

Country Overview: Madagascar

Introduction

Madagascar's Marine Protected Areas cover 926,952 ha, and a pledge was made in 2014 by the government to triple this coverage by 2020. Overall, the country has increased its total protected area coverage from 1.7 million to 6 million hectares over the past decade.

The dugong population in Madagascar is patchy, with the species mostly occurring along the western coast, particularly in the north between Mahajanga and Antsiranana where seagrass meadows are thought to be more abundant. The GEF Dugong and Seagrass Conservation Project will therefore focus primarily in these north-western areas, between Mahajanga and Sahamalaza, and including the Nosy Hara Marine Park.

Dugong Population

Limited information exists on dugong populations in Madagascar and the broader East African region, with most estimates of population size based on limited aerial surveys and anecdotal evidence. These estimates suggest a population in the hundreds.

The Census of Marine Mammals and other Pelagic Megafauna by Aerial Surveys conducted in 2010 was the first methodical study to assess the abundance and distribution of marine megafauna, including dugong, in the coastal waters of Madagascar.

Anecdotal information on population trends suggest recent declines in Madagascar, coinciding with the introduction of monofilament nylon gill net use.

Seagrass Habitat

As is the case for dugongs, limited data is available on seagrass habitat in Madagascar. The most significant seagrass meadows are thought to exist in the north-west of the island.

Cultural Significance

Unlike in the past, dugongs are not commonly encountered along the coastline of Madagascar, to the extent that younger fishers in some areas are unfamiliar with the species.

Surveys of local communities between 2008 and 2011 found that the majority of reports of dugongs were in the context of hunting, not by-catch, and other anecdotal evidence suggests that hunters used to drive herds of dugongs into basic shallow water wooden traps located in river mouths.

Current Threats and Conservation Measures

The lack of data on the characteristics of dugong populations has resulted in ineffective conservation and management of the species in coastal waters. Since the colonial period, efforts have been deployed to implement administrative, legal and technical measures to control degradation and

destruction of habitats and to preserve biological diversity in Madagascar, including measures to protect ecosystems and species.

Dugongs in Madagascar face specific threats from destructive fishing practices and incidental by-catch, as well as habitat destruction. Deforestation has led to degradation of critical inshore feeding areas and the use of trawl nets has resulted in the destruction of seagrass beds.

The limited involvement of coastal communities in the management of dugongs and their seagrass habitats is considered a major factor in their decline. The value of the ecosystem services provided by seagrass areas has been underestimated, even though they constitute the nursery grounds of shrimp and several species of fishes exploited in coastal fisheries.

Key legislation	Content
Law No. 90-033 of 1990 (modified by the Law No. 97-012 of 1997 and No. 2004-015 of 2004)	National Environment Charter and the National Environmental Policy; gave legal recognition to the 15-year three-phase National Environmental Action Plan (NEAP). Policies include Integrated Coastal Zone Management (ICZM).
Decree No 2003-984 of 2003	National Strategy for Sustainable Management of Biodiversity
Decree No. 2746 of 1995	Ratification of the Convention on Biological Diversity
Decree No. 99-954 of 1994 (modified by the Decree No. 2004-167 of 2004)	Mise En Compatibilité des Investissements avec l'Environnement (MECIE); allows the creation of environmental cells in each Ministry Department.

GEF Projects

Awareness of dugongs and their habitats in Madagascar is very limited and there are no dugong and seagrass safeguards integrated in the practices or plans of local communities. Therefore, the Dugong and Seagrass Conservation Project in Madagascar comprises six individual sub-projects, all of which (except for MG5 establishing the National Facilitating Council) are based on active work with local communities to build capacity and raise awareness of seagrass and dugongs and their importance to the local ecosystem and fisheries.

The projects focus on the west and north-west of Madagascar in the areas of the Barren Isles, the Sahamalaza Natural Park, and the Anakarea and Ankivonjy Marine Protected Areas, which are dugong and seagrass hotspots.

A major activity embedded in all projects is the introduction of various incentives to support conservation efforts, such developing a women's healthcare clinic, establishing livelihood enterprises and furnishing local schools.

In north-west Madagascar between Mahajanga and Sahamalaza, training will be provided to local community members to undertake monitoring of dugongs and seagrasses (MG1), while instruction in participatory mapping of seagrasses will be delivered to local community members at selected locally-managed marine areas (LMMAs) in the "Mihari" network (MG2). Also in the Sahamalaza area,

participatory mapping of seagrass habitats will be undertaken in conjunction with local communities (MG4).

In the Nosy Hara Marine Park, rangers will be trained to monitor gillnet use (MG3) and fishers will be trained both in the release of bycaught dugongs and in the importance of the species in seagrass conservation and fisheries production. The project will also train rangers and local community members in scientific and community-based dugong and seagrass surveys, and appoint at least 50 junior “ecoguards” to produce environmental awareness materials and conduct village events to disseminate conservation messages.

The majority of the data gathering will be performed under MG6, which will contribute to eradicating critical knowledge gaps through seagrass habitat mapping; passive acoustic monitoring surveys along the NW coast to identify critical dugong habitats; and community interviews in habitat hotspots to analyse threats to dugongs.

At the national level, MG5 will establish a National Facilitating Committee (NFC) to provide country-level oversight of project activities and ensure that dugong and seagrass conservation considerations are integrated within relevant national environmental policy, planning and regulatory frameworks.

Project Partners

Project	Title	Partner
MG1	Building a model for long-term community-based conservation of seagrass-dependent biodiversity in Madagascar	Blue Ventures Conservation (BV)
MG2	Fisher knowledge, awareness and behaviour change for the conservation of dugongs and seagrass using the Mihari network of Locally Managed Marine Areas in Madagascar	Blue Ventures Conservation (BV)
MG3	Using incentivised environmental stewardship to conserve dugongs and seagrass habitat at an identified national hotspot	Community-Centred Conservation Madagascar (C3 Madagascar)
MG4	Integrated approaches to enhance the conservation of dugong and seagrass ecosystems in the Sahamalaza area.	Comité d’Orientation et Soutien à l’Aire Protégée Sahamalaza (COSAP Sahamalaza)
MG5	National Facilitating Committee for the GEF Dugong and Seagrass Conservation Project	Ministère de l’Environnement, de l’Ecologie, de la Mer et des Forêts (MEEMF)
MG6	Generating knowledge on dugongs, their critical habitats and threat reduction measures in NW Madagascar	Wildlife Conservation Society (WCS)