BOOSTING MARINE CONSERVATION CAPACITY IN MOÇAMBIQUE:

LMMA Exchange and Knowledge Sharing and MPA Capacity Building

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Maputo, 8 December 2025

Implemented under the
OCEAN COUNTRY PARTNERSHIP PROGRAMME MOZAMBIQUE

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Cover: Maputo National Park staff and community monitors, which benefited from the training and refresher events, November 2025. Photos by Marcos Pereira and Carlos Litulo.

Place and date of production: Maputo, December 2025.

Suggested Citation: Pereira, MAM, C Litulo, M. Eardley, M. Levene (2025). Boosting marine conservation capacity in Mozambique: LMMA exchange and knowledge sharing and MPA capacity building. Maputo, Fundação Likhulu.

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1. INTRODUCTION

1.1. Background and Context

The Ocean Country Partnership Programme (OCPP), a UK government-led programme funded by Official Development Assistance (ODA) under the Blue Planet Programme aims to support countries to strengthen marine science expertise, develop science-based policy and management tools and create educational resources for coastal communities. The Joint Nature Conservation Committee (JNCC), is the delivery partner of the OCPP, which has three main objectives:

i) Marine Pollution: supporting countries to be equipped with the skills and expertise needed to tackle, reduce and mitigate marine pollution through the development of science led policy and improve our understanding of the impacts of pollution, as well as identifying and supporting effective responses, we will make sure that communities are better equipped to prevent and manage marine pollution. This will improve health and livelihoods;

ii) Sustainable Seafood: supporting the development of the skills and expertise needed to adopt sustainable seafood practices to reduce risks such as the spread of zoonotic diseases from unsustainable or unsafe activities and support trade in safe seafood. Assisting countries to crack down on illegal, unreported and unregulated fishing by supporting the development of better management, monitoring and enforcement capabilities; and

iii) Marine Biodiversity: supporting countries to develop the skills and expertise needed to establish designated, well-managed and enforced marine protected areas to support healthy ecosystems with thriving biodiversity and fisheries that communities rely on for food and livelihoods. OCPP aims at achieving these objectives by strengthening marine science expertise, developing evidence-based policy and management tools, and creating educational resources for coastal communities.

As part of the OCPP support to Mozambique, JNCC supported a series of hands-on capacity building events. These were held as an exchange and learning visit for locally managed marine areas (LMMAs) practitioners, refresher courses for staff involved in monitoring programmes currently running (eg. artisanal and recreational fisheries) or training courses on essential practical skills (ie. Boat & Vehicle Care and Maintenance and Search & Rescue Operations) within the Maputo National Park, in southern Mozambique.

This report provides a summary of the activities performed at these events, which were executed under Contract C25-0604-2073 between the JNCC and Fundação Likhulu.

2. METHODOLOGY AND APPROACH

2.1. Approach

The project aimed at boosting the capacity and knowledge for effective marine conservation in Mozambique, taking in consideration two complementary fronts: Locally-managed marine areas (LMMAs) and Marine Protected Areas (MPAs).

Activities were implemented in what was called the "no-powerpoint" training approach. Thus, activities were focused primarily on exchanging and leaning experiences by the participants (instead of a unidirectional flow of information in the form of teaching course by instructors), to discuss and share knowledge and experiences on LMMAs establishment and function.

A similar hands-on approach was adopted for the capcity building events at Maputo National Park. The park has recently attained UNESCO World Heritage Status. This achievement is greatly celebrated and constitutes recognition of the site's biodiversity value and commitment for conservation. It also imposes a greater responsibility. This implies improved skills from the staff, which will result in efficiency and conservation effectiveness. The refreshment of marine rangers and community monitors was thus conducted in order to provide skills and hand-on knowledge to improve their effectiveness.

2.2. Calendar and Venues

The exchange and learning visit and capacity building events (trainings and refreshers) were delivered from 28 October to 18 November 2025, at different venues, as shown in Table 2.1.

Table 2.1. Calendar of the capacity building events for marine conservation in Mozambique, October - November 2025.

Event	Type	Date	Location
LMMA Exchange and Learning Visit	Exhange	28-30 Oct 2025	Nhangau
Recreational Fisheries Monitoring	Refresher	08-09 Nov 2025	Ponta do Ouro
Boat and Vehicle Care and Maintenance	Training	10-11 Nov 2025	Fúti
Artisanal Fisheries Monitoring	Refresher	12-14 Nov 2025	Santa Maria and Inhaca Is.
Search and Rescue Operations	Training	17-18 Nov 2025	Ponta do Ouro

The LMMA exchange and learning visit was hosted by the Associação de Gestão dos Recursos Naturais (AGRN) de Nhangau. The event took place in Nhangau in Beira, Sofala province from 28-30 October 2025 and included five sessions and field visits (Annex 2.1; Box 2.1). The event was organized in partnership with AGNR, which provided local support in terms of logistics, conference facilities and opportunities to visit field projects.

Four events took place at the Maputo National Park. Two were held at at Ponta do Ouro, the marine headquarters of the park and main tourism resort: i) recreational fisheries monitoring refresher and ii) search and rescue operations. The boat care and maintenance training took place at the headquarters of the park in Fúti, taking advantage of workshop facilities, as well as providing the opportunity for the staff and boats operating in the coastal lakes to attend the training.

Santa Maria (Machangulo Peninsula) and Inhaca Is. were chosen for the artisanal fisheries monitoring refresher and supervision event, as these are the main areas were monitoring activities take place, especially considering that the artisanal fishery is primarily based in Maputo bay and the landing sites are located in these two locations.

2.3. Evaluation Form

An evaluation form, based on the MEL guidelines provided by the JNCC, was produced in Portuguese (Annexes 2.1. and 2.2.). At the end of all events, participants were asked to fill the form which contained sections on satisfaction with the contents, logistics, overall value of the training, scalability of the knowledge acquired and recommendation for future initiatives. The summary results of the evaluations provided by the participants are presented per event.

3. LMMA EXCHANCE AND LEARNING VISIT

3.1. Participants

The LMMA exchange was attended by 29 representatives from all Mozambican coastal provinces, from Mecúfi (Cabo Delgado) to the Maputo National Park (Figure 3.1). The following institutions were represented:

- Administração Nacional das Pescas (Sofala)
- Associação de Gestão dos Recursos Naturais de Nhangau (Sofala)
- Associação dos Pescadores de Naherengue (Nampula)
- Associação Natura Moçambique (Inhambane)
- Conselho Comunitário de Pesca de Barada (Zambézia)
- Conselho Comunitário de Pesca da Praia Nova (Sofala)
- Conselho Comunitário de Pesca de Mabuluku (Sofala)
- Conselho Comunitário de Pesca de Macatane Cabo Delgado)
- Conselho Comunitário de Pesca de Namige (Nampula)
- Conselho Comunitário de Pesca de Sengo (Sofala)
- Fundação Likhulu (Maputo)
- Instituto Oceanográfico de Moçambique (Sofala)

The diversity of participants made the exchange visit programme richer and more dynamic, creating greater connectivity, knowledge sharing and learning among the participants, allowing them to hear and see real-life experiences of challenges and opportunities existing within the MCMAs.

Figure 3.1. Particpants to the LMMA exchang and learning visit, Nhangau, October 20205 (Photo: Marcos Pereira).

3.2. Session I: Opening

Opening remarks by Likhulu opened the programme of the event (Annex 3.1.), where participants were thanked for their availability to attend the event and Associação de Gestão dos Recursos Naturais de Nhangau, which from the very beginning showed total support, openness, and enthusiasm to host the the exchange and learning experience.

During the opening remarks, a brief presentation provided a general overview of the objective and rationale of the event (Figure 3.2). Ongoing activities and previous initiatives relevant to LMMAs were highlighted, and included:

- Consultation meetings regarding marine expansion strategy in some LMMAs;
- Previous work on the identification and assessment of LMMAs throughout the country
- Pilot of competency assessment using competency framework developed by the Western Indian Ocean Marine Science (WIOMSA) in Nhangau, Nacala and Maputo.

3.3. Session II: Establishing a Community Managed Fishing Area (CMFA)

The representative of Administração Nacional das Pescas (ADNAP Mr. Júlio Manhoso), briefly presented the process of creation of a Community Management Fishing Area (CMFA), highlighting the importance of the process. The CMFAs are considered areas of public community domain, managed by one or more local communities, intended for the sustainable use of fisheries resources, contributing to the conservation of biodiversity. According to ADNAP, the legal basis guidance for the creation of CMFAs, the objectives of their creation, and the processes involved in their establishment, must follow the procedures listed below:

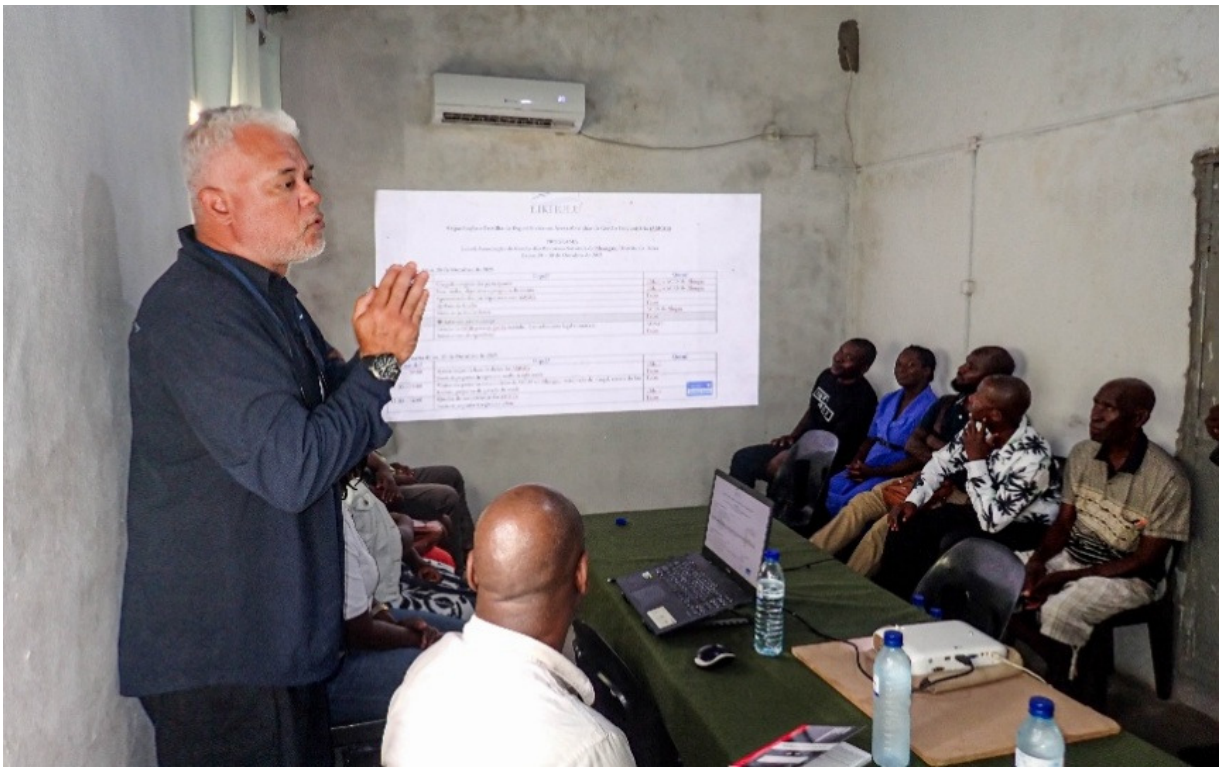

Figure 3.2. Opening sessions of the LMMA exchange and learning visit at Nhangau, Sofala Province (Photo: Marcelo Levene).

i) Submission of the documentation requesting creation of the CMFA

This process can be done by the community, fishermen's association, or district/municipal authorities. The request must be submitted to the district or municipal administration (depending on the geographical location of the area).

ii) Community consultations

They are conducted by the government with participation of local community to ensure participation and common agreement. The community consultations involve the fishing sector, the local government, and other stakeholders.

iii) Harmonization of the results

This stage consists of systematization of contributions and preparation of the final community consultation report. The report must include minutes of all public consultations.

iv) Submission and approval of the final proposal

The CMFAs creation dossier is submitted, along with the legal documents and management plan, to the competent authority (district, municipal or central). During the discussions, participants addressed several points, such as the process of legalization and formalization of CMFAs), expressing concern about whether CMAs and other associations need legal status to formally request the creation and legalization of their areas, and what processes and bureaucracies should be considered in the legalization process. They acknowledged the fact that the process of legalization of the areas can be initiated with technical support from the government authorities (Figure 3.3). The ADNAP reinforced the need of coordination between communities, associations, and local administrations, the inclusion of women in management CMFAs, and the importance of preparation of reports and letters of request for approval. They also pointed out the existing delays and other associated bureaucratic challenges.

Box 2.1. Field Visits: Botanical Garden and Mangrove Nursery and Restoration Sites

During visits to the sites where the Associação de Gestão dos Recursos Naturais de Nhangau has been developing projects, participants had the unique opportunity to visit: i) the botanic garden with many medicinal plants, ii) the hibiscus plantation for tea production; iii) aquaculture tanks for tilapia farming; iv) beehives for honey production; and finally v) the mangrove nursery and restoration initiatives. These visits proved to be very important, motivating participants to apply similar practices in their respective locations, with special emphasis on mangrove nurseries and beekeeping for honey production.

Photos: Marcelo Levene.

3.4. Session III: WIO LMMA Competency Framework

The presentation of the seven institutional competencies was delivered by Likhulu (Annex 3.2), which provided a brief introduction regarding the essence and objectives of the competency framework, and emphasized that all organizations need to go through the assessment process to be aware of their strengths and weaknesses.

During the discussions (Figure 3.4), participants were enthusiastic and about the competency assessment tool presented and suggested replication of the exercise throughout the country. It was emphasized that proposals have been submitted to other partners to secure funding to conduct competency assessments in more locations in 2026.

Figure 3.4. Group discussion of the seven-competency assessment tool in Nhangau (Photo: Marcelo Levene).

3.5. Session IV: Establishment of Partnerships

This session was led by the host and included contributions by Conselho Comunitário de Pescas de Namige, Associação dos Pescadores de Naherengue and Conselho Comunitário de Pesca de Mabuluku.

i) Associação de Gestão dos Recursos Naturais de Nhangau (AGRN)

The AGRN addressed several aspects related to the restoration and protection of mangroves, with particular emphasis on the importance of establishing partnerships (financial, technical, and horizontal) to overcome institutional weaknesses and lack of resources. The Representatives of AGRN described the difficulties faced during their activities, focusing on combating the illegal exploitation of mangrove poles for boat and house construction, charcoal production by locals. They also mentioned other aspects such as

ambushes, difficult negotiations, environmental community awareness campaigns, enforcement, among others.

The mobilization of community members for the mangrove restoration programme, the establishment and formalization of the local association, and the management of resources and project activities were identified as key challenges that demanded strong collaboration among the community members who now constitute the association (Figure 3.5).

Strategic negotiation was also identified as crucial for the consolidation of AGRN, together with efforts to ensure environmental protection and secure official recognition by the Mozambican government. Conflict resolution was likewise considered an important component of this process.

ii) Conselho Conselho Comunitário de Pesca de Namige

The experience shared by the Conselho Comunitário de Pesca (CCP) de Namige recounts a long process of community mobilization focused on fisheries protection (particularly the elimination of illegal fishing gear) and mangrove restoration. This process began with the establishment of the first CCP in Mongicual and later expanded to three councils in the region.

Initially facing resistance, the communities engaged in intensive environmental awareness campaigns, training activities, and organizational efforts, which ultimately led to the establishment of the first community-managed marine reserves in the area.

The early activities of the CCP de Namige were carried out without external support. However, momentum grew with the implementation of several projects and the development of partnerships (e.g., ProPico). Additional support was later provided by a Portuguese foundation and the Brazilian Ministry of the Environment. Other initiatives - such as those from the Aga Khan Foundation and various environmental organizations - also contributed to strengthening the CCP de Namige.

All support received by the CCP of Namige boosted the mangrove restoration program. The dissemination of sustainable fishing practices, the inclusion of schools and local leaders in environmental awareness campaigns, and the replacement of illegal fishing gear with more sustainable techniques (e.g., the use of purse seine nets in open sea) crucial for the growth of the CCP

Today, Mogincual District has communities that are more aware, organized, and engaged in natural resource management, standing as a model of resilience resulting from collaboration between communities, government institutions, and conservation organizations.

iii) Associação dos Pescadores de Naherengue (ASSOPENA)

The Associação dos Pescadores de Naherengue (ASSOPENA) was established in response to the need to strengthen unity among fishermen in order to access funding opportunities and improve the management of fisheries resources. With support from a UniLúrio project, ASSOPENA became legally registered and began implementing conservation initiatives, including the creation of temporary marine reserves in Nacala.

Despite initial resistance from community members - who viewed the sea as "God's" property and rejected fishing restrictions - the association succeeded in introducing the concept of marine reserves to enhance fish reproduction, working in partnership with local tourism operators. In the following years, additional

reserves (sanctuaries) were established with the support of local business leaders and the development of financial agreements for enforcement and marine resource management.

Today, ASSOPENA plays an active role in marine conservation, community environmental awareness, and mangrove restoration. Regarding mangrove restoration activities, ASSOPENA currently obtains propagules through partner organizations and is seeking funding to establish its own mangrove nursery to expand restoration efforts.

Figure 3.5. Discussions during the establishment of partnerships in the exchange experiences in Nhangau (Photo: Marcelo Levene).

3.6. Session V: Income Generating Projects

i) Associação de Gestão dos Recursos Naturais de Nhangau

This theme was addressed through testimonies from representatives of AGRN, where they recounted their income-generating projects, challenges, as well as their successes during the implementation of some of their projects.

The AGRN, highlighted lessons learned and the implementation of best practices that worked well within the community and environmental conservation activities, mainly focused on honey and hibiscus tea production and cultivation of medicinal plants. The AGRN pointed out that honey production has been a success due to the existence of a market in Sofala Province and emphasized the inclusion of women in all phases of the production (from extraction to packaging). The wax extracted from beekeeping also generates income, being used to produce skincare products and other natural products with medicinal value that are highly appreciated within the community of Nhangau.

Among the various challenges faced by AGRN, the need to improve the structure of the beehives, (which are frequently damaged by the wind), and need to optimize the flow of agricultural products, (especially tea) are still taking place today (Figure 3.6).

Figure 3.6. Visit to different livelihood initiatives developed by AGRN within the Community of Njalane (Photos: Marcelo Levene)

ii) Malamba

In Malamba, the Associação Natura Moçambique has been implementing two main community initiatives focused on income generation and environmental conservation: honey production and the artisanal production of coconut-based soaps, the latter largely led by women.

Since 2022, honey production has reached approximately 100 kg per year, with plans for expansion through new funding opportunities, further strengthening women's participation in the value chain. Meanwhile, the women's group Conhecimento das Mulheres produces natural soaps that are highly appreciated by local residents and tourists alike.

The Associação Natura Moçambique also aims to support the formalization of local CCPs and invest in aquaculture as a strategy to reduce fishing pressure and promote compliance with closed seasons. Additionally, the association seeks to disseminate conservation agriculture practices and replicate Malamba's successful initiatives in Mangate, where communities face significant challenges, including the expansion of mining activities. One of the major concerns in Malamba is the implementation of petrochemical and tourism infrastructure, which has restricted traditional access to the sea for local fishers.

iii) CCP de Mabuluku

The president of the Conselho Comunitário de Pesca (CCP) de Mabuluku, Mr. José Tembe, highlighted the support received from the Kuwuka JDA project and other income-generating initiatives, such as chicken farming, mussel farming, and honey production. However, honey production has not been as successful as in previous years. Although their beehives have the capacity to produce around 100 kg of honey per month, actual production has been very low due to technical challenges related to hive placement. This problem has persisted for approximately two years.

The CCP of Mabuluku has also been involved in mussel farming through an initiative funded by the Blue Action Fund (BAF) project. However, mussel production has been unsuccessful, with the association experiencing significant losses attributed to the lack of adequate support and appropriate training for those involved in the initiative. Many NGOs have provided various alternative livelihood projects to members of

the CCP de Mabuluku. However, these initiatives often lack feasibility assessments to evaluate their long-term viability. Looking ahead, the CCP intends to explore the production of health-related products derived from plants.

3.7. Evaluation by the Participants

The participants' average age was 43.1 (range 25-71) and 72.2% were male The majority (70.6%) declared they were originally from an urban area a single individual declared a disability (blindness). Participants represented 12 entities, including Governamental agencies, local CCPs, NGOs and Likhulu. Table 3.1 presents the summary results of the evaluation performed by the participants, with the majority declared being satisfied or very satisfied on all aspects evaluated.

Table 3.1. Summary results of the event evaluation by the participants that attended the LMMA exchange event, in Nhangau, Sofala, October 2025.

Parameter	Dissatisfied	Little Satisfied	Satisfied	Very Satisfied
Organisation and Logistics				
How do you rate communication before and during the event?	0.0	0.0	16.7	83.3
Location and conditions of the facilities?	0.0	5.6	38.9	55.6
Duration and schedule of the sessions?	0.0	0.0	44.4	55.6
Materials and resources provided?	0.0	5.9	29.4	64.7
Logistical support (food, transportation, etc.)?	0.0	6.3	25.0	68.8
Content and Methodology				
How do you evaluate the content presented/discussed during the event?	0.0	0.0	27.8	72.2
Clarity and quality of the presentations/discussions?	0.0	0.0	33.3	66.7
Balance between theory and practice?	0.0	0.0	33.3	66.7
How do you evaluate the facilitation of the training?	0.0	0.0	22.2	77.8
Applicability of acquired knowledge?	0.0	0.0	23.5	76.5
Global Evaluation	0.0	0.0		
General level of satisfaction with the event?	0.0	0.0	16.7	83.3

All participants declared that they would recommend such event to other colleagues, in fact this should happen annually and it was proposed that the next event should take place in Nampula province.

The geographic location and conditions of the facilities, the logistical support, and the duration and organization of the session's schedule was well received. The balance between theory and practice was another category that was highly evaluated, as well as the perception of the applicability of the acquired knowledge in the participants' daily basis. Participants also unanimously appreciated the event and were keen to share the knowledge they acquired with their colleagues who could not join the program. Additionally, a request was put forward that Likhulu should run such events on a continuous basis. Additionally, regular contact should be kept amongst participants and a WhatsApp group for Mozambique LMMA practitioners was immediated created and is operating.

4. REFRESHER COURSE ON MONITORING RECREATIONAL FISHERIES

4.1. Participants

Twelve participants attended the event with ten currently serving as marine rangers at the Maputo National Park and two from Likhulu (Figure 4.1). All ranger were male with an average age of 50.2 (range 33-63).

Figure 4.1. Participants to the recreational fishing refresher event, Maputo National Park, November 2025. Photo: Michelle Pereira.

4.2. Content Delivered

The event was split in two distinct parts (Figure 4.1):

i) *Classroom session*, where aspects related to gear and tactics/methods (allowed and not allowed within the Management Plan of the Park) commonly used by recreational and sport fishers, the zonation plan of the park and species identification (including protected species) were presented and discussed. Aspects related to the new legistation regarding recreational and sport fishing were presented and discussed in this session;

ii) *Practical sessions*, where participants had the opportunity to check recreational fishers' catches including taking measurements and fill the necessary forms.

In both occasions discussions were centered on participants' past experiences and were deemed very positive.

Figure 4.2. Classroom and practical sessions during the recreational fisheries monitoring refresher event, Maputo National Park, November 2025 (Photos: Marcos Pereira and Michelle Pereira).

4.3. Evaluation by the Participants

Participants that filled the evaluation form were all male and the average age was 50.3 (range 33-63). All (100%) declared they were originally from a rural area a not a single individual declared a disability. All were staff members affiliated to the Maputo National Park. Table 4.1 presents the summary results of the evaluation performed by the participants, with the majority declared being satisfied or very satisfied on all aspects evaluated.

Table 4.1. Summary results of the event evaluation by the participants that attended the recreational fisheries monitoring refresher event, Maputo National Park, November 2025.

Parameter	Dissatisfied	Little Satisfied	Satisfied	Very Satisfied
Organisation and Logistics				
How do you rate communication before and during the event?	0.0	0.0	55.6	44.4
Location and conditions of the facilities?	0.0	0.0	88.9	11.1
Duration and schedule of the sessions?	0.0	11.1	33.3	55.6
Materials and resources provided?	0.0	0.0	37.5	62.5
Logistical support (food, transportation, etc.)?	0.0	16.7	50.0	33.3
Content and Methodology				
How do you evaluate the content presented/discussed during the event?	0.0	0.0	37.5	62.5
Clarity and quality of the presentations/discussions?	0.0	0.0	33.3	66.7
Balance between theory and practice?	0.0	0.0	55.6	44.4
How do you evaluate the facilitation of the training?	0.0	0.0	44.4	55.6
Applicability of acquired knowledge?	0.0	0.0	55.6	44.4
Global Evaluation				
General level of satisfaction with the event?	0.0	0.0	75.0	25.0

Participants also evaluated the training methodology very positively, with particular emphasis on detailed knowledge of the different types of fishing gear (permitted, prohibited, and those harmful to the ecosystem).

They commitment to improving the interaction with recreational fishers and to rigorously applying the content learned in the field was also highlighted in the evaluation form. Participants praised the equipment and materials used in practical classes, and stressed the need for educational materials regarding fishing regulations to be distribuded in a clearer and accessible way to the fishers.

Finally, participats expressed deepest gratitude for the training provided and for the capacity-building opportunity and that the event should be held on a regular basis.

5. TRAINING COURSE ON BOAT AND VEHICLE CARE AND MAINTENANCE

5.1. Participants

Ten participants, all male rangers from Maputo National Park, with an average age of 40.5 (range 29-55) attended the event (Figure 5.1).

Figure 5.1. Participants to the boat and vehicle care and maintenance training, Maputo National Park, November 2025. Photo: Marcos Pereira.

5.2. Content Delivered

As mentioned before, the event was a hands-on training event with practical sessions on boat, vehicle and trailer care and maintenance (Figure 5.2.). It included an outing to the Piti Lake for demonstration purposed.

Annex 5.1. presents the main topics covered and is presented as a maintenance schedule that was handed-over (in Portuguese) to the participants alongo with a list of mandatory materials and supplies.

Activities covered cleaning of fibreglass and inflatable boats, basic outboard motor care, trailer maintenance and cleaning (including fixing small mechanical issues in tow hitches and other accessories, ball bearings check and lubrication), as well as vehicle care and lubrication post use on salt-water environments.

Basic equipment (pressure washer, tool box, etc.) was also purchased and handed over to the park.

Figure 5.2. Practical sessions on boat and vehicle care and maintenance, Maputo National Park, November 2025.

5.3. Evaluation by the Participants

Participants that filled the evaluation form were all male and the average age was 40 (range 29-55). The majority (71%) declared they were originally from an urban area a not a single individual declared a disability. All were staff members affiliated to the Maputo National Park. Table 5.1 presents the summary results of the evaluation performed by the participants, with the majority declared being satisfied or very satisfied on all aspects evaluated.

Table 5.1. Summary results of the event evaluation by the participants that attended the boat and vehicle care and maintenance training, Maputo National Park, November 2025.

Parameter	Dissatisfied	Little Satisfied	Satisfied	Very Satisfied
Organisation and Logistics				
How do you rate communication before and during the event?	0.0	11.1	22.2	66.7
Location and conditions of the facilities?	0.0	22.2	44.4	33.3
Duration and schedule of the sessions?	0.0	0.0	55.6	44.4
Materials and resources provided?	0.0	0.0	33.3	66.7
Logistical support (food, transportation, etc.)?	14.3	42.9	14.3	28.6
Content and Methodology				
How do you evaluate the content presented/discussed during the event?	0.0	11.1	22.2	66.7
Clarity and quality of the presentations/discussions?	0.0	0.0	33.3	66.7
Balance between theory and practice?	0.0	11.1	44.4	44.4
How do you evaluate the facilitation of the training?	0.0	0.0	44.4	55.6
Applicability of acquired knowledge?	0.0	0.0	33.3	66.7
Global Evaluation				
General level of satisfaction with the event?	0.0	0.0	55.6	44.4

All participants declared that they would recommend such training events to other colleagues. Overall, participants praised and gave a very positive evaluation of the training methodology was, highlighting the following as the main gains: i) the simplest and most effective technique for washing boat engines; and ii) Proper use and efficient management of equipment.

They committed to carrying out periodic maintenance of the boats and to sharing the knowledge acquired with their colleagues. They expressly requested that training and refresher courses be held regularly and continuously, without long intervals between sessions.

6. REFRESHER COURSE AND SUPERVISION ON MONITORING ARTISANAL FISHERIES

6.1. Participants

A total of eight participants took part in the event, with four members of the local community, who perform the catch monitoring, three staff from the Maputo National Park, and one specialist from Likhulu (Figure 6.1). The average age of the participants was 34.7 (range 25-57) and 57.1% were male.

Figure 6.1. Some of the participants to the inshore and coastal lakes artisanal fisheries refresher event, Maputo National Park, November 2025. Photo: Carlos Litulo.

6.2. Content Delivered

The supervision event focused on the inshore (bay) fishery, while the refresher dealt with the coastal lake fisheries. The event was very interactive, hands-on and intense (Figure 6.2.) following the overall approach of other trainings and refresher events. Table 6.1 lists the contents delivered. During the event, few landings of artisanal fishing vessels at Mapanga were recorded due to a dhow regatta that was being prepared for the following week. This is an annual event that takes place in Machangulo with massive participation of local artisanal fishers.

6.3. Evaluation by the Participants

The participants' average age was 34.7 (range 25-57) and 57.1% were male The majority (75%) declared they were originally from an urban area a not a single individual declared a disability. Three were staff from the Maputo National Park, and four were members of the local community. Table 6.2 presents the summary results of the evaluation performed by the participants, with the majority declared being satisfied or very satisfied on all aspects evaluated. All participants declared that they would recommend such training events to other colleagues. All participants also unanimously appreciated the refreshment activity and were keen to share the knowledge they acquired with their remaining colleagues who could not join the program. Additionally, a request was put forward that Likhulu should run such refreshment events on a continuous basis. Overall, the event was rated as highly satisfactory, with high score regarding content, materials, and execution, and a clear direction for refinements that can make future events even more attractive.

Table 6.1. Summary of contents delivered at the inshore and coastal lakes artisanal monitoring refresher and supervision event, Maputo National Park, November 2025.

Types of fishing gears • Surrounding nets without purse lines • Seine nets (beach and boat) • Trawls • Cast nets • Gillnets (bottom and surface) • Fixed gillnets (on stakes) • Trammel nets • Traps • Hook-and-line • Longlines	**Work of the fishing monitor** • Knowledge of fishing centres, active and inactive fishing gears • Species caught • Knowledge of the monitoring methodology • Data recording on fishing sheets
Species measurements and weights • Fish lengths (fork and total) and weight • Shrimp length (carapace and total length) and weight • Crab carapace width and weight • Shell total length and weight	**Importance of supervision** • Verification of the degree of completion of activities • Participation on scheduled field work • Early detection of errors and correction • Proper maintenance of field equipment • Accurate registration of data on sheets and delivery to the supervisors

Table 6.2. Summary results of the event evaluation by the participants that attended the artisanal fisheries monitoring refresher and supervision event, Maputo National Park, November 2025.

Parameter	Dissatisfied	Little Satisfied	Satisfied	Very Satisfied
Organisation and Logistics				
How do you rate communication before and during the event?			28.6	71.4
Location and conditions of the facilities?			28.6	71.4
Duration and schedule of the sessions?			28.6	71.4
Materials and resources provided?			14.3	85.7
Logistical support (food, transportation, etc.)?			14.3	85.7
Content and Methodology				
How do you evaluate the content presented/discussed during the event?			14.3	85.7
Clarity and quality of the presentations/discussions?			28.6	71.4
Balance between theory and practice?			14.3	85.7
How do you evaluate the facilitation of the training?			14.3	85.7
Applicability of acquired knowledge?			42.9	57.1
Global Evaluation				
General level of satisfaction with the event?			14.3	85.7

Figure 6.2. Interactive discussions and practical sessions, during the artisanal fisheries monitoring refresher and supervision event, Maputo National Park November 2025 (Fotos: Carlos Litulo and Maria Pinto).

7. TRAINING COURSE ON SEARCH AND RESCUE OPERATIONS

7.1. Participants

A total of 12 participants took part in the course, with ten rangers from the Maputo National Park and two instructors from Likhulu (Figure 7.1). The average age of the participants was 43.9 and all were male. The course was held at Ponta do Ouro, the marine headquarters of the Maputo National Park.

Figure 7.1. Participants to the search and rescue operations course, Maputo National Park, November 2025. Photo: Marcos Pereira.

7.2. Contents Delivered

The course was composed of four modules (Annex 7.1) and included classroom and field sessions. The first day was spent in the classroom discussing each aspect of the syllabus point by point. This was highly beneficial to all candidates as many of the discussions were based on actual events that have happened to candidates in the past, shared with colleagues, and thoroughly analyzed among the group (Figure 7.2), which was very encouraging.

Module 1, covering weather and tides was particularly beneficial to the candidates as they gained a deeper understanding of tides and currents, as well as being able to understand weather forecasting models like Windguru or Windfinder. This module also dealt with navigation and communication. The necessity for radio communications was discussed as cell phone signal of busy holiday periods is unreliable. Module 2, 3, and 4 were discussed in the classroom point by point before heading out the next day for practical exercises.

The practical boat exercises went very well and candidates gained better knowledge and experienced first hand the affects of wind, swell, and current on vessel. Practical use of the GPS in order to help assess

features such as surface drift as well as affecting accurate search patterns were carried out (Figure 7.3). Dive boat protocols were discussed and understood with regard to surface drift as well as affects on divers with regards to currents.

Figure 7.2. Discussions during the search and rescue operations course, Maputo National Park, November 2025. Photo: Marcos Pereira.

Overall, the candidates gained a deeper understanding of the marine environment, techniques for search and rescue as well as a more professional approach with regards to dive boat procedure and protocols. Completion of this syllabus signifies the start to mastery of complex maritime principles and the critical, high-risk techniques required for small boat operation in the surf zone.

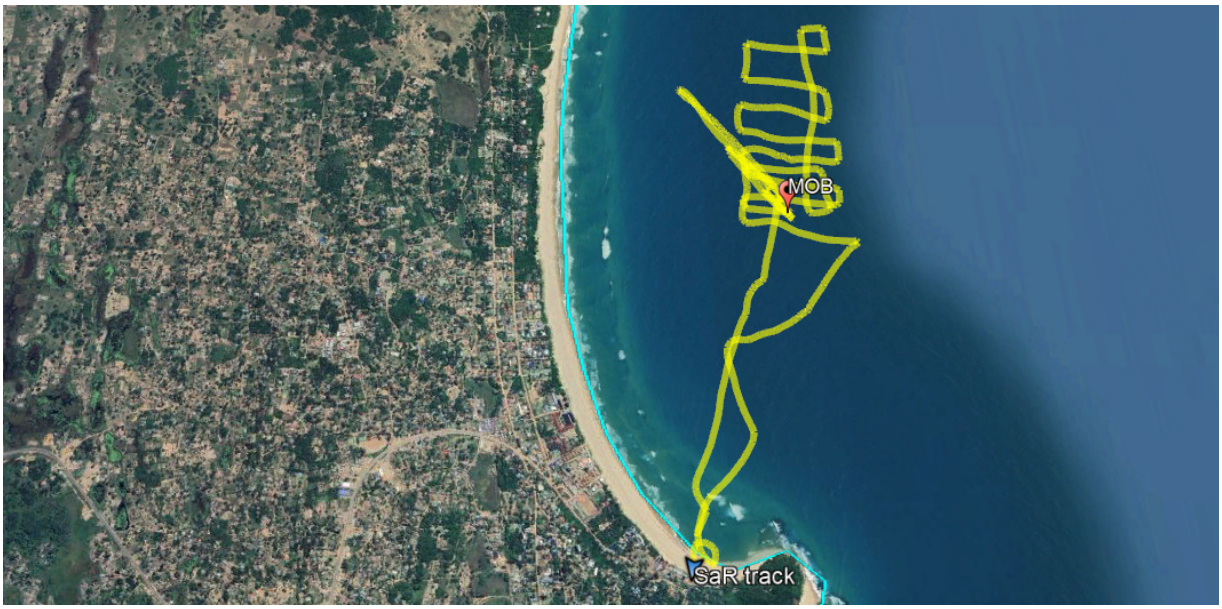

Figure 7.3. Boat track from the SaR training event, showing the Man-Over-Board (MOB) mark and search patterns and, perfomed during the practical session. Maputo National Park, November 2025.

Figure 7.3. Interactive discussions and practical sessions, during the search and rescue operations training, Maputo National Park November 2025 (Photos: Marcos Pereira).

The skills attained are not theoretical - they are life-saving operational requirements. SaR work, particularly in dynamic coastal environments, demands total commitment, continuous drilling, and an adherence to safety protocols. This syllabus is the crucial foundation, and the expectation is that all trainees will maintain operational readiness through regular practice, equipment familiarity, and sustained professional development.

7.3. Evaluation by the Participants

Participants were all male and the average age was 43.6 (range 29-64). The majority (66.7%) declared they were originally from an urban area a not a single individual declared a disability. All were staff members affiliated to the Maputo National Park. Table 7.1 presents the summary results of the evaluation performed by the participants, with the majority declared being satisfied or very satisfied on all aspects evaluated.

Table 7.1. Summary results of the event evaluation by the participants that attended the search and rescue operations, Maputo National Park, November 2025.

Parameter	Dissatisfied	Little Satisfied	Satisfied	Very Satisfied
Organisation and Logistics				
How do you rate communication before and during the event?	0.0	0.0	10.0	90.0
Location and conditions of the facilities?	0.0	0.0	20.0	80.0
Duration and schedule of the sessions?	0.0	0.0	10.0	90.0
Materials and resources provided?	0.0	0.0	40.0	60.0
Logistical support (food, transportation, etc.)?	0.0	0.0	10.0	90.0
Content and Methodology				
How do you evaluate the content presented/discussed during the event?	0.0	0.0	10.0	90.0
Clarity and quality of the presentations/discussions?	0.0	0.0	0.0	100.0
Balance between theory and practice?	0.0	0.0	20.0	80.0
How do you evaluate the facilitation of the training?	0.0	0.0	20.0	80.0
Applicability of acquired knowledge?		10.0	20.0	70.0
Global Evaluation				
General level of satisfaction with the event?	0.0	0.0	30.0	70.0

The main knowledge gained during the event focused especially on the efficient management of work materials and best safety practices during search and monitoring operations at sea. Participants learned appropriate techniques to safely track vessels, minimizing risks to the team and ensuring the physical integrity of everyone involved. It was also highlighted the importance of rigorous planning of missions, the correct use of personal protective equipment and communication devices, and emergency procedures that prevent compromising personnel safety.

Participants committed to actively and systematically sharing all the knowledge acquired during the training with their colleagues and with other stakeholders. It was proposed that more events of this kind be organised, with greater exchange of experiences and practical activities at sea to improve hands-on experience. All participants would recommend the event to other colleagues.

8. CONCLUSION AND WAY FORWARD

The approach used created good opportunities for plenary discussions and hands-on leaning in all events - which was well received by the participants. Modules and content presented and discussed were deemed relevant and important and participants recommended that events should be held at regular intervals.

A more robust and structured programme is being discussed with the Maputo National Park. This will involve systematic monitoring and mentoring of some of the modules covered and will result in the establishment of the much desired capacity within the park.

A Whatsapp group for LMMA practitioners in Mozambique was proposed and immediately established (Figure 8.1.) and is already an important communication platform – it is expected that this will grow from strength to strenght. While the group was created by Likhulu, the administrators are not afilliated with Likhulu. This was an important step to transfer ownership and empowerment of the participants.

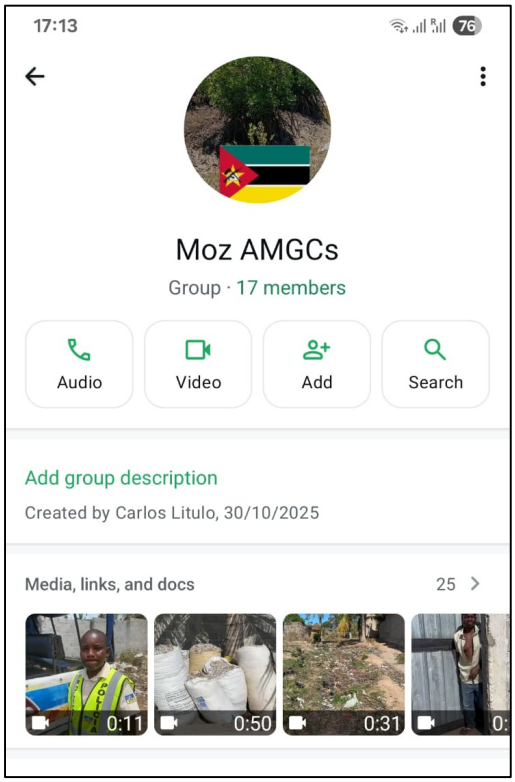

Figure 8.1. WhatsApp group for Mozambican LMMA practitioners established immediately after the exchange and leaning event in Nhangau.

9. ACKNOWLEDGEMENTS

The authors would like to thank the Ocean Country Partnership Programme and JNCC (especially Izzy Hassal Savage and Todd Last) for the unwavering suport to implement the activites. A word of gratitude goes to the Nhangau team that welcomed and hosted the LMMA exchange and learning event and all participants. A huge thank you to the Park Warden of Maputo National Park, Mr. Miguel Gonçalves and his team (including Vicente Matsimbe, Vanessa Muianga and all others), for their enthusiastic support to this initiative.

ANNEXES

Annex 2.1. Evaluation form used by the participants of the LMMA exchange and learning visit, Nhangau October 2025.

LMMA (Locally Managed Marine Áreas) Capacity Building and Experience Sharing

SATISFACTION QUESTIONAIRE FOR PARTICIPANTS

Location: Associação de Gestão dos Recursos Naturais de Nhangau, Beira District

Dates: 28 – 30 October 2025

Name:_____ **Age**:_____ **Organistion**: _____

Gender: Female Male **Provenance**: Rural Urban **Do you have any physical Disability**: No Yes _____

Organisation and Logistics	Dissatisfied	Little Satisfied	Satisfied	Very Satisfied
How do you rate communication before and during the event?				
Location and conditions of the facilities?				
Duration and schedule of the sessions?				
Materials and resources provided?				
Logistical support (food, transportation, etc.)?				

Content and Methodology	Dissatisfied	Little Satisfied	Satisfied	Very Satisfied
How do you evaluate the content presented/discussed during the event?				
Clarity and quality of the presentations/discussions?				
Balance between theory and practice?				
How do you evaluate the facilitation of the training?				
Applicability of acquired knowledge?				

Global Evaluation	Dissatisfied	Little Satisfied	Satisfied	Very Satisfied
General level of satisfaction with the event?				

Would you recommend these kind of events to other colleagues? Yes No

Partnership | Progress | Prosperity

Results and Impact

What knowlegde have you acquired during this event? _____

_____

_____

How do you intend to apply this knowledge in your community? _____

_____

_____

How will you share the acquired knowledge with your colleagues? _____

_____

_____

What aspects need to be improved/intruduced in future events? _____

_____

_____

Final Comments

_____

_____

_____

Annex 2.2. Evaluation form used to gather participants perceptions, satisfaction and suggestions on the training and refresher

LIKHULU

Capacity Building in Ecological Monitoring and Marine Conservation Operations

SATISFACTION QUESTIONAIRE FOR PARTICIPANTS

Location: Maputo National Park

Dates: 08 – 16 November 2025

Name:_____ **Age**:_____ **Organistion**: _____

Gender: Female Male **Provenance**: Rural Urban **Do you have any physical Disability**: No Yes _____

Organisation and Logistics	Dissatisfied	Little Satisfied	Satisfied	Very Satisfied
How do you rate communication before and during the event?				
Location and conditions of the facilities?				
Duration and schedule of the sessions?				
Materials and resources provided?				
Logistical support (food, transportation, etc.)?				

Content and Methodology	Dissatisfied	Little Satisfied	Satisfied	Very Satisfied
How do you evaluate the content presented/discussed during the event?				
Clarity and quality of the presentations/discussions?				
Balance between theory and practice?				
How do you evaluate the facilitation of the training?				
Applicability of acquired knowledge?				

Global Evaluation	Dissatisfied	Little Satisfied	Satisfied	Very Satisfied
General level of satisfaction with the event?				

Would you recommend these kind of events to other colleagues? Yes No

PARQUE NACIONAL DE MAPUTO

UK International Development
Partnership | Progress | Prosperity

Results and Impact

What knowlegde have you acquired during this event? _____

_____

_____

How do you intend to apply this knowledge in your community? _____

_____

_____

How will you share the acquired knowledge with your colleagues? _____

_____

_____

What aspects need to be improved/intruduced in future events? _____

_____

_____

Final Comments

_____

_____

_____

PARQUE NACIONAL DE MAPUTO

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Annex 3.2. Agenda of the LMMA Exchange event held at Nahngau, Sofala,October 2025.

LMMA (Locally Managed Marine Áreas) Capacity Building and Experience Sharing

PROGRAMME

Location: Associação de Gestão dos Recursos Naturais de Nhangau, Distrito da Beira

Date: 28 – 30 October 2025

Day 1 – Tuesday, 28 October 2025

When?	What?	Who?
09:30 - 10:00	Chegada e registo dos participantes	Likhulu and AGRN de Nhangau
10:00 – 10:15	Welcome and event objectives and programme	Likhulu and AGRN de Nhangau
10:15 – 11:15	Introduction of the participats and their LMMAs	All
11:15 – 11:30	📸 Family Photo	All
11:30 – 12:30	Visit to the Botanical Garden	AGRN de Nhangau
12:30 – 14:00	🍽 Lunch break	All
14:00 – 16:00	Establsihment of CBOs for marine co-management: Legal framework and context *Discussion and experience sharing*	ADNAP All

Day 2 – Wednesday, 29 October 2025

When?	What?	Who?
08:00 – 09:00	Presentation of the Mozambique LMMA database *Q&A Session and data gathering*	Likhulu All
09:00 – 15:00	Visits to the community projects with the AGRN de Nhangau: mangrove restoration, Rio Ladrão reserve and income-generating projects	All
15:00 – 16:00	The LMMA competencies framework *Q&A session and discussion*	Likhulu All

Partnership | Progress | Prosperity

Day 3 – Thursday, 30 October 2025

When?	What?	Who?
08:30 –10:30	Design and approval of co-management plans *Discussion and experience sharing*	ADNAP All
10:30 –11:00	☕ Coffee break	All
11:00 – 12:30	Establishing partnerships *Discussion and experience sharing*	AGRN de Nhangau All
12:30 – 14:00	🍽 Lunch break	All
14:00 – 15:00	Operational components: Delimitation, communication, monitoring, and law enforcement *Discussion and experience sharing*	AGRN de Nhangau All
15:00 – 16:00	Income-generating projects *Discussion and experience sharing*	AGRN de Nhangau, Malamba Mabuluco, Namige All
16:00 – 17:00	Event evaluation Closure	All Likhulu and AGRN Nhangau

Annex 3.3. The WIO LMMA Competences Framework, shared with the participants (in Portuguese).

Capacitação e Partilha de Experiências em Áreas Marinhas de Gestão Comunitária (AMGCs)
Local: Associação de Gestão dos Recursos Naturais de Nhangau, Distrito da Beira
Datas: 28 – 30 de Outubro de 2025

Área de Competência	Competências
1. Governança	1.1 Capacidade de estabelecer estruturas de governação eficazes para a AMGC
	1.2 Capacidade de activar e apoiar estas estruturas de acordo com os princípios de uma governação eficaz dos recursos
	1.3 Capacidade de estabelecer colaboração/envolvimento eficaz com diversas entidades
	1.4 Capacidade de implementar sistemas e estruturas de aplicação da lei eficazes
	1.5 Capacidade de aplicar as leis tradicionais e consuetudinárias para a gestão sustentável e a conservação dos recursos marinhos.
	1.6 Capacidade de estabelecer uma estrutura de trabalho e regras para a gestão da associação
	1.7 Capacidade de gerir conflitos
2. Planificação, Gestão, Monitoria e Documentação	2.1 Capacidade de desenvolver e implementar planos de gestão, planos operacionais e de trabalho, incluindo indicadores de desempenho 2.2 Capacidade de escolher e utilizar as ferramentas de gestão adequadas para a AMGC 2.3 Capacidade de seleccionar, configurar e implementar um sistema para rastrear e monitorar actividades, incluindo indicadores de desempenho, e incluí-los no plano operacional 2.4 Capacidade de elaborar relatórios técnicos a partir dos resultados do rastreio e monitorização. 2.5 Capacidade de organizar sessões de feedback sobre o rastreio e monitorização. 2.6 Capacidade de manter registos precisos de todas as actividades de gestão e financeiras. 2.7 Capacidade de armazenar registos em segurança, de forma a permitir um fácil acesso. 2.8 Capacidade de utilizar registos para apoiar os relatórios e o desenvolvimento de propostas.

3. Comunicação e Engajamento com partes interessadas	3.1 Capacidade de gerir comunicações para relações internas
	3.2 Capacidade de utilizar uma variedade de métodos de comunicação adequados para interagir com todos os níveis de governo e outros parceiros
	3.3 Capacidade de utilizar diferentes métodos de comunicação apropriados para mulheres, jovens, comunidades locais e migrantes
	3.4 Capacidade de desenvolver contratos, incluindo protocolos acordados e acordos equitativos de valor para as AMGCs
	3.5 Capacidade de estabelecer as estruturas e medidas necessárias para uma gestão eficaz de contratos e parcerias
	3.6 Capacidade de implementar sistemas para a monitorização do cumprimento dos contratos
4. Gestão dos Recursos Marinhos	4.1 Capacidade de identificar e implementar as medidas necessárias para combater as ameaças imediatas e a longo prazo aos habitats e às espécies-chave
	4.2 Capacidade de definir e implementar medidas de gestão adequadas para a conservação dos habitats e das espécies-chave
	4.3 Capacidade de seleccionar e implementar abordagens, métodos e boas práticas tradicionais adequadas
	4.4 Capacidade de monitorizar as alterações no estado dos recursos marinhos
	4.5 Capacidade de dirigir e supervisionar investigação participativa e recolha participativa de dados
	4.6 Capacidade de identificar alterações no estado dos recursos e as suas implicações para a gestão
	4.7 Capacidade de desenvolver e implementar planos para combater os potenciais impactos das alterações climáticas

5. Gestão e monitoria de actividades de subsistência e bem-estar da comunidade	5.1 Capacidade de desenvolver actividades para melhorar os principais meios de subsistência.
	5.2 Capacidade de desenvolver parcerias com organizações de desenvolvimento.
	5.3 Capacidade de mobilizar as comunidades para o envolvimento em actividades que contribuam para o bem-estar comunitário.
6. Gestão e Responsabilização Financeira	6.1 Capacidade de implementar um sistema de contabilidade legalmente compatível
	6.2 Capacidade de produzir relatórios financeiros simples
	6.3 Capacidade de mobilizar eficazmente os recursos financeiros disponíveis
	6.4 Capacidade de monitorizar a utilização dos recursos financeiros
	6.5 Capacidade de identificar e avaliar o potencial de uma série de novas fontes de receita para a AMGC
7. Liderança	7.1 Capacidade de liderar pelo exemplo
	7.2 Capacidade de proporcionar e manter motivação e o entusiasmo
	7.3 Capacidade de identificar e desenvolver abordagens inovadoras
	7.4 Capacidade de garantir a total integridade em relação a todas as funções e actividades da AMGC

Annex 5.1. Contents of the boat and vehicle care and maintenance training course held at the Maputo National Park, November 2025.

BOAT AND VEHICLE CARE AND MAINTENANCE

Working in a saltwater and beach environment is extremely corrosive and demanding on both vehicles and boats. The combination of **salt**, **sand**, and **high humidity** accelerates wear, rust, and corrosion significantly. Therefore, a proactive and aggressive maintenance schedule is essential.

This program is all about being practical. Over the next two days we will cover every aspect of the maintenance required to keep the equipment in good working condition.

Candidates will be hands on, it's the only way to do this! Some tools, cleaning gear, a diligent attitude, and some elbow grease, will see us start and one end and systematically work our way through each component.

Here is a full breakdown of the suggested maintenance schedule for the **beach vehicle**, the **boat**, and the **boat trailer.**

BEACH VEHICLE MAINTENANCE SCHEDULE

The vehicle used for beach operation and loading boats will require far more frequent maintenance than typical road-use vehicles, especially focusing on mitigating salt and sand damage.

Daily/After Each Use

Component	Action	Key Reason
Undercarriage & Wheel Wells	**Thoroughly rinse** with fresh, high-pressure water. Use a salt-neutralizing wash if possible.	**Crucial** for removing corrosive salt residue and abrasive sand, preventing rust on the frame, suspension, and brake lines.
Brakes	Visually inspect brake pads and rotors for sand/grit intrusion.	Sand/grit accelerates wear and can damage brake components.
Tires & Pressure	Re-inflate tires to the manufacturer's recommended PSI after driving on soft sand.	Low pressure (12–20 psi) is only for beach driving; it's unsafe for pavement.
Exterior	Quick rinse of the exterior to remove salt spray and sand.	Prevents salt from etching the paint and accelerating rust on the body.
Interior	Vacuum sand out of carpets and floor mats.	Sand can grind into and damage the interior materials.

Weekly

Component	Action	Key Reason
Exterior & Wax	Wash and wax the body. Wax acts as a vital protective barrier. Consider a paint sealant.	Salt is extremely corrosive; a good wax layer repels water and salt.
Fluid Check	Check **all fluid levels**: engine oil, coolant, brake fluid, transmission fluid.	Heavy-duty, high-stress use can lead to leaks or faster degradation.
Lubes & Fittings	**Grease all chassis fittings** (if applicable) and lubricate hinges, locks, and metal components.	Blocks sand intrusion and prevents seized or rusted parts.
Electrical	Check battery terminals for corrosion (white/blue crust) and clean if necessary.	Salt air corrodes electrical connections rapidly, leading to failure.

Monthly

Component	Action	Key Reason
Oil Change	Change engine oil and oil filter (especially if operating in dusty/sandy conditions).	Sand and high engine stress contaminate oil quickly. Use a heavy-duty or synthetic oil.
Air Filters	Inspect and replace the engine air filter and cabin air filter.	Sand and salt particles clog filters, restricting airflow and damaging the engine.
Suspension & Steering	Thoroughly inspect all components for rust, wear, and damage (shocks, struts, tie rods).	Corrosive environment and heavy loads (loading boats) severely stress these parts.
Undercoating	Inspect undercarriage rustproofing/sealant; re-apply as needed.	Continuous exposure to salt/sand necessitates frequent renewal of rust protection.

Annually

Component	Action	Key Reason
Brake System	Full brake inspection: pads, rotors, lines. Flush brake fluid.	Salt accelerates corrosion of lines and causes rubber components to degrade.
Cooling System	Flush and replace engine coolant. Inspect all hoses and belts for salt-related cracks.	Corrosion and heat from heavy use can damage the cooling system.
Differential/Axles	Check seals for leaks (sand can compromise them). Replace differential and transmission fluids.	Crucial for 4x4 vehicles in high-stress, off-road environments.
Alignment	Check wheel alignment.	Driving on soft sand can throw off alignment.

BOAT MAINTENANCE SCHEDULE

Saltwater is highly corrosive to marine engines and hull materials, demanding strict attention, especially to flushing and protective coatings.

Daily/After Each Use

Component	Action	Key Reason
Engine	**Flush the engine immediately** with fresh water using the flush port or 'earmuffs' for at least 5–10 minutes. Spray with an anti-corrosive protectant when cool.	Saltwater residue is the primary cause of internal engine and cooling system corrosion.
Hull & Exterior	Rinse the entire boat, including the deck, hardware (hinges, railings), and fittings, with fresh water. Use a soft brush and mild boat soap if time permits.	Removes salt, bird droppings, and debris, preventing salt crystallization and hull discoloration.
Interior	Wipe down upholstery, clear out any standing water in the bilge, and open hatches to allow air circulation.	Prevents mold, mildew, and corrosion of electrical components.
Propeller/Lower Unit	Inspect the propeller for damage (dents, bends) and check for fishing line wrapped around the propeller shaft.	Prevents damage to prop and propeller shaft seals.

Monthly

Component	Action	Key Reason
Engine/Fluids	Check engine oil, power steering, and trim fluid levels. Check for leaks.	Ensures smooth running and catches small issues before they become major failures.
Bilge Pumps	Test bilge pumps (manual and automatic) for proper operation.	Essential safety feature for removing water.
Electrical/Battery	Inspect and clean battery terminals. Check battery charge levels.	Salt corrosion on terminals leads to poor starts and system failure.
Thru-Hulls	Check all thru-hull fittings and sea strainers for obstructions or leaks.	Ensures proper water flow for cooling and prevents sinking.
Zincs/Anodes	Check sacrificial anodes (zincs) on the hull and engine. Replace if they are more than 50% depleted.	These protect critical metal components (like the engine block and drives) from electrolytic corrosion.

Annually (or Every 50–100 Engine Hours)

Component	Action	Key Reason
Engine Service	**Change engine oil and gear oil.** Replace fuel filters, spark plugs, and water/fuel separators.	Standard annual maintenance for a marine engine.
Impeller	Replace the water pump impeller (often rubber, degrades over time and from heat/salt).	A failed impeller causes the engine to overheat, leading to catastrophic failure.
Hull Wax/Polish	Deep clean, polish, and wax the hull (above the waterline). Apply antifouling paint (below the waterline) if the boat is left in the water.	Protects the gelcoat from UV and saltwater damage; prevents marine growth.
Steering/Cables	Lubricate steering cables, throttle, and shift linkages.	Prevents stiff or seized controls due to corrosion.

BOAT TRAILER MAINTENANCE SCHEDULE

The boat trailer is constantly submerged in saltwater and is often the first component to fail in a beach environment.

Daily/After Each Use

Component	Action	Key Reason
Rinsing	**Rinse the entire trailer** thoroughly with fresh water, focusing on the frame, axles, leaf springs, and brake components. Use a salt-neutralizing wash.	Salt residue is a trailer's biggest enemy, leading to rapid rust and seizing of moving parts.
Lights	Check all trailer lights (brake, turn, running) before leaving the beach.	Water immersion can damage wiring and bulbs.

Monthly

Component	Action	Key Reason
Bearings	**Grease wheel bearings** using a bearing protector or "Bearing Buddies."	Prevents saltwater and sand from contaminating the grease, which leads to bearing failure.
Tires & Pressure	Check tire pressure and inspect tires for cuts or uneven wear. Check the spare tire.	Under-inflated tires are a leading cause of trailer accidents.
Coupler/Winch	Lubricate the hitch coupler mechanism and the winch/strap.	Prevents rust and ensures safe, smooth operation.
Brakes	If equipped with hydraulic brakes, inspect and check brake fluid levels.	Corroded brake lines or calipers are common failures on saltwater trailers.

Annually

Component	Action	Key Reason
Safety Chains/Cables	Inspect and replace safety chains, cables, and U-bolts if signs of heavy rust are present.	Ensures safety in case of a coupler failure.
Frame Rust	Wire-brush and repaint heavily rusted areas of the frame with a rust-inhibiting primer and paint.	Prevents structural failure of the frame.
Bearing Repack	Have wheel bearings professionally inspected and repacked with fresh marine-grade grease.	A deep preventative measure to ensure long-term reliability.

Annex 7.1. Contents of the Search and Rescue Operation course, held at the Maputo National Park, November 2025.

SEARCH AND RESCUE (SAR)

A Search and Rescue (SaR) syllabus for **surf launching** requires combining general maritime SaR principles with specialist knowledge of small boat operation in the surf zone. Here is a comprehensive syllabus structure:

Module 1: Foundational SaR & Maritime Skills

This module covers the core knowledge and skills required for any maritime search and rescue operation, with an emphasis on small boat procedures.

1. SaR Operations & Incident Management

- **SaR System and Structure:** Roles and responsibilities of various SaR agencies.
- **Incident Command System (ICS):** Understanding the structure and terminology for managing an incident.
- **SAR Stages:** Awareness, Initial Action, Planning, Operations, and Conclusion.
- **Risk vs. Benefit Analysis:** Decision-making framework for high-risk operations like surf launching.

2. Marine Weather and Oceanography

- **Tides and Currents:** Understanding tidal cycles, rip currents, and their effect on vessel handling and search drift.
- **Surf and Wave Dynamics:**
  - Wave formation, types (spilling, plunging), and sets.
  - Identifying and predicting changes in surf conditions.
- **Marine Weather Forecasting:** Interpreting marine forecasts, wind speed and direction, and visibility.

3. Navigation and Communication

- **Basic Navigation:** Using landmarks
- **Electronic Navigation:** Global Positioning System (GPS) operation
- **VHF Marine Radio and mobile phones** Standard operating procedures, distress calls (MAYDAY, PAN-PAN), and communication protocols.
- **SAR Search Patterns:** Practical application of common patterns like Expanding Square, Sector Search, and Parallel Search.

Module 2: Surf Launching and Handling Techniques

This is the specialist module focusing on safe and effective operation of the rescue craft in the dynamic surf zone.

1. Pre-Launch and Situational Assessment

- **Surf Scout:** Assessing the beach for the best launch/landing point (e.g., gently sloping beach, avoiding rocks/reefs).
- **Timing the Sets (Lull):** Identifying the lulls between wave sets for the optimal window for launch or recovery.
- **Crew Briefing:** Clear assignments for crew members regarding roles, emergency procedures, and communication signals.

2. Launching Procedures

- **Perpendicular Launch:** Maintaining the boat **perpendicular (90 degrees)** to the waves to avoid broaching (turning sideways).
- **Punching Through Waves:** Techniques for maintaining momentum and a low profile when breaking through white water.
- **Propulsion and Steering:** Use of engine power and steering to maintain control and course in dynamic water.
- **Assisted Launch:** Techniques for a shore crew to assist in stabilizing and pushing the vessel.

3. Surf Handling and Transit

- **Manoeuvring in the Break Zone:** Controlling the boat in choppy water and avoiding 'following' or 'sneaker' waves.
- **Turning and Pivoting:** Executing turns safely in or just outside the surf zone.
- **Avoiding Broaching and Capsizing:** Immediate actions and bracing techniques if the vessel is caught sideways.
- **Self-Rescue/Re-righting:** Procedures for recovering a capsized vessel and personnel.4. Beach Landing and Recovery
- **Approaching the Surf:** Timing the run-in, using the back of a wave, and maintaining a square approach.
- **Controlled Deceleration:** Managing speed to prevent pitching or losing control as the boat hits the beach.
- **Swift Exit and Securing:** Rapidly disembarking and securing the boat high up on the beach to avoid being swamped by subsequent waves.

Module 3: Surf SAR Tactics and Casualty Care

This module applies the skills learned above to specific rescue scenarios in the surf zone and open water.

1. Search Tactics in a Surf Environment

- **Rips and Currents:** Using rip currents to exit the break zone quickly and understanding how currents affect a lost person's drift.
- **Lookout Procedures:** Effective scanning techniques for spotting casualties in the visual clutter of the surf.
- **Clue Searching:** Identifying and tracking potential clues (e.g., flotation devices, personal items).

2. Victim Recovery and Extraction

- **Safe Approach:** Choosing the approach vector that minimizes risk to the victim and rescuer, often into the current or chop.
- **Rescue Swimmer Deployment (if applicable):** Safe deployment and recovery of a dedicated rescue swimmer from the boat.
- **Man Overboard (MOB) Drills:** Executing MOB recovery in swell and current.
- **Securing and Towing:** Techniques for safely bringing a conscious or unconscious person/vessel alongside or aboard the small craft.

3. Immediate Casualty Care

- **Deep Water Resuscitation:** Performing in-water or on-vessel resuscitation while en route to shore.
- **Basic First Aid and Trauma Care:** Managing common injuries associated with the marine environment (e.g., hypothermia, near-drowning, lacerations).
- **Patient Packaging:** Techniques for safely packaging and transferring a victim onto the boat and off the beach, ensuring airway clearance.

4. Post-Incident Procedures

- **Debriefing:** Reviewing the incident for lessons learned and evaluating team performance.
- **Reporting:** Completing accurate and detailed factual reports and logs.
- **Equipment Care:** Post-operation cleaning, maintenance, and checking of all vessel and rescue equipment

Module 4: Dive Boat Protocol.

- Beach preparations and briefings;
- Dive site location and kit up with attention to surface drift of the vessel and current associated to surface and direction the divers will take;
- Dropping and collection of divers' techniques;
- Surface drift and buoy line observation.