Darwin Initiative: Final Report

To be completed with reference to the "Writing a Darwin/IWT Report" Information Note: (https://www.darwininitiative.org.uk/resources-for-projects/reporting-forms-change-request-forms-and-terms-and-conditions/).

*It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)*

Darwin Project Information

Project reference	25-024
Project title	Securing marine biodiversity and fishers' income through sustainable fisheries, Mozambique
Country(ies)	Mozambique
Lead organisation	Zoological Society of London - ZSL
Partner institution(s)	Associação do Meio Ambiente (Ama), Coastal Oceans Research and Development in the Indian Ocean (CORDIO), Universidade Nova de Lisboa, Faculdade de Ciencias Sociais e Humanas (NOVA FCSH), Universidade Lúrio (UniLúrio), University of Aveiro, Department of Biology & CESAM (Centro de Estudos do Ambiente e do Mar), Wildlife Conservation Society
Darwin grant value	£349,975
Start/end dates of project	1st January 2019 – 30th June 2021
Project leader's name	Jeremy Huet
Project website/blog/social media	Webpage: https://www.zsl.org/conservation/regions/africa/our-sea-our-life Facebook: @ZSLMarineAndFreshwaterConservation Twitter: @OurSeaOurLife
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1 Project Summary

Northern coastal Mozambique has the highest levels of marine biodiversity in East Africa, with fewer anthropogenic impacts and some evidence of resilience to coral bleaching (Obura 2012). Human communities here are among the poorest in Mozambique and highly dependent on marine resources (Rosendo et al. 2011). Since 2013, Our Sea Our Life (OSOL) has identified key problems through biological and socioeconomic research, finding several marine species populations are depleted due to unsustainable fishing practices in the Cabo Delgado Province (e.g. IUCN Red List species *Epinephelus multinotatus, Cheilinus undulatus* and *Triaenodon obesus*), thus affecting the resilience of coral reefs and mangrove overexploitation. The exploitation of natural gas in the north of Cabo Delgado is driving socioeconomic change, with a 175% population increase projected for the city of Pemba (2017 to 2040). This will increase pressure on marine resources, driving food insecurity and poverty for coastal communities.

National Fishing Regulations (Nº 43/1003) authorise Community Fisheries Councils (Concelhos Comunitarios de Pesca/CCPs) to manage fisheries but there is no enforcement due to non-existent sustainable financial support. Darwin project 20-023 (2013 – 2017) successfully piloted Locally Managed Marine Areas (LMMAs) and established CCPs in two villages (Nsangue Ponta and Lalane) in Cabo Delgado Province, doubling the number of LMMAs in Mozambique, and informing replication in four villages. However, gender equity proved challenging, with women feeling marginalised by LMMAs impacting their primary fishing methods (illegal fishing with mosquito nets), and only having 24% representation in CCPs. While Village Savings and Loan Associations (VSLAs) improved wellbeing and poverty indicators in >153 households, many VSLA members are yet to take loans due to a lack of investment opportunities.

This project will implement a scalable and sustainably-financed LMMA model addressing the advanced participation of women in sustainable fishing practices in two demonstrations sites in the south of the Cabo Delgado Province to improve the resilience of coral reefs against increasing pressure on marine resources and to secure food and reduce poverty for coastal communities.

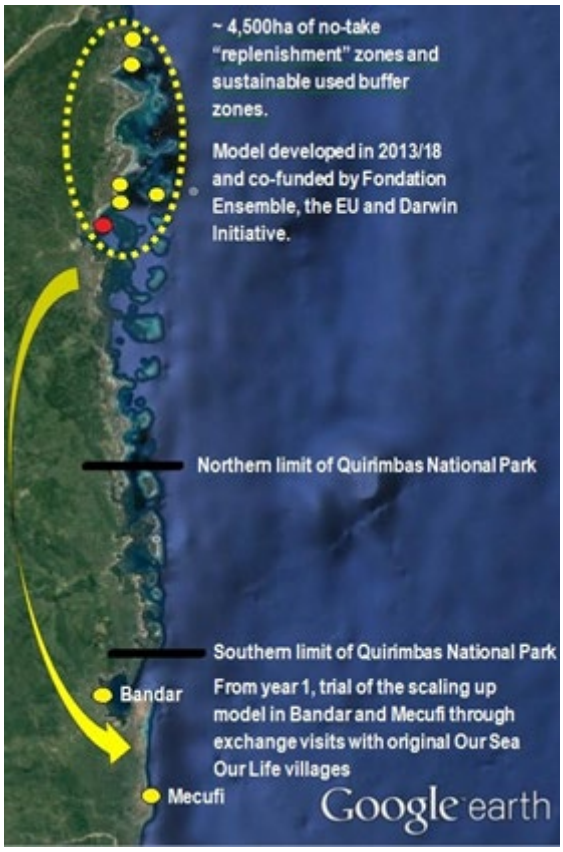

Figure 1: Location of the eight original Our Sea Our Life villages (red dot indicates a co-management plan implemented over the jurisdictional area of three separate villages) and two demonstration project sites, Bandar and Mecufi (respectively 30km and 65km from Pemba).

2 Project Partnerships

OSOL's strong collaborative approach involves seven organisations (ZSL, Ama, CORDIO, NOVA FCSH, UniLúrio, University of Aveiro) with a history of working together through challenging logistical contexts. The project has strong technical and practical knowledge, including experiences gained from other Darwin projects (e.g. Darwin grant 20-023). OSOL's effective coordination by ZSL is contingent on clear definition of roles and responsibilities for the partners, reinforced by signed agreements that define the terms of the collaborations (budget, activities and expected outputs). ZSL centralises the regular narrative and financial reports submitted by the partners (monthly basis for Ama, quarterly basis for the other partners). Regular communication is maintained between ZSL and project partners through emails, WhatsApp messages and online meetings, and also directly in Mozambique when partners physically meet during field activities. ZSL team members visited Mozambique three

times in Yr2, NOVA FCSH team members once, CORDIO team twice and University of Aveiro twice. Ama and UniLúrio are based in Pemba. However, There were no international travel in Yr3 since the strat of the COVID-19 crisis. All of the field activities described in 3.1 below were undertaken in collaboration with DPMAIP (provincial fisheries authorities), SDAE (district fisheries authorities), administrators of both districts and community leaders. Community leaders are engaged throughout the project in its objectives and activities, and technical staff from DPMAIP or SDAE participate in activities in the field with the project team.

3 Project Achievements

3.1 Outputs

Output 1: Two multi-zonation LMMAs established in Bandar and Mecufi by end of Yr1 with co-management agreements in place, each incorporating at least 200ha of no-take zones covering at least 2 critical habitats in each village (from seagrass, mangrove and coral), 50ha of buffer zones for preferential user rights, one temporary closure area, and mangrove rehabilitation area.

Achieved: Three multi-zonation LMMAs established (co-management plans submitted to local authorities for their legalization) in Bandar, Mecufi and Cambala covering a total of 1,175ha of no-take zones including mangrove and coral reef habitat and 800ha of temporary closure area that incorporate, in Bandar and Mecufi, the area for women-led bivalve farming initiatives, in addition to the mangrove rehabilitation area.

Indicator 1.1: The project has supported the creation of Locally-Managed Marine Areas in three communities. These were the originally target communities of Mecufi and Bandar, along with Cambala, a neighbouring community to Mecufi, which showed interest in following the same process. Our participatory coral reef health monitoring (Annex 1a) showed that the selected sites in Mecufi and Cambala are characterized by a variety of habitats (seagrass, extensive intertidal sandy areas, coral boomies, mangroves, rocks) and fish and macro-invertebrates. In Bandar, there is a considerable percentage of hard corals in the selected no-take zone. These may act as refugia to replenish coral reefs in adjacent areas, which can favour the reproduction of species of long-life cycle and endangered species (Jones et al., 2009). The presence of other habitats, specifically seagrass meadows and mangroves, in the intertidal areas allows cross-utilization of habitats by species at different points in their life cycles. Community consultations and community monitoring through CCPs support the presence of the bumphead parrot species in the no-take zone, which underscores the extreme importance of preserving these areas, as these species are considered vulnerable on the IUCN Red List, (Hamilton and Choat 2012). As a result (Annex 2a, Figures 1 & 2), LMMAs were created in three communities, covering a total 1,175ha of no-take zones including mangrove and coral reef habitat and 800ha of temporary closure area, significantly surpassing the target output.

We formed and trained a new mangrove nursery group in Bandar (group of 6 men and 14 women) and we worked with the existing mangrove nursery group in Mecufi (Annex 2a, Pictures 1 to 10). As a result, more than 4,000 seedlings (*Rhizophora mucronata* and *Avicenia marina*) were planted over an area of 17ha in Bandar and more than 2,000 seedlings were planted over an area of 5.5ha in Mecufi (Annex 3a and Annex 2a, Figures 3 to 5).

Indicator 1.2: There were 10 running VSLAs from Year 2 providing financial services and platform for outreach so that their members' activities comply with the co-management plans set up or empower them in investing in sustainable livelihoods such as bivalve farming or horticulture. Training sessions were given to VSLA members to introduce the concept of Environmental Fund (Annex 4a and Annex 2a, Pictures 10 to 13) but no environmental fund has been operational yet.

Indicator 1.3: We trained four Village Agents (three women, one man) that are the focal points in Bandar and Mecufi (two from each community) to provide support to savings groups, on a volunteer basis, and mobilize community members to adhere to new savings groups (Annex

2a, Pictures 14& 15, Annex 5a). This training focused on the creation and functioning of savings groups and on the process to establish Environment Funds (Annexes 4a and 5a). However, one VSLA named Utuka orera stopped in Year 3 due to the current unrest in northern Cabo Delgado (Annex 6a) and one new VSLA got formed named Rahema Gaspar maintaining the same total number of VSLAs in Year 3.

Indicator 1.4: We conducted the training of the CCPs members (leadership, conflict resolution, social communication, outreach, manage opportunities and constraints) by leading together the decision-making process to develop co-management plans along with the community members. Meeting with all of the social groups of each community (youth, elders, men, women, community and religious leaders) to collect their views, interests, opportunities and constraints in LMMA management has strengthened CCP members' awareness of the skills required to ensure fair co-management plans equitably addressing the interests of all social groups. CCP members have acquired the capacity to lead these discussions and to anticipate and resolve any conflicts (Annex 2a, Pictures 16 to 19). More precisely, the community members most vulnerable to opportunity costs, like women depending on the use of illegal mosquito net fishing for their household subsistence, were encouraged to form bivalve farming groups as a livelihood alternative (see Output 2) and link up to VSLAs, which provide financial services and outreach platforms.
CCP diagnostics were undertaken in 2019 and 2021 in the communities of Mecufi and Bandar (Annex 2a, Figure 6), showing that their scores relating to governance and functioning have increased over these two years. The diagnostic collects gender-disaggregated data regarding the CCP members (64% of CCP membership is female in Mecufi, 35% in Bandar) and the fishing-gear users the CCP members are in touch with (Annex 7a). The results of each diagnostic underpin an action plan to be implemented until the next diagnostic in order to improve the score of governance and functioning of each CCP, and especially addressing the question of gender equity, such as through the training of illegal mosquito net female fishers to bivalve farming (see Output 2).

Indicator 1.5: Two outreach campaigns about the ocean and the marine environment were organised with VSLAs and with community members, in Cambala and Mecufi on the impacts of using nets with small mesh (Annex 2a, Pictures 20 & 21) and in Bandar on the importance of mangrove forests during the process of creating a mangrove nursery group (Annex 8 & Annex 2a, Picture 22). Our household survey (Annex 9) interviewed 60 households in Bandar and 52 in Mecufi. 96.7% of households in Bandar and 80.8% in Mecufi were aware of prohibited gears (a prohibition that the large majority of households agree with), with the most common perception (around 60% of the households) being that the majority of community members comply sometimes. Mosquito nets were the most frequently cited type of prohibited gear, mentioned by 61.1% of the respondents in Bandar and 91.1% in Mecufi. However, few households were aware of areas where fishing was not allowed, probably because such areas were not yet established in the communities at the time of the survey. The Covid-19 pandemic significantly slowed down the finalisation of our baseline household survey, which prevented us from repeating the same exercise at the end of the project.

Indicator 1.6: The CCP offices of Bandar and Mecufi were built (Annex 2a, Picture 23 & 24) and the LMMAs were demarcated (Annex 2a, Picture 25 to 28). Besides the equipments provided to the CCPs (office, buoys) for a proper enforcement of the LMMAs, the CCP members have not received training sessions on enforcement procedures and boat handling due to the time it took to first agree on the enforcement procedures with all stakeholders (roles and responsibilities) that were submitted in July 2021 to local authorities in the co-management plans for the legalization of the LMMAs (Annex 10). However, we did an assessment of the LMMAs at the end of the project that shows that the enforcement is strong in Bandar with the daily support of local authorities (police, prosecuting authorities) making infringers pay their fines in due course. As a result, weekly beach patrols and outreach campaigns by CCPs started to change fishing behaviours such as beach seine netting and mosquito net fishing (Annex 9 and Annex 11). In agreement between CCP members and local authorities, several mosquito nets were

confiscated during beach patrols and incinerated (from Ama fieldwork report). Conversely, enforcement is weaker in Mecufi due the inefficient collaboration between the CCP and the local authorities. Infringements are registered but fines are not paid and infringers don't come along when they are summoned by the local authorities. There is no procedure set yet that would allow us to estimate the number of apprehensions and the number of successfully closed issues.

Indicator 1.7: CCP members and local authorities (CCP members; maritime police; local police; community chiefs; District Services for Economic Activities; National Administration of Fisheries; locality chiefs; AMA representatives; national law representatives; traditional authority representatives) met (Annex 2a, Picture 29 and results of these discussions in Annexes 12, 13 and 14) to discuss rules and regulations of the three LMMAs and how to enforce them (see Table 1 below from Bandar co-management plan as an example). Special attention was given to the use of a boat to enforce the two LMMAs, which the local authorities said they would have ready in the coming months but that we have not seen yet. It was highlighted that local health authorities should be involved in enforcement activities related to prohibited mosquito net fishing. Despite the agreement on roles and responsibilities, the enforcement agencies have not received training sessions on enforcement procedures and boat handling due to the time it took to achieve this agreement submitted in July 2021 to local authorities in the co-management plans for the legalization of the three LMMAs (Annex 10).

Stakeholders	**Roles and responsibilities**
CCP of Bandar	Community representatives, Monitor fishing gear and the use of the LMMA
Community and religious leaders	CCP advisers
Local court	Help to resolve problems of infringements
Community	Participate in CCP General Assembly.
Professors	Outreach and report writing up
Sea Police	Ensure security during enforcement
SDAE	Lead enforcement actions
Administrator of Metuge District	Plan enforcement actions
Posto Administrativo	Support to CCP in awareness raising
CCG	District body of LMMA stakeholders meeting regularly (quarterly to yearly basis to share good practice)
MIMAIP and DPMAIP	Provide support to SDAE
ANAC	LMMA stakeholder
AMA & Grupo de coordenação	Support to CCP

Table 1: Roles and responsibilities of the stakeholders of Bandar LMMA

Indicator 1.8: VSLAs have not been trained to operate as informant networks by Year 3 due to the time it took to first agree on the enforcement procedures with all stakeholders (roles and responsibilities) that were finally submitted in July 2021 to local authorities in the co-management plans for the legalization of the LMMAs (Annex 10)

Output 2: Integrated Territorial User Rights in Fisheries zones integrated into LMMAs to incorporate sustainable fishing and women-led bivalve aquaculture initiatives in Bandar and Mecufi to incentivise enforcement of LMMA and replace illegal mosquito net fishing for vulnerable female groups.

Achieved: Bivalve aquaculture zones incorporated within LMMA plans for two groups of in Bandar of 27 members in Bandar and of 15 members in Mecufi (comprising 8 and 15 mosquito net female fishers respectively) as an alternative to their illegal livelihood. We found out that dry salting offered the best food biochemical quality (especially regarding sugars and proteins) as a method to preserve the bivalves for selling. However, the molluscs were heavily predated on by

crabs or buried in the intertidal sand dunes in Mecufi due to the natural movement of the sandy habitat. In the meanwhile, we provided support (training and materials) to the aquaculture groups to grow vegetables in parallel to the re-initiation of bivalve farming. The production of lettuce, cabbage, tomatoes, onions and chilli over an area of 2ha was largely for their own subsistence or the local market but the Bandar group was able to re-invest their small profit in buying seeds for the next season. We are now monitoring the growing of 1,350 oysters in Mecufi and 2,500 oysters in Bandar before scaling up the methodology, so it has not generated revenue yet. Strong collaboration with local authorities in Bandar, weekly beach patrols, outreach campaigns by CCPs and the support to illegal mosquito net female fishers in bivalve farming and horticulture has started to change fishing behaviours such as beach seine netting and mosquito net fishing which gave the score of 4 out of 5 in terms of compliance with the LMMA rules and regulations.

Indicator 2.1: Sustainable fishing zones and bivalve aquaculture zones have been identified and incorporated within LMMA plans. Temporary-closed areas (sustainable fishing zones) and bivalve aquaculture are part of the co-management strategy for the sustainability of the LMMAs (Annexes 12, 13 and 14). Temporary-closed areas address the opportunity cost (reduced opportunity to fish because of the creation of no-take zones) of the communities as a whole by allowing sustainable fishing practices during a short period of time (one week every six months) to catch fast-growing and short-life cycle species (such as octopus). The large specimens caught during the open week (Annex 2a, Pictures 30 to 33) provide a significant additional gain for households. The bivalve aquaculture zones are located in the temporary-closed areas, in the intertidal zones (Annex 2a, Figures 1 & 2).

Indicators 2.2: Two groups of illegal mosquito net female fishers were identified in Bandar of 22 members and Mecufi of 15 members (comprising 8 and 15 women respectively) to train for bivalve aquaculture as an alternative to their illegal livelihood as part of the decision-making process to establish the co-management plans. They formed two bivalve aquaculture groups, of which the members all belonged to VSLAs to benefit from financial services. In Year 2, despite the weekly maintenance of the bivalve racks, the molluscs were heavily predated on by crabs or buried in the intertidal sand dunes in Mecufi due to the natural movement of the sandy habitat. We installed spat collectors to re-initiate the farming of a new cohort of bivalves. This occurred at the onset of the Covid-19 pandemic, which affected the smooth progress of this activity. As a result, we provided support (training and materials) to the aquaculture groups to grow vegetables (Annex 2a, Pictures 34 to 43) (a livelihood also identified by the co-management plans) as an income-generating activity, for which we conducted a training in fund management (investments, sales, income) under the supervision of SDAE (Annex 15 and Annex 2a, Pictures 44 to 46), while awaiting the re-initiation of bivalve farming that can take several months. A total area of 2ha was farmed to grow lettuce, cabbage, tomatoes, onions and chilli (Ama fieldwork report). Mid-Year 2, we resumed bivalve farming in Bandar and Mecufi using bags of small mesh size to prevent crabs from predating on small oysters, the most vulnerable to crab predation. Each group has the capacity to maintain 20 bags of oysters (Annex 2a, Pictures 47 to 50).

Indicator 2.3: We engaged from Year 2 throughout to Year 3 with 8 and 15 women respectively from Bandar and Mecufi to trial methodologies for the production of oysters, mussels and ways of preserving bivalves offering the best food biochemical quality. We haven't reached the targets relative to the number of people engaged in bivalve farming due to the challenges of adjusting first the right conditions for the production of bivalves that was delayed by the consequences of the Covid-19 crisis. We are now monitoring the growing of 1,350 oysters in Mecufi and 2,500 oysters in Bandar before scaling up the methodology (Ama fieldwork report).

Indicator 2.4: We compared the results of the oysters and mussels production in Bandar and Mecufi. We concluded that oyster and mussel aquaculture would not be successful if developed in Mecufi in the selected location, whereas results were satisfactory in Bandar (Annexes 16 & 17). We analysed the nutritional value of oysters and mussels after using different preservation methods and we found out that dry salting offered the best food biochemical quality (especially regarding sugars and proteins) – Annex 18. We have not proceeded with community outreach and trainings to spread these results and techniques as it is only towards the end of Year 3 that

we achieved these conclusions as stated in the reports in Annexes 16 & 17, and while we were improving the techniques (bags with small mesh sizes to fight crab predation, different locations) the project was delayed by the Covid-19 pandemic (see indicator 2.3).

Indicator 2.5: Bivalve farming has not generated revenue to be shared by the 10 existing VSLAs in the project timeframe. The production of lettuce, cabbage, tomatoes, onions and chilli (Annex 2a, Pictures 34 to 43) was largely for their own subsistence or the local market but the Bandar group was able to re-invest their small profit in buying seeds for the next season (ama fieldwork report).

Indicator 2.6: In Year 3, four oyster racks were set up (two in Bandar, two in Mecufi). Each oyster rack contains 10 bags (Annex 2a, Pictures 47 to 50). We haven't reached the targets relative to the number of functional bivalve farms due to the challenges of adjusting first the right conditions for the production of bivalves that was delayed by the consequences of the Covid-19 crisis.

Indicator 2.7: Bivalve farming has not generated revenue during the project timeframe (see indicator 2.5).

Indicator 2.8: Our household survey (Annex 9) shows that mosquito nets, including *chicocota* (type of mosquito net usually deployed by men), were the most widely cited type of prohibited gear. Responses on compliance with these regulations indicated scope for improvement, particularly in terms of getting everyone to comply. This type of gear was more prevalent in Bandar, where it accounted for a total of 19.6% of all gear used. In Mecufi, the use of mosquito nets accounted for 5.9% of all fishing gear used. We did an assessment of the LMMAs at the end of the project that shows that strong collaboration with local authorities in Bandar, weekly beach patrols, outreach campaigns by CCPs and the support to illegal mosquito net female fishers in bivalve farming and horticulture has started to change fishing behaviours such as beach seine netting and mosquito net fishing which gave the score of 4 out of 5 in terms of compliance with the LMMA rules and regulations (Annex 9 and Annex 11). In agreement between CCP members and local authorities, several mosquito nets were confiscated during beach patrols and incinerated. On the contrary, the enforcement is weaker in Mecufi due the inefficient collaboration between the CCP and the local authorities. Infringements are registered but fines are not paid and infringers don't come along when they are summoned by the local authorities.

Output 3: Equitable governance and management of marine resources and sustainable bivalve aquaculture ensured through advanced representation and participation of women in CCPs and LMMA management.

Achieved: We distinguished the fishing zones mainly used by men and by women, describing the main fishing gear used and the target species to develop the strategies to ensure gender equity in CCPs and LMMA management. VSLAs and sustainable livelihoods (see Output 2) are mechanisms that improve gender equity in the LMMA management and fair benefit sharing. The large women's membership of VSLAs and the significant number of women taking loans for small businesses is an encouraging sign that the project is contributing to empowering women economically (through bivalve aquaculture, horticulture, bread ovens or tea rooms) to address illegal mosquito net fishing and contribute to a large female engagement in LMMA decision-making.

Indicator 3.1: We collected gender-disaggregated data relative to gender roles, activities, constraints, opportunities and perceived risks and that were included into the co-management plans of both target communities and Cambala (Annexes 12 to 14 and Annex 2a, Picture 16 to 19). We distinguished the fishing zones mainly used by men and by women, describing the main fishing gear used and the target species (Annex 2a, Picture 51). For instance, in Bandar, intertidal zones 8 and 9 are mainly used by female fishers using mosquito nets, sticks and gleaning to catch small fish, crabs and shells. The focus groups explained the changes in fishing in the last 35 years, giving a perception of constraints, opportunities and risks for men and women ahead. For instance, in Bandar, in the 1990s, most men and women worked in the cotton and sisal factories, so the number of fishers was small. There was also little variety in fishing gear, and few buyers. From 2000, a high rate of unemployment came in as factories were closing, and in

response, an increase in the number of local fishers and others coming from Pemba, Mecufi and Quissanga (which caused an increase in the amount of fishing gear, and the use of mosquito nets). From 2010 the fishing activity intensified, with fishers of all ages as well as a larger local market and buyers from other communities, and an increase in harmful types of fishing gear (mosquito nets, night fishing using torchlight, neap tide fishing, etc.).

Indicator 3.2: Participatory village consultations were conducted, as part of the development of the co-management plans, to assess threats to marine resources, at least for the most important species for each social group (local leaders, young local fishermen, older local fishermen, women). This exercise was conducted in order to (i) identify key resources by community and by resource user group (Annex 2a, Picture 16 to 19), (ii) understand how marine resources have changed in recent decades, (iii) identify perceived key threats and agents (drivers of change), (iv) discuss possible community solutions (linked to local communities' priorities), (v) increase community engagement and ownership of marine resource planning and management. This process collected the data presented under the indicator 3.1 to develop the strategies presented under the indicator 3.3.

Indicator 3.3: VSLAs and sustainable livelihoods are mechanisms that improve gender equity in the LMMA management and benefit sharing.
VSLAs are excellent platforms to provide (i) environmental messaging to members in order to link up the development of the community and the sustainability of the LMMA and (ii) financial services for female entrepreneurs. The project fostered 10 VSLAs in total, with more than 80% of members being women (Annex 19). In Mecufi, there are several VSLAs formed exclusively by women. Men used their savings more often for making house improvements than women in Bandar (17.8% of loan uses against 14.9%), while women used savings more often for businesses than men (17% against 11%). Overall, the large women's membership of VSLAs and the significant number of women taking loans for small businesses is an encouraging sign that the project is contributing to empowering women economically (through bivalve aquaculture, horticulture, bread ovens or tea rooms as alternatives to illegal mosquito net fishing), with potential wider impacts on women's autonomy (Annex 20).
The co-management plans refer to bivalve farming and horticulture as alternative livelihoods for women to tackle mosquito net fishing (see indicator 2.2).

Indicator 3.4: The CCP diagnostic tool (assessing the performance of the CCP) and the VSLA surveys (analysing the impact of the savings and loans on VSLA members in Annex 20) collect gender-disaggregated data and are part of the M&E tools of the LMMAs.

Indicator 3.5: The project organised an online workshop on 25th May 2021 entitled "The impact of Covid-19 on coastal communities", which 29 participants from different organizations (including IUCN, FFI, ZSL, AMA) attended (Annex 21). This workshop presented the outcomes of the project in coastal Mozambique and of other similar initiatives in the Philippines, São Tomé & Príncipe, Sri Lanka and India. It aimed to discuss challenges and lessons learnt by NGOs in supporting communities through shocks such as Covid-19 and inform future considerations, providing recommendations on mechanisms or policies and solutions to strengthen our role in the equitable management of marine resources. Important insights were drawn from the case studies, showcasing a wide range of impacts, both direct and indirect. There is a clear need for strengthening value chains and market access, as well as promoting equitable distributions of benefits, particularly for fisheries, but also for other products. Managing resources addresses the short- and long-term impacts of Covid-19, despite being considered another layer of restrictions added to the Covid-19 restriction measures. In fact, efficient resource management has a positive impact on people's livelihoods, and especially women, which strengthens the resilience of communities to cope and adapt to different types of shocks.

Output 4: Sustainable financing mechanisms (business models, functional VSLAs, legalizing LMMAs contributing to improve access to national and international funds to sustain management costs) established for Bandar and Mecufi LMMAs fostering multi-use zonation, sustainable bivalve aquaculture and gender equity

Achieved: The business model through temporary closures achieved a moderate success. In Cambala, the CCP received approximately 200kg of fish worth 20,000MZN (250GBP) for their own operations. However, CCP members' family pressure make them take the decision of dividing the amount of money among the CCP members. Despite of the fact that it won't financially sustain the CCP action plan ahead, it kept CCP members motivation high to carry on their unpaid contribution to the LMMA management. Despite the 10 VSLAs not contributing financially to the sustainability of the CCPs, the large women's membership of VSLAs and the significant number of women taking loans for small businesses is an encouraging sign that the project is contributing to empowering women economically reducing their dependence on illegal mosquito net fishing, thus increasing their compliance to the LMMAs' rules and regulations. As per the new REPMAR regulations, we requested the legalization of three LMMAs that will improve their access to national and international funds to cover management costs.

Indicator 4.1: As per indicator 1.1, 800ha of temporary closures were created to allow fast-growing and short-life cycle species (such as octopus) to thrive during the closure period. Cambala's and Mecufi's opened for a week end of May/early June after a 6-month closure (Annex 2a, pictures 55-59). Mecufi's experience didn't fit with the expectations with 600kg of fish as most of the species caught were migratory species and infractions in the previous months due to the lack of collaboration with local authorities did have a negative impact on the success of the Mecufi's temporary closure. However, Cambala's opening was a success (Annex 2a, Picture 30 to 33) with 1,050kg of fish of which, as per previously agreed (Annex 22), 1kg every 5 kg of fish caught was be given to CCP members (a total of around 200kg) for the sustainability of their activity. It was initially planned that the benefit of selling (100 MZN per kilo) the fish would be kept for the CCP's own operations. However, CCP members' family pressure make them take the decision of dividing the amount of money among the CCP members. Despite of the fact that it won't financially sustain the CCP action plan ahead, it kept CCP members motivation high to carry on their unpaid contribution to the LMMA management.

Indicator 4.2: Meetings with savings groups were organised to deliver messaging and discuss the ocean and the marine environment, as an introduction to the concept of the Environment Funds (Annex 4a) that will sustain the LMMA co-management plans. However, no environmental fund has been operational yet within the VSLAs. Nevertheless, most small business investment from VSLA loans is largely dominated by making and selling cakes & bread. Overall, the large women's membership of VSLAs and the significant number of women taking loans for small businesses (Annex 20) is an encouraging sign that the project is contributing to empowering women economically reducing their dependence on illegal mosquito net fishing, thus increasing their compliance to the LMMAs' rules and regulations.

Indicator 4.3: On October 8th, 2020, the government of Mozambique published in the Official Bulletin a landmark regulation (REPMAR, Annex 23) empowering community-based fisheries management. This is the result of our work in collaboration with WCS as we organised a meeting in July 2019 with government authorities to advocate the alignment of the legalisation of marine community reserves to the terrestrial ones using procedures described in the existing Conservation Law. We used this regulation (REPMAR) to request the legalization of the two LMMAs of Bandar and Mecufi (target communities), and also the LMMA of Cambala (Annex 10).

3.2 Outcome

Outcome: A scalable gender-inclusive, pro-poor, multi-zonation and sustainably financed LMMA model for Mozambique, recovers threatened fish populations and mangrove, improving food security for 400 households in two Cabo Delgado communities.

Achieved: The project has supported the creation of Locally-Managed Marine Areas (LMMAs) in three communities: the two target communities (Mecufi and Bandar) and Cambala. Strong collaboration with local authorities in Bandar to enforce the permanent reserve and the temporary closure (where is also located the bivalve farming), weekly beach patrols, outreach campaigns by CCPs and the support to illegal mosquito net female fishers in bivalve farming

and horticulture has started to change fishing behaviours such as beach seine netting and mosquito net fishing. Enforcement has not been as positive in Mecufi and Cambala for lack of consistent collaboration with local authorities. However, the catches and CPUE verified before and after the project show that the project had an impact on the use of destructive gears since the catches and CPUE of harmful (non-selective) gears were the most representative before project implementation (2019) which was not verified from when LMMAs started to operate end of 2020. An annual CCP diagnostic looks at improving gender equity indicators monitoring gender equity in terms of the engagement of men, women and vulnerable social groups in LMMA management but also in terms of support provided to the most vulnerable social groups. This is addressed through the elaboration of an action plan of which the implementation is assessed through the CCP diagnostic of the following year. The savings groups are having a positive impact on various dimensions of well-being for at least 200 households (with 20 to 25 members per VSLA, there are 10 VSLAs), particularly in helping to meet basic needs (food and clothing, 30% of all savings uses reported), improving housing conditions (19% of all savings uses reported) and enabling small businesses (25% of all savings uses reported) as a means to improve people's incomes and economic security. As a result of this suite of project activities, but also because of the Covid-10 crisis, the CPUE increased significantly for Bandar until the end of 2020, but not in Mecufi. Also, an area of 17ha of mangrove was rehabilitated in Bandar with 4,000 seedlings and of 5.5ha in Mecufi with more than 2,000 seedlings.

Indicator 0.1: The project has supported the creation of Locally-Managed Marine Areas (LMMAs) in three communities: the two target communities (Mecufi and Bandar) and Cambala, a neighbouring community to Mecufi that showed interest in the same process. The three co-management plans were submitted to local authorities to request the legalization of the three LMMAs as per the regulations of the new REPMAR (see indicator 4.3). As a result (Annex 2a, Figures 1 & 2), a total 1,175ha of no-take zones were created in three communities, covering mangrove and coral reef habitat, and 800ha of buffer zone. This significantly surpassed the target. Our participatory coral reef health monitoring (Annex 1a) showed that the selected sites in Mecufi and Cambala are characterized by a variety of habitats (seagrass, extensive intertidal sandy areas, coral boomies, mangroves, rocks) and fish and macro-invertebrates. In Bandar, there is a considerable percentage of hard corals in the selected no-take zone. The presence of other habitats, specifically seagrass meadows and mangroves, in the intertidal areas allows cross-utilization of habitats by species at different points in their life cycles. Enforcement is strong in Bandar with the daily support of local authorities (police, prosecuting authorities) making infringers pay their fines in due course. As a result, weekly beach patrols and outreach campaigns by CCPs started to change fishing behaviours such as beach seine netting and mosquito net fishing (Annex 9 and Annex 11). In agreement between CCP members and local authorities, several mosquito nets were confiscated during beach patrols and incinerated. On the contrary, the enforcement is weaker in Mecufi due the inefficient collaboration between the CCP and the local authorities. Infringements are registered but fines are not paid and infringers (20 offenders notified) don't come along when they are summoned by the local authorities. The police commander and government authorities agreed to notify them again in order to set an example and prevent future infringements (Ama fieldwork report).

Indicator 0.2: Our household survey (Annex 9) shows that 96.7% of households in Bandar and 80.8% in Mecufi were aware of prohibited types of gear (which the large majority of households agree with), with the perception (held by around 60% of the households) that the majority of community members comply sometimes. Mosquito nets, including *chicocota* (a type of mosquito net usually deployed by men), were the most widely cited type of prohibited gear, mentioned by 61.1% of the respondents in Bandar and 91.1% in Mecufi. Responses on compliance with these regulations indicated scope for improvement, particularly in terms of getting everyone to comply. Mosquito nets used as fishing gear were more prevalent in Bandar, where together they accounted for 19.6% of all gear used. In Mecufi, the use of mosquito nets accounted for 5.9% of all fishing gear used. The catches and CPUE verified before and after the project show that the project had an impact on the use of destructive gears since the catches and CPUE of harmful (non-selective) gears were the most representative before project implementation (2019) which was not verified from when LMMAs start to operate end of 2020 (see Figure 2 below and Annex 28). We did an assessment of the LMMAs at the end of the project (Annex 11) that shows that strong collaboration with local authorities in Bandar, weekly beach patrols, outreach campaigns by CCPs and the support to illegal mosquito net

female fishers in bivalve farming and horticulture has started to change fishing behaviours such as beach seine netting and mosquito net fishing which gave the score of 4 out of 5 in terms of compliance with the LMMA rules and regulations. On the contrary, the enforcement is weaker in Mecufi due the inefficient collaboration between the CCP and the local authorities. Infringements are registered but fines are not paid and infringers (20 offenders notified in Year 3) don't comply when summoned by the local authorities. The police commander and government authorities agreed to notify them again in order to set an example and prevent future infringements (Ama fieldwork report).

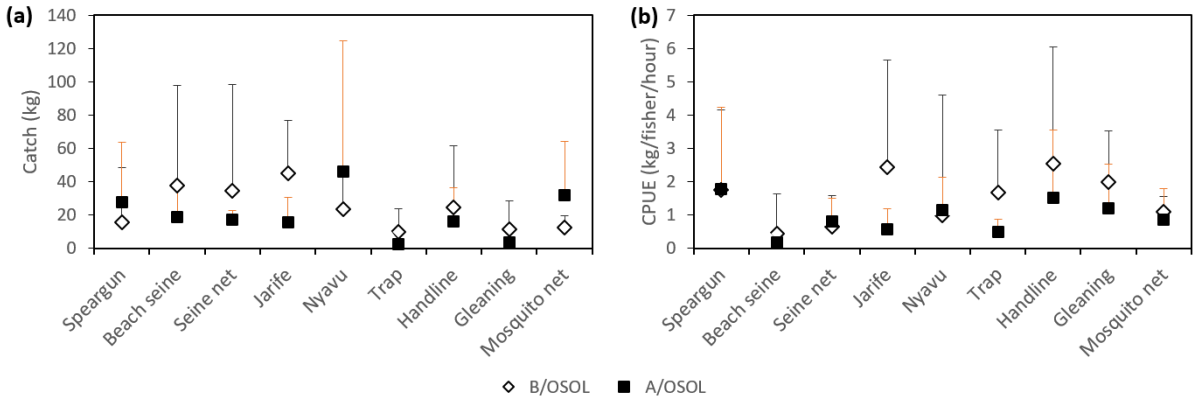

Figure 2: Mean catch (a) and mean CPUE (b) of gears in the periods before, year 2019 (Before OSOL project = B/OSOL) and during, year 2020 (After OSOL project = A/OSOL) to OSOL project. Bars indicate the standard deviation of the mean.

Indicator 0.3: CCP diagnostics were undertaken in 2019 and 2021 in the communities of Mecufi and Bandar (Annex 7a and Annex 2a, Figure 6), showing that their scores relating to governance and functioning have increased over these two years. The diagnostic collects gender-disaggregated data regarding the CCP members (64% of CCP membership is female in Mecufi, 35% in Bandar) and the fishing-gear users the CCP members are in touch with. The results of each diagnostic underpin an action plan to be implemented until the next diagnostic in order to improve the score of governance and functioning of each CCP, and especially addressing the question of gender equity. For instance, the most recent CCP action plan seeks to address better representation of men and women in the CCP groups and ensure that intertidal groups (mainly formed of women) are represented. The LMMA action plan focuses on incentivising more income-generating activities (especially for the most vulnerable social groups, such as women) such as through the training of illegal mosquito net female fishers to bivalve farming (see Output 2).

Indicator 0.4: Bandar households (Annex 9) appear to be less food secure than those in Mecufi. Dependence on purchased food is high in Bandar, with 85% of households reporting depending the most on food purchases, compared to 32.7% in Mecufi where households' own food production was a more important food source. Bandar also performed lower on other food security indicators, including the average number of meals a day consumed by households (1.82 compared to 1.94 in Mecufi); Dietary Diversity Scores (2.3 food groups compared to 3.2 in Mecufi), and all locally defined food security indicators. The proportion of households in the critical and low dietary diversity quartiles was also higher in Bandar. People in Bandar appear to be more satisfied with their lives compared to Mecufi. In Bandar, approximately 57% of interviewees considered themselves to be satisfied or very satisfied with their lives, compared with only 38% in Mecufi. The key reason given in both communities for being satisfied with life was having food to eat. This contrasts with the findings on food security, which indicate lower levels of food security in Bandar. However, when it came to reasons for being dissatisfied with life, having no good was frequently cited in Bandar, followed by being single. In Mecufi, the most frequently cited reasons for dissatisfaction were lack of money and employment. Other frequently cited reasons for dissatisfaction included low production in farming due to adverse climatic conditions (both communities) and in fishing due to increasing pressure on fishing resources (Bandar). Levels of material well-being, however, were lower in Bandar, including ownership of material assets indicative of economic status. Bandar households also fared worse in terms of housing conditions as indicated by a series of dwelling characteristics and building materials.

The savings groups are having a positive impact on various dimensions of well-being for at least 200 households (with 20 to 25 members per VSLA, there are 10 VSLAs) (Annex 19), particularly in helping to meet basic needs (food and clothing, 30% of all savings uses reported), improving housing conditions (19% of all savings uses reported) and enabling small businesses (25% of all savings uses reported) as a means to improve people's incomes and economic security (Annex 20).

Indicator 0.5: The CPUE increased significantly for Bandar until the end of 2020 but not in Mecufi (see Figure 3 below and Annex 28). This can be put in perspective with the good collaboration established with local authorities to enforce the LMMA (see indicator 0.2) on the contrary to Mecufi. We also notice that there were low catches during the State of Emergency in Mozambique from April to August 2020 included which suggests that marine resources may have benefited from low fishing pressure to rebuild the local biomass resulting in an increased CPUE between 2019 and the end of 2020.

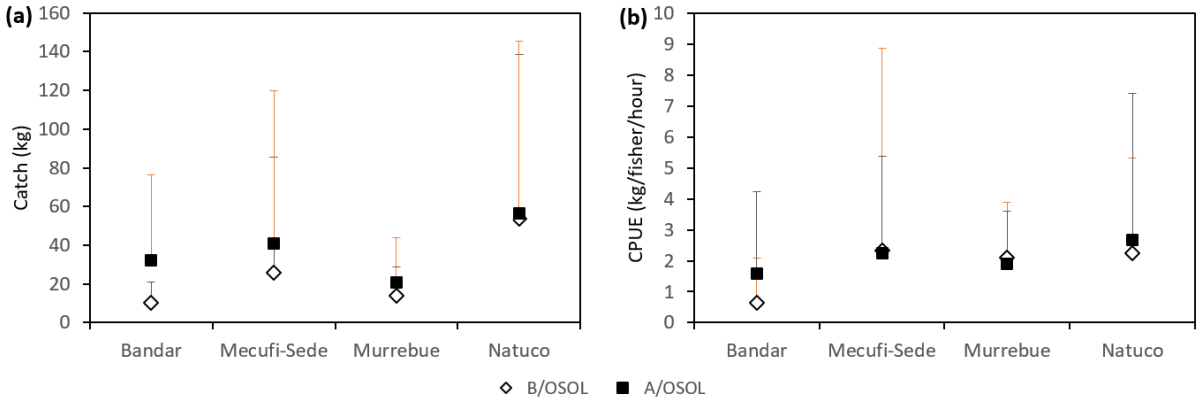

Figure 3: Mean catch (a) and mean CPUE (b) in villages covered by OSOL project in the periods before, year 2019 (Before OSOL project = B/OSOL) and during, year 2020 (After OSOL project = A/OSOL) to OSOL project. Bars indicate the standard deviation of the mean.

3.3 Monitoring of assumptions

All of the assumptions described in the logframe are unchanged. However, provided the natural disasters affecting Beira in March 2019 (cyclone Idai) and Cabo Delgado in April 2019 (cyclone Kenneth), we include the following assumption related to adverse weather conditions:

Outcome Assumption 7: Adverse weather conditions (floods, storms) are reduced in the project geographical areas and keep the six project sites accessible

Cyclone Idai, besides its exceptional intensity, was occurring in the expected tropical cyclone belt. However, cyclone Kenneth is exceptional for being the first one occurring in northern Mozambique located outside this belt. This assumption still holds true but these climate change-related events remind us how they can quickly, unexpectedly and suddenly affect an entire region in the long-run. As often happens, the communities we work with cope with the aftermath with much resilience and have quickly come back to daily routine a couple of months after main roads and village infrastructures suffered damage. They benefited from humanitarian support from organisations we were in touch with such as World Food Programme, International Organization for Migration and VAMOZ (spontaneous citizen initiative that succeeded in providing valuable support to Idai cyclone victims) that were acting in Cabo Delgado in response to cyclone Kenneth.

The global crisis related to the COVID-19 pandemic was not included in the project assumptions if not in Outcome Assumption 6: Outbreaks of disease (cholera, etc.) are non-existent in the six coastal communities. The project experienced considerable impacts related to COVID-19. National restrictions imposed by the Mozambican government in response to the

pandemic presented some challenges to our fieldwork and to our partner communities. Varying levels of restrictions have meant delays in our community-based activities (see Section 8)

3.4 Impact: achievement of positive impact on biodiversity and poverty alleviation

The overall impact in our original application form is to achieve a gender-inclusive, pro-poor, multi-zonation and sustainably financed LMMA network that secures resilient coastal ecosystems, whilst fostering income-generating activities in growing coastal communities, enhancing food security and reducing poverty in northern Mozambique.

The project contributed to secure resilient ecosystems in Cabo Delgado by establishing three Locally-Managed Marine Areas (LMMAs). (i) The LMMAs had a positive impact in reducing the use of destructive gears since illegal mosquito net female fishers were converted in bivalve farmers and horticulture entrepreneurs. (ii) Mangrove nursery groups are rehabilitating large areas of threatened mangrove forest. As a result of (i) and (ii), the CPUE increases. Engaging the most vulnerable social groups in LMMA management and in savings groups create the enabling conditions for sustaining and replicating the LMMAs (the project supported a third community during the project implementation period). It provides them with financial services which help to meet basic needs, improving housing conditions and enabling small businesses as a means to improve people's incomes, economic security which result in addressing the opportunity cost of marine biodiversity conservation.

It will help (i) gain increased recognition of LMMAs' positive impact nationally for their replication to new areas where they haven't previously been implemented and (ii) advocate LMMAs recognition under the Mozambican legislation.

4 Contribution to Darwin Initiative Programme Objectives

4.1 Contribution to Global Goals for Sustainable Development (SDGs)

SDGs 1&2: To reduce poverty, the project has helped to establish VSLAs, providing families with access to basic financial services (savings and credit). The VSLAs we have catalysed provide more than 200 individuals/households with access to saving and credit facilities. The members have thus far managed average savings of 3,844MZN per person in Bandar and Mecufi respectively. Through the project we have advanced with bivalve aquaculture training, and are contributing towards ending hunger by building resilience and working towards improving food security in target communities. **SDG 5:** This project's contribution to addressing the barriers this includes open access VSLAs which have 80% female membership, enabling women to access their own savings and increase their involvement in decision-making in spending for their family. Since the start of the project, we have established 10 VSLAs. Women have saved an average of 3,620 MZN per person to date and men an average of 4,660 MZN but loans taken by women averaged 2,124.29 MZN and by men 1,272.22 MZN (women taking loans almost twice as much as women). These efforts have been combined with training and support to bivalve aquaculture enterprises to increase opportunities for women to generate income, as well as efforts towards ensuring gender equitable representation in CCPs and access to fair and appropriate governance. **SDG 12:** The project's outreach activities have included targeted messages for raising awareness of stakeholders of the importance of development activities that align with the preservation of biodiversity. LMMA co-management agreements will continue to work towards ensuring sustainable management and efficient use of fish stocks. VSLAs have contributed towards building financial resilience of members, combined with conservation outreach and sustainable livelihood development, whilst simultaneously encouraging the more sustainable fishing practices. **SDG 13 and 14:** The project has contributed to maintaining healthy and resilient coastal ecosystems (including reefs that have demonstrated resilience to coral bleaching) through the establishment of LMMAs, which help to strengthen resilience and build the adaptive capacity of communities in relation to climate-related hazards and natural disasters. The sustainable co-management and establishment of LMMAs will protect and sustain fish stocks and ensure the maintenance of coastal marine ecosystems in the long term.

4.2 Project support to the Conventions or Treaties (e.g. CBD, Nagoya Protocol, ITPGRFA, CITES, Ramsar, CMS, UNFCCC)

Mozambique has ratified the CBD and approved the Aichi Targets, underscoring the development and implementation of its National Strategy and Action Plan for Conservation of Biological Diversity (2015-35). This project supports Mozambique's commitments as follows: **CBD articles**: **7 –** Monitoring populations of IUCN red list fish species and species of importance to local fisheries: the project has collected data on species captured (over 9,000 entries, see Annex 25). This database (biological baseline) has been analysed and discussed. **8, 10, 11–** The zonation of LMMAs as well as training in bivalve aquaculture work towards ensuring conservation and sustainable use of marine biodiversity and preservation of coastal ecosystems. **17 –** FPIC principles applied at the start of the project involving provincial, district and community levels. The project has involved surveys and monitoring activities have taken place in Yr2 (such as the ODK baseline).

Aichi Targets. A1, A2 – The project's awareness-raising activities have focused on the value of marine biodiversity and were incorporated into co-management plan discussions with CCPs**. B6 –** LMMAs have been identified and established and will contribute to the recovery of fish stocks and ensure their sustainable use. **B7 -** Bivalve aquaculture initiatives have been developed and supported by the project as sustainable livelihood options for partner communities. **C11 –** LMMAs will contribute to the target of 10% of coastal/marine areas being effectively and equitably managed. **C12 –** Recovery of populations of IUCN red list species will be achieved in the waters under management (LMMAs). **D14 –** Coastal ecosystems (including reefs and mangrove) have been included in LMMAs ensuring that associated ecosystem services are maintained (including provision of fish stocks, and contribution to protection and resilience against natural disasters and climate change). **E18 –** The traditional use of coastal resources by fishers will be maintained and are incorporated into the co-management plans and co-management measures will ensure long term sustainability.

4.3 Project support to poverty alleviation

The project worked to contribute to poverty alleviation, through the higher-level impact : 'A gender-inclusive, pro-poor, multi-zonation and sustainably financed LMMA network secures resilient coastal ecosystems whilst fostering income-generating activities in growing coastal communities, enhancing food security and reducing poverty in northern Mozambique'. The beneficiaries of this work have been (as per the 2017 census) the 200 households (direct beneficiaries) and ~18,500 inhabitants (indirect beneficiaries, as per the 2017 census) in Bandar and Mecufi focal areas. The project has targeted some of the drivers of poverty in the area, increasing access to marine resources that have replenished fishing grounds (ecosystem services) through the LMMAs based on inclusive decision-making and good governance, supported by access to essential financial services. The project established mechanisms that address the root causes (limited access to marine resources) of gender inequality in small-scale fisheries, so that women are empowered and benefit from equitable benefit sharing arrangements. The development of bivalve farming and horticulture as an opportunity for women, as they mainly glean shells and fish in the intertidal area, reduces their dependence on illegal mosquito net fishing. 10 VSLAs were formed and are key for poverty alleviation to (i) strengthen market linkages in remote communities, (ii) buffer regular inflation on food prices and (iii) improve material style of life indicators. Our VSLA report, shows a total saving of at least US$7,500/507,000MZN by the groups. Men used their savings more often for making house improvements than women in Bandar (17.8% of loan uses against 14.9%), while women used savings more often for businesses than men (17% against 11%). Overall, the large women's membership of VSLAs and the significant number of women taking loans for small businesses is an encouraging sign that the project is contributing to empowering women economically (through bivalve aquaculture, horticulture, bread ovens or tea rooms as alternatives to illegal mosquito net fishing), with potential wider impacts on women's autonomy.

4.4 Gender equality

This project delivered a gender-integrated approach, ensuring equal access, participation and opportunities to both men and women throughout the project cycle.

Output 1 focused on the establishment of two multi-use zonation LMMAs based on equitable governance. VSLAs provide a key platform for increasing gender equitable governance, and the project has supported the establishment of 10 VSLA groups were established, with around at least 200 members in total (80% women). Training of Village Agents helped us build women's influence on biodiversity outcomes within social networks, and as communicators (leading awareness-raising) and entrepreneurs (bivalve farming). We ran focus group meetings with women in Bandar and Mecufi to capture women's view on existing livelihoods, well-being, food security and use of marine resources (fishing grounds, fishing gears, species targeted). Output 4 prioritised financial support taking into account the gender perspective in the communities. Gender considerations from the CCP diagnostic highlighted the need to increase women representation in CCPs, the CCP diagnostic in Yr2 helped us to understand the reasons for this (cultural perspective of CCP being a male role), however one CCP president (Mecufi) is female, and this was identified as an opportunity to increase women CCP members (through invitations by the female president as well as conversations between CCPs to remove cultural barriers).

Output 2 focused on the development of women-led bivalve aquaculture as a livelihood initiative that addresses constraints and opportunities to access diversified livelihoods. Two groups of 27 members in Bandar and of 15 members in Mecufi (comprising 8 and 15 illegal mosquito net female fishers respectively) participated in bivalve aquaculture training, aiming to ensure equal capacity building, participation, and voice for women, underpinned by VSLAs (currently 80% women membership) and sustained securing improvements in household wellbeing in the long-term. This activity supports the IUCN's climate change and gender action plan for Mozambique.

Our work towards equitable governance (Output 3) has acknowledged information collected from the RRA and CCP diagnostic (Annex 24 and 11), utilising focus group discussions, key informant interviews and other social science methods to incorporate gender issues and anticipate gender related outcomes into the design and implementation phase. Acknowledging from previous work (20-023) that women are a particularly vulnerable group, the project worked to remove barriers from their participation with targeted interventions (eg CCP membership as per Annex 11).

4.5 Programme indicators

Did the project lead to greater representation of local poor people in management structures of biodiversity?

The LMMA co-management plan incentivises the most vulnerable social groups (such as women) to diversify income-generating activities such as bivalve farming. The bivalve farming group members are part of VSLAs which provide financial services and outreach platforms for a greater engagement of vulnerable social groups in local management structures (CCPs) of marine biodiversity.

Were any management plans for biodiversity developed and were these formally accepted?

We submitted three co-management plans (agreed by local communities) to local authorities to request the legalization of three LMMAs that will improve as a result their access to national and international funds to cover their management costs.

Were they participatory in nature or were they 'top-down'? How well represented are the local poor including women, in any proposed management structures?

The decision-making process to develop the co-management plans consisted in meeting with all of the social groups of each community (youth, elders, men, women, community and religious leaders) to collect their views, interests, opportunities and constraints in LMMA management. 64% of CCP (local management structure of biodiversity) membership is female in Mecufi, 35% in Bandar.

How did the project positively influence household (HH) income and how many HHs saw an increase?

The savings groups are having a positive impact on various dimensions of well-being for at least 200 households (with 20 to 25 members per VSLA, there are 10 VSLAs), particularly in helping to meet basic needs (food and clothing, 30% of all savings uses reported), improving housing conditions (19% of all savings uses reported) and enabling small businesses (25% of all savings uses reported) as a means to improve people's incomes and economic security

How much did their HH income increase (e.g. x% above baseline, x% above national average)? How was this measured?

We have not undertaken a repeated household survey due to the delay in finalising the baseline survey (due to the Covid-19 crisis) so we have not been able to measure this increase.

4.6 Transfer of knowledge

We trained four Village Agents (three women, one man) that are the focal points in Bandar and Mecufi (two from each community) to provide support to savings groups, on a volunteer basis, and mobilize community members to adhere to new savings groups. This training focused on the creation and functioning of savings groups and on the process to establish Environment Funds with the purpose of sustaining LMMAs.

4.7 Capacity building

The project was an amazing platform to strengthen AMA's capacity in fisheries management and LMMAs development. AMA is now an essential actor for marine conservation in Cabo Delgado and at national level. AMA field staff members (male socio-economist, female marine biologist, male livelihood expert) are regularly to provincial and national events (workshops, conferences) organised by Mozambican authorities or NGOs.

5 Sustainability and Legacy

Our Sea Our Life established and maintained regular engagement with partners and partner communities throughout the project cycle. The project team were able to maintain a strong presence in the project sites and with partner communities, through regular meetings across all activities, including VSLA meetings. Typically, VSLAs need one year of support; 89% of VSLAs continue operating five years after initiation, normally doubling their capitalisation and average loan sizes. The VSLA model is self-replicating, beyond project life, and has been established in conjunction with development of sustainable livelihoods.

The project has laid down the foundations of positive relations between local government authorities, local NGOs and the communities and this has the potential to continue and ensure that positive perspectives of marine resource management will be intrinsic within communities beyond project implementation timeline.

The profile of the project has been continually raised beyond the two target communities, we've been able to share project progress, exchange ideas and lessons learnt (including launching the Our Sea Our Life Toolkit for LMMA establishment) through various local, national and international conferences, workshops and webinars.

Following our change request to readjust Output 4, WCS's role changed to focus on addressing the legalization of Locally Managed Marine Areas (LMMAs), due to a missing legislative link detected end of 2018. Legalizing LMMAs has been a fundamental element for the project. As a result of our work in collaboration with partners and other NGOs in Mozambique, in September 2020, the Government of Mozambique approved a landmark regulation empowering community-based fisheries management. The updated Fisheries Regulation (Annex 23) describes LMMAs' legalisation process in alignment with terrestrial reserves as already described under the Conservation Law (n. 5/2017). The project's contribution through coordination of meetings with government authorities played a key part in this achievement.

Our exit strategy is still valid. The project has engaged more than 200 households in VSLAs, increasing the capacity of people to secure finances for household needs and food. Appropriate training and support for development of new sustainable enterprises has been delivered, with further development of these a major focus for the project team's fundraising priorities. Premium prices for fish and bivalves were harvested following sustainable approaches within temporary-closed areas. This approach will make meaningful social, economic, financial and ecological contributions towards the ongoing management of the LMMA.

6 Lessons learned

We have received negative decisions for match funding applications from three major donors (Fondation Ensemble, Blue Action Fund and BIOPAMA). Fondation Ensemble approved our application and a grant agreement was in process, but the unrest in north Cabo Delgado during the 2018 Christmas period forced them to cease any agreement with any project in northern Mozambique. This lack of success in raising funds has hindered the project in proceeding with Output 4 and especially in regard to operating biodiversity offsetting in the short-term. We put in a change request to Darwin Initiative that was agreed early in 2020 readjusting the Output 4 and WCS's role from Yr3.

Darwin project 20-023 (2013 – 2017) successfully piloted Locally Managed Marine Areas (LMMAs) and established CCPs in two villages in Cabo Delgado Province. An LMMA toolkit was produced thanks to this experience and has been now much useful for implementing guidelines of best practices. As a result, we have overcome the targets of Output 1.

Despite the weekly maintenance of the bivalve racks, the molluscs were heavily predated on by crabs or buried in the intertidal sand dunes due to natural movement of sandy habitat. We installed spat collectors to re-initiate the farming of a new cohort of bivalves. In the meantime, we provided support to the aquaculture groups (respectively compounded of 15 and 8 women) to grow vegetables, as an income-generating activity, to await the re-initiation of bivalve farming that can take several months.

Small-scale businesses such as bivalve aquaculture, horticulture, bread oven or tea rooms as an offset to illegal mosquito net fishing did not generate income yet that would incentivise VSLA members to contribute to the operating costs of the LMMAs through Environment funds. However, we trained four Village Agents (community members belonging to VSLA and CCP) that are in charge of advocating for the sustaining of LMMA operations within the communities.

The business model through temporary closures achieved a moderate success. Inspite of the fact that it won't financially sustain the CCP action plan ahead, it kept CCP members motivation high to carry on their unpaid contribution to the LMMA management. Also, despite the 10 VSLAs not contributing financially to the sustainability of the CCPs, the large women's membership of VSLAs and the significant number of women taking loans for small businesses is an encouraging sign that the project is contributing to empowering women economically reducing their dependence on illegal mosquito net fishing, thus increasing their compliance to the LMMAs' rules and regulations.

6.1 Monitoring and evaluation

The Our Sea Our Life partnership is contingent on clear definition of roles & responsibilities and adequate monitoring plan of the project progress. ZSL/partners agreements, described activities to implement and output to achieve, have been signed. The project team has maintained oversight of project progress using the logframe and implementation timetable, which was reviewed regularly through calls, emails and meetings between the partners and project leader ZSL. The project had both biological and social targets which were monitored using a Before-After-Control-Impact (BACI) design, to monitor key biodiversity and socioeconomic indicators periodically through a range of tools across relevant themes to assure that the project is meeting targets and to measure impact. ZSL and AMA have continued to monitor and evaluate the progress of VSLA groups with the support of NOVA FCSH, through standardised VSLA forms,

as well as collating data at each VSLA meeting (such as number and value of shares, loans, and trainings) and meeting notes to capture qualitative data that can support quantitative data being collected.

The socioeconomic and household surveys were led by AMA with support from NOVA FCSH (Annex 9). Progress in project activities and completion of key milestones were monitored through monthly reports submitted to the lead organisation by all project partners (see example of report by CORDIO in Annex 1a). Biological data (ODK CPUE data collection) was collected and analysed by UniLurio (Annex 25).

6.2 Actions taken in response to annual report reviews

Previous annual report reviews:

1.Please make sure that progress towards Outputs is reported against measurable indicators.

Please see above the project progress reported against the measurable indicators as per the logframe.

2.Although the horticulture initiatives are not part of the project's Outputs, section 6 indicates that they could be linked to the VSLAs. Please provide suggestions to support the horticulture initiatives to increase the project's legacy.

The bivalves farmed were heavily predated on by crabs or buried in the intertidal sand dunes in Mecufi due to the natural movement of the sandy habitat. In the meanwhile, we provided support (training and materials) to the aquaculture groups to grow vegetables (horticulture also identified as an income-generating livelihood in the co-management plans) in parallel to the re-initiation of bivalve farming. The production of lettuce, cabbage, tomatoes, onions and chilli over an area of 2ha was largely for their own subsistence or the local market but the Bandar group was able to re-invest their small profit in buying seeds for the next season.

3.Please ensure that all Annexes submitted with the report are authored and indicate the organisation responsible for the report.

Checked.

4.Please comment on what specific measures will be in place by Yr3 to ensure that the bivalve aquaculture remains a women-led activity that provides enough incentives to stop illegal mosquito-net fishing. If this livelihood activity is not women-led, as specified in Output 2, please discuss with Darwin changes to the logframe and consequences for the project.

The following measures (i) strong collaboration with local authorities in Bandar, (ii) weekly beach patrols, (iii) outreach campaigns by CCPs and (iv) the support to illegal mosquito net female fishers in bivalve farming and horticulture has started to change fishing behaviours such as beach seine netting and mosquito net fishing which gave the score of 4 out of 5 in terms of compliance with the LMMA rules and regulations. The ongoing visit and support to the women-led bivalve farming groups (also growing vegetables in parallel) is resulting from the decision-making process agreed by all social groups as women are recognised as vulnerable because they make a living through illegal mosquito net fisheries and required an alternative to this illegal livelihood.

7 Darwin identity

The project has its own clear identity "Our Sea Our Life/Nosso Mar Nossa Vida" and has been recognised as a Darwin Initiative-funded project. We continued to ensure that the Darwin Initiative was acknowledged verbally, in writing or visually in all meetings, reports, presentations and informative materials and communications (posters, banners, leaflets, videos, publications etc.).

As part of ZSL's conservation work, Our Sea Our Life and the Darwin Initiative identity as the project's funder feature in communications via ZSL's social platforms. ZSL has 8 social media channels covering the major social platforms (Twitter, Facebook, Instagram, YouTube) with 17 accounts in total, including a dedicated ZSL Africa conservation programmes (@ZSLAfrica) and 'Our Sea Our Life' project (@OurSeaOurLife) Twitter accounts. The @OurSeaOurLife Twitter

account featured regular posts about the project's activities and updates, with frequent support (re-tweets) from other ZSL accounts and linked to the Darwin Initiative's social media channels. Via their online presence, ZSL has a total reach of 64.9 million (Facebook) with 4 million unique users to the ZSL website per annum. @ZSLConservation has over 24,000 followers on Twitter, which regularly features Africa-specific posts on ZSL's overseas conservation work, complemented by @ZSLAfrica.We use this extensive social media reach to publicise our donors' support (including Darwin Initiative). All social media posts reporting on project activities acknowledge the donors (whereby Darwin initiative and the UK Government are recognised and logos added to images where possible) or via the use of a hashtag (following guidelines presented at LTS' grantee workshop in 2019). In addition to crediting donors in social media, Our Sea Our Life has a page on the ZSL Conservation website where all donors are listed next to the project which they support. In addition, ZSL's external communications to its Fellows, Members and supporters, via direct mail and printed communications, list DEFRA as a key supporter of our Conservation and Policy work.

8 Impact of COVID-19 on project delivery

The project experienced considerable impacts related to COVID-19. National restrictions imposed by the Mozambican government in response to the pandemic presented some challenges to our fieldwork and to our partner communities. Varying levels of restrictions have meant delays in our community-based activities, including:

- Reducing the number of community members attending group events, while continuing to engage with all groups to maintain the same level of social inclusion. Health and safety of project team and beneficiaries was ensured through PPE and following COVID-19 protocols at all times (reduced number of meeting participants, using masks and hand sanitizer), which in turn meant we needed double the length of our field missions. Some VSLA members decided to use savings to invest in protection material for their households.

-Training of 12 Village Agents to lead the monitoring of the impact of VSLAs in wellbeing which simplified and sped up the data collection. It reduced the risk of contamination between project staff and community members by limiting contacts. AMA delivered 2 training sessions in interview techniques (for VSLA members) in Bandar & Mecufi, applying government recommendations of social distancing and PPE. Participants included Village Agents and CCP members.

-The operation start date of permanent and temporary-closed areas was delayed due to the delayed delivery of underwater equipment. As a result, we delayed the assessment of ecological suitability of LMMAs, their GPS mapping, the buoys set up and the opening of temporary-closed areas.

- Quarantine requirements for international arrivals meant the cancelation of partner travel to Mozambique. The technical support was provided remotely instead.

-The baseline household survey suffered considerable delays, which had a negative impact on the planned endline household survey.

The pre-existing vulnerabilities of the communities we work with were exacerbated by restriction of movement for people and goods and loss of livelihoods resulting from the pandemic, has significantly heightened the risk of becoming less resilient to COVID-19 related shocks, and its socioeconomic and humanitarian impacts. We were able to gain a better understanding of how coastal communities were impacted by the pandemic, through research funded by the Darwin Initiative Rapid Response Grant, undertaken between January and March 2021. This research showed that COVID-19 is having significant impacts on well-being, livelihoods and marine resource management as summarised below:

Well-being
-Deterioration in subjective well-being
-Difficulty in access to first necessity goods
-Reduced access to healthcare
-Social and family relations negatively impacted

-Limited access to clean water
-Negative impact on education and religious practices

Livelihoods
-Considerable change in markets due to restrictions to movement of people and goods
-Reduced demand of products, reduction in price of products
-Change in trading hours & associated change in activities
-Increase in unemployment
-Cumulative impacts relating to recent climate-change events and insurgency

Marine resource management
-Reduced participation and frequency of meetings for co-management
-Exacerbated poor internal functioning of some aspects of fisheries councils (eg. conflict resolution)
-Reduced support (from NGOs and government) negatively impacted enforcement of regulations of marine protected areas
-Delays in locally managed marine areas being established
-Weaker fishers councils that were not able to support communities (regarding impacts of the pandemic)

These impacts are exacerbated by existing pressures (insurgency in the north of the country and events such as cyclones). This research enabled us to focus on the following to ensure increased resilience for our partner communities:

-Enhance the importance of building community resilience and improving local food production (to protect food security), including establishing functioning social safety nets (food distribution, fair prices) and support diversification of livelihoods (as a risk-spreading strategy)
-Provide further support savings groups (Village Savings and Loan Associations) as an important coping mechanism) for socio-economic shocks such as COVID-19
-Focus on the urgency in consolidating co-management of marine resources (to protect resources & livelihoods)

9 Finance and administration

9.1 Project expenditure

Project spend (indicative) since last annual report	2021/22 Grant (£)	2021/22 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Others (see below)				
Audit Fees				
TOTAL				

Staff employed (Name and position)	Cost (£)
Jeremy Huet	
Ana Pinto	
Manuel Bucuane	
Mamude Abudo	
Daniel Selemame	
Lucio Anil	
Said Amada	
Rachide Cachimo	
Mario Daide	
Semo Mapai	
Abdul Juma	
Deuasse Airoso	
Tomas Langa	
Peter Musembi	
Dr Isabel Silva	
Bibiana Nassongole	
Patricio Marques	
Sidonio Machaiaie	
Aniceto Cululo	
TOTAL	

Capital items – description	Capital items – cost (£)

TOTAL	

Other items – description	Other items – cost (£)
Diving fins and GPS Stand up desk Memory card and camera bag Ergonomic chair Photo camera Computer charger Stationery, internet	
TOTAL	

9.2 Additional funds or in-kind contributions secured

n/a

9.3 Value for Money

Northern Mozambique is a very expensive and challenging place to operate. We provided value for money through:

1. Keeping costs low through the use of budget accommodation for international staff whilst in-country. Full partner meetings of all partners were held around conferences or events that everyone was likely to be involved in to help keep costs low. Whatsapp and email were communication methods of choice.
2. Significant investment in building the capacity of the AMA team. More technically oriented AMA staff had direct one-to-one mentors with international experts. Through travelling to trainings, including on-the-job training the capacity has substantially increased. Additionally, the project improved financial management systems in AMA.
3. Effective engagement of the local authorities. AMA are exceptionally good at this. It is not an easy task in Mozambique, and particularly given the change in government and the reshuffle of departments that occurred during the project period. This will help secure the legacy of the project.
4. Village Agents help to spread VSLAs.
5. VSLAs are a proven self-sustaining model and low cost to implement.

10 OPTIONAL: Outstanding achievements of your project during the (300-400 words maximum). This section may be used for publicity purposes

I agree for the Darwin Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here)

Darwin Initiative support has enabled us to refine and improve the Our Sea Our Life (OSOL) programme through its second phase, for replicating the equitable model for Locally Managed Marine Areas (LMMAs) in northern Mozambique. This model has continued tackling the fundamental drivers of poverty amongst fishing communities, among growing pressures including socioeconomic shocks (COVID-19, cyclones, floods), coastal migration, conflict and threats from gas and oil exploration.

While community-led marine management is not new in Mozambique or the Western Indian Ocean region, the interconnection of three critical elements to successful marine co-management have made the OSOL approach unique and innovative: the LMMAs; the local governance and management mechanisms; and the sustainable livelihoods and financing. LMMAs are areas managed by local communities to improve fisheries and conserve marine biodiversity. OSOL's participatory approach has empowered communities to deliver objectives they help to set. In phase 2, it has brought together these established platforms, for equitable and inclusive governance of resources, while generating alternative income and strengthening and working towards food and financial security.
One of the project's outstanding achievements was to develop a best practice guide based on lessons learnt, drawing on the valuable experience of each of the partners in the consortium. The project team launched the 'Toolkit for LMMA establishment: A case study of Our Sea Our Life's approach to community-based marine conservation in northern Mozambique' in 2020 (Annex 2a picture 66). This wide-ranging, yet thorough, toolkit provides step-by-step guidance covering all aspects of the OSOL approach and process: from identifying communities with potential for LMMAs, through the participatory design of management measures, to establishing Village Savings and Loans Associations (VSLAs) and alternative livelihoods, to community-based biological monitoring.
Another significant achievement for Our Sea Our Life has been the publishing of a landmark regulation (REPMAR) empowering community-based fisheries management in the Official Bulletin by the government of Mozambique in 2020 (Annex 2a picture 67). This was the result of our work in collaboration with WCS in advocating the alignment of the legalisation of marine community reserves to the terrestrial ones using procedures described in the existing Conservation Law.

These achievements will play crucial parts in the replication of the OSOL model, which will enable the connection between marine conservation interventions with community needs for basic financial services, by scaling up VSLAs that will work to empower community members to diversify their livelihood options, increasing social resilience and food security.

Annex 1 Project's original (or most recently approved) logframe, including indicators, means of verification and assumptions.

[Note: new logframe as per agreed change request as of January 2020]

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact The Mozambique gender-inclusive, pro-poor, multi-zonation and sustainably financed LMMA network secures resilient coastal ecosystems whilst fostering income-generating activities in growing coastal communities, enhancing food security and reducing poverty (Max 30 words)			
Outcome: (Max 30 words) A scalable gender-inclusive, pro-poor, multi-zonation and sustainably financed LMMA model for Mozambique, recovers threatened fish populations and mangrove, improving food security for 400 households in two Cabo Delgado communities.	0.1 A minimum of (i) 200ha of strict no-take zones within each LMMA, (ii) 400ha of buffer zones (sustainable use regulations such as aquaculture zones or fishing gear restriction zones) covering at least 2 critical habitats (of seagrass, mangrove and coral reef) approved by local authorities and being effectively enforced by the two target villages with support from local police by year 2 (from baseline of 0ha). 0.2 Decrease in use of destructive fishing gears outside no-take zones (all fishing activities already prohibited within no-take zones) within two LMMAs from Yr1 (baselines) to 0 infractions by Yr3 (infraction assessment on a yearly basis) 0.3 Implement recommendations and targets from gender analysis (output 3) to define and encourage womens participation appropriately in CCPs and LMMA co-management processes in each of the two coastal communities by Yr2. 0.4 Improvement of locally specific food security indicators (decreased frequency of taking credit, asking for	0.1. Official government-endorsed CCP co-management plans with GIS maps of zones plotted with associated rules and regulations. 0.2. Weekly beach patrols report by CCPs and monthly boat patrols joint report by provincial fisheries authorities and Ama, including GPS routes patrolled and infraction details. 0.3. Biological underwater survey Yr1 and repeat survey Yr3 both undertaken by CORDIO, building on data from 2013 and Catch Per Unit Effort (CPUE) data recorded using existing tested Open Data Kit (ODK) app by CCP members. 0.4. Annual fishing gear census by Fisheries Community Councils (CCPs) and provincial fisheries authorities 0.5. Existing socioeconomic baseline data and household surveys in Yr 1 and repeat surveys Yr 3 undertaken by NOVA FCSH and Ama. 0.6. Records of bivalve growth, survival and sales records; names of women engaged in bivalve farming	Potential changes in government and associated fisheries departments resulting from the 2018 national elections confirm official approvals of management plans beyond the life of the project. Potential changes in government and associated fisheries departments resulting from the 2018 national elections confirm the role of the Provincial Marine Police in the enforcement of LMMAs Biological cycles of the six flagship IUCN Red List threatened marine species are unchanged by events related to climate change Coral reefs recover from 2017 bleaching events The project strategy and progress are resilient to slow bureaucracy in government agencies and unclear

	food, selling assets to local shops) and subjective and material wellbeing indicators (including material style of life and income) by Yr3 from baselines set in Yr1 for 400 households. 0.5 CPUE baselines established in Yr2 and ongoing monitoring ensuring no declines in catches during project period. Measuresput in place in this project are expected to deliver improvements in CPUE post-project.	collected on a quarterly basis by Ama with the support of the University of Aveiro. 0.7. CCP member lists, records from CCP meetings on a biannual basis by Ama. 0.8. VSLA member lists, presence and savings in environment pouch on VSLAs' 1st, 12th, 24th and share-out meetings by Ama. 0.9. Note from OSOL consortium about eventual planned replications in new coastal communities with the support of organizations external to the OSOL consortium and inspired by the project by Yr3. 0.10. Mangrove survey undertaken by Ama Yr1 and Yr3 as per the existing guidelines on ZSL's "Community-based mangrove rehabilitation training manual" with remote technical support provided by ZSL Philippines.	responsibilities between national and provincial government Outbreaks of disease (cholera, etc.) are non-existent in the six coastal communities Adverse weather conditions (floods, storms) are reduced in the project geographical areas and keep the six project sites accessible The fluctuation of the New Metical currency is reduced on international markets or induces low price of Mozambique main goods imports The communities' perception in regards to women improving their income and extending their interest and participation in decision-making related to fisheries co-management is sensible and benevolent
Outputs: 1. **Two multi-use zonation LMMAs (Bandar, Mecufi) based on equitable governance** agreed and implemented with high social acceptance, advanced representation and participation of women, strong enforcement and effective management capacity of trained CCP members in collaboration with law enforcement agencies, resulting in compliance with LMMA regulations by fishers.	1.1 Two multi-zonation LMMAs established in Bandar and Mecufi by end of Yr1 with co-management agreements in place, each incorporating at least 200ha of no-take zones covering at least 2 critical habitats in each village (from seagrass, mangrove and coral), 50ha of buffer zones for preferential user rights, one temporary closure area, and mangrove rehabilitation area. 1.2 At least 10 VSLAs implemented by yr 2 through CCPs, providing platform for outreach (1.5) with members contributing to co-management plan in	1.1 Official document endorsing the establishment of the two multi zonation LMMAs, their regulations and enforcement plans. 1.2 Ama VSLA establishment report; record from co-management plan development consultation and VSLA saving record. 1.3 Village Agent Training report and Ama VSLA establishment report 1.4 Training report including evaluation conducted post-training; written report of activities conducted by the CCPs, and observations from Ama team during	Process for legalising LMMAs is established or clarified. Appropriate mechanisms for gender based knowledge to feed into LMMA co-management plans identified and implemented. Community acceptance and willingness to implement LMMA and co-management plan and based on equitable governance.

	Yr1 (1.1) and “environment funds” in each VSLA by Year 3. 1.3Village Agents from original VSLAs are identified and trained and double the number of VSLAs by Yr3. 1.4 CCPs in Bandar and Mecufi strengthened through training in LMMA management, leadership, conflict resolution, social communication and outreach by Yr2 and using VSLAs as key community partner groups, and advise from gender equity assessments being implemented by year 3 to address imbalances. 1.5 Two outreach campaigns (one in Yr1, one in Yr2) about unsustainable fishing practices and compliance with LMMA regulations undertaken in Bandar and Mecufi through VSLAs 1.6 Six CCP members from each LMMA sites are effectively trained in two separate sessions in the LMMA enforcement procedures, boat handling and fully equipped by Yr2; conduct regular weekly patrol; successfully apprehend and report at least 80% of violators to local authorities by Yr3 1.7 Workshop conducted with local authorities leading to agreement on roles and responsibilities for different departments, and relevant fish wardens and enforcement agencies are effectively trained in two separate session in the LMMA enforcement procedures, boat handling and fully equipped by Yr2; conduct monthly patrol; successfully prosecute all reported violators by Yr3. 1.8 VSLAs trained and operating as informant networks by Yr 3.	field activities conducted together with CCPs. 1.5 Ama outreach report 1.6 Training report including evaluation conducted post-training; weekly beach patrols and joint monthly boat patrol with fisheries authorities’ logbook recording GPS routes patrolled, and records of apprehensions and reports 1.7 Workshop report; Training report including evaluation conducted post-training; joint monthly boat patrol with fisheries authorities’ logbook recording GPS routes patrolled, and records of apprehensions and prosecution minutes, and amount of fine collected. 1.8 Training report and information gathered through VSLA	

2. Integrated Territorial User Rights in Fisheries zones integrated into LMMAs to incorporate sustainable fishing and **women-led bivalve aquaculture** initiatives in Bandar and Mecufi to incentivise enforcement of LMMA and replace illegal mosquito net fishing for vulnerable female groups.	2.1 Sustainable fishing zones and bivalve aquaculture zones identified and incorporated within LMMA plans by Yr2. 2.2 Rules on who can use these buffer zones and how, under what conditions, any benefit-sharing arrangements, and how this is enforced included in appropriate management plans by Yr2 and being implemented by Yr3. 2.3 50 female fishers (25 in Bandar, 25 in Mecufi) trained in bivalve farming Yr1. 100 female fishers (50 in Bandar, 50 in Mecufi) trained in bivalve farming practices Yr2. 150 female fishers (50 in Bandar, 100 in Mecufi) trained in bivalve farming practices by Yr3. Training conducted through VSLAs. 2.4 Two female village agents identified per community trained to conduct outreach and deliver monthly trainings on bivalve farming to VSLAs from Yr1. 2.5 At least six VSLA groups are engaged in and sharing bivalve farming revenue equitably by Yr3 2.6 Two functional bivalve farms are set up Yr1 (one in Bandar, one in Mecufi). Four functional bivalve farms are set up by Yr2 (two in Bandar, two in Mecufi). Six functional bivalve farms are set up by Yr3 (two in Bandar, four in Mecufi). 2.7 The average bivalve farmer's yearly income is of 90USD Yr1, 135USD Yr2 and 180USD Yr3. 2.8 50% reduction of owned illegal mosquito fishing nets by Yr2 and at least 75% reduction by Yr3 compared to Yr1 baseline in Bandar and Mecufi	2.1Ama technical reports, CCP meeting reports 2.2Training course reports; names of women engaged in bivalve farming 2.3Household baseline survey Yr 1 and repeat surveys Yr3 2.4Community endorsed map of zonation of bivalve farming activities 2.5VSLA member lists, and savings on VSLAs' 1st, 12th, 24th and share-out meetings by Ama	Red tides or other natural or anthropogenic events will not compromise bivalve culture Viable local markets remain in place for cultured bivalves. The communities' perception in regards to women improving their income is sensible and benevolent DPMAIP's main interest remains to foster high quality food production processes to address the population increase in the Province of Cabo Delgado

3. Equitable governance and management of marine resources and sustainable bivalve aquaculture ensured through advanced representation and participation of women in CCPs and LMMA management	3.1 Differences in gender roles, activities, constraints, opportunities and perceived risks for people involved and affected by project implementation in both target communities understood by end of Yr 1 3.2. Appropriate gender integration mechanisms and strategies e.g. separate venue for women to feed into LMMA management process, developed for each community by end of Yr1 and implemented by mid Yr2 3.2. Appropriate gender integration mechanisms and strategies developed for each community by end of Yr1 and implemented by mid Yr2 3.3. Gender sensitive monitoring plan designed and integrated into existing M&E tools, where appropriate, by Yr1 3.4. Inter-disciplinary (humanitarian, development, academic and other relevant organisations) regional workshop held on effective approaches to share experiences and promote gender equity approaches in marine resource management and governance held by yr2.	3.1. Focus group discussion and key informant interviews documented and attendance lists disaggregated by gender. 3.2. Meeting notes and sessions documented. Key information disaggregated by gender. Project reports 3.3 CCP member lists, records from CCP meetings. 3.4 VSLA member lists and attendance disaggregated by gender. 3.5 Directory of village agents with contact details. 3.6 List of bivalve farmers and income earnt disaggregated by gender. 3.7 Workshop participant list, workshop report with recommendations.	Current cultural, tradition and religious barriers to gender equity can be reduced. Appropriate local mechanisms for women to increase willingness to be involved in local marine management can be found and agreed by all community groups
4. Sustainable financing mechanisms (business models, functional VSLAs, legalizing LMMAs contributing to improve access to national and international funds to sustain management costs) established for Bandar and Mecufi LMMAs fostering multi-use zonation, sustainable bivalve aquaculture and gender equity	4.1 Business models with income from the sale of premium octopus (associated with temporary closures) and bivalves (from aquaculture) contributing towards the CCP costs and local coordination costs by Yr3 compared to a baseline of 0USD Yr1. 4.2 VSLAs integrate environment funds by Yr3 and saving $500 annually contributing towards CCP operating costs for enforcing the LMMAs. 4.3 Two LMMAs are legalized by Yr3	4.1 Documentation of functional business models by Ama with support of ZSL and NOVA FCSH (reports of selling of octopus and bivalves by CCP members, CCP financial reports) 4.2 Reports by Ama and CCP members of how VSLA environmental funds contribute towards enforcing the LMMAs	There is ongoing appetite from public sector for enforcing the legalization process of LMMAs in Mozambique The new REPMAR will be approved by the Mozambican Government in the first half of 2020

	4.4 Operating budget for LMMAs agreed with local officials and funding agreement secured	4.3 Official documents endorsed by the government proving the legalization of the two LMMAs 4.4 Signed funding agreement of LMMA operating budgets	VSLA members are prone to contribute towards CCP operating costs Private sector stakeholders are prone to engage in Price Premium schemes

Activities (each activity is numbered according to the Output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)

1. Two multi-zonation LMMAs established in Bandar and Mecufi by end of Yr1 with co-management agreements in place, each incorporating at least 200ha of no-take zones covering at least 2 critical habitats in each village (from seagrass, mangrove and coral), 50ha of buffer zones for preferential user rights, one temporary closure area, and mangrove rehabilitation area.

1.1 Project presentation and consultation meetings towards generation of Free Prior Informed Consent from local communities and local government authorities.

1.2 Conduct community profiling using existing RRA tools.

1.3 VSLA Formation in each LMMA sites with environmental funds

1.4 Participatory design of LMMA zonation

1.4.1 Participatory mapping and assessment of resource, habitat and fisheries

1.4.2 Exchange/learning visits of community leaders/champions to existing LMMA sites

1.4.3 Community consultation using existing decision-making process for LMMA zonation design

1.4.4 Participatory physical mapping of the LMMA Zonation

1.5 Protect and restore mangrove areas

1.5.1 GIS mapping of mangrove areas and assess mangrove community structure, including identifying target areas for replanting

1.5.2 Train communities in mangrove nursery establishment and monitor and support nurseries

1.5.3 Conduct replanting

1.5.4 Monitor survival and growth (monthly) and mangrove community structure (annually)

1.6 Establishment of governance structure with equitable membership

1.6.1 CCP strengthening and integration of women and VSLA members

1.6.2 Development of LMMA co-management plan

1.6.3 LMMA zoning and demarcation

1.6.4 LMMA regulation and enforcement plan drafting and approval by local authorities

1.7 LMMA infrastructure establishment

1.7.1 Design and establishment of marker buoys

1.7.2 Design and construction of guard house

1.8 CCP capacity building

1.8.1 Conducting CCP's capacity need assessment

1.8.2 Conducting first LMMA management Training workshop

1.9 Enforcement bodies training

1.9.1 Conducting CCP training on LMMA regulation and enforcement plan

1.9.2 Conducting Fisheries officer training in LMMA law enforcement

1.9.3 Conducting training in patrol boat handling

1.9.4 VSLA training in LMMA regulation and enforcement procedure

1.10 Conducting enforcement activities

1.10.1 Weekly enforcement patrol conducted by CCP

1.10.2 Monthly joint patrol conducted by CCP, fisheries officers and Ama

1.11 Formation and training of Village Agent

1.12 Outreach campaign activities targeting VSLAs, CCP, women group and the broad community members conducted in each LMMA sites

1.13 Conduct underwater surveys fish underwater visual census and coral cover in yr 1 (baseline) and yr 3 endline)

2. Integrated Territorial User Rights in Fisheries zones integrated into LMMAs to incorporate sustainable fishing and women-led bivalve aquaculture initiatives in Bandar and Mecufi to incentivise enforcement of LMMA and replace illegal mosquito net fishing for vulnerable female groups.

2.1 Community consultation for Integrated Territorial User Rights in Fisheries regulation

2.2 Conduct training on Integrated Territorial User Rights (TURF)

2.3 Physical demarcation of TURF area.

2.4 Participatory design of sustainable fishing and bivalve aquaculture zonation

2.5 Exchange/learning visits of community leaders/champions to existing aquaculture sites

2.6 Conducting communities' female fishers capacity need assessment for bivalve farming

2.7 Conducting first bivalve farming training workshop (Yr2) (for 50 female fishers in total- 25 in Bandar, 25 in Mecufi

2.8 Conducting first bivalve farming training workshop (Yr2) (for 100 female fishers in total- 50 in Bandar, 50 in Mecufi).

2.9 Conducting second training workshop (Yr2) including evaluation prior the training

2.10 Conducting first bivalve farming training workshop (Yr3) (for 150 female fishers in total- 50 in Bandar, 100 in Mecufi)

2.11 Conducting second training workshop (Yr3) including evaluation prior the training.

3 Equitable governance and management of marine resources and sustainable bivalve aquaculture ensured through advanced representation and participation of women in CCPs and LMMA management

3.1 Focus group discussions and key informant interviews conducted to understand to understand the differences in gender roles, activities, constraints, opportunities and perceived risks for people involved and affected by fisheries and marine resource management project implementation.

3.2 Analysis undertaken of findings from the research internally and sessions run with different groups in the community to brainstorm specific adjustments or additions to the project plan and priorities to produces better outcomes for gender-based opportunities and constraints for involvement of women.

3.3 Conduct sessions with CCP on co-management plan, based on findings from research, if required hold separate feedback sessions to get higher levels of participation from females in the decision making process

3.4 Conduct training on oyster farming with women in VSLA.

3.5 Conduct training on outreach with women in VSLAs and CCPs
3.6 Conduct training on VSLAs and Village Agent role
3.7 Identify existing or develop indicators to measure gender participation across activities and integrate into existing survey tools and methods.
3.8 Organise and deliver an interdisciplinary workshop to share experiences and promote approaches to gender equity consolidated and documented through a regional workshop of humanitarian, development, academic and other relevant organisations working on this topic

4 Sustainable financing mechanisms (business models, functional VSLAs, legalizing LMMAs contributing to improve access to national and international funds to sustain management costs) established for Bandar and Mecufi LMMAs fostering multi-use zonation, sustainable bivalve aquaculture and gender equity

4.1 Community consultation with different groups for sustainable financing mechanism options (temporary closures and bivalves).

4.2 Business model formation meeting and design

4.3 Conduct sessions with VSLAs on Environment Fund to plan contribution towards CCPs (Yr 2)

4.4 Meetings with the National Administration for Fisheries, the National Administration for Conservation Areas and other relevant national stakeholders to guide on how to legalize LMMAs

4.5 Meetings with the Provincial authorities of Cabo Delgado and Districts of Pemba and Mecúfi and local stakeholders to proceed with guiding procedures for LMMA legalization

Annex 2 Report of progress and achievements against final project logframe for the life of the project

Project summary	Measurable Indicators	Progress and Achievements
Impact The Mozambique gender-inclusive, pro-poor, multi-zonation and sustainably financed LMMA network secures resilient coastal ecosystems whilst fostering income-generating activities in growing coastal communities, enhancing food security and reducing poverty		The project contributed to secure resilient ecosystems in Cabo Delgado by establishing three Locally-Managed Marine Areas (LMMAs). (i) The LMMAs had a positive impact in reducing the use of destructive gears since illegal mosquito net female fishers were converted in bivalve farmers and horticulture entrepreneurs. (ii) Mangrove nursery groups are rehabilitating large areas of threatened mangrove forest. As a result of (i) and (ii), the CPUE increases. Engaging the most vulnerable social groups in LMMA management and in savings groups create the enabling conditions for sustaining and replicating the LMMAs (the project supported a third community during the project implementation period). It provides them with financial services which help to meet basic needs, improving housing conditions and enabling small businesses as a means to improve people's incomes, economic security which result in addressing the opportunity cost of marine biodiversity conservation.
Outcome A scalable gender-inclusive, pro-poor, multi-zonation and sustainably financed LMMA model for Mozambique, recovers threatened fish populations and mangrove, improving food security for 400 households in two Cabo Delgado communities.	0.1 A minimum of (i) 200ha of strict no-take zones within each LMMA, (ii) 400ha of buffer zones (sustainable use regulations such as aquaculture zones or fishing gear restriction zones) covering at least 2 critical habitats (of seagrass, mangrove and coral reef) approved by local authorities and being effectively enforced by the two target villages with support from local police by year 2 (from baseline of 0ha). 0.2 Decrease in use of destructive fishing gears outside no-take zones (all fishing activities already prohibited within no-take zones) within two LMMAs from Yr1 (baselines) to 0 infractions by Yr3 (infraction assessment on a yearly basis) 0.3 Implement recommendations and targets from gender analysis (output 3) to define and encourage women's participation appropriately in CCPs and LMMA co-management processes in each of the two coastal communities by Yr2.	The project has supported the creation of Locally-Managed Marine Areas (LMMAs) in three communities: the two target communities (Mecufi and Bandar) and Cambala. Strong collaboration with local authorities in Bandar to enforce the permanent reserve and the temporary closure (where is also located the bivalve farming), weekly beach patrols, outreach campaigns by CCPs and the support to illegal mosquito net female fishers in bivalve farming and horticulture has started to change fishing behaviours such as beach seine netting and mosquito net fishing. Enforcement has not been as positive in Mecufi and Cambala for lack of consistent collaboration with local authorities. However, the catches and CPUE verified before and after the project show that the project had an impact on the use of destructive gears since the catches and CPUE of harmful (non-selective) gears were the most representative before project implementation (2019) which was not verified from when LMMAs started to operate end of 2020. An annual CCP diagnostic looks at improving gender equity indicators monitoring gender equity in terms of the engagement of men, women and vulnerable social groups in LMMA management but also in terms of support provided to the most vulnerable social groups. This is addressed through the elaboration of an action plan of which the implementation is assessed through the CCP diagnostic of the following year. The savings groups are having a positive impact on various dimensions of well-being for at least 200 households (with 20 to 25 members per VSLA, there are 10 VSLAs), particularly in helping to meet basic needs (food and clothing, 30% of all savings uses reported), improving housing conditions (19% of all savings uses reported) and enabling small businesses (25% of all savings uses reported) as a means to improve people's incomes and economic security. As a result of this suite of project activities, but also because of the Covid-10 crisis, the CPUE increased significantly for Bandar until the end of 2020, but not in Mecufi. Also, an area of 17ha of

	0.4 Improvement of locally specific food security indicators (decreased frequency of taking credit, asking for food, selling assets to local shops) and subjective and material wellbeing indicators (including material style of life and income) by Yr3 from baselines set in Yr1 for 400 households. 0.5 CPUE baselines established in Yr2 and ongoing monitoring ensuring no declines in catches during project period. Measures put in place in this project are expected to deliver improvements in CPUE post-project.	mangrove was rehabilitated in Bandar with 4,000 seedlings and of 5.5ha in Mecufi with more than 2,000 seedlings.
Output 1. 1. **Two multi-use zonation LMMAs (Bandar, Mecufi) based on equitable governance** agreed and implemented with high social acceptance, advanced representation and participation of women, strong enforcement and effective management capacity of trained CCP members in collaboration with law enforcement agencies, resulting in compliance with LMMA regulations by fishers.	1.1 Two multi-zonation LMMAs established in Bandar and Mecufi by end of Yr1 with co-management agreements in place, each incorporating at least 200ha of no-take zones covering at least 2 critical habitats in each village (from seagrass, mangrove and coral), 50ha of buffer zones for preferential user rights, one temporary closure area, and mangrove rehabilitation area. 1.2 At least 10 VSLAs implemented by yr 2 through CCPs, providing platform for outreach (1.5) with members contributing to co-management plan in Yr1 (1.1) and "environment funds" in each VSLA by Year 3. 1.3Village Agents from original VSLAs are identified and trained and double the number of VSLAs by Yr3. 1.4 CCPs in Bandar and Mecufi strengthened through training in LMMA management, leadership, conflict resolution, social communication and outreach by Yr2 and using VSLAs as key community partner groups, and advise from gender equity assessments being	Three multi-zonation LMMAs established (co-management plans submitted to local authorities for their legalization) in Bandar, Mecufi and Cambala covering a total of 1,175ha of no-take zones including mangrove and coral reef habitat and 800ha of temporary closure area that incorporate, in Bandar and Mecufi, the area for women-led bivalve farming initiatives, in addition to the mangrove rehabilitation area.

	implemented by year 3 to address imbalances. 1.5 Two outreach campaigns (one in Yr1, one in Yr2) about unsustainable fishing practices and compliance with LMMA regulations undertaken in Bandar and Mecufi through VSLAs 1.6 Six CCP members from each LMMA sites are effectively trained in two separate sessions in the LMMA enforcement procedures, boat handling and fully equipped by Yr2; conduct regular weekly patrol; successfully apprehend and report at least 80% of violators to local authorities by Yr3 1.7 Workshop conducted with local authorities leading to agreement on roles and responsibilities for different departments, and relevant fish wardens and enforcement agencies are effectively trained in two separate session in the LMMA enforcement procedures, boat handling and fully equipped by Yr2; conduct monthly patrol; successfully prosecute all reported violators by Yr3. 1.8 VSLAs trained and operating as informant networks by Yr 3.	
Activity 1.1 Project presentation and consultation meetings towards generation of Free Prior Informed Consent from local communities and local government authorities.		See Yr1 annual report to Darwin Initiative.
Activity 1.2 Conduct community profiling using existing RRA tools.		See Yr1 annual report to Darwin Initiative and our report about the rapid rural appraisal in Annex 1a.
Activity 1.3 VSLA Formation in each LMMA sites with environmental funds		There were 10 running VSLAs by Year 2 providing financial services and platform for outreach so that their members' activities comply with the co-management plans set up or empower them in investing in sustainable livelihoods such as bivalve farming or horticulture. Training sessions were given to VSLA members to introduce the concept of Environmental Fund (see Annex 4a) but no environmental fund has been operational yet.

Activity 1.4 Participatory design of LMMA zonation	We conducted the training of the CCPs members (leadership, conflict resolution, social communication, outreach, manage opportunities and constraints) by leading together the decision-making process to develop co-management plans along with the community members. Meeting with all of the social groups of each community (youth, elders, men, women, community and religious leaders) to collect their views, interests, opportunities and constraints in LMMA management has strengthened CCP members' awareness of the skills required to ensure fair co-management plans equitably addressing the interests of all social groups. CCP members have acquired the capacity to lead these discussions and to anticipate and resolve any conflicts (Annex 2a, Pictures 16 to 19).
Activity 1.5 Protect and restore mangrove areas	We formed and trained a new mangrove nursery group in Bandar (group of 6 men and 14 women) and we worked with the existing mangrove nursery group in Mecufi (Annex 2a, Pictures 1 to 10). As a result, more than 4,000 seedlings (*Rhizophora mucronata* and *Avicenia marina*) were planted over an area of 17ha in Bandar and more than 2,000 seedlings were planted over an area of 5.5ha in Mecufi (Annex 3a and Annex 2a, Figures 3 to 5).
Activity 1.6 Establishment of governance structure with equitable membership	CCP members and local authorities (CCP members; maritime police; local police; community chiefs; District Services for Economic Activities; National Administration of Fisheries; locality chiefs; AMA representatives; national law representatives; traditional authority representatives) agreed on rules and regulations of the three LMMAs and how to enforce them (Annex 2a, Picture 29 and results of these discussions in Annexes 12, 13 and 14)
Activity 1.7 LMMA infrastructure establishment	The CCP offices of Bandar and Mecufi were built (Annex 2a, Picture 23 & 24) and the LMMAs were demarcated (Annex 2a, Picture 25 to 28)
Activity 1.8 CCP capacity building	See 1.4
Activity 1.9 Enforcement bodies training	Despite the agreement on roles and responsibilities, the enforcement agencies have not received training sessions on enforcement procedures and boat handling due to the time it took to achieve this agreement submitted in July 2021 to local authorities in the co-management plans for the legalization of the three LMMAs
Activity 1.10 Conducting enforcement activities	We did an assessment of the LMMAs at the end of the project that shows that strong collaboration with local authorities in Bandar, weekly beach patrols, outreach campaigns by CCPs and the support to illegal mosquito net female fishers in bivalve farming and horticulture has started to change fishing behaviours such as beach seine netting and mosquito net fishing which gave the score of 4 out of 5 in terms of compliance with the LMMA rules and regulations
Activity 1.11 Formation and training of Village Agents	We trained four Village Agents (three women, one man) that are the focal points in Bandar and Mecufi (two from each community) to provide support to savings groups, on a volunteer basis, and mobilize community members to adhere to new savings groups. This

		training focused on the creation and functioning of savings groups and on the process to establish Environment Funds (Annexes 4a and 5a)
Activity 1.12 Outreach campaign activities targeting VSLAs, CCP, women group and the broad community members conducted in each LMMA sites		Two outreach campaigns about the ocean and the marine environment were organised with VSLA and with community members, in Cambala and Mecufi on the impacts of using nets with small mesh (Annex 2a, Pictures 20 & 21) and in Bandar on the importance of mangrove forests during the process of creating a mangrove nursery group (Annex 8 & Annex 2a, Picture 22)
Activity 1.13 Conduct underwater surveys fish underwater visual census and coral cover in Yr 1 (baseline) and Yr 3 endline)		Our participatory coral reef health monitoring (Annex 1a, Annex 2a, pics 60-65) showed that the selected sites in Mecufi and Cambala are characterized by a variety of habitats (seagrass, extensive intertidal sandy areas, coral boomies, mangroves, rocks) and fish and macro-invertebrates. In Bandar, there is a considerable percentage of hard corals in the selected no-take zone. These may act as refugia to replenish coral reefs in adjacent areas, which can favour the reproduction of species of long-life cycle and endangered species (Jones *et al.,* 2009). The presence of other habitats, specifically seagrass meadows and mangroves, in the intertidal areas allows cross-utilization of habitats by species at different points in their life cycles. Community consultations and community monitoring through CCPs support the presence of the humphead parrot species in the no-take zone, which underscores the extreme importance of preserving these areas, as these species are considered vulnerable on the IUCN Red List, (Hamilton and Choat 2012)
Output 2. Integrated Territorial User Rights in Fisheries zones integrated into LMMAs to incorporate sustainable fishing and **women-led bivalve aquaculture** initiatives in Bandar and Mecufi to incentivise enforcement of LMMA and replace illegal mosquito net fishing for vulnerable female groups.	2.1 Sustainable fishing zones and bivalve aquaculture zones identified and incorporated within LMMA plans by Yr2. 2.2 Rules on who can use these buffer zones and how, under what conditions, any benefit-sharing arrangements, and how this is enforced included in appropriate management plans by Yr2 and being implemented by Yr3. 2.3 50 female fishers (25 in Bandar, 25 in Mecufi) trained in bivalve farming Yr1. 100 female fishers (50 in Bandar, 50 in Mecufi) trained in bivalve farming practices Yr2. 150 female fishers (50 in Bandar, 100 in Mecufi) trained in bivalve farming practices by Yr3. Training conducted through VSLAs. 2.4 Two female village agents identified per community trained to conduct outreach and deliver monthly trainings on bivalve farming to VSLAs from Yr1.	Bivalve aquaculture zones incorporated within LMMA plans for two groups of in Bandar of 27 members in Bandar and of 15 members in Mecufi (comprising 8 and 15 mosquito net female fishers respectively) as an alternative to their illegal livelihood. We found out that dry salting offered the best food biochemical quality (especially regarding sugars and proteins) as a method to preserve the bivalves for selling. However, the molluscs were heavily predated on by crabs or buried in the intertidal sand dunes in Mecufi due to the natural movement of the sandy habitat. In the meanwhile, we provided support (training and materials) to the aquaculture groups to grow vegetables in parallel to the re-initiation of bivalve farming. The production of lettuce, cabbage, tomatoes, onions and chilli over an area of 2ha was largely for their own subsistence or the local market but the Bandar group was able to re-invest their small profit in buying seeds for the next season. We are now monitoring the growing of 1,350 oysters in Mecufi and 2,500 oysters in Bandar before scaling up the methodology, so it has not generated revenue yet. Strong collaboration with local authorities in Bandar, weekly beach patrols, outreach campaigns by CCPs and the support to illegal mosquito net female fishers in bivalve farming and horticulture has started to change fishing behaviours such as beach seine netting and mosquito net fishing which gave the score of 4 out of 5 in terms of compliance with the LMMA rules and regulations

	2.5 At least six VSLA groups are engaged in and sharing bivalve farming revenue equitably by Yr3 2.6 Two functional bivalve farms are set up Yr1 (one in Bandar, one in Mecufi). Four functional bivalve farms are set up by Yr2 (two in Bandar, two in Mecufi). Six functional bivalve farms are set up by Yr3 (two in Bandar, four in Mecufi). 2.7 The average bivalve farmer's yearly income is of 90USD Yr1, 135USD Yr2 and 180USD Yr3. 2.8 50% reduction of owned illegal mosquito fishing nets by Yr2 and at least 75% reduction by Yr3 compared to Yr1 baseline in Bandar and Mecufi	
Activity 2.1 Community consultation for Integrated Territorial User Rights in Fisheries regulation		Sustainable fishing zones and bivalve aquaculture zones have been identified and incorporated within LMMA plans. Temporary-closed areas (sustainable fishing zones) and bivalve aquaculture are part of the co-management strategy for the sustainability of the LMMAs. Two groups of in Bandar of 27 members in Bandar and of 15 members in Mecufi (comprising 8 and 15 mosquito net female fishers respectively) to train for bivalve aquaculture as an alternative to their illegal livelihood. They formed two bivalve aquaculture groups, of which the members all belonged to VSLAs to benefit from financial services.
Activity 2.2 Conduct training on Integrated Territorial User Rights (TURF)		See 2.1
Activity 2.3 Physical demarcation of TURF area		There is no physical demarcation of TURF area yet. The areas being used in Bandar and Mecufi for piloting bivalve aquaculture were agreed with bivalve aquaculture groups with consent from the CCP and the community leaders.
Activity 2.4 Participatory design of sustainable fishing and bivalve aquaculture zonation		See 1.4. and 2.1.
Activity 2.5 Exchange/learning visits of community leaders/champions to existing aquaculture sites		There was no exchange to existing aquaculture sites

Activity 2.6 Conducting communities' female fishers capacity need assessment for bivalve farming		See Year 2 annual report
Activity 2.7 Conducting first bivalve farming training workshop (Yr2) (for 50 female fishers in total- 25 in Bandar, 25 in Mecufi		15 female fishers in Mecufi and 27 CCP members (of which eight are women) in Bandar were trained in bivalve farming for *Modiolus philippinarum* (mussel) and *Saccostrea cucullata* (oyster): seed collection, building bivalve racks, everyday maintenance for cleaning bivalves in bags.
Activity 2.8 Conducting first bivalve farming training workshop (Yr2) (for 100 female fishers in total- 50 in Bandar, 50 in Mecufi)		We have not yet scaled up bivalve farming. In consultation with the CCP members and the community leaders, we are still in a process to define with the current two aquaculture groups which aquaculture areas are more productive in terms of recruitment and growth (avoiding predation) for bivalves *Modiolus philippinarum* and *Saccostrea cucullata*.
Activity 2.9 Conducting second training workshop (Yr2) including evaluation prior the training		Prior to the second training, we did more sampling to determine the best preservation methods (in salty water and dried, dried salted bivalves, dried, smoked, smoked with oil layer) that would maximise nutrient levels in bivalves. We found out that dry salting offered the best food biochemical quality (especially regarding sugars and proteins)
Activity 2.10 Conducting first bivalve farming training workshop (Yr3) (for 150 female fishers in total- 50 in Bandar, 100 in Mecufi)		See 2.8
Activity 2.11 Conducting second training workshop (Yr3) including evaluation prior the training.		See 2.8
Output 3. Equitable governance and management of marine resources and sustainable bivalve aquaculture ensured through advanced representation and participation of women in CCPs and LMMA management	3.1 Differences in gender roles, activities, constraints, opportunities and perceived risks for people involved and affected by project implementation in both target communities understood by end of Yr 1 3.2. Appropriate gender integration mechanisms and strategies e.g. separate venue for women to feed into LMMA management process, developed for each community by end of Yr1 and implemented by mid Yr2 3.2. Appropriate gender integration mechanisms and strategies developed for each community by end of Yr1 and implemented by mid Yr2	We distinguished the fishing zones mainly used by men and by women, describing the main fishing gear used and the target species to develop the strategies to ensure gender equity in CCPs and LMMA management. VSLAs and sustainable livelihoods (see Output 2) are mechanisms that improve gender equity in the LMMA management and fair benefit sharing. The large women's membership of VSLAs and the significant number of women taking loans for small businesses is an encouraging sign that the project is contributing to empowering women economically (through bivalve aquaculture, horticulture, bread ovens or tea rooms) to address illegal mosquito net fishing and contribute to a large female engagement in LMMA decision-making.

	3.3. Gender sensitive monitoring plan designed and integrated into existing M&E tools, where appropriate, by Yr1 3.4. Inter-disciplinary (humanitarian, development, academic and other relevant organisations) regional workshop held on effective approaches to share experiences and promote gender equity approaches in marine resource management and governance held by yr2.	
Activity 3.1 Focus group discussions and key informant interviews conducted to understand to understand the differences in gender roles, activities, constraints, opportunities and perceived risks for people involved and affected by fisheries and marine resource management project implementation.		Differences in gender roles and activities have been captured by the rapid rural appraisal (see Year 2 annual report) and also by the CCP diagnostic. In addition, the constraints, opportunities and perceived risks were discussed through community consultations in focus groups.
Activity 3.2 Analysis undertaken of findings from the research internally and sessions run with different groups in the community to brainstorm specific adjustments or additions to the project plan and priorities to produces better outcomes for gender-based opportunities and constraints for involvement of women.		The CCP diagnostic (see 3.1) recommends that a special focus is given on gender representativity within CCPs so that gender equity is achieved in decision-making processes. The consultations as explained in 3.1 led for instance in trialing bivalve aquaculture for women, being more vulnerable to the enforcement of the co-management measures as they still depend on prohibited mosquito nets to access natural resources (see 2.1).
Activity 3.3 Conduct sessions with CCP on co-management plan, based on findings from research, if required hold separate feedback sessions to get higher levels of participation from females in the decision-making process		Participatory village consultations were conducted, as part of the development of the co-management plans, to assess threats to marine resources, at least for the most important species for each social group (local leaders, young local fishermen, older local fishermen, women). This exercise was conducted in order to (i) identify key resources by community and by resource user group (Annex 2a, Picture 16 to 19), (ii) understand how marine resources have changed in recent decades, (iii) identify perceived key threats and agents (drivers of change), (iv) discuss possible community solutions (linked to local communities' priorities), (v) increase community engagement and ownership of marine resource planning and management. This process collected the data presented in 3.2 to develop the strategies for a higher level of participation from women in the decision-making process.
Activity 3.4 Conduct training on oyster farming with women in VSLA.		See 2.1
Activity 3.5 Conduct training on outreach with women in VSLAs and CCPs		See 1.3, 1.12.
Activity 3.6 Conduct training on VSLAs and Village Agent role		See 1.11.

Activity 3.7 Identify existing or develop indicators to measure gender participation across activities and integrate into existing survey tools and methods.		Wellbeing indicators disaggregated by gender were elaborated in the rapid rural appraisal (see Year 2 annual report) and are related to (i) livelihood, (ii) home and (iii) children at school. The CCP diagnostic tool (assessing the performance of the CCP) and the VSLA surveys (analysing the impact of the savings and loans on VSLA members) collect gender-disaggregated data and are part of the M&E tools of the LMMAs.
Activity 3.8 Organise and deliver an interdisciplinary workshop to share experiences and promote approaches to gender equity consolidated and documented through a regional workshop of humanitarian, development, academic and other relevant organisations working on this topic		The project organised an online workshop on 25th May 2021 entitled "The impact of Covid-19 on coastal communities", which 29 participants from different organizations (including IUCN, FFI, ZSL, AMA) attended (Annex 21). This workshop presented the outcomes of the project in coastal Mozambique and of other similar initiatives in the Philippines, São Tomé & Príncipe, Sri Lanka and India. It aimed to discuss challenges and lessons learnt by NGOs in supporting communities through shocks such as Covid-19 and inform future considerations, providing recommendations on mechanisms or policies and solutions to strengthen our role in the equitable management of marine resources. Important insights were drawn from the case studies, showcasing a wide range of impacts, both direct and indirect. There is a clear need for strengthening value chains and market access, as well as promoting equitable distributions of benefits, particularly for fisheries, but also for other products. Managing resources addresses the short- and long-term impacts of Covid-19, despite being considered another layer of restrictions added to the Covid-19 restriction measures. In fact, efficient resource management has a positive impact on people's livelihoods, and especially women, which strengthens the resilience of communities to cope and adapt to different types of shocks.
Output 4. Sustainable financing mechanisms (business models, functional VSLAs, legalizing LMMAs contributing to improve access to national and international funds to sustain management costs) established for Bandar and Mecufi LMMAs fostering multi-use zonation, sustainable bivalve aquaculture and gender equity	4.1 Business models with income from the sale of premium octopus (associated with temporary closures) and bivalves (from aquaculture) contributing towards the CCP costs and local coordination costs by Yr3 compared to a baseline of 0USD Yr1. 4.2 VSLAs integrate environment funds by Yr3 and saving $500 annually contributing towards CCP operating costs for enforcing the LMMAs. 4.3 Two LMMAs are legalized by Yr3 4.4 Operating budget for LMMAs agreed with local officials and funding agreement secured	The business model through temporary closures achieved a moderate success. In Cambala, the CCP received approximately 200kg of fish worth 20,000MZN (250GBP) for their own operations. However, CCP members' family pressure make them take the decision of dividing the amount of money among the CCP members. Despite of the fact that it won't financially sustain the CCP action plan ahead, it kept CCP members motivation high to carry on their unpaid contribution to the LMMA management. Despite the 10 VSLAs not contributing financially to the sustainability of the CCPs, the large women's membership of VSLAs and the significant number of women taking loans for small businesses is an encouraging sign that the project is contributing to empowering women economically reducing their dependence on illegal mosquito net fishing, thus increasing their compliance to the LMMAs' rules and regulations. As per the new REPMAR regulations, we requested the legalization of three LMMAs that will improve their access to national and international funds to cover management costs.

Activity 4.1 Community consultation with different groups for sustainable financing mechanism options (temporary closures and bivalves).	See 1.4
Activity 4.2 Business model formation meeting and design	Agreement on benefit sharing arrangements relative to the opening of the temporary closures achieved (Annex 22)
Activity 4.3 Conduct sessions with VSLAs on Environment Fund to plan contribution towards CCPs (Yr 2)	Meetings with savings groups were organised to deliver messaging and discuss the ocean and the marine environment, as an introduction to the concept of the Environment Funds (Annex 4a) that will sustain the LMMA co-management plans. However, no environmental fund has been operational yet within the VSLAs. Nevertheless, most small business investment from VSLA loans is largely dominated by making and selling cakes & bread. Overall, the large women's membership of VSLAs and the significant number of women taking loans for small businesses is an encouraging sign that the project is contributing to empowering women economically reducing their dependence on illegal mosquito net fishing, thus increasing their compliance to the LMMAs' rules and regulations.
Activity 4.4 Meetings with the National Administration for Fisheries, the National Administration for Conservation Areas and other relevant national stakeholders to guide on how to legalize LMMAs	On October 8th, 2020, the government of Mozambique published in the Official Bulletin a landmark regulation (REPMAR) empowering community-based fisheries management. This is the result of our work in collaboration with WCS as we organised a meeting in July 2019 with government authorities to advocate the alignment of the legalisation of marine community reserves to the terrestrial ones using procedures described in the existing Conservation Law.
Activity 4.5 Meetings with the Provincial authorities of Cabo Delgado and Districts of Pemba and Mecúfi and local stakeholders to proceed with guiding procedures for LMMA legalization	We used this regulation (REPMAR) to request in July 2021 the legalization of the two LMMAs of Bandar and Mecufi (target communities), and also the LMMA of Cambala

Annex 3 Standard Measures

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
Training Measures							
1a	Number of people to submit PhD thesis	0					
1b	Number of PhD qualifications obtained	0					
2	Number of Masters qualifications obtained	1	Portuguese	Female	Bivalve preservation methodology	English	Please do not publish the thesis (annex 26) online as data have not been published yet
3	Number of other qualifications obtained	0					
4a	Number of undergraduate students receiving training	10	Mozambican	5 men 5 women	Socio Economic study	Portuguese	
4b	Number of training weeks provided to undergraduate students	2					Training weeks related to the socio-economic study so that students understand the questionnaire and how to ask questions
4c	Number of postgraduate students receiving training (not 1-3 above)	0					
4d	Number of training weeks for postgraduate students	0					

5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification (e.g., not categories 1-4 above)	0					
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	10	Mozambican	5 men 5 women	Participatory approach	Portuguese	
6b	Number of training weeks not leading to formal qualification	2					Training weeks related to the participatory approach training so that AMA staff understand the approach
7	Number of types of training materials produced for use by host country(s) (describe training materials)	1	-	-	Toolkit for LMMA establishment: A case study of Our Sea Our Life's approach to community-based marine conservation in northern Mozambique	English, Portuguese	1 downloadable best practice guide for replication of the OSOL LMMA model

Research Measures		**Total**	**Nationality**	**Gender**	**Title**	**Language**	**Comments/ Weblink if available**
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (ies)	2			Co-management plan	Portuguese	Co-management plans
10	Number of formal documents produced to assist work related to species identification, classification and recording.	3					3 sorts of documents have been produced to

							support extension workers to identify species but also community members
11a	Number of papers published or accepted for publication in peer reviewed journals	2				English	'Spawning aggregations of fish in Cabo Delgado, Northern Mozambique: An interview-based survey of artisanal fishers' and 'Applying a Social–Ecological Systems Approach to Understanding Local Marine Management Trajectories in Northern Mozambique'
11b	Number of papers published or accepted for publication elsewhere	0					
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	2					2 databases

12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	0					
13a	Number of species reference collections established and handed over to host country(s)	0					
13b	Number of species reference collections enhanced and handed over to host country(s)	0					

Dissemination Measures		**Total**	**Nationality**	**Gender**	**Theme**	**Language**	**Comments**
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	1					1 final conference organised in June 2021 to disseminate Darwin project's main results (annex 27, annex 2a pics 52-54)
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	7				English and Portuguese	1 workshop (LMMA legalisation); 4 conferences (WIOMSA, Growing Blue Conference, SG2020 SEEP Network, Reef Conservation

Dissemination Measures		Total	Nationality	Gender	Theme	Language	Comments
							UK), 2 webinars (one led by WCS and Fondation Ensemble; and one led by the British High Commission in Maputo)

Physical Measures		Total	Comments
20	Estimated value (£s) of physical assets handed over to host country(s)		
21	Number of permanent educational, training, research facilities or organisation established	0	
22	Number of permanent field plots established	0	

Financial Measures		Total	Nationality	Gender	Theme	Language	Comments
23	Value of additional resources raised from other sources (e.g., in addition to Darwin funding) for project work *(please note that the figure provided here should align with financial information provided in section 9.2)*						

Annex 4 Aichi Targets

	Aichi Target	Tick if applicable to your project
1	People are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	x
2	Biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	x
3	Incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.	
4	Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.	
5	The rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	
6	All fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.	x
7	Areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	x
8	Pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.	
9	Invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	
10	The multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.	
11	At least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	x
12	The extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.	x
13	The genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.	

14	Ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.	
15	Ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.	
16	The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.	
17	Each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.	
18	The traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.	
19	Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.	
20	The mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.	

Annex 5 Publications

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Nationality of lead author	Nationality of institution of lead author	Gender of lead author	Publishers (name, city)	Available from (e.g. web link, contact address etc)
Paper	Spawning aggregations of fish in Cabo Delgado, Northern Mozambique: An interview-based survey of artisanal fishers Sidónio Machaieie, Isabel M. Silva 2020	Mozambique	Mozambique	Male	Western Indian Ocean JOURNAL OF Marine Science	https://www.ajol.info/index.php/wiojms/article/view/178308
Paper	Applying a Social–Ecological Systems Approach to Understanding Local Marine Management Trajectories in Northern Mozambique Kennedy Osuka, Sérgio Rosendo, Michael Riddell, Jeremy Huet5, Mario Daide6, Ercilio Chauque, and Melita Samoilys 2020	Kenyan	Kenyan	Male	Journal *Sustainability*	https://doi.org/10.3390/su12093904
Online manual	Toolkit for LMMA establishment: A case study of Our Sea Our Life's approach to community-based marine conservation in northern Mozambique	Portuguese	Portuguese	Male	ZSL, London	https://www.zsl.org/conservation/regions/africa/our-sea-our-life

	Sergio Rosendo, Ana Pinto, Gildas Andriamalala, Jeremy Huet (editors) 2020					
Paper	An integrated assessment of coastal fisheries in Mozambique for conservation planning Melita Samoilys, Kennedy Osuka Jamen Mussa, Sergio Rosendo, Michael Riddell, Mario Diade, James Mbugua, Joan Kawaka, Nicholas Hill, Heather Koldewey 2019	Kenyan	Kenyan	Female	Journal Ocean and Coastal Management	https://doi.org/10.1016/j.ocecoaman.2019.104924

Annex 6 Darwin Contacts

Ref No	25-024
Project Title	Securing marine biodiversity and fishers' income through sustainable fisheries, Mozambique
Project Leader Details	
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Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	
Is your report more than 10MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	
If you are submitting photos for publicity purposes, **do these meet the outlined requirements (see section 10)?**	
Have you included means of verification? You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	
Do you have hard copies of material you need to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	
Have you involved your partners in preparation of the report and named the main contributors	
Have you completed the Project Expenditure table fully?	
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