



Finding and Protecting Dugongs and Important Seagrass Habitats in Northwest Madagascar



Project Summary

Northwest Madagascar was considered to be one of the last refuges for dugongs in Madagascar, yet there was little known about their distribution, population status and key habitat. The lack of baseline information was hampering the implementation of conservation measures tailored to respond to the ever increasing number of threats acting on dugongs and seagrass in the region. This WCS run project was focused from Nosy Mitsio in the extreme NW to Mahajanga, where several sites had previously been identified as potentially important areas for dugongs. The project aimed to address the issues described above by:

- 1) Generating new information on dugong distribution and critical habitat,
- 2) investigating specific threats to dugong populations,
- 3) Identifying and trialing tailored conservation strategies to reduce identified threats and
- 4) communicate the results to national and international audiences.



Fig. 1 North West Madagascar study area (red line)

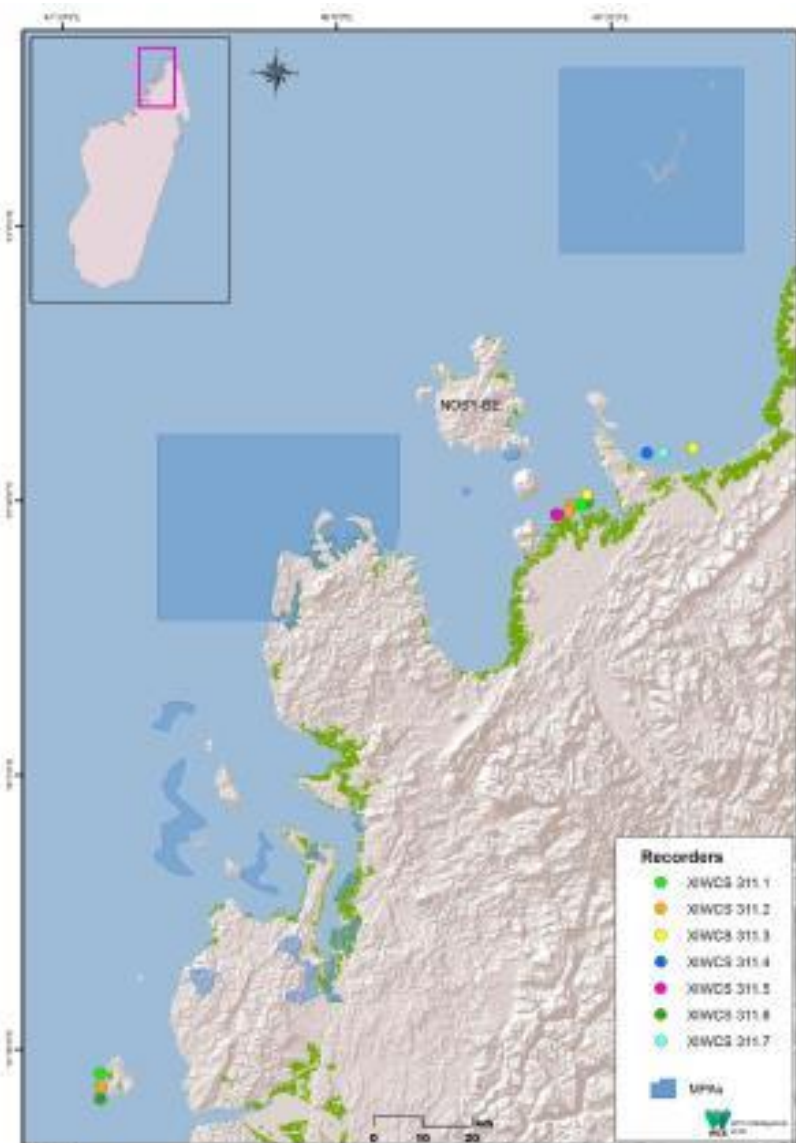


Fig. 2 Acoustic recorder deployment locations shown relative to MPAs (blue shaded areas), the coastline of Madagascar (inset in the top left hand corner of the map).

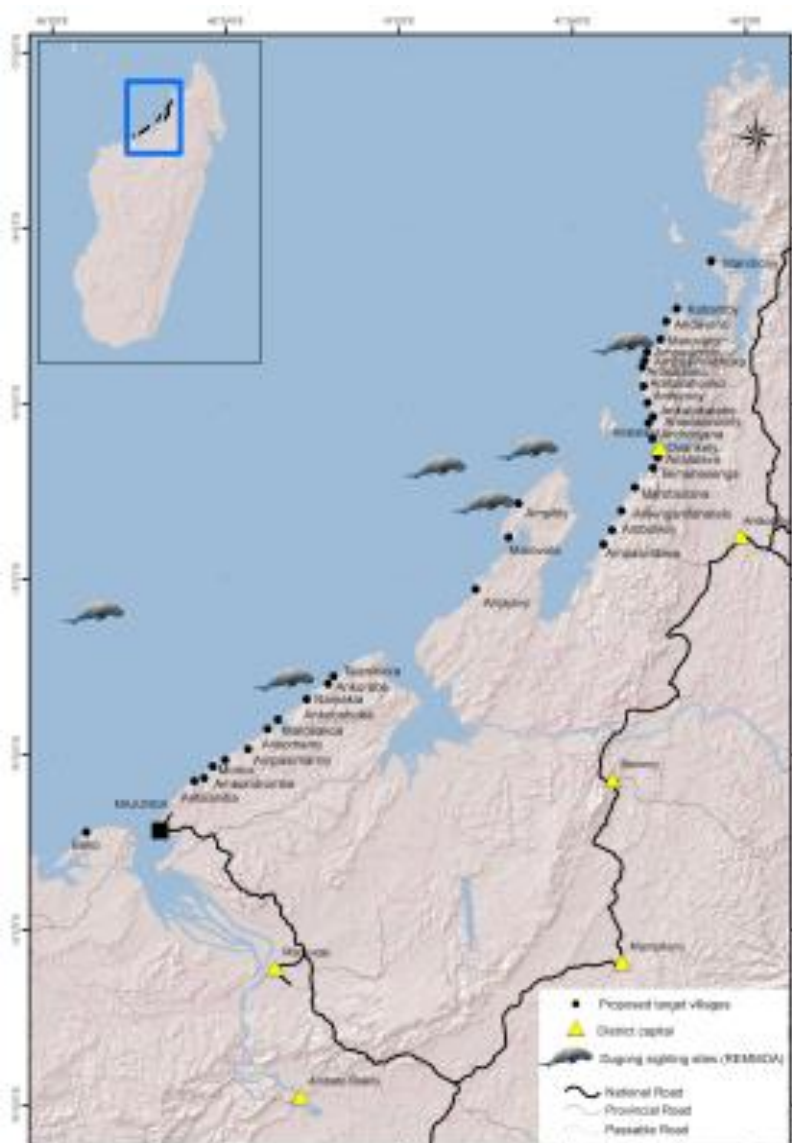


Fig. 3 Locations of historic dugong sightings determined from the community surveys.

About Organization

WCS saves wildlife and wild places worldwide through science, conservation action, education, and inspiring people to value nature. Working with local communities and organizations, knowledge is applied to address threats to species, habitats and ecosystem services, and improving the quality of life of local people. In response to the high extinction risk faced by marine mammals in many underdeveloped countries, WCS has pioneered research projects that work to fill data gaps and target conservation activities globally. WCS has been working in the Indian Ocean broadly and specifically in Madagascar since 1996 to develop and implement strategic, effective and science-based management actions to reduce the threat to marine mammals from direct and indirect hunting, artisanal fishing interactions, increasing tourism and habitat loss.

Results

- Community interview survey results showed that dugong sightings were rare in the last 10 years, with only 3% of respondents reporting seeing dugongs within the last 1-2 years in the southern study area (Fig. 3, Fig. 4).
- Bycatch of dugongs with gill nets is likely to have been the main cause of the reduction in dugong numbers in recent decades.
- 11 species of seagrass were documented and seagrass habitat was found along the entire study area (Fig. 5). Most areas contain *Thalassodendron ciliatum* and smaller patches of *Syringodium isoetifolium*, *Cymodocea rotunda*, *Halophila decipiens* and *Halodule sp.*
- 18 possible dugong vocalizations detected over the 21 months of acoustic monitoring (10 southern and 8 northern study area). All possible dugong vocalizations were low frequency (between 1-6 kHz) and short duration (Fig. 7).
- The 5 year management plans for Ankarea and Ankivonjy MPAs were reviewed and edited to include greater emphasis on dugong and seagrass conservation.
- “Dina” or regional legislations that forbid dugong hunting, damage to seagrass habitats and discourage fishing gears that pose risks to either dugong or seagrass were developed and implemented.

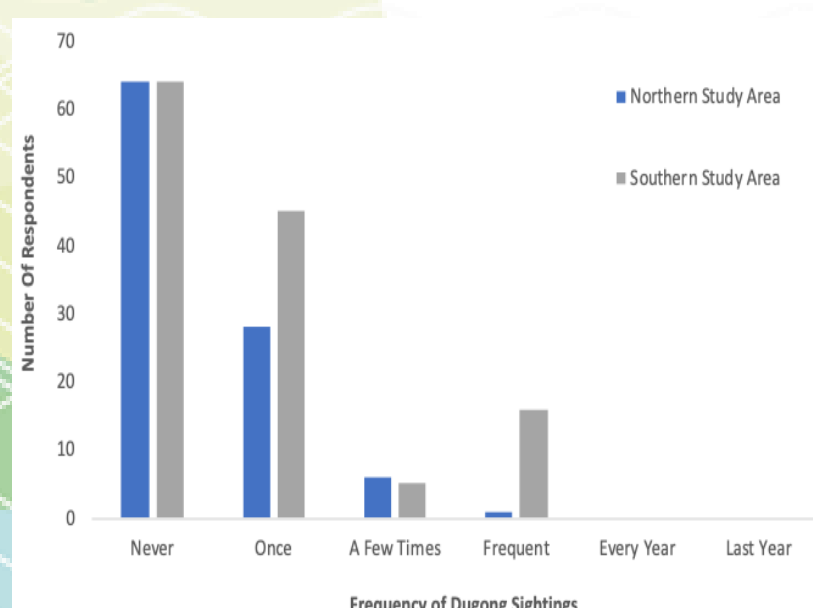


Fig. 4. The number of respondents in the northern and southern study areas that reported seeing dugongs over time.

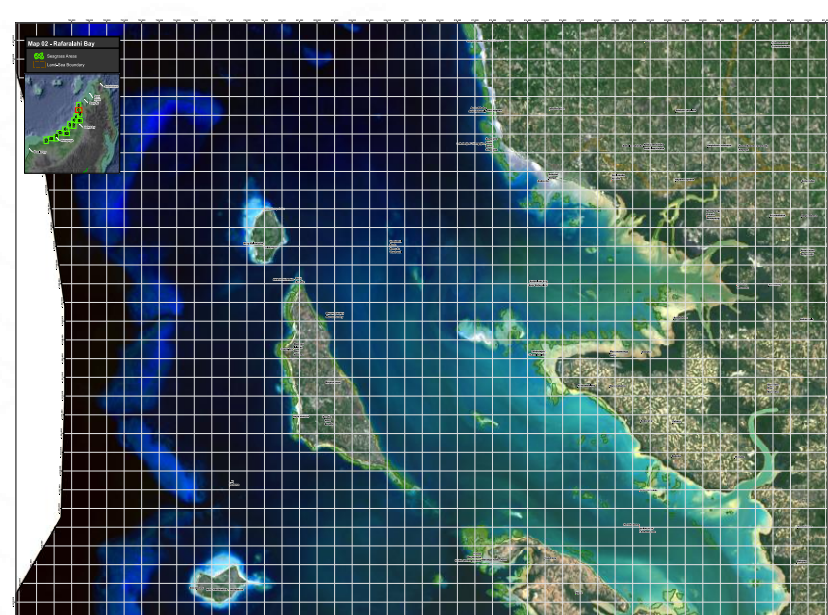


Fig. 5 Example map of seagrass habitats identified in the northern study area. Green polygons indicate seagrass.

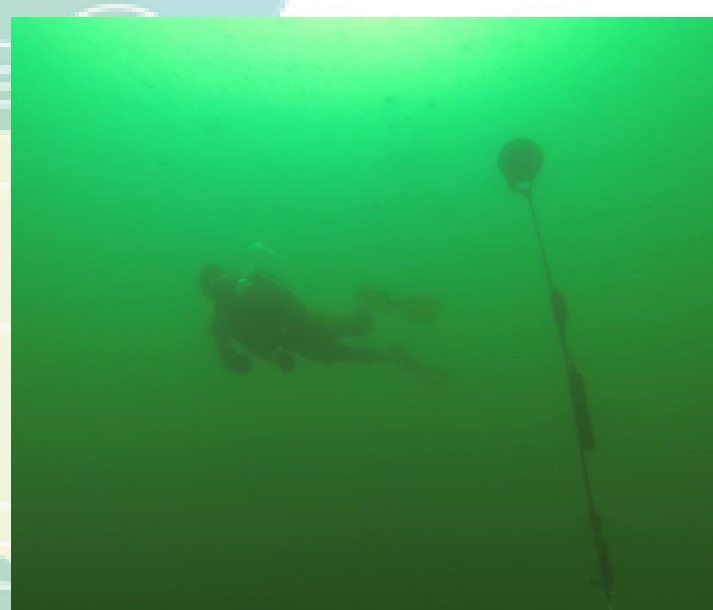


Fig. 6 Acoustic logger deployment

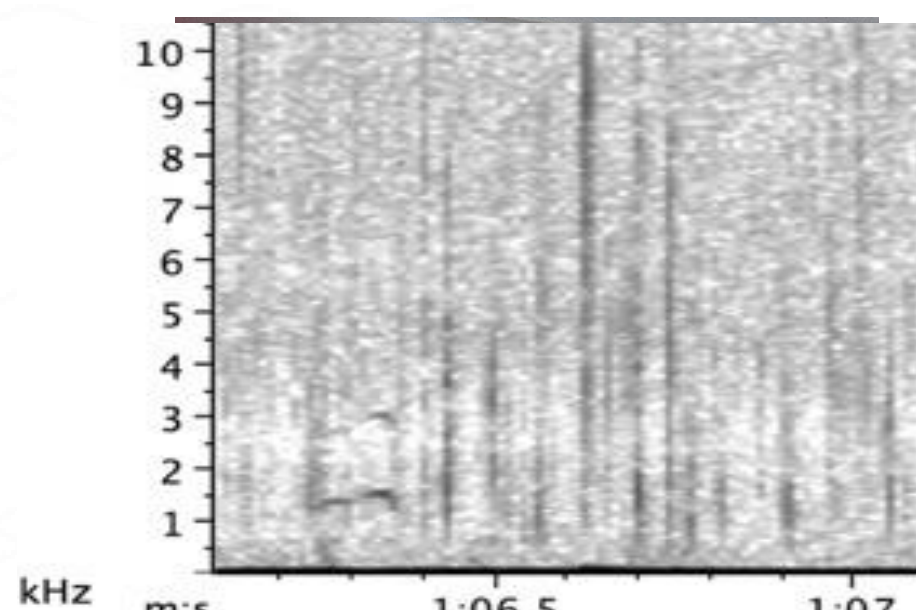


Fig. 7 Spectrogram of possible dugong vocalization

Lessons Learned

The community discussions and awareness raising activities provided valuable information for managers and conservation NGOs whilst engaging the community in addressing the conservation of dugongs and seagrass. However a significant challenge faced during the project were that a large proportion of fishers had never seen a dugong. Due to the low numbers of dugong sightings, emphasis was placed on monitoring and conservation of seagrass zones as critical habitat for marine species, including dugongs, while also educating communities to 1) decrease use of unsustainable fishing gear (i.e. gill nets), and 2) release rather than keep dugongs (and other marine species) if they are caught in a gill net. Another significant challenge faced during this project was the loss of acoustic recorders despite numerous measures taken to prevent it. Considering the high loss of recorders and the low number of possible dugongs detected, acoustic monitoring would not be recommended for future research efforts.

Next Steps

The results of this project have highlighted the need for continued work on the conservation of dugong and seagrass habitats in Madagascar. Future management activities and projects undertaken by WCS will work towards achieving several key goals; 1) Additional community awareness raising exercises focused on the conservation status and management of dugongs and their seagrass habitats, 2) Increased surveillance for infractions relevant to dugong catches, and seagrass degradation or pollution will be encouraged 3) seagrass monitoring and seagrass community health assessments will be conducted in current MPAs and 4) Further identification of seagrass habitats and mapping of their extent will be done with the aim of extending and creating new MPAs in Madagascar.

