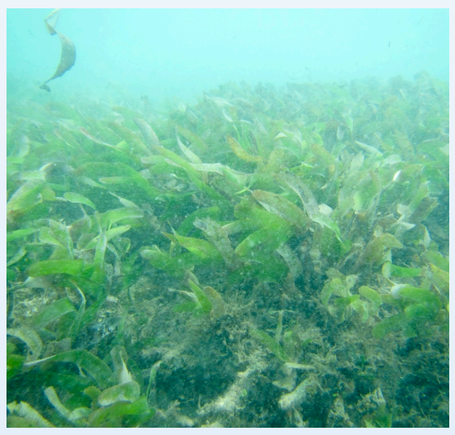
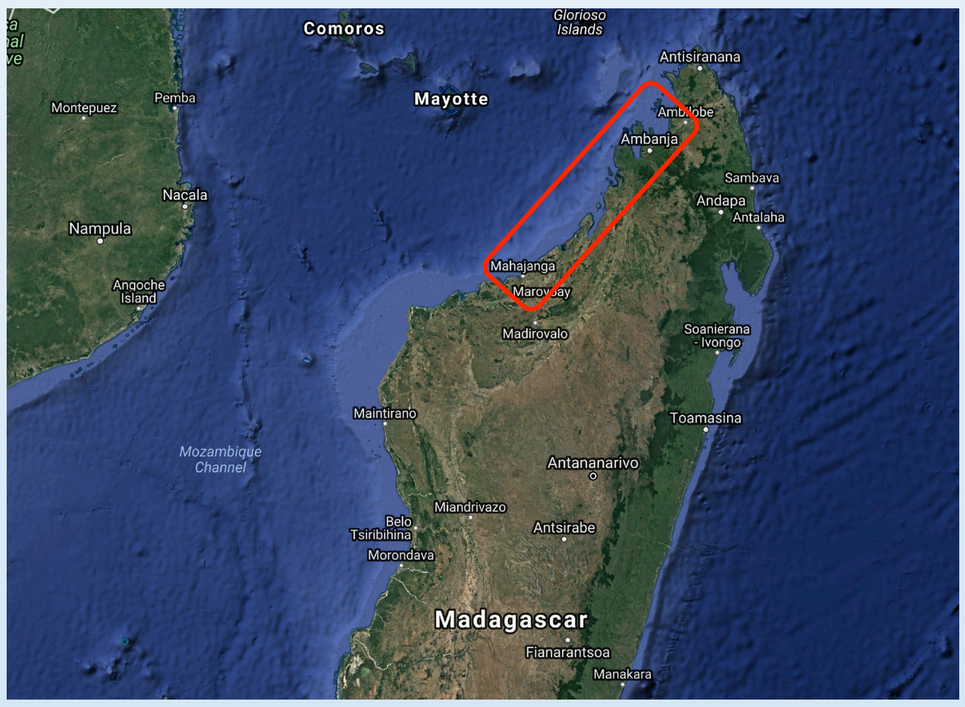
Generating knowledge on dugongs, their critical habitats and threat reduction measures in NW Madagascar

Project Summary

Northwest Madagascar is potentially one of the last refuges for dugongs in Madagascar, yet there is currently little known about their distribution, population status and key habitat. This lack of baseline information hampers the effective 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 is focused from Nosy Mitsio in the extreme NW to Mahajanga, where several sites have been identified as potentially important areas for dugongs. The project will address the problems and causes described above by: 1) generating new information on critical dugong habitat and population distribution, 2) investigating specific threats to dugong populations, 3) identifying and testing tailored conservation strategies to reduce identified threats and 4) communicating the results to a large national and international audience.





Main Activities

A number of activities are being implemented in order to address the lack of baseline knowledge of dugongs and their habitat across the study area. During phase one, seagrass habitat mapping using high resolution satellite imagery was conducted along with community interviews to determine dugong presence, distribution, prime habitat and main threats in the northern study area (Nosy Mitsio to Nosy Iranja; Fig.1) and in the southern study area (Nosy Iranja to Mahajanga; Fig. 1). The outcomes from these surveys are being used to inform the second phase of the project, which is the placement of acoustic recorders in potential dugong hotspots. The third phase of the project will be a participatory process that will identify community based conservation measures suitable for trialing in key areas. Finally, an outreach and conservation strategy on dugongs, seagrass habitats and the threats they face will be developed and communicated to national and international stakeholders.

Results

The seagrass mapping and ground-truth surveys demonstrated that seagrass habitats identified by ensemble spectral analysis of 30-meter resolution Landsat 8 satellite imagery were generally accurate and clearly able to identify seagrass hotspots (Figs. 1 and 2). A total of 28,000km2 was mapped and seagrass areas identified as high, low or zero probability of seagrass (e.g. Fig. 2). Community interview surveys were carried out in 42 villages over two periods in April and October 2016 in the northern study area. Three villages were identified as previous dugong hotspots based on sightings reports and the presence of dugong hunters, although there were no longer active hunts due to insufficient numbers of dugongs. The majority of dugong sightings were from July to September and sightings or catches were low or nonexistent in most years. The highest number of dugong catches was in 2014 with 4 dugongs caught in nets. The interview survey and seagrass mapping results were used to identify two areas to deploy the acoustic loggers (Nosy Komba and Ambaro Bay). Preliminary analysis has so far found no dugong vocalizations.

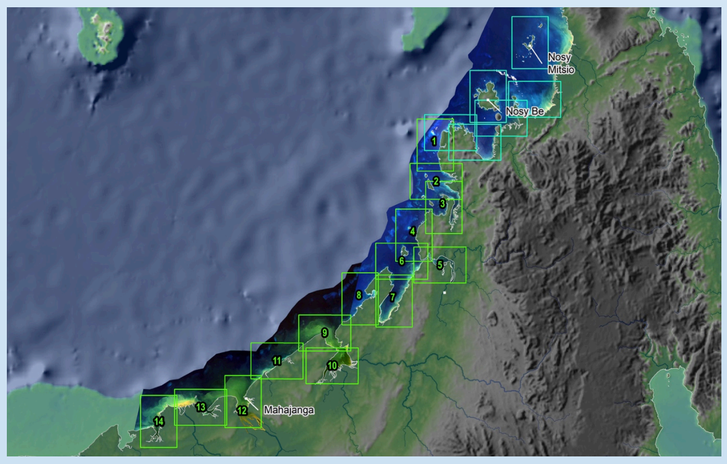


Fig.1 Extent of seagrass maps produced for northern (blue box) and southern (green box) study areas.

Fig. 2 Seagrass areas in red (high prob.) and pink hatch (low prob.)

Fig. 3 Community interview surveys

Fig. 4 Acoustic logger deployment

Fig. 5 Acoustic recorder retrieval

Next Steps & Lessons Learned

There were a number of challenges faced during the initial phase of this project. Firstly, logistical challenges facing the community interview survey team were underestimated leading to the necessity to run a separate trip to collect additional surveys. Secondly, three acoustic recorders were lost after the initial deployment, presumably due to entanglement with fishing gear, gear being stolen, or poor visibility hampering retrieval. Additional measures have now been implemented, with the low visibility site abandoned as a recording location and local fisherman employed to monitor the remaining recorders daily. Since these measures were implemented there has been a higher recorder retrieval success rate. Based on these experiences, planning for the southern study area has included a pilot trip to assess potential logistical issues with the planned interview surveys and acoustic recorder deployment.

About Our 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 2006 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.