



Department
for Environment
Food & Rural Affairs



Darwin Initiative Final Report

Darwin project information

Project Reference	20-017
Project Title	Strengthening the capability of Kenyan communities to conserve coral reefs
Host country(ies)	Kenya
Contract Holder Institution	Wildlife Conservation Society
Partner Institution(s)	Kenya Fisheries Department (now called State Department of Fisheries), Stockholm Resilience Centre (Stockholm University)
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1 Project Rationale

The project is located in the southern coast of Kenya at eight community fisheries closures locally called tengefu; Kuruwitu, Bureni, Mradi, Msumarini in Kilifi county and Nyari, Mtangata, Mpunga and Mkwiro (Mji wa Kale) in Kwale county (Fig. 1).

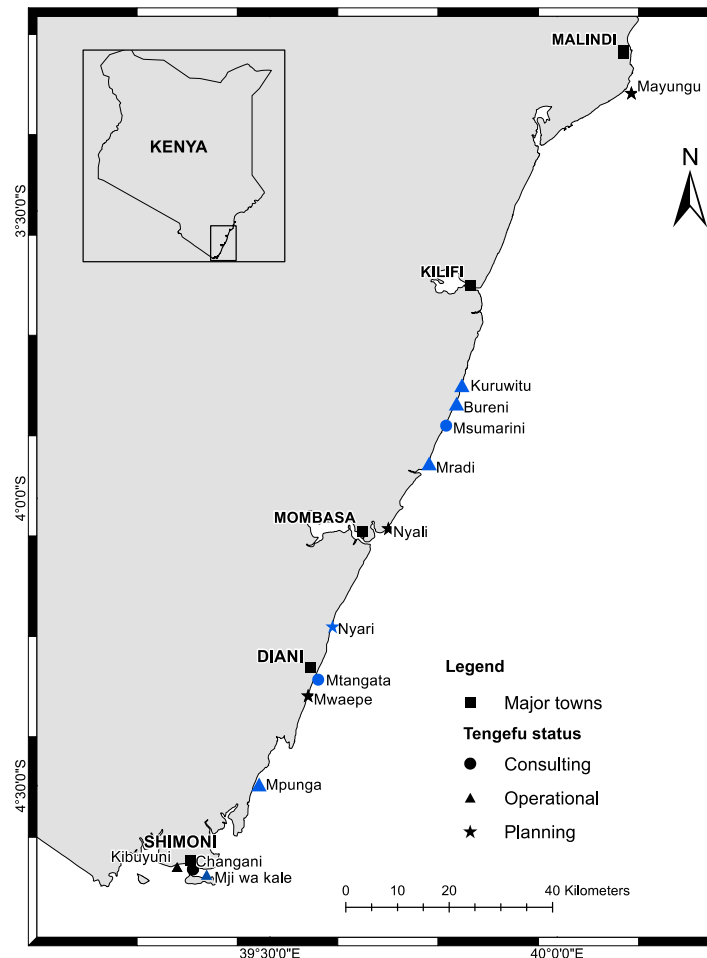


Figure 1. Map of the Kenya coast showing the location of the project sites that are community fisheries closures (Tengefu) and other community managed areas supported by the Wildlife Conservation Society. The symbols indicate the status in terms of the stage in the process of establishment starting with planning to consultation to operation.

The sites are primarily shallow nearshore fringing coral reefs situated within larger fishing ground units (Table 1) that are designated as Beach Management Units (BMUs). For more details on the geographic and demographic characteristics of the tengefu see Annex 7.1.

Table 1. The geographical positions of the tengefu including the BMUs, the landing sites, the tengefu and their current status.

County	Location	BMU	Landing sites	Tengefu	Status
Kilifi	Vipingo	Kuruwitu	Mwanamia		
			Kijangwani		
			Kuruwitu	Kuruwitu	Operational

			Kinuni		
			Vipingo		
			Bureni	Bureni	Operational
		Msumarini	Msumarini	Hamadu	Consulting
	Mtwapa	Kanamai	Kanamai	Mradi	Operational
			Jumba ruins		
Kwale	Tiwi	Nyari/Kikadini	Tiwi	Nyari ¹	Planning
			Waa ²		Consulting
	Diani	Mwaepe	Tradewinds	Mtangata	Consulting
	Msambweni	Mwaembe	Msambweni	Mpunga	Operational
	Shimoni	Mkwiro	Mkwiro	Mji la kale	Operational

¹ By the end of the project, the Nyari fishers were in a deadlock about establishing a tengefu, therefore their status remains as consulting. ²The Waa landing site fishers decided to set up their own tengefu and are in the consulting stage.

The project was trying to address the problem of coral reef degradation and low capacity by fishers dependent on these reefs to manage them. Small-scale fishing communities are highly dependent on coral reefs, contributing up to 80% of the marine landed catch in Kenya. Unfortunately, weak governance has led to unselective and destructive fishing practices resulting in degraded coral reef ecosystems. This has in turn undermined provision of ecosystem services and resilience to climate change putting at risk coral reef biodiversity, livelihoods and food security. Early experiences in Kenya suggest that community-managed fisheries closures (Tengefu) can align previously conflicting interests by addressing diverse values (community empowerment, fisheries protection, benefit sharing) in the management process. Although Tengefu have the potential to generate significant benefits for marine conservation and local people, they are beset by challenges: communities lack resource management experience, compliance and enforcement are weak, and socioeconomic conditions foster disempowerment and impede active participation by men and women. This project addresses the challenge of building the capacity of local fishing communities in adaptive management of their tengefu and surrounding fishing grounds.

The project addressed the biodiversity challenge of managing and conserving the coral reefs of the Kenyan coast. The reefs are part of the largest fringing reef system along the East coast of Africa and are the most biodiverse and economically important marine ecosystems. These reefs and associated ecosystems not only harbour many species, they also function as feeding grounds for endangered marine turtles, marine mammals and other species such as whale sharks that are of conservation concern. However, these reefs continue to be degraded as a result of unsustainable and destructive fishing and climate change which has resulted in reefs in poor health as indicated by on average low coral cover, low fish biomass and high sea urchin numbers.

The project was designed to address the poverty challenge of target communities that were composed of fishers with on average of less than five years formal education, a bi-weekly expenditure of USD 64 and households dependent on fishing. The communities also scored fairly low on the material style of life index (average 0.09). Poverty, a low literacy and a lack of capacity (financial, skills and personnel) limited their ability to negotiate and implement the management of their tengefu and surrounding fishing grounds.

The biodiversity and poverty challenges are relevant not only for the target community but also for Kenyan coral reefs. Specifically, the goods and services that coral reefs provide are important to the target community for income, employment, and cultural and traditional practices that are crucial for the health and general wellbeing of these communities. Degraded coral reefs result in reduced stocks threatening livelihoods and the food security of these communities. Coral reefs also provide other services that are the foundation for tourism that drives the coastal economy and provides employment. The problems were identified from WCS's long-term ecological and socioeconomic and fisheries catch monitoring of coral reefs in Kenya.

The project was designed to build the capacity of target tengefu communities in adaptive management of their tengefu and surrounding fishing grounds. This was accomplished through training in adaptive management, participatory situation analysis of the ecological, socioeconomic and institutional context, participatory management planning, implementation and monitoring of management actions.

2 Project Achievements

2.1 Outcome

Outcome:	The outcome of this project is the increased capacity of Kenyan coastal communities to effectively manage eight community-managed closures (<i>tengefu</i>). Establishing participatory processes and developing and testing adaptive management plans will build the capacity of communities to protect and benefit from the biodiversity on which they depend (through the restoration of coral reefs and associated species), and improve their livelihoods and quality of life (through greater food security and income). We expect that increased participation in management, networking and outreach will also improve social organization, resulting in communities that are able to effectively negotiate and resolve conflict over shared resources.			Comments (if necessary)
	Baseline	Change by 2016	Source of evidence	
Indicator 1. Increased knowledge and skills in managing their tengefu.	Of the 8 selected tengefu, only 1, Kuruwitu had some management capacity	All the tengefus had increased knowledge and skills from the training, learning exchanges and the annual Fishers' forum and exposure to other learning activities	Annex 7.1 Annex 7.2 Annex 7.3 Annex 7.4	After advice from the Fisheries authorities, the aim to produce management plans was revised and the final document was called management guidelines. This is because in order for tengefu to get formal endorsement from the fisheries authorities, they have to be incorporated into a co-management plan that incorporates all of the fishing grounds of the BMU.
Indicator 2 Improved capacity	Only Kuruwitu had some experience in management of	By year 3, five tengefu (Kuruwitu, Mradi, Bureni,	Annex 7.4	

<p>for management and interaction with fisheries authorities and implementation of management actions</p>	<p>their tengefu</p>	<p>Mpunga and Mji wa Kale) were implementing management actions. One Msumarini had come to a resolution about the area, demarcated the area and started the stakeholder consultation process. Consultations also continue at Mtangata and a new tengefu is suggested at Waa to replace Nyari</p>	<p>Annex 7.5 Annex 7.6</p>	
<p>Indicator 3 Control and removal of destructive gears</p>	<p>Of the 8 tengefu only Kuruwitu had successfully removed destructive gears</p>	<p>By year 3, five tengefu had a high level of compliance of the closure and total removal of destructive gears. Mkwiro (Mji wa Kale) and Msumarini were partially successful and Mtangata and Nyari had a low level of success.</p> <p>1 review of tengefus was completed and published, I is in review in Marine Policy, the data collection for 2 other studies was completed and I was abandoned due to the travel advisory</p>	<p>Annex 7.5 Annex 7.7</p>	<p>Nyari not successful but and adjacent landing site Waa approached WCS for establishment of a tengefu</p> <p>Terrorism limited the collaboration of the Swedish partners (Section 2.3, Output 3 of this report)</p>
<p>Indicator 0.4 Increased access to basic necessities (BN)</p>	<p>Socioeconomic information available for all sites. No BN information was available pre-project</p>	<p>We did not end up using the BN method, instead we conducted a Most Significant Change (MSC) assessment. There was a general improvement or decrease in degradation in fisheries, and coral reef health and this would be expected to impact livelihoods</p>	<p>Annex 7.8 Annex 7.3 Annex 7.2</p>	<p>The project was reviewed in June 2015 and the MSC method was suggested as an alternative to BN method since no baseline BN data had been collected at the beginning of the project</p>

The project outcome was to increase the capacity of 8 tengefu communities in the management of their fisheries closures and this was achieved with 5 of the 8 tengefu showing the most progress and achieving a high level of compliance of the total enforcement of the closure, removal of destructive gears and implementation of a monitoring program.

The project outcome was largely achieved as evidenced by the overall increased management capacity in all the tengefu teams that gained general knowledge in the collection of baseline ecological, socioeconomic and other information, and skills in adaptive management. By the end of the project, 5 of eight tengefu were fully functional, enforcing the closure of the tengefu, monitoring management actions, fisheries catches, process and ecological monitoring. In the remaining three tengefu, by the end of the project, Nyari community had not fully endorsed the tengefu, a new tengefu was endorsed in the area called Waa, the Mtangata tengefu continued to consult and the Msumarini tengefu finally adopted the tengefu which they called Hamadu. (Annex 7.1).

We experienced some challenges that limited full achievement of the project outcome. Some of these were beyond our control, namely intercommunity conflicts, increased insecurity and terrorist threats in the country, and lack of clear guidelines in the process of formalization of tengefu within the framework of the BMU legislation. Specifically, the communities in some of the tengefu sites were not very receptive of the responsibility of forming a tengefu partly because of existing conflicts with neighbouring communities and beach seiners. Hence although the Nyari and Mtangata tengefu participated in project activities, such as the training, ecological monitoring and the annual fishers forum, neither moved from the consulting to the operational stage. At Msumarini where similar community conflicts occurred, community and county fisheries officers were able to resolve the conflict through negotiation and project activities were able to continue. However, the delay that occurred as they worked through the conflict, meant that Msumarini did not achieve the operational stage by the end of the project. At Mkwiro, the initial site that was selected by the community (Nyuli) was abandoned during the stakeholder consultation stage due to resistance from the Shimoni BMU and a new tengefu was formed at Mji wa Kale. This is now in the operational stage.

Insecurity due to terrorism slowed down the pace of project implementation by limiting the collaboration of the Swedish partners due to the travel advisory (Section 2.3 of this report). A student Ashley Perl who was supposed to conduct a study for the project as part of her MSc, however, she declined to travel to Kenya as the university would not cover insurance. By the time the travel advisory was lifted, it was too late to get another student.

Incorporation of the tengefu within BMU by-laws also limited the project achievement. When the project was conceived, the understanding was that incorporation of the tengefu within the BMU by-laws would entail a relatively simple process of the BMUs meeting, adopting the tengefu within their by-laws and subsequently requesting for endorsement of the revised by-laws from SDF. However once the project started, it was made clear that SDF with support from the Kenya Coastal Development Project (KCDP) was evaluating community managed initiatives in Kenya with a view of harmonizing these into a national co-management process. It was therefore suggested that instead of drafting management plans for tengefu, these should be management guidelines that could later be incorporated into the co-management plans once national guidelines were developed. Therefore we did not produce management plans for the tengefu but management guidelines (Annex 7.4). SDF has constituted a technical committee to develop co-management guidelines and WCS is a member.

In addition, we had originally planned to undertake Basic Needs (BN) assessments. However, because we did the preliminary collection of information early in the third year of the project, the field reviewers suggested using a different methodology that would capture a more holistic picture of the project impact. Finally, the project also experienced some challenges due to the government changes caused by devolution. The SDF was the key partner at the concept stage, and the country was still going through the process of clarifying the mandates of the national verses the county governments. As we began implementing the project, it became clear that the county fisheries departments had the mandate over inshore fisheries and it would have been ideal to have involved them from the beginning of the project. We made efforts despite time constraints to involve as much as possible the Kwale and Kilifi county fisheries officers for the rest of the project period.

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

Impact statement from logframe: Community-managed closures (*tengefu*) across Kenya cover more area, and are more effectively and adaptively managed by local communities, leading to a reduction in overexploitation of marine resources and destructive fishing practices, and a consequent increase in productivity. This will produce the benefits of improved fishers' livelihoods, greater food security, and stronger protection of reef biodiversity.

The impact agreed in the application form was that “Community-managed closures (*tengefu*) across Kenya cover more area, and are more effectively and adaptively managed by local communities, leading to a reduction in overexploitation of marine resources and destructive fishing practices, and a consequent increase in productivity. This would produce the benefits of improved fishers' livelihoods, greater food security, and stronger protection of reef biodiversity”.

The project contributed to the higher level impact of biodiversity conservation and poverty alleviation in the following ways. The main biodiversity contribution of the project is the improved management and conservation of coral reefs within six of the eight *tengefu* (5 *tengefu* achieved full protection, one achieved partial protection). Measured reef health indicators; coral cover, fish biomass in the *tengefus* improved or remained the same indicating recovery or reduced degradation of these coral reefs (Annex 7.2). This is expected to contribute to reducing losses from ecosystem services and to increased climate change resilience The project also contributed to Kenya's commitments to the CBD and CMS (see Section 4.2 of this report).

The poverty benefits of the project included a reduction in losses of ecosystem services provided by coral reefs (Annex 7.2) as the reefs either recovered or degradation decreased. Improved management resulted in increased or no change in fishable biomass of finfish (Annex 7.2) that are expected to contribute to food security, health and incomes and poverty alleviation in the long term. For example, fishers incomes increased in 3, remained stable in two *tengefu* (Annex 7.2). In addition, the overall increased knowledge, skills and education of the *tengefu* communities will contribute to broader social impacts (Annex 7.8). For example, the *tengefu* teams were more confident in engaging with the fisheries authorities over fishing conflicts. The increased engagement and education of women was another poverty alleviation benefit as women in the target *tengefu* indicated a higher level of confidence in initiating involvement in BMU meetings and also establishment of welfare associations (Section 4.4-gender). Knowledge gained from the annual Fishers' forum especially about *tengefus* contributed to more communities showing a willingness to establish *tengefu* (Annex 7.6).

2.3 Outputs

Output 1:	Eight adaptive management plans are signed and endorsed as part of the bylaws of the BMUs within which the <i>tengefu</i> occur.		
	Baseline	Change recorded by 2016	Source of evidence
Indicator 1.1 Adaptive management plans for eight <i>tengefu</i> have been completed through a participatory process.	Ecological, socioeconomic and geographical information was available for all <i>tengefus</i> prior to project inception	Compilation of existing information on all the <i>tengefu</i> was completed. Ecological and socioeconomic assessments were conducted and repeated and reports completed. Adaptive management plans were not developed instead Management guideline were developed	Annex 7.3 Annex 7.2 Annex 7.4

Indicator 1.2 BMU by-laws incorporate the eight adaptive management plans	None of the BMUs that incorporated tengefu within their fishing grounds had BMU by-laws that incorporated fisheries related actions including the tengefus.	SDF suggested developing management guidelines instead of management plans. Only management plans established for co-managed areas as required by the BMU regulations. A BMU training exercise was suggested and implemented and general management guidelines were drafted for future incorporation into the BMU by-laws at the time of developing the co-management plan as per the BMU regulations.	Annex 7.4 Annex 7.5
Output 2:	Through the adaptive management process, communities gain management skills and a better understanding of the factors that enhance or impede success of community managed areas.		
	Baseline	Change recorded by 2016	Source of evidence
Indicator 2.1 Community members actively use resource management planning skills gained during this project.	Of the eight tengefu, only Kuruwitu had surveillance of the tengefu	Five tengefu fully functional implementing management actions. Msumarini was partially functional and Nyari and Mtangata were not functional in terms of implementing management actions but were involved in the training, monitoring and Fisher' forum	Annex 7.1 Annex 7.5
Indicator 2.2 Community members participate actively at Annual Fishers Forum and community exchanges.	Previous annual fishers' forums had been organised but no community exchanges amongst the tengefu.	- Three fishers forums - Two learning exchanges	Annex 7.6
Output 3:	Overexploitation and destructive fishing activities are reduced in 8 tengefu as management interventions are implemented.		
	Baseline	Change recorded by 2016	Source of evidence
Indicator 3.1 Overexploitation of fishery resources and use of destructive fishing practices are reduced.	Some fisheries information was available for all tengefus prior to project inception	Fishing and use of destructive gears stopped in 5 tengefu and reduced in two Msumarini and Mtangata	Annex 7.1
Indicator 3.2 Activities as outlined in the management plans are actively implemented	Kuruwitu had a surveillance program	Monitoring and surveillance training conducted and logbooks maintained in 5 of the	Annex 7.5

in the communities		eight tengefu - Two scientific publications produced, one published, one in review and two in preparation (information network and Fishers forum)	Annex 7.7
Output 4:	Coral reef and reef fish recovery increases in 8 tengefu.		
	Baseline	Change recorded by 2016	Source of evidence
Indicator 4.1 Indicators of coral reef health and reef fisheries improve over the life of the project in and around 8 tengefu	Information available from WCS's long term fisheries and ecological monitoring program	Reef health improved or remained the same in 7 tengefu. Catches increased or remained the same in 7 tengefu Fishers incomes increased in 3, remained the same in 1 and decreased in 3	Annex 7.2
Output 5:	Human well-being and food security in target communities are improved over the long-term.		
	Baseline	Change recorded by 2016	Source of evidence
Indicator 7.1 Indicators of human well-being in target communities have improved.	Previous socioeconomic information available for the sites, no BN information available for any tengefu	BN assessment replaced by MSC assessment Fisheries catches and fisher incomes changes as above (Indicator 4.1)	Annex 7.8 Annex 7.2 Annex 7.3,

The project undertook to produce the following outputs

1. Eight adaptive management plans are signed and endorsed as part of the bylaws of the BMUs within which the tengefu occur.
2. Through the adaptive management process, communities gain management skills and a better understanding of the factors that enhance or impede success of community managed areas.
3. Overexploitation and destructive fishing activities are reduced in 8 tengefu as management interventions are implemented.
4. Coral reef and reef fish recovery increases in 8 tengefu.
5. Human well-being and food security in target communities are improved over the long-term.

The following details the outputs that were achieved as laid out in the logical framework:

Output 1. Eight adaptive management plans are signed and endorsed as part of the bylaws of the BMUs within which the tengefu occur.

The target for this output was eight management plans that are adopted by the tengefus and endorsed by the SDF. All the activities planned for this output from training in adaptive management and monitoring to participatory assessments (ecological and socioeconomic) to increased knowledge through attendance at the annual Fishers' forum were completed. In addition, good progress was also made in the management planning process based on the adaptive management framework and all the tengefu were in agreement about the objectives of

managing their tengefu and surrounding waters and the main activities they would undertake to manage them (Annex 7.4). However, at the stage of developing the management plans, discussion with the SDF necessitated a change in the process (see Section 2 of this report). Since Tengefus are zoned fisheries closures within BMUs they cannot have management plans since the plans are supposed to be for the larger co-managed area encompassing one to several BMUs. As the project scope did not include this planning process for co-managed areas, the SDF suggested the development of management guidelines that could later be incorporated into co-management plans once the co-management planning process was undertaken for the different BMUs. Management guidelines (Annex 7.4) were drafted that are now in use at 5 of the tengefus. In the end, despite the change in the planning process, the project achieved most of the targets of this output. In addition, co-managed area planning was also initiated for a co-managed area that will encompass both the Kuruwitu and Bureni tengefus (these are within the Kuruwitu BMU) with support from another WCS project that is funded by Marine Science for Management (MASMA) of the Western Indian Ocean Marine Science Association (WIOMSA) that was started in 2015.

Output 2. This output was largely to do with training, learning and the use of the skills developed by the project and this was also largely achieved. All the tengefu teams were fully involved in the training monitoring (Annex 7.5), learning exchanges (Annex 7.9 – learning exchange photo) and fishers forum (Annex 7.6). Observations at the annual fishers forum during working groups or plenary and results from the MSC assessment indicated that tengefu communities had acquired overall a better understanding of fisheries management and coral reef conservation. Tengefu communities also gained knowledge and management skills that are useful for managing their tengefu and fisheries. In addition, these skills enable them to more actively and effectively interact with the fisheries authorities and other stakeholders (Annex 7.8). The tengefu communities provided numerous examples during the MSC assessment on how this knowledge has been put to use and how it has benefitted them. For example, Mkwiro (Mji wa kale) indicated that Darwin training also helped the community in managing other conservation projects such as sea weed farming, and better managing their BMUs and the catch monitoring provided them with fisheries catch data for management (Annex 7.8).

Output 3. The target for this output was to reduce overexploitation and destructive fishing activities as verified by increased compliance and a reduction in the use of destructive gears. This output was largely achieved in five tengefus (Kuruwitu, Bureni, Mradi, Mpunga and Mji wa Kale) where the level of compliance within these tengefus increased and surveillance and enforcement activities were undertaken in a more systematic and frequent manner (Annex 7.1-; Annex 7.5). In addition, in Mpunga where beach seine (an illegal and highly destructive gear) use by Gazi fishers within the tengefu and the surrounding waters was a perennial challenge, the Kwale Fisheries officer chaired a meeting, seining ceased in the tengefu although seining continues in the larger fishing grounds. In terms of the studies produced by the project, one publication summarising the evolution of tengefu in Kenya was completed (Annex 7.7). In addition, three students Shauna Mahajan and Ashley Perl (Annex 7.10) from Stockholm University and WCS staff member Caroline Abunge registered at a local university Pwani were recruited to conduct studies on the project. Shauna completed her studies and produced one paper that is in review in Marine Policy (Annex 7.11 – publication) and another is in draft. Ashley was not able to travel to Kenya due to the travel advisories resulting from the terrorist attacks at the coast. Caroline Abunge who had planned to conduct a study in the Darwin project switched to evaluate the effects of the downturn in tourism on local communities whose findings are broadly relevant to the Darwin Initiative project. The project was funded by the Marine Research Grant (MARG) of WIOMSA (Annex 7.12). Finally we partnered with Dr. Michele Univeristy of Hawaii to design a study evaluating the information network of fishers, data were collected and a publication is in preparation (7.24).

Output 4. The target for this output was to increase the protection of coral reefs and reef fish as verified by increased recovery or decreased degradation. The assumption was that the coral reef health indicators coral cover and fish biomass would increase or remain the same, that sea urchins would decrease or remain the same, and that research and monitoring information would be presented at the annual fishers forum. All the activities planned for this output were accomplished. Coral cover, fish biomass and sea urchin biomass showed very high variability however the trends were generally positive with coral cover and fish biomass either increasing

or remaining the same and sea urchin biomass either decreasing or remaining the same in most tengefu (Annex 7.2). Fish catches at adjacent landing sites also showed high variable but again the trends were generally positive and the catches either showed increases or remained the same (Annex 7.2).

Output 5. The target for this output was to improve human well being and food security of tengefu communities in the long term. We undertook to measure this using a number of methods, basic household surveys to evaluate the socioeconomic status of the communities, fish catches and fish prices surveys as indirect indication of fisher incomes and basic necessities surveys as an indication of which basic necessities were being met and how all these parameters changed over the course of the project. In terms of the socioeconomic condition, the main changes that occurred were that bi-weekly expenditures by an average of 18% (Annex 7.3) only Kuruwitu showed an increase of 6%. This could be an indication of reduced incomes possibly as a result of the downturn in tourism resulting from the terrorism attacks. Households were typically dependent on several occupations some of which were not based on the cash economy so its expected that this reduction in weekly expenditure was supplemented by other non-cash based activities. On average fish catches and incomes from fishing increased (Annex 7.2) so there is a possibility that more of the catch was retained for food and the rest sold for cash. We did not end up assessing the basic necessities (explained above – Sec 2.0 – indicator 4) and we used the MSC method to capture project impacts broadly as suggested during the review. The results of the MSC assessment indicates that the project also contributed indirectly to poverty alleviation in several ways (Annex 7.8). Overall there was an increased participation and improved management of the tengefu (Output 1, 2, 3, 4 above) have the potential to provide food security, improved health and well-being benefits in the long term.

Some problem were encountered in achieving the outputs. Regarding the management planning process, we assumed that we would experience no major challenges and that the plans would be endorsed by the SDF due to the long and strong partnership with SDF. However, devolution in Kenya resulted in institutional changes separating functions of the SDF and County Fisheries departments that now have mandates at the national and the county level respectively. We experienced some difficulties in engaging the county fisheries officials due to their busy schedules and this caused some delay for example in resolving conflicts at Msumarini, Nyari and Mpunga.

We had also assumed that communities were willing and able to actively participate in the project and that the experiential learning process would proceed at a rate that generated results within the project period. This turned out to be the case for all but the Nyari, Msumarini and Mkwiro communities. We had not anticipated that it would take such a long time for negotiations over tengefu placement by these communities. The issue was finally resolved in Msumarini and Mkwiro and the communities adopted and started managing their tengefus. Unfortunately the tengefu negotiations came to a halt at Nyari where historical grievances and conflicts could not be resolved hence there is currently no functional tengefu at Nyari. However, a positive outcome of the negotiations at Nyari was that the neighbouring community at Wa decided to establish a tengefu and requested WCS to facilitate the process. We had not taken into account the potential effects of historical grievances, unclear fishing ground boundaries, and lack of tenure of landing sites and their impacts on the objectives of the project. The low literacy level of community members made it challenging for some during the training and subsequent monitoring. Also, we assumed that compliance with management interventions such as gear restrictions would be achieved but in some cases, the local community complied but migrant fishers or fishers from other landings sites were the problem as occurred in Mpunga with the Gazi beach seiners. It required a special meeting convened by the Kwale county fisheries department for this issue to be resolved.

We also experienced the impacts of insecurity that affected the rate and efficiency of conducting our work (See Section 2, Pg 6 above) Over the life of the project, the security situation in Kenya was a concern as there have been a number of deadly terrorist attacks, such as the attack on Garissa University College, on 2nd April 2015. Although there had not been a direct attack at the project sites, the impacts were felt across the coast. In addition, travel advisories from the UK, the US, France and Germany resulted in a dramatic reduction in the number of tourists coming to Kenya. This affected the coastal economy and livelihoods of

coastal communities including at project sites that depended directly or indirectly on the tourism industry. Although by the end of the project the security situation had improved, recovery of the coastal tourism industry has been slow.

3 Project Partnerships

The core partnerships of the project were the fishing communities at the tengefu sites, the SDF and WCS (Annex 7.13). This partnership was based on long term engagement and interactions focused on capacity building for small-scale fisheries and coral reef conservation through WCS's provision of technical expertise, sharing scientific information and joint facilitation of the annual fishers' forum. The core partnership was formalized through the Project Implementation Committee (PIC) that was composed of a representative from SDF, two representatives from the eight tengefu, two WCS staff including the PI and a community liaison officer selected from one of the tengefu sites. The partnership was highly collaborative and continued to be strengthened as the partners undertook project activities together as well as through calls, emails and attendance at meetings and onsite visits. The partnership was enhanced by two-way communication whereby communities called in to follow up on activities, report relevant incidences and other information of interest and relevance to the project, while project staff made on-site visits to monitor project activities and report on project progress. Participation of SDF and county fisheries staff during onsite visits not only enhanced the partnership between WCS and the national authorities, it also provided formal national and county-level recognition of the efforts of the community and the project. Over the life of the project, other partnerships were formed (Annex 7.13) including with the Kilifi and Kwale fisheries county officers, NGOs with projects in the south coast (African Nature Organisation), local and international students, national management authorities (Kenya Wildlife Service), national projects (KCDP), regional projects (MASMA) and international programs (Conservation Leaders programme), local and international universities and local land owners associations.

The project was demand driven, having been conceived at the fishers' forum of 2012 where the leaders of the eight selected sites had indicated a need for capacity building in the management of their tengefus. The partnership was highly collaborative, planning and decisions were made during the PIC meetings and implemented by the tengefu community teams and other partners depending on the activity. Most of the collaboration was driven by the needs of the project while other activities were special requests to WCS and/or SDF. For example, the project organised a conflict resolution meeting between the Mwaembe, Chale and Gazi BMUs and the Kwale county fisheries officer Mr. Njuguna to resolve the problem of the use of beach seines (an illegal gear) by Gazi fishers within the fishing grounds of the Mwaembe BMU including within the Mpunga tengefu. This has been an ongoing issue for many years and this was the first meeting bringing all the concerned parties together. The issue was not resolved during the meeting but follow up meetings resulted in the cessation of In several cases, WCS also suggested the participation of community teams as participants in meetings such as a workshop on ecosystem services and human wellbeing organized by a project funded by Ecosystem Services and Poverty Alleviation project (www.espa.ac.uk) and facilitated the engagement of team members in research activities such as a study by Sarah Buckley a PhD candidate at the University of Queensland to undertake a study entitled *Assessing the extinction risk of Kenya's exploited coral reef fish*. The study was undertaken at landing sites in the south coast including Darwin Initiative project sites and the findings were presented at the Fishers' forum of 2015 (Annex 7.14).

The core partners jointly planned and oversaw the implementation of project activities (Annex 7.13). The tengefu community teams attended the adaptive management planning training, field assessments, implementation of management actions and monitoring activities. Representatives from the community at large were also participants at the Annual Fishers' Forum, awareness programs and community learning exchanges. The SDF and the Kilifi and Kwale fisheries officers undertook to assist in the uptake of knowledge generated by the project, to ensure that the project activities are in line with national goals and objectives, and to assist in resolving conflicts at the project sites (see above paragraph). The fisheries officials were also responsible for assisting in disseminating information and promoting the findings of the project within the Ministry and other relevant government departments. The core partners were consulted during the writing and reviewing of the final report.

A major achievement of the partnership was the increased attention paid to community fisheries closures by the fisheries authorities at the national and county levels. For example high level officers presided over and attended all the fishers' forums (Annex 7.6) where the findings from the project were presented, including Mr. Ntheketha the Provincial head of SDF during the 2013 forum, officials from the Kwale County government specifically the Sub County Administrator (Annex 7.6) and the Ukunda Ward Administrator Mr. A. Vumbi and Mr. O. Khamisi during the 2014 forum, and Salome Tangai on behalf of the Vipingo/Shariani Area Chief during the 2015 forum. This provided a high level of recognition by the fisheries authorities that was not present in previous forums. In addition, the partnership with the SDF officials at the provincial office, Mr. Ntheketha, Ms. Mueni, Ms Barabara and the officials at the county offices also served to focus attention on how tengefu are contributing to the national objective of co-management and the need to develop clear guidelines for incorporating tengefu into co-managed areas as is required in the BMU legislation. A technical committee has now been formed to develop national guidelines for co-managed areas and WCS is a member. The partnership also allowed discussion of uptake of project outputs after the end of the project such as support for the fishers' forum, incorporating more tengefu into co-managed areas, joint development and submission of three proposals (Annex 7.15) to support these efforts as well as discussion and drafting of publications from the project (Annex 7.16). These engagements contributed to further strengthening the sustainability of the partnership.

When the project was conceived, the key national partner was SDF, however it became clear that it was crucial to engage the county fisheries officers as the grassroots level implementation of small-scale fisheries interventions were under their mandate. It took some time to develop a relationship with these officers (Annex 7.17), they were often busy with other projects and staff transfers slowed down the ability for the project to respond to requests from the field. WCS has been lobbying for SDF to incorporate the forum in their annual work plan to ensure long-term national support for the forum. This is important because the forum is both an important avenue for imparting knowledge on fisheries and the conservation and management of coral reefs in Kenya, and there is no equivalent networking and information sharing arena for fishers and other stakeholders along the Kenyan coast. Funding however has been a major constraint for SDF, therefore discussions were also started with the county fisheries offices. The fisheries Director of Kilifi county agreed to lobby the county for funds for the 2015 forum. Unfortunately no funds were availed for any of the fishers forums. WCS will continue to lobby for this support and also work with the county departments to identify and write joint proposals to support the forum.

The key partners WCS, SDF and the tengefu communities will continue to be in touch through various ongoing activities. WCS will continue interacting with SDF as part of the long term program to increase the capacity for the management of small-scale fisheries and coral reef conservation. The Kuruwitu, Msumarini and Mradi tengefus and SDF are also now collaborating with WCS in a project funded by MASMA that will continue from the Darwin project to support management of small-scale fisheries within co-managed areas (Annex 7.18). In addition, WCS has a long-term coral reef ecological and catch monitoring program, the results of this program are disseminated at the annual fishers forum and SDF, the county fisheries departments and all the tengefus will continue to be involved in the annual fishers' forum.

4 Contribution to Darwin Initiative Programme Outputs

4.1 Contribution to SDGs

The project contributed to SDGs directly and indirectly. The project built the capacity of communities to management of coral reefs (SDG 14). Poverty alleviation (SDG 1) was contributed to indirectly through improving the management of coral reefs that led to increased finfish biomass and facilitated the recovery of coral reefs and generated livelihoods (SDG 8). Better management of reefs contributed to food security (SDG 2) through increased fish biomass and recovery of degraded reefs. Women have been actively involved (SDG 5) in the project activities hence they have a voice in making decisions about marine resource management.

4.2 Project support to the Conventions or Treaties (CBD, CMS, CITES, Nagoya Protocol, ITPGRFA)

The project contributed to the CBD by facilitating better management of coral reefs and associated ecosystems (Aichi Targets 1, 6, 10), enhancing habitat recovery and improved fisheries with potential positive outcomes for livelihoods (Aichi Targets 6, 10, 11, 14) and by reducing anthropogenic disturbance with the potential to increase the resilience of coral reefs and associated ecosystems to cope with climate change impacts (Aichi Target 15). We also interacted with Kenya Wildlife Service (KWS) the national focal point of the CBD, CMS and CITES and have collaborated in training and also when infringement issues arose in the Mradi tengefu that is adjacent to the Mombasa national MPA. The project has contributed to Kenya meeting its obligations under the Convention on Migratory Species (CMS) through increased protection of the coral reefs that provide critical habitat for marine turtles. In addition, we contributed to the Coral Reef and Seagrass Ecosystems Conservation Strategy (Annex 7.19).

4.3 Project support to poverty alleviation

The project contributed to poverty alleviation in several ways (see Section 2.3 of this report for more detail) including by increasing education and knowledge, improving access to fishing and coral reef resources and empowerment resulting from the improved skills and ability to manage community fishing grounds. These benefits are expected to contribute to incomes, health and food security for approximately 900 fishers directly impacted by the project, approximately 1300 fishers from the larger community within the BMUs as well as ~ 2300 fishers participants of the annual fishers' forum. Increased knowledge and management capacity empowered the community to better access coral reef resources, negotiate conflict and interact with more confidence with national fisheries authorities and other stakeholders. Tengefu communities also contribute to the county and national coral reef conservation and sustainable fisheries development goals by improving the management of their fishing grounds. Lastly the project benefitted vulnerable groups including women and youth by enhancing involvement in BMU affairs and raising the confidence and profile of women in these communities.

4.4 Gender equality

The project encouraged participation of women and youth in project activities by requesting their participation in the tengefu teams. Women participated as members of the PIC (the Mradi PIC member was a woman), participation in the fishers' forum, and in ecological monitoring (Annex 5.5d). Youth participated in the fishers' forum, ecological monitoring and tengefu management teams. As well, we employed two members of tengefus as community liaison officers for the south and north coast sites. Attendance by women in the forum increased from 20 out of 147 participants in 2013 to 45 out of 165 participants in 2015. Women also presented in the 2015 fishers' forum including the Kilifi county fisheries officer (Ms. Agnes Mkazala) and the BMU Chair for Bamburi (Ms. Mercy Mghanga) whom we have worked closely with in the project and a woman Assistant Chief for Vipingo/Shariani Salome Changai opened the 2015 Fishers' forum. The gains for participation in the project included knowledge and skills, and practical experiences that build confidence and social capital. These enhanced collaboration and participation in management activities building the capacity of these women to become more effective participants in their communities. The MSC results (Annex 7.8) showed that in general, there was increased participation of women in BMU activities unlike before the project. More women attended BMU meetings, some were in leadership positions in their respective BMUs (Treasurer- Mwaembe BMU) both in the executive and other committees, in Kuruwitu one woman was in the monitoring team as well as the BMU monitoring committee. In addition, the project particularly raised awareness on the issues of women traders during a presented at the 2013 Fishers' where more women fish processors were invited (Annex 7.6).

4.5 Programme indicators

- Did the project lead to greater representation of local poor people in management structures of biodiversity? Yes the project led to an increase in the representation of local poor people in the management of coral reefs.
- Were any management plans for biodiversity developed? Management guidelines were developed that guided the protection of coral reefs and associated resources in and around the tengefus.
- Were these formally accepted? The management guidelines were accepted in five of eight tengefu and two additional tengefu are in the consultative stage and we expect them to use these guidelines once their tengefus become operational.
- 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 development of the guidelines was participatory and the tengefus are managed mainly by local community members with SDF, county fisheries departments and WCS providing some support.
- Were there any positive gains in household (HH) income as a result of this project? We did not measure household income
- How many HHs saw an increase in their HH income? Fisher incomes increased in 3 of the eight tengefu, 2 tengefus showed no significant change while two tengefu showed decreased fisher incomes (Annex 7.2). Bi weekly expenditures decreased in all but one tengefu (Annex x-socioeconomic rpt).
- How much did their HH income increase (e.g. x% above baseline, x% above national average)? How was this measured? There was an average 7 % increase in fisher incomes (inflation adjusted) at three tengefus (Annex 7.2) while 1 tengefu showed no change. There was however a general 19% decrease in the biweekly expenditure in all sites except at Kuruwitu which showed a 6% increase (Annex 7.3). It is not clear what caused this reduction in weekly expenditure although it maybe an indication of the downturn in the coastal economy.

4.6 Transfer of knowledge

- i. How many people achieved formal qualifications? One MSc (Shauna Mahajan), one Kenyan currently enrolled at Pwani
- ii. Were they from developing countries or developed countries? Developing (Kenya) and Developed (Sweden)
- iii. What gender were they? Female

The project also benefited WCS staff in various ways, Caroline Abunge registered for an MSc at Pwani University, her thesis topic focused on how communities cope when a major source of their livelihood is reduced due to the dramatic downturn in tourism on the Kenyan coast due to terrorism. We believe that this study will provide invaluable information for the Darwin sites especially those like Kuruwitu whose major focus is on tourism. The project also transferred knowledge to several local interns, Cavine Omondi, Maxwell Azali and Jesse Kosgei and the local community liaison officers Mohammed Hamisi and Rodgers Charo who gained knowledge and skills especially in conducting socioeconomic and ecological assessment and community mobilisation.

4.7 Practitioners or policy makers

The Fishers' forum was the main vehicle for knowledge transfer to practitioners and policy makers. Policy makers were also involved in some of the training exercises.

4.8 Capacity building

The capacity of developing country partners was also enhanced, Ms Mueni (SDF) and Agnes Mkazala (Kwale Fisheries department) gained a higher profile amongst the communities as a result of interacting with them more often in the field. This increased the level of interaction will potentially enhance their ability to implement national and county level initiatives in the future. In addition, Caroline Abunge was invited to assist the KCDP Fisheries component develop a

fisheries catch monitoring program, to be a member of the National Technical Committee to develop guidelines for the establishment of co-managed areas and to present at the 9th WIOMSA Scientific Symposium on the transfer of scientific knowledge to fishers through the annual Fishers' forum (Annex 7.20)

4.9 Sustainability and Legacy

The main factors that could affect the sustainability of tengefu in the future are the level of national support that tengefu are provided, overall improvements in fisheries management through strengthening the BMUs and improving general monitoring control and surveillance (MCS) along the Kenyan coast. To this end, we held discussions with the SDF, county fisheries departments and the KCDP (detailed in section 2 above) in key areas that we identified as needing strengthening. We expected that the SDF with KCDP support under the Fisheries component could greatly improve the long-term sustainability of tengefu and community managed areas.

The sustainability of the five tengefu that are fully functional is well established and the tengefu teams have adequate skills to allow them to continue with minimal support. These sites are adjacent to WCS's ecological and fisheries monitoring sites so they will continue to gain knowledge through participation in future fishers' forums and fisheries monitoring. We also believe that the tengefu movement has gained traction in Kenya as we have witnessed increased willingness by fisher communities from Vanga, Shimoni and Chale to establish tengefu and from Wasini requesting adaptive management training. A questionnaire deployed during the 2014 fishers' forum showed that there were many communities willing to establish tengefu. Fishermen from the Waa area also established a new tengefu in 2015 after conflicts with their counterparts in the Nyari-Tiwi area. This increased interest in other communities in tengefu is a good indicator of the strength of the tengefu movement and the desire on the part of local communities to play a larger role in the management of small-scale fisheries.

We expect the annual fishers' forum to be sustained in the long term. We have been advocating for tengefu and the fishers' forum to the SDF and later to the County fisheries offices and we hope that these institutions will take on more financial responsibility for the forum given that it is currently the only consistent outreach mechanism for small scale fisheries on the Kenyan coast.

The long term objective for tengefu sustainability is increased coverage and also incorporating of tengefu into co-managed areas. This is being undertaken for Kuruwitu and Bureni (Annex 5.18). In addition, WCS in collaboration with SDF are seeking support from the county departments as well as from external donors to support co-management planning for other tengefus (Annex 5.15).

5 Lessons learned

- The project management structure – was it suitable for this style of project? The project management structure that included members from the project sites, the SDF and WCS was suitable, however we also incorporated the Kwale and Kilifi county fisheries officers which improved the interactions closer to the site level.
- Did you have the right sort of expertise employed on the project? We had less expertise in some social aspects such as social network expertise and the use of the BN methodology.
- Was the project well planned e.g., was it based on a good understanding of the underlying issues? Had you correctly identified the problems in the application form? The project was well planned except we would have reduced the number of sites, focusing on the sites where more progress had been made in community adoption of the tengefu. We also were not aware at the start of the project about the co-management process that necessitated that we change to developing management guidelines rather than management plans
- Did you allocate sufficient resources to the problem outlined? There were sufficient financial resources but man hours were limited
- Any other lessons you could draw out (including administrative, management, technical, M&E) from this project that could be useful?

The external review and the annual report review recommended a more evidence based M&E. We implemented this in the last year of the project.

5.1 Monitoring and evaluation

Please record any major changes in the project design, especially approved changes to the logframe. (Annex 1 provides for a narrative report against the final logframe and Annex 2 is the full final logframe, including criteria and indicators).

We requested a change in partners to facilitate the study on fishers' networks and also a cost neutral extension (Annex 7.21).

Looking back over the life of the project, was the M&E system practical and helpful to provide useful feedback to partners and stakeholders?

The M&E for the project initially consisted of an activity level matrix (Annex 7.224.14 AR2) and in response to reviews we developed a higher level matrix that included outcomes and assumptions (Annex 7.22 4.15 AR2).

During the project period, has there been an internal or external evaluation of the work or are there any plans for this? Note succinctly the key findings from any evaluation and whether these were useful for the project.

The project was reviewed on the 16th – 20th June 2015 by Lesley King and Jami Dixon. We found the review very useful including a short presentation and exercise on 'Theory of change'. The main findings and our response are summarised below:

- The recommendation of using a simple table with relevant descriptions of the tengefu when reporting was relevant and we implemented it in Section 1.0 of this report;
- We also found the recommendation to develop an evidence M&E framework to be useful and we implemented this the remaining time of the project;
- We also implemented the recommendation of replacing the BN surveys with a different methodology to measure social impact we elected to use the MSC method (Annex 7.10);
- The recommendation on harmonizing the experimental design in the social assessments was also a useful one. We have before and after measures of ecological and socioeconomic surveys;
- All reports and publications were shared with relevant stakeholders including the SDF and the communities through the PIC, later the county fisheries offices;
- The last recommendation was on consulting the SDF and county Fisheries Departments (County) and the tengefu communities when designing training material. This was noted and we endeavoured to consult broadly within the limitations of time and availability.

5.2 Actions taken in response to annual report reviews

We received feedback in the second annual report review and responded by designing a log that communities used to document management actions (Annex 7.5-Training report) and we also instituted a timeline based matrix to track project activities (Annex x-M&E). We discussed the review with our partners and other collaborators.

6 Darwin identity

- We used the Darwin Initiative logo and talked about the project at every opportunity, such as at the project inception workshop, the fishers' forums and the training exercises that drew a range of participants. The logo was used on all presentations, training materials and posters produced by the project. The Darwin-funded project was also acknowledged in the scientific publication that is currently under review. We were also able to talk about the project at other national and regional meetings including the KCDP meetings on fisheries monitoring, a Marine Science for Management (MASMA) Workshop in Mombasa, and the ESPA SPACES project meeting in Maputo, as well as at the 9th WIOMSA Scientific Symposium. We also produced a brief for the Darwin newsletter (7.23)
- The UK Government's contribution was recognised by ensuring all training, presentations and discussion materials had the logo of the Department for Environment Food and Rural Affairs.

- The project was recognised as a distinct project and was referred to during all the various interactions whether meetings, training as the Darwin project. Where activities received additional support from other donors, then this was noted and acknowledged in all reporting. (see also Section 7.2 of this report)
- A number of stakeholders that we interacted with including SDF, Kenya Marine Fisheries Research Institute, Kwale and Kilifi fisheries officers, other NGOs including Fauna and Flora International and CORDIO and some communities (Kibuyuni, Munje) in the south coast were aware of the Darwin Initiative.
- No Twitter/Instagram/Flickr/Blog/YouTube etc account was set up for the project.

7 Finance and administration

7.1 Project expenditure

Project spend (indicative) since last annual report	2015/16 Grant (£)	2015/16 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)			-5.12	
Consultancy costs			0	
Overhead Costs			0.95	
Travel and subsistence			5.94	
Operating Costs			4.38	
Capital items (see below)			0	
Others (see below)			9.88	
TOTAL	60,871	60,871	0	

Staff employed (Name and position)	Cost (£)
Nyawira Muthiga-Principal Investigator	
Mohamed Hamisi-Community liaison officer	
Rodgers Charo –Community liaison officer	
Maxwell Azali-Assistant scientist	
Elizabeth Mueni- Senior Scientist	
TOTAL	27,311.89

Capital items – description	Capital items – cost (£)
TOTAL	

Other items – description	Other items – cost (£)
Printing	
Communication	
Office consumables	
Medical cover	
TOTAL	5,005.32

7.2 Additional funds or in-kind contributions secured

Additional in-kind funds were provided by the John D and Catherine T MacArthur Foundation, Tiffany's , NERC- SPACES and WCS-unrestricted for salaries. WCS-unrestricted for overheads, WIOMSA for travel and subsistence and operating costs as detailed in the table below.

Source of funding for project lifetime	Total (£)
Staff costs	
Consultancy costs	
Overhead costs	
Travel & Subsistence	
Operating & other costs	
TOTAL	26,242

7.3 Value for Money

The project provided value for money in get in kind contributions, increase collaborations.

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

Note: Insert your full logframe. If your logframe was changed since your Stage 2 application and was approved by a Change Request the newest approved version should be inserted here, otherwise insert the Stage 2 logframe.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Goal: Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.</p>			
<p>Outcome: The outcome of this project is the increased capacity of Kenyan coastal communities to effectively manage eight community-managed closures (<i>tengefu</i>). Establishing participatory processes and developing and testing adaptive management plans will build the capacity of communities to protect and benefit from the biodiversity on which they depend (through the restoration of coral reefs and associated species), and improve their livelihoods and quality of life (through greater food security and income). We expect that increased participation in management, networking and outreach will also improve social organization, resulting in communities that are able to effectively negotiate and resolve conflict over shared resources.</p>	<ol style="list-style-type: none"> 1. Eight <i>tengefu</i> communities will show significantly increased knowledge and skills to manage their <i>tengefu</i> by actively participating in the adaptive management planning process and adopting and institutionalizing a management plan by end of year. 2. Eight <i>tengefu</i> communities will be better able to manage their fisheries and coral reef resources, have more confidence in interacting with fisheries managers and other stakeholders and show increased independence in managing their <i>tengefu</i> as shown by implementing at least 3 key management actions from each of their plans by Year 1.5. 3. Eight <i>tengefu</i> communities are actively participating in control and removal of gears that destroy coral reefs and compromise fisheries and by implementing monitoring and surveillance programs by end of Year 2. 4. Residents of 8 <i>tengefu</i> communities have increased access to basic necessities and improved 		<ol style="list-style-type: none"> 1. Community members will remain willing and enthusiastic about actively participating in the development and implementation of <i>tengefu</i> management. 2. Implementation of the new Kenyan constitution and the devolved governance system it advocates will effectively support community-based natural resource management. 3. Coral reefs and nearshore fisheries will recover at a rate that starts to generate benefits to people and marine life within the period of the project. 4. Coral reefs, nearshore fisheries, and local communities will not be additionally impacted by exogenous factors beyond the control of local communities, such as commercial fishing enterprises, coastal development projects, natural disasters, or severe environmental conditions such as drought or flood.

	household incomes by end of Year 3.		
Outputs:	1.1 Adaptive management plans for eight <i>tengefu</i> have been completed through a participatory process.	1.1. Assessment reports, adaptive management plans, project evaluations, reports of meetings	
1. <i>Eight adaptive management plans are signed and endorsed as part of the bylaws of the BMUs within which the tengefu occur.</i>	1.2 BMU by-laws incorporate the eight adaptive management plans	1.2. Assessment reports, adaptive management plans, project evaluations, reports of meetings	
2. Through the adaptive management process, communities gain management skills and a better understanding of the factors that enhance or impede success of community managed areas.	2.1 Community members actively use resource management planning skills gained during this project 2.2 Community members participate actively at Annual Fishers Forum and community exchanges 2.3 Scientific publications have been written on governance of these 8 <i>tengefu</i>	2.1. Progress reports of key management action; reports of meetings 2.2. Annual Fishers Forum and community learning exchanges reports, 2.3 Scientific publications	
3. Overexploitation and destructive fishing activities are reduced in 8 <i>tengefu</i> as management interventions are implemented.	3.1 Overexploitation of fishery resources and use of destructive fishing practices are reduced. 3.2 Activities as outlined in the management plans are actively implemented in the communities	3.1 Gear use survey report, Surveillance and monitoring plans, compliance reports, coral reef and reef fisheries reports 3.2 Project evaluations, on-site observations and discussions with communities	
4. Coral reef and reef fish recovery increases in 8 <i>tengefu</i> .	4.0 Indicators of coral reef health and reef fisheries improve over the life of the project in and around 8 <i>tengefu</i>	4.0 Catch monitoring, market survey and coral reef and reef fisheries monitoring data	
5. Human well-being and food security in target communities are improved over the long-term.	5.0 Indicators of human well-being in target communities have improved	5.0 Basic household necessities surveys	

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)

Output 1

- 1.1 Conduct project inception workshop to discuss and agree on detailed work-plans roles and responsibilities of project participants
- 1.2 Conduct participatory assessments (socioeconomic, ecological and institutional) and draft adaptive management plans with communities
- 1.3 Facilitate process with communities for review and adoption of the adaptive management plans and prepare for incorporation of the plan into the BMU by-laws by the Ministry of Fisheries Development

Output 2

- 2.1 Conduct training/skills needs assessment and implement appropriate trainings based on the findings.
- 2.2 Design and implement appropriate awareness and learning exchange programs for communities based on results of the assessment in Activity 2.1
- 2.3 Monitor and evaluate success and uptake of training and awareness programs
- 2.4 Convene Annual Fishers Forum

Output 3

- 3.1 Draft operational procedures for administration, conservation and surveillance actions from the adaptive management plans
- 3.2 Implement three key management actions guided by the operational plans
- 3.3. Evaluate management actions and work with communities to adjust actions as needed based on the findings of the evaluations
- 3.4. Conduct empirical studies on the factors that enhance or impede effective community management; publish findings and report the results at Annual Fishers Forum and other appropriate venues

Output 4.

- 4.1 Monitor coral reef and reef fish health and report at the Annual Fishers Forum
- 4.2 Monitor fisheries, fish catches and prices at *tengefu* landing sites
- 4.3 Publish and report findings at appropriate fora

Output 5

- 5.1 Conduct basic necessities surveys

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

Note: For projects that commenced after 2012 the terminology used for the logframe was changed to reflect DFID's terminology.

Project summary	Measurable Indicators	Progress and Achievements April 2014 - March 2016	Actions required/planned for next period
<p>Impact</p> <p>Community-managed closures (<i>tengefu</i>) across Kenya cover more area, and are more effectively and adaptively managed by local communities, leading to a reduction in overexploitation of marine resources and destructive fishing practices, and a consequent increase in productivity. This will produce the benefits of improved fishers' livelihoods, greater food security, and stronger protection of reef biodiversity.</p>		<p>8 <i>tengefu</i> communities gained skills and knowledge to more effectively manage their <i>tengefu</i> thereby increasing capacity for management of coral reefs in Kenya. Five of 8 <i>tengefu</i> are fully protected and 1 is partially protected increasing the area of coral reef protected in Kenya.</p> <p>Recovery or reduced degradation of coral reefs at 6 <i>tengefu</i> indicates benefits to biodiversity and potential long term benefits for community health, incomes and food security.</p>	
<p>Outcome</p> <p>The outcome of this project is the increased capacity of Kenyan coastal communities to effectively manage eight community-managed closures (<i>tengefu</i>). Establishing participatory processes and developing and testing</p>	<p>1. Eight <i>tengefu</i> communities will show significantly increased knowledge and skills to manage their <i>tengefu</i> by actively participating in the adaptive management planning process and adopting and institutionalizing a management plan by end of year.</p> <p>2. Eight <i>tengefu</i> communities will be better</p>	<p>1. Good progress was made in increasing management capacity of all of the <i>tengefu</i> teams. Seven communities have remained willing and enthusiastic about the project</p>	<p>Key actions planned</p> <p>Completing and publishing empirical studies</p> <p>Continuing to work with SDF, Kilifi and Kwale fisheries department to further the development of co-management to ensure the</p>

<p>adaptive management plans will build the capacity of communities to protect and benefit from the biodiversity on which they depend (through the restoration of coral reefs and associated species), and improve their livelihoods and quality of life (through greater food security and income). We expect that increased participation in management, networking and outreach will also improve social organization, resulting in communities that are able to effectively negotiate and resolve conflict over shared resources.</p>	<p>able to manage their fisheries and coral reef resources, have more confidence in interacting with fisheries managers and other stakeholders and show increased independence in managing their tengefu as shown by implementing at least 3 key management actions from each of their plans by Year 1.5.</p> <p>3. Eight tengefu communities are actively participating in control and removal of gears that destroy coral reefs and compromise fisheries and by implementing monitoring and surveillance programs by end of Year 2.</p> <p>4. Residents of 8 tengefu communities have increased access to basic necessities and improved household incomes by end of Year 3.</p>	<p>2. Communities gained more confidence and interacted more with the county fisheries officials and the county officials showed increasing support for the tengefu. Management actions include enforcement of closures, ecological monitoring and meetings</p> <p>3. In five of the tengefu, plans have been management guidelines are in use, and ecological variables within the tengefu</p> <p>4. Fisher incomes increased or remained the same in the tengefu and this is expected to contribute towards local fisheries and livelihoods and poverty alleviation in the long term. Terrorist attacks in Kenya led to a dramatic reduction in tourism (a strong driver of the economy in this area) which may have negatively impacted household incomes (weekly expenditure decreased).</p>	<p>sustainability of the tengefu</p> <p>Continue to work with all tengefus as part of WCS's the long term monitoring of coral reefs</p>
<p>Output 1: Eight adaptive management plans are signed and endorsed as part of the bylaws of the BMUs within which the tengefu occur.</p>	<p>1.1 Adaptive management plans for eight <i>tengefu</i> have been completed through a participatory process.</p> <p>1.2 BMU by-laws incorporate the eight adaptive management plans</p>	<p>1.1 The plans (now called management guidelines) were completed and are in use by 5 of 8 tengefu.</p> <p>1.2 The process of endorsement has started with the first steps towards developing co-management plans at the Kuruwitu and Bureni tengefus with funding from a MASMA project of</p>	

		the 8 tengefu.
		The indicators are appropriate
Activity 1.1: <i>Conduct project inception workshop to discuss and agree on detailed work-plans roles and responsibilities of project participants.</i>		The inception workshop was completed in the first year of the project, the PIC continued to oversee implementation of project activities until the end of the project
Activity 1.2: <i>Conduct participatory assessments (socioeconomic, ecological and institutional) and draft adaptive management plans with communities.</i>		Replicate sampling of ecological and socioeconomic variables were completed at all sites.
Activity 1.3: <i>Facilitate process with communities for review and adoption of the adaptive management plans and prepare for incorporation of the plan into the BMU by-laws by the Ministry of Fisheries Development.</i>		Management guidelines were drafted and are in use at 5 of the 8 sites. Incorporation of guidelines into by-laws entails development of co-management plans. This is a long and protracted process that was not within the scope of this project. It has been picked up for two tengefus with funding from MASMA
Output 2. <i>Through the adaptive management process, communities gain management skills and a better understanding of the factors that enhance or impede success of community managed areas.</i>	<p>2.1 Community members actively use resource management planning skills gained during this project.</p> <p>2.2 Community members participate actively at Annual Fishers Forum and community exchanges.</p> <p>2.3 Scientific publications have been written on governance of these 8 tengefu</p>	<p>2.1 Knowledge and skills were enhanced through the training exercises and the annual fishers' forum and communities in 6 tengefu are using skills gained in monitoring and managing their tengefu.</p> <p>2.2 Participation in the annual fishers' forum was enhanced especially with the introduction of the training sessions and group discussions at the forum.</p> <p>2.3 Production of scientific papers progressed, one paper is being revised and three are in preparation.</p> <p>Indicators are appropriate</p>
Activity 2.1: <i>Conduct training/skills needs assessment and implement appropriate trainings based on the findings.</i>		Training skills assessments were conducted, the use of skills was evaluated through logged datasheets.
Activity 2.2: <i>Design and implement appropriate awareness and learning exchange programs for communities based on results of the assessment in Activity 2.1</i>		The lack of adaptive management skills, knowledge about the BMU regulations and BMU management and monitoring of management actions were identified and training was conducted in collaboration with the SDF and Kwale fisheries officers. Learning exchanges were organised to the Kuruwitu tengefu

		which was the oldest of the 8 project sites.
Activity 2.3: Monitor and evaluate success and uptake of training and awareness programs.		Monitoring the uptake of the skills was conducted through observation of fishers during the forum and from the management logs.
Activity 2.4: Convene Annual Fishers Forum.		Three Fishers' forums were organised in Mombasa (2013), Kwale (2014) and Kilifi (2015) counties. Both SDF and the county fisheries offices were involved in setting the agenda, organising and officiating at the forums.
Output 3: Overexploitation and destructive fishing activities are reduced in 8 tengefu as management interventions are implemented.	3.1 Overexploitation of fishery resources and use of destructive fishing practices are reduced.	3.1 Within five tengefu, full protection was achieved, at three there is partial protection and some fishing continued
	3.2 Activities as outlined in the management plans are actively implemented in the communities	3.2 Within five tengefu, management actions including surveillance, enforcement and monitoring are being implemented Indicators are appropriate
Activity 3.1: Draft operational procedures for management.		Management guidelines were developed and are in use in 5 tengefus
Activity 3.2: Implement management actions.		Management actions are being implemented in 5 tengefu
Activity 3.3: Evaluate and adapt management actions.		
Activity 3.4: Conduct empirical studies on management effectiveness.		A review of the status of tengefus was completed and published. One empirical study was completed, a publication was submitted to Marine Policy was reviewed and the authors are working on the comments. Data were collected for two other studies and production of publications will be completed going forwards
Output 4: Coral reef and reef fish recovery increases in 8 tengefu.	4.1 Indicators of coral reef health and reef fisheries improve over the life of the project in and around 8 tengefu	General response was recovery or no change of measured indicators of reef health.
Activity 4.1: Monitor coral reef and associated ecosystems health.		Monitoring results showed different responses in the tengefu. Reef fish biomass either increased or did not change, coral cover showed minimal increases or did not change and urchin biomass showed quite large decreases compared to pre-project variables.
Activity 4.2: Monitor fisheries and fish prices.		Catch monitoring and fish prices monitoring completed at landing sites adjacent to project sites. Fisheries catches generally

		remained constant, prices increased but inflation adjusted fisher incomes reduced.
Activity 4.3: Produce scientific papers and the final report.		One paper published in Coastal Management another in review will be resubmitted to Marine Policy. Two papers in preparation will be completed and submitted after project ends. As well two studies have commenced and manuscripts will be prepared for submission in the coming period
Output 5: Human well-being and food security in target communities are improved over the long-term.	7.1 Indicators of human well-being in target communities have improved.	Indicators are appropriate
Activity 5.1: Conduct socioeconomic (basic necessities) surveys.		Basic necessities surveys were started but replaced by MSC which showed overall positive project impact.

Annex 3 Standard Measures

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
Training Measures							
1a	Number of people to submit PhD thesis						
1b	Number of PhD qualifications obtained						
2	Number of Masters qualifications obtained	1	Swedish	Female	Ecosystem services and human well-being: Who benefits and who loses? A case of community-based marine protected areas in coastal Kenya.	English	
3	Number of other qualifications obtained						
4a	Number of undergraduate students receiving training						
4b	Number of training weeks provided to undergraduate students						
4c	Number of postgraduate students receiving training (not 1-3 above)						
4d	Number of training weeks for postgraduate students						
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification(e.g., not categories 1-4 above)						
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	3 interns 16 PIC members 32 Monitoring team members	Kenya	Male Male 1 Female, 31 Males			

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
6b	Number of training weeks not leading to formal qualification	24 weeks for 3 interns	Kenyan	Male			
7	Number of types of training materials produced for use by host country(s) (describe training materials)						

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)	Management guidelines					Participatory process?
10	Number of formal documents produced to assist work related to species identification, classification and recording.						
11a	Number of papers published or accepted for publication in peer reviewed journals	1	American	Male first author, two female co-authors	Establishment of Community Managed Fisheries' Closures in Kenya – Early Evolution of the <i>Tengefu</i> Movement	English	
11b	Number of papers published or accepted for publication elsewhere						Location?
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country						
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country						

13a	Number of species reference collections established and handed over to host country(s)						
13b	Number of species reference collections enhanced and handed over to host country(s)						

Dissemination Measures		Total	Nationality	Gender	Theme	Language	Comments
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	3 fishers forums	Kenyan	Males and Females			
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	1 WIOMSA scientific symposium	Kenyan	Female			

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		
22	Number of permanent field plots established		Please describe

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	26,242					

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.	√
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.	
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.	√
7	Areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	
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.	√
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.	
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)
Journal	Establishment of Community Managed Fisheries' Closures in Kenya – Early Evolution of the <i>Tengefu</i> Movement. TR. McClanahan, NA Muthiga, C. A. Abunge 2016	American	American	Male	Coastal Management	

Annex 6 Darwin Contacts

Ref No	20-017
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