



WAVES

WAVES is a World Bank–facilitated partnership that aims to promote sustainable development by ensuring that the national accounts used to measure and plan for economic growth include the value of natural resources.

Its work to develop scientifically credible methods for ecosystem accounting is guided by a policy and technical committee of experts in environmental economics, natural sciences, and national accounting.

www.wavespartnership.org/waves/



THE WORLD BANK

MADAGASCAR

Natural Capital Accounting and Management of the Malagasy Fisheries Sector

Madagascar's fisheries sector—important for local livelihoods & national growth

With a marine zone of over 1 million square kilometers—an area nearly double the national land surface—Madagascar is endowed with substantial marine and coastal resources. Hundreds of thousands of hectares of mangroves on the west coast provide timber, food resources, carbon sinks and coastal protection; coral reefs in the west, northwest and northeast and inshore coastal areas harbor finfish, shrimp, sea cucumber, octopus and lobster; and offshore waters contain pelagic fish such as tuna and shark species with high commercial value.

of 100,000 people are employed in the fisheries sector, but this figure underestimates the real importance to local livelihoods as significant numbers of households that practice subsistence or seasonal fishing are not counted in official statistics. Many of the country's food insecurity hotspots are found in coastal areas highlighting the role that fisheries and coastal resources play for vulnerable communities.

The fisheries sector is also important for national economic development. Official statistics state that fisheries generated US\$146 million in export earnings in 2011 and contributed on the order of 1.6 percent of GDP; a figure that is most certainly an underestimate of the true contribution of the sector. The total economic value of the fisheries sector is unknown both because of gaps in official statistics, and the illegal or informal nature of much activity in the sector. Available information indicates that finfish is the most important market-based economic subsector, followed by shrimp (despite recent significant declines in catch), and tuna. The economic value of sharks, sea cucumbers, octopus, and lobster fisheries are unknown.

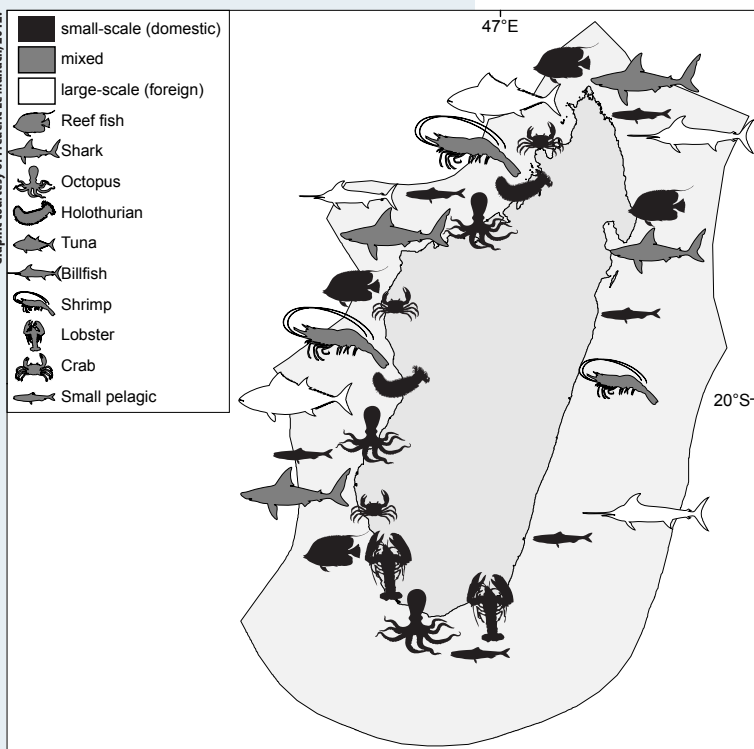
Fisheries activities span a range of scales from subsistence to commercial, and both domestic and foreign operators are active in the industry. Domestic catch made up predominantly of finfish, shrimp, and various invertebrates, accounts for the bulk of total catch—approximately 135,000 tons per year. Foreign catch is made up of tuna, billfish and shark, however reliable data on catch volumes are missing.

Official estimates state that in excess

A web of institutions, policies and laws governing the sector

The Ministry of Fisheries and Aquatic Resources, which is comprised of over 40 separate directorates, services and agencies is responsible for the fisheries sector, while other Government agencies are responsible for related activities (e.g., the Ministry

Graphic courtesy of Frédéric Le Manach, 2012.



Scale and type of fisheries activities in Madagascar.

of Environment and Forests administers environmental regulation and marine protected area planning, and the Prime Minister's office oversees Integrated Coastal Zone Management). All these agencies suffer from a lack of human, technical and financial resources and suffer the effects of regular changes in personnel and Ministerial direction. At the regional level, the situation is even more difficult. Regional fisheries directorates are charged with a wide range of surveillance, education and regulation activities but are often staffed by only one or two personnel with very few resources.

The policy and legal framework governing the sector is incoherent and ambiguous. There is no current official document that states the Government's fisheries sector policy. A draft sector policy and law have been drafted but not adopted due to a lack of consensus. The prevailing legal framework is made up of a large number of non-integrated instruments that, for the most part, date back to the early 1990s.

A national strategy for ICZM was adopted in 2010 and a national and several regional committees established. However to date there has been little realization of concrete ICZM activities. The development of coastal and marine protected areas is being driven predominantly by NGOs and is subject to a nascent legal framework. Community based natural resource management contracts in the coastal zone are in much the same position, they have been trialed

in numerous locations, but still lack a strong and coherent policy and legal basis.

Data gaps and governance challenges undermining management of the fisheries sector

Despite the diversity and richness of its marine and coastal resources, Madagascar remains the fifth poorest maritime country in the world. To date, Madagascar has failed to sustainably manage its fisheries resources in a manner that would allow protection of this renewable resource and optimization of the amount and use of the revenues generated.

The country's inability to manage its fisheries resources in a sustainable manner is exacerbated by a lack of robust data on stocks, catch volumes and economic values of resources. There are no stock assessments available for Madagascar's fisheries apart from initial estimates for shrimp. Official data on catch volumes underestimate real data by up to 30 percent as they fail to account for several important sub-sectors including shark, by-catch and finfish. Economic data are limited and widely dispersed throughout a large number of agencies, many of which are unwilling to share data deemed confidential.

The result is that Madagascar is not only depleting its fisheries stocks without understanding maximum sustainable yields—as has recently been evidenced in the shrimp industry where the causes of massive declines are still being debated, but it is also incurring economic losses either through direct losses or failure to optimize revenue generation.

Notable economic losses to Madagascar arise from discarded by-catch, which is estimated in the order of US\$2.5 million per year from the shrimp industry alone—an amount equivalent to Government income from the tuna fisheries; and illegal or uncontrolled catches by foreign vessels, which are estimated to be in the order of

50,000 tons per year. This latter situation is exacerbated by license agreements with a number of foreign operators that are based only on the number of vessels and not on catch volumes, and a significant lack of resources to monitor and control catches.

How could WAVES contribute to the better management of Madagascar's fisheries sector?

The WAVES Partnership in Madagascar will support the development of fisheries satellite accounts in line with the recently adopted UN System of Environmental and Economic Accounting (SEEA). WAVES will support a review of available data to compile a first set of satellite accounts and work with Government and technical partners to generate additional information to progressively update and improve the accounts. The information provided by these accounts will not only be useful for the development of sectoral policy that is underpinned by robust data on the value of natural capital in the form of renewable fisheries resources, but will also allow a true understanding of the contribution of this component of natural capital to national economic development and human well-being.

WAVES will also work at the regional level by piloting approaches for ecosystem services accounting in southwest Madagascar that can be used to improve ICZM planning and practices. Such approaches will consider the values of fisheries, habitat and coastal protection values of coral reefs and mangroves, tourism, and the implications of climate change in an ICZM context.

References

- Andrianaivojaona, C. 2012. *Valorisation des ressources halieutiques à Madagascar—Aspects politiques*. World Bank, Antananarivo.
- Le Manach, F. 2012. *Valuation of fisheries resources in Madagascar*. World Bank, Antananarivo.



Image courtesy of Frédéric Le Manach, 2012.

A traditional fisher in southwest Madagascar.