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Local knowledge and official landing data point to decades of fishery stock decline in West Africa

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Highlights

- Complementary data on fishery status derived from local knowledge and landing data.
- SBS occurs across generations influenced by socio-ecological conditions.
- Local knowledge and landing data report declining catches of tuna and groupers.
- Decreasing fish sizes and species depletion detected by local fishers.
- Spearfishing and semi-industrial purse-seiners drive fish decline.

Abstract

Small-scale fisheries play a pivotal role in providing food and livelihoods for millions worldwide, particularly in low-income countries in Africa. However, a common challenge in these fisheries is the relative scarcity of statistical data on the composition, abundance, and distribution of fisheries resources, which is crucial for effective management. In data-poor regions, like West Africa, local ecological knowledge has been advocated as a valid source of information for assessing stock conditions and historical performance in relation to distinct drivers of change. This approach, however, needs to be used with caution due to changes in human perceptions related, for example, to the natural state of marine environments, which is known as Shifting Baseline Syndrome (SBS). Hence, this study combines 50 years of users' perceptions and landing data from Maio island, Cabo Verde, where fishing communities dependent on fish stocks are becoming increasingly vulnerable. Our aims were i) to investigate changes in small-scale fisheries catches over the past five decades, and ii) to understand and refine the use of these data as alternative or complementary sources in local-regional fisheries management. Our results highlight the impact of SBS on users' perceptions, which is influenced by local socio-ecological context. Significantly, our results point to a staggering decline in local stocks that may exacerbate the vulnerability of West African coastal fisheries.

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Keywords

Fish catch decline; Fishers' ecological knowledge; Small-scale fisheries; Shifting baseline syndrome; Users' perception; West Africa

1. Introduction

Small-scale fisheries (SSF) are crucial for the food security of over 200 million people in Africa, representing nearly half of the continent's fisheries catches and landed value (www.seaaroundus.org ↗). The West African SSF contributes to the highest proportion of the fishery sector, providing employment and livelihoods for about 16% of the coastal population (4.8 million people) [5]. Overexploitation and climate change, however, are escalating the decline of marine fisheries, leading to socio-ecological impacts mainly on coastal populations [26]. The expansion of industrial fishing and the adoption of unsustainable harvesting practices have also contributed to stock depletion of at least 15 species in the Canary Current region since the late 1990s [4]. The lack of systematic and long-term scientific data on fisheries resources is still a major challenge for most African coastal countries. This deficiency poses a threat to the food security of coastal fishing communities, which are especially vulnerable due to their socioeconomic dependence on SSF [38].

In Africa, local ecological knowledge (LEK) is one of the few available sources of information on past fisheries status and environmental baselines needed for management and policy design [17].