



SUSTAINABLE OCEANS  
PROJECT



# Mangrove benefits to Seafood systems

POLICY BRIEF

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## Summary

Protecting and restoring mangroves is essential for sustainable seafood systems and coastal community well-being. Research has shown that mangrove forests provide essential feeding grounds for fish species and are linked to higher fish abundance. Therefore, effective policies prioritizing mangrove conservation are critical for maintaining mangrove ecosystem services and benefits while assuring a sustainable future for seafood systems. It is recommended that the government, in collaboration with other stakeholders, implement strict regulations to halt mangrove deforestation, particularly in regions facing significant over-exploitation, and increase investments to upscale mangrove restoration initiatives across Ghana's coastal landscapes.

## Introduction

Ghana's marine fishery resources are increasingly exhibiting signs of full or overexploitation, with overcapacity present in all fleets except for the tuna fisheries sub-sector. Over the past three decades, factors such as overfishing, excess capacity, destruction of vulnerable habitats, climate change, and Illegal, Unreported and Unregulated (IUU) fishing have contributed to a significant depletion of these resources. In response to the degradation of marine habitats, Ghana has developed legislation and policies aimed at marine conservation and management. These include the Fisheries Act 2002 (Act 625), the Marine Fisheries Management Plan (MFMP), and the Co-Management Policy. The Ministry of Fisheries and Aquaculture Development (MoFAD) and the Fisheries Commission (FC), with stakeholder support, have also implemented strategies such as closed fishing seasons and moratorium on new canoe entrants for fish stock recovery and effort reduction. Protection of mangrove ecosystems to complement these measures is a proactive and strategic approach to conserving and sustainably managing marine resources. Conservation of mangrove ecosystems aligns with the objective of protection of critical fisheries habitats as enunciated in the MFMP (2022 – 2026).

Mangrove ecosystems provide a range of ecological, economic, social, and cultural services to coastal environments. They act as natural barriers, protecting shorelines from storms by absorbing wave impacts. Mangroves also serve as breeding grounds for fish species, contributing to the sustainability of seafood systems.

Additionally, they play a role in carbon sequestration, storing carbon dioxide and other greenhouse gases in their soils, thereby serving as "blue carbon" sinks. Economically, mangroves provide resources such as fuelwood, poles, and medicinal plants. Culturally, they hold significant value for communities, fostering a connection to ancestral lands.

## Our Approach

Under the auspices of the Norad-funded Sustainable Oceans Project (SOP), Hen Mpoano has developed a co-management approach to conservation of mangrove ecosystems in four sites across Ghana's four coastal regions. This approach engages various stakeholders within mangrove communities in decision-making processes regarding sustainable mangrove utilization and management. Our approach includes facilitating collaborative decision-making between community resource users and government bodies, building capacities for mapping and recognition of the benefits of mangrove ecosystems in district land use planning and decision making processes, facilitating adoption of mangrove management and community action plans, and participatory monitoring of key parameters for assessing the relationships between mangrove ecosystem health and fisheries diversity over the long-term. These models will provide useful lessons for replication across other sites along Ghana's coastline to upscale the benefits of mangrove ecosystem conservation to seafood systems.

## Assessments

To enhance understanding of the benefits of mangroves in Ghana's seafood systems, Hen Mpoano conducted fish stock assessments and mangrove mapping across Ghana's coastal landscapes, notably the Western, Central, and Eastern coasts. The assessments were conducted in nine mangrove sites: Ankobra, Azulenoano, Edobo, Akwidaa (Western Coast), Duakor, Anlo Beach (Central Coast), and Anyanui, Dzita, and Galosota (Eastern Coast). The goal was to assess fish diversity within the mangrove ecosystems, estimate mangrove coverage along the coast, and monitor temporal changes in mangrove forest cover.



## Key Findings

The fish stock assessment revealed significant abundance and widespread distribution of fish species along the Western and Central coasts of Ghana. Notably, species such as Bagrid fish, Crevalle jack, Blackchin tilapia, Flathead grey mullet, Flagfin mojarra, and Nile tilapia were found in high abundance across various coastal zones (Western, Central, and Eastern). This abundance is attributed not only to their natural habitat but also to the presence of mangrove forests, which serve as vital feeding and breeding grounds for these species.

Growth rate analysis, focusing on fish length and weight, indicated that Bagrid fish sampled in Azuleoano and Blackchin tilapia sampled in Galosota and Dzita were growing well. However, Blackchin tilapia sampled from Akwidaa and Redbreast tilapia sampled from Anlo Beach exhibited poor growth in terms of length and weight. These variations in growth performance were linked to factors such as food availability, water quality, predation pressure, and the degree of mangrove degradation in these areas.

The mapping revealed that the mangrove forest extent along Ghana's coastal zone decreased from 14,922.40 hectares in 2000 to 11,999.80 hectares in 2022, representing 19.59% decline. This decline is not uniform across the coastline, with some regions experiencing over-exploitation while others have initiated afforestation efforts to restore the ecosystem and slow the rate of mangrove loss.

## Policy Recommendations

- **Strengthen Mangrove Protection:** The government, in collaboration with stakeholders, should implement strict regulations to halt mangrove deforestation, focusing on regions with significant over-exploitation. Promoting community-based mangrove conservation initiatives will enhance local stewardship and monitoring.
- **Support Mangrove Restoration:** Decision-makers should increase funding and support for mangrove afforestation projects, particularly in areas with declining cover. These projects should involve local communities and organizations to ensure effective restoration and management practices.

- **Enhance Fishery Management:** The Fisheries Commission (FC) of Ghana should develop and enforce sustainable fishing practices in mangrove areas to maintain fish diversity and ecological balance. Incorporating mangrove health indicators into fisheries management plans will align with ecosystem-based approaches.
- **Promote Research and Monitoring:** Stakeholders should invest in ongoing research to monitor changes in mangrove cover and fish stocks, facilitating adaptive management strategies. The research data should inform policy adjustments and improve conservation outcomes.

## Bibliography

- Aheto, D. W., Kankam, S., Okyere, I., Mensah, E., Osman, A., Jonah, F. E., & Mensah, J. C. (2016). Community-based mangrove forest management: Implications for local livelihoods and coastal resource conservation along the Volta estuary catchment area of Ghana. *Ocean & coastal management*, 127, 43-54.
- Asiedu, B., Okpei, P., Nunoo, F. K. E., & Failler, P. (2021). A fishery in distress: An analysis of the small pelagic fishery of Ghana. *Marine Policy*, 129, 104500.
- Cook, R., Acheampong, E., Aggrey-Fynn, J., & Heath, M. (2021). A fleet based surplus production model that accounts for increases in fishing power with application to two West African pelagic stocks. *Fisheries Research*, 243, 106048.
- Ofori, S. A., Asante, F., Boateng, T. A. B., & Dahdouh-Guebas, F. (2023). The composition, distribution, and socio-economic dimensions of Ghana's mangrove ecosystems. *Journal of Environmental Management*, 345, 118622.





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