to formulate transition from vulnerability to viability among small-scale fishers by considering the influence of ICT.

The study used a mixed-methods approach that combines quantitative and qualitative approaches. Primary data were obtained through surveys of 200 small-scale fishers, comprising 100 respondents each in Juwana and Morodemak, using purposive sampling. Quantitative analysis includes descriptive statistics, productivity measurements, and bioeconomic analysis. The distribution of blue economic activity was also mapped to illustrate the coastal area's profile. Qualitative data were obtained through in-depth interviews, field observations, and studies of the technology adoption process, fishery community interactions, and knowledge spillover dynamics. There were 9 key informants from academic, business, government, and community sectors (A–B–G–C) to validate the findings.

The study showed that the socio-economic conditions of fishers in Juwana were better than those in Morodemak and were supported by more adequate infrastructure and the use of more modern technology. Nevertheless, small-scale fishers in both regions faced structural vulnerabilities. SSF in Juwana is under greater pressure from the large-scale fishers (LSF), who limit access to resources and as a consequence this could create inequities among them. The productivity of SSF in Morodemak tends to be higher because the composition of younger fishers is larger than in Juwana, and they are more open to using ICT. From the perspective of resource sustainability, the MSY and MEY estimation indicated that fisheries in Demak are more sustainable than in Juwana. This is consistent with the use of more environmentally friendly fishing gear.

In order to improve the welfare of small-scale fishers may not only rely on the driver on economic growth, but many factors should be taken into account as the consideration, among others are social, ecological, and long-term sustainable dimensions. Furthermore, ICT may be able to accelerate the productivity of SSF whenever the stock is in a growing stage. But when the resources are in the stage of nearby or overexploitation then the use of ICT could worsen the vulnerability of livelihoods of fishers. Hence, the sustainability of fisheries is becoming as the main prerequisite for the sustainability of fishers' livelihoods.

Keyword: Small-scale fishers; Blue economy; Blue Growth; Blue Justice ICT; livelihood, Demak, Juwana, Indonesia