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FISHERIES CO-MANAGEMENT IN MOZAMBIQUE

LESSONS FROM THE ARTISANAL FISHERIES & CLIMATE CHANGE PROJECT (FISHCC)

2015–2019

Integrated Landscape Management
Portfolio
MOZAMBIQUE

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Contents

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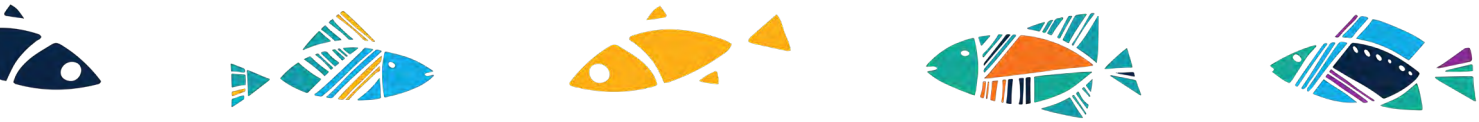
Acronyms

ADNAP	Administração Nacional das Pescas / National Fisheries Administration (MIMAIP)
AGC	Área de Gestão Comunitária / Community management area
ARR	Área de Recuperação de Recursos / Fisheries no-take reserve
CCP	Conselho Comunitário de Pesca / Community Fishing Council
DEPI	Direcção de Estudos, Planificação e Infra-estruturas / Directorate of Studies, Planning and Infrastructures (MIMAIP)
DNOP	Direcção Nacional de Operações / National Operations Directorate (MIMAIP)
EEZ	Exclusive economic zone
FishCC	Artisanal Fisheries & Climate Change (FishCC) Project
FLAGS	Fisheries landscape goal-setting
IDDPE	Instituto de Desenvolvimento de Pesca de Pequena Escala / National Institute for the Development of Small-Scale Fisheries
IDEPA	Instituto de Desenvolvimento de Pesca e Aquacultura / National Institute of Fisheries and Aquaculture
IFAD	International Fund for Agricultural Development
IIP	Instituto Nacional de Investigação Pesqueira / National Fisheries Research Institute
KAP	Knowledge, attitudes and practices
MIMAIP	Ministério do Mar, Águas Interiores e Pescas / Ministry of Sea, Inland Waters and Fisheries
MITADER	Ministério da Terra, Ambiente e Desenvolvimento Rural / Ministry of Land, Environment and Rural Development
NDF	Nordic Development Fund
PDP	Plano Director das Pescas / Fisheries Masterplan
PESPA	Plano Estratégico para o Sector da Pesca Artesanal / Artisanal Fisheries Strategic Plan
REPMAR	Regulamento da Pesca Marítima / Marine Fisheries Regulations
SMART	Specific, measurable, achievable, relevant, timebound
SSWIOFish1-MZ	South-West Indian Ocean Fisheries Governance and Shared Growth Project
TURF	Territorial use rights for fishing
SWIO	Western Indian Ocean



Executive Summary

Report Aim and Preparation

The aim of this report is to contribute to the development of successful fisheries co-management in Mozambique and the wider region, by sharing lessons learned from the Artisanal Fisheries and Climate Change (FishCC) Project. It is hoped the experience documented herein will be of value to current and future fisheries co-management initiatives, including government and other NGO-led projects in the region, as well as ongoing development of the national fisheries co-management governance framework in Mozambique. As such, the target audience includes government policy-makers, fisheries managers, technicians and project officers at all levels of government and in non-government organizations.

The report draws on consultations with a range of stakeholders involved in implementing the FishCC project, from communities to national-level government officials, as well as interested parties in international agencies. It also draws on a review of an extensive body of project documentation and related literature cited in the reference section. Section 1 of the report outlines the national context; Section 2 describes the FishCC project origins, structure, methodology and implementation; and Section 3 summarizes the project's outcomes, achievements and challenges encountered. Section 4 then details around forty lessons generated from the above experience, organized into six sections.

FishCC Project Design

The Artisanal Fisheries and Climate Change (FishCC) Project was implemented in Mozambique over a 4-year period between 01 April 2015 and 30 April 2019. The project was implemented by the Ministry of Sea, Inland Waters and Fisheries (MIMAIP) of the Government of Mozambique, supported by an international NGO, Rare, and selected provincial and district authorities. The project budget was EUR 4,000,000, provided by the Nordic Development Fund (NDF), administered by the World Bank.

The project development objective was "to improve community management of selected priority fisheries". More specifically, the aim was to catalyze a transformative approach to the management of coastal artisanal fisheries in Mozambique by adapting and piloting a model of community rights-based fisheries management developed by Rare in other parts of the world through its Fish Forever program.

The reference to climate change in the project title recognizes that coastal communities dependence on fisheries makes them particularly vulnerable, both ecologically and socially, to climate-related stresses on the nearshore environment. By improving the sustainability of artisanal fisheries, the project aimed to enhance the resilience and adaptive capacity of coastal community livelihoods.

The Fish Forever approach involved local coastal fishing communities self-organizing through community fishing councils (CCPs), to devise and implement their own fisheries resource management regimes. These were centered around creation of community fisheries management (TURF[1]) areas containing fisheries no-take reserves. The design of fisheries management regimes was facilitated at each site through articulation of context-specific theories of social change, aimed at effecting changes in fishing behavior to achieve sustainable fisheries outcomes. Adoption of the resulting fisheries management regimes was facilitated through implementation of community awareness-raising and mobilization programs called pride campaigns, applying principles of social marketing.

These helped to strengthen constituencies at local level, in particular aimed at accelerating the adoption of fisheries no-take reserves and other identified fisheries management measures. The project was implemented at six pilot sites across four provinces:

Community	District	Province
Mefunvo	Quissanga	Cabo Delgado
Memba	Memba	Nampula
Fequete	Inhassoro	Inhambane
Pomene	Massinga	
Zavora	Inharrime	
Machangulo	Matutuíne	Maputo

A fisherman prepares his catch for market in Cabo Delgado Province in the north of Mozambique

1 Territorial use rights for fishing

Achievements and Challenges

The project had three substantive components, the achievements and challenges of each are outlined in Section 3 of the report, and summarized below.

Component 1 sought to improve community rights-based fisheries management at six pilot sites, in particular by establishing community fisheries management areas containing fisheries no-take reserves. This began with successful revitalization and training of community fisheries councils (CCPs) at each target site. Thereafter, at all six sites, management area boundaries were defined and mapped, fisheries no-take reserves were agreed in principle by communities, and locations proposed. However, by end-of project, none of the no-take reserves had been formally designated or demarcated, and implementation had only been partially initiated at one site, Machangulo. At two other sites, Mefunvo and Inhassoro, there remained discrepancies between communities' and implementing institutions' understanding of the location and size of proposed fisheries no-take reserve areas. Notwithstanding that, fishing communities at all six sites successfully identified one or two priority fisheries management measures aimed at improving sustainable fisheries production (see Figure 1 below).

Management measures at each site were developed in a notably poor data environment, partly due to the low quality of fisheries analytics undertaken during the project. Nonetheless, the management measures summarized in Figure 1 should provide a basis for ongoing management planning and future implementation. Moreover, notable progress in implementing the above measures was achieved at Fequete, where beach-seine fishers observed a new 60-day closure period during Feb-March 2019.

	Mefunvo	Memba	Fequete	Pomenae	Zavora	Machangulo
Priority Management Measures	All beach-seine fishers to switch to gillnets or handlines	Implement fisheries no-take reserve & reduce use of mosquito nets	Beachseine fishers to observe two closed seasons totaling 5 months	Eliminate spear-fishing and imple-ment fisheries no-take reserve	Reduce or eliminate spear-fishing and imple-ment 3 no-take reserves	Implement fisheries no-take reserve in Bembi estuary
Livelihood Project (materials provided)	Fisheries value chain equipment including chest freezers & cold boxes	Fisheries value chain equipment including chest freezers & cold boxes	4 motorized boats to facilitate line-fishing offshore, plus fishing rafts	Fisheries value chain equipment incl. chest freezers & cold boxes	12 motorized boats to facilitate line-fishing offshore, plus fishing rafts	Ice machine and store, generator, water tower to supply ice machine

Fig. 1: Priority Management measures and livelihood project for each of the six communities.

Perhaps the most significant outcome from Component 1 of the project was that experience from FishCC sites helped to catalyze consideration and decision-making within MIMAIP as to the appropriate legal framework for designation of community fisheries management areas. During 2019, this oscillated between introduction of new provisions in revised Fisheries Regulations (REPMAR), or application of existing provisions in the Conservation Law of 2017 (see section 1.6 below). At the time of this report preparation, the matter was still under final consideration. By end-of-project, management plans for 5 FishCC sites were still at an early stage of drafting, with Machangulo at a more advanced stage, but all will need significant revision once final decisions have been made on the legislation. Finalizing and approving legal provisions for the above designations and aligning all six draft management plans to those provisions, including Machangulo, remained an outstanding priority being actively pursued by the National Fisheries Administration (ADNAP) going into 2020.

Component 2 of the project supported complementary livelihood initiatives in the same six target communities. This recognized that transitioning from open-access fisheries to a management regime that imposes controls on fishing, through a no-take reserve and potentially other gear measures, has livelihoods implications, at least in the shorter term. Guided by a participatory analysis of livelihood opportunities, the project supported the initiatives outlines in Figure 1 above.

Component 3 of the project supported capacity-building and community engagement needed to develop and implement a social marketing approach to fisheries co-management. As such the component was closely integrated with Component 1. A campaign manager was appointed for each FishCC site, recruited

Fishing boats and community members on the beach in central Mozambique (Mais Peixe, 2018)

from provincial-level fisheries personnel, and trained over the full course of the project in the science of behavioral change, social marketing approaches and their application to fisheries co-management through the Fish Forever methodology. This capacity development of fisheries sector staff is one of the lasting outcomes of the project, and will be a valuable asset for future fisheries co-management initiatives in Mozambique. At each site, campaign managers facilitated a process with fishing communities of assessing the fisheries landscape, identifying goals and barriers to change, and developing a theory of change to achieve the goals, following a standard Fish Forever format.

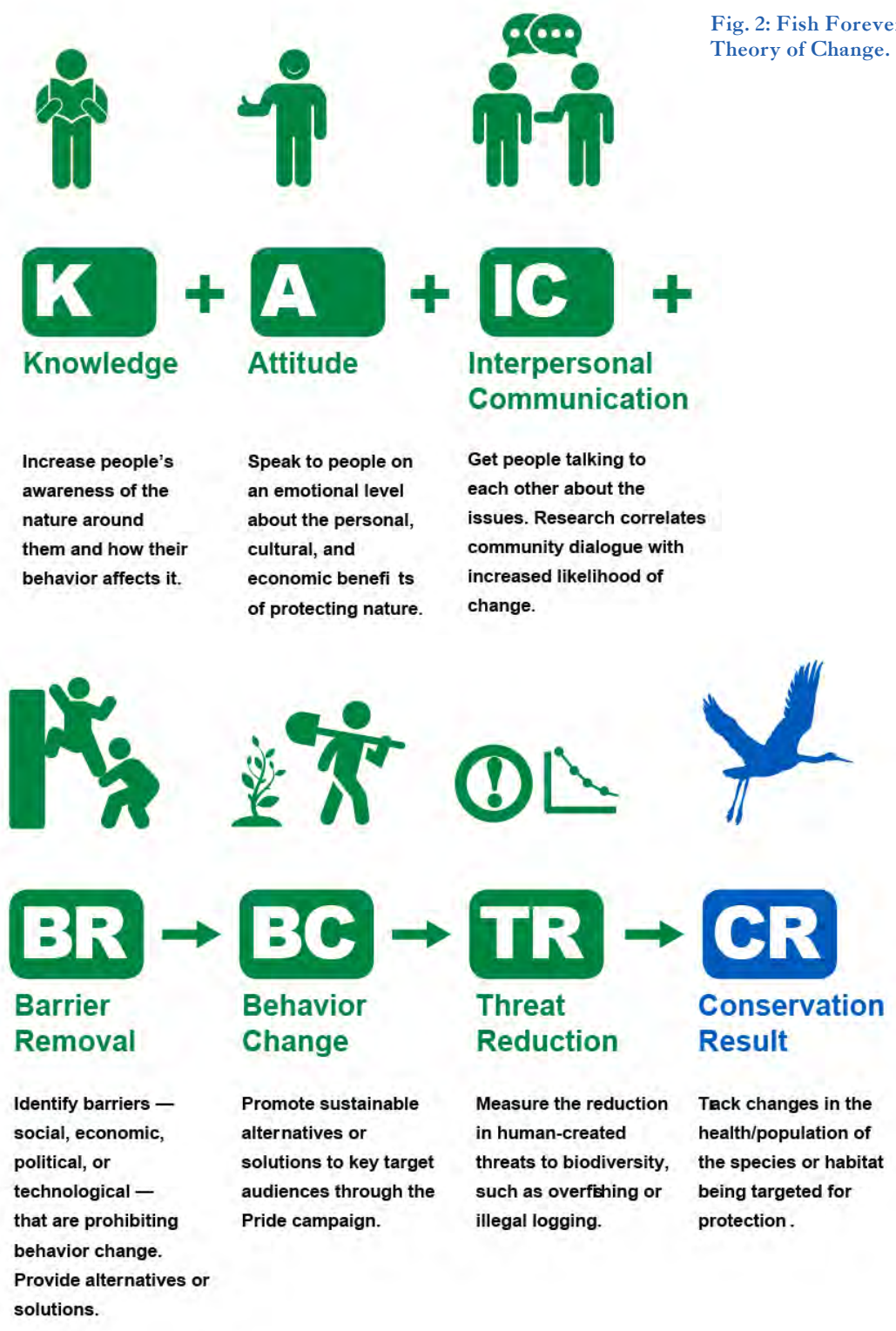


Fig. 2: Fish Forever Theory of Change.

The theories of change formed the basis for designing community awareness-raising and mobilization initiatives called pride campaigns, aimed at catalyzing changes in fishing behavior (ie. the fisheries management measures summarized under component 1 above) to achieve improved fisheries outcomes. Pride campaigns, originally planned to last for 6 months, were launched at each site in November 2018, involving a range of festivities, sports competitions, cultural arts events and distribution of materials such as banners, t-shirts and murals, all as a vehicle for disseminating appropriate fisheries–related messaging. The campaign launch events received enthusiastic participation by communities and district and provincial authorities, however limited time and financial resources remaining towards the end of the project meant that few follow–up campaign activities were subsequently implemented. Nonetheless, there was evidence of short-term impact from the launch events in terms of knowledge and attitudinal change amongst community members.

Importantly, the theories of change developed for each site contained quantitative targets for each stage in the change process, providing a basis for quantitative assessment of the impact of pride campaigns. A first round of KAP surveys were conducted early in 2018 to provide a baseline. Unfortunately, the repeat surveys conducted 12 months later applied a generic survey instrument that was only loosely comparable with the baselines, nonetheless, the more robust baseline data remains of value for future assessments.

Overall progress towards achieving the central fisheries co-management outputs anticipated under FishCC, namely formal establishment of six community management areas containing no-take zones, with completed management plans, was only partial, as outlined above.

Substantial follow-up work is still needed at all six sites. The project received a Moderately Unsatisfactory rating in the World Bank's Implementation Completion and Results Report[2], which highlighted several systemic factors, including:

i. disruption to project co-ordination arrangements caused by reorganization of the former Ministry of Fisheries shortly after project effectiveness in 2015; the national decentralization process from 2018 which affected the relationship between national and provincial fisheries authorities; and unfamiliarity within IDPPE/MIMAIP in partnering with an NGO. These factors contributed to a succession of changes to the project co-ordination mechanism, and loss of continuity and institutional memory, which significantly delayed progress at times[3];

ii. in part due to the above point, sub-optimal co-ordination throughout the project between implementing entities, both government and non-government, including late active involvement in the project by ADNAP;

iii. the lack of an existing legal framework or precedent for designation of community fisheries management areas in Mozambique;

iv. hurdles faced by Rare in having to register and establish an entirely new operational presence in Mozambique with new personnel, to build internal capacity on Fish Forever methodologies, and adapt them to the Mozambique context;

Fortunately, post-project, ADNAP is continuing to work actively on management plan preparation, and Rare has also carried forward its commitment to 5 of the 6 sites[4] in the form of a follow-up project with funding from the Blue Action Fund.[5]

2 World Bank, 2019

3 Rare, 2019h

4 At the time of report preparation, Rare had suspended follow-up in the Cabo Delgado site due to security concerns.

5 A fund supported by the German Ministry for Economic Cooperation and Development (BMZ), the Swedish Ministry for Foreign Affairs and the French Development Agency (AFD)

Key Lessons

Notwithstanding the above challenges, sufficient progress was made during the project to generate a wealth of valuable lessons for future similar work on developing fisheries co-management in Mozambique. 40 lessons in total, of which nine are key lessons, are set out in detail in Section 4 and summarized as follows.

1

LESSON #1 of 40

Some community fisheries management areas will incorporate more than one CCP. Experience from FishCC was that in 2 out of the 6 pilot sites (Machangulo and Fequete) there was justification for clustering two neighboring CCPs within a single community management area, since fishing grounds are heavily shared. This highlights the importance of conducting systematic mapping of fishing patterns and community consultations over broader areas, to help guide what should be the optimal scope and boundaries of a management area.

2

LESSON #5 of 40

Timely mapping, demarcation and implementation of no-take reserves. Fisheries no-take reserves agreed with communities at FishCC sites during 2017 were not demarcated and implemented within the subsequent 18-month project period. Where agreements are not acted on promptly, misunderstandings and confusion can arise, communities can lose confidence, funding can expire and opportunities may be lost. Prompt mapping, demarcation and implementation is important for transparency and maintaining confidence and common understanding.

3

LESSON #11 of 40

Need for MIMAIP to develop a policy on preferential access rights for local fishers. Management planning at FishCC sites did not consider options to manage access by non-local fishers, by granting preferential access rights to local fishers. In fact, fishers in at least 4 out of 6 sites favored partially restricting access by non-local fishers. Preferential access rights are an important tool in addressing open-access pressures on fisheries, not least because they encourage local stewardship. Certainly such rights raise sensitive legal and social issues. These need to be addressed by national policies, with local authority involvement, to minimize conflict and other undesired socio-economic consequences.

4

LESSON #12 of 40

Regulating semi-industrial vessels in community conservation areas. Semi-industrial vessels are currently excluded from the scope of the draft management plan for Machangulo, the most advanced of the plans. Yet semi-industrial vessels may fish up to 1nm from the shore and community no-take zones, in some cases, extend beyond 1nm. Therefore, in line with Lesson 3 above on preferential access rights, semi-industrial vessels should be part of any managed access regime in community area management plans, as appropriate.

5
LESSON #15 of 40

Fish Forever approach was effective. In particular in providing a platform for strong community engagement and systematic problem analysis. In part, this stemmed from having a campaign manager at each site over an extended 2-year period, providing intensive facilitation to the local community. Secondly, development of systematic theory-of-change results frameworks enabled identification of clear, targeted management strategies and performance measures. Though, against that, management strategies were over-simplified in some respects.

6
LESSON #19 of 40

FishCC management plans are an opportunity to pilot a new fisheries co-management legal framework for fisheries co-management in Mozambique. If it is decided to introduce a new type of designation for community fisheries management areas in revised the Fisheries Regulation (REPMAR), the management plans for FishCC sites will be an opportunity to road-test the new provision. If it is decided to apply the Conservation Law, 2017 (designating *community conservation areas* and *sanctuaries*) it will be an interesting experiment not without challenges—see Lesson 7 below. Either way, all 6 FishCC plans will need substantial revision to align with the relevant legislative options. It is likely the experience will generate further lessons.

7
LESSON #27 of 40

Challenges of applying Conservation Law for designating community fisheries management areas. Application of Conservation Law designations means that establishment of community fisheries management areas would depend on approval by a Ministry other than MIMAIP. As this would likely entail higher transaction costs, there might be advantages to retaining control of fisheries co-management processes under a single ministry. On the positive side, the Conservation Law requires community consent for licensing Third Parties for resource extraction.

8
LESSON #30 of 40

Encourage broad membership of CCPs, supported by fisher registration and ID cards. Very low CCP membership has been a longstanding challenge to CCP effectiveness in Mozambique. CCP membership was raised above 90% at 5 of the 6 FishCC sites. This was greatly facilitated by electronic registration of fishers using a mobile phone app and provision of ID cards to registered fishers.

9
LESSON #39 of 40

Selecting livelihood alternatives, purchasing assets and access-to-credit. Despite efforts to identify livelihood options that provide alternatives to fishing, fishers often prefer to modify or add value to existing fishing activities. For individual beneficiaries, investing in savings and loans initiatives can often have a more sustainable impact than simply donating goods and assets. At the level of community benefit, direct provision of larger assets can be better justifiable.

Summary of all 40 Lessons (see Ch 4 for details)

4.1. DEFINING MANAGEMENT AREAS, NO-TAKE RESERVES & FISHERIES CONTROL MEASURES

Identifying the scope of fisheries management areas

1. Some community management areas will incorporate more than one CCP
2. Importance of fishing patterns surveys to identify fishing stakeholders
3. Value of working with clusters of neighboring CCPs, not widely scattered sites

Fisheries no-take reserves

4. Community acceptance of no-take reserves
5. Timely mapping, demarcation and implementation of no-take reserves
6. Size of no-take reserves
7. Document rationale for no-take reserve locations in management plans
8. Trialling fisheries benefits from no-take areas

Range of fisheries management measures adopted

9. Fisheries no-take reserves were prioritized over managed access under FishCC
10. Importance of scientific, rights-based facilitation in identifying management measures

Controlling access of non-local fishers

11. Need for MIMAIP to develop a policy on preferential access rights for local fishers
12. Regulating semi-industrial vessels in community conservation areas

4.2. PROCESS OF PREPARING MANAGEMENT PLANS

Baseline information for management planning

13. Integration of baseline studies with participatory engagement consultations
14. Importance of systematic fisheries information focused on priority commercial species

Management planning: community engagement & plan preparation process

15. Fish Forever provides an effective framework for analysis of management priorities
16. Added value of Fish Forever methodology in management plan preparation
17. Process of drafting management plans
18. Capacity for management plan drafting at national and provincial level

Management plan content

19. FishCC management plans to pilot new legal framework
20. Management plan format
21. Plans should consider management measures additional to no-take reserves

22. Management plans should detail enforcement protocols
23. Framework for monitoring the impact of management plan implementation
24. Value of infographic summaries of management plans
25. Validation of management plans with communities

Utility of selecting FLAG fish species versus multiple priority species

26. Analysis of several priority fish species is more useful than a single FLAG species

4.3. LESSONS FOR FISHERIES CO-MANAGEMENT GOVERNANCE FRAMEWORK IN MOZAMBIQUE

Mainstreaming a spatial approach to nearshore fisheries co-management

7 27. Challenges of applying Conservation Law for designating community fisheries areas
28. Designating community fisheries management areas within protected areas
29. Include vision for spatial management of artisanal fisheries in PESPA II

CCP structure, membership and functions

8 30. Encourage broad membership of CCPs, supported by fisher registration and ID cards
31. Encourage accountability of CCP committees to CCP general assembly members
32. Legal powers of CCP rangers and need for standard operating procedures (SOPs)

4.4. FACILITATION CAPACITY AND INSTITUTIONAL ROLES

Facilitation and extension capacity

33. Capacity for co-management facilitation and opportunities for FishCC field personnel

Institutional roles & governance mechanisms

34. Respective roles at national, provincial and district levels
35. Avoid establishing conflicting governance mechanisms for co-management

4.5. EFFECTIVENESS OF SOCIAL MARKETING APPROACH

36. Fish Forever theories of change were valuable but need to be robustly formulated
37. KAP surveys need to be locally tailored and repeatable
38. Social marketing is critical but won't resolve fisheries management challenges alone

4.6. EFFECTIVENESS OF LIVELIHOOD INITIATIVES

9 39. Livelihood alternatives, purchasing assets and access-to-credit
40. Importance of fair and transparent identification of livelihood beneficiaries

1. Fisheries Co-Management in Mozambique

Note on Terminology

Globally, the term *fisheries co-management* typically refers to a partnership arrangement primarily between government bodies and *local fishing communities* [6], notwithstanding the involvement of other stakeholders. As such, the term is generally focused on arrangements for involving communities meaningfully in the management of artisanal fisheries.

In Mozambique, the term 'co-management' has historically had a broader application in the fisheries sector, referring more broadly to collaborative arrangements between different levels of government, as well as with communities, and across fisheries sub-sectors. So, for example, involving private sector investors in management of semi-industrial or industrial fisheries is also considered a form of participatory co-management. Nevertheless, in this report, the term fisheries co-management is used in the more typical sense applied globally, as described above. Indeed, along such lines, draft new Fisheries Regulations in Mozambique provide for development of *co-management agreements* which do in fact focus on community arrangements:

"To ensure participatory management of fisheries, the Central Fisheries Administration Body may enter into co-management agreements with civil society organizations at local and community level, with emphasis on Community Fisheries Councils, for sharing responsibility for participatory management of fishery resources" [7]

1.1. National Context

Mozambique's 2,700 km coastline is the fourth longest in Africa[8], giving rise to a correspondingly large maritime area of around 587,000km^2 including both territorial waters and the EEZ. Notwithstanding a nominally low contribution to GDP (below 2%), the socio-economic value of the fisheries sector is highly significant, especially in more than 600 coastal communities. At national level, fisheries provide a major source of food and nutrition and the sector is a vital part of the rural job market. Table 1.1. shows the broad structure of annual marine fish landings in 2017.

Table 1.1. Summary of total marine fisheries landings in Mozambique, 2017[9]

	Production (MT)	%
Total industrial	15,100	6%
Prawns	5,654	
Tuna (national vessels)	1,099	
Tuna (foreign vessels)	3,478	
Other	4,869	
Semi-industrial	1,837	1%
Total artisanal	224,418	93%
Finfish (excl. tuna/sharks)	191,469	
Tuna	6,299	
Prawns	6,295	
Other	20,356	
Total marine fisheries landings	241,355	

6 See for example: http://www.fao.org/fishery/topic/16625/en
7 MIMAIP, in prep (version Feb 2019). Article 24.
8 After Madagascar, Somalia and South Africa
9 DEPI

1.2. Overview of Artisanal Marine Fisheries Sub-sector

As evident from Table 1.1, artisanal fisheries constitute by far the overwhelming proportion of total marine fisheries landings, at 93% of the total. The trend in artisanal landings over the past decade or so has risen steadily, as shown in Fig.1.1. With regard to zonation for different kinds of fishing in Mozambique, the Fisheries Law, 2013 states:

"… the entire extent of the territorial sea up to 3 nautical miles from the baselines shall be reserved exclusively for small-scale fishing (defined by law as artisanal plus semi-industrial), subsistence fishing, recreational fishing, fisheries research and sportfishing." [11]

Draft new Fisheries Regulations[12] contain more detailed zonation rules as outlines in Table 1.2 (next page). A key point from these provisions is that the only space reserved exclusively for small-scale artisanal fishers is the area from the baseline (often the shoreline) to 1nm. Semi-industrial trawlers up to 20m length, and other motorized vessels up to 13m, may fish up to the 1nm line.

Although the above draft regulations indicate that artisanal fishing vessels up to 40hp engines, or non-motorized, are restricted to within 3nm, in practice a lot of artisanal fishing effort of that scale—in particular gillnetting and hand-lines—already takes place up to, and beyond the 12nm limit of territorial waters (12nm).

Fig. 1.2. gives two examples of typical findings from a fishing mapping study undertaken in Nampula, Zambezia and Sofala from 2017-19.[13]

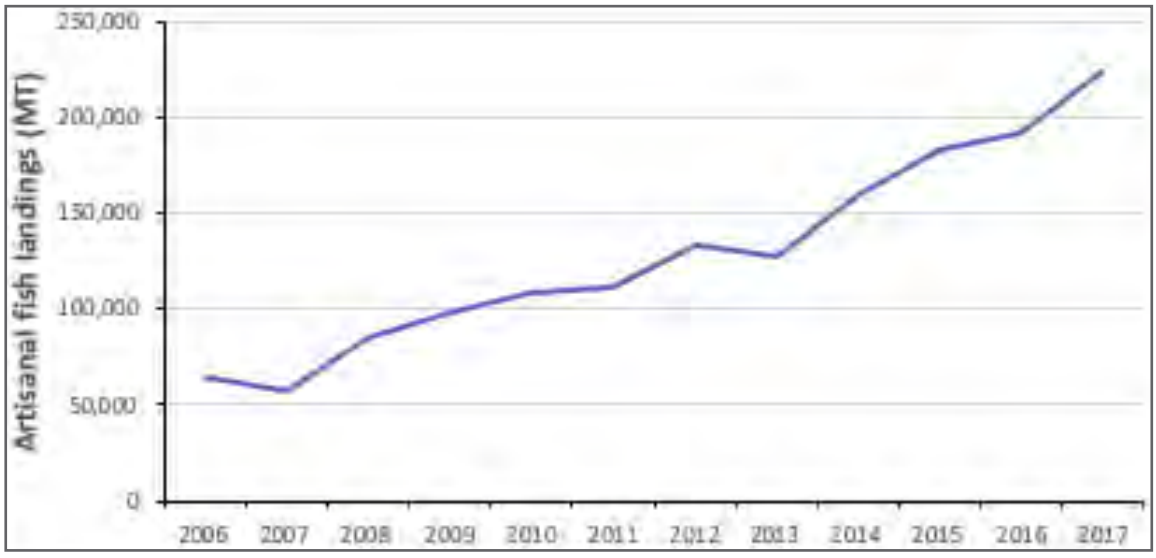


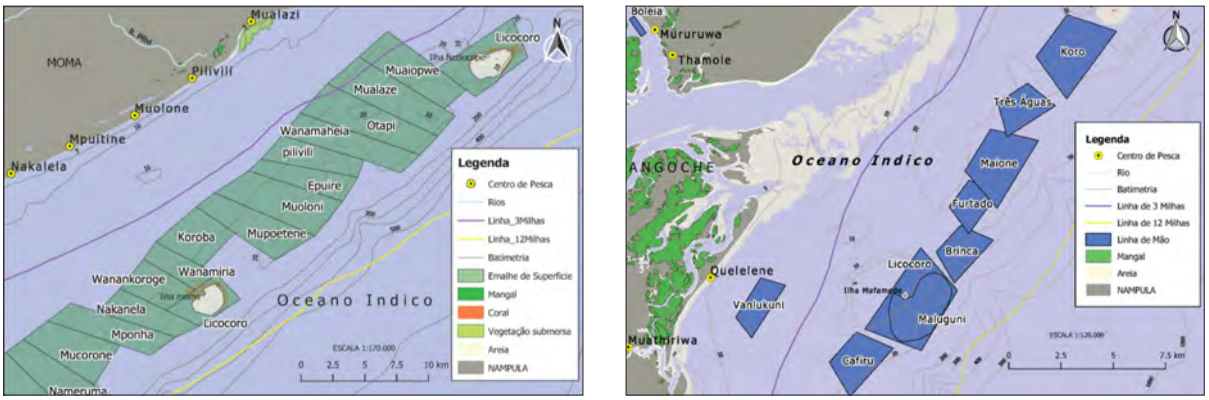
Fig. 1.1. Estimated total annual artisanal marine fish landings, 2006 to 2017[10]

10 DEPI
11 República de Moçambique, 2013
12 MIMAIP, in prep (version Feb 2019)
13 IIP (2016), IIP (2017c)

Table 1.2. Fisheries Regulations—zonation rules

	Provisions
Article 28 Classification of marine fisheries	*Artisanal fishing by boat*: from baseline to 3 nautical miles on daily fishing grounds, whether or not using mechanical propulsion equipment, with a main engine capacity of 40 hp or less *Coastal artisanal fishing:* practiced between 1 and 12 nautical miles with fishing vessels up to 13 meters in length with a maximum power of more than 40hp or 30kw and less than 140hp or 105kw
Article 54 Areas for trawl fishing	Trawl fishing under semi-industrial licensing arrangements, with the exception of bays, may only be exercised: a. Beyond 1 nautical mile from shore with a fishing vessel of 20m or less in length using an ice conservation method; b. Beyond 3 nautical miles from the coast, with fishing vessel longer than 20m, regardless of the method of conservation of the fish.

Fig 1.2. Sample artisanal fishing ground maps, Nampula Province.[14]
Top: Surface gillnet fishing, Moma District. Bottom: Line fishing, Angoche District



The above points are important in the context of determining the potential coverage of fisheries co-management areas, and which kinds of fishing are controlled within them. Following from the above, artisanal fisheries in Mozambique are conducted across a vast area including the 47,000km^2 of internal and territorial marine waters out to the 12nm limit, and even beyond. Approximately one third of those territorial waters are covered by the richly productive Sofala Bank, receiving substantial nutrient outflow from the Zambezi.

In terms of socio-economic importance of artisanal fisheries, in 2014, around 20% of the population of Mozambique, some 850,000 households, were estimated to depend on fishing for part of their income, while the fishery sector provided around 50% of total animal protein consumed nationally.[15] While men are primarily engaged with fishing at sea, women, who make up almost half the labor force, are primarily responsible for selling and gleaning—gathering small fish and shellfish along the shore. Representing an important source of cash income for many households, fisheries often supplement livelihoods and many families will turn to fishing when other forms of food production and income generation fall short.

Development of the fisheries sector was one of the main pillars of the Government of Mozambique's Poverty Reduction Action Plan, 2011–2014.

14 IIP, 2017c
15 Ministerio das Pescas, 2014

1.3. Evolution of Fisheries Co-Management, 1995–2015

1.3.1. Genesis of fisheries co-management in Mozambique, 1995-2010

During the late 1980's, as part of Mozambique's structural adjustment program with IMF and the World Bank, fisheries programs implemented over the previous two decades were evaluated, to draw lessons and propose appropriate future interventions. This resulted in the first national Fisheries Masterplan (PDP I) 1995-2005 which, for the first time outlined a vision for the management of small-scale fisheries nationally, with emphasis on the involvement of fishermen in setting and enforcing management regimes. It was in the PDP I that co-management approaches were formally declared as part of the strategic intervention approach for fisheries sector. Alongside that, IDPPE had been established in 1990-91 specifically to support development of the small-scale fisheries sub-sector, an early recognition of its importance.

Following that, during the late 1990's, rapid assessments of small-scale fisheries management were carried out by IDPPE in Maputo, Inhambane, Zambezia and Nampula provinces. These studies, technically and financially supported by IFM and ICLARM, highlighted the low involvement of traditional authorities and communities in managing fisheries. They further recommended development of a new 'bottom-up' intervention approach premised on consultation and participation. Subsequently, IDDPE began to pilot community sensitization and established the first community fisheries councils (CCPs) in Inhambane (Inhassoro, Vilanculo) and Nampula (Angoche, Moma).

Operationalization of the PDP I masterplan was supported by projects such the *Nampula Artisanal Fisheries Project (1994–99)*, funded by IFAD, implemented through IDPPE; and the *Artisanal Fisheries Development Project (2002-07)*, funded by a US$ 20m loan from the African Development Bank. The latter aimed to increase fish production by supporting artisanal fishers to catch, process and market fish more efficiently. This was to be done through provision of credit to boost fish production and promote fish marketing; building of community-level fisheries infrastructure such as landing site access roads; and strengthening institutional capacity within IDPPE, IIP and provincial authorities.[16] The project covered 7 coastal districts in Cabo Delgado Province and 3 in Nampula Province.

Nonetheless, the above projects were oriented towards enhancing fisheries *production* rather than *management*. Moreover, at the end of the day, the PDP I provided for a centralized fisheries management system which, by ADNAP's own assessment, proved inadequate to address the reality of artisanal fisheries governance challenges in fishing centers.[17] The absence of a system by which to implement fisheries management measures effectively at community level led to increasing use of unsustainable fishing gears such as beachseines, which itself led to increased level of conflict with fishers using more traditional artisanal gear.

16 ADB, 2001
17 ADNAP, 2011

1.3.2. Community Fishing Councils (CCPs)

The prevailing approach to involving community in the governance of artisanal fisheries during the period 1995-2010 was centered on *Conselhos Comunitários de Pesca (CCPs)* or community fisheries councils. However, the institutional identity, rights and roles of CCPs remained only loosely defined. The Fisheries Regulations of 2003 empowered:

"The Minister of Fisheries … to authorize unrecognized associations called Community Fisheries Councils (CCP) … (to help with) ensuring compliance with existing management measures and managing conflicts arising from fishing activity.

The application for authorization … shall contain the designation of the CCP, the area of activity, the forms of organization, the forms of its involvement in monitoring compliance, conservation and management measures for fisheries, protection of the marine environment, participation in fisheries surveillance and compliance with the Fisheries Act and applicable regulations."[18]

However, the 2003 Regulations did not further specify the functions or powers of a CCP.

The template for CCP Statutes of 2006[19] sets out objectives for CCPs as follows:

Table 1.3. Objectives of CCPs in CCP Statutes, 2006

Fundamental objective	Contribute to the preservation of marine and coastal ecosystems
Fisheries management:	Encourage and recommend fisheries licensing
	Alert Fisheries Administration authorities to changes to fisheries resources or the environment in their area
Complementing management measures	Undertake surveillance and licensing
	Collaborate in controlling marine & coastal pollution
	Participate in implementation of mechanisms to restrict fishing
Harmonisation of interests:	Establish conflict resolution mechanisms between artisanal, semi-industrial and industrial fishers, through mediation
	Promote adequate marking of fishing gear
Fisheries extension	Promote community education and awareness on the need for protection of the marine environment
	Participate in collecting information on fisheries activities, in training and in recycling

Bringing in the day's catch with a beachseine on the beach near Farol

18 Boletim da República, 2003. Article 19
19 Boletim da República, 2006. Article 8

The template for CCP Statutes of 2006 further proposed that CCP areas of jurisdiction be defined as the length of beach stipulated in the registered statute, extending 3km to sea.

Notwithstanding the above, the role of CCPs was broadly perceived by government authorities as one of supporting district administrations in implementing national fisheries regulations, under the guidance and oversight of provincial and national fisheries authorities. As such, they were primarily conceived as an extended arm of government in implementing centralized fisheries legislation, rather than as semi-autonomous governance entities representing community interests. But there are also examples where CCPs successfully lobbied for their own agenda, such as: recognition that waters out to 1 nautical mile from the shore be reserve exclusively for artisanal fishers; authorization for the of 1.5" mesh in Angoche and Moma; and special authorization for the use of trammel net for artisanal fishing, which later came to be legalized.[20]

A 2011 review of fisheries governance interventions in Mozambique[21] noted that although there had been extensive support for the establishment of CCPs, many required further support in order to fulfill their functions effectively. The institutional capacity of many CCPs remained weak, requiring further training, and there was little knowledge of legislation covering small-scale fisheries and the rights surrounding them.

ADNAP (2011) recognised the need to shift towards a more participatory management model with fisheries management decision-making being shared between national and local government and fishing communities.

The function of CCPs outlined in draft revised Fisheries Regulations[22] currently under preparation is very similar to the 2006 CCP Statutes, but with the significant addition of participating in *proposing management measures* [point (b) in box below]. However, there is also a proposal under consideration that CCPs should be registered as independent non-government associations under relevant statutes,[23] as this will give them a clearer legal status, including on key issues such as management of CCP finances.

20 Simeao Lopes, *pers comm.*
21 Evans et al., 2011
22 MIMAIP, *in prep.* Version of February 2019
23 Law 8/91 (Law of association rights) governs authorization of associations by Provincial authorities

ARTIGO 22 (Community Fishing Councils)[22]

A CCP is a community-based organization which contributes to the participatory management of fisheries. Its purpose is to ensure compliance with existing management measures and to assist in the management of fisheries conflicts. A CCP is governed by its own statutes; in particular:

a. Support local authorities responsible for fisheries administration in licensing and surveillance of fisheries;
b. Participate in the preparation of proposals and implementation of management measures in its geographical area of activity;
c. Participate in the implementation of fishing access and restriction mechanisms, number of fishermen, gear and others;
d. Alert authorities responsible for fisheries administration to changes in fisheries resources or to the environment in their geographic area;
e. Collaborate in the control and combating of marine and coastal pollution.

1.3.4. Evolving policy & project approaches to fisheries co-management, 2010-19

A revised national Fisheries Masterplan (PDP II, 2010-2019[24]) was formally launched in December 2010. Food security is the first priority of the PDP II, followed by poverty reduction, with improved balance of payments as a secondary target. The PDP is driven largely by a series of sub-sectoral strategic plans, including a strategic plan for the artisanal fisheries sector (*Plano Estratégico para o Sector da Pesca Artesanal*, PESPA I of 2007-11).[25] Further initiatives to develop fisheries co-management in Mozambique were based on this strategy, including two significant projects, both implemented by IDPPE, with financial support from IFAD and other donors.

Community-based Coastal Resource Management & Sustainable Livelihoods Project (PPACG[26]), 2009-2015

The PPACG project was implemented by IDPPE with funding of around US$ 2m from the Japanese Social Development Fund (JSDF), a trust fund administered by the World Bank.

The project targeted poverty alleviation in the context of resource conservation in coastal communities in four districts (Morrumbene, Maxixe, Inhambane City and Jangamo) of Inhambane Province.

Key activities included capacity-building of around 250 members of 22 community fisheries councils (CCPs) in the project area; dissemination of legislation on right of access and exploitation of marine resources by fishing communities; mediation of conflict resolution related to marine resources; implementation of a credit system for mariculture operators; and establishment of district and provincial co-management committees.[27]

PPACG was arguably the first government-implemented artisanal fisheries project in Mozambique that went beyond standard capacity-building of CCPs, instead taking a more holistic approach towards the management and livelihood context in which they operate. Although project activities were broadly implemented

24 MdP, 2010
25 MdP, 2007
26 PPACG = *Projecto de Pesca Artesanal e de Co-Gestão*
27 BioGlobal, 2017

successfully, the evaluation noted one relevant area where there was not significant progress, namely the delegation to CCPs of licensing and enforcement responsibilities in regard to artisanal fisheries.

ProPESCA project (2011-19)

The ProPESCA[28] project was implemented by IDPPE and aimed to improve the incomes and livelihoods of households involved in artisanal fishing by:

Increasing the volume of higher value fish on a sustainable basis, and increasing the yields obtained from marketed fish.[29]

The approach of the US$ 43.5m project was to support investments to develop the sub-sector, including: fishing operations (boat-building, gear demonstrations and fishing skills training); post-harvest value-capture (training in transportation, handling, processing and marketing); marketing facilities (public/private partnerships on ice & cold storage, construction of 11 fish markets with fish handling facilities, improved access roads, electrification); institutional and extension capacity at IDPPE; and community-based financial services for artisanal fishers.

The project targeted 13,600 beneficiaries involved directly in artisanal fishing and related activities along the whole coast of Mozambique.

ProDIRPA project (2014-18)

The ProDIRPA[30] Project was implemented by IDPPE, with a budget of US$ 1.5m. It aimed to strengthen the engagement of artisanal fishing community organizations in government development processes; strengthen the mapping, documenting and registering of resource rights; and promote sharing of experience.[31] Complementing the more traditional production and value-addition approach of the ProPESCA project, the ProDIRPA project rather focused on strengthening artisanal fishers' resource rights. The project targeted around 7,000 artisanal beneficiaries at 14 selected centers along the coasts of Sofala, Zambézia and Nampula provinces. ProDIRPA involved significant engagement, capacity-building and facilitation of CCPs at the 14 sites. Unfortunately, the anticipated preparation of community fisheries management plans was not achieved, in part due to the lack of relevant legislation.[32]

Revised artisanal sub-sector strategy - PESPA II

In 2018, MIMAIP reviewed its strategic plan for the artisanal fisheries sector (PESPA I, 2007-11) and IDEPA developed a draft PESPA II (2019-25),[33] though not yet approved at the time of preparation of this report. The PESPA II has the following vision statement:

"Commercial artisanal fisheries capable of improving living conditions and income management through improved fishing support infrastructure and equipment that drive the growth and massive development of fisheries with flexible and dynamic access to finance largest number of artisanal fishers."

One of the six strategic pillars outlined in the draft PESPA II is *Fisheries resources management*, one of the two objectives of which is: *to ensure the sustainable management*

28 ProPESCA = *Projecto de Promoçao da Pesca Artesanal*
29 IFAD, 2010
30 PRODIRPA = *Projeto de Direitos aos Recursos dos Pescadores Artesanais*
31 IFAD, 2013
32 IFAD, 2019
33 MIMAIP, 2018g

of fishery resources that guarantee the availability of resources for future generations. The PESPA further outlines implementation actions for each pillar, by province. As things stand however, the PESPA II does not articulate any explicit vision, objective or action along the lines of pursuing either a spatial-based or community rights-based approach to artisanal fisheries management, of the kind being adopted elsewhere in the SWIO region, including Tanzania, Kenya and Madagascar.

More broadly, the past 15 years or so have witnessed a trajectory in the design of government-implemented projects in the artisanal fisheries sub-sector in Mozambique, from a heavy focus on increasing fisheries production and value-addition (project such as ProPESCA), to the recognition that fisheries resource are finite and under pressure, therefore further recognising the importance of engaging communities in rights-based fisheries management, and the broader livelihood context in which those fishing communities operate (projects such as PPACG and ProDIRPA). This reflects the experience and capacity developed within MIMAIP, in particular within IDPPE/ IDEPA at both national and provincial level, confronting the challenges faced by fisheries extensionists, CCPs and fishing communities on the ground.

That said, at the time the FishCC project was conceptualized around 2014, the approach of establishing rights-based fisheries co-management areas, as a central strategy towards achieving sustainable artisanal fisheries management, was still very much an emerging idea in need of demonstration and proof-of-concept in Mozambique.

1.4. NGO Initiatives on Fisheries Co-Management

Complementing government-driven policies and projects outlined above, NGOs have also been active in Mozambique over the past 20+ years in supporting artisanal fisheries co-management, in partnership with relevant national, provincial and district authorities. Relevant project initiatives are summarized in Table 1.4.

A boat ferrying passengers from the local fishing community in northern Mozambique

Table 1.4. NGO-led fisheries co-management initiatives in Mozambique

NGO	Location	Period active	Objectives/achievements relevant to CCP capacity-building and/or fisheries co-management area development
African Parks	Bazaruto National Park	2018 - ongoing	Working with 7 fishing communities within Associação de Pescadores do Arquipélago de Bazaruto. There are no CCPs in the national park.
Marine Megafauna Foundation (MMF), WCS	Tofo, Barra, Rocha. Inhambane	2016 - ongoing	Capacity-building of 3 CCPs. Expecting to develop 3 co-management areas/plans
Ocean Revolution	Inhambane Bay	2017 - ongoing	Capacity-building of 4 CCPs in Inhambane Bay, including establishment of 9 fisheries no-take zones.
Oikos	Quirimbas National Park	2014 - 2018	Strengthening 6 CCPs in Ibo District & establishment of 3 locally managed area
Peace Parks Foundation	Ponta do Ouro Partial Marine Reserve	2016 - ongoing	Co-supporting capacity building of 2 CCPs and establishment of community conservation area at Machangulo, in partnership with FishCC project.
Rare (with MIMAIP under FishCC project)	6 sites in Cabo Delgado, Nampula, Inhambane, Maputo	2015 - ongoing	Establishment of 6 community management areas initiated under FishCC project – ongoing under Blue Action Fund support
Rare (with SSWIOFish project)	Sofala Province (especially Buzi District)	2019 - 2021	Establish ~ 3-4 community management areas in Buzi District Capacity-building of ~ 24 CCPs across all Sofala Province
WCS	Inhambane and Cabo Delgado	2019 - ongoing	Establishing 1 pilot community conservation area in northern Inhambane. Plus technical support on ecological mapping to ZSL and MMF initiatives.
WWF	Quirimbas National Park	2002 – 2018 2019 - 2023	Capacity-building of 9 CCPs in QNP including management of no-take zones Similar ongoing work with 9 CCPs in QNP plus 2 CCPs in Mecúfi District
WWF	Primeiras & Segundas Environment Protection Area	2008 - 2018 2018 – 2022	Capacity-building of 11 CCPs within PSEPA plus livelihood initiatives (CARE) Establishment of 5 fisheries no-take zones (sanctuaries) within PSEPA.
WWF (with SSWIOFish project)	Nampula, Zambezia provinces (esp. Moma, Pebane districts)	2019 - 2021	Establish 2 community management areas (Moma & Pebane Districts) Capacity-building of ~ 48 CCPs across Nampula & Zambezia provinces
Zoological Society of London (ZSL) with Associação do meio ambiente (AMA), CORDIO, UniLúrio, BioClimate, Univ Lisbon, WCS	Cabo Delgado Province (North of Moçimboa da Praia, Pemba and Mecúfi)	2014 - 2017 2019 - 2022	Capacity-building 6x CCPs in N Cabo Delgado from 2014-17 and 3x CCPs in Metuge/Mecúfi from 2019. Expect to develop up to four community conservation areas, mainly with the southern CCPs.

1.5. Ministry Re-Structuring Post-2015

Mozambique's economy has always been closely linked to the Indian Ocean and other inland water bodies such as Lake Niassa. Having a coordinated governance system that harnesses the economic potential of the country's aquatic resources is integral to Mozambique's economic development. Post-independence, as the economy developed, some challenges arose in this context. Government structures responsible for management of the maritime and inland spheres were notably sectoral, resulting in a diversity of institutions and regulations on matters relating to their sovereignty, exploration, extraction and conservation, as well as related security issues. Improved co-ordination was needed.

So, following the general elections of October 2014, the new President-elect promoted an institutional restructuring of the government which, among others, resulted in dissolution of the former Ministry of Fisheries and creation of a new ministry with a broader mandate beyond fisheries affairs. The new Ministry of the Sea, Inland Waters and Fisheries (MIMAIP) has a more holistic mandate, having integrated responsibility for:

- Exercising state authority over the sea, inland waters and fisheries.
- Authorizing and supervising the planning, concessions, research and other activities that require the use of the sea, inland waters and their ecosystems.
- Promoting the use and exploitation of sea resources, inland waters and their ecosystems.
- Promoting and coordinating the prevention and reduction of pollution of the aquatic environment and the improvement of the state of their ecosystems.[34]

To fulfill its new mandate, MIMAIP conducted an internal institutional analysis to better consolidate the roles of each body within it. This resulted, amongst other decisions, in merging of the *National Institute for Small-scale Fisheries Development (IDPPE)* and the *National Aquaculture Institute (INAQUA)* into a new entity named the *Institute for Fisheries and Aquaculture Development (IDEPA)*, in 2016. The two institutions, IDPPE and INAQUA were perceived to perform many similar functions, on fisheries and aquaculture extension and development, within the same communities. There were also significant changes in senior management positions, within MIMAIP institutions.

In parallel with the above re-structuring of MIMAIP, since 2018, the Government of Mozambique has also embarked on a renewed process of decentralization, approved through amendments to the 2004 Constitution in May 2018. This entails a transfer of certain powers rand financial resources from the central government to provincial and district authorities. Accordingly, functions previously performed by provincial delegations of national fisheries institutions such as IDPPE, INAQUA and ADNAP, have been decentralized and put under the authority of provincial governments, through MIMAIP provincial directorates (DP-MAIPs). This has involved a lot of personnel being transferred, at least in their employment arrangements, from national to provincial.

These changes, both the re-structuring of MIMAIP and the decentralization of provincial delegations of IDEPA and ADNAP, are likely to have impacted the management of project initiatives, including FishCC, that were designed and initiated under earlier institutional arrangements, including disruptions to institutional memory and management continuity.

34 Presidential Decree 17/2015 on MIMAIP attribution and competencies

1.6. Legal Framework for Designating Community Management Areas*

At the outset of FishCC in 2015, there was no clear legal instrument under fisheries legislation, specifically for the establishment of community fisheries management areas proposed to be developed by the project.

There was only a more general provision in the Fisheries Law of 2013, for establishment of 'zones for conservation of fisheries resources', pending subsidiary regulations to define the details of its application:

Fisheries Law, 2013

Article 16

(Zones for conservation of fishery resources)

1. In maritime and continental waters, conservation zones for fishery resources may be declared to promote their protection and regeneration.
2. Conservation zones are classified according to specific purpose, ecosystem regeneration and the socio-economic interests of communities.
3. The Government is responsible for regulating the definition, conditions and form of declaration of resource protection zones.

To address this gap, during revision of the Fisheries Regulations (REPMAR) during 2018-19, in significant part catalyzed by the FishCC project, a new provision was initially drafted which would provide for establishment of community management areas for fisheries:

Draft REPMAR, 2019

Article 23

(Community Management Fishing Areas)

1. A community management area shall be a delimited area in the public community domain, under the management of one or more local communities, for the sustainable exploitation of fishery resources.
2. A community management area aims to achieve the following objectives:
   (a) ensure the sustainable use of coastal and marine resources in the area of common use of the community, including conserving natural resources, sites of historical, religious and spiritual importance and cultural use for the local community;
   (b) ensure the sustainable management of coastal and marine resources in order to result in local sustainable development.
3. In community management areas, only artisanal fishing, subsistence fishing and recreational and sport-fishing, scientific research fishing, experimental or demonstrative fishing and training and training may be carried out, and others as may be defined in the management plan.
4. Establishment of community management areas shall be preceded by the preparation of management plans in accordance with these Regulations.
5. In community management areas, community-based organizations are responsible for the implementation of management plans, under the supervision of local governments and local fisheries administration institutions.
6. In community management areas, fishing licensing and enforcement are the responsibility of the competent authorities of the District.
7. The Minister responsible for fisheries shall be responsible for establishing community management areas.

* The extracts of legislation included in section 1.6 have been translated by the author and are not official translations

However, further consideration within MIMAIP, and with the Ministry for Land, Environment and Rural Development (MITADER) during 2019, resulted in an alternative proposal to remove the above draft Article from the proposed revised Fisheries Regulations (REPMAR), and instead to make use of existing legal provisions for designating *community conservation areas* under the Conservation Law, 2017:

Conservation Law, 2017

Article 22

(Community Conservation Areas)

1. A community conservation area is a sustainable use conservation area in the public community domain, delimited and managed by one or more local communities who have the right to use and benefit from the land (DUAT), destined for preserving fauna and flora and for the sustainable use of natural resources.
2. A community conservation area aims to achieve the following objectives:
   (a) protect and conserve the existing natural resources in the area of customary community, use, including the conservation of natural resources, sacred forests and other sites of historical, religious, spiritual and cultural importance to the local community;
   (b) guarantee the sustainable management of natural resources in a way that leads to local sustainable development;
   (c) ensure access to and the permanence of plants for medicinal use and of biological diversity in general.
3. Licensing for the exploitation of resources to third parties can only be done with the prior consent of the local communities, after a process of consultation, culminating in the conclusion of a partnership agreement.
4. Management of natural resources in the area of community conservation shall be carried out in accordance with the customary rules and practices of the respective local communities, without prejudice to compliance with national legislation.

Conservation Law, 2017

Article 23

(Sanctuary)

1. The sanctuary is an area in the public domain of the State, or in the private domain, destined for the reproduction, shelter, feeding and research of certain species of fauna and flora.
2. The sanctuary may be demarcated within or outside an established conservation area.
3. The resources existing in the sanctuary may be exploited under a special license, under terms to be regulated, except for species that are intended to be protected, provided they are in accordance with the respective management plan and with this Law.
4. The repopulation of species in a sanctuary is subject to compliance with provisions in national legislation and in the respective management plan.

Conservation Law, 2017

Article 37

(Approval, Modifications and Dissolution of Conservation Areas)

1. It is incumbent upon the Council of Ministers to approve, modify or dissolve all natural reserves, national parks, cultural and natural monuments in the public domain of the State, special reserves, environmental protection areas and official estates, regardless of their size, as well as sanctuaries, game farms and community conservation areas larger than 10,000 hectares.
2. It is incumbent on the Minister who oversees the conservation areas to approve, modify or dissolve sanctuaries, game farms and community conservation areas of between 1,000 and 10,000 hectares.
3. It is incumbent upon the provincial government to approve, modify or dissolve game farms, sanctuaries and community conservation areas up to a maximum of 1,000 hectares, as well as cultural and natural monuments in the public domain and in the private domain.
4. It is incumbent upon the municipal assembly to approve, modify or dissolve municipal, cultural and natural monuments and municipal ecological parks that are located within the limits of the municipality in question.
5. The process of creation, modification or termination of conservation areas follows the process indicated in the land law.
6. Nature reserves, national parks and special reserves will have a buffer zone, which is an integral part of the conservation area, in accordance with the ecological conditions.

Three implications stand out from MIMAIP's latest proposal to make use of the provision under the Conservation Law, 2017 for designation of community conservation areas, rather than developing separate provisions in Fisheries Regulations (REPMAR):

i. **MITADER approval:** approval for establishment of community conservation areas between 1,000 and 10,000 hectares in size (which includes all the six areas targeted under the FishCC project), requires approval of the Minister of MITADER, as per Article 37 (2), but not necessarily the Minister of MIMAIP, at least according to the letter of the law. The requirement for inter-ministerial co-ordination could introduce delays and inertia into the process of designating community management areas for fisheries.

ii. **Local community consent for third party access:** Article 22 of the Conservation Law of 2017, which provides for establishment of community conservation areas, arguably enshrines the principle of bestowing *preferential access rights* on local communities. In particular, paragraph 3 of Article 22 states that "licensing for exploitation of resources to third parties can only be done with the prior consent of the local communities". However, the term 'third party' is not defined and there is ambiguity as to what it means in a fisheries context. Originally crafted for a terrestrial context, 'third party' might have been intended to refer to foreign investors being licensed to extract terrestrial natural resources. In a fisheries context, the question arises as to whether an industrial or semi-industrial vessel, or indeed a non-local artisanal fisher or vessel, would be considered a 'third party'.

iii. **Sanctuaries:** under Conservation Law, sanctuaries can be designated within community conservation areas, thus would be suitable for designation of *fisheries no-take reserves* within broader community fisheries management or conservation areas.

These points are discussed further in Section 4 (Lessons) below.

2. FishCC Background, Approach & Methodology

2.1. FishCC Background, Objectives & Structure

2.1.1. FishCC project genesis

Artisanal fisheries co-management and climate change vulnerability

The FishCC project concept was developed in the context of a newer generation of government-led artisanal fisheries projects in Mozambique, such as PPACG and ProDIRPA (see above), focused on engaging communities in fisheries management in a more meaningful manner, often against a background of a declining fisheries resource-base. Alongside that, was a further recognition of the particular vulnerability of coastal communities in Mozambique to climate change stresses. The combined impact of rising sea-surface temperature, more frequent and severe storm surges, ocean acidification and increased variability in rainfall patterns, is expected to affect the status of fisheries resources, fishing patterns and safety-at-sea. This puts coastal communities at the front line of climate change concerns.[35]

In this context, during 2013-14, the Nordic Development Fund, together with the World Bank, expressed interest in supporting a Mozambique government-led project to pilot approaches that would promote climate change resilience amongst coastal communities. This could be through enhancing both ecological resilience (ie. relieving unsustainable pressures on fisheries habitats and resources) and community adaptive capacity (enhancing community capacity and livelihood diversification).

Around the same time, the design process was also getting underway to develop a SSWIOFish project in Mozambique, a national component of a regional portfolio of projects in the western Indian Ocean supported by World Bank IDA grants, focused on improving the management effectiveness of selected priority fisheries.[36] So, a project piloting an approach to artisanal fisheries co-management that could potentially be mainstreamed, and also inform future revisions to relevant sectoral policies and strategies, was seen as highly complementary to SSWIOFish.

During FishCC design discussions, there was particular interest in identifying an approach that could address the challenges of promoting behavioral change amongst artisanal fishers, as part of a strategy towards addressing unsustainable fishing practices. In that context, the *Fish Forever* approach developed by the NGO, Rare, was identified as a possible methodology, based on positive reports of its application in Indonesia and Philippines, though it had not yet been trialled in Africa. *Fish Forever*'s focus on applying a spatial approach to artisanal fisheries co-management, through establishment of community management areas with no-take reserves, resonated with similar LMMA[37]-type approaches being trialled elsewhere in the SWIO region, and was seen as having interesting potential in the Mozambique context.

35 INGC, 2009; MICOA, 2007; MICOA, 2013
36 World Bank, 2014
37 LMMA = Locally managed marine areas, a management approach developed in SE Asia and Pacific

2.1.2. Project Objective

The FishCC project development objective (PDO) stated in the approved Project Paper was *to improve community management of selected priority fisheries*.[38]

The FishCC Project Paper further elaborates that:

"The proposed project seeks to improve local governance … and catalyze a transformative approach to coastal, artisanal fisheries in Mozambique. The approach will reduce human threats to coastal ecosystems by piloting community rights-based management …

To catalyze this social resilience, the project will pilot a process in which local communities self-organize through their fisher community councils, and prepare and implement their own natural resource management regimes creating TURF and no-take zones (NTZ). This will be facilitated by programs called Pride Campaigns, in which Mozambican government staff will be taught the principles of social marketing and a theory of social change that will enable them to establish constituencies at local level, accelerating the adoption and implementation of TURF reserves. This approach has fisheries, livelihoods and natural resource management objectives, and as the health of coastal ecosystems improve, this will increase ecosystem and socioeconomic resilience to climate change".[38]

2.1.3. Project Structure and Content

The FishCC component structure and content is summarized in the approved World Bank Project Paper[38], as follows:

Component 1: Improve community rights-based fishery management (€350,000). The National Institute for the Development of Small Scale Fisheries (IDPPE) will work with Fishing Community Councils (CCPs) so that they meet on a regular basis, create their management plans, delineate TURF-reserves, and organize necessary protection and monitoring. Furthermore, the project will support the CCPs through financial planning, integration of their management body into provincial and district governments, and by sponsoring training on climate change, social and ecological resilience. Fisheries in the pilot sites will improve through the development and implementation of TURF-reserves, and these improvements will be quantitatively measured. Data will be collected by local community members to monitor improvement in biomass of catch and catch value plus reductions in fishing costs. IDPPE will oversee the collection and use of these data.

Component 2: Improve livelihoods (€525,000). This component will use the recommendations from site-specific socio-economic analyses to support the improvement of livelihood. Pilot activities will be conducted in tourist, aquaculture and other sectors depending on the geographic locations and social status of the communities. These alternative livelihoods for fishers will help transition from open-access management to TURF-reserve management.

Component 3: Social marketing (€1,400,000). This component will help increase local social marketing capacity within the Ministry of Fisheries and also the local communities. There will be training and capacity-development of the CCPs in the six pilot sites. The international non-governmental organization RARE will provide a social marketing training and workshop for IDPPE staff members. Selected IDPPE staff members will go on to be trained intensively in social marketing, the science of behavioral change and conservation so that they can plan and implement social marketing campaigns at six sites. Furthermore, the project will organize an international event to disseminate the lessons learned in this project and exchange experiences.

38 World Bank (2015)

Component 4: Project management (€700,000). This last component will support the implementation and coordination of the project, at IDPPE. It will also support monitoring and evaluation of the project activities and result. IDPPE will be supported by a technical assistance on, inter alia, development of terms of reference and external communication. There will be different types of communication materials including tailored awareness and education materials, website, and visual communication. Separate consultancies will undertake technical studies to support implementation.

2.1.4. Project Deliverables

Drawing on the above component descriptions in the FishCC project paper, key expected outputs from the project included, at each project site:

i) CCP with strengthened capacity, including meeting regularly.

ii) Management plans prepared.

iii) Fisheries no-take reserves delineated, established and implemented.

iv) Data to monitor improvement in biomass of catch and catch value.

v) Pilot livelihood initiatives implemented.

vi) IDDPE staff members trained in social marketing.

vii) Social marketing campaigns implemented.

Reflecting the above, the official FishCC project results framework contained the indicators outlined in Table 2.1.

Table 2.1. FishCC Results Framework[39]

Original	After mid-term restructuring (2017)
PDO Level Results Indicators and end targets	
Four community management agreements in place between the administration and CCPs.	Six Community Fishing Councils (CCPs) legalized and functioning.
7.5% increase in average Catch Per Unit Effort (CPUE) in targeted communities.	Dropped
6,000 direct project beneficiaries of which >10% are female.	2,700 direct project beneficiaries of which >10% are female.
Intermediate Result (Component One): Improve community-based fishery management	
1.1. 5% increase in coral and sea grass bed coverage in Reserve.	Dropped
1.2. Six local management plans developed by CCPS	Six fisheries management plans developed and submitted for approval
Intermediate Result (Component Two): Improve livelihoods	
2.1 At least two new revenue generating opportunities identified and piloted.	At least two new revenue generating opportunities identified and launched
Intermediate Result (Component Three): Social Marketing	
3.1. 30 government staff trained on social marketing	3.1. 24 government staff trained on social marketing

39 World Bank, 2019

2.1.5. Target Communities and Beneficiaries

The FishCC project concept did not specify the geographic areas to be targeted by the project, neither did it specify principles or criteria for their selection. Accordingly, a scoping study for FishCC site selection[40] was undertaken during 2016, a collaborative effort by a team of personnel from Rare, IIP, IDPPE, University of Santa Barbara and the Environmental Defense Fund. An initial long-list of 24 sites was selected based on criteria including:

- *Relationship to national MPA*. So that the *Fish Forever* approach could be tested in a range of governance environments.
- *High Biodiversity*.
- *Geographical proximity* (northern sites reachable via Pemba or Nampula airport).
- *Co-funding possibilities and strategic placement*. Including ease of bringing decision makers to a site for demonstration purposes.
- *Presence of a functioning CCP*.

Oddly, the entire Sofala Bank area was excluded from the site selection process. That covers, most of Nampula and all of Zambezia and Sofala provinces.

This was on the basis that: "*the habitat is dominated by mangroves and the Sofala Banks, a fishery dominated by semi-industrial trawling in shallow waters*".[40] This characterization is far from accurate. In 2017, total marine artisanal landings in Sofala, Zambezia and Nampula provinces were an estimated 148,000 MT. Total semi-industrial marine landings for the entire Mozambique coast in the same year were only 1,837 MT. Semi-industrial landings in 2015 in Beira, Quelimane and Angoche combined were only 1,046 MT.[41] So, fisheries in the Sofala Bank region are overwhelmingly artisanal in fact, in the region of 99%.

A further criteria-based selection process was applied to the 24 potential sites, involving physical visits to all sites and interviews with CCPs and community members. Sites were scored quantitatively against another set of criteria including:

- Suitability to function as a TURF-Reserve based on ecology and fishing patterns
- Eco-health and recoverability
- Overfishing
- Strategic location/ funding opportunities
- Marketing patterns
- Pride factors (social factors conducive to social marketing)
- Leadership
- Management execution (social and infrastructure capacity for management)

The above process resulted in selection of 6 sites for project implementation, as shown in Table 2.2. and Fig.2.1.

40 Rare, 2016
41 DEPI national fisheries statistics, 2006-2017

The sun rising over the Indian Ocean in central Mozambique

Table 2.2. Characteristics of sites selected for FishCC implementation

Site name	Province	CCPs	No. fishers[42]	No. fishing centers	Size of management area (ha)[43]
Mefunvo	Cabo Delgado	Mefunvo	294	4	3,967
Memba	Nampula	Memba	1439	10	9,075
Inhassoro	Inhambane	Fequete	230-250	1	1,722
Pomene		Pomene	100	1	5,330
Zavora		Zavora	150+	2	9,883
Machangulo	Maputo	Mabuluco, Santa Maria	240	7	19,858

Observations on site selection process

1. **Overall:** the approach to site selection was thoughtful and impressively thorough, as evidenced and detailed in the 104-page report cited above.

2. **Selection of Discrete CCP Areas:** An implicit premise of the site selection process, not explicitly recognized in the accompanying report, was that discrete sites, largely pre-defined by the scope of single existing CCP, would automatically be appropriate for establishment of community management areas. Although fishing patterns were nominally part of the criteria selection, the summary site descriptions in Rare (2016) do not contain any characterization of use of each area by outside fishers, or reciprocity of fishing activities with neighbors. Yet that is a critical factor in the context of defining the scope of co-management areas. In fact, one of the selected sites, initially identified as Mobulucco CCP, was later expanded to accommodate another neighboring CCP, Santa Maria, which became the site referred to collectively as Machangulo.

   This in itself highlights the above-mentioned drawback of not giving more attention to fishing patterns in the original site selection. This issue has important implications for the broad approach to identifying the scope of fisheries co-management areas, as highlighted in Lessons 1 & 2 in Section 4 below.

3. **Geographic Spread of Selected Sites:** Spreading the 6 sites across 4 provinces, all in different districts, significantly increased the number of local authority partners that needed to be engaged, and have capacity built. Having only one site under any one district authority (SDAE) or provincial directorate (DPMAIP), except in Inhambane Province, cannot have encouraged as high a level of engagement and ownership as might otherwise have been the case. Additionally, the geographic spread of sites put a strain on Rare and IDEPA's limited resources, particularly staff time.[44]

42 Rare, 2016
43 DEPI national fisheries statistics, 2006-2017
44 Rare, 2019h

4. **Selection of FishCC Sites in Designated Protected Areas:** 2 of the 6 FishCC sites were located in protected areas designated under the Conservation Law, 2013; Mefunvo in *Quirimbas National Park* (QNP) and Machangulo in *Ponta do Ouro Partial Marine Reserve* (RMPPO). As indicated above in the initial scoping criteria, this was a deliberate measure to test the appropriateness of *Fish Forever* in a range of governance contexts. This was a laudable intention and, in Machangulo at least, it paid incidental dividends in terms of complementary technical and financial resources provided through partnering with RMPPO and Peace Parks Foundation.

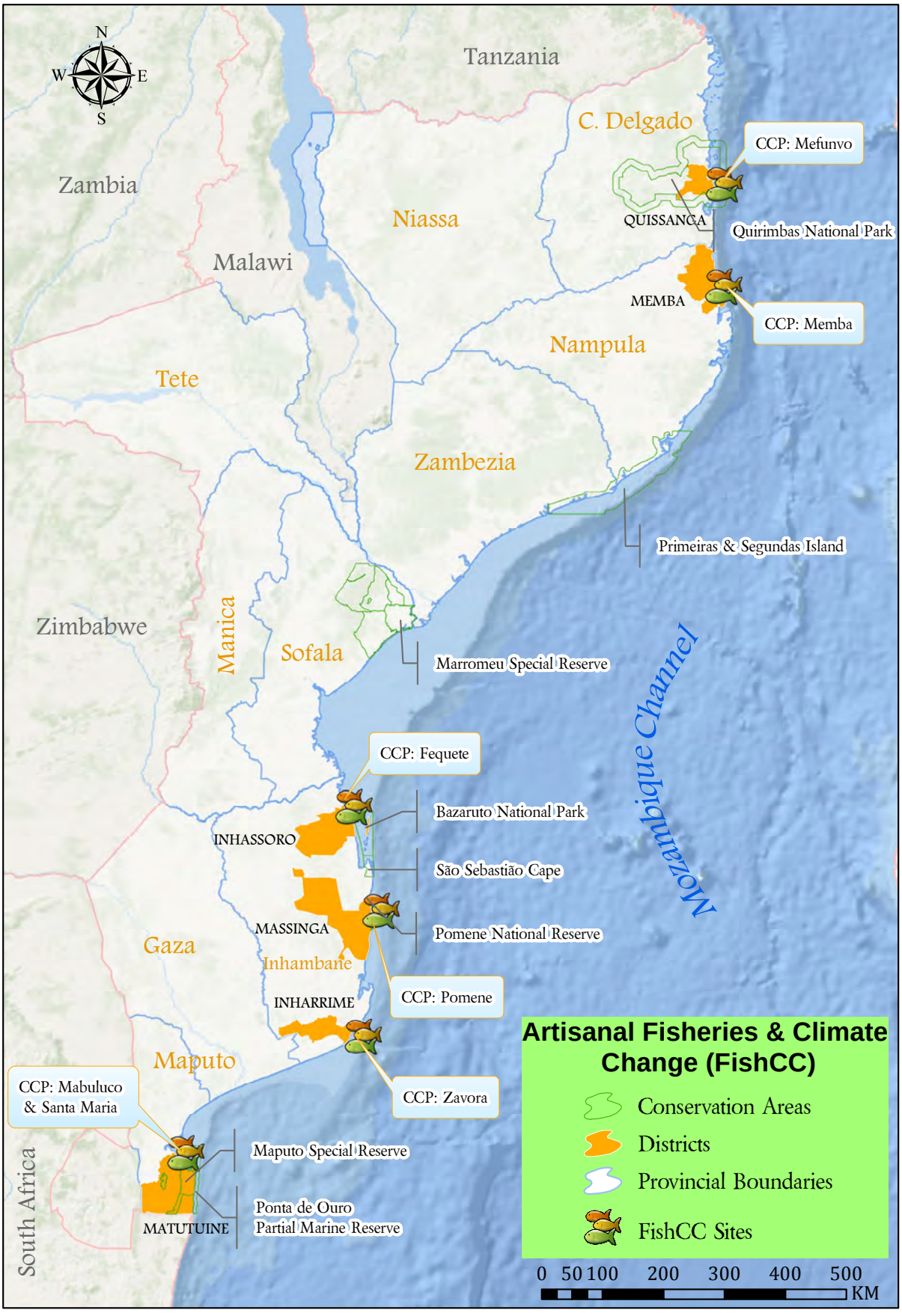
   Preparation of a draft management plan for Machangulo during 2018-19 further helped to crystallize important questions around the legal options for designation of community fisheries management areas, in particular the revised Fisheries Regulations (REPMAR) currently under preparation. At the time of report preparation these questions are still in process of being resolved, the point is highlighted further in Lesson 27 in Section 4.

   In Mefunvo, there was less evidence of a value-adding partnership with national park authorities. Less progress was made on preparation of a management plan there, so experience from Mefunvo has not yet contributed much to the question of the legalities surrounding designation of a community fisheries management area within a national park. Confusingly, Rare reported during this report preparation that Mefunvo's location within a national park was a reason *not* to identify a fisheries no-take zone there, despite no-take reserves being a central element of *Fish Forever*. This is surprising given there already exist other no-take reserves within QNP. Moreover, the Mefunvo campaign manager reported that the Mefunvo community did in fact propose a no-take reserve on the east side of the island. This issue remain unclear, and is not likely to be resolved in the near future in view of the ongoing security situation in northern Cabo Delgado.

Points (2) and (3) together suggest that a better approach to site selection would have been to identify 2 or 3 clusters of CCPs with contiguous areas of jurisdiction, each cluster within a single district. This would likely have produced greater success in terms of: (i) engagement, co-ordination and ownership by district and provincial authorities; (ii) supporting better examination of issues surrounding shared fishing grounds and reciprocal fishing practices between neighboring areas; and (iii) improved technical oversight of campaign managers by Rare and IDEPA.

The benefits of taking a cluster approach to identifying fisheries management areas, underpinned by a systematic assessment of fishing patterns, is outlined in Lessons 1 and 2 in Section 4 below.

Fig. 2.1. Map of six FishCC project sites



2.2. Fish Forever Methodology & FishCC Implementation

2.2.1. Fish Forever Concept and Approach

The *Fish Forever* approach is best described in its own documentation published by Rare, the organization responsible for developing *Fish Forever* since 2011-12. Below are some selected text and figures to illustrate key features of the approach.

A note on no-take reserves and spill-over effects

Fisheries no-take reserves are a cornerstone of fisheries management globally, especially in the management of artisanal near-shore fisheries in tropical and sub-tropical regions. Although the benefits are difficult to evaluate empirically, there is a body of literature developed over 30 years indicating that fisheries closures can have a net enhancement effect on fisheries in adjacent areas, through spillover of both larvae and juvenile fish from the closed area.[45]

Fisheries no-take reserves have particular value in protecting fish spawning or nursery habitats, and also where the fisheries environment is relatively complex. Where highly species-diverse fish communities are targeted with multiple gears, it becomes difficult to apply traditional stock management approaches that were largely developed to manage single-stock fisheries in temperate regions.

In complex, data-poor fisheries environments, such as are common in the SWIO region, it would be practically impossible to design or implement specific effort-control measures for each major target stock, to ensure sustainability. In that context, well-located, appropriately-sized fisheries no-take reserves can be a simpler, effective alternative.

This is at the heart of the *Fish Forever* approach, and other similar approaches applied in the Indo-Pacific.

How Fish Forever was Born: Managed Access with Reserves meets Behavior Change[46]

The idea of *Fish Forever* was born through three major realizations: that coastal fisheries were largely unmanaged and in decline; that coastal communities were facing an existential crisis impacting the foundation of their economy, food security, culture and wellbeing; and that the most widely-used management tool in coastal waters — Marine Protected Areas (MPAs) — were struggling to be effective, given a lack of community support and fisher compliance, among other factors.

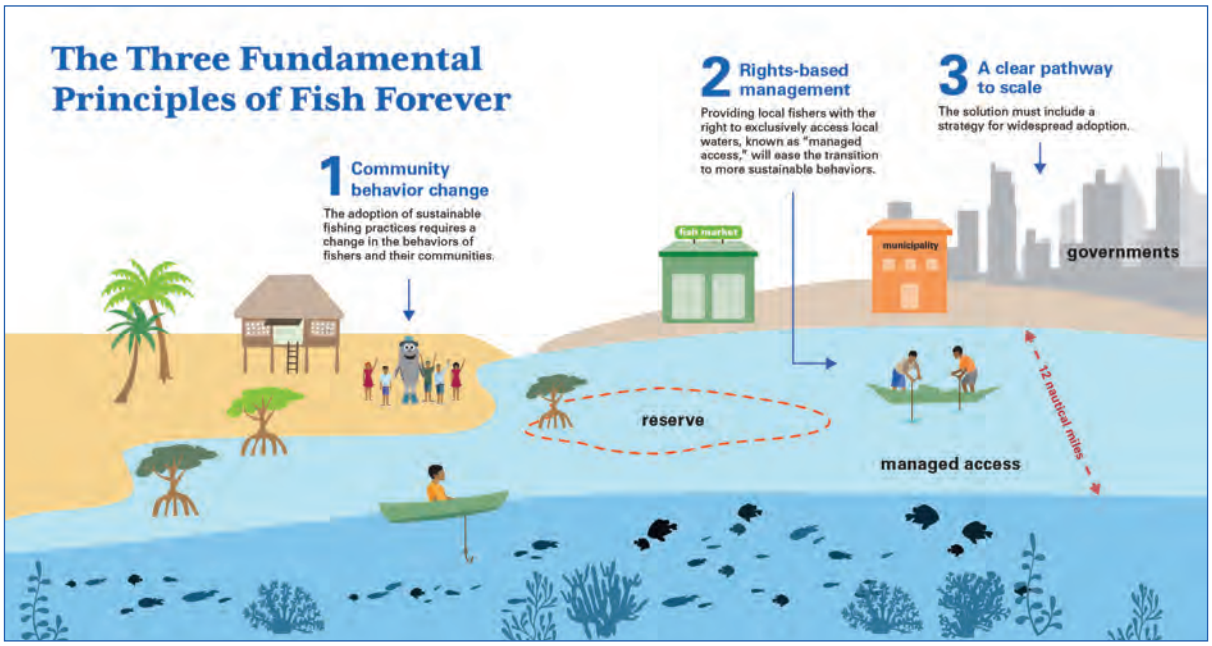
These realizations sparked the basis for an approach that could link the benefits of marine protection back to local communities, build effective governance and management to deliver sustainable coastal fisheries at a local level, and help local to national government prioritize coastal communities and their fisheries. This approach, managed access with reserves meets behavior change, is community-led and multi-local, designed to addresses the needs of both people and nature, conservation and development.[42]

45 eg. Nickols et al., 2019; McClanahan & Kosgei, 2019; Kruek et al., 2017, Nowlis, JS & Roberts CM (1999);
46 Rare, 2018a (p10)
47 World Bank (2015)

Spatial Approach to Fisheries Co-Management: Managed Access with Reserves[47]

Managed access with reserves is a community rights-based fisheries management approach that provides coastal communities with exclusive access privileges for fishing in defined areas, and in which protected areas are established inside or adjacent to these exclusive access areas. Managed access facilitates tenure and access, provides a mechanism to adjust fishing pressure, creates incentives for fishers to become better stewards of their resources, ensures sustainability by aligning social incentives for fishers with conservation objectives and empowers small-scale fishers to effectively participate in fisheries management. Reserves remove fishing pressure and enable fish to grow, reproduce and recruit — and ultimately sustain the fish population.

Fig. 2.2. The three fundamentals of the Fish Forever approach (Source: Rare)



Rights, Rewards & Obligations: Spill-over Effect Incentivizes Stewardship[47]

As fish populations recover in reserves and spill over into nearby fishing grounds, fishers with access rights to the area surrounding the reserve can directly benefit from the spillover (in the form of higher catch rates, bigger fish and lower fishing costs). This scenario creates an incentive for fishers to comply with the rules and prevent illegal fishing in the area. Access privileges come with responsibilities, and fishers thus become empowered to control and steward their fisheries through a system of rights, rewards and obligations. The right to fish becomes contingent on good stewardship.

Fish Forever Implementation

A roadmap for implementation of Fish Forever is shown in below. To implement *Fish Forever*, field teams have access to comprehensive guidelines, training manuals, toolkits and support materials to guide the process and to implement each of the elements of the program. This includes initial assessments, building participatory management, consultation processes for reserve design, establishing data for decision making, building effective M&E etc. Application of these materials is backstopped by technical teams in a hub in the Philippines. Materials are accessible through an internal portal, and implementation is tracked through a comprehensive program milestone system.[48]

2.2.2. Fish Forever Global Application

Prior to its application in Mozambique under FishCC project, *Fish Forever*, was primarily developed and applied in three countries: Brazil, Indonesia and Philippines. During its first three years of implementation, *Fish Forever* evolved to encompass work in 41 sites those three countries, comprising over 250 communities and 570,000 people, including nearly 35,000 fishers. By the end of 2017, 51 legal and functional management bodies were established across the 41 sites. 63 managed access areas were built or strengthened, encompassing nearly 600,000 hectares of coastal waters with 27,000 hectares secured in fully protected reserves, as summarized in Table 2.3 below.[49]

Rare (2018a) summarizes achievements and lessons from the experience of implementing Fish Forever in Brazil, Indonesia and Philippines since 2013. Key lessons outlined include:[50]

- *Fish Forever* approach works under a variety of settings.
- *Fish Forever* needs to build in greater flexibility and patience for empowering communities
- Community engagement is central to change and sustainability.
- Peer-to-peer networks increase demand for the approach.
- Subnational (provincial) engagement and support are essential to scale.
- Reserve networks and connectivity in network design are needed to optimize both governance and ecology.
- Alternative livelihoods and value chain enhancements must be carefully planned and correctly sequenced.

Table 2.3.: Summary statistics related to Fish Forever for Brazil, Indonesia, and the Philippines[49]

	Brazil	Indonesia	Philippines	Total
Number of Fish Forever sites	6	15	20	41
Number of communities in site areas	64	55	457	576
Number of communities Fish Forever is engaging	11	46	210	267
Number of people in Fish Forever communities	9,800	78,799	481,545	570,144
Number of fishers in Fish Forever communities	2,148	8,085	24,601	34,834
Hectares of coastal waters in Fish Forever sites	355,400	5,554,734	804,127	6,714,261
Number of managed access areas	6	27	30	63
Hectares under managed access	355,400	81,895	151,298	588,593
Number of no-take fisheries reserves	13	27	64	104
Hectares of no-take fisheries reserves	1,383	22,974	2,669	27,026
Percentage of managed access covered by reserves	0.4%	28.1%	1.8%	4.6%
Current number of management bodies	6	26	19	51

48 Steve Box, Fish Forever Vice-President, Rare (*pers. comm.*)
49 Rare, 2018a
50 Rare

Table 2.4.: Fish Forever implementation road-map[50]

At the site level, Rare will work with provincial/sub-national partners to support site implementing partners through a 3.5 year journey:						
	START-UP	PROFILING & BASELINING	COMMUNITY ENGAGEMENT & CAPACITY	SETTING UP SYSTEMS	ENABLING SUCCESS	MAKING IT LAST
	PHASE 1 (3 mos.)	PHASE 2 (4-6 mos.)	PHASE 3 (4-6 mos.)	PHASE 4 (6-8 mos.)	PHASE 5 (8-10 mos.)	PHASE 6 (8 mos.)
CAMPAIGN TEAMS	Getting organized, 1st training phase	Training, working alongside Rare	Training, coaching and mentoring	Training, coaching and mentoring	Training, coaching and mentoring	Training as Trainers
MANAGEMENT BODIES	Preliminary work will be done at the sub-national or provincial level at this stage, on: 1) Use of key inputs for scientific modeling of reserve networks 2) Sub-national formative research to inform/validate behavior adoption campaigns Set-up of partnerships with sub-national and local governments, academic institutions and others.	Stakeholder assessment to identify champions, leaders and supporters, and ensure inclusive, representative participation	Continuous training of key community members through participation in MA+R design and management planning process, in preparation for formal management roles		Designation of, or awarding of rights to fishers, fisher groups and formal management bodies	Continued capacity building of management bodies to ensure effective management of the MA+R
NETWORKS OF RESERVES			Local knowledge, goals and expectations enhance initial reserve design			
MANAGED ACCESS AREAS		Fisheries profiling to inform design and management plans	Orientations and trainings on reserves, fisheries management and managed access for key community leaders and champions	Managed access area to complement optimal reserve network are finalized with community	Development of management plans for the MA+R (can overlap with previous phase)	
POLICY & GOVERNANCE		Policy reviews, enforcement assessments, budget allocation reviews	Organizing or strengthening of surveillance or enforcement teams	Drafting of legal instruments for designation of MA+R and/or rights	Formalization of legal instruments designating MA+R and management bodies	Full integration of MA+R plans into local development plans and budgets
FISHERIES MANAGEMENT: DATA FOR DECISION-MAKING		Assess current systems, map traders and buyers	Organizing of catch monitoring teams that will ensure registration of fishers and traders and regular collection and use of data	Set-up of OurFish and complementary data collection if needed	Continuous data collection, training of management groups on data use and interpretation	Consistent data feedback into decision-making processes
BEHAVIOR ADOPTION		Formative research to validate and inform campaign design	1st wave of unified Fisher campaign	Site-specific tactical campaigns and adaptations	Progress evaluation, refresh of campaigns	Sustaining campaigns developed, training of trainers for replication
FINANCIAL & MARKET INCLUSION		Scoping and assessments for suitability of financial and market interventions	Training of community educators, orientations on savings clubs and financial literacy	Set-up of savings clubs; environmental and fisheries education training integrated into SC meetings; more in-depth assessments for enterprise development	Continuous monitoring, troubleshooting; identify savings clubs for progression to enterprises and other financial interventions	Federation of savings clubs or linking to more formal mechanisms; business development for select enterprises
MAJOR OUTPUTS	At sub-national or provincial level: Reserve strategy map that factors in ecological and climate vulnerability data; Pathway for legal adoption of rights-based management; Network of partners engaged	Ecological and fisheries profiles, stakeholder maps, target audience research, assessments to guide next steps on policy, enforcement, financial and market interventions, behavior campaigns and catch monitoring	Sub-national/provincial social marketing campaign; Widespread trainings and awareness campaigns within the community on the problem of overfishing and key elements of the Fish Forever solution	Managed Access + Reserve system implemented, savings clubs organized, data for decision-making is in place, and behavior adoption campaigns are ongoing	Legal instruments are enacted and management bodies are formalized. Community continues to build capacity to use data, make decisions, and work together to manage their fisheries.	Structures are in place for MA+R network, including mechanisms for cooperation; leaders and fisher organizations are inspired and have the capacity to manage their coastal fisheries at progressively more sustainable levels.

2.2.3. FishCC Implementation Process

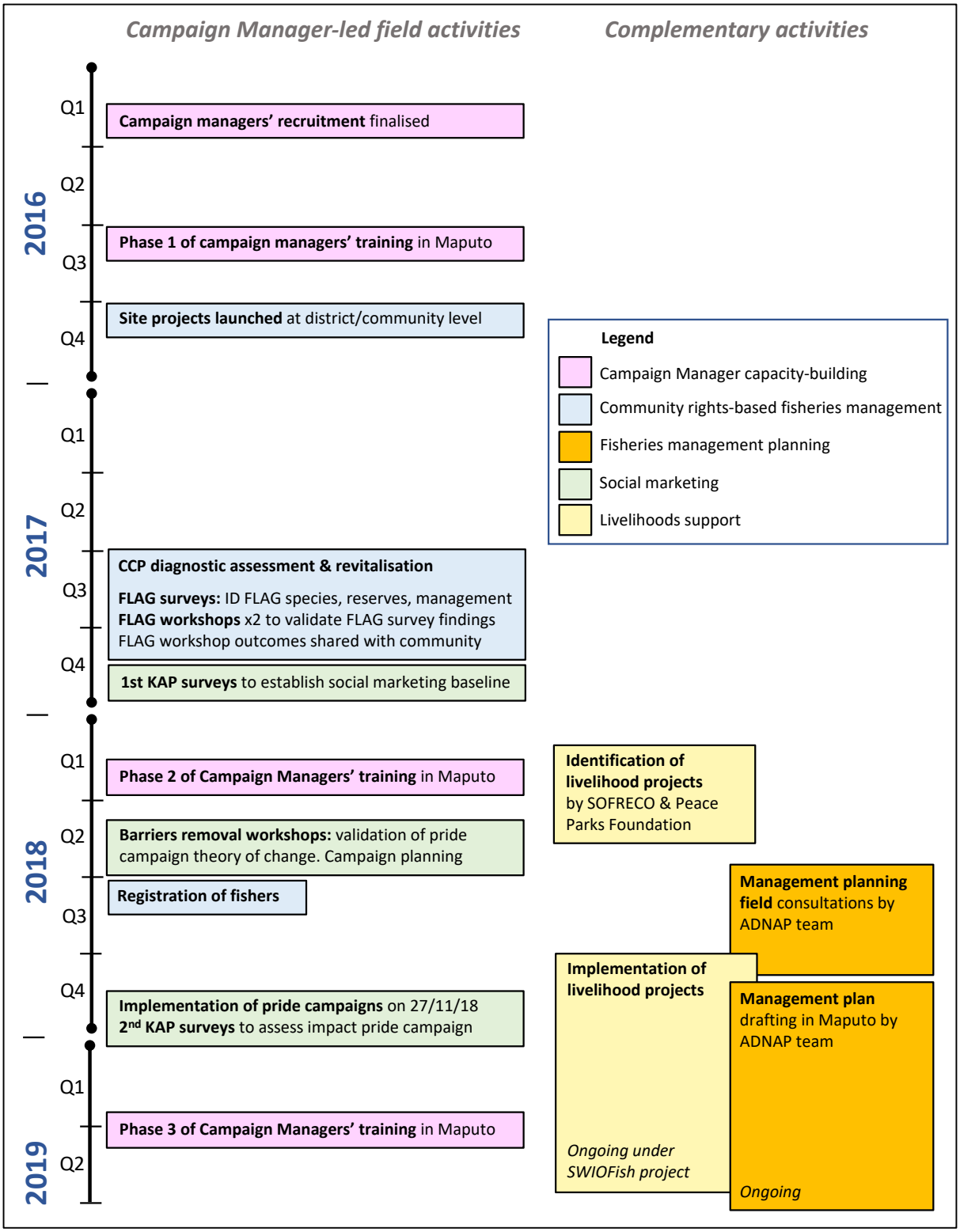
This sub-section outlines FishCC project implementation by component and activity. Outputs and achievements are outlined separately in the following Section 3.

The broad timeline for implementation of the FishCC project is shown in Figure 2.3.

Activities were not always implemented at exactly the same time across the 6 sites.

However, the deviation from what is portrayed was minor. Complementary activity descriptions are as follows.

Fig. 2.3. Timeline of activity implementation under FishCC



Component One: Community rights-based fisheries management

CCP diagnostic & revitalization: Campaign managers at the 6 FishCC sites facilitated a process to revitalize 7 participating CCPs (the Machangulo site having 2 CCPs), none of which were functional at the outset of the project. A diagnostic process was undertaken, fishers and traders were convened and all encouraged to become members. Training was undertaken with the CCP executive committees, statutes were drafted, and the process of CCP legalization was initiated in December 2017. Mapping of the boundaries of CCP areas of jurisdiction, which in most cases would be proposed as the boundaries of future community management areas was also undertaken under this activity.

Fisher registration: After the Mid-Term Review (MTR), a new activity was added to FishCC under which Rare adapted a digital registration system for small-scale fishers, developed under the *Fish Forever* program, using an application called Fast-Field Forms. This enabled data capture of personal details of fishers which was the basis for fisher registration and issuing of ID cards. The target at MTR was to issue a minimum of 500 fisher ID cards in total, across the six FishCC sites (approx. 25% of all fishers).

Fisheries Landscape and Goal-Setting (FLAG) tool: Using the *Fish Forever* FLAG toolkit, campaign managers at each FishCC site interviewed a sizable sample of community members (primarily fishers and fish traders), either individually or in small focus groups, to gather information on artisanal fisheries at the site, including identifying important target species, historical trend in catches and so on. In part, the aim was to identify the ten most important species by economic value, and identify a proposed 'FLAG' fish species, meaning a single totemic species of high economic importance, that could be used as a focus for considering fisheries management interventions, as well as serving as an emblem for the CCP.

Management plan preparation for each FishCC site: Preparation of management plans for each of the FishCC sites, one of the main expected outputs of the project, was implemented by ADNAP, being part of its institutional mandate. A team of two senior fisheries officers was assigned to the task, with back-up support from a senior fisheries legal officer.

The team applied a combination of desk-review and field engagement, making use following information sources to prepare management plans:

- Baseline reports generated during FishCC: in particular the CTV ecological study, IIP fisheries reports, and FLAG workshop reports from each site [51].
- Other existing background literature: particularly for Machangulo which lies within the Ponta do Ouro Special Reserve and has benefited from other project resources which have generated studies[52] . There was limited existing literature for other sites, but the team did also draw on other general literature such as biological reference material for some of the selected FLAG fish species.
- Short consultation events with target stakeholders: these consisted of one consultation meeting at each site, lasting 2-3 hours, with selected community and local authority stakeholders, conducted during the second half of 2018.

51 IIP, 2017a; IIP 2017b; CTV 2018; Rare/IDEPA, 2017(a to f) FLAG reports

52 Eg. Louro et al., 2017

Preparation of draft management plans was undertaken by the ADNAP team in Maputo. ADNAP was provided with a *Fish Forever* management plan template but found it difficult to adapt as it required information that was not available. Accordingly, the team developed or adapted their own format. The first draft plans were produced in December 2018[53].

After receiving feedback that these first drafts required significant further work, with as input from a broader team, ADNAP opted to prioritize improving the plans for Machangulo and Inhassoro. A workshop was held in Maputo in March 2019 to work further on the two plans, convening participants including technical staff from Rare and IIP and the campaign manager from Inhassoro.

Component Two: Improved Livelihoods

Livelihood support projects: An international consulting firm, SOFRECO, was contracted in 2017 to undertake a participatory process, at 5 of the 6 FishCC sites, to identify potential livelihood project that could be supported by the project. At Machangulo, Peace Parks Foundation hired a separate consultant for a similar process there. The approach in both cases included interviews with CCPs, district authorities and other relevant stakeholders. The SOFRECO final reports[54] identified a long-list of 15 revenue generating projects for the 5 sites, three options per site. Part

A women stands with her sons in a rural coastal community in northern Mozambique

53 MIMAIP, 2018 (a to f)

54 SOFRECO, 2018a; SOFRECO, 2018b;

of the basis for participatory selection of options by communities was that projects would be delivered through matching grants, with beneficiaries contributing 20%, either financially or in kind, to promote community ownership.

In some cases, the communities covered the costs through savings clubs. The long-list of 15 projects was distilled down to 5 projects, one per site, by the consulting team in collaboration with the respective communities, CCPs, district and provincial authorities, to fit the available budget of around US$ 100,000 per site. Although each site initially identified a range of fisheries, aquaculture, agriculture and tourism related projects in the long-list of 15, the final 5 project all focused either on improved fishing gears for offshore fishing, or on fisheries marketing cold-chain enhancement.

Equally, the diagnostic reports for Machangulo[55] identified several options for livelihood project including fisheries value-chain enhancement, aquaculture, eco-tourism and sustainability training. It was agreed that FishCC would support implementation of the proposed fisheries value-chain enhancement project, whilst other options were supported by Peace Parks Foundation and/or other funding sources. Details of each livelihood project implemented are outlined in Section 3.3.1. below.

Savings & loans groups: The project supported establishment or revitalization of community savings and loans (PCR[56]) groups, over a period of 12 months, following a standard village savings and loans (VSL) model that has been widely used in a rural development context in Africa over the past 20 years. Training, savings materials and ongoing support were provided to the groups by Rare, through the campaign managers. Rare further worked with two local NGOs to deliver financial literacy training, namely, *Fundo de Desenvolvimento da Mulher* (FDM) and Ophavela. Both are certified NGOs with extensive experience in microfinance, financial literacy and women's empowerment. The training provided participants with knowledge of financial management activities such as savings, record-keeping on income and expenses, budgeting, cash flow management and the use of financial services. Trainings also focused on inclusion of women in savings clubs.

Fisheries data collection to enhance market and financial inclusion: Under FishCC, Rare applied a mobile phone app developed under the *Fish Forever* global program, called *OurFish*, for digital recording of fish catches by fish traders. The aim of the app is to assist fish traders in recording and assessing their fish trading businesses, whilst at the same time generating indicative fisheries catch data for use by fisheries managers, from community t o national level.

Rare identified, trained and equipped fish traders to collect and record information (biological and financial statistics) resulting from their day-to-day commercial transactions in fish and other seafood. Rare, in coordination with CCPs and district governments, distributed android phones to selected fish traders of the CCPs. Data was automatically submitted to a cloud-based data management system.

55 Lopes, 2017; PPF, 2017

56 PCR = *Poupança e Credito Rotativo*

Component Three: Social Marketing

In general terms, *social marketing* aims to influence the behavior of individuals and communities, to bring about greater social good. It seeks to apply lessons from *commercial* marketing to achieve social goals. Globally, it has particularly been applied in the context of public health but also, increasingly, to environment and natural resources management. The concept of social marketing is fundamental to the *Fish Forever* approach and is a key area of intervention in bringing about behavioral change, to achieve conservation outcomes.

The figure below summarizes the schematic theory of change adopted by *Fish Forever*. Influencing the knowledge, attitudes and interpersonal communications (of fishers/fishing communities) catalyses a chain of results culminating in an agreed conservation outcome. This framework is applied to develop site-specific theories of change, tailored messaging for communication and awareness (pride) campaigns and a monitoring plan to assess progress. The *Fish Forever* approach contains key steps in applying social marketing (Figure 2.4.).

Knowledge, attitude and practice (KAP) surveys: The purpose of KAP surveys is provide a monitoring framework against to assess progress in bringing about changes to attitudes and practices, particularly amongst fishers. That includes measuring the effectiveness of social marketing activities (pride campaigns). Under FishCC, two (KAP) surveys were undertaken at 5 of the 6 FishCC sites[57]; a baseline (1st KAP) survey was conducted after completion of the FLAG process, towards the end of 2017, and a repeat (2nd KAP) survey was conducted immediately after implementation of pride campaigns at each site, towards the end of 2018. Data collection for the 2nd KAP survey was collected using a mobile phone app.

KAP surveys at each FishCC site were based on questionnaires developed in line with standard *Fish Forever* methodology, adapted at each site in light of the outcomes of the FLAG workshops, and theories of change subsequently developed by each Campaign Manager during their second phase of training at University of Eduardo Mondlane (see Fig 2.3.). The KAP surveys contained questions pertinent to each step in the schematic theory of change in Fig 2.4.

Fig. 2.4. Fish Forever schematic theory of change

57 KAP surveys were not undertaken at Memba owing to a change of Campaign Manager at a critical juncture.

Barriers removal workshops: Workshops were conducted at each FishCC site. Their purpose was to identify behavioral changes that are needed to bring about conservation results (ie. as per theories of change); and to identify the key barriers to such behavioral change and how those barriers can be removed or mitigated. Barrier removal and mitigation measures are then incorporated into pride campaign messaging and materials, and/or livelihood initiatives, as appropriate.

Pride Campaigns: Pride campaigns are the name given under the *Fish Forever* methodology to community awareness-raising and mobilization campaign, based on messaging that is specifically customized to priority fisheries management issues at a given site. Accordingly, the pride campaign at each FishCC site was based on an analysis undertaken by Campaign Managers of the results of the FLAG and barrier removal workshops. From these, Campaign Managers identified pride campaign objectives, messaging, and target audiences that would to address a specific, realistic, and measurable threat caused by overfishing and/or related undesired fishing practices.

The pride campaigns were officially launched at each site on 21/11/18, which was World Fishers Day. A variety of festivities were implemented involving approximately 350 community members at each site, presided over by provincial and/or district authorities.

Messaging was delivered through official speeches by government officials; school presentations; singing by women's cultural groups; fishers' drama groups; and football, boat-racing and athletics activities; and other cultural events, all showcasing banners, posters, t-shirts, caps etc., with appropriate messages. Messaging was further amplified through local media coverage[58]. Messaging focused on the importance of marine environment conservation; preservation of the target flagship species chosen by each community; adoption of sustainable fishing behaviors and best practices, including establishment and observance of fisheries no-take reserves; and fisher registration[13].

It was expected that the messaging and materials prepared for the campaign launch festivities that would have been replicated through a series of subsequent campaign events and activities lasting at least six months. But in practice, relatively little subsequent campaign activity was implemented. In Inhassoro, a weekly community radio show was supported during Jan-Feb 2019; in Machangulo, a football tournament was held during Feb-May 2019; in Pomene the project supported tree-planting, all featuring pride campaign messaging. At all sites, campaign messaging on banners, posters, murals, t-shirts and other materials would have had an ongoing impact.

However, the majority of campaign activities planned to be implemented between Dec 2018 and April 2019 subsequent to campaign launches, were not implemented under FishCC due to a lack of available time and project financial resources[59]. Some activities though were implemented by Rare later in 2019, using other resources.

58 Rare, 2019

59 Personal communications from six campaign managers

3. FishCC Project Achievements and Challenges

3.1. Overall Project Performance

Refer to tables 3.1. through 3.3. on the following page for the key achievements and challenges of the FishCC project.

3.2. Component One: Improve Community Rights-Based Fishery Management

3.2.1. Strengthening Community Fisheries Councils (CCPs)

CCP revitalization, functionality and legalization

As a consequence of CCP revitalization efforts by the campaign managers and district fisheries extensionists at each FishCC site, 7 CCPs were successfully re-established and legalized, executive committees (*Comité de Direcção*) were elected and trained, and CCP statues prepared. During the latter stages of the project, CCP committees were reportedly meeting once or twice per month, with general assembly meetings being held 1-2 times per year. Selected feedback from campaign managers, gathered during consultations for this report, included:

60 World Bank, 2015
61 World Bank, 2019
62 Personal communications from six campaign managers

Table 3.1. Achievements against expected deliverables in FishCC project paper[60]

Expected deliverable	Achieved	Achievement
Community Fishing Councils (CCPs) with strengthened capacity meeting regularly	Yes	7 CCPs with capacity strengthened but only 2 having evidence of regular meetings
Management plans prepared	Partial	6 management plans drafted but none finalized
Fisheries no-take reserves delineated, established and implemented	Partial	No-take reserves delineated at 4 sites but none formally established or demarcated.
Data to monitor improvement in biomass of catch and catch value	No	No baseline collected. Some data collected in final year of project using OurFish app.
Pilot livelihood initiatives implemented	Partial	6 livelihood projects initiated, only 2 completed
IDDPE staff members trained in social marketing	Yes	6 campaign managers trained, 5 receiving Masters degrees
Social marketing campaigns implemented	Partial	6 campaigns launched but none fully implemented for planned 6-month duration

Table 3.2. Achievements against the formal FishCC Results Framework

Revised indicators and targets	Actual achievements[61]
PDO Level Results	
Six CCPs legalized and functioning.	Achieved. 7 CCPs revitalized and legalized, but only 2 showed evidence of functioning through records of meeting minutes with list of attendees. Explained due to the low level of literacy among the CCPs.
2,700 direct project beneficiaries of which >10% are female.	Achieved: The Project benefited an estimated 2,713 people, of which 52% are women
Intermediate Result (Component One): Improve community-based fishery management	
Six fisheries management plans developed and submitted for approval	Not achieved. 6 management plans were at draft stage but with significant further work needed.
Intermediate Result (Component Two): Improve livelihoods	
At least two new revenue generating opportunities identified and launched	Achieved. Two livelihood projects launched and 4 others in process
Intermediate Result (Component Three): Social Marketing	
24 government staff trained on social marketing	Achieved. Training provided to 6 campaign managers was extended to 24 extension officers.

Table 3.3. Final ratings in World Bank Implementation Completion Report[62]

Performance factor	Rating
Achievement of project objective	Modest
Development outcome (efficiency)	Moderately Unsatisfactory
Implementation performance	Moderately Unsatisfactory

Pomene: CCP committee meets monthly with good participation of all 12 members

Zavora: CCP committee meets diligently on 8th of every month with all 12 committee members attending regularly. General assembly met 3-4 times in two years, when it does meets it has full attendance of almost all 121 fishers in Zavora

Machangulo: *Santa Maria CCP*: 13 members of committee meet every month and prepare minutes. General assembly meets the following day, every month, attracting approx. 40 participants if low tide, or up to 70 if not low tide. *Mabuluko CCP:* re-established mid-2018. Committee meets less consistently; around twice July and December 2018 and twice between January and July 2019.

During end-of-project monitoring and evaluation, only 2 of the 7 CCPs were able to provide means of verification of their functional performance, as per the project results framework, namely written minutes of CCP committee meetings, with a list of attendees. This was explained in Rare's reporting as being due to the low level of literacy among the CCP leaders. In practice, it is surprising this important point was not better addressed during selection of CCP committee members. Literacy should be a basic requirement for selection of candidates as CCP Secretary, it seems unlikely there would be no literate candidate within an entire fishing community.

Topics of discussion by CCP committees reportedly included licensing rates, community-based surveillance, issues related to access to gear and other fishing tools, and discussion on priority issues to take to the district and provincial institutions for resolution.

All 7 CCPs were legally registered through submission of formal authorization requests signed by MIMAIP between October 2017 and July 2018.

Registration of fishers and definition of CCP member

1197 fishers and 18 fish traders were registered across the 6 FishCC sites, as shown in Table 3.4. Over 1000 of the registered fishers were issued with ID cards. Around 48% of all fishers were registered, with most of the deficit at Memba.[64]

Community consultations undertaken during preparation of this report indicated that fishers attached significant value to having ID cards. However, it is noted that the ID card does not explicitly indicate that the fisher is a CCP member. This seems to be a missed opportunity to use the ID cards as means of affirming and incentivizing CCP membership. This raises the important question as to who, within the community, is perceived to be a CCP 'member' and thus whether ordinary fishers feel represented by the CCP.

Historically in Mozambique, although the CCP Statues of 2006 clearly indicate that CCPs are expected to have a broad membership through a general assembly, average membership along the whole coast is only around 17 members per CCP. That is because CCP 'membership' has frequently been taken, both by fisheries officers and community members, to refer only to members of the executive committee, and there is no active general assembly. This significantly weakens the extent to which fishers identify with the CCP and perceived it to represent them.[65]

63 MIMAIP, 2019h

64 There is a discrepancy in no. of fishers in Memba between MIMAIP, 2019h (200) and Rare, 2016 (1050)

65 MIMAIP, 2019h

Table 3.4. Fishers registered at each FishCC site[65]

Site	Total fishers	Fishers registered			Traders registered			Total registered	% of total
		H	M	Total	H	M	Total		
Mefunvo	294	166	128	294		5	5	299	100
Memba	1439	175	17	192	5		5	197	13
Pomene	120	113	2	115	2	2	4	119	96
Inhassoro	205	181		181		4	4	185	88
Zavora	121	118		118			0	118	98
Machangulo	300	297		297			0	297	99
Total	**2479**	**1050**	**147**	**1197**	**7**	**11**	**18**	**1215**	**48**

Selected feedback on this issue, gathered during consultations for this report, included:

Mefunvo: CCP executive committee has 32 members of including 13 women. In principle, all fishers are CCP members but in practice most would probably say the 'members' are the 32 committee members.

Memba: Around 200 fishers registered and 145 received ID cards—registered fishers came from all 10 fishing centers in Memba CCP. Although the average fisher is likely to say he is a CCP member, there remains a degree of confusion and committee members haven't yet adjusted their thinking and language in terms of recognizing the broader membership.

Pomene: 115 fishers were registered with ID cards, remaining fishers all want them. During discussion with a large group of fishers, the CCP President referred to 'membership' of CCP as meaning only the 12 committee members. After further discussion everyone agreed all 120 fishers are CCP members. Indicated there is still a degree of uncertainty and confusion.

Zavora: 100 fishers have registered and received ID cards, out of 121 fishers total. Remaining fishers all wish to register when cards are available.

The experience of registering fishers under FishCC highlights the potential value of ID cards as an instrument for reinforcing a sense of membership of CCPs, if membership status were shown on the ID card. It could also help to engender a better common understanding that fishers and traders in the general assembly are every bit as much members of the CCP as are members of the executive committee. There could also be value in issuing special ID cards to executive committee members, confirming their role on the committee. This point is highlighted in Lesson 27 in Section 4 below.

ID cards used by fishermen in the monitored areas. Consultations found that significant value is attached to the cards

3.2.2. Identification of No-Take Reserves and Management Measures at Each Site

The project made significant progress towards the above objective, facilitating community consensus on no-take reserve(s) and other fisheries management measures at each site, and packaging these into draft management plans. However, finalization of management plans was still in process at the end of the project, with significant work still needed: proposed management areas were not yet formally established; no-take reserve boundaries were not yet mapped or demarcated; and, with few exceptions, management measures were not yet being implemented, as originally anticipated at project inception[66]. This reflects a variety of challenges related to project implementation, institutional roles and the broader national fisheries governance framework, all captured in the lessons outlined in Section 4 below.

In 5 of the 6 FishCC pilot sites, the project worked with a single CCP, and existing CCP areas of jurisdiction (see section 1.2.2. above) were taken as *de facto* TURF management areas, though boundary mapping was not systematic undertaken and/or documented.

In the case of Machangulo, fishers of two neighboring CCPs, Mabuluku and Santa Maria, substantially share each other's fishing grounds so, by agreement of the two communities, their two areas of jurisdiction were combined to form a single TURF management area.

Within each of the above management areas, CCP committees and fisher communities participated in the *Fish Forever* fisheries landscape and goal-setting (FLAG) process, resulting in, amongst other things, identification of:

- a target FLAG fish species (Table 3.5. below[67]);
- challenges facing fisheries and fisheries ecosystems locally;
- possible strategies and measures to mitigate those challenges.

The above-mentioned consultations at each FishCC resulted in broad acceptance of the concept of establishing one or more fisheries no-take reserves within the CCP area of jurisdiction, and provisional identification of actual proposed locations. These are illustrated in Figs 3.1a and 3.1b below, with some additional commentary summarized from consultations with CCP members undertaken during the preparation of this report.

Table 3.5. Priority FLAG fish species selected by communities at each FishCC site[67]

FishCC site	FLAG species		
	Portuguese	Scientific name	English name
Mefunvo	Peixe ladrao	*Lethrinus harak*	Blackspot emperor
Memba	Peixe coelho	*Siganus sutor*	Spinefoot rabbitfish
Inhassoro/ Fequete	Peixe coelho	*Siganus sutor*	Spinefoot rabbitfish
Pomene	Garoupa	*Epinephelus tauvina*	Grouper (Arabian)
Závora	Garoupa	*Epinephelus malabaricus*	Grouper (Malabar)
Machangulo	Peixe pedra	Pomadasys kaakan	Javelin grunt

66 World Bank, 2015
67 Rare, 2017 (a to f)

Table 3.6. summarizes the areas of the respective management areas (AGCs) and not-take reserves (ARRs) at each of the 6 FishCC sites, with complementary notes as follows.

Notes and observations on Table 3.6.

(i) The data for habitat areas in columns 3 & 5 in Table 3.6. are based on GIS analysis undertaken by Rare using available datasets for global distribution of coral reef, seasgrass and mangrove.

(ii) The size of the no-take reserve at Memba is very small in relation to the relatively large size of the management area which covers 10 fishing centers.

(iii) In Mefunvo, the proposed no-take reserve was not mapped, nor its area calculated, owing to a discrepancy between the Mefunvo campaign manager (who reported community agreement on a proposed no-take reserve on the eastern reef) and Rare (who reported that a no-take reserve was not established in Mefunvo because it is located within Quirimbas National Park). The latter point is not consistent with the fact there are several other no-take reserves within QNP. The deteriorating security situation in Cabo Delgado during 2019 made it impossible to verify the situation on the ground during consultations for this report.

(iv) For Inhassoro, the reserve area shown is that of the proposed ARR reported by Rare. But as outlined in Fig. 3.1a above, there was a substantial discrepancy between that and what was described by the Fequete CCP/ community during consultations for this report.

(v) For Zavora, data from Rare in column 5 indicate that the 3 proposed no-take reserves do not contain any habitat (coral reefs, seagrass and mangrove). This is disputable. The 3 reserve areas are rocky fossilized sandstone substrates supporting hard and soft coral communities and associated biodiversity.[69] Rare decided not to classify these as coral reef habitats since they are not true limestone reefs, but they are certainly coral habitats.

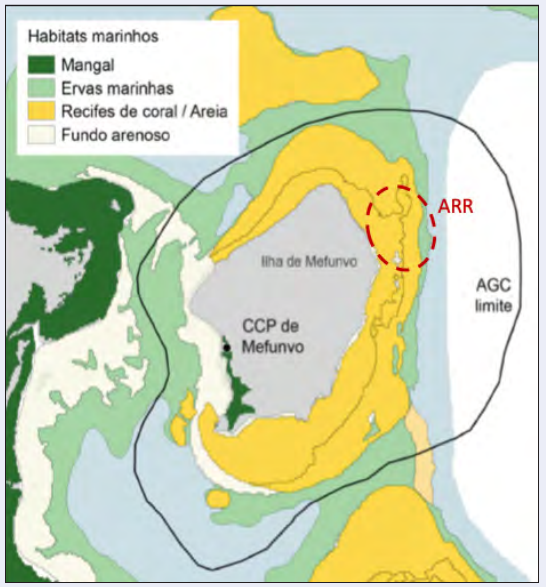
(vi) For Machangulo, the size of the reserve area shown, and its proportion of the total management area, is misleading in fisheries terms. As shown in Fig. 3.1b above, the Machangulo no-take reserve is a mangrove habitat, the majority of which is not open water fishing grounds as such. The proportion of fishing grounds contained in the reserve is probably closer to 5 or 7%. For fisheries management purposes, it would be worth calculating the area of water at high-tide, contained in the reserve area, as an additional metric.

Table 3.6. Estimated area of no-take reserves proposed by communities[68]

FishCC site	Total management area (ha)	Area of habitat[70] (ha)	Reserve total area (ha)	Reserve habitat area (ha)	Reserve as % of total area	% of habitat in reserve
Memba	9,075	2,728	19	16.5	0.2%	0.6%
Mefunvo	3,967	1,959	-	-		
Inhassoro	1,722	736	76	16	4.4%	2.2%
Pomene	5,330	1,092	109	24	2.0%	2.2%
Závora	9,883	255	338	0	3.4%	0%
Machangulo	4,872	1,672	1,640	754	33.7%	45.1%

68 Rare
69 CTV, 2018
70 Area of habitat refers to area of coral reefs + seagrass + mangroves

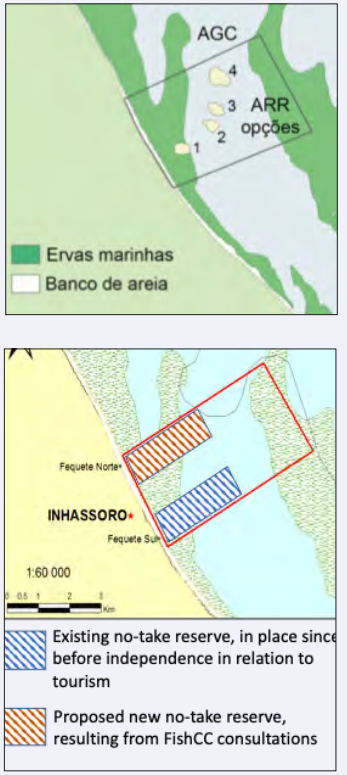
Table 3.7. Management measures[i] proposed at each FishCC site and proposed location of no-take reserves at FishCC pilot sites

FishCC Site	Proposed Management Measures[i]	Proposed Location of No-Take Reserves	Map of Proposed Reserves*
Mefunvo	• One no-take reserve partially agreed. Size not yet surveyed. • Beachseines not to be used during spring tide period (already being observed since CCP registration in July 2018).[iii] • No beachseine use at all on coral reef areas (partially observed as of July 2019) • Migrant fishers must pay 300 MT per person for 3 months to fish within AGC. Migrant fishers mostly using beachseines (up to 3-4 at any one time) & spearguns.	• Mefunvo campaign manager reported a proposed reserve area was identified by Mefunvo community during Jun-Dec 2017, as shown above (ARR). • Confusingly, Rare reported that no reserve area was identified as Mefunvo lies within Quirimbas National Park, so ARR not mapped (see Table 3.3). • Reserve not yet being observed by local fishers, awaiting demarcation and management plan • Initially, in 2016, Mefunvo fishing community was hostile to idea of a no-take reserve, having witnessed bad examples elsewhere within Quirimbas National Park involving corruption, with rangers allegedly taking money to allow fishers to fish. Campaign Manager reported that minds were changed as a result of sensitization under FishCC.	
Memba	• One no-take reserve. Size & percentage of total size AGC not yet surveyed.	• The map above shows 4 options proposed as locations for no-take reserves (ARR). The one finally selected by the community is Mucombo ARR, to the north of the management area, at mouth of Mucombo River. • Memba CCP reported that trial closures were conducted at 3 of the 4 reserve options, for a period of 3 months or so, but only Mucombo showed positive results. • Otherwise, the selected no-take reserve was not yet under implementation at 07/19, awaiting demarcation. (cont. on next pg)	

i Specific measures that are additional to national regulations, governing the type, amount or timing of fishing effort.
ii Noting that Article 52 of the new proposed Fisheries Regulations (REPMAR) prohibits beachseines entirely.

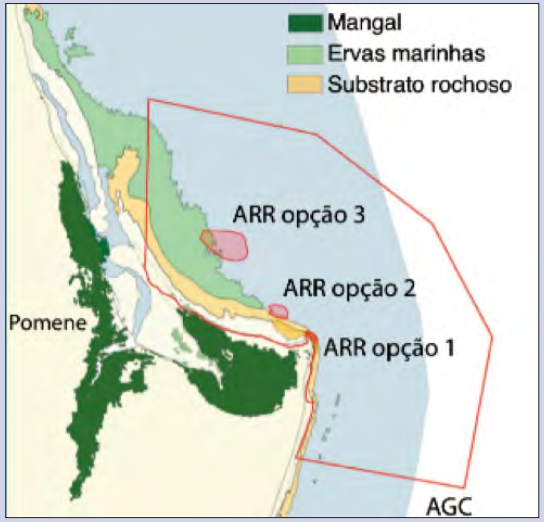
* Note: AGC = Área de Gestão Comunitária (TURF); ARR = Área de Recuperação de Recursos = (no-take reserve)

Table 3.7. Management measures[i] proposed at each FishCC site and proposed location of no-take reserves at FishCC pilot sites

FishCC Site	Proposed Management Measures[i]	Proposed Location of No-Take Reserves	Map of Proposed Reserves*
Memba cont.		• The size of the proposed no-take reserve at Mucombo, is very small in relation to the overall size of the Memba management area, which is large for a single CCP. • Boundaries of the proposed no-take reserve, and of the outer extent of the AGC, are not yet mapped.	
Inhassoro (Fequete)	• Two no-take reserves, one historic, one new. Sizes & percentage of total area not yet surveyed. • 90 day closure for all beachseining from June to August (pre-existing) • 60 day closure for all beachseining from Feb to March (new)	• The left-hand panel above is extracted from the draft summary management plan of May 2019 but only reflects options earlier proposed by researchers. • The right-hand panel reflects the actual situation described by Fequete CCP in July 2019. • Unusually, Fequete CCP has a longstanding fisheries no-take area (blue-striped) pre-dating independence, established in relation to a tourism project. • Fequete fishing community seemingly perceives benefit from the existing no-take area, sufficient to want to establish another. The reserve prevents beach-seining, encouraging fishers to line-fish further offshore. (cont. on following pg.) • The proposed new reserve area (red-striped) was not yet under implementation at 07/19, awaiting demarcation.	

* Note: AGC = Área de Gestão Comunitária (TURF); ARR = Área de Recuperação de Recursos = (no-take reserve)

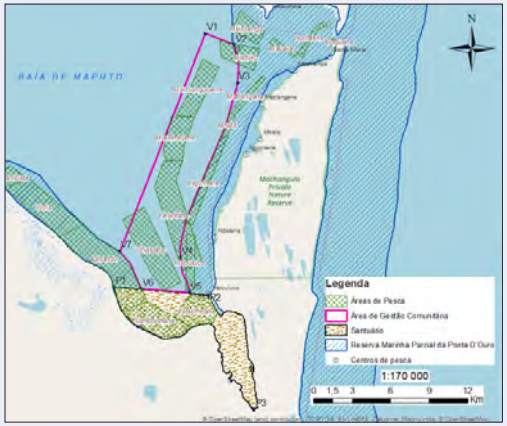
Table 3.7. Management measures[i] proposed at each FishCC site and proposed location of no-take reserves at FishCC pilot sites

FishCC Site	Proposed Management Measures[i]	Proposed Location of No-Take Reserves	Map of Proposed Reserves*
Inhassoro (Fequete) cont.		• An important factor allowing Fequete CCP to consider adding a second no-take reserve is that Fequete fishers share fishing grounds with the neighboring CCP to the north. In future, there could be a case to discuss integrating the two CCPs under a single management area and plan.	
Pomene	• Two small no-take reserves. Sizes & percentage of total area not yet surveyed. • Fishing with longlines no permitted. • Outside fishers (eg. from Vilankulo & Morrungulo[iii]) cannot fish in the AGC. • Fishing with any kind of beachseine or dragged net is not permitted. • Fishing with gillnets with mesh size below 2" or above 5" not permitted. • Fishing with spearguns not permitted.	• The map above reflects 3 options for no-take reserve locations proposed by Centro Terra Viva (CVT), an NGO contracted under FIshCC to undertake ecological surveys of marine habitats, to support management planning. • The community rejected the main area, Option 3, as it would be difficult for the CCP to enforce, as it is a little far offshore (to 1.5km) and they lack a motorized boat. They instead proposed a smaller area located between Option 3 and the shore, not shown in the map. • Reserve area(s) not yet being observed by local fishers, awaiting demarcation and management plan	
Zavora	• Three no-take reserves. Sizes & percentage of total area not yet surveyed. • Total number of fishers to be maintained at 2017 level, no further increase. • Fishing with any kind of beachseine or dragged net is not permitted.	• The 3 proposed options for no-take reserve locations shown in the above map were all accepted by the Zavora fishing community. • The 3 reserve areas are not yet under implementation by local fishers, awaiting demarcation and an approved management plan.	

iii Fishers from Vilankulo & Morrungulo fishing with longlines in Pomene AGC were asked to stop in 2018 with backing from Massinga District administration.

* Note: AGC = Área de Gestão Comunitária (TURF); ARR = Área de Recuperação de Recursos = (no-take reserve)

Table 3.7. Management measures[i] proposed at each FishCC site and proposed location of no-take reserves at FishCC pilot sites

FishCC Site	Proposed Management Measures[i]	Proposed Location of No-Take Reserves	Map of Proposed Reserves*
Zavora	• Fishing with mosquito nets is not permitted. • Number of fishing units using gillnets will be limited to 14. • Fishing with spearguns is not permitted. • Mussel harvesting is not permitted without authorization from CCP. • Night fishing is not permitted. • Fishing for juveniles is not permitted.		
Machangulo	• One no-take reserve. Size & percentage of total area not yet surveyed.	• The map, extracted from the draft Machangulo management plan of Sept 2019, shows the proposed no-take reserve (ARR) (marked as 'Sanctuario') in the Bembi estuary. • The boundary of the AGC has provisionally been drawn adjacent to the existing Ponta do Ouro Partial Marine Reserve, thereby excluding the 1nm strip adjacent to the shore. That strip is mostly intertidal flats with limited fishing activities, as shown. • The fisheries no-take reserve area is already being observed informally by most or all local fishers, but not yet by non-local artisanal fishers from Catembe or Maputo. • Full implementation of the reserve is awaiting boundary demarcation and an approved management plan.	

* Note: AGC = Área de Gestão Comunitária (TURF); ARR = Área de Recuperação de Recursos = (no-take reserve)

Table 3.7. above summarizes the fisheries management measures proposed by communities at each FishCC site, based on consultations with CCPs and fishers. As shown in Table 3.8, there is a noticeable difference across the sites as to the type and range of measures proposed, ranging from multiple effort restrictions at Zavora, to none at Machangulo or Memba, other than a single no-take reserve.

Reasons as to why FishCC sites were more, or less, inclined to propose a range of management measures might include:

- *Actual differences in gear use and fishing pressure*

- *Undue focus on one flagship species* (see section 4.2.3 below)

- *Social homogeneity/heterogeneity of the community:* Some sites proposing relatively more management measures, Mefunvo and Pomene in particular, are isolated and/or island communities, arguably having a higher level of social cohesion. It might be easier for such communities to agree on gear restrictions.

  Memba and Machangulo on the other hand are either more heterogeneous (Memba having 10 fishing centers and over 1000 fishers) and/or have a lot of outside fishers from neighboring urban centers (Machangulo being close to Catembe/Maputo). It might be more challenging for such communities to agree on gear restrictions.

- *Differences in facilitation and community understanding regarding community rights:* During consultations in 2017, the fishing community at Machangulo (Mabuluco/Santa Maria CCPs) highlighted concern with the numbers of fishers from Catembe and Maputo fishing in their area[72], in particular the use of longlines[73] in the Mabuluco CCP management. However, for reasons that are not clear, this did not translate into a proposal, for example, to prohibit longlines, during the brief, formal community consultation conducted by ADNAP in 2018 as part of the management plan preparation process.

  This might reflect the brevity of ADNAP's formal consultations (reportedly only 2-3 hours per site), or concern about creating conflict with outside fishers, or community representatives not realizing that prohibiting longlines was an option, or indeed something else. There is at least a question as to whether the principle of community rights-based management was effectively applied in this instance.

Table 3.8. Type of fisheries management measure proposed by communities at FishCC site[71]

Site	No-take reserve	Temporal restriction on beachseines	Spatial restriction on beachseines	Other gear prohibition	Restriction on no. of fishers/ gears	Restriction on external fishers
Mefunvo	x	x	x			x
Memba	x					
Inhassoro	x	x				
Pomene	x	Total beachseine prohibition		x		x
Zavora	x	Total beachseine prohibition		x	x	
Machangulo	x					

71 Rare, 2019 (a to f)

72 Machangulo FLAGS workshop report, October 2017

73 Machangulo Campaign Manager *pers. comm.*

Successful promotion of seasonal closure of beachseines at Inhassoro/Fequete

The key fisheries management measure proposed at Fequete (Inhassoro) was observance of a new 45-day temporary closure for beachseines during Feb-March. This was additional to an existing 90-day closure during June-August. The closures are designed to protect rabbitfish during two spawning periods. To this end, fishermen from 15 beachseine teams that made use of the Fequete fishing grounds (not all are from Fequete CCP) were encouraged to stop beachseining and to fish with handlines offshore, instead. In practice, the campaign was extended to the whole of Inhassoro District, except for Bazaruto. More than 67 beachseines were successfully de-activated for a 45-day period, across a 100 km of coast, of which only 3.5 km is the area of the Fequete CCP.[74]

Community members with a beachseine in Fequete

3.2.3. Preparation of management plans for community management areas (AGCs)

Six draft artisanal fisheries management plans[75] were produced by ADNAP in December 2018, following the process outlined in Section 2.2.3 (iv) above, and shared with partners for comment. In April 2019, with support from Rare, a set of six draft, summary management plan infographics[76] were produced (see sample in Annex 1). In response to feedback that the first draft management plans needed significant improvement, those for Inhassoro and Machangulo were further refined. The most advanced plan at the time of preparation of this report was a version of the Machangulo plan dated September 2019 [77].

At the time of preparation of this report, none of the six management plans, including that for Machangulo, was yet finalized.

Process followed

Challenges in the process of preparing management plans under FishCC included:

- *Late agreement on structure and content of plans*: agreement on the format, structure and content of the FishCC management plans was not addressed at the outset of the project. Discussions on that were only initiated in 2018 at the time plan preparation was getting under way. Had that been done at the start, the community engagement work done by the campaign managers at each site could have been better directed towards populating the final management plans.

- *Late involvement of ADNAP*: The institution responsible for fisheries management planning, ADNAP, did not get involved in the project until 2018, some 2.5 years into a 4-year project. This was in spite of there being an MoU between IDEPA (which hosted the project implementation unit during the first 18 months or so) and ADNAP at project inception. The reasons for this late involvement include:

  - Disruption caused by reorganization of the former Ministry of Fisheries, which was reformulated as the Ministry for the Sea, Internal Waters and Fisheries (MIMAIP) in 2015. Changes in structures and responsibilities created challenges amongst the Ministry's constituent institutions (IDEPA, IIP, ADNAP, DPMAIPs) around the same time FishCC was getting under way[78];

  - There was a prevailing understanding during project design that responsibility for community fisheries management planning would be at sub-national level (ie. involving DPMAIP, SDAE, CCPs), with capacity support from Rare and the national level. Only later was it explicitly determined that the mandate for all fisheries management planning, both national and local, should actually lie at the national level with ADNAP, something that was only formally confirmed during mid-term review (MTR) in 2017. It is worth bearing in mind that there was no precedent for developing community-level fisheries management plans under the auspices of MIMAIP, prior to FishCC.

74 Rare, 2019c
75 MIMAIP, 2018 (a to f)
76 MIMAIP, 2019 (a to f)
77 MIMAIP, 2019g
78 World Bank (*in prep.*)

There is no doubt that ADNAP's late involvement in the project had significant adverse consequences for management planning at the six FishCC sites. In particular:

- earlier involvement would have facilitated timely identification of information gaps, in time to be filled. By 2018, the information-gathering (FLAG) phase of the Fish Forever process was completed;

- it prevented timely intervention in confirming key elements of community consultations. For example, at one site where grouper was selected as a FLAG species, ADNAP had doubts about its appropriateness. But again, the relevant consultation phases had already been done.

- *Involvement in consultations*: the very brief community consultations the ADNAP team were able to conduction during the latter half of 2018 (just 2-3 hours at each site) were inadequate. In Pomene, the ADNAP team reportedly only met with one individual, the CCP President, due to lack of advance notice.

- *Narrow participation in drafting plans*: individuals familiar with fisheries management issues at the respective sites, including FishCC campaign managers, CCP leaders and provincial and district fisheries staff, were not significantly involved in management plan drafting. This seems surprising given that the ADNAP team had limited opportunities to become familiar with site-specific issues themselves.

  Possibly financial constraints were part of the reason for this, but it is particularly surprising that FishCC Campaign Managers felt marginalized from the process of preparing management plans, given how central they had been to the process of engaging fishing communities at each site.

Community Fishing Council meeting in Pomene

Management plan format and content

As mentioned above, the management plans for the 6 FishCC sites are still under preparation. The observations below are based on the draft Machangulo management plan of September 201979, which was the most advanced version available:

- Many key elements are included: the existing draft plan does contain many of the standard elements expected in a plan of this kind including: a description of ecosystems and fishing activities (though there is a lack of historic fisheries catch data); statements of objectives; description of the process for developing the plan; a boundary map; scope of the plan; proposed management measures; a logical framework; an implementation (institutional) framework including roles and responsibilities of principal actors/entities.

- Title of the plan: the draft plan is titled: 'Artisanal fisheries management plan for Machangulo, 2019-24'80. Given the entire focus of the FishCC project was to establish formally recognised community management areas (AGC), it was expected that this plan would explicitly be a management plan for a formally designated area, not just artisanal fishing activities in general.

- *Legal provisions for community management area designation:* Related to the point above, it is recognized that the preferred legal framework for designating a community fisheries management area is still under consideration within MIMAIP [81], in part catalyzed by the FishCC project itself. In this regard, the draft Machangulo plan (section 2: legal framework) references the Fisheries Regulations (REPMAR) of 2003 [82]. Whilst recognizing those are the regulations currently in force, they do not contain provisions for designating community fisheries management areas. The same section does also make reference to community fisheries management areas, referring to that as an approach under the Fisheries Law regulations. This hedging of the issue of formal designation, pending a final decision on the legal framework to be used for designation (as per Section 1.6) , is confusing. It would seem preferable quickly to finalize that decision within MIMAIP, and then to align the management plans fully to relevant provision in the Conservation Law of 2017, if that will be the preferred option.

- *Definition of community management area boundaries*: Supporting the point above, and despite the title of the document, the draft Machangulo plan (section 6) does in fact define the boundaries of a *community management area* and contains a map of the same. However, the inner boundary of the area is drawn some 2km parallel with the shore, so as not to overlap with the existing boundary of the Ponta do Ouro Partial Marine Reserve. This would appear to need reviewing as it would be very unusual to have a community management area that does not cover 2nm of near-shore fishing grounds where a significant proportion of artisanal fishing activity is practiced.

- *Exclusion of semi-industrial vessels*: The scope of the draft Machangulo management plan (Section 7) explicitly excludes semi-industrial fishing vessels. This is difficult to comprehend. In principle, all legitimate users of a

79 MIMAIP, 2019g

80 *Plano de gestão das Pescarias Artesanais de Machangulo (2019-2024)*

81 MIMAIP (in prep). At the time of preparation of this report, MIMAIP was considering whether to include in the revised REPMAR a new designation (Áréa de gestão comunitária) or to make use of an existing designation under the Conservation Law, 2017 (Áréa de conservação comunitária).

82 Decreto n.º 43/2003, de 10 de Dezembro (REPMAR)

fisheries co-management area should be involved in management consultations for the area, and equally, should potentially be subject to management measures. At Machangulo, the proposed fisheries no-take zone extends beyond 1nm from the shore so, in practice, semi-industrial vessels are automatically included in the scope of the plan, contradicting what is stated in section 7. This is an important point of principle for community fisheries management areas in Mozambique.

- *Threat/risk analysis*: The plan does not contain an analysis of fisheries-related problems, threats or risks. Although the logical framework in Section 8 is based on a set of problem statements, there is no prior systematic analysis to indicate how they were derived. This is a significant omission.

- *Enforcement responsibilities*: The implementation framework (section 10) does not adequately describe how the CCP (which has a key surveillance role) will collaborate with relevant authorities in dealing with instances of non-compliance with fisheries management measures contained in the plan. This is a major challenge often cited by CCPs but is not addressed.

- *Disconnect with Fish Forever process undertaken by Campaign Managers*: it is not immediately clear that the systematic process undertaken by Campaign Managers, undertaking FLAG assessments (including identification of fisheries challenges and strategies to address them) ; developing theories of (behavior) change; and applying an assessment framework to measure that change (KAP surveys) has been carried into the management plans.

Eulalia Fernando Baptista sells fish at the Fequete market and is a member of the local CCC

This, no doubt, reflects the point highlighted above that Campaign Managers were not directly involved in management plan preparation.

- *Impact monitoring*: Section 8 contains an Implementation Plan with monitoring indicators and targets against which to measure progress. However, none of the indicators/targets capture any biological (fisheries) or ecological (habitats) impact parameters. Since Section 3 highlights a focal 'flag' species and Section 5 (objectives) emphasizes a focus on preserving sensitive ecosystems and fisheries resources, it would be important to formulate corresponding biological and ecological indicators and targets by which to measure impact in regard to those key stated objectives.

The points above highlight a critical issue. The existing draft FishCC management plans are not yet explicitly plans for (TURF/AGC) management areas containing no-take reserve areas, as envisaged in the FishCC project design. That, in fact, was the primary purpose of the FishCC project, namely to pioneer a spatial approach to artisanal fisheries co-management in Mozambique. Instead, the existing draft plans are, more loosely, plans for artisanal fisheries activities in specified communities.

One reason provided by Government staff, which may be questioned, is that, up to now, there is not yet an agreed legal instrument for designation of community fisheries management areas in Mozambique. Hopefully, that point will be settled quickly with recent indications from MIMAIP of its preference for applying relevant designations under the Conservation Law of 2017.

Summary of achievements and challenges in establishing TURFs and reserves

- Fisheries no-take reserves were identified and agreed by communities at all 6 FishCC sites, with some informal implementation initiated at one site (Machangulo);
- FishCC project experience has catalyzed consideration and decision-making in regard to the preferred legal framework for designation of community management areas for fisheries, which will be a significant legacy.
- None of the no-take reserves at FishCC site has been formalized, none are demarcated, and there exist discrepancies between communities and implementing institutions over the location of proposed reserve areas at two sites (Inhassoro and Mefunvo).
- Management plans have not been finalized for any of the FishCC sites, moreover draft plans are not currently formulated so as to capitalize on the anticipated new legislative provision referred to above, which would be a missed opportunity.

3.2.4. Improving data collection and management for decision-making

This section summarizes achievements and challenges of data and information-generating initiatives conducted under FishCC project.

i. ***Ecological surveys.*** An NGO service provider, *Centro Terra Viva*, undertook surveys in 5 out of FishCC sites (not in Inhassoro) during 2017. Primary data was collected at each of the 5 sites, focused on the distribution and status of one selected ecosystem type, as per below.

Site	Selected ecosystem type
Mefunvo	Coral reefs
Memba	Mangroves
Pomene	Mangroves
Zavora	Coral reefs
Machangulo	Mangroves

CTV delivered a final report dated February 2018[83]. The surveys look to have been competently undertaken and contain useful data but there are also some notable gaps:

- Inhassoro was not included in the CTV study. Ecosystems surveys there were instead expected to be covered by a separate IIP study (IIP, 2017b). In practice however the IIP study did not undertake any surveys at Inhassoro, the relevant section of the IIP report is confined to a single page, reproducing a seagrass distribution map extracted from existing literature;
- Four of the five sites (Mefunvo, Memba, Pomene, Machangulo) contain both coral reefs and mangroves habitats, but only one habitat type was studied;
- At Mefunvo and Zavora, overall coral reef habitat extent was not mapped, habitat condition was sampled at only 4 selected sub-locations at each site;
- Ecological studies were not well integrated with ongoing participatory engagement of fishing communities by campaign managers. For example, selection of sub-locations for detailed coral reef and mangrove sampling wasn't not based on any scoping of spatial fishing patterns, or the ecology of target/FLAG fish species, which could have been done in alliance with the campaign managers. This limited the utility and relevance of the ecological survey results to the primary objective of fisheries management planning.

ii. ***Artisanal fisheries information.*** The national fisheries research institute, *Instituto de Investigação Pesqueira* (IIP) documented available data contained in its PescArt 3.5 database, relevant to the six FishCC sites, for the period 2004-2016[84]. This generated limited summary data on:

- total annual catch per district per year;
- identification of 10 most-caught species and their proportion in total catches, at district level.

Even this limited data was only available for two of the six FishCC sites (Memba and Inhassoro) and the resolution of the data reported is *district-level*, not fishing center, and therefore of very limited value for site-level fisheries management planning.

Complementing the above desk-based analysis, IIP conducted a field study[85] aimed at generating baseline fisheries production information for Mefunvo, Závora and Pomene, on the basis that those three sites were not covered by IIP's national artisanal fisheries sampling system (SNAPA). Primary data was collected over a one-month period. Artisanal fisheries landings were sampled to identify catch composition, catch weights by gear, and some fishing effort parameters.

83 CTV, 2018
84 IIP, 2017a
85 IIP, 2017b

A complementary study of artisanal fisheries in Machangulo[86] was undertaken independently by Peace Parks Foundation and partners. Although not funded under the FishCC project, the study helped inform management planning at that site.

The above studies undertaken by IIP (2017a and 2017b) generated very preliminary data on fisheries catch composition at 3 of the 6 sites, but otherwise had major gaps:

- No useful data at all was generated for 3 sites (Memba, Inhassoro and Machangulo); the limited data for Memba and Inhassoro extracted from the IIP database is only district-level resolution;
- Data generated for the other 3 sites (Mefunvo, Pomene and Zavora) on catch species composition and total catch/catch-per-unit effort (CPUE) by gear was based on *only one month* of data, which is inadequate and very unlikely to be representative of annual patterns;
- Data on fishing effort for the same 3 sites only covers number of vessels, but not number of fishers and gears, even though such information is mostly readily available from CCPs;
- There is no information at all, quantitative nor qualitative, on stock status or catch trends for important commercial species, such as those identified at Mefunvo, Pomene and Zavora (November only);
- Implementation of fisheries studies (by IIP) was not well integrated with ongoing participatory engagement of fishing communities by campaign managers, rather it was done independently, in parallel.

iii. Fisheries Landscape Assessment and Goal-setting (FLAG) tool. As outlined in section 2.2.3. above, application of the *Fish Forever* FLAGS tool at each site during 2017, in particular the 1st FLAG workshops, generated important, largely qualitative, information on the status of artisanal fisheries and related marine habitats, including target fish species; and on economic, biological and social objectives relating to establishment of management areas and fisheries no-take reserves. This was achieved through an appropriately participatory process and the information generated was, and will be, critical to the preparation of fisheries management plans for each sites. That said, the broader FLAG process was not as well documented as it could have been. Prior to the 1st FLAG workshops, Campaign Managers conducted extensive interviews with individual fishers and focus groups, however that valuable information is not available in report form. Likewise, the proceedings of the 2nd FLAG workshops.

iv. Knowledge, attitude and practice (KAP) surveys. A round of baseline (1st) KAP surveys were undertaken at 5 FishCC sites in 2017. No survey was undertaken at Memba due to a change in the Campaign Manager at a critical time. The 1st KAP surveys generated a framework, summarized in Table 3.8., containing selected indicators with baseline and target values, against which to monitor and assess progress in terms of fishers' attitudes and practices. In particular, this was designed to assess the impact of social marketing/pride campaigns. Appropriately, the selected indicator questions focus on implementation of fisheries no-take reserves and related fishing gear control measures.

Repeat (2nd) KAP surveys were undertaken at the same 5 sites soon after launch of the pride campaigns in November 2018, but using a different questionnaire from the baselines. A comparison of results is summarized in Table 3.8.[87]

86 Louro et al., 2017

87 1st KAP consolidated report, 2-page informal report provided by Rare Mozambique Country Office

Table 3.8. Summary of selected results from baseline (1st) KAP surveys at 5 FishCC sites[87]

Site	Knowledge	Baseline %	Target %	Attitude (A)	Baseline %	Target %	Practice (P)	Baseline %	Target %
Závora	Fishers know negative impacts of using harpoon in grouper fishing	28.7	47.9	Fishers believe that not fishing with harpoons on rocks can recover target species	63.2	77.4	Fishermen speak to each other about the negative impacts using harpoon for fishing	48.2	69.5
Pomene	Fishers know that it is important to establish TURF+R to recover Grouper stock	84.7	95.1	Fishers believe that creating TURF+R is important for grouper recovery	80.6	87.6	Fishers speak in the community about the importance of creating community managed areas	81.0	96.3
Fequete (Inhassoro)	Fishers know the importance of protecting the spawning period of rabbit fish	99.3	100	Fishers believe that not fishing in the spawning period of the rabbit fish is important for the recovery of rabbit fish stock and increased production	99.3	100	Fishers speak to each other about the negative threats/impacts of not following rules about breeding rabbit fish spawning period	99.3	100
Machangulo	Fishers know that fishing in the estuary have negative impacts on fish recovery	81.0	91.4	Fishers agree to participate in CCP meetings to share ideas on fishery management resulting from fishing in the estuary	38.1	64	Fishermen speak to each other on disadvantages of fishing in estuary	40.5	61.8
Mefunvo	Trawling fishers know that fishing on coral reefs is harmful	73.2	84	Trawling fishermen who would like to quit fishing on coral reefs as a result of the establishment of the TURF+R	75	82	Fishers who speak to each other on the use of trawling on coral reefs	53.6	75

The expected behavior change by site are shown as follow:

Site	*Behavior Change*	*Baseline %*	*Target %*	*Behavior stage*	*Adopter Category*
Machangulo	Fishers willing to stop fishing in the estuary	23.1	42.4	Action	Early majority
Závora	Fishers willing to abandon use of harpoon to catch grouper	24.1	42.7	Action	Early majority
Pomene	Fishers who agreed to establish TURF+R for stock recovery	58.0	64.9	Action	Late majority
Fequete (Inhassoro)	Fishers agree to not fish in the spawning period of rabbit fish	10.4	38.0	Action	Early adopters
Mefunvo	Trawling fishers willing to abandon fishing on coral reefs	21.4	40	Action	Early majority

Theory of change SMART objectives for each FishCC site

Notwithstanding the summary in Table 3.8. above, detailed results from the 1st KAP survey at each FishCC site were not comprehensively documented. Only selected results are reported in the Pride Campaign Reports[88], moreover there is no disaggregation of results in terms of type of fisher, gender, age etc. This might be problematic in future terms of fully analyzing the implications of attitude patterns; ensuring that future repeat surveys are comparable to baselines, especially if done by other 3rd party researchers; and of transparency and sharing of full results with stakeholders.

As mentioned above, questionnaire used for the repeat 2nd KAP survey was different from those used for the baselines. The 1st KAP questionnaires were developed independently at each FishCC site by campaign managers and were tailored to each community. In 2019, a standardized *Fish Forever* global household survey instrument was applied, instead of repeating the unique site-level surveys. Table 3.5. attempts to match the 2017 baseline KAP survey questions to the generic questions asked in 2019, to assess changes over time at each FishCC site. In some cases, the generic questions do broadly match onto the tailored baseline questions and there is evidence of positive change.

However, with most questions, it is evident that global standardization has resulted in a critical loss of site-level detail, rendering the whole survey much less useful for local management purposes and progress tracking. For example, if beach-seining is the key issue at a given site, there is a big difference between asking a fisher if he's specifically aware of the negative impact of beach-seining, and asking him more generally if he's "*aware of problems related to fishing with restricted gears*?". Likewise, there's a difference asking a fisher if he specifically discusses the issue of beach-seining with his fellow fishers, and asking him if he "*encourages other fishers to comply with fishing regulations*". And again, between asking a fisher if he's specifically willing to give up using a beach-seines, and asking him the more general question: "*Are you willing to change your fishing behavior*".

These flaws in the 2nd KAP survey are summarized in reporting for Inhassoro[89]:

- the questionnaire form was prepared in the US without involvement of Campaign Managers;
- there was no field testing to assess the coherence and relevance of the questionnaire, and no opportunity to modify or improve it.
- the language used to formulate questions was unclear and focused more on family income issues rather than fisheries management issues addressed in the 1st KAP.

As such, the 2nd KAP survey, the form did not accommodate any questions that could serve as the basis for a comparative analysis with the 1st KAP results at Inhassoro, so the final assessment (of the Pride Campaign) was based only on evidence of the facts on the ground.[36]

In summary, whatever advantages were perceived at global level, standardizing the KAP questionnaire across all *Fish Forever* projects does not seem to have served the needs of promoting fisheries co-management at site level under FishCC in Mozambique.

88 Rare, 2019 (a to f)
89 Rare, 2019c

Table 3.9. Summary of pre- and post-campaign responses to questions related to fisher knowledge

Questions from 1st (baseline) KAP surveys tailored to each site (pre-campaign)	Generic questions from 2nd KAP surveys (post-campaign)	Community	Pre-Campaign	Post-Campaign
Knowledge				
Do you think that fishing with beachseine on coral reefs is harmful?	Are you aware of the problems related to fishing with restricted gear?	Mefunvo	73%	100%
Are you aware of any problems related to the fishing with harpoon on coral reef?		Zavora	29%	97%
Please identify all the harmful fishing activities?	Do you know the type of fishing gears or fishing activities that are permitted in fisheries management areas?	Machangulo	31%	96%
What is the activity that contributes negatively to the management of resources?* Proportion of answers different from "I don't know"			86%	
Behavior Adoption				
Have you talk to others about fishing in the estuary?	Do you encourage others (both inside and outside their local community) to comply with fishing regulations?	Machangulo	67%	98%
Do you think sharing ideas with other members of the community is good?			68%	
Did you speak to anyone in last few months about fishing regulations?		Mefunvo	49%	96%
Have you talked to other fishermen about fishing with harpoon?		Zavora	48%	100%
How many times have you spoken with other fishermen in the last 6 months about the threats of disrespect for the spawning period? Proportion of respondents that answered "1 to 10 times"		Fequete	90%	91%
How would you feel if you were invited to share ideas in meetings on fisheries resource management due to fishing in the estuary?	Do you believe that local participation in management will help to maintain or improve fish catch?	Machangulo	44%	90%
Would you attend discussions to eliminate harmful fishing gear?			48%	
Do you think it is important to attend meetings?			46%	
Do you think it is important to participate in managed access meetings to share ideas on fisheries management?		Mefunvo	44%	93%
Did you participate in one or more community meetings?	Have you or anyone in the household attended a fisheries management body meeting in the last month?	Machangulo	38%	90%
Did you participate in one or more CCP meetings?			51%	

Fisheries catch and marketing data collection through mobile app: OurFish

Rare reported that in the few months of operationalizing the OurFish app towards the end of the project, 45 fish buyers across the six sites recorded approx. 22,000 kg of catch at the first point of trade. This generated information on catch composition and sale prices, by gear type. Unfortunately no analysis of the collected data had been undertaken at the time of preparation of this report.

Nonetheless, community members perceived that the system can help with:

- characterizing fishing activity;
- identifying species that are captured more frequently and monitor how catches change over time;
- characterizing economic and social status of different fishers/fishing gears;
- monitoring impact of management programs/projects;
- generate data to support decision-making, improve management effectiveness and provide new capabilities for fishermen, traders and other actors in the fishing value chain.

A solitary fishing boat on the beach at low tide

3.3. Component Two: Improve livelihoods

3.3.1 Alternative livelihood projects

Two types of livelihood project were implemented at the 6 FishCC sites:

i. provision of fisheries cold-chain equipment (Mefunvo, Memba, Pomene, Machangulo)

ii. provision of fishing gears to promote offshore line-fishing (Fequete, Zavora)

Table 3.10. shows details on the assets provided at each site. The rationale behind provision of fishing gears to promote offshore line-fishing was to reduce use of unsustainable fishing practices in nearshore areas, in particular beachseines (Inhassoro) and spear-guns (Zavora). Construction of boats in Inhassoro and Zavora was carried out by communities themselves, with help of certified boat builders, in part as a capacity-building exercise to strengthen sustainability. However, at neither site was the activity finalized by end-of-project. The reasons included delays in payments from the Project Implementation Unit (PIU) to provincial authorities, procurement delays in the district government, and challenges transporting materials to the sites. By project closure livelihood assets were disbursed or in place to the communities in 2 out of the 6 project sites, namely: Memba and Mefunvo. However, operationalization of the use of equipment in Mefunvo had not yet been confirmed. As a result of the delays, financing and oversight of livelihood project at the other four sites, that were still in process, was transferred to the SWIOFish-MZ project at FishCC project closure, and were expected to be completed by December 2019.

During consultations for preparation of this report, some flaws were observed in the processes by which project beneficiaries were identified. For example:

At none of the six sites was the process of beneficiary selection clearly documented;

Memba: the beneficiaries of fisheries cold-chain equipment were members of an association established specifically for the purpose. The association intended to operate a fish-trading business and was in process of operationalizing itself in July 2019. However, virtually all the 15 or so members of the association were members of the CCP committee, which had been responsible for beneficiary identification. This appeared to be an example of elite-capture.

Fequete: four offshore fishing boats were under construction, the selected beneficiaries were 4 out of the 5 owners of beachseine nets at Fequete. The intention was to provide those owners with an alternative fishing gear (offshore handlining) so that the beachseine would no longer be used. However, there was no plan for any written agreement to that effect, and therefore no guarantee that the net owners would not simply continue to operate their beachseine gears alongside the new vessels. Additionally, the fifth net owner seemingly missed out on the opportunity allegedly because he was unavailable to attend a village meeting, which could have been solved if that was the case.

Mefunvo: 25 chest freezers were provided to community beneficiaries but no information was available, from the campaign manager or the Project Implementation Unit in Maputo, as to who the beneficiaries were or how they were selected.

Table 3.10. Summary of livelihood projects under FishCC

Livelihood Project Selected		Status as of July 2019
Mefunvo Fisheries value chain equipment: • 25x chest freezers • 40x Isothermal coolboxes		Equipment disbursed to beneficiaries in June 2019
Memba Fisheries value chain equipment: • 2x chest freezers • 10x Isothermal coolboxes • 20x fish processing kits		Equipment already disbursed to beneficiaries
Inhassoro • Construction of 4 motorized boats to facilitate line-fishing offshore • 4x outboard motors for above boats • 20 improved rafts		Boat construction under way but still at relatively early stage, and being carried forward under the SWIOFish project. The project implementation unit anticipates completion by February 2020 though that yet might be optimistic.
Pomene Fisheries value chain equipment: • 4x chest freezers • Solar power system for above • 4x 1000-liter water tanks • 40x Isothermal Boxes • 40x fish processing kits Training guides for eco-tourism		Equipment in-situ in Pomene, but not yet disbursed to beneficiaries due to: (i) need for clarification on the value of the matching funds payable by beneficiaries; (ii) delay in contracting a service provider to operationalize solar power system. The project opened dialogue with nearby lodges but, due to implementation delays, training was not undertaken during FishCC. It is expected still to happen during 2019 under SWIOFish project.
Zavora • Construction of 12 boats to facilitate line-fishing offshore • 12x outboard motors for above boats		9 boats near to completion 3 boats in early stages of construction
Machangulo • Ice machine & ice store • Generator for ice machine • Water tower to supply water to ice machine Aquaculture project: • 6 floating tanks for tilapia cultivation Technical training for self-employment: • carpentry • cooling and electricity systems • tailoring • English teaching	 	By July 2019 the ice plant remained 2 weeks or so from being launched. Aquaculture initiative was funded through another project, not FishCC, but is complementary

3.3.2. Savings & Credit Groups

17 savings and loans (PCR[90]) groups were either created or re-vitalized, with each group consisting of between 10 to 38 members, and a total of 382 direct beneficiaries, as shown in Table 3.11. below. 60% of members were women.

An estimated US$ 160,000 was saved collectively by the 17 groups, and over US$ 120,000 has been made available through loans to members. No baseline or impact studies were done by which to assess the impact on household economics, but there is physical and testimonial evidence of benefits to members, in the form of investments such as purchase of household goods and freezers for fish marketing, and childcare financing.

It is interesting that some savings and loans group members were able to purchase outright the same type of fisheries cold-chain materials that were provided through the FishCC livelihood projects at some sites. These impressive outcomes, from a relatively short intervention on savings and credit, raise the question as to whether it would have generated greater and more sustainable long-term benefit to have invested FishCC project resources in more widespread savings and loans establishment, rather than directly purchasing materials under the livelihood component. Similar experience elsewhere in the WIO region has indicated the same. This point is highlighted in the lessons section (4.5) below.

Table 3.11. Summary of savings & credit groups under FishCC[91]

Site	Group name	Men	Women	Total	CCP Members
Machangulo	Tuanano	16	0	16	51 (98%)
	Lhunvuku	2	8	10	
	Matihalisse	7	8	15	
	Tutukane	3	26	29	
Závora	Veremos	4	14	18	34 (49%)
	Boa Sorte	3	13	16	
	Melhor	12	9	21	
	Pescadores de Závora	15	0	15	
Mefunvo	Atchananão	17	12	29	33 (62%)
	Mwanzanovi	6	18	24	
Inhassoro	Kuzuanana 1	15	21	36	75 (69%)
	Kuzuanana 2	13	25	38	
	Kuzuanana 3	17	18	35	
Memba	Watana Familia	3	19	22	0
	Omaliha Osiquine	3	12	15	
Pomene	Xitique de Lurdes Mutola	15	9	24	0
	Xitique de Matenda	17	2	19	
Total	**17 groups**	**168 (40%)**	**214 (60%)**	**382**	**193 (51%)**

90 PCR = *Poupança e Credito Rotativo*
91 MIMAIP, 2019h

3.4. Component Three: Social Marketing

3.4.1. Rationale for design of social marketing pride campaigns

As outlined in Section 2.2.3 (iii), 'pride campaign' is the name given to community awareness-raising and mobilization campaigns under the Fish Forever methodology.

The campaigns perform a key function in catalyzing behavioral change and delivering on fisheries management objectives. As such, the analysis and logic behind the design of pride campaigns is fundamental to the Fish Forever process and, under FishCC, was documented in pride campaign reports for each site[92], which contain:

- An analysis of fisheries landscapes and management challenges (FLAGS tool);
- Identified behavioral change/ theories of change needed to address challenges;
- SMART objectives for each step in the theory of change;
- Proposed materials and messaging that will influence behavioral change;
- Quantitative tracking of impact using data from KAP surveys.

It is worth acknowledging the pride campaign reports represent considerable efforts on the part of Campaign Managers, and are the main integrated record of progress at each site. A critical element of each report (except Memba), is a theory of change following the standard 7-stage *Fish Forever* format, with SMART objectives that are customized to addressing 1 or 2 specific priority fisheries management issues at each site. The SMART objectives for each site (summarized in Table 3.7. below) are a key output of the *Fish Forever* process since they provide the skeleton logic behind social marketing interventions, and guide how the impact of those interventions is measured.

3.4.2. Assessment of SMART objectives developed for FishCC sites

Table 3.12. represents an admirable effort by campaign managers to identify the skeleton logic for social marketing interventions at each FishCC site. Nonetheless, some weaknesses are evident in the details in Table 3.13.

Table 3.12. Weaknesses in SMART objectives for FishCC sites

Conservation results	For all sites, timeframe is too short to achieve change (ie. in stocks or CPUE). All sites are missing baseline and targets.
Threat reduction	Mefunvo and Pomene do not describe threat reductions. Inhassoro, Zavora, Machangulo are missing reduction target and baseline.
Behavior change	Mefunvo and Machangulo do not describe actual behavior change, only intent. Signs of repetition with threat reductions above.
Barrier removal	Inhassoro lacks quantitative metrics, reduction targets and baseline. Pomene, Zavora, Machangulo do not describe barriers (Machangulo repeats its threat reduction). Mefunvo is ambiguously worded though along the right lines.
Interpersonal communication	Not clear how interpersonal communications can be monitored in practice. Inhassoro baseline is already at 99.3% so no scope for improvement
Attitudes	Inhassoro baseline is already at 99.3% so no scope for improvement Machangulo does not describe an attitude change
Knowledge	Inhassoro baseline is already at 99.3% so no scope for improvement

92 Rare, 2019 (a to f)

Table 3.13. Theory of change SMART objectives for each FishCC site[92]

	Mefunvo	Memba	Inhassoro	Pomene	Zavora	Machangulo
Conservation result	By 2019, population of *Lethrinus harak* maintained at level recommended by experts	None developed	By 2019, CPUE for rabbitfish increased from X kg/hr in 2018 to Y kg/hr	Increase in abundance or CPUE of grouper (*Epinephelus malabaricus*)	By end 2018, stocks of grouper increase from X% in April 2018 to Y%	By end 2018, stocks of *Pomadasys kaakan* (javeline grunt) increase from X% in Apr'18 to Y%
Threat reduction	By 2019, number of *Lethrinus harak* increase through CCP involvement in enforcement	None developed	Use of mechanical trawling and manual beach-seining	No. of fishers agreeing to creation of AGC and able to define ARR, increases from 34% in 2018.	Increased spearfishing effort negatively impacting grouper stocks	Decrease in number of fishers fishing in estuary
Behavior change	By 2019, the number of beachseine fishers wishing to stop fishing on coral reefs rises to 40%, from 21% in 2017	None developed	By 2019, no. of fishers that don't fish during rabbitfish spawning season increased from 10.4% in 2018 to 38%	By 2019, no. of fishers using spears/harpoons decreases from 58% in Apr'17 to zero	By 2019, no. of fishers abandoning spearfishing increased from 24% in 2018 to 48%	By end 2018, percentage of fishers agreeing not to fish in estuary increases from 23% in Apr'18 to 42%
Barrier removal	By end 2019, number of beachseine fishers that stop fishing on coral reefs (having gillnet or handline alternative) up from 21.4% to 60%	None developed	• Cultural practices • Lack of capital	By 2019, no. of fishers discussing importance of AGC increased from X % in 2018 to Y % in 2019.	Training of CCP in fisheries management Construction of 12 sustainable fishing units	Decrease in number of fishers fishing in estuary
Interpersonal communication	By end 2018, no. of fishers discussing use of beachseines on coral reefs increases from 54% (2017) to 75%	None developed	By 2019, no. of fishers discussing dangers of not implementing closed period for rabbitfish breeding, up from 99.3% in 2018 to 100%	By 2019, proportion of fishers discussing conservation campaign importance increases from 81% to 96.3%	By 2019, no. of fishers reporting on dangers of spearfishing increases from 48.2% in 2018 to 69.5%	By end 2018, number of fishers reporting disadvantages of estuary fishing increases from 40.5% in Apr'18 to 62%
Attitude	By 2019, no. of beachseiners who'd like to stop fishing on coral reefs, with creation of AGC + ARR, increases from 75% in 2017 to 82%	None developed	By 2019, number of fishers believing it's important not to fish during rabbitfish spawning period up from 99.3% in 2018 to 100%	By 2019, proportion of fishers believing AGC / ARR will aid grouper recovery increases from 80.6% to 88%	By 2019, no. of fishers believing that prohibiting spearfishing will recover grouper stocks, increases from 27.6% in 2017 to 63%	By end 2018, no. of fishers participating in meetings on estuarine fisheries increases from 38.1% in Apr'18 to 64%
Knowledge	By 2019, percentage of beachseine fishers who know fishing on coral reefs is harmful rises from 73.2% in 2017 to 84%.	None developed	By 2019, number of fishers aware of importance of rabbitfish closed period for reproduction up from 99.3% in 2018 to 100%	By 2019, proportion of fishers knowing value of AGC /ARR for protection of grouper increases from 85% to 95%	By 2019, percentage of fishers aware of the negative impact of spearfishing increases from 29% in 2018 to 48%	By 2019, no. of fishers aware fishing in estuary is harmful increases from 81% in April 2018 to 91.4%

Summary observations on theories of change and SMART objectives for FishCC sites

Timeframe: The scope of the theories of change captured in Table 3.13. is apparently the 4-year period of the FishCC project, only. In retrospect, that was not realistic or appropriate. In practice, interventions by the project probably only catalyzed measurable change in the bottom three levels of the theories of change, by the end-date of the project. Behavior change and threat reduction is a medium-term process, and ecosystem change (at the *conservation result* level) will only follow after that. Recognizing that, it would have been better to frame the theories of change over a more realistic 5 to 10-year timeframe, which could then have served to inform preparation of 5-year management plans for each site, covering interventions and monitoring beyond the FishCC project period.

Repetition and number of stages: Significant repetition is evident between particular levels of the theory of change in Table 3.11. For example, between *behavior change* and *threat reduction*, and between *interpersonal communications*, *attitudes* and *knowledge*. It is understandable why this would be the case, given the continuity between the levels. It is also noted that *interpersonal communication* is inherently difficult to measure, or monitor, robustly. These points might support an argument that the *Fish Forever* theory of change template could potentially be simplified, by reducing number of steps from 7 to 5. If *behavior change* and *threat reduction* were merged and *interpersonal communications* removed, it is not clear that anything substantive would be lost.

Single issue focus: It is noticeable that for each FishCC site, the theories of change generally focus on a single issue. In Mefunvo, Inhassoro and Zavora it is a gear-control issue (beachseines or spearguns); for Pomene and Machangulo the focus is on implementation of a no-take reserve. This focus and simplicity is no doubt a virtue in many respects. Nonetheless, there is a sense that for some sites a dual approach focused on both one gear-issue and a no-take zone (which really is fundamental to all sites) might be optimal, and would still not overly complicate the framework.

Weak capture of barrier removal: The stage that appears to have been least well captured was *barrier removal*. Only the Inhassoro SMART objectives correctly identify barriers, and even there no measurable metrics are articulated. This possibly exposes a potential weakness of the social marketing approach, in that it encourages a focus on knowledge and awareness-raising in bringing about behavioral change. In reality, fisher behavior is also strongly driven by economic considerations. These should be reflected in *barrier removal*, ie. removal of economic barriers to behavior change. Notwithstanding the livelihoods component of FishCC, there is a sense that the *Fish Forever* approach, at least in the way it was applied under FishCC, under-emphasizes the economic issues underlying fishing behavior.

Technical oversight and quality control: given the centrality of the theories of change and SMART objectives to the *Fish Forever* approach, in particular in terms of framing the content of pride campaigns and management plans, and of measuring the impact of interventions, it is surprising there are so many weaknesses in the framing and wording of the SMART objectives, as summarized in Table 3.10. above. This suggests there was scope for better technical oversight and quality control on this critically important aspect of the process.

93 Extracted from Rare, 2019 (a to f)

Painted mural in the village of Pomene, created as part of the Pride Campaign

3.4.3. Outcomes of Pride Campaigns

Implementation of Pride Campaigns at each FishCC site is summarized in section 2.2.3 (iii) above. Rare's consolidated reporting of the Pride Campaign launches[94] at the six FishCC sites attributed the following general outcomes to the campaign:

Knowledge and attitudes

- raised community awareness and sense of ownership of the proposed fisheries management areas, including no-take reserves, and their potential benefits;
- active and positive participation by local government officials raised their awareness of the FishCC project and its objectives, and of substantive fisheries issues at respective sites.

Behavior and practice

- more proactive district support on fisheries governance and enforcement;
- improved fisher participation in surveillance, enforcement and compliance of/with fisheries management measures;

94 Rare, 2019g

- improved participation in CCP meetings and other collective activities.

Consultations with Campaign Managers and CCP members during preparation of this report confirmed, anecdotally, that participation in the pride campaign launches was enthusiastic, both on the part of community members and government officials. At the same time, as outlined in section 2.2.3 (iii) above, it's appropriate to highlight again that, although pride campaigns were originally planned to be a series of activities over a 6-month period, in practice they were largely confined to the launch events in Nov 2019 and the distribution of messaging materials during those events.

Subsequent activities were mostly not implemented, at least not under FishCC. So, it is reasonable to suppose that the impact of the campaigns was shorter-term than it would have been had the campaigns been fully implemented.

95 Rare, 2019c

Outcome of Pride Campaign at Inhassoro

At Inhassoro, the Pride Campaign had a specific objective in terms of changing fishing attitudes and behavior, which was to promote acceptance and implementation of an additional 45-day beachseine closure during the February-March rabbitfish spawning period (Table 3.5. above). To this end, it was necessary to persuade fishermen from 15 beachseine units to switch to handlines for that period. The Inhassoro Campaign Manager reported that not only was the closure observed by all the 15 units during Feb-March 2019, they even lobbied to extend the closure by an additional 15 days, and cited this as a major success for the Inhassoro Pride Campaign[95].

3.4.4. Challenges in assessing impact of Pride Campaigns

Two factors make it difficult to say anything more concrete or definitive in terms of the impact of the pride campaigns

under FishCC:

i. *2nd KAP survey did not repeat the questions of the 1st KAP survey*. Instead, it applied globally-generic questions not tailored to each site (see section 3.2.3 (iv) above). This meant that although the 1st KAP surveys and campaign preparations established clear indicators, baselines and targets (summarized in Table. 3.8. above) for anticipated outcomes of the Pride Campaigns, specifically tailored to the priority fisheries management issues at each site, the repeat (2nd) KAP survey results did not deliver comparable data against which to measure changes at each site in a robust way (as seen in Table 3.9.).

ii. *Impact of the campaigns was measured very shortly after campaign launches*. The 2nd KAP surveys were implemented within a month or so of the campaign launches in Nov 2018. Thus, whilst there is no reason to doubt the outcomes attributed above in terms of improved knowledge and attitudes in the immediate aftermath of campaign launch festivities, there is no way of knowing how enduring those outcomes are over a longer period, especially in light of the truncated nature of the campaigns themselves. If time had allowed, it would have been more informative if the 2nd KAP survey had been undertaken, say, six months after the campaign launches.

3.4.5. Cost effectiveness of Pride Campaigns

The total cost of implementing the Pride Campaign launch events at 6 sites was $72,000. With an estimated target audience participation of 2100 community members and government officials, the cost per person reached was US$ 34. It is unclear whether this is cost-efficient given the difficulty to evaluate its impact as explained above.

Looking east towards the sunrise over the Indian Ocean off the Mozambican coastline

3.5. Summary of Implementation Challenges

Below is a summary of factors that affected overall progress of project implementation at system level:

- Lack of existing legal framework and institutional experience on ACG designation. The project design anticipated that ADNAP would enter into community management agreements with qualifying CCPs to enact co-management of TURF-reserves, and that after one year, TURF-reserves would be established and management plans implemented. In practice, a lack of existing legal framework to support such arrangements, together with ADNAP's late active involvement in the project, rendered this unfeasible.

- Rare new to Mozambique. Rare was selected to provide technical assistance to the project on the strength of its experience developing *Fish Forever* in Brazil, Indonesia and Philippines. However, Rare was new to Mozambique. Obtaining official registration, establishing an office, recruiting and building capacity of staff and developing relations with MIMAIP and provincial partners all took significant time, understandably. The high turnover of Rare's in-country leadership during the first 2-3 years did not improve efficiencies.

- Institutional re-structuring. FishCC was approved in 2015, shortly after general elections which led to institutional restructuring of MdP/ MIMAIP. This was further compounded by decentralization of fisheries sector personnel from 2018. This caused significant delays in the project due to reforms within MIMAIP which affected continuity and decision-making. Additionally, the newly established IDEPA struggled to manage the changes in light of the initial project setup.

- Selection of project sites. The six selected project sites were dispersed across four provincial governments, six district authorities, and two sites were distant from Maputo. The logistical challenges inherent in this impacted the speed and depth with which strong local partnerships could be developed; provision of technical supervision to campaign managers; and transaction costs. Selection of discrete sites, rather than clusters, also had implications as to how well issues surrounding fishing patterns and reciprocal use of fishing grounds were examined.

- Institutional coordination. The project lacked sufficiently effective coordination to ensure clarity of respective roles of central government, provincial government and NGOs and co-ordination mechanisms between them. To address this, a Steering Committee was formed in February 2017 comprising IDEPA, ADNAP, IIP, DPMAIPs, CMs as well as representatives from other artisanal fisheries projects from MIMAIP (PROPESCA, ProDirpa and SWIOFish1-MZ). This resulted in: (i) clarified roles and responsibilities of each of the relevant MIMAIP institutions in project implementation, taking into account new MIMAIP statutes; (ii) an agreement on the formalization of campaign

managers' engagement with project implementation; (iii) an agreement on the challenges being faced by the project, their causes and potential solutions; and (iv) clarified roles and duties for campaign managers.

- Change in Memba campaign manager. At Memba the campaign manager was replaced at a critical juncture, early in 2018, due to poor performance by the incumbent. Notwithstanding the commendable efforts of the successor, having missed out on a crucial induction and training process during 2016-17, this was always going to have a significant impact on progress at Memba, as is evident in the pride campaign report for that site.

- Procurement delays affected the launch of generating income activities in the respective sites. The delays were largely due to the decision to advance with decentralized procurement, to increase local ownership. By the end of 2018, only 11% of the acquisitions were disbursed. Capacity of procurement technicians at the provincial level was limited, to effectively manage timely procurement of materials to the livelihood opportunities.

Four of the six campaign managers meeting to discuss the process; managers were present in all six FishCC sites.

Community members attend a local meeting in Maputo Province

4. Lessons Learned

Lessons from the FishCC project relevant to the ongoing development of fisheries co-management in Mozambique are organized in this section under the following headings:

4.1. Defining management areas, no-take reserves & control measures
4.2. Preparing fisheries co-management plans
4.3. The fisheries co-management governance framework in Mozambique
4.4. Facilitation capacity and institutional roles
4.5. Effectiveness of social marketing approaches
4.6. Role of livelihood initiatives in fisheries co-management

4.1. Defining Management Areas, No-Take Reserves & Control Measures

This section summarizes lessons arising from the fisheries management measures proposed at the six FishCC pilot sites, including no-take reserves, as summarized in Table 3.1. and Figures 3.1a. and 3.1b. above.

4.1.1. Identifying the scope of fisheries co-management areas

The geographic scope of a community fisheries management area is necessarily a balance between fisheries resource-use patterns on the one hand, and social ties and administrative efficiencies on the other.

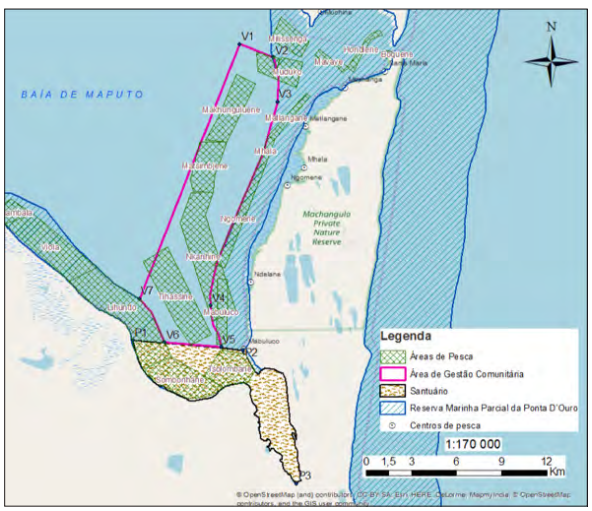
If fishers from several neighboring fishing communities, all share the same fishing grounds, it might be logical to include all those communities within a single, coherent fisheries management regime or area, since all are fishing a common resource. On the other hand, management of a community fisheries area is also a social and administrative endeavor. So, if there are social or logistical reasons why it might not be optimal or efficient to combine neighboring communities into a common management entity, that would also be an important consideration. Some communities, for example, might not have good relationships with their neighbors, or it might be logistically difficult to travel from one to the other for meetings.

#1 KEY LESSON

LESSON 1: Some community fisheries management areas will incorporate more than one CCP

The experience from FishCC was that in 2 out of the 6 pilot sites, there was justification for clustering two neighboring CCPs within a single community management area. This was done, in practice, in Machangulo where it was recognised early on that fishers from Mabulucco and Santa Maria CCPs shared common fishing grounds. At Inhassoro, the project worked only with Fequete CCP. However, CCP members reported they closely share fishing grounds with a neighboring CCP to the north and that, in the future, it might will make better sense to formulate a joint management area. The Inhassoro campaign manager agreed that, on reflection, there was good justification for considering this. It is interesting to note that the Fequete management area is the smallest of the 6 FishCC sites (see Table 2.1) and the Fequete CCP comprises only one fishing center.

In Mozambique, unlike in neighboring Tanzania or Kenya, most CCPs are already affiliations of more than one neighboring fishing center, generally because they are fishing a common resource. So, to some extent, the clustering of fishing centers into groupings of common fishing interests has already been done at the CCP level. However, it should not be assumed that therefore, in every case, every CCP should automatically have its own discrete community management area. There are likely to be other examples of neighboring CCPs sharing common fishing grounds, where it makes sense to establish a combine fisheries management area, as at Machangulo. The key to determining this point is to undertake systematic, consultative fishing patterns surveys, as outlined in Lesson 2 below.



LESSON 2:Fishing pattern surveys to identify all fishing stakeholders are important

Lesson 1 above highlights the importance of understanding fishing patterns between neighboring fishing communities, as one of the key inputs to determining the scope of a fisheries management area. This was a flaw in the approach adopted under FishCC. The site selection study undertaken in 2016 did not consider the existence of reciprocal fishing patterns with neighbors, rather it focused on single CCPs as if they were discrete units. A more advisable approach would have been to select larger areas following either administrative (eg. a district), geographic or ecological boundaries (eg. a large bay), and then to undertake detailed fishing patterns surveys to understand the spatial and temporal patterns of fishing effort by fishing centers and CCPs with the broader area. Such surveys should be disaggregated by community, fishing gear and seasons.

The studies undertaken in the Sofala Bank provinces by IIP [96] are an example of this type of study, but with a higher level of resolution needed in terms of linking fishing grounds to particular fishing centers. An important additional reason for conducting this kind of fishing pattern survey is that it enables identification of all non-local fishers that are making use of a proposed management area, including those who are not close neighbors, whether artisanal or semi-industrial. This kind of information was also an omission in the background analyses undertaken for the FishCC sites and links to lessons 11 and 12 below.

LESSON 3: Working with clusters of neighboring CCPs rather than widely scattered sites is beneficial

The two lessons above highlight the value of working with clusters of neighboring CCPs, within a larger administrative or ecological unit, rather than selecting sites scattered across several provinces and districts, as was the case under FishCC project. The added advantage of working with neighboring clusters of CCPs would have been that it leads to much stronger engagement, co-ordination and ownership on the part of district and provincial authorities.

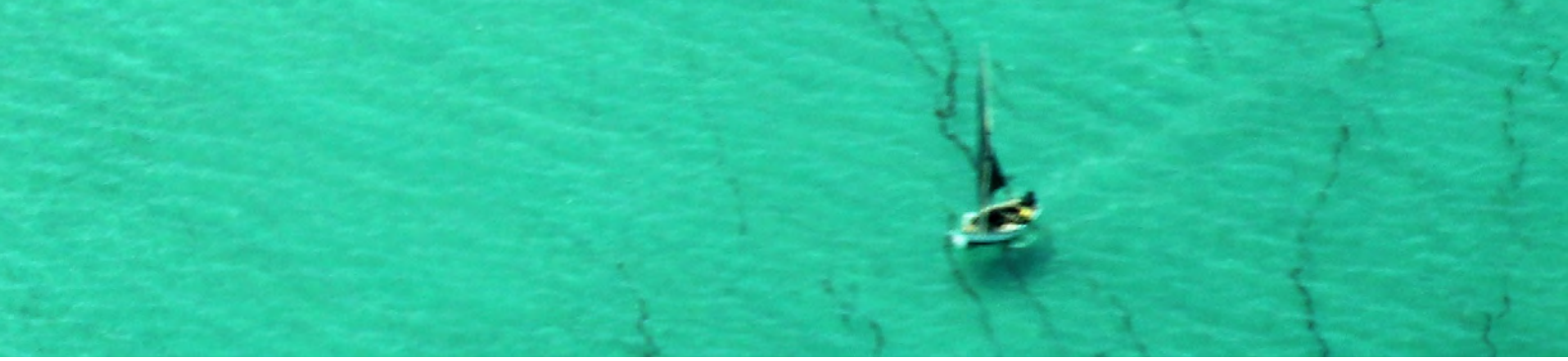
4.1.2. Fisheries No-Take Reserves

As outlined in section 2.2. above, fisheries no-take reserves are a cornerstone of fisheries management globally and lie at the heart of the *Fish Forever* approach.

Community Acceptance and Compliance

A common challenge to establishing no-take reserves is community acceptance, especially where livelihoods depend significantly on fishing, and where there is already high fishing pressure. It is therefore encouraging that community acceptance was secured in all six FishCC sites for the concept of establishing new no-take zones, including at Inhassoro where there has existed a historic no-take reserve since before independence. Beyond that, general locations were identified for no-take reserves at all 6 sites, with two communities, Zavora and Pomene, provisionally agreeing to implement more than one new no-take area. This success should not be taken for granted.

96 IIP, 2017c



In at least two FishCC sites there was reportedly significant initial hostility towards the idea of establishing no-take reserves. In Mefunvo, fishers had witnessed negative practices in no-take areas within Quirimbas National Park, with corrupt rangers allegedly taking money to turn a blind eye to illegal fishing. In Pomene, initial attitudes towards a no-take reserve were very skeptical amongst a portion of fishers and initial meetings were very challenging[97].

That communities came around to accepting the idea is a credit to the intensive and skilled engagement of community members by Campaign Managers between June-December 2017; the targeted and detailed nature of *Fish Forever's Fisheries Landscape and Goal-Setting (FLAGS)* tool which evidently provided a valuable framework for that engagement; and latterly, of the utility of the background ecological assessments undertaken[98].

Against that, whilst community acceptance has been secured *in principle*, it has not yet been tested in practice. Fishers at Mefunvo, Memba, Inhassoro, Pomene and Zavora are all waiting for reserve area boundaries to be mapped, demarcated and formalized, before implementing. Some CCP members expressed frustration at the lack of progress on that over the past 18 months, since reserve locations were agreed during the latter half of 2017. Only in Machangulo have local fishers reportedly started to observe the no-take reserve in practice, whilst waiting for demarcation. This might partly reflect the fact the no-take reserve, at Bembi estuary, is more naturally demarcated than at other FishCC sites, though its outer boundary is not. But even there, non-local fishers are still fishing in the no-take reserve, pending demarcation and formal approval and designation.

Reserve Size

The 2003 World Parks Congress recommended that marine reserve networks should include strictly protected areas that amount to at least 20-30% of each habitat. The United Nations Millennium Project advocates for 10% of all oceans to be covered by no-take marine reserves in the short to medium term, with a long-term aspiration of 30%. The aim of these prescriptions is to optimize sustainable fishing yields, especially where there are few other controls on fishing effort.

However, in the context of developing fisheries co-management in poorer, fishing-dependent communities, such targets are, at best, a longer-term end-goal. Social goals, such as sharing a minimum level of benefit to a maximum number of fishers might be more important than optimizing total production. Thus, in initial stages, gaining consensus for no-take reserves with *lesser overall coverage* is fine, and remains valuable. Positive experience will often encourage fishers to expand coverage in future, as at Inhassoro in the FishCC context. More important than overall coverage, is that no-take reserves be appropriately sized and located *in terms of local fisheries ecology*. For that reason, it is still important to know the exact extent of proposed reserves, for example in relation to the extent of fish spawning or nursery habitats, and of fishing gear use.

97 Pomene Campaign Manager, pers. comm.
98 *Centro Terra Viva*, 2018 and *Peace Parks Foundation*, 2018.

The fisheries no-take reserves proposed at 4 of the 6 FishCC sites cover less than 5% of the total management area, or of critical habitats, and less than 1% in two cases. At Mefunvo, the proposed reserve was not mapped. The exception is Machangulo which has higher coverage, though the figure in Table 3.4 is misleadingly high. In the longer term, it will probably be desirable to increase the coverage of no-take areas at the other 5 sites. That said, the identified reserves areas should still certainly serve to pilot the concept of no-take reserves with communities, allowing them to assess its utility, and potentially to add further areas in future.

The exception might be Memba. Memba CCP's management area is considerably larger than other FishCC sites. It covers 10 fishing centers and over 1,000 fishers, some 3-4 times larger than the next largest sites at Inhassoro and Machangulo, and 8-10 times larger than Pomene and Zavora. Against that, the proposed no-take reserve area at Mucombo estuary is relatively very small and, more importantly, based on the size of the bay, is unlikely to be fished by fishers from most of the 10 fishing centers within Memba CCP. That means most Memba CCP fishers will effectively not be participating directly in complying with a no-take reserve, nor be party to any perceived benefits. Interestingly, Memba CCP reportedly conducted trial closures at 3 sites during 2017, and selected only Mucombo as they did not see benefit (presumably increase in fish abundance) at the other two sites. But, this was done informally by the CCP and most fishers from the 10 fishing centers were not involved[99]. Although the initiative in trialling 3 closures is to be applauded, it seems not to have been done systematically; the period of closure seems to have been too short; and fisheries impacts were not robustly measured or documented.

Documenting Rationale for No-Take Reserve Location and Impact Monitoring

Although preparation of management plans for the FishCC sites was still in process at end-of-project, the latest version of the most advanced plan, for Machangulo[100], does not clearly articulate the rationale for the location of the proposed no-take reserve at that site, at Bembi estuary. The plan also does not contain a monitoring framework capturing indicators and targets against which one might assess any fisheries impact of implementing the proposed no-take reserve. Yet the Bembi estuary no-take reserve is central to the approach to fisheries management in the Machangulo plan, in particular management of stocks of the selected flagship species, *Pomadasys kaakan (peixe pedra*/javelin grunter). One would therefore expect some justification in terms of fisheries ecology.

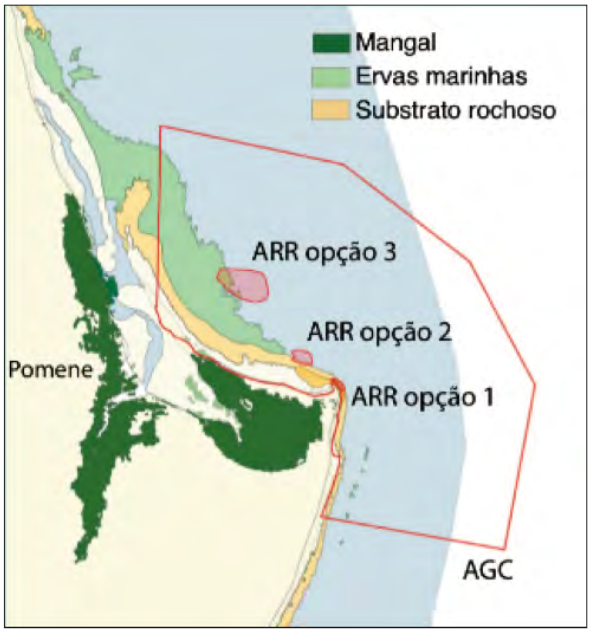
LESSON 4: Community acceptance of no-take reserves is crucial

Experience from the FishCC sites showed that an intensive and structured process of engagement and consultation, backed by appropriate ecological and fisheries technical analysis, as contained in the Fish Forever approach, can be effective in persuading communities at least to trial the concept of fisheries no-take zones. Other NGO initiatives in Mozambique, outlined in Section 1.4. above have demonstrated the same. Experience in the wider WIO region is that most coastal fishing communities are initially skeptical towards the concept of fisheries no-take reserves, since they reduce the area of fishing grounds available to fishers, so this acceptance is significant.

99 Memba Campaign Manager pers comm.
100 ADNAP, 2019

#2 KEY LESSON

LESSON 5: There is a need for timely no-take reserve mapping, demarcation and implementation



It is unfortunate that no-take reserves agreed with communities at FishCC sites during 2017 were not demarcated and implemented within the subsequent 18-month project period. In two sites (Fequete and Mefunvo) there was still confusion at the end of the project as to what had been earlier agreed. Community acceptance and common understanding of no-take fishing reserves cannot be taken for granted. Where agreements are not acted on promptly, misunderstandings and confusion can arise as to what has been agreed, communities can lose confidence, project-based funding can expire and opportunities can be lost. It is notable that in 2 of the 6 FishCC sites (Mefunvo and Inhassoro), despite 18 to 24 months of community engagement, there are still contradictory accounts as to what has been agreed regarding the location of no-take reserves.

Participatory mapping, demarcation and implementation within a few weeks or months of securing community consensus is important: (i) it provides transparency, and avoids later misunderstandings as to what was agreed; and (ii) it informs an understanding of the size of proposed no-take area relative to the total management area.

At the same, it seems likely that more could have been done during 2018 to encourage fishers to start observing proposed no-take areas informally, even before they were formally demarcated or approved. Credit should go to Mabuluco and Santa Maria fishers at Machangulo, for setting a good example in this regard. The reasons as to why this occurred at Machangulo and not at other sites such as Zavora, Pomene and Memba are not clear and would be worth exploring further. Waiting for logistical and bureaucratic milestones and approvals can also be used by some as an excuse to delay implementation. There is often nothing to prevent fishers from initially observing a no-take reserve informally, based on consensus and local knowledge of natural boundaries. This is something that district/provincial fisheries officers can encourage.

LESSON 6: It is important to consider the size of no-take reserves

The size and habitat coverage of fisheries no-take reserves proposed at FishCC sites is relatively small, less than 5% at all sites with exception of Machangulo. The no-take reserve proposed in Memba (at Mucomba estuary) is particularly small and needs to be complemented with 2-3 other reserves of similar size.

The aim should be to ensure that fishers from most or all of the 10 fishing centers are engaged in piloting a fisheries no-take zone within their local fishing grounds.

If a fisheries no-take reserve is too small, or poorly located, it will not generate fisheries benefits. In turn, if a reserve does not generate benefits, it is unlikely the fishing community in question will maintain compliance or be willing the expand its size. Therefore it is important to develop clear, robust ecological justifications for the location and size of fisheries no-take reserves and to communicate, discuss and agree such justifications with communities.

At the same time, it will often not be realistic to set high initial targets for coverage of fisheries no-take reserves, as advocated globally (eg. 20% - 35%). Closures can have negative short-term economic consequences for fishers. As long as reserves are well located ecologically, the level of coverage proposed for Zavora, Pomene and Machangulo should at least be sufficient to demonstrate fisheries benefits in the short to medium-term. This will hopefully incentivize communities to consider closing additional areas in future, as appropriate.

LESSON 7: The rationale for fisheries no-take reserves should be documented in management plans

The most advanced of the FishCC management plans, for Machangulo, does not contain a justification for the size and location of the no-take reserve, in terms of its anticipated benefit to fisheries. This is not to suggest the reserve is not well-justified, but the justification is not documented.

For the benefit of shared understanding, it is important to document in management plans the ecological and socio-economic justification for the location and extent of no-take reserves. This should make reference to the habitat ecology of the no-take reserve and its relevance to fisheries production, in particular with reference to priority commercial species in the area. This will help to inform the framing of relevant monitoring indicators and targets in the same management plan. It will also assist future evaluation of the effectiveness or otherwise of the no-take reserve, as a fisheries management measure.

LESSON 8: Trialling fisheries benefits from no-take areas is beneficial

Reportedly, the CCP at Memba conducted trial fisheries closures at 3-4 different locations before proposing a no-take reserve at Mucomba estuary. However, it is not clear how systematically that was done, neither was the process documented. The approach of trialling several different no-take areas to test which has greater fisheries benefits has merit in principle. However, it is important that: (i) any area is closed for a sufficient period, 24 months is probably a reasonable minimum period, perhaps 12 months in some cases; and (ii) that any impact in terms of changes in fish size and abundance within the area are robustly measured and documented. If these points are not observed, as in Memba, the results can be counter-productive. Without adequate technical guidance, communities might have unrealistic short-term expectations. If these are not met, there is a danger of fishers losing confidence in the ability of no-take reserves to replenish fish stocks.

Aerial photograph of a river emptying into the ocean among coastal forest in Mozambique

4.1.3. Range of fisheries management measures adopted

Tables 3.2 and 3.4. in Section 3 above summarize the range of fisheries management measures proposed by communities at each FishCC site, based on consultations with CCPs and fishers. Lessons related to that are:

LESSON 9: Fisheries no-take reserves and managed access should be considered in tandem

The *Fish Forever* approach is founded on the dual concept of '*managed access with reserves*'[101]. That means, on the one hand regulating access to a management area by non-local fishers, and regulating fishing effort within it (managed access) and, on the other hand, establishing a fisheries no-take reserve within the management area. In general, under FishCC, the *fisheries no-take reserve* element of the *Fish Forever* approach was given greater emphasis than *managed access*. In Machangulo and Memba, fisheries no-take reserves were the only significant fisheries management measure identified. In Fequete and Mefunvo, there was uncertainty at end-of-project as to whether no-take reserves had actually been agreed at either site, emphasis was instead given to regulating fishing gears (beachseines). However, the crucial issue of regulating access by non-local fishers was not addressed. In Zavora and Pomene, there was a balance between establishing fisheries no-take reserves and applying gear restrictions, but again the issue of controlling access by outsiders was not addressed.

The reason for the lack of attention to *managed access* at the FishCC sites seems to be that the issue of allowing local fishers to have preferential access rights to local fishing resources is still a matter under consideration within MIMAIP. There is currently no clear policy on it, moreover there are concerns that controlling traditional open-access through formal management plans may cause conflict. This important issue is addressed separately in lessons 11 and 12 below.

Nonetheless, the separate lesson here is the importance of giving consideration to the full range of management measures during the process of community consultations, including managing access by outside fishers, managing fishing effort by local fishers through gear restrictions or seasonal closures, and introduction of a permanent no-take reserve.

101 Rare, 2018a

LESSON 10: Scientific, rights-based facilitation can inform management measures

Related to Lesson 9 above, a crucial factor in the ability of fishing communities to identify robust fisheries management measures is the availability of competent facilitation that is both *science-based* and *rights-based*. The importance of having adequate analysis of fish catches (not the case under FishCC) in defining appropriate management measures, is covered in more detail in points 13 and 14 below. But equally important is having skilled facilitation so that scientific information can be effectively communicated, in a way that is accessible to all community members, as well as to local authorities. For this reason, it is often important to involve a fisheries researcher with communication skills in community facilitation teams.

Similarly, fishing communities need competent and well-informed facilitation as to their rights, for example in regard to proposing appropriate restrictions on outside fishing effort. Of the six FishCC sites, only Pomene actively proposed such restrictions. Zavora and Machangulo CCPs reported concerns over non-local fishing effort but had not proposed any related measures. It is possible they would have done so with better facilitation. Notwithstanding, the national legal context in Mozambique, managing access is a cornerstone of the *Fish Forever* approach.

4.1.4. Controlling access of non-local fishers

FishCC project document, 2015:

"The proposed project seeks to improve local governance … and catalyze a transformative approach to coastal, artisanal fisheries in Mozambique. The approach will reduce human threats to coastal ecosystems by piloting community rights-based management …". [102]

Fish Forever Global Program Results 2012–2017[103]:

"Managed access is a community rights-based fisheries management approach that provides coastal communities with exclusive access privileges for fishing in defined areas. Managed access facilitates tenure and access, provides a mechanism to adjust fishing pressure, creates incentives for fishers to become better stewards of their resources, ensures sustainability by aligning social incentives for fishers with conservation objectives and empowers small-scale fishers to effectively participate in fisheries management"

Negotiating, and formally recognizing, *preferential access rights* to local fisheries resources for local communities is a cornerstone of fisheries co-management globally. It is the antidote to *open-access* fisheries regimes which have been responsible for long-term decline in nearshore artisanal fisheries worldwide.

View towards mangrove forests along the coastline

102 World Bank, 2015
103 Rare, 2018a

Under the Fish Forever approach, promoting such preferential, or even exclusive, access for local fishers is referred to as *'managed access'*.

Whether or not preferential access rights for local fishers is a policy that will be promoted in nearshore fisheries co-management in Mozambique remains uncertain. Consideration of the issue has been catalyzed as a result of the FishCC project but ADNAP and MIMAIP have not yet formulated a clear policy.

Concerns have been expressed that the Mozambican constitution and/or the Fisheries Law, 2013 do not permit formal recognition of preferential access rights for local fishing communities However such concerns do not seem to be well-founded.

The Constitution of Mozambique states:

Article 98: *"Natural resources in the soil and the subsoil, in inland waters, in the territorial sea, on the continental shelf and in the exclusive economic zone shall be the property of the State"*

Article 102: *"The State shall promote knowledge, survey and valorization of natural resources, and shall determine the conditions under which they may be used and developed subject to national interests."*

The Fisheries Law, 2013 states:

Article 10, Para 1: *"Fisheries resources in the jurisdictional waters of Mozambique shall be the property of the State, which shall determine the conditions for their use and exploitation."*

Draft revised Fisheries Regulations (REPMAR) state (in reference to fisheries management plans):

Article 13: *"The Minister who oversees fisheries may adopt plans for the management of fisheries in operation, regeneration or under development."*

Taken together, the above provisions appear to empower the Minister, on behalf of the State, to determine the conditions for access to fisheries resources as the Minister sees fit, and to include such conditions in approved management plans. This would seem to provide a legal basis for formally recognizing preferential access rights for local fishing communities.

The principle of giving preferential access rights to local communities is already established with other terrestrial natural resources, pursuant to the Land Law, 1997. Therein, the State allocates a legal right to land users for land used for subsistence and household economy purposes.

Third parties, such as companies seeking land for agribusiness and other development can obtain licensed access, *only subject to community consultation*, approved development plans and environmental licensing[104]. The same principle is enshrined in Article 22 of the Conservation Law, 2017 in regard to third party rights of access in *community conservation areas*, as outlined in Section 1.6 above. In addition, there are already examples along the Mozambique coast, including at one of the FishCC sites (Pomene), where district authorities have informally agreed with CCPs to restrict the number of migrant fishers and/or fishing gears at particular locations, especially beachseine gears. This is already a form of restricting open access, and granting preferential access rights to local fishers.

There are valid concerns that bestowing preferential access rights to local communities for fisheries resources will have economic implications for non-local users, and might provoke conflict if not managed carefully. This is particularly given the traditional context and expectation of open access. However, such issues should be addressed through adequate consultation, mitigation where appropriate and government oversight. Ultimately, final decisions over access will still be made by government authorities to ensure they are fair, and that unnecessary conflict is avoided. Indeed, a good approach to managing access by non-local fishers would be to co-ordinate analysis and management of migrant fishing behavior at *district* or even provincial level, rather than leaving it to consultations at each community or CCP. Nonetheless, the potential complexity of managing respective interests and avoiding conflict should not be a reason for dismissing the concept of preferential access rights for local fishing communities. Indeed, addressing historic open access is the key to ensuring sustainable fisheries-based livelihoods in future and is the basis of a rights-based approach to fisheries management, increasingly applied globally.

As outlined in Lessons 1 and 2 above, the approach to site selection under FishCC, and subsequent situation analysis at each site, did not involve systematic analysis of fishing activity by non-local fishers. This omission meant that consultations on fisheries management were focused on the *local* community and did not generally involve neighbors, or migrant fishers from further afield. The Machangulo area, for example, is used by artisanal fishers from Catembe and Maputo, as well as semi-industrial fishers, but they were not formally involved in consultations. Likewise, there is significant reciprocal fishing activity between Fequete CCP and its neighboring CCP to the north, but that CCP was not involved in consultations. Campaign managers reported that Inhassoro and Mefunvo CCPs were not inclined to limit access of non-local fishers, since they traditionally rely on reciprocal sharing of fishing grounds with neighboring fishing communities, in different seasons. Memba, Pomene, Zavora and Machangulo, on the other hand did informally favor imposing fishing restrictions on non-local fishers, though only Pomene has done so in practice.

104 Lei de Terras, Lei nº 19/97 de 1 de Outubro

Community members, dignitaries and media at the boat ceremony in the village of Zavora

#3 KEY LESSON

LESSON 11: MIMAIP needs to develop a policy on preferential access rights for local fishers

Management planning at FishCC sites did not undertake analysis of fishing activities by non-local fishers. It also did not consider options to manage access by non-local fishers, by granting preferential access rights to local fishers in FishCC management plans. This is in spite of the fact that fishers in at least 4 out of 6 sites favored partially restricting access by non-local fishers. Yet preferential access rights are an important tool in addressing open-access pressures on fisheries, not least because they encourage local stewardship.

A primary reason such management options were not considered under FishCC appears to be the absence of a clear policy on preferential access rights at national level. Preferential access rights refers to formal recognizing that local fishers may have more rights to access fisheries resources than non-local fishers, where appropriate and justified. 'Non-local fishers' here include both artisanal and semi-industrial fishing. It does not necessarily imply exclusive access. How preferential access rights are interpreted in any given location would be a matter for consultation between local authorities and fishing communities, and will depend on balancing the state of fish stocks with livelihood and economic considerations.

There do not seem to be fundamental legal reasons for not granting preferential access rights to local fishers in Mozambique. On the contrary, the Constitution of the Republic of Mozambique and the Fisheries Law, 2013 empower the Minister responsible to make decisions on that, as appropriate (see text above). Moreover, there are precedents for formally granting preferential access rights to local communities in the context of land and terrestrial natural resources in Mozambique. There are also examples where district authorities have granted preferential access on an informal basis, in the fisheries sector.

MIMAIP has valid reasons to be cautious in its approach to granting preferential access rights to local fishers. There is a history of relatively open access in the fisheries sector and it is important to avoid conflicts and to balance respective livelihood interests. However, these are not reasons to dismiss preferential access rights. Co-ordination of preferential access rules at district level, or even provincial level, would help to ensure a balanced approach that avoids conflict. Such rules should nonetheless potentially allow for access by non-local fishers to be restricted at community/CCP level, where justified and appropriate.

It is advised that MIMAIP develops a policy on the issue of preferential access rights for local fishing communities in the near future, as part of the process of developing an effective fisheries co-management governance framework. Such policy should then be incorporated into relevant Regulations, CCP Statues and the Co-management Manual.

#4 KEY LESSON

LESSON 12: It is important to regulate semi-industrial vessels in community conservation areas

The draft management plan prepared for the community management area at Machangulo is focused on artisanal fisheries. The scope of the plan (section 4) explicitly excludes semi-industrial vessels from the plan. This might need to be reconsidered.

Draft revised Fisheries Regulations (REPMAR)105 permit semi-industrial trawling by vessels up to 20m in length, to fish up to 1nm from the shore. Recent research by IIP/IDEPA106 demonstrates that artisanal fishing activities in the Sofala Bank extend well beyond 1nm, and even well beyond 3nm. So, there is no avoiding the fact that areas likely to be designated as community fisheries management areas in Mozambique are already heavily shared between artisanal and semi-industrial fishers.

As such, both need to be included in co-management consultations, risk assessments and management plans.

Experience from FishCC sites additionally demonstrates that, in some areas, communities will propose fisheries no-take reserves that extend beyond 1nm from the shore (eg. Zavora, Machangulo, Pomene). Semi-industrial vessels are therefore automatically implicated in the scope of management measures, since it is not intended that semi-industrial vessels should not observe these fisheries no-take zones.

Including semi-industrial vessels in the scope of community fisheries management plans does not imply that local communities have unilateral rights to impose restrictions on semi-industrial vessels. Rather it would be a matter for consultation and consensus between all stakeholders, including artisanal fishers, semi-industrial fishers, with oversight of district, provincial and national fisheries authorities. But excluding semi-industrial vessels from the outset is not logical, if the aim is to optimize equitable and sustainable fisheries production.

Semi-industrial fishing boats in Maputo Port

105 MIMAIP, in prep (version of February 2019)
106 IIP, 2017c

4.2. Preparing Management Plans

This section summarizes lessons regarding the process for developing fisheries management plan at the six FishCC pilot sites, and covers four issues:

i. baseline information for management planning

ii. stakeholder engagement processes

iii. utility of selecting a single flagship fish species versus multiple priority species

iv. format and content of management plan documents

4.2.1. Baseline information for management planning

Crafting effective and appropriate fisheries management measures, for inclusion in fisheries management plans such as those prepared for the six FishCC sites, depends on adequate biological, ecological, socio-economic and attitudinal baseline information being available.

As outlined in Section 3.2.3 above, ecosystem and fisheries studies undertaken by CTV and IIP during 2017-18 sites generated some useful data, but there were also significant gaps. The fisheries information in particular was very thin, moreover neither study was well integrated with the qualitative scoping work undertaken at each site by campaign managers. For those reasons, the studies appear to have been of limited use in informing management planning, in particular identification of fisheries no-take reserves and complementary fisheries management measures at each FishCC site, which was (or should have been) the primary rationale in conducting the studies. It is acknowledged that the root cause of these weaknesses often lies in the planning of, and terms of reference provided for, the respective studies, as much as in the implementation of the studies themselves.

LESSON 13: Integration of baseline studies with participatory engagement processes.

Ecological and fisheries baseline studies are an essential component of fisheries co-management planning, but they need to be more than just academic, background technical studies. They should directly inform the process of identifying fisheries no-take reserves and complementary fisheries management measures, and they need to be planned, sequenced and integrated accordingly. They should not be treated as a separate scientific endeavor. Ecological and fisheries researchers should work closely with fisheries extensionists (such as the campaign managers under FishCC) so that technical, scientific data collection is tailored to the local situation, and is guided by, and integrated with, qualitative scoping information of the kind collected during the FLAG interviews and 1st FLAG workshop under FishCC.

So, for example, ecological and fisheries studies might have benefited greatly had they been preceded by preliminary participatory mapping of: (i) marine habitats, (ii) fishing patterns, including spatial distribution of grounds by gear and season, and (iii) target fish species by gear, undertaken by fishing communities, facilitated jointly by extensionists (campaign managers), and ecological and fisheries researchers, using standard PRA methodologies. This would, for example, have guided site selection for subsequent ecological sampling, so that ecological results

would inform and validate preliminary selection of reserve sites, and generate baseline monitoring data for the same. It might also inform the methodological approach for ecological studies. Sometimes, lower resolution, habitat mapping and rapid assessment of status is more useful in informing management decisions (ie. locating no-take zones), than detailed sampling at random locations. Similarly, subsequent fisheries data collection could aim to validate the particular priority/FLAG species identified by communities, and focus on generating the information needed for management of those particular stocks (ie. catch, effort and stock assessment data).

Without this kind of integration and common purpose, there is a risk of funds, time and effort being expended on professionally-conducted studies that ultimately don't contribute very directly to the central fisheries management objectives at each site. Such integration can only be achieved if there is effective, close co-ordination between relevant institutions and associated service providers, which was a broader challenge under FishCC.

LESSON 14: Systematic fisheries information focused on priority commercial species is important

The fisheries information collated for FishCC sites was very incomplete. A systematic approach to gathering baseline fisheries information for fisheries co-management planning is needed. Preferably it should include identifying:

i. priority commercial species;

ii. spatial range (fishing grounds) and habitats important to the life-cycle of those species;

iii. catch and effort data for those species;

iv. stock assessment and/or longitudinal trends (quantitative or qualitative).

Some understanding of stock status of priority, target fish species is essential to informing co-management planning. Where it is not realistic to undertake quantitative stock assessment, there are qualitative methods that can at least provide some insights. For stocks that commercially important over larger scales, there is a parallel need for national fisheries authorities to conduct stock assessment and prepare management plans whose management measures can then be downscaled or adapted at the level of community management areas.

4.2.2. Management planning: community engagement & plan preparation process

Challenges encountered in relation to preparation of management plans are summarized in section 3.4.2 (ii) above. The corresponding lessons learned are summarized as follows.

#5 KEY LESSON

LESSON 15: Fish Forever provides an effective framework for management priority analysis

Application of the Fish Forever approach under FishCC, in the context of developing effective fisheries co-management, proved highly relevant in certain key respects.

In particular, it provided a platform for engaging communities constructively and building trust. This is a tribute to the strategy of having a campaign manager at each site over an extended 2-year period, providing dedicated, intensive facilitation to the local community. This enabled each manager to become very familiar with local fisheries environment, and to gain the trust of fishers and community members.

Additionally, the Fish Forever approach was effective in supporting systematic analysis of fisheries challenges and identifying strategies to address them, at each site. Valuable tools included development of theories of change with SMART objectives, indicators and targets. These helped to identify which changes in fishing behavior would be likely to achieve desired fisheries outcomes, and provided a framework against which to measure future progress (though see also lesson 32 in Section 4.5. below).

These two aspects of the approach, in particular, helped secure community consensus on identifying fisheries no-take reserves and complementary, appropriate fisheries management measures.

LESSON 16: Added value of Fish Forever methodology in management plan preparation

Although not currently included in draft management plans for FishCC sites, the theories of change and related SMART objectives (Table 3.14) developed for each FishCC site, could usefully inform logframes or results frameworks in the management plans. As such they would support identification of management interventions, and quantitative targets for measuring progress and impact. This highlights the important of having continuity and/or close collaboration between personnel undertaking community engagement and those drafting management plans, which did not happen under FishCC.

Left: Two of the six campaign managers stand with the Fish Forever banner at a Santa Maria CCP meeting

Opposite Page: Men in a small fishing boat paddle close to shore to catch fish to sell at market and for local consumption

LESSON 17: Include communities on the management plan drafting

In future, the process of developing community fisheries management plans should be much more closely integrated with the process of engagement with fishing communities, their analysis of fisheries challenges and consultations on management measures to mitigate them. This will help to ensure that the content of management plans well reflects the participatory process at the site in question, and does not become primarily a desk-driven process in Maputo or elsewhere. In particular:

- The format, structure and content of fisheries management plan end-products should be known and agreed at the start of the engagement process, so that information-gathering and consultation processes can be tailored to that end;
- Personnel responsible for drafting management plans should participate in key stakeholder consultation events and, conversely, personnel responsible for facilitating community engagement should be involved in management plan drafting.

LESSON 18: Capacity for management plan drafting at national and provincial level

If the longer-term vision is to develop community management areas for artisanal fisheries along much of the coast of Mozambique, it will not be realistic if the drafting of management plans is confined to a small team of just 2-3 officers at ADNAP.

If this is not to become a bottle-neck that limits progress, ADNAP will need to build a wider team capable of supporting such planning, potentially involving officers from INIP, DEPI, DNOP, ADNAP, IDEPA, IIP and DPMAIPs, as appropriate. Team members would need hands-on training in community management area planning; the pilot initiatives to be undertaken under the SWIOFish project might provide an opportunity for that.

4.2.3. Management plan content

Challenges encountered in relation to preparation of management plans are summarized in section 3.4.2 (iii) above. The corresponding lessons learned are summarized below:

#6 KEY LESSON

LESSON 19: FishCC management plans are an opportunity to pilot a new fisheries co-management legal framework

Pioneering a spatial management approach to artisanal fisheries management was the original vision and aspiration of the FishCC project, and the reason for applying the Fish Forever approach.

The draft management plans for FishCC sites prepared during 2019 are not yet formulated as management plans for designated spatial management areas formally designated under particular legislation (whether Fisheries Regulations or Conservation Law). There is still an opportunity to do that.

Whatever the outcome of the deliberations within MIMAIP, whether to apply the Conservation Law of 2017 or new provisions in revised Fisheries Regulations as the preferred instrument for designation for community fisheries management areas, the FishCC management plans provide an opportunity to test out application of the selected option, and for their content to be accordingly aligned.

It is noted that other NGO initiatives in Mozambique are currently piloting application of the Conservation Law. In case the will be the preferred option for FishCC sites, it is understood that fisheries no-take reserves within community conservation areas could be designated as sanctuaries under Article 23 of the same Conservation Law. The exception will be Mefunvo as it is within Quirimbas National Park.

Campanha de Orgulho

Respeito pelo período de desova do peixe Coelho Sapateiro – Siganus Sutor (M'babe)

Coordenador: Anuar Amade Anuar
Inhassoro, Inhambane, Moçambique
Abril de 2019

LESSON 20: It is important to develop a standardized, comprehensive management plan format

It is recommended that management plans for community fisheries management areas at least contain the following elements:

i. *Ecological description* of the management area

ii. *Socio-economic description* of the management area, including livelihoods profile

iii. *Description of fishing activities* including quantitative profile of fishing effort, both artisanal and semi-industrial

iv. *Description of fisheries resource* including quantitative summary of CPUE by gear and catch composition;

v. *Risk assessment*: systematic analysis of threats and risks to fisheries resources and livelihoods, including underlying drivers or barriers to addressing them

vi. *Statements of objectives* of the management plan

vii. *Description of the process* for developing the plan

viii. *Scope of the plan*: including description and maps of physical boundaries, and beneficiary communities

ix. *Theory of change*, or logical framework, integrating the above management objectives and risk assessment, identifying proposed strategies to mitigate each threat or risk, with SMART objectives and quantitative indicators to measure status and progress on each

x. *Description of management measures* needed to implement strategies identified above, including maps of any zoning (including no-take reserves), and other restrictions on fishing gears or fishing effort

xi. *Monitoring plan*: how quantitative indicators in logical framework will be measured

xii. *Description of governance and institutional arrangements*, including roles and responsibilities of principal actors/ entities

LESSON 21: Plans should consider management measures additional to no-take reserves

In at least two of the draft FishCC site management plans, including that for Machangulo, establishment of a fisheries no-take reserve is the only substantive fisheries management measure included that is additional to existing national fisheries regulations.

In principle, a fisheries no-take zone can be designated as a sanctuary, without necessarily being encompassed within a community conservation area. If a fisheries no-take reserve is really the only substantive fisheries management measure (ie. a measure that regulates fishing effort) needed in a given area, so be it.

Designation as a community conservation area still has value as a catalyst for preparation of a management plan, identification of management indicators and targets and so on. Nonetheless it might be a missed opportunity, if indeed declining fish stocks imply the need for additional restrictions on fishing effort. The particular type of management option that was not well explored at FishCC sites was managing access by non-local fishers.

Therefore, as a matter of process, facilitation and technical teams responsible for consultations with communities and preparation of management plans should always be encouraged to ask the question (of themselves and other stakeholders) as to whether adequate, meaningful fisheries management measures have been identified and included in the plan, such that they are likely to result in enhancement of fish stocks and an increase in total fish catch or production.

LESSON 22: Management plans should detail enforcement protocols

The legally-defined role of CCP rangers in the context of enforcing fisheries management measures is essentially a surveillance, monitoring and reporting function. There are limitations as to the extent to which CCP rangers can undertake proactive enforcement action in the event of confronting an instance of non-compliance. Whilst they can communicate rules to anyone not complying with them, interventions such as actively prevention, confiscation of gears or arrest of wrong-doers are the function of other local authorities, including the police. However, in practice CCPs often report a history of problems in securing such support from local authorities. In some cases, this might be because responsible authorities themselves are not familiar with the context of fisheries non-compliance, or their institutional role.

Clearly documenting relevant roles and operational procedures in management plans will help towards resolving such problems. Management plans can provide context-specific protocols for collaboration between CCPs and local/provincial authorities, depending on type of non-compliance encountered, including by non-local and/or non-artisanal fishers.

Rod and line fisher on the beach in Pomene

LESSON 23: Frameworks are important for monitoring management plan impact

It is important that community fisheries management plans contain a monitoring framework against which to measure progress. In addition to indicators/targets that measure progress in implementing strategies and actions, focused on short to medium-term outputs, it is also important to include indicators/targets that measure longer-term impact. Such indicators would likely include simple ecological (eg. condition of mangrove, coral reef or seagrass habitats), biological (biometrics of target fish or conservation species), fisheries (catch-per-unit-effort or total catch) and/or social (fishers' knowledge, attitudes & practices) parameters. Data generated by ecological, fisheries and KAP baseline studies (points 10-12 above) would serve to guide baseline and target values.

LESSON 24: Value of infographic summaries of management plans

The draft infographic versions of the six FishCC management plans (see example in Annex 1) provide a very helpful, visually-accessible summary of the more detailed management plan documents. It would be advisable for this to become a standard output in the fisheries co-management system in Mozambique, alongside the longer-form plans. In particular, the infographic summaries are likely to be of value as instruments for communicating key elements of management plans with communities and other stakeholders who might not otherwise have the time or capacity to read more detailed documentation. The summary infographic version will also come into their own where there is a need to translate management plans to local languages other than Portuguese, for consultation and validation.

LESSON 25: Management plans should be validated with communities

Especially where the agency or responsibility for drafting management plans is centralized at a national institution such as ADNAP, it is important that the key elements of draft plans be shared back with fishing communities for validation. This will help to ensure that any modifications to management measures resulting from earlier consultations, made as a result of input from government technical officers, are still acceptable to communities. Such validation needs to be done in a timely way such that revisions can still be made, and it is not just a rubber-stamping exercise. The summary infographic versions of management plans will be a valuable instrument in the validation process.

4.2.4. Utility of selecting FLAG fish species versus multiple priority species

As outlined in sections 2.2.3 and 3.2.2., and Table 3.1, a key element of the Fish Forever methodology was identification by fishing communities at each FishCC site of a single 'FLAG' fish species of high economic importance to artisanal fisheries. The intention was for that species to serve as a focus for analysis of fisheries management needs, including guiding the location of a fisheries no-take reserve.

Secondarily, the FLAG species served as a totem or emblem for that fishing community, which was capitalized on during social marketing activities, being featured on communications materials such as banners, t-shirts etc. Conclusions from this experience under FishCC is summarized below.

LESSON 26: Analysis of several priority fish species is more useful than a single FLAG species

Campaign Managers found the approach useful. It simplified fisheries management discussions and provided an emblem that communities could readily identify with, which CCP members embraced with enthusiasm during pride campaigns. Communities reportedly did not have any difficulty agreeing which should be the FLAG species.

Against that, it is not clear the approach is optimal in terms of identifying appropriate and effective fisheries management measures. Inevitably, the degree to which a single species is sufficiently representative of multi-species stock status and management needs at a given site will vary considerably. In data gathered at two FishCC sites in November 2017 107, the FLAG species constituted 48.5% of total catch in Mefunvo, but only 3.4% in Zavora. At Machangulo, the entire family (Haemulidae) of the selected FLAG species (Peixe pedra) constituted less than 10% of total catch across all gears108, and was only the 4th most prevalent family by weight of catch.

It is also not clear that management discussions at each site were really guided in practice by consideration of only the FLAG species. For example, in Machangulo, in justification of the selection of Bembi estuary as a fisheries no-take reserve, the FLAG report109 states: "the estuary is recognized as an area that all species reproduce".

In practice, during FLAG workshops, communities identified the 10 most important commercial species, from which they selected the FLAG species.

The wider lists commonly included a mix of finfish and invertebrates (octopus, prawns, crabs, sea cucumber) and in most cases could probably be clustered into a slightly smaller number that would still be representative of the range of ecological and fishing gear profiles. Taking that broader list as the basis for fisheries management planning discussion would better engage the full range of fishing gear users, and generate more comprehensive management measures. Conversely, it seems likely that focusing exclusively on one FLAG species runs a risk of overlooking important fisheries management issues. Interestingly, Rare has arrived at a similar conclusion as part of its own revision of the Fish Forever methodology globally.[110]

At the same time, selecting a priority FLAG species did seem to serve a useful function at FishCC sites in the context of developing materials for awareness-raising initiatives during the pride campaigns. But that function should be separated from management planning.

So, it is recommended that for future fisheries co-management planning processes in Mozambique, a group of 5-10 priority species be identified as the basis for identifying management measures, rather than a single FLAG species.

A man in a dug out canoe fishes near the magrove forest

107 IIP, 2017b
108 Louro et al. 2017
109 Rare/IDEPA, 2017f
110 Steve Fox, pers comm. July 2019

4.3. Lessons for Fisheries Co-Management Governance

This section summarizes lessons from the FishCC project relevant to the national governance framework for fisheries co-management in Mozambique.

4.3.1. Mainstreaming a spatial approach to nearshore fisheries co-management

#7 KEY LESSON

LESSON 27: Challenges of applying Conservation Law for designating community fisheries areas

The FishCC project aspired to help pioneer a spatial approach to artisanal fisheries management in Mozambique, in light of positive experience elsewhere in the region and globally. Such spatial approach refers both to establishing formal management areas within which fishing communities can practice *managed access*, by agreement with relevant authorities, and also to establishing *fisheries no-take zones* within those management areas as a primary measure to secure fish stocks against over-fishing.

Prior to 2015, there were no provisions in the fisheries legal framework in Mozambique by which to formalize the designation of community fisheries management areas. As outlined in Section 1.6 above, during revision of the Fisheries Regulations (REPMAR) in 2018-19, MIMAIP considered inclusion of a new provision for designation of *community management areas*. However, at the time of preparation of this report, it was still under consideration whether to retain that provision in REPMAR, or instead to make use of existing provisions under the Conservation Law, 2017, especially Article 22 on designation of *community conservation areas*. Under the latter scenario, the 4 FishCC sites lying outside of designated protected areas (Memba, Fequete, Pomene & Zavora) would be designated as *community conservation areas*.

Article 22 of the Conservation Law, 2017 appears to have been drafted primarily with terrestrial application in mind. On paper, the provisions appear potentially applicable to a marine fisheries co-management context, nonetheless there are two issues highlighted below that bear on the final decision as to which is the preferred legislative option:

1. Approval by Minister, MITADER but not MIMAIP

Article 37 (2) of the Conservation Law, 2017 states that approval for establishment of community conservation areas between 1,000 and 10,000 hectares (which includes all 6 FishCC sites), requires approval of the Minister of MITADER. This means designation of community fisheries management areas is not under the authority of the Minister responsible for the sector, which is unusual. Legally, designation does not even require the MIMAIP Minister's input or approval. This raises three concerns:

i. whether the approval process within MITADER, and coordination between the two ministries, will unduly delay designation processes.

ii. whether the Conservation Law should be amended to require that, where conservation designations are applied to marine fisheries environments, the input and approval of the MIMAIP Minister is required.

iii. whether there is adequate specialist expertise within MITADER to facilitate decision–making on designations in a marine environment or fisheries context.

Taken together, the above three concerns point to the advantages of retaining control of fisheries co-management processes under a single responsible fisheries ministry.

2. Requirement for community consent for licensing of Third Parties

Article 22 (3) of the Conservation Law, 2017 states that "*licensing for exploitation of resources to third parties can only be done with the prior consent of the local communities*". The term 'third party' is not further defined. This paragraph bears directly on the issue raised in Lesson 11 above on granting of preferential access rights to local fishing communities.

The requirement for consent of local communities in licensing *third parties* could be taken as a formal recognition of preferential access rights. However, that depends on the definition of 'third parties' in a fisheries context. Migrant artisanal fishers require a license to fish in a district different from their home district. Does Article 22(3) mean that such license would not cover fishing in a *community conservation area* unless explicit consent is given by the communities in question. The same question would apply to licensing of semi-industrial vessels. Such questions require further consideration and clarification by MITADER and MIMAIP. On the positive side, Article 22(3) could provide the legal basis that MIMAIP has been looking for to justify and support recognition of preferential access rights for local fishing communities within a *community conservation area*.

LESSON 28: It is important to consider designating community fisheries management areas within protected areas

Two of the six FishCC sites were deliberately selected within areas designated as protected areas under the Conservation Law; Mefunvo in *Quirimbas National Park*, and Machangulo within *Ponta do Ouro Partial Marine Reserve*. The reason this was to explore the viability of establishing community fisheries management areas within protected areas.

One advantage of MIMAIP's recent decision to designate community fisheries areas as *community conservation areas* using the same Conservation Law, is that designations within protected areas will at least be under the same approval framework. That said, it is not clear in the wording of the Conservation Law whether a *community conservation area* can be designated inside an existing protected area such as an *national park*, a *marine reserve* or an *environmental protection area*, or otherwise incorporated into its zoning plan. This question might need further clarification by MITADER.

LESSON 29: Include a vision for the spatial management of artisanal fisheries in PESPA II

As outlined in Section 1.3.3. above, the existing draft *Strategic Plan for the Artisanal Fisheries Sub-Sector (2019-25)* [PESPA II] does not currently contain any vision or objective statement relating to adoption of a spatial approach to artisanal fisheries management. Experience from the FishCC project supports adoption of such a vision at national level. As such, PESPA II could articulate a vision whereby all nearshore artisanal fishing areas will be encompassed within *community conservation areas* as the default governance arrangement, except where an area is specifically designated otherwise, as another category of protected area, or for industrial development such as a port or for mineral extraction.

Similar visions for widespread adoption of community fisheries management areas as the default option for artisanal fisheries management is being formalized in fisheries governance frameworks in both Tanzania and Kenya.

Left: women (with baby) walk home along the beach in central Mozambique

Right: a newly hatched sea turtle makes its way towards the ocean

4.3.2. CCP structure and membership

#8 KEY LESSON

LESSON 30: Encourage broad membership of CCPs, supported by fisher registration and ID cards

Very low CCP membership, leading to a the perception of CCPs as a small interest-group within the community rather than a democratic entity representing all fishers, has been a longstanding challenge to CCP effectiveness. In 2017, CCPs across Nampula, Zambezia and Sofala provinces averaged only 17 members each (ADNAP). To some extent, this low figure stems from a confusion between the roles of CCP committees and CCP assemblies (Lesson 31).

At the start of the FishCC project, CCPs at all 6 sites were non-functional with very low membership. The project invested resources in successfully revitalizing the CCPs. FishCC campaign managers promoted the idea that all community members involved in fishing-related activities should be members of the CCPs (if they want to be). By end-of-project, CCP membership at the 6 sites was above 90% at 5 of the 6 sites. The exception was Memba which has a much higher number of fishers.

A valuable innovation piloted under the FishCC project, which encouraged high levels of CCP membership, was electronic registration of fishers using a mobile phone app (see section 3.1.1 above) and provision of durable plastic ID cards to registered fishers. The process would have been enhanced still further if the ID cards explicitly stated that the holder is a CCP member. Modified cards could also be provided to post-holders on CCP executive committees. ID cards help to reinforce a sense of group identity. Electronic registration has additional benefits in the context of maintaining district and national level databases of fishers for licensing.

FishCC Campaign Managers testified that gaining broad membership of CCPs was integral to their work in engaging fishing communities and gaining consensus on key points such as identification of fisheries no-take zones. Encouraging wide membership of CCP assemblies should be adopted nationally and mainstreamed through CCP Statues, the Co-management Manual and all relevant capacity-building efforts with CCPs.

LESSON 31: Encourage accountability of CCP committees to CCP general assembly members

It was noticeable during community consultations for this report that reference to "the CCP" was invariably understood to mean only the CCP executive committee (*comité de dirreção*), which commonly includes 10-15 members, not the wider CCP general assembly. Even after expanding CCP general assembly membership, the latter are not yet widely perceived as 'CCP members'. This perception substantially undermines the idea of a CCP as a representative body, operating on behalf of all fishers, and accountable to the general assembly of fishers through 3-yearly elections.

Campaign Managers agreed it was still a work in progress to get the broader body of fishers to identify themselves actively as part of the CCP. Under Fisheries Regulations, CCP committees have a key role supporting local fisheries management. It is therefore critical that there is a common understanding that CCP committees act on behalf of, and are accountable to, a wider membership. Awareness-raising and regular general assembly meetings help to achieve this.

It is highly recommended that this point be well captured in CCP Statues and the Co-Management Manual under preparation by ADNAP and IDEPA, and well communicated to provincial and district fisheries officers.

Activating CCPs to engage in the implementation of community fisheries management plans containing measures that control fishing effort (including no-take reserves), inevitably raises challenges as to the authority and legal powers that CCP rangers have to undertake such duties.

Provisions in the draft revised REPMAR[111] outline the role of CCPs as including:

- *Support local authorities* responsible for fisheries administration in licensing and *inspecting* fisheries;
- Participate in the preparation of proposals *and implementation of management measures* in its geographical area of activity;
- Participate in the *implementation of fishing access and restriction mechanisms*, number of fishermen, gear and others;

From the above, the question arises as to how far CCP rangers are expected to go in performing such duties, and where is the line between CCP rangers' duties and those of enforcement authorities such as police, marine police and officers of the National Operations Directorate (DNOP) of MIMAIP.

LESSON 32: Assess the legal powers of CCP rangers and the standard operating procedures

During consultations for this report, CCPs at some FishCC sites reported frustration with repeatedly reported illegal fishing activities (usually by non-local fishers) to district administrations (SDAE) and/or marine police, but with no follow-up action. Alongside that, several CCP leaders expressed the need for a patrol boat to enable them to undertake their own surveillance. This raises the need for clear *standard operating procedures* (SOPs) for CCP officers in conducting surveillance and fulfilling duties outlined in national fisheries regulations.

In particular, clarification is needed as to the precise role of CCP rangers. Is it strictly one of *surveillance* and *reporting* of instances of non-compliance with fisheries regulations, or are there circumstances in which a ranger can acquire the authority to take intervention actions, for example confiscating illegal fishing gear. In principle, national fisheries regulations could empower district administrations (SDAE) to authorize individual CCP rangers with enforcement power, acting on behalf of the district authority. However, a well-defined legal procedure would be needed, which should be conditional on the CCP ranger receiving specified training. If, on the other hand, enforcement intervention can only be undertaken by district, provincial or national authorities, the question arises as to whether that is practical in remoter coastal areas. If CCP rangers report non-compliance but it does not elicit any response from local authorities, their motivation to continue reporting infringements will soon diminish.

These challenges require clarification in relevant fisheries governance instruments, including national fisheries regulations; CCP Statues; CCP standard operating procedures; the Co-management Manual; and should also be referenced in management plans.

111 MIMAIP, in prep. (draft of February 2019)

4.4. Facilitating Capacity and Institutional Roles

4.4.1. Facilitation and Extension Capacity

The FishCC project, following the *Fish Forever* approach, involved relatively intensive facilitation at each site by a Campaign Manager over a 24-30 month period, involving (see Fig. 2.1 above):

- *6 months full-time field engagement* to sensitize and engage community members, understand the local context, reactivate CCPs and undertake the FLAG process;
- *1-2 months full-time desk work* to prepare a FLAG report, theory of change and pride campaign strategy for each site;
- *6 months further field engagement* to undertake a barriers removal workshop, prepare and implement a (one-day) pride campaign, facilitate fisher registration, follow-up on livelihoods project and so on.

This raises the question as to whether, and how, such an intensive level of extension effort could be mainstreamed into provincial and district authority operations, or in future similar projects, in a way that is sustainable, affordable and practical.

LESSON 33: Build capacity for co-management facilitation and opportunities for FishCC field personnel

Intensive community engagement by FishCC campaign managers was critical to progress made under FishCC, in particular in building trust, motivation and awareness amongst CCP committee members. Attempting to replicate the process, without investing in such intensive facilitation, would likely result in failure. There are past examples of that in the WIO region.

FishCC campaign managers, estimated that a capable district extension officer, *with appropriate training* and experience, would be able to conduct the type of process followed under FishCC with 2-3 CCPs in parallel, over approximately a 2-year period. District extension officers engaged in such work would however require technical support and supervision. FishCC campaign managers reported that in fact they would have benefited from *more regular technical support* from Rare/IDEPA Programme Implementation Managers during field work. In rolling out this kind of work in future, technical capacity for supervision and oversight at provincial (DPMAIP) level will also be needed. This will require at least 1-2 fisheries officers in each DPMAIP office with significant experience in *Fish Forever* type methodologies and familiarity with the fisheries co-management governance framework in Mozambique. This would provide an anchor-point for collaboration and additional capacity-building partnerships with NGOs.

The six FishCC campaign managers are now an important asset in this regard, given the experience they have acquired through involvement in FishCC. Five of them are now also MSc graduates as a result. All expressed a willingness to continue to apply the expertise they have gained in fisheries co-management, potentially in a more supervisory role, so they can pass on their learning to other extension officers. In their current posts, they cover five of the coastal provinces (Nampula, Zambezia, Sofala, Inhambane and Maputo). It would be advisable for national and provincial authorities to take active steps to secure their involvement in relevant ongoing project, so that the opportunity to take advantage of their experience is not lost.

4.4.2. Institutional Roles and Governance Mechanisms

Some officials and officers involved in FishCC project implementation at provincial level[112] felt that FishCC project implementation was not sufficiently devolved from national level, and that DPMAIP offices should have been empowered to take more of a leading role in overseeing implementation at each site.

FishCC sought to trial a spatial approach to fisheries co-management new to Mozambique, in part to assess its appropriateness. So, it was appropriate that central government institutions (especially IDEPA, ADNAP) played a leading role in implementing the project. Nonetheless, the observation raises an important question as to what should be the respective roles of national, provincial and district authorities in rolling out this kind of approach to fisheries co-management in future.

LESSON 34: Clearly designate respective roles at national, provincial and district levels

Respective roles in rolling out a spatial approach to fisheries co-management in Mozambique is in process of being defined in several instruments as part of the emerging fisheries co-management governance framework, in particular *Co-management Agreements*[113] to be signed between provincial and district authorities and CCPs, and a *Co-management Manual*[114] under preparation by ADNAP and IDEPA. Nonetheless, below are some complementary suggestions from the experience of FishCC project.

Adequate disbursement of funding to DPMAIPs and SDAEs will be essential to enable them to fulfill the above functions.

National Level	Overall development and co-ordination of fisheries co-management governance framework, including methodological approaches, policy, legislation and subsidiary instruments	National Fisheries Co-management Working Group, ADNAP, IDEPA
	Delivering training and capacity-building on the above, in particular to DPMAIPs and SDAEs,	ADNAP, IDEPA
	Overall responsibility for preparation and quality control of management plans for community management areas	ADNAP
	Baseline research to support management planning	IIP, IDEPA, DEPI
Provincial Level	Co-ordination and technical support in rolling out fisheries co-management within the province	DPMAIP (dedicated fisheries co-management officers)
	Training & capacity-building of extensionists, CCPs	
	Support ADNAP in preparation of management plans for community management areas	
District Level	Engagement of fishing communities and facilitation of participatory co-management planning	SDAE (fisheries extensionists)
	Training & capacity-building of CCPs	

112 Director of Fisheries, Inhambane Province and all Campaign Managers.
113 ADNAP. Acordos Local de Co-gestão dos Recursos Pesquieros, draft template of May 2019
114 ADNAP. Manual de Co-gestao. draft version of May 2019.

LESSON 35: Avoid establishing conflicting governance mechanisms for co-management

In line with the *Fish Forever* methodology, the FishCC project sought to establish working groups (*Grupo de Trabalho das AGC e ARR*) at each FishCC site, which would have a permanent role in overseeing implementation of the management plan for that community management areas, as per the figure below.[115]

The working groups at each site were composed of 6 members:

1. Tourism technician from district authority (Chair)
2. District official responsible for environment
3. An influential fisher
4. Community member involved in fishing business
5. IIP officer from provincial level.
6. A DPMAIPG fisheries officer with expertise in co-management

Although working groups were established at each site, they were not very functional and Campaign Managers viewed them as conceptually flawed. In particular:

- The governance structure depicted above seems to undermine the role of CCPs as mandated in REPMAR. Monitoring and evaluation and surveillance, in particular, are CCP functions;
- It is not clear that the cost of regularly convening a group of this kind is sustainable in the longer term, noting it contains both district and provincial representatives;
- There already exist fisheries co-management committees at district level,[116] which already do not meet regularly due to scarce funding;

Co-management, by definition, requires a participatory governance structure. On the other hand, a widely-learned lesson from natural resources co-management around the world is, where possible, to make use of existing statutory bodies, rather than creating new ones, if the time and costs entailed in keeping them active are not sustainable.

Community fisheries management areas are a new type of entity in Mozambique and an appropriate governance structure is needed. It might prove more efficient and sustainable however to re-activate the existing district fisheries co-management committees, and have them provide oversight through all CCP leaders attending regular 3 or 6-monthly meetings.

115 MIMAIP, 2019 (a to f)
116 There are district and provincial forums - Comites de Co-gestão das Pescas (CCG) - under the national-level Commissão da Administração Pesqueira (CAP)

4.5. A Social Marketing Approach

LESSON 36: Fish Forever theories of change were valuable but need to be robustly formulated

The systematic approach under *Fish Forever* to defining theories of change and SMART objectives (see Table 3.14 above), as a basis for identifying desired behavioral change by fishers to achieve defined fisheries management outcomes, has real value. It provided a clear skeleton of logic justifying campaign messaging (social marketing) on specific issues and identifies the anticipated behavioral change needed to achieve fisheries management objectives. SMART targets additionally provide a framework for measuring the impact of interventions, and progress towards achieving objectives, which provide the basis for management plan results frameworks (Lesson 16). As such, the *Fish Forever* theories of change approach that could usefully be applied more widely in the context of developing community-level fisheries co-management in Mozambique.

That said, the theories of change and SMART objectives for the FishCC sites (see Table 3.14) could have been a lot more robustly formulated. Lessons for improved formulation include (see additional detail in section 3.4.2):

i. **Timeframe:** To ensure they are realistic, the scope of the theories of change and SMART objectives should cover a 5 to 10-year timeframe, thereby serving to inform preparation of 5 to 10-year management plans for a given site. SMART objectives can still incorporate shorter-term targets for particular project interventions, but should not be confined to project timeframes where the timeframe is too short to achieve change.

ii. **Number of ToC stages:** Whilst the *Fish Forever* theory of change (ToC) template contains seven stages, in many cases that can probably be simplified to five, *subject to* consideration of the specific circumstances at each site. *Behavior change* and *threat reduction* can be merged and *interpersonal communications* removed.

iii. **Integrated focus on gear-control and no-take zones.** Whereas theories of change for each FishCC site generally focused on a single issue (*either* a gear-control issue *or* a no-take reserve), in many cases it will probably be advisable to consider incorporating *both* a gear-control issue *and* a no-take reserve. This should be possible without overly complicating the framework but, again, will depend on circumstances at any given site.

iv. **Economic barrier removal:** theories of change must adequately recognize economic barriers to fishing behavioral change, and avoid assuming that knowledge and awareness-raising alone can necessarily bring about change. Economic barriers were not well articulated in theories of change for FishCC sites. By the same token, complementary livelihood initiatives should, as far as possible, specifically address the same economic barriers, and not be developed as a separate, parallel initiative

v. **Technical oversight and quality control** is critically important to ensure that theory of change steps and SMART objectives are robustly formulated and worded. In particular bearing in mind that the SMART objectives will provide a basis for designing and measuring the impact of management interventions.

LESSON 37: KAP surveys need to be locally tailored and replicable

As outlined in section 3.2.3 [iv] above, the decision to apply a globally-standardized questionnaire for the 2nd KAP survey made it difficult to track changes in knowledge, attitudes and practices, in a robust meaningful way. The decision to apply a generic questionnaire is especially surprising in view of the level of effort invested in developing detailed theories of change for each site, with SMART objectives, addressing site-specific fisheries management issues, all of which was reflected in the baseline (1st KAP) questionnaires. Applying generic, globally-standardized questions resulted in a critical loss of data resolution which made the whole exercise of tracking knowledge, attitudes and practices much less useful to the goal of advancing sustainable fisheries co-management at each FishCC site.

It is advisable that future KAP surveys, whether at the six FishCC sites or elsewhere in Mozambique, should apply survey instruments that:

- **Are locally-tailored**. Questionnaires might follow a standard structure, but the wording of questions should be specific to fisheries management issues identified at each site;
- **Accurately repeat** existing baseline questionnaires, unless there are strong reasons for making modifications;
- **Are concise**, so that respondents don't get tired or impatient;
- **Allow for quantitative analysis** and change detection. So, avoiding open-ended questions and too many yes/no questions. For example, instead of asking "*do you discuss beach-seining with fellow fishers*", instead ask "*how often do you discuss …*" with a choice of 3 to 5 options (eg. not at all; 1-2 per month; every week; almost daily);
- **Allow for disaggregation** of results by key respondent variables, such as gender, age, occupation, gear-type etc.

LESSON 38: Social marketing is critical but won't resolve fisheries management issues alone

Time and financial constraints towards the end of the FishCC project mean that the pride campaigns were largely confined to 1-day launch events, distribution of related messaging materials and some limited follow-up activities. The timing and poor formulation of the 2nd KAP survey (Section 3.3.4) meant that quantitative testing of the impact of the campaigns was short-term and not robust. At the same time, some Campaign Managers reported notable outcomes, such as beachseine fishers at Inhassoro agreeing to implement a second seasonal closure during Feb-March 2019.

It is reasonable to assume there were some significant campaign outcomes, in spite of the abbreviated implementation. Nonetheless, assessing the effectiveness of this kind of social marketing approach in a fisheries co-management context in Mozambique requires longer-term testing, in particular to examine two related questions:

i. whether short-term changes in attitudes or behavior observed at some FishCC sites can be sustained over time;

ii. what *complementary interventions* are needed to sustain attitudinal or behavioral change, recognizing that fishing behavior is fundamentally driven by economic imperatives.

The latter point recognizes that changing fishing behavior is only partly driven by changes in knowledge and attitudes. There are usually also *economic constraints* to behavioral change that are at least as (or more) challenging to address. A fisher using unsustainable practices might be persuaded by social marketing to change his behavior. But social marketing will not enable that fisher to purchase sustainable fishing gears or to diversify into another kind of livelihood. Under the *Fish Forever* methodology, such economic constraints are intended to be identified at the *barrier removal* stage. Hence the inclusion of a livelihood component in the FishCC project. However, as Table 3.14 demonstrates, only 2 of the 6 FishCC sites actually identified livelihood-related indicators at the barrier removal stage and only one site identified quantitative targets. More than anything else, this re-emphasizes Lesson 36 above.

The broader lesson here is that, as much as social marketing and awareness campaigns are an integral component of changing fishing behavior, it would be misleading to over-emphasize the power of social marketing to bring about lasting change. Social marketing needs to be matched with meaningful change, or opportunity, in the economic environment, which leads to the final section below on livelihood initiatives.

A long stretch of beach rimmed by sand dunes, typical of Mozambique's coastline

4.6. Livelihood Initiatives

Livelihood projects under FishCC were delayed and their implementation was carried forward to the SWIOFish project. As such it's not possible to draw conclusions as to their effectiveness, for example in contributing to fisheries management objectives. Nonetheless, there are some relevant lessons on the selection and planning of such projects.

A savings box for the PCR (savings and loans group) in Pomene

#9 KEY LESSON

LESSON 39: Selecting livelihood alternatives, purchasing assets and access-to-credit

Alternative livelihoods: In the FishCC project design, it was envisaged that livelihood interventions would provide *alternatives* to capture fisheries, for example in "tourism, aquaculture and other sectors"[117]. These would help fishers to transition from open-access to *managed access*. The term 'alternative' implies that livelihood interventions would enable some fishers to take up livelihood activities that don't involve catching fish.

In practice however, whilst both fishing and non-fishing livelihood opportunities were identified by communities during the project selection process, in practice only projects on *capture fisheries* were prioritized and implemented. 4 FishCC sites prioritized fish cold-chain projects and 2 sites prioritized provision of boats to enable them to fish further offshore. Therefore, none of the interventions were in fact 'alternative' livelihoods. This outcome is in keeping with experience from similar programs in the WIO region. Whilst there are opportunities for tourism, aquaculture etc. at some coastal locations, it is more the exception than the rule.

Fishers are often understandably risk-averse, so it is more appealing to a to modify or add value to a livelihood practice that is already known (ie. fishing), rather than embark on something new that requires new skills and knowledge, and which ultimately might not prove viable.

Access to credit: In this context, savings and loans initiatives are often a powerful alternative to direct purchasing of livelihood assets. Under FishCC, savings group interventions were only introduced in the final year of the project, so there was limited time to assess their full potential. Nonetheless, it is very interesting to note that some community members, through participation in savings and loans groups (PCRs), were able to purchase the exact same type of small cold chain equipment (eg. cool boxes) as was provided to other community members through the separate livelihood projects. But the difference is, PCR group members have a sustainable mechanism in place that will continue to generate benefit in the form of loan access, which means their enterprises are more likely to be sustainable.

117 World Bank, 2015

Those simply provided with equipment will not have the same support mechanism to help finance their activity.

Lesson: at the level of *individual beneficiaries*, investing in savings and loans initiatives can often have a more sustainable impact than simply donating goods and assets. This lesson has been learned repeatedly in rural development programs across Africa and elsewhere. On the other hand, there are limitations to the scale of financing that can be generated by savings and loans. So, for example, it would have been challenging to have financed the purchase of an ice machine, generator and water tower (as at Machangulo) through savings and loans. Thus, where there is *community-level beneficiary*, direct provision of assets can be more justifiable, notwithstanding the challenges of managing those assets sustainably.

LESSON 40: Importance of fair and transparent identification of livelihood beneficiaries

At some FishCC sites there were failures of *fairness* and *transparency* in the processes for identifying beneficiaries of livelihood interventions, as outlined in Section 3.3 above. These included:

i. failure to document beneficiary selection processes, or have them witnessed by an independent authority;

ii. beneficiaries being primarily CCP committee members (Memba);

iii. failure to develop binding written agreements, even where provision of alternative fishing gears was intended to replace unsustainable beachseine nets (Fequete)

It is important that beneficiary selection is fair and transparent, to avoid so-called '*elite-capture*' of opportunities. This can happen when selection procedures are mediated through an entity such as a CCP committee, without adequate accountability or oversight.

The situation can be complicated by the fact that it might seem desirable to incentivize CCP committee members, since their work is often otherwise voluntary. Therefore, if livelihood benefits accrue to them, that might be seen to strengthen CCP management. But this is misguided. As highlighted under Lesson 39 above, livelihood opportunities under FishCC were intended to mitigate the impact of fisheries management measures affecting *all* fishers. Therefore, diverting benefits only to CCP committee members or their friends is counter-productive, and likely to undermine broader fisheries objectives. Preferential treatment (unfairness) of beneficiaries, or indeed perception of preferential treatment (lack of transparency) can result in alienating other fishers and, conversely, make them less likely to adopt a positive attitude towards management measures.

Therefore, it is important to ensure that livelihood beneficiaries are selected using fair and transparent processes, overseen by a neutral party such as a service provider, NGO or government official. Selection processes should be agreed openly at community assemblies, and their outcome documented in writing and witnessed by community leaders and independent parties.

References

ADB (2001) Appraisal report for Artisanal Fisheries Development Project, Republic of Mozambique. African Development Bank 68pp

ADB (2012) Completion report for Artisanal Fisheries Development Project, Republic of Mozambique. African Development Bank 35pp

ADNAP (2011) A Gestão Participava das Pescarias. Technical paper. Ministry of Fisheries, Mozambique. 30pp

Benkenstien (2013) Small-Scale Fisheries in a Modernising Economy: Opportunities and Challenges in Mozambique. Governance of Africa's Resources Programme: Research Report 13. South African Institute of International Affairs (SAIIA), Johannesburg. 55pp

BioGlobal (2017) Avaliaçao final do impacto do projecto de pesca artesenal e de co-gestao (PPACG). Report to Instituto Nacional de Desenvolvimento da Pesca e Aquacultura (IDEPA), Maputo. 80pp

Boletim da República (2006) Estatuto-Tipo do Conselho Communitário de Pesca (CCP) III Série Número 27. 5 de Julho de 2006. Governo de Moçambique.

Boletim da República (2003) Regulamento Geral da Pesca Marítima. I Série Número 50.

10 de Dezembro de 2003. Governo de Moçambique.

CTV (2018) Levantamento ecológico de base sobre recifes de coral e florestas de mangal dentro ou proximo de cinco áreas de pesca de gestão communitária. Technical report by Centro Terra Viva submitted to IDEPA, Maputo. 129pp

Evans L., Cherrett N., Pemsl D. (2011) Assessing the impact of fisheries co-management interventions in developing countries: A meta-analysis. Journal of Environmental Management, Volume 92, Issue 8.

IFAD (2017) Artisanal Fisheries Promotion Project/ Projecto de Promoção da Pesca Artesenal (ProPESCA): Supervision report, May 2017. 94pp

IFAD (2013) Large grant design document: Strengthening Artisanal Fishers' Resource Rights Project (Projeto de Direitos aos Recursos dos Pescadores Artesanais ProDIRPA). 29pp

IFAD (2010) Project design document: Artisanal Fisheries Promotion Project/ Projecto de Promoção da Pesca Artesenal (ProPESCA), Vol 1 main report. 94pp

IFAD/IDEPA (2019) Project completion report: Strengthening Artisanal Fishers' Resource Rights Project (Projeto de Direitos aos Recursos dos Pescadores Artesanais ProDIRPA). 67pp

IIP (2017a) Levantamento de dados sobre a produção pesqueira artesanal, espécies e ecossistemas na área do PPAMC/Fish/CC, no período 2004 -2016. Technical report for FishCC project. Maputo. 31pp

IIP (2017b) Relatório sobre o levantamento de base sobre produção pesqueira artesanal e espécies em Mefunvo, Závora e Pomene em Novembro de 2017. Technical report for FishCC project. Maputo. 22pp

IIP (2017c) Mapeamento das Áreas de Pesca Artesanal dos Distritos de Angoche, Moma e Larde (Nampula). Maputo. 72pp

IIP (2016) Mapeamento das Áreas de Pesca da Província da Zambézia, distritos de Inhassunge, Quelimane, Namacurra, Mocubela, Maganja e Pebane. Maputo. 124pp

INGC (2009) Study on the Impact of Climate Change on Disaster Risk in Mozambique: Main Report. National Institute for Disaster Management, Mozambique. 338pp

Krueck NC, Ahmadia GN, Green A, Jones GP, Possingham, HP, Riginos C, Treml EA & Mumby PJ (2017) Incorporating larval dispersal into MPA design for both conservation and fisheries. Ecological Applications 27 (3) 925-941. https://doi.org/10.1002/eap.1495

Lopes S (2017) Diagnóstico Participativo Sócio-Económico à Comunidades do Posto Administrativo de Machangulo. Technical report to Peace Parks Foundation, 69pp

Lopes S & Gervasio, H. (2003) Co-management of Artisanal Fisheries in Mozambique: A Case Study of Kwirikwidge Fishing Center. Angoche District, Nampula Province: ICLARM, Manila, Philippines.

Louro CMM, Litulo C, Fernandes RS, Pereira TIFC & Pereira MAM (2017) Fisheries in the western shores of the Ponta do Ouro Partial Marine Reserve, southern Mozambique: towards a holistic approach to management. Final Technical Report submitted to

Fondation Ensemble and Peace Parks Foundation. Centro Terra Viva, Maputo. 118 pp.

McClanahan TR & Kosgei JK (2019) Outcomes of gear and closure subsidies in artisanal coral reef fisheries. Conservation Science and Practice. DOI: 10.1111/csp2.114

MdP (2014) Process Framework for South West Indian Ocean Fisheries Governance and Shared Growth in Mozambique (SWIOFish Mozambique). Ministry of Fisheries, Mozambique. 145pp

MdP (2010) Plano Director das Pescas 2010-19. Ministry of Fisheries, Mozambique. 56pp

MdP (2007) Plano Estratégico do Subsector da Pesca Artesanal (PESPA), 2007-2011. Ministry of Fisheries, Mozambique.

MdP (1996) Plano Director das Pescas, 1995-2005. Ministry of Fisheries, Mozambique

MICOA (2013) Estratégia Nacional de Mudanças Climáticas. Ministry for the Co-ordination of Environmental Affairs (MICOA), Maputo. 77pp

MICOA (2007) National Adaptation Programme of Action (NAPA) on climate change. Ministry for the Co-ordination of Environmental Affairs (MICOA), Maputo. 68pp

MIMAIP (in prep) Regulamento da Pesca Marítima (REPMAR). version of February 2019. Ministry of Sea, Interior Waters and Fisheries (MIMAIP), Maputo. 76pp

MIMAIP (2019a) Management plan for artisanal fisheries, Mefunvo. Summary infographic draft of April 2019. Ministry of Sea, Inland Waters & Fisheries, Mozambique. 2pp.

MIMAIP (2019b) Management plan for artisanal fisheries, Memba. Summary infographic draft of April 2019. Ministry of Sea, Inland Waters & Fisheries, Mozambique. 3pp.

MIMAIP (2019c) Management plan for artisanal fisheries, Inhassoro. Summary infographic draft of April 2019. Ministry of Sea, Inland Waters & Fisheries, Mozambique. 3pp.

MIMAIP (2019d) Management plan for artisanal fisheries, Pomene. Summary infographic draft of April 2019. Ministry of Sea, Inland Waters & Fisheries, Mozambique. 3pp.

MIMAIP (2019e) Management plan for artisanal fisheries, Zavora. Summary infographic draft of April 2019. Ministry of Sea, Inland Waters & Fisheries, Mozambique. 2pp.

MIMAIP (2019f) Management plan for artisanal fisheries, Machangulo. Summary infographic draft April 2019. Ministry of Sea, Inland Waters & Fisheries, Mozambique. 3pp.

MIMAIP (2019g) Plano de gestão das Pescarias Artesanais de Machangulo, 2019-24 (draft

September 2019). Ministry of Sea, Inland Waters & Fisheries, Mozambique. 42pp

MIMAIP (2019h) Relatório Anual Período: Janeiro – Dezembro 2018: Projecto de Pesca Artesenal de Adaptaçao às Mudanças Climáticas (PPAMC/FISHCC). Projecto Nr. P149992. Ministry of Sea, Inland Waters & Fisheries (MIMAIP). 23pp

MIMAIP (2018a) Plano de gestão das Pescarias Artesanais de Inhassoro, 2019-24 (draft December 2018). Ministry of Sea, Inland Waters & Fisheries, Mozambique. 44pp

MIMAIP (2018b) Plano de gestão das Pescarias Artesanais de Machangulo, 2018-22 (draft November 2018). Ministry of Sea, Inland Waters & Fisheries, Mozambique. 44pp

MIMAIP (2018c) Plano de gestão das Pescarias Artesanais de Mefunvo, 2019-24 (draft December 2018). Ministry of Sea, Inland Waters & Fisheries, Mozambique. 46pp

MIMAIP (2018d) Plano de gestão das Pescarias Artesanais de Memba, 2019-24 (draft December 2018). Ministry of Sea, Inland Waters & Fisheries, Mozambique. 33pp

MIMAIP (2018e) Plano de gestão das Pescarias Artesanais de Pomene, 2019-24 (draft December 2018). Ministry of Sea, Inland Waters & Fisheries, Mozambique. 50pp

MIMAIP (2018f) Plano de gestão das Pescarias Artesanais de Závora, 2018-22 (draft November, 2018). Ministry of Sea, Inland Waters & Fisheries, Mozambique. 46pp

MIMAIP (2018g) Plano Estrategico do Sub-sector da Pesca Artesanal, 2019 – 2025 (PESPA II). Ministry of Sea, Inland Waters & Fisheries, Mozambique. 164pp

Nickols, KJ, White JW, Malone D, Carr MH, Starr RM, Baskett ML & Botsford, LW (2019) Setting ecological expectations for adaptive management of marine protected areas. Journal of Applied Ecology. https://doi.org/10.1111/13652664.13463

Nowlis, JS & Roberts CM (1999) Fisheries benefits and optimal design of marine reserves. Fishery Bulletin, 97, 604–616.

PPF (2017) Projectos Comunitários de Geração de Rendimentos e Conservação dos Recursos Naturais Costeiros e Marinhos no Posto Administrativo De Machangulo. Peace Park Foundation, 61pp

Rare (2019a) Relatorio de Aprendizados da Campanha de Orgulho do site de Mefunvo. Technical report under Fish Forever Programme, Rare Mozamabique Country Office and University of Eduardo Mondlane. 108pp.

Rare (2019b) Relatorio de Aprendizados da Campanha: Transformando a Campanha Num Orgulho da Comunidade de Memba. Technical report under Fish Forever Programme, Rare Mozamabique Country Office and University of Eduardo Mondlane. 12pp.

Rare (2019c) Relatorio de Aprendizados da Campanha de Orgulho: Site de Inhassoro.

Technical report under Fish Forever Programme, Rare Mozamabique Country Office and University of Eduardo Mondlane. 89pp.

Rare (2019d) Relatorio de Aprendizados da Campanha de Orgulho: Site de Pomene. Technical report under Fish Forever Programme, Rare Mozamabique Country Office and University of Eduardo Mondlane. 73pp.

Rare (2019e) Relatorio de Aprendizados da Campanha de Orgulho: Site de Zavora. Technical report under Fish Forever Programme, Rare Mozamabique Country Office and University of Eduardo Mondlane. 75pp.

Rare (2019f) Relatorio de Aprendizados da Campanha de Orgulho, Site de Machangulo. Technical report under Fish Forever Programme, Rare Mozamabique Country Office and University of Eduardo Mondlane. 101pp.

Rare (2019g) FishCC Pride Campaigns: consolidated report. Internal project report. Rare Mozambique Country Office, Maputo. 11pp

Rare (2019h) Summary report on key achievements & lessons learned: Artisanal Fisheries & Climate Change Project (FishCC). Internal report by Rare, Maputo. 13pp

Rare (2018a) Stemming the Tide of Coastal Overfishing: Fish Forever Program Results 2012–2017. Full Report, July 2018. Rare Global HQ, Virginia US. 64pp

Rare (2018b) Estratégia de marketing Social Para a melhoria da condição de vida das comunidades de pescadores em Mefunvo, Memba, Inhassoro, Pomene, Zavora e Machangulo. Report submitted to FishCC Project Implementation Unit (PIU), MIMAIP, Maputo. 24pp

Rare (2016) Site Evaluation for Fish Forever Mozambique Program. Technical report by Rare, Environmental Defense Fund and the University of California Santa Barbara Sustainable Fisheries Group. 104pp

Rare/IDEPA (2017a) A avaliação da situação das pescarias, condições ecológicas dos habitats e estabelecimento de metas: site de Mefunvo (FLAGS workshop report). (FLAGS workshop report). 10pp

Rare/IDEPA (2017b) A avaliação da situação das pescarias, condições ecológicas dos habitats e estabelecimento de metas: site de Memba (FLAGS workshop report). (FLAGS workshop report). 22pp

Rare/IDEPA (2017c) Relatório sobre mapeamento das pescarias e definição de metas: site de Inhassoro (FLAGS workshop report). Technical report. 26pp

Rare/IDEPA (2017d) Relatório sobre mapeamento das pescarias e definição de metas: site de Pomene (FLAGS workshop report). Technical report. 25pp

Rare/IDEPA (2017e) Relatório sobre mapeamento das pescarias e definição de metas: site de Zavora (FLAGS workshop report). Technical report. 18pp

Rare/IDEPA (2017f) A avaliação da situação das pescarias, condições ecológicas dos habitats e estabelecimento de metas: site de Machangulo (FLAGS workshop report). (FLAGS workshop report). 22pp

República de Moçambique (2013) Lei das Pescas n.º 22/2013. Government of Mozambique.

SOFRECO (2018a) Estudo de identificação e preparação de alternativas de subsistência - Projectos Comunitários - no âmbito do FishCC: Manual de implementação de projectos comuntários. Technical report submitted to FishCC Project Implementation Unit, MIMAIP. 27pp.

SOFRECO (2018b) Estudo de identificação e preparação de alternativas de subsistência - Projectos Comunitários - no âmbito do FishCC: Anexos. Technical report submitted to FishCC Project Implementation Unit, MIMAIP. 246pp.

UNCTAD (2017) Fisheries exports and the economic development of least developed countries: Bangladesh, Cambodia, The Comoros, Mozambique, Myanmar and Uganda. United Nations, New York & Geneva. 64pp.

World Bank (2019) Implementation Completion and Results Report: Artisanal Fisheries and Climate Change Project, Mozambique. Environment & Natural Resources Global Practice, Africa Region, World Bank. New York. 50pp

World Bank (2015) Project paper for Artisanal Fisheries and Change Project. World Bank, Washington DC. 27pp

World Bank (2014) Project Appraisal Document (PAD) for the First South-west Indian Ocean Fisheries Governance and Shared Growth Project (SWIOFish) [P132123]: Union of Comoros, Republic of Mozambique, United Republic of Tanzania. World Bank Environment, NRM, WRM and DRM Sustainable Development Department Africa Region. 106pp

Annex 1: Sample of Draft Summary Management Plan Infographic: Inhassoro

PLANO DE GESTÃO DA PESCA ARTESANAL
INHASSORO 2019-2024

República de Moçambique
Ministério do Mar, Águas Interiores e Pescas
Governo do Distrito de Inhassoro

Comunidade de Fequete, Distrito de Inhassoro

~7,920 habitantes

Ecossistemas Marinhos: Zonas arenosas, formaçãoes rochosas, ervas marinhas, mangal

Ameaças ecossistémicas: Sobrepesca, pesca destrutiva (arrastro), corte de mangal

Problemas socio-económicos: Redução de capturas, perda de receitas

Gestão Pesqueira: Conselho Comunitário de Pesca de Fequte

Espécie alvo e recomendada* para gestão:


Peixe coelho (mbabe) (*Siganus sutor*)*


Peixe ladrão (*Lethrinus lentjan*)*


Carapau/Phuzu (*Scomberomorus commerson*)


Ladrão relâmpago (*Lethrinus nebulosus*)


Papagaio (*Scarus ghobban*)


Garoupa malabarica (*Epinephelus malabaricus*)


Pargo mulato (*Diagramma pictum*)


Lula (*Loligo forbesi*)


Pargo (*Plectorhinchus flavomaculatus*)


Xaréu cintilante (*Carangoides fulvoguttatus*)

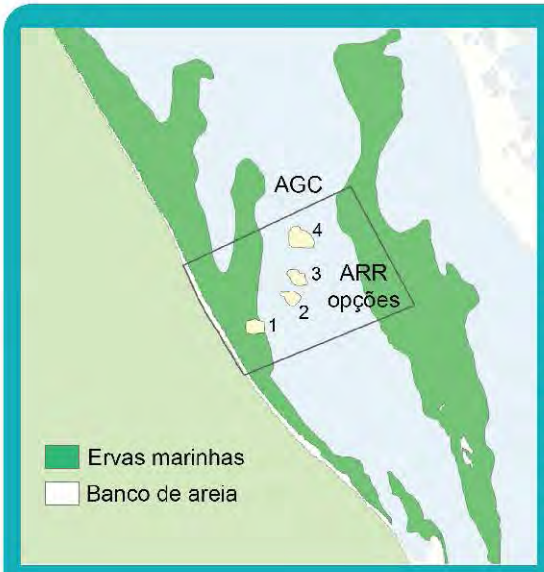
VISÃO

Gerir de forma eficaz a pesca artisanal para sustentar ecossistemas críticos e maximizar os benefícios sociais e económicos para as cmunidades costeiras.

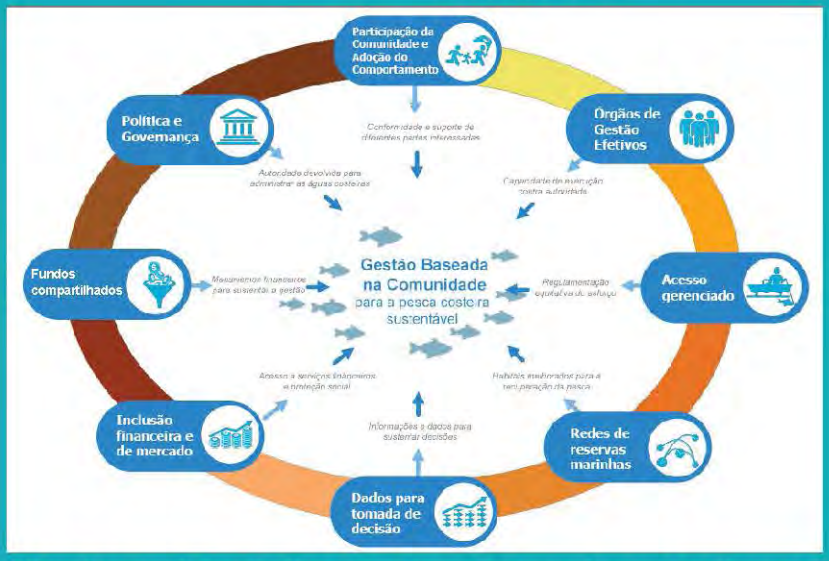
OBJECTIVOS

- Desenhar e estabelecer Áreas de Gestão Comunitárias e de Recuperação de Recursos (AGC + ARR) através de um processo participativo ligando o conhecimento local e teorías ecológicas.
- Desenvolver medidas de gestão apropriadas no âmbito da AGC+ARR que conduzam à uma pesca costeira sustentável.
- Garantir um processo participativo e inclusive na gestão dos recursos pesqueiros

ESTRATÉGIA



A AGC+ARR é uma abordagem de gestão pesqueira baseada em direitos, sob autoridade do Conselho Comunitário de Pesca (CCP), que lida com as ameaças à pesca artesanal num contexto ecossistémico. Dentro da AGC, o acesso à pesca é gerido e os regulamentos da pesca são aplicáveis. Na ARR, a actividade pesqueira é proibída de modo a permirtir o re-abastecimento e sustentar as espécies de peixe e proteger os ecossistemas e habitats pesqueiros essenciais. Os limites propostos da AGC+ARR aqui apresentados, foram desenvolvidos por meio de consultas com os pescadores, governo local, CCP e outras organizações de base comunitária para tomada de decisões em torno da gestão de espécies alvo. O sucesso desta abordagem requere 8 componentes chave, conforme a figura ilustrativa abaixo.



O apoio e participação dos pescadores são essencias para o alcance de uma pesca artesanal sustentável. Abaixo são as várias formas de contribuição:

- Ser registado e licenciado
- Apoiar na monitoria das capturas
- Participar na tomada de decisões em torno de medidas de gestão
- Participar no estabelecimento da AGC+ARR
- Incentivar auto-organização dos pescadores e a responsabilidade da comunidade na gestão pesqueira local

METAS E MEDIDAS DE GESTÃO

Definir Limites de Esforço para Limitar o Acesso de Pescadores dentro da AGC

- Registrar pescadores controlar o acesso à for AGC + ARR
- Limitar o número de pescadores com acesso ao AG
- Reduzir o número de artes de pesca permitidas

Comunicar Práticas de Pesca Sustentáveis

- Promover artes de pesca não destrutivas (por exemplo, linha de mão)
- Partilhar detalhes da legislação pesqueira
- Promover campanhas de conscientização sobre boas práticas de pesca

Determinar indicadores biológico de espécies importântes e conhecidas na AGC + ARR

- Anualmente monitorar espécies e informar sobre o estado do recurso
- Produzir e disseminar informação biológica das espécies e seus habitats

Conserve Espécies Protegidas

- Implementar um sistema de registro de capturas
- Realizar estudos para identificar áreas, tempos e ocorrência de espécies protegidas
- Partilhar informações sobre espécies protegidas

Apoiar prioridades e preferências das comunidades costeiras no acesso aos recursos costeiros

- Apoiar a modernização necessária das embarcações de pesca e o desenvolvimento e da construção de embarcações locais para apoiar pescadores artesanai

Melhorar a fiscalização e vigilância

- Fornecer à AGC + ARR uma embarcação de fiscalização e vigilância

Diversificar meios de subsistência

- Promover práticas de aquacultura de pequena escala

Coordenar com as partes interessadas

- Realizar foruns de co-gestão ou reuniões periodicas entre os diferentes usuários de recursos
- Esclarecer tarefas e responsabilidades na AGC+ARR

Reduzir conflitos entre CPCs e outros pescadores

- Partilhar medidas de gestão das AGC+ARR

Superar conflitos entre o turismo e pesca

- Harmonizar os objetivos dos projectos de desenvolvimento local nas reuniões de co-gestão

Restaurar habitats

- Consciencializar as comunidades sobre o impacto da destruição e degradação dos habitats

Regras de manejo e regulamento para o peixe coelho (Mbabe) - (*Siganus sutor*)

Regras e regulamentos definidas pela comunidade

- 45 dias de veda a partir de 15 de Julho à 30 de Agosto
- 45 dias de defeso a partir de 16 de Fevereiro à 15 de Março

Outras medidas de gestão

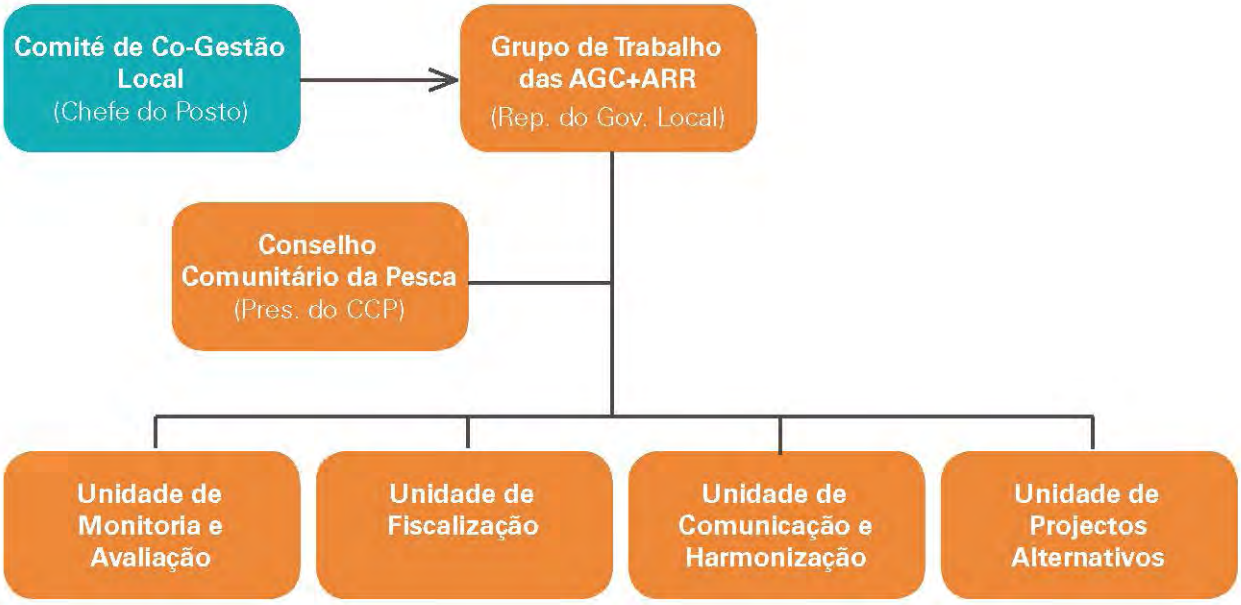
Recomendações da comunidade e do governo:

- Recomendado malha de 1.5 polegadas
- Não a pesca nos domingos
- Não a pesca no período noturno
- Não ao uso de rede de emalhar
- Não a novos licenciamentos à pesca de arrasto
- Limitado o arrasto à 1 lance por dia na mará alta
- Proteção total à espécies protegidas

Dentro dos limites da ARR serão aplicadas as seguintes medidas de control:

- Excepto em casos de emergência, dentro da ARR não será permitida passagem de embarcações;
- As seguintes actividades serão proibidas dentro da ARR:
    - Todas actividades pesqueiras, extracção do recurso e outras práticas ilegais
    - Mergulhar com luvas ou outros equipamentos que possam danificar os habitats
    - Entrada de usuários não registados e não creditados;
    - Destrução de habitats e colecta de recursos marinhos;
    - Actividades que possam causar poluição marinha ou que sejam destrutivas à saúde e desenvolvimento da ARR
    - Mergulho com recurso à compressores artefactos destrutivos
- As populações de peixe e limites da ARR serão revistos a cada 5 anos de modo a assegura que eles estejam a proteger efectivamente as espécies críticas;
- A proibição da actividade pesqueira pode ser parcialmente levantada/abolida pela autoridade local sob as seguintes circunstâncas:
    - Quando autorizadas por lei ou por decreto ministerial após assinatura do acordo de pesca
    - Quando o manancial dentro da ARR está em nível controlado e que a actividade de pesca restrita e controlada pode ser autorizada

ESTRUTURA DE IMPLEMENTAÇÃO DO PLANO COORDENADO PELO CCP



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