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Feed the Future (FTF) and Biodiversity COMFISH Plus Project

PENCOO GEJ

(Collaborative Management for a Sustainable Fisheries Future in Senegal)

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CONTACT INFORMATION

USAID/Senegal

Oumou K. LY

Agreement Officer's Representative (AOR)
Economic Growth Office
USAID/SENEGAL
U. S. Embassy, Almadies Road P.O. Box 49
Telephone: (221) 33-879-40-00 Ext. 4307
Email: oly@usaid.gov

Alula ABERA

Agreement Officer/Contracting Officer (AO/CO)/
USAID/Senegal
U. S. Embassy, Almadies Road P.O. Box 49
Work Phone: 33-879-4000 Ext 4166
Email: aabera@usaid.gov

URI/CRC

Karen KENT

USAID/COMFISH Plus Project Manager
Coastal Resources Center
Graduate School of Oceanography
University of Rhode Island
Narragansett RI 02882 USA
Telephone: 401-874-6630
Email: karenkent@uri.edu

Najih LAZAR

Sr. Technical Advisor
Coastal Resources Center
Graduate School of Oceanography
University of Rhode Island
Narragansett RI 02882 USA
Telephone: 401-874-6411
Email: nlazar@uri.edu

Elin TORELL

International Program Director
Graduate School of Oceanography
Coastal Resources Center
University of Rhode Island
Narragansett RI 02882 United States
Telephone: 401-874-6103
Email: elintorell@uri.edu

Chief of Party

Khady Sané DIOUF

USAID/COMFISH Plus Chief of Party
Cité Djily Mbaye – Yoff
Telephone: (221) 77 654 77 17
Email: dykha272@gmail.com

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ACRONYMS

ADUPES	Sustainable Fisheries Management Project in Senegal
ANACIM	National Agency of Civil Aviation and Meteorology
CINSERE	Climate information services for increased resilience and productivity in Senegal project, USAID/Senegal
CL	Local Agreement (<i>Convention Local</i>)
CGPP	Committee for the Management of Small Pelagics
CLPA	Local Artisanal Fisheries Councils (<i>Conseils Locaux de Pêche Artisanale</i>)
CNAAP	National Committee for Fisheries Management Support
CNGPP	National Committee for Collaborative Management of Small Pelagics
COMNACC	National Committee on Adaptation to Climate Change
CRC	Coastal Resources Center
CRODT	Oceanographic Research Center Dakar, Thiaroye
CSE	Ecological Monitoring Center
CSRP	Sub-Regional Fisheries Commission
DALN	Directorate of Literacy Training and National Languages
DAMCP	Department of Community Based Marine Protected Areas
DEEC	Department of Environment and Classified Establishments
DGID	Internal Revenue Service
DITP	Department of Fisheries Processing Industries
DPC	Department of Inland Fisheries
DPM	Department of Marine Fisheries
FtF	Feed the Future
FMP	Participatory Fisheries Management Plan
GIE	Economic Interest Group
GIS	Geographical Information System
ICC	CLPA Coordination and Advisory Committee
IR	Intermediate Result
IRD/IFAN	Refers to the Biological and Ecological Fish Laboratory in West Africa
IUPA/UCAD	University Institute for Fisheries and Aquaculture - <i>Institut Universitaire de Pêche et d'Aquaculture - Université Cheikh Anta Diop</i>
IUU	Illegal, Unreported and Unregulated
LPSD-PA	Sector Policy Letter for the Development of Fisheries and Aquaculture
MEDD	Ministry of Environment and Sustainable Development
MEF	Ministry of Economy and Finance
MPEM	Ministry of Fisheries and Maritime Economy
NAP	National Adaptation Plan
NOAA	National Oceanic and Atmospheric Administration
OCA	Organizational Capacity Assessments
PNPCC	National Platform for Fisheries and Climate Change
PSMA	Port State Measures Agreement
REFEPAS	Women's Artisanal Fishing Network of Senegal
SRFC	Sub-Regional Fisheries Commission
UNFCCC	United Nations Framework Convention on Climate Change
URI	University of Rhode Island
USAID	United States Agency for International Development
USCG	United States Coast Guard
USG	United States Government

I. EXECUTIVE SUMMARY

The two year, \$4.5 million USAID/COMFISH Plus project (FY 2017-2018) supported fisheries sector stakeholders to scale up and institutionalize new and transformative approaches for ecosystem-based fisheries co-management successfully demonstrated under the previous five-year USAID/COMFISH project (FY 2011-2016). The project assisted the Government of Senegal in its efforts to achieve reform in the fisheries sector as stated in the Sector Policy Letter for the Development of Fisheries and Aquaculture (2016-2023). USAID/COMFISH Plus was implemented by the University of Rhode Island in partnership with the Ministry of Fisheries and Maritime Economy (MPEM) and other government agencies, fisheries associations, university centers, research institutions, and non-governmental organizations working on marine capture fisheries in Senegal.

The project achieved anticipated outcomes on a national scale, covering the marine coast from the St. Louis Region in the North to the Ziguinchor Region in the South, part of the Canary Current Large Marine Ecosystem, an area of sub-regional biological significance. Hectares of biologically significant marine and estuarine areas under improved management increased from 1,404,565 in 2016 to 1,484,206 during the two-year project with the addition of the Sine Saloum estuarine zone.

Seven new Local Artisanal Fisheries Councils (CLPAs) were installed in the Sine Saloum with Local Agreements (CLs) approved by the Government of Senegal for local management of fisheries resources. A participatory ethmalosa Fisheries Management Plan (FMP) covering Sine Saloum was also finalized, approved by the Government, and implementation initiated. Project supported research resulted in a consensus among resource users and decision-makers to increase minimum mesh size for this fishery. This science-informed management decision will also be applied to the Ziguinchor Region plan which is ready for approval and will likely be adopted in the national plan. As a result of expansion to the Sine Saloum, 8,886 additional fishers were added to 20,952 in previously targeted zones for a total of 29,838 who applied improved technologies or management practices with USG assistance. Another 3,025 households were added to 16,533 benefitting directly from project interventions in previous zones for a total of 19,558 households. These results exceeded targets by 128% and 115% respectively, due to increased population in some coastal fishing communities and the project's response to increased demand for capacity building activities.

Natural resource management was further improved along the entire marine coast as CLPA governance was strengthened, and nine existing CLs for local fisheries management, five participatory sardinella FMPs, and six local climate change adaptation plans were implemented. A multi-agency National Platform for Fisheries and Climate Change to guide implementation of the National Adaptation Plan for Fisheries and Aquaculture approved in November 2016 provides an active national framework for the mainstreaming of climate change in the fisheries sector. Participatory surveillance was expanded from 8 to 12 CLPAs and further institutionalized with leadership of the Department of Fisheries Surveillance and Protection (DPSP). A televised national debate on illegal, unregulated and unreported (IUU) fishing and a MPEM study tour to the US on IUU fishing have increased visibility and provided lessons learned for strengthening implementation of Senegal's IUU Strategy and Action Plan. Awareness raising campaigns on the Fisheries Code and the payment of fishing licenses reached more than 5000 people and stimulated purchase of 2,557 licenses in 7 CLPAs. Assistance to the Department of Marine Fisheries resulted in a plan to resolve 1,594 outstanding registration plates in support of MPEM efforts with World Bank project assistance to implement the moratorium on registration of new artisanal canoes, an important step towards managing access.

With project assistance CLPA networks achieved stakeholder consensus on nationally harmonized rules for a closed period for night fishing of small pelagics. It also resulted in strong advocacy for legalization of the return of 60% of artisanal license fees for CLPA operations, approved in November 2018 and will significantly facilitate CLPA sustainability and incentivize canoe licensing.

Project support for empowering women and adding value to processed fisheries products resulted in the strengthening of 19 women's processor organizations in 12 CLPAs and more than 1,464 people with improved economic benefits. Returns on project investments in revolving credit funds averaged 160% at three new processing sites. The project assisted stakeholders to scale up successful innovative approaches piloted under the USAID/COMFISH project while continuing to develop and pilot new innovations and business plans, including with the Mantoulaye Guène Economic Interest Group (GIE) Adja Ndoumbé Seck modern processing unit in Cayar, which has served as a model for women's artisanal fish processing in Senegal and the sub-region. At the request of the Ministry, the project strengthened the organizational dynamics of women processors at 4 priority sites receiving MPEM investment to scale up modern processing units inspired by the Cayar model. Encouraged by the results of the revolving credit approach facilitated by the project, MPEM granted lines of credit to more than 30 women's GIEs and associations in the fisheries sector.

Corresponding trends in biophysical conditions for the *Sardinella maderensis* and *Sardinella aurita* stocks that are the principal species targeted by project activities, as well as for octopus and selected MPAs were analyzed. For the sardinellas, Catch Per Unit Effort trends show improvement and leveling during the seven-year period of USAID/COMFISH and USAID/COMFISH Plus. However, additional analyses indicate that the sardinella stocks are overfished and overfishing is occurring at moderate levels. Environmental factors heavily influence biophysical conditions of small pelagic stocks in the CCLME upwelling, making trends analysis and project attribution challenging. In addition, increasing artisanal fishing effort remains a major problem for sustainability of the stock. For Octopus and MPAs, analysis supports the conclusion that biophysical conditions have significantly improved during the project period and that project activities in coordination with the efforts of other partners are likely to have contributed to this outcome.

Most significantly, a project exit strategy that relied on the increased commitment of administrative authorities and local technical services of the government of Senegal to activities supported by the project was effectively implemented through capacity development at all levels (a nested governance approach). The commitment of administrative authorities and local technical services of the government to the active and increasing participation of stakeholders in policy discussion and reform is a result of the USAID/COMFISH and USAID/COMFISH Plus projects' approach to capacity development over seven years.

The capacity building program for fisheries management institutions and stakeholders at all levels of fisheries governance contributed to a transformative process of behavior change by providing approaches and tools for better implementation of ecosystem-based co-management of fisheries. It also allowed the central administration and deconcentrated structures of MPEM to effectively transfer part of their decision-making power to local communities. Strategies and policies designed at the local level with the support of fisheries technical services have been validated and approved at all levels by the competent authorities. All thirty-nine of the recognized CLPAs in Senegal are engaged in this process to some extent. Twenty-eight CLPAs were supported more intensively by the project to develop their capacity to engage in a more active governance role. Seventeen have their own Local Agreements, developed and

implemented with project support legally recognizing the fisheries management rules they have instituted in their zones.

USAID/COMFISH Plus achieved demonstrated progress towards continuing to strengthen the critical enabling conditions for realization of long term goals in fisheries productivity, economic benefits, and food security identified in the project's theory of change, and towards ensuring that results are sustained with partner institutions and stakeholders. Lessons learned, including remaining challenges, as well as recommendations for the CLPA governance framework, MPEM and USAID are presented in the final sections of this report.

Capitalization documents and an on-line video in English and French on each of the key thematic areas of CLPA capacity development, fisheries co-management, climate change and fisheries, and enhancing fish processing and empowering women are referenced in the corresponding sections of this report and in Annex 4. Project Publications.

II. INTRODUCTION

The USAID Feed the Future (FtF) and Biodiversity COMFISH Plus Project (USAID/COMFISH Plus) was a \$4,523,583 two-year initiative (October 1, 2016 – October 31, 2018) funded by the United States Agency for International Development. It was a follow-on to the five-year USAID/COMFISH initiative: Collaborative Management for a Sustainable Fisheries Future in Senegal (February 14, 2011 – September 30, 2016). USAID/COMFISH Plus was implemented through a Cooperative Agreement between USAID and the University of Rhode Island. Its implementing partners included government agencies, fisheries associations, university centers, research institutions, and non-governmental organizations working on marine capture fisheries along the coast of Senegal.

This final project report describes project accomplishments and the measures taken during project implementation to reinforce local appropriation, ownership and sustainability of accomplishments. It reflects on the achievements of both COMFISH projects over seven years, but focuses on the results of USAID/COMFISH Plus over the last two years.

III. BACKGROUND

Wild fisheries make significant contributions to the socio-economic development of Senegal. The fisheries sector provides a significant amount of national employment, domestic economic activity, export revenues, and resilience to food insecurity. An estimated 30% of rural households in Senegal experience food insecurity, and fish are a critical source of protein and nutrition, providing an estimated 43% of the supply of animal protein. However, overexploitation and weak management, a lack of surveillance and poor enforcement threaten the long term sustainability of the marine fisheries sector and reduce the resilience of fishing communities.

FAO-CECAF Scientific Sub-Committee findings based on 2016 data classified sardinella and ethmalosa, key locally consumed food security species, as overexploited.¹ The primary reason is a continuously growing level of fishing effort. The number of documented fishing boats is one indicator of fishing effort; it increased from 13,000 to 19,000 registered canoes between 2009 and 2015 (a 31.2% increase). Open and unmanaged access to artisanal fisheries contributes to the rapid increase of effort and consequently the depletion of these two stocks. At the same time that marine resources are open and free to exploitation there has been an increase in coastal population, partly driven by difficulties experienced in the agriculture sector, all contributing to coastal migration and rapid growth in artisanal fishing effort. Recognizing these pressures, the Ministry of Fisheries established a moratorium on the registration of new artisanal fishing vessels in 2012. By 2016 at the start of the USAID/COMFISH Plus project, effective implementation of the moratorium was still a challenge.

Despite overfishing of key species and declining fish size and abundance, average total landings in the last decade have been relatively level at 327,124 tons per year, with the artisanal fishery providing 94% of small pelagic fish landings. Steady fish landings with continuous growth in fishing effort will eventually result in a precipitous drop in sardinella landings as has already

¹ FAO (2018), Report of the Working Group on the Assessment of Small Pelagic Fish off Northwest Africa, May, 2017. <http://www.fao.org/3/i8896b/i8896B.pdf>

occurred in other West African fishing countries, such as Ghana. Overexploited fish stocks have pushed Senegalese fishers to fish further offshore and in neighboring countries. The long distance search for more productive fishing grounds adds to costs due to additional fishing gear and fuel needed for a wider fishing range, and increases the risk of accidents at sea, reducing fishermen's return on their time and capital investments.

Illegal, Unreported, and Unregulated (IUU) fishing also depletes the natural resource base and lowers natural productivity, adversely affecting fishers' livelihoods and national wealth. Estimates of the volume of IUU industrial fishing reported in a study undertaken by the USAID/COMFISH and the Sea Around Us projects in 2013 using a method called 'catch reconstruction' found that in the 2000 to 2011 period fish capture by illegal foreign fishing fleets grew from about 50,000 tons/year to 350,000 tons/year and artisanal landings dropped from around 450,000 tons/year to around 375,000 tons/year.² This drop of about 75,000 tons/year is thought to be due in part to competition with the IUU fishing fleet. The lost value to Senegal from IUU fishing was estimated at US\$300 million/year.

In the face of these challenges, sustainable management of wild fisheries is a priority for the Senegalese government. The Plan for an Emerging Senegal (PSE), the new Sector Policy Letter for the Development of Fisheries and Aquaculture (LPSP-PA) 2016-2023 and the Fisheries Code updated in 2015 recognize the importance of fisheries to Senegal's economy, food security and livelihoods. These high level political frameworks also recognize the importance of increasing local participation and co-management in fisheries management and were developed through stakeholder participation and lessons learned from past and on-going donor initiatives in support of Senegal's fisheries sector reform, including The World Bank, JICA and the EU as well as USAID. However, to realize the intended benefits of these policies continuing and strengthened stakeholder advocacy for improved collaborative management at local and national levels was still needed as the end of the USAID/COMFISH project approached.

A further challenge to the marine fishery is the effects of climate change and climate variability. These include coastal erosion, rise in sea temperature and level, increasingly frequent and intense sea storms, the intrusion of salt water in coastal aquifers, and ocean acidification. These types of climate change induced threats to coastal communities need to be taken into account in fisheries governance and management. It has now been established that climate change also has direct effects on ecosystem productivity and fish stock abundance and therefore landings as a result of the effects on growth, reproduction, recruitment, location and period of spawning, and the migration and survival of stocks. The impacts of climate change on fish landings and supply also affect those who are involved in fish processing, sale, distribution and provision of supplies to fish processing industries, and other fisheries related activities. As water temperature warms, tropical fish species migrate north (to Mauritanian and Moroccan waters), reducing the direct access for Senegalese fishers. There is evidence that Senegalese fishermen have been following the stocks, migrating towards other fishing areas since 1995. This migration, often blamed on growing levels of fishing effort in Senegal, can be attributed to the effects of climate change as well as overfishing.

The USAID/COMFISH project succeeded in facilitating participatory development of rules and regulations in fisheries, catalyzing collaboration and relationships between governmental and fishery organizations, advancing fisheries monitoring and research for improved management, and strengthening institutional and stakeholder capacity. Key milestones were

² <http://www.seaaroundus.org/doc/publications/wp/2014/Belhabib-et-al-Senegal.pdf>

achieved in establishing enabling conditions for sustainable management of fisheries resources to sustain productivity. These results are discussed in the USAID/COMFISH Final Performance Report (2011-2016)³ and are highlighted in relevant sections of this report below. At the end of the USAID/COMFISH project, marine fisheries institutions at the national and local level were at the critical stage of implementation and scale-up of successfully demonstrated new and transformative fisheries co-management systems.

The purpose of USAID/COMFISH Plus was to consolidate and scale up geographically (to Sine Saloum) these improved enabling conditions for a sustainable and better governed fisheries sector, and to ensure that implementation of achievements was sustained with partner institutions. Stakeholders thus benefitted from on-going project support to monitor and strengthen fisheries governance and co-management by Local Artisanal Fisheries Counsels (CLPAs), monitor and implement five participatory sardinella fishery management plans, complete participatory ethmalosa management plans in synergy and coordination with other donor initiatives, implement six local climate change adaptation plans and the National Adaptation Plan for Fisheries and Aquaculture, and improve artisanal fish processing, among other activities.

IV. GOAL, OBJECTIVE AND INTERMEDIATE RESULTS

The USAID/COMFISH Plus project was designed to build and expand upon the accomplishments of the USAID/COMFISH project, with the same goal and objective:

Goal: Prevent overfishing and ensure that marine fisheries in Senegal provide: (1) a sustainable source of high-quality protein for the nation; (2) help improve the quality of life in artisanal fishing communities; and (3) maintain the productive capacity of marine and coastal ecosystems to support the well-being of the people of Senegal.

Objective: Support the Government of Senegal in its efforts to achieve reform in the fisheries sector as stated in the Sector Policy Letter for the Development of Fisheries and Aquaculture (2016-2023) (LSPD-PA) in order to provide income and ensure food security for a growing population. Promote efforts to achieve the objectives of biodiversity conservation, taking into account the crosscutting themes of governance capacity development, gender equity and adaptation to the impacts of climate change.

The project aimed to accomplish this by continuing to strengthen the enabling conditions necessary for improved governance; improved access to science for decision making; and identifying and taking actions that increase climate resilience through the following three major intermediate result areas:

- IR1:** Institutional and stakeholder capacity strengthened at all levels to implement an ecosystem based, co-management approach towards sustainable fisheries, taking into account climate change impacts in the fisheries sectors;
- IR2:** Governance strategies, policies and best practices identified, tested, assessed and applied to build ecosystem resilience to threats to biodiversity conservation and climate risk;
- IR3:** Enhanced social and economic benefits to artisanal fishing communities provide incentives to a continued sustainable fisheries agenda.

³ https://pdf.usaid.gov/pdf_docs/PA00TGJTJ.pdf

4.1. Theory of Change (development hypothesis)

In line with USAID/COMFISH, USAID/COMFISH Plus recognized that transformational change in fisheries management and in fisheries abundance and productivity is a long term endeavor and the foundation for long term improvements to the status of fisheries and marine biodiversity are key enabling conditions (e.g. institutional capacity; local ownership and supportive constituencies; inclusive and formally approved plans and policies; and financing). USAID/COMFISH Plus operated in a context where the enabling conditions must be strengthened and demonstrated before there is an observable and sustained effect on fisheries productivity, value chains, wealth, trade, and nutritional status. To achieve long-term sustainability, the project aimed to build the following critical enabling conditions:

Project Strategies

1. Increase fishing community resilience to climate change by developing management capacities, plans and measures, protecting the environment and increasing social and economic benefits
2. Focus on sustainable management of key stocks
3. Promote participatory collaborative management that involves fishermen, the government and other key stakeholders in decision making at the local and national levels
4. An ecosystem based approach that embraces not only fish, but also the protection of critical habitats and the reduction of the impacts of fisheries on endangered marine species
5. Mainstream gender issues and secure benefits for men as well as for women and enable them to participate in the decision making process.

- Strong and broad-based constituencies for implementing reforms needed to address overfishing, excess capacity and IUU fishing issues
- Institutional capacities sufficient to implement, monitor, enforce, and adapt over time participatory fisheries management plans
- Sustainable CLPA finance
- National and local government commitment and political will to implement policies and management reforms and commitment to sectoral strengthening through delegation of the necessary authorities and allocation of financial resources for fisheries management, monitoring, and research
- Clear goals that address clearly defined societal, environmental and climatic issues

The theory of change applies the following logic: If USAID/COMFISH Plus is successful in building and expanding upon these enabling conditions, and if the project effectively applies the principles of managing marine resources on an ecosystem scale, including applying sound science for management, implementing managed access, adopting non-destructive and sustainable fishing methods, and combatting IUU fishing and overfishing, then the long-term goal of rebuilding Senegal's marine artisanal fisheries (15 to 20 years) will be realized.

Key Premises

The project design considered what is required to ensure a long-term, sustainable fishery in Senegal:

1. Increased wealth and a sustained food supply from marine fisheries require improvements in governance of marine fisheries.
2. The above requires resilient co-management systems where male and female fisheries stakeholders share decision-making power with government.
3. The management measures that are negotiated must be driven by social and economic incentives for fishers, have high stakeholder support and take into account maintaining essential fish habitats and ecosystem structure and function.

V. PROJECT ACHIEVEMENTS

5.1. Project Objective Level Overview

USAID/COMFISH Plus achieved biodiversity outcome indicator targets on a national scale, covering the marine coast from the St. Louis Region in the North to the Ziguinchor Region in the South, part of the Canary Current Large Marine Ecosystem (CCLME) and an area of sub-regional biological significance. These achievements indicate progress and highlight remaining challenges towards the long term goal to prevent overfishing through support for the Government of Senegal in its efforts to achieve reform in the fisheries sector to provide income and food security for a growing population and promote biodiversity conservation.

1,484,206 hectares of biologically significant marine and estuarine areas under improved management as a result of USG assistance (EG.10.2-2)

1,404,565 hectares of biologically significant areas showing improved biophysical conditions as a result of USG assistance (EG.10.2-1)

Biologically significant areas under improved management. Hectares of biologically significant marine and estuarine areas under improved management increased from 1,404,565 in 2016 to 1,484,206 during the two years of USAID/COMFISH Plus due to the addition of the Sine Saloum estuarine zone. Seven new CLPAs were installed in the Sine Saloum. With project assistance, they developed and implemented Local Agreements (CLs) approved by the Government of Senegal (GOS) for local management of fisheries resources. A participatory ethmalosa Fisheries Management Plan (FMP) covering this zone was also finalized, approved by the GOS, and implementation initiated during the project period. As a result, 8,886 additional fishers were added to the 20,952 in other zones who applied improved technologies or management practices with USG assistance for a total of 29,838.

The 1,404,565 hectares in zones previously covered by the USAID/COMFISH project represents the marine coast out to 20 nautical miles, the zone fished by the artisanal fleet targeting small pelagic fisheries. Management was further improved under USAID/COMFISH Plus in this area as CLPA governance was strengthened and annual work plans for CLs in these areas were implemented. Five participatory sardinella FMPs and six local climate change adaptation plans were also implemented from St. Louis in the North to Ziguinchor in the South. Table 1 below highlights fisheries governance and management improvements and transformational change achieved in the sector with project support in the project's marine and estuarine target zones (Figure 1).

Improved biophysical conditions⁴. Analysis of improved biophysical conditions in 1,404,565 hectares of biologically significant areas is based on the sardinella fishery. The range of the *Sardinella maderensis* and *Sardinella aurita* stocks targeted by the project includes this area in Senegal, while recognizing that these stocks are transboundary and extend to the waters of neighboring countries. Biophysical improvements reported are also based on the octopus' fishery and selected MPAs (Cayar, Joal, Saint Louis, Bamboung and Abene) representing subsets of this area. The ethmalosa fishery was not included in the analysis of biophysical improvements because management plans were implemented in the last year of the project and their impact on the status of the stock would not be expected by the time the project ended.

⁴ Lazar, N. 2018. Biophysical impact assessment and resilience of marine resources in Senegal under fisheries resource management of USAID-COMFISH and COMFISH Plus (2011-2018).

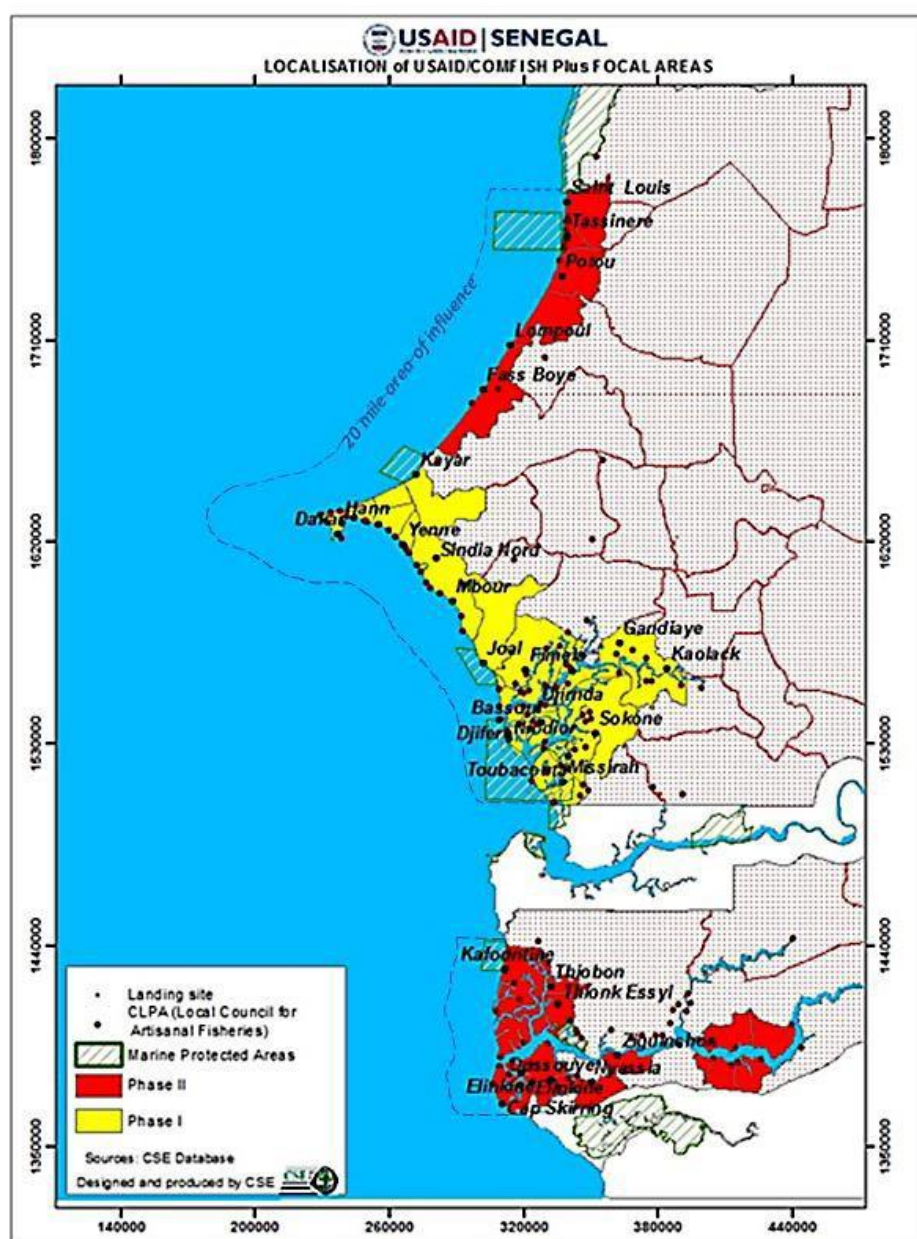


Figure 1. USAID/COMFISH Plus project intervention areas. (CSE).

Based on the biophysical indicator definition in the project AMELP, the Catch Per Unit Effort (CPUE) represented by the sardinella landings (mt) of artisanal canoes using purse seines per trip was analyzed for the project period. Trends for this indicator show that annual declines from 2010 – 2013 reversed in 2014 and have been relatively stable from 2014 – 2017 (Figure 2). This trend corresponds with implementation of management improvements linked to project interventions (see Table 1 below). However, environmental factors heavily influence biophysical conditions of small pelagic stocks in the CCLME upwelling, making trends analysis and project attribution challenging. In addition, increasing artisanal fishing effort remains a major problem for sustainability of the stock as shown in Figure 3.

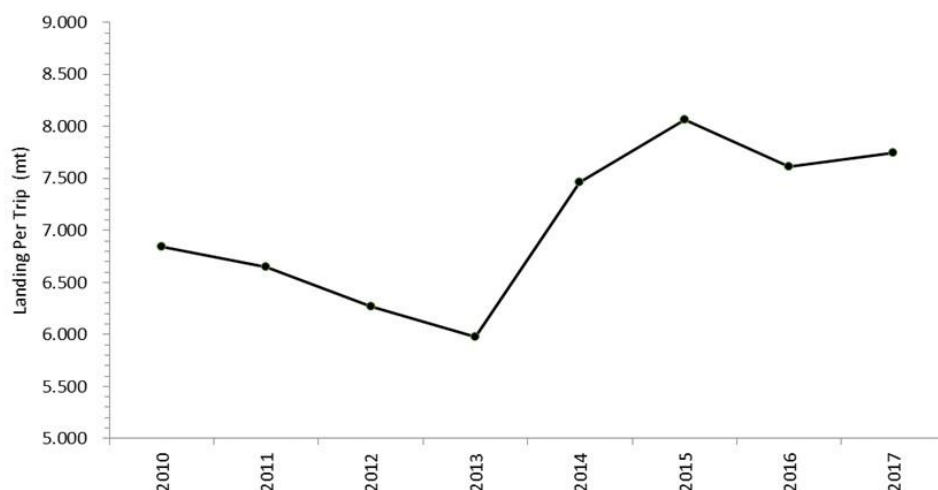


Figure 2. Trends of CPUE expressed in landings per trip of the purse seine artisanal fisheries in in Senegal. (CRODT 2018).

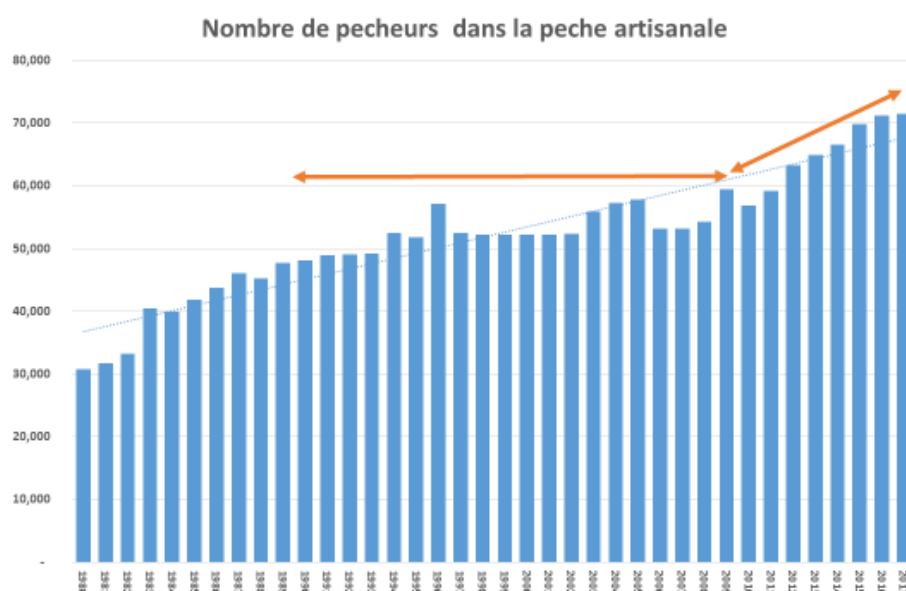


Figure 3. Number of artisanal fishermen increased by 22% from 2009-2017. (DPM).

Deeper analysis of the status of the stock provides a better understanding of the longer term trends than the CPUE⁵ analysis above. Time series of catch and effort data of sardinellas reported by the Center of Oceanographic Research of Dakar Thiaroye (CRODT) were analyzed using a surplus production model (SpictT). The model uses the CPUE as an indicator of relative abundance over the period of time 1990-2017. The model is best used for longer periods of time to provide better fit and robust estimates of biomass and fishing mortality. It also provides an opportunity to project into the future the outcome of these two parameters under various management options. The average annual landings between 1990 and 2017 were 268,356 mt

⁵ CPUE or LPUE is the Landings Per Trip of Purse Seine Artisanal Canoes in Senegal (Source: CRODT, 2018)

with the highest and the lowest landings realized in 2015 and 1990 at 389,657 mt and 170,887 mt, respectively. The MSY was estimated at 271,489 mt and the terminal year fishing mortality $F_{2017}=0.64$, a 34% above the fishing mortality required to sustain a long term harvest at MSY level ($F_{MSY}=0.42$). Landings have fluctuated over the years reflecting the abundance and recruitment instabilities of small pelagic fish stocks, however the general trends show an increase in landings above MSY since 2004. The mean catch of the last 6 years (2011-2017) exceeded MSY by an order of 65% with an average annual increase of 14%. Biomass was above the sustainable level for 23 years until 2017 when it dropped below B_{MSY} . The relative biomass estimated in 2017 was 17% below the sustainable level and the ratio $B_{current}/B_{MSY}=0.83$ remains below the biological benchmark $B_{current}/B_{MSY}=1$.

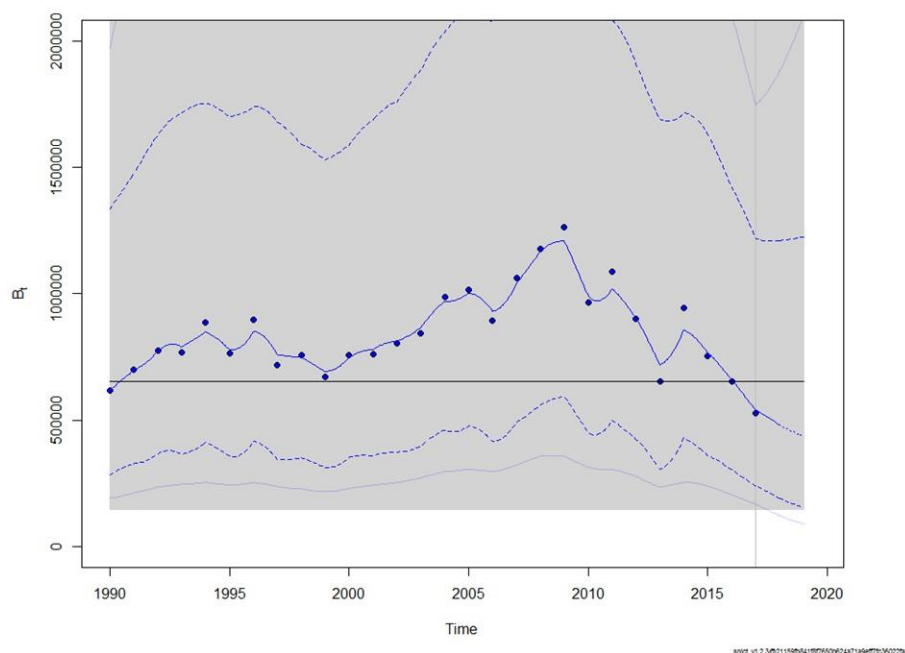


Figure 4. Trends of exploitable biomass B_t in tonnes of sardinella and bounds of errors (dash line)

The stock of sardinellas in Senegal is therefore considered overfished and overfishing is occurring at moderate levels. Under current situations, the forecast of biomass and fishing mortality suggests that fishing effort and fishing mortality will continue to increase while biomass will continue to decline. While governance was greatly improved by the USAID/COMFISH and USAID/COMFISH Plus, the lack of implementation of effort control measures remains a major driver threatening further deterioration of the fisheries. It is worth noting that CPUE's utility as an indicator of biomass could be biased due to increased efficiency of fishing effort as canoes, nets, engines and other technologies improve overtime time.

For octopus, total production only represents about 1% of the total artisanal landings while it brings more than 8% of the total value due to its high market value dedicated for export. It is one of the few fisheries that benefits currently from a comprehensive fisheries management plan implemented since 2010, focused mainly on the annual closed spawning season (Oct-Nov) and recruitment enhancement projects (clay pot artificial reefs). Based on the stock assessment of octopus in Senegal by the "Sustainable Development of Fisheries in Senegal project" (GT-ADUPES) the stock is considered fully exploited since 2016. The biomass has improved in recent years (2011-2017) and in 2017 reached its highest level since 2005. The model projections showed that the biomass in 2018 will reach the B_{MSY} needed to produce a

sustainable MSY harvest level, estimated at 9,449 mt. Fishing effort composed mainly of artisanal pots and hook and line (turluttes⁶) increased in recent years reflecting about 20% increase in fishing mortality from 2011 to 2016, however its current level remains at the desirable state (at or below the FMSY=0.22). The octopus stock improved during the period of the USAID/COMFISH and USAID/COMFISH Plus projects while the return on harvest increased significantly providing tangible benefits for the coastal communities of the “petite cote”. Stock recruitment increased and essential habitat index improved as a result of CLPA engagements in establishing the artificial reefs and observing a ban on fishing for octopus during the spawning season. The octopus stock in Senegal is not overfished and overfishing is not occurring. Significant improvements in biomass and recruitments were achieved through the effective implementation of multiple management measures through the participatory approach of CLPAs and other stakeholders. The COMFISH projects together with other partners made a contribution to management efforts with support for the strengthening of CLPA governance and the manufacture and deployment of more than 40,000 pots made by women to improve octopus’s habitat.

Fish biomass and biodiversity improvement has also been documented in five MPAs (Cayar, Joal, Saint Louis, Bamboung and Abene). Several reports were published by CRODT and IUPA on the impact assessment of the selected MPAs. The general trends of improved biodiversity and abundance were positive with dominance of mainly inshore and estuarine affinity species. The trophic structure within each of the main MPAs have reached the desired biological balance of species with the presence of large predators. For example, a total of 67 species were reported in the AMP of Joal-Fadiouth in 2017 compared to 56 species reported in 2009. Similar results were observed in the AMP of Cayar with 26 species in 2014 compared to 38 species in 2017. CRODT in 2015 reported higher densities of fish inside the MPA of Bamboung as compared to outside and confirmed that the establishment of MPA in the Sine Saloum is an effective tool for restoring marine biodiversity and trophic structure of fish assemblages. The spillover effect was observed in all MPAs except in Bamboung where the abundance outside of the MPA declined sharply overtime, likely due to overfishing. The main results of improved biophysical conditions within the MPAs and adjacent waters were directly linked to improved governance which remains the key strategic driver for success and stability of MPAs. The USAID/COMFISH and USAID/COMFISH Plus contributed to both strengthened governance and support for implementation of MPA management measures as detailed in Table 1 and below sections of this report.

As summarized in Table 1 below, the USAID/COMFISH Plus project was successful in consolidating and scaling up geographically the gains made over the previous five years in enabling conditions for a sustainable and better governed fisheries sector. The project also achieved demonstrated progress towards ensuring that implementation of USAID/COMFISH and USAID/COMFISH Plus achievements is sustained with partner institutions and stakeholders. The following section describes by Intermediate Result the project’s activities and achievements and their significance in contributing to the government of Senegal’s fisheries sector reform agenda (i.e. the project objective).

⁶ <https://www.alamy.com/stock-photo-turlutte-a-modified-jig-used-by-artisanal-fishermen-in-senegal-to-176191273.html>

Table 1: Transformative Change facilitated by the USAID/COMFISH projects in support of Senegal's fisheries sector reform

Before	USAID/COMFISH 5 years (2/2011 – 9/2016)	USAID/COMFISH Plus 2 years (10/2016 – 9/2018)
<i>Weak enabling conditions</i>	<i>Enabling conditions strengthened, fisheries co-management reinforced</i>	<i>Achievements consolidated, implemented, scaled up, and institutionalized for local ownership and sustainability</i>
Local Artisanal Fisheries Council (CLPA) Governance Framework Operational		
CLPAs inactive	21/39 CLPAs engaged, 10 CLPAs installed	39/39 CLPAs engaged, 28 installed (Sine Saloum/Ziguinchor added)
Women not represented in local fisheries	Representation in CLPA governing bodies mandated for fish processors and other women's trades. Declaration on Women in Fisheries.	Women's representation in CLPA leadership averages 25%. REFEPAS regularly represents women in fisheries at national and international policy meetings, conferences and trade fairs.
No CLPA financing	Internal fundraising initiated in 4 CLPAs. GOS FAF created, but not implemented.	Internal fundraising of more than \$43,000 over 2 years in 10 CLPAs. Legal barrier to FAF implementation removed for return of 60% canoe licensing fees to CLPAs for their operations.
CLPAs not networked	CLPA website established www.clpa.sn for documenting progress and sharing.	Department and Regional CLPA networks established in 4 Regions. National CLPA Network established and functional.
Fisheries Co-Management Implemented		
No CLPA level mechanism to implement the Fisheries	10 CLPA Local Agreements (CL) approved by GOS legalizing local fisheries management measures to implement the Fisheries Code. Implementation	17 CLPAs implementing approved CLs legalizing local fisheries management measures. 29,838 fishers applied improved management practices. Geographic expansion to Sine Saloum contributing 8,886 fishers to this total.
No local sardinella or ethmalosa FMPs	5 sardinella FMPs finalized (3 approved). Implementation units established. Fisheries Code revision in 2015 increases minimum fish size for sardinella to 18 cm. Participatory ethmalosa FMP under development.	5 sardinella FMPs approved. Implementation on-going. Sine Saloum ethmalosa FMP approved. Implementation initiated. Ziguinchor ethmalosa FMP final. Consensus on increased minimum mesh size for ethmalosa from 30-32mm to 36-40mm included in FMPs, proposed for national and sub-regional plans.
Octopus FMP gaps	28,000 pots deployed to improve habitat.	12,000 pots deployed to improve habitat.
MPA management gaps	National Strategy on MPAs approved by MEDD (2013). Demarcation of Cayar and Joal MPAs with buoys.	4 MPA Management Committees strengthened. 51 mangrove monitoring missions in 4 MPAs. Synergy of CLPA participatory surveillance with MPAs strengthened in 3 MPAs. Improved science for decision-making with biological baseline
No participatory surveillance	Participatory surveillance piloted in 8 CLPAs.	Participatory surveillance active in 12 CLPAs. 342 missions, 4,788 artisanal canoes inspected, with 575 boardings. Order legally recognizing status of participating fishermen in process (2018).
No joint data collection		4 joint data collection units (CLPA, CRODT, DPM) operational. 7 months' data collected and analyzed. 2 units installed by CRODT/IRD.

Effort control and managed access weak	Canoe registration and licensing on-going. Moratorium on new canoe registration codified (2012) not effectively implemented.	Status of 1594 outstanding registration plates addressed. Canoe licensing incentivized with legalization for return of 60% license fees to CLPAs. 2,557 licenses purchased in 7 CLPAs after awareness campaign. Annual 4-month night fishing ban on small pelagics harmonized nationwide.
Gaps in vision and capacity to address IUU fishing	Research shows \$300 million/yr. loss to IUU fishing in Senegal, informs National IUU Fishing Strategy (2013) and Action Plan (2014). Fisheries Code revision 2015 integrates PSMA alignment.	CSRP Ministerial Conference resolves barriers to effective CSRP functioning. Senegal ratifies PSMA March 2017. MPEM US IUU fishing Study Tour models interagency Task Force approach, strengthens networking with U.S. agencies. Participatory surveillance strengthened.
Resilience to Climate Change Increased and Mainstreamed in Fisheries		
No CLPA CCA plans	6 local climate change adaptation plans approved.	6 local adaptation plans implemented.
No Safety at Sea early warning system	Safety at Sea Early Warning System (EWS) demonstrated in 4 CLPAs. 44,430 alerts broadcast.	109,000 people coast-wide benefitting from Climate Information Services, Safety at Sea/EWS. 71,662 alerts broadcast, including voice alerts.
NAPA including SLR and coastal erosion but not fisheries	Fisheries and Aquaculture NAP vision 2035 approved by Ministers of Environment and Fisheries (Oct. 2016). First Senegal sector NAP.	Fisheries NAP presented at UNFCCC COP-22. Recognized as national, West Africa and global model. NAP Strategy approved. Multi-agency National Platform (PN-PCC) established, implementing annual action plans, including capacity building on climate finance.
Women's Artisanal Fish Processing Improved and Scaled-Up		
Lack of hygiene at processing sites	15 Hygiene Charters established. Implementation initiated. Selected sites improved.	19 Hygiene Charters implementation on-going. Sites improved. 4 new modern units built (MPEM). Organizational dynamics strengthened.
Resiliency to CC impacts not integrated	Processors win the Francophonie Climate Change Prize and the PRCM Conservation Award (2016)	Model solar drying ovens installed at Cayar. 20 Processors' trained.
No financial sustainability	Revolving credit and income generating activities demonstrated. Functional literacy program piloted.	1,464 women processors realized direct economic benefits from revolving credit or income generating activities. Some at 50-160% return on project inputs. MPEM provided revolving credit to 30 GIEs based on the model. 420 women functionally literate in national languages.
No model artisanal processor	Mantoulaye Guène GIE modern processing unit at Cayar granted EU Export Agreement. First and only artisanal sector processor in Senegal meeting this standard.	Mantoulaye Guène GIE realized, diversification of production, improved market access and revenue of more than \$80,000 in 2018. Obtained U.S. FDA certification. Catalyzed scale up and MPEM investment in modernizing the sector. Rules for an artisanal processing professional category and status for processors under review.

5.2. Activity and Intermediate Result Level

5.2.1. IR1: Institutional and stakeholder capacity strengthened at all levels to implement an ecosystem based, co-management approach towards sustainable fisheries, taking into account climate change impacts in the fisheries sector

The USAID/COMFISH Plus capacity building program for fisheries governance institutions and stakeholders at all levels of governance reached more than 173 institutions and 9,761 direct actors in fisheries and the environment, contributing to a transformative process of behavior change at all scales.

Results Component 1: Continued support to increased CLPA institutional capacity towards effective functionality, including training in organizational, administrative and financial management skills; organizational capacity assessment (OCA) processes; and self-financing.

Expected Results	Actual
- Operational effectiveness and long term sustainability in participatory fisheries co-management at 19 CLPA sites (7 new CLPA sites and 12 existing USAID/COMFISH target sites) - Experience and lessons learned shared across CLPAs and an inter-CLPA network established. - The CLPA committees overseeing the implementation of the Local Agreement (CL) (including the surveillance committee) function properly, and control and supervise the application of the CL - The CLPAs have mobilized funds internally to finance the surveillance of the CL. - The CLPAs are equipped with equipment, furnishings, and materials to operate effectively - CLPA management effectiveness has increased by 20% compared to the baseline reference score documented by COMFISH in 2016.⁷	- Operational effectiveness and enabling conditions for long term sustainability in participatory fisheries co-management in 17 CLPAs (adding 7 in Sine Saloum to 10 existing) where Local Agreements are in place and implemented.⁸ - Expansion from 21 to 39/39 CLPAs engaged in Senegal's CLPA governance framework. - A USAID Organizational Capacity Assessment (OCA) process implemented in 4 CLPAs demonstrates increased capacity as scores increased. - Internal mobilization of CLPA funds strengthened. In FY17, 8 CLPAs raised \$12,000. In FY18, 10 CLPAs raised \$31,000. - Government commitment to implementing statutes for a sustainable financial contribution to CLPA operations through return of 60% of license fees confirmed (Presidential Order No. 2018-1967, November 14, 2018). - Awareness raising campaign for payment of fishing licenses and wholesaler cards reached more than 5,000 people stimulating purchase of 2,557 licenses and 175 wholesaler cards in 7 CLPAs. - Popularization of the LPSD-PA and revised Fisheries Code reached 4,740 people. - Department and Regional CLPA Networks set up in 4 Regions. National CLPA Network established and achieving key objectives. - Assessment of CLPA capacity development outcomes⁹ produced statistically significant findings that from 2014 to 2018: - Perception that fisheries management measures have an impact on improvement in major species abundance is stronger in response to greater participation and commitment of CLPA partners in co-management. - Perceived level of application of good practice measures is stronger in response to stronger CLPA capacity in funding mechanisms.

⁷ The CLPA management effectiveness index was not retained in the project AMELP Indicators. Other evidence of progress on CLPA capacity is presented in the Actual Results highlighted above and throughout this section.

⁸ USAID/COMFISH supported approval of CLs in 10 CLPAs (St. Louis, Cayar, Yene-Dialaw, Rufisque-Bragny, Mbour, Sindia Nord, Sindia Sud, Joal, Kafountine, Zinguinchor). USAID/COMFISH Plus supported 7 (Toubacouta, Missirah, Niodior, Ndjirnda, Foundiougne, Bassoul, Sakone) in the Sine Saloum.

⁹ Mbaye, A. 2018. Etude du renforcement institutionnel des Conseils Locaux de Pêche Artisanale (CLPA).

The fisheries sector in Senegal is not administratively decentralized, but enabling conditions for an increasingly deconcentrated management of the sector have been significantly strengthened over the last decade. The 1998 Fisheries Code and its' updates (Article 23, 2015) set out provisions for establishing legal and institutional frameworks for collaborative fisheries co-management in Senegal through Local Artisanal Fishing Councils (CLPAs). CLPAs are apolitical, non-profit professional organizations of artisanal fishermen and other fisheries actors. They are empowered to play a local governance role, set and apply rules, and convene all stakeholders for collaboration on collaborative management of fisheries resources. CLPAs were largely non-operational (lack of technical, institutional and financial resources) prior to the USAID/COMFISH project (2011-2016). It was only in 2010 when a Ministerial Order defined the leadership and organizational structure of CLPAs.

USAID/COMFISH Plus has played an instrumental role in continuing to revitalize, strengthen, and in particular scale up and facilitate sustainability of the CLPA governance framework in Senegal. The project built on the accomplishments of the USAID/COMFISH project and other development partners supporting the Government of Senegal to realize this key pillar in its' strategy to reform of the fisheries sector.

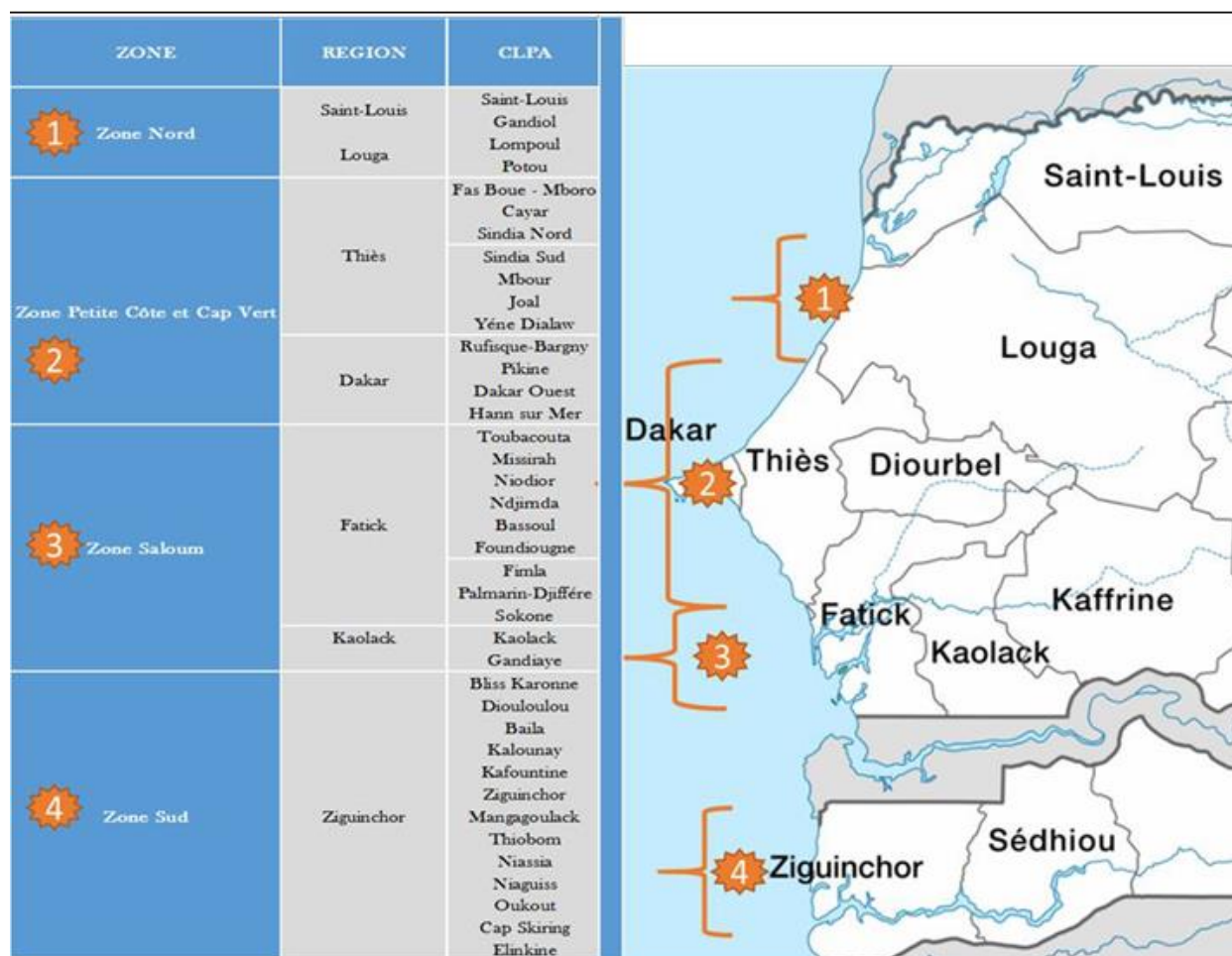


Figure 5. The CLPA governance framework in Senegal scaled up with 39 CLPAs engaged nationwide

Installation of 18 CLPA governing bodies in Sine Saloum and Ziguinchor. The governing bodies of 7 CLPAs in the Sine Saloum zone and 11 CLPAs in the Ziguinchor Region were installed with assistance from USAID/COMFISH Plus. This effectively expanded geographic coverage of installed CLPAs in the governance framework and intensified its' reach to more communities, including remote communities. In conformity with the legislation governing the composition and functioning of the CLPAs, the governing body is structured as shown in Figure 5. The process followed the three step approach used in other CLPAs: 1. Awareness raising on the process, 2. Designation or election of governing body members and training on the roles and responsibilities of the new Coordination and Advisory Committee (ICC) members and, 3. The official installation ceremony with Prefects, Sub-prefects and representatives of local authorities and deconcentrated fisheries and surveillance technical services for the areas concerned in attendance. Installation of the CLPA is a first step. The process of developing and approving a Local Agreement (CL) is the mechanism by which the CLPA becomes functional. The project supported the 7 newly installed Sine Saloum CLPAs to complete the CL process (detailed under Results Component 2).

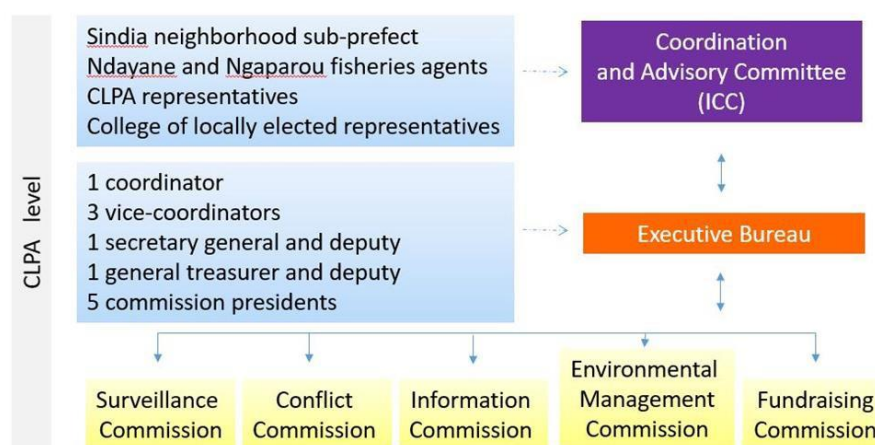


Figure 6. Structure of the CLPA governing body

Renewal of 9 existing CLPA governing bodies. Renewal of CLPA governing bodies is a key function of an operational and well governed CLPA. In conformity with the legislation governing the composition and functioning of the CLPAs, each CLPA must renew its coordination bodies every two years. The projects have helped to put this legal obligation into practice through the implementation of CLs where they have been developed. This was the case for the Saint-Louis, Cayar, Ziguinchor, Kafountine, Joal, and Mbour CLPAs where USAID/COMFISH Plus assisted with governing body renewal. The project also assisted the CLPAs of Lompoul, Potou, and Palmarin/Djiffère where CLs have not yet been developed to renew their ICCs. The project has strengthened the capacity of the National CLPA Network to facilitate this process going forward.

Administrative and Financial Management Training. One of the first activities needed for installed CLPAs and to implement CLs is to strengthen their financial management capacity. This provides them the right tools to effectively manage the internal or external funds entrusted to them. Training sessions on Administrative and Financial Management were organized from May 9 to 12, 2018 for office holders of all 7 Sine Saloum CLPAs in the CLPAs of Toubacouta and Foundiougne. Points discussed, included the CLPA regulatory and legal framework; organizational format; the vision and missions; techniques and methodologies for developing

CLPA action plans; preparation and management of meetings; and the definition and usefulness of financial management and financial management tools. Administrative and financial management training was also provided for the St-Louis, Mbour, Rufisque, Cayar, Sindia Nord, Kafountine and Ziguinchor CLPAs.

Electronic Data Archiving Systems. In 2017 the project organized a series of trainings for 12 CLPAs on establishing and managing electronic data archiving systems, in collaboration with the DPM. The purpose of the training was to increase awareness of the importance of electronic archiving and help CLPAs to safeguard, secure and easily access their electronic data with the computers provided by the project. It has enabled CLPAs to designate a focal point, create directories/folders by rubric, host their various types of data (administrative and financial management, laws and regulations, reports, correspondence, planning, etc.) and to put in place a system for review of data archiving. This training was also an opportunity to introduce participants to the use of search engines such as Google and Bing to search for information on artisanal fishing in Senegal via the Internet.

Organizational Capacity Assessment (OCA). To support CLPA revitalization, the USAID mission assisted the project to assess and further develop the organizational capacity of four CLPAs (Cayar, Sindia Nord, St. Louis and Kafountine). The OCA is a tool used to identify the organizational weaknesses of CLPAs and the associated risks. It is also an empowering approach for CLPA members' self-assessment. Assessors reviewed the performance of CLPAs in terms of governance, leadership and community dynamics, administrative and financial management, human resources management, and program and performance management. After an initial assessment and development of action plans, follow-up sessions on implementation of planned activities were held. These meetings and workshops were led by the USAID/Senegal mission, chaired by the administrative authorities of the locality, and attended by the project staff and ICC members from the CLPAs, with the participation of representatives from the local communities and the fisheries and surveillance technical services.

Identified areas in need of improvement included: strengthen the functioning of the committees of the CLPA, define the CLPA vision, missions and values, strategic planning, training in monitoring, evaluation and implementation of a monitoring and evaluation plan, training in financial management and implementation of an efficient financial system, develop an administrative and financial management procedures manual, establish a communication plan, and strengthen the promotion of women to positions of responsibility. The OCA process in Sindia Nord highlighted the need and urgency of providing the CLPA with an Administrative, Financial and Accounting Procedures manual. The manual was drafted and provides CLPA managers with an operational and pedagogical reference tool for the conduct of their operations, describing the organizational, administrative, financial and accounting procedures of the ICC for the CLPA.

For Cayar and Sindia Nord, OCA scores increased from an initial 1.69/4 to 2.19/4 (29%) and from 1.65/4 to 2.30/4 (39%) respectively. Progress was noted in the following areas among others: definition of functional CLPA organizational charts; initiation of CLPA renewal procedures; validation of a procedures manual; description of a suitable financial system; training on the new Fisheries Code; implementation of CLs and participatory sardinella FMPs; implementation of action plans by zone for each relay including an awareness raising and information sharing tour; and sharing reports with stakeholders.

Internal Fundraising and Financial Sustainability. Sustainable financing for CLPA operations is critical for their functioning as fisheries governance institutions. Recognizing this, the Fisheries Code and subsequent implementing Orders include provisions for the creation of a Fund for Support of CLPA Functioning (FAF) and for the return of 60% of artisanal fishing license fees to CLPAs for their functioning. These provisions, codified since 2011, have not been implemented. Barriers have been legal, administrative and related to lack of capacity of CLPAs to receive and manage these funds. USAID/COMFISH and USAID/COMFISH Plus supported stakeholders to address these barriers at all levels and in particular through a focus on developing the organizational and governance capacity of CLPAs. Facilitating CLPAs to take ownership of their own financial sustainability by developing local strategies and taking action to develop a diversified portfolio of revenue sources has been an important contribution of the project. It has enabled CLPAs to increase their financial management capacity, engage more local constituencies in supporting a sustainable fisheries management agenda, and increased their capacity to dialogue with MPEM to advocate for implementation of statutory funding mechanisms.

USAID/COMFISH Plus worked with the 10 CLPAs that had approved CLs at the start of the project to implement, evaluate and further develop their internal fundraising strategies and annual action plans. The increasing capacity of these CLPAs to diversify their sources of revenue is highlighted in Table 2, showing an increase from 6 strategies used by CLPAs in FY17 to 15 different strategies in FY18. Selling membership cards was the most universal strategy, practiced in 7 of the 10 CLPAs. Sharing lessons learned among CLPAs was a valuable approach for the development and implementation of these strategies.

Table 2: Internal Fundraising by CLPAs (FCFA)

Strategies	2017	2018	CLPA	Total 2018
1. Selling membership cards	X	X	St. Louis	4,000,000
2. Renting equipment, meeting rooms	X	X	Cayar	
3. 5% Dock percentage from GIE	X	X	Rufisque/Bargny	
4. ADUPES contribution to AWP	X	X	Sindia Nord	660,000
5. CLP contribution	X	X	Sindia Sud	674,000
6. CLPA contribution		X	Yene/Dialow	950,000
7. Renting sound system		X	Mbour	1,257,000
8. Boarding drawback		X	Joal	4,593,000
9. Per diem drawback		X	Kafountine	3,433,295
10. Donation Departmental commission octopus pots		X	Ziguinchor	1,918,500
11. Donation from the DPM		X	TOTAL	17,485,795
12. Warehouse rental		X		
13. Contribution inter-professional GIEs		X		
14. Fuel donation (+ 25 l/month)		X		
15. Contribution local enterprises (gas, ice)		X		
16. Plot for Sindia Nord HQ from Saly municipality	X			

The financial situation of the CLPAs is no longer in the red as it was at the beginning of the process. Significant amounts have been collected and are used to finance meetings, participatory monitoring, the CLPA Annual Work Plan (AWP), travel by CLPA officials, etc. Expenses are executed in a transparent way by using the financial management tools provided by the project (receipts, cash book, call for funds, etc.). Due to problems internal to the CLPAs of Cayar and Rufisque, fundraising was not as successful in these CLPAs. CLPAs require continued support to further develop and implement their internal fundraising strategies with a particular focus on those whose results have remained weak in 2018 and on the newer CLPAs in the Sine Saloum.

As the USAID/COMFISH Plus project closed, the remaining legal barriers on the return of 60% of artisanal licensing fees to CLPAs were resolved as Presidential Order No. 2018-1967 was signed on November 14, 2018, endorsed by the Ministers of Fisheries and Finance. This Order signals the commitment of the administration to a maturing CLPA governance framework and its' intention to implement this important contribution to the financial sustainability of CLPAs.

Training on the New Marine Fisheries Code and the LPSD-PA. To address the widespread lack of familiarity with the law governing the exploitation of fisheries resources in Senegal and as part of USAID/COMFISH Plus support for CLPA Annual Work Plans and sardinella FMP implementation, the project conducted, and facilitated the National CLPA Network to conduct, trainings on the updated LPSD-PA and Act N° 2015-18 of July 13, 2015 establishing the Code of Maritime Fisheries and its implementing decree N° 2016-1804 of November 22, 2016. Training of trainers was organized in 15 CLPAs. A total of 228 people including 34 women were trained as trainers. The training focused on relevant (artisanal fisheries) articles of the code and extension strategies were identified for wider dissemination.

For popularization of the code, 32 sessions were organized in various locations (villages, rest areas, colleges). A total of 4,740 people, including 30% women, participated in these meetings and increased their knowledge of concepts like fish species identification, management plans, fees, fishing licenses, size of sexual maturity, gear size, etc. Alongside these meetings, radio programs were designed and diffused through the USAID/COMFISH Plus 11 local partner radios throughout the country with a focus on topics related to the Fisheries Code extracts on fees, prohibitions, and safety-at-sea, among others. As an aid to popularize the fisheries code and sensitize users on sustainable management of the resource, extracts of the fisheries code were printed and distributed to stakeholders. The sections on artisanal fisheries were extracted and combined with images. Some segments were highlighted and translated into local languages. The 3,500 copies printed were distributed to stakeholders, with each of 35 CLPAs receiving 100 copies.

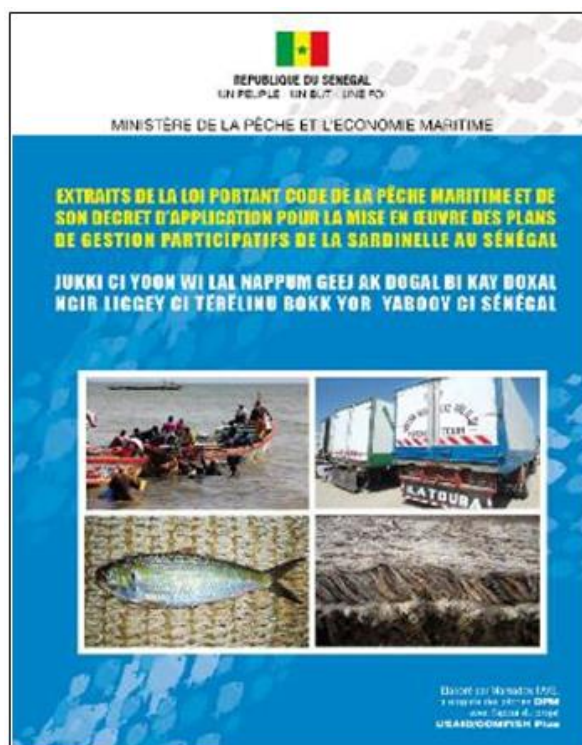


Figure 7. Extract from the fisheries code (available on www.clpa.sn and USAID/DEC)

In conjunction with popularization of the Fisheries Code, a mass awareness raising campaign for the payment of fishing licenses and wholesaler cards was conducted. The strategy included radio programs, meetings in informal sheds called “*Mbaar*” and sometimes using a town crier. In total, more than 5,000 people were reached. During these sessions 2,557 licenses and 175 wholesaler cards were purchased in 7 CLPAs. This activity is also part of CL implementation.

Local Radio Partnerships. In support of CLPA capacity development, CL and FMP implementation and outreach to fishing communities, the project developed a participatory communications strategy in partnership with CLPAs and 11 local radio stations¹⁰. More than 600 programs were broadcast over 2 years on topics including: the fisheries code, canoe registration and fees, the CLPA and its functioning, the governing bodies and roles of the various officials, conflict prevention, payment of license fees, IUU fishing, and safety at sea. Themes were selected in a participatory manner through theme selection committees set up within each CLPA and comprising representatives from the CLPA, the local fisheries administration, the partner radio concerned and the project. According to the actors interviewed during the mid-term review of the programs in the various partner CLPAs and participants at the project close-out workshop, radio programs significantly contribute to raising awareness and changing the behavior of fishing actors for sustainable fisheries in Senegal. Community radios indicated that the content developed in collaboration with the project and stakeholders is highly relevant for their listeners and they intend to continue to use it in future broadcasts. Radios also noted that, due to the project partnership, they have a well-developed network of local actors in the fisheries sector that they will continue to engage with to inform their programming.

¹⁰ The project partner radios were: La Côtière (Joal), Dunia and Lux FM (Mbour), SEN FM (Sindia North), Jokko FM (Rufisque), Cayar FM (Cayar), Teranga FM, Sud FM - Ziguinchor, Kaf FM (Kafountine), Foundiougne FM and Betenty Niokok (Saloum Islands).

A CLPA Website. In an effort to increase awareness of CLPAs both nationally and internationally, to help them share their experiences, strengthen their networking, and internal and external communication, the USAID/COMFISH Plus project worked alongside the DPM, setting up, launching and maintaining a CLPA website (www.clpa.sn). The site, designed and validated with the direct involvement of fisheries stakeholders (CLPAs, DPM) provides information on the mission and structure of CLPAs, the number of CLPAs per region, their activities (initiatives, meetings, trainings, news), and publications. The launch of the website was the focus of a video available on YouTube, and it also prompted an article in the CLPA website and in Issue N° 27 of *Tallar Infos* (Cayar FM newsletter on artisanal fisheries in Senegal and in the sub region). The YouTube link and the launch article on the website were shared with the main partners of the project (Fisheries administration, CLPAs, fisheries/environment research and training institutes, donors group on fisheries, and projects/NGOs working in the fisheries sector). To reinforce ownership and sustainability, training sessions were organized for the actors in four CLPAs: Mbour, Saint-Louis, Ziguinchor and Cayar. Focal points were consensually identified in each CLPA to contribute to the life and updating of the website with a strong involvement of the CLPA secretaries. DPM is the website host.

CLPA Networks established and functioning. USAID/COMFISH Plus supported MPEM to finalize and implement its' policy on the establishment and operations of a National CLPA network, an important stakeholder consultation framework for a sustainable collaborative management of fisheries resources. The focus was geared towards Order N° 06811 of 03 May 2016 on the "Creation, Organization and Operation of the CLPA Network". The process for creation of Departmental, Regional and National level CLPA Networks started in early 2017. The CLPAs chose their representatives at each level through facilitated sessions and sensitization. These sessions provided actors with a deeper understanding of the concept of "Network" and the need for such an initiative. The roles and responsibilities of network members and the procedures for appointing delegates were also reviewed.

Departmental and Regional offices in the Regions of Saint-Louis, Louga, Fatick and Ziguinchor were created. Their composition (like that of the CLPA) includes a coordinator, a first vice-coordinator, a second vice coordinator and 5 technical committees composed as follows: a finance officer, an awareness and communication officer, a conflict management and prevention officer, a fisheries resource management and environmental officer and an external relations and partnership officer. The position of administrative officer is the responsibility of the local fisheries administration.

The project supported installation of the National CLPA Network on June 14-15, 2017. The first day was devoted to selecting the delegates. Their installation was formalized by the MPEM Minister in the presence of all the technical and financial partners, including USAID/Senegal. The project collaborated with the Communication Unit of MPEM to invite over twenty media representatives (5 TV channels, 5 radio stations, 8 online media representatives and 5 print media) for national scale awareness raising about the network.



Figure 8. Executive Bureau of the National CLPA Network

USAID/COMFISH Plus provided technical and financial support for the National CLPA Network to develop a roadmap and annual action plan and implement a number of its' priority activities. This included, a national information sharing and awareness raising tour in all the maritime regions of Senegal with the objective of popularizing the mission of the network among stakeholders and collecting and consolidating feedback on constraints related to sustainable fisheries management and CLPA operations. It also included basic equipment for network functioning, development of a financial and administrative procedures manual, renewal of the Saint-Louis, Lompoul, Potou, and Palmarin/Djiffère CLPAs, and a joint National Network/DPM information tour from June 3 to 12, 2018 on the June 2014 Order harmonizing authorized periods for night fishing of small pelagics.

In 2018, the National CLPA Network demonstrated increasingly effective operational capacity and value-added in fulfilling its' objectives to:

- Act as an interlocutor with the public authorities and various technical and financial partners in the area concerned for all matters related to the development of the artisanal fishery and the management of exploited fishing resources;
- Give an opinion on any cross-cutting issue that would have been submitted to it by the Minister in charge of fisheries;
- Promote dialogue and consultation between all the actors involved in the management and exploitation of the common resources, members of the CLPAs constituting the network;
- Collaborate with networks at the same level (departmental or regional) and sharing the same fisheries resources;
- Ensure consistency of the management measures recommended under the various management and fisheries management plans implemented in the area concerned;
- Serve as a bridge between the upper and the lower level on all matters relating to the development and management of the small-scale maritime fishery.

The National CLPA Network's role in coordinating and communicating a consensus approach among CLPAs and to decision-makers at the national level for harmonizing annual night fishing bans is one example of this emerging capacity. A Success Story in Annex provides more detail. This example is significant because it illustrates concretely the transformation from top down

to bottom up decision-making in the artisanal fisheries sector in Senegal. It also highlights the adaptive power of the CLPA governance framework to respond to challenges that arise when decision-making is deconcentrated. A second, equally powerful example of the Network's emerging role is its' advocacy behind the scenes and in the media to push for approval of the inter-ministerial order (Finance and Fisheries) providing legal authority for implementation of the return of 60% of artisanal fishing license revenue to CLPAs for their functioning. As detailed above, the order was signed in November 2018 and establishes a shared objective for CLPAs and the administration as it incentivizes annual canoe licensing.

CLPA networking is an opportunity for the political authority in charge of fisheries management to effectively communicate with stakeholders in the large and geographically disbursed artisanal fisheries sector, and to reform and popularize legislative texts with a wide-ranging, well organized and representational participation of the sector. It is an opportunity for CLPAs in that it enables them to share information on the sustainable management of fisheries resources, take charge of local initiatives for sustainable fisheries management and share the problems and constraints of the Senegalese fisheries, as well as the solutions envisaged. As the capacity of the CLPA governance framework in Senegal continues to increase and the authority to make and implement fisheries management decisions at the CLPA level is increasingly exercised, the need for an equally strong platform for networking among CLPAs and up to and down from the national level to reinforce the relevance of the CLPA structure to national policy and vice versa is evident. Ultimately, the CLPA Network will ensure the sustainability of the impacts of the two COMFISH projects.

During the ceremony installing CLPA National network delegates, a tribute was paid by the actors to the USAID/COMFISH and COMFISH Plus projects for having chosen CLPAs as the “institutional gateway” for marine fisheries co-management and for its' commitment to the networking process of the CLPAs of Senegal. This grass-roots community approach to a deconcentrated management of fisheries was the core innovation and contribution of the COMFISH projects, taking an existing, but lagging, model and helping it to succeed.

Capitalization Products

[Emergence des CLPA dans la gouvernance de la pêche artisanale au Sénégal \(sept 2018\) - French](#)

[Emergence of CLPAs in artisanal fisheries governance in Senegal \(July 2018\) - English](#)

Results Component 2: Enactment of CLs as the main instrument for the implementation of Fisheries Management Plans

Expected Results	Actual Results
- The roles of groups in the implementation of all CLs for Sardinella are formally assigned and their operations supported - Stakeholders are informed and educated on the management measures and rules set out in the CLs; rules of CLs of the seven new CLPAs are disseminated and distributed to internal and external stakeholders 9 CLPAs targeted by USAID/COMFISH with existing CLs have demonstrated operational functionality - Meetings to assess the existing CLs are held - Women's groups are trained to follow the rules and measures in the CL - An MOU is signed and approved, defining the roles and responsibilities of CLPAs and the schedule for developing the CLs in Sine Saloum - A review on fisheries resources management is done at the CLPAs concerned - Formal measures and rules are adopted at the local level for rationalized fisheries management on the sites concerned 7 CLs for Ethmalosa in Sine Saloum approved by the CLPA Coordination and Advisory Bodies (ICC) and signed by the Divisional and sub-Divisional authorities 5 CLPA Committees in each locality are established and trained properly to monitor and control the application of the CL	13 Step CL development process completed with 7 Sine Saloum CLPAs. - Selection and training of 21 community relays to support the process of developing CLs in Sine Saloum. - Data collection and analysis on the state of management of marine resources in 7 CLPAs in Sine Saloum. - Scientific research partnership supports the CL process with participatory mapping process and map products included in the CLs. 7 CLs developed and approved in the Sine Saloum, effectively expanding the geographic coverage of the functional CLPA governance framework and providing a CLPA level mechanism for implementation of the Fisheries Code in these CLPAs. - Vulgarization of the CLs conducted, including 345 women, and CLPA committees trained in their roles. - Evaluation, updating and renewal processes for existing CLs supported in 10 CLPAs targeted by USAID/COMFISH demonstrating operational functionality.

The Local Agreement (CL) is a formal agreement on natural resource management rules, concluded between resource users in compliance with legal and legislative provisions. It must be adopted officially by the CLPA Coordination and Advisory Committee (ICC) and signed by the Divisional and sub-Divisional authorities (Prefectures) that represent the State. Developing a CL begins with a request from resource users who want to change their fishing behavior and avoid poor fishing practices in their areas. After they submit their request, the users receive training (either from the public authorities, NGOs and/or a project) to set and implement sustainable management rules on one or several marine resources. The CL development process was a key innovation introduced and implemented by USAID/COMFISH. It comprises thirteen stages. The actors can begin to implement the management rules in the CL after the local authority approves it.

Local Agreement Objectives

- Consensually regulate access to fisheries resources;
- Involve people in the definition and implementation of consensual rules for the management of fisheries resources;
- Encourage people to voluntarily comply with the rules adopted for sustainable exploitation;
- Bring each actor in equity to access the fish resources for the satisfaction of his vital needs without compromising the interests of others and without jeopardizing existing potential;
- Strengthen consultation mechanisms among the various actors and ensure the preventive management of conflicts of interest and especially of professions.

The key stages in the development process are to set up the ICC and five other committees for CLPA governance as specified in the 2010 Ministerial Decree. Fines and penalties may be levied in compliance with the Fisheries Code. Another important activity in the CL is for the ICC to organize annual evaluation meetings (on technical and organizational issues) with resource persons and partners.

New Local Agreements Developed and Approved in the Sine Saloum. Seven new CLs were developed with USAID/COMFISH Plus assistance in the Sine Saloum area: Niodior, Bassoul, Djirnda, Foundiougne, Sokone, Toubacouta and Missirah. The 13 step process developed under USAID/COMFISH and further institutionalized among actors in the sector through its' repeated application in this case was conducted as follows:

1. ***Installation of new facilitators.*** Two new project facilitators were assigned to Foundiougne and Toubacouta to support the process of developing the CLs in the Sine Saloum CLPAs. Their offices were set up in the Fisheries Department for an improved collaboration with fisheries officers and professionals in the area. Meetings were held to introduce the facilitators to the local authorities and fisheries stakeholders. This was of dual importance in that it enabled them to identify the key actors involved in the management of fisheries resources, but above all to learn about certain realities related to fishing in the localities.
2. ***Informing and sensitizing actors in the process of CL elaboration.*** Community information meetings on CL elaboration in the 7 CLPAs were organized during the second quarter of 2017. They helped inform the administrative and local authorities (Prefects, Sub-prefects, fisheries administration and local authorities) of the start of activities, and secure their collaboration in the process of drafting the CLs. Seven meetings were organized with the Coordination and Advisory Committee members of the 7 Sine Saloum CLPAs. These workshops presented the objectives of the CL, its application areas, the step-by-step development process and the roles and responsibilities of the various actors involved in the process. A total of 201 actors were informed, including the heads of units and fisheries control, the members of the CLPA ICCs and the administrative authorities who chaired most of the meetings.
3. ***Signing of Memorandum of Understanding with the seven CLPAs.*** A memorandum of understanding between the project and the Sine Saloum CLPAs was proposed. As a commitment by both parties, the protocol sets out the roles and responsibilities of each party. The seven CLPAs through their ICCs, validated the partnership document with the project. Adding to their role as presidents of the CLPAs, the Prefects and Sub-Prefects also endorsed the documents.
4. ***Selection and training of community relays.*** During the information meetings, the ICCs of the seven CLPAs concerned selected the community relays to support the process of drawing up the CLs. The following selection criteria were chosen: to volunteer; to be a resident of the local community; to be active in the fisheries sector; to be able to read and write in French; to be able to speak in one of the local languages and in French; to be aged between 18 and 50; to be available; and, to be of good moral character. A total of 21 relays were engaged. Three relays per CLPA were needed due to the distances and inaccessibility of communities in the Sine Saloum zone. Their training was organized on January 13-14, 2017. During these two days, their capacities were strengthened in terms of the key stages of the CL process, such as: taking stock of the fisheries situation in each CLPA and identifying the constraints in fisheries meeting facilitation, reporting on technical activities, and conducting surveys.

5. **Baseline (actors, fishing gears, fishing infrastructures).** After selecting the community relays, capacity building followed to enable them to determine the fisheries situation baseline. The main information collected relates to the number of fishers, their profile, the equipment used by the various trades engaged in the exploitation of fish resources as well as fisheries support infrastructure. A total of 1,340 active pirogues were recorded with sizes varying from 4 to 20 m in length and outboard motors ranging from 8 to 40 horsepower. Fishers dominate in terms of actors in the fisheries, except in Niodior and Missirah, where mollusk harvesters and processors are the majority (mussel, oyster, murex and cymbium). Shellfish harvesting is a women-dominated activity. In the artisanal processing sector (mainly ethmalosa smoking), there are 8 equipped processing areas and 15% of the actors are foreigners, mostly Guinean. To validate the results of the fisheries baseline situation assessment, CLPA secretaries, technical services involved in the sustainable management of fisheries (Fisheries Department, Water and Forestry Commission and MPA Managers) and the project team participated in feedback workshops.

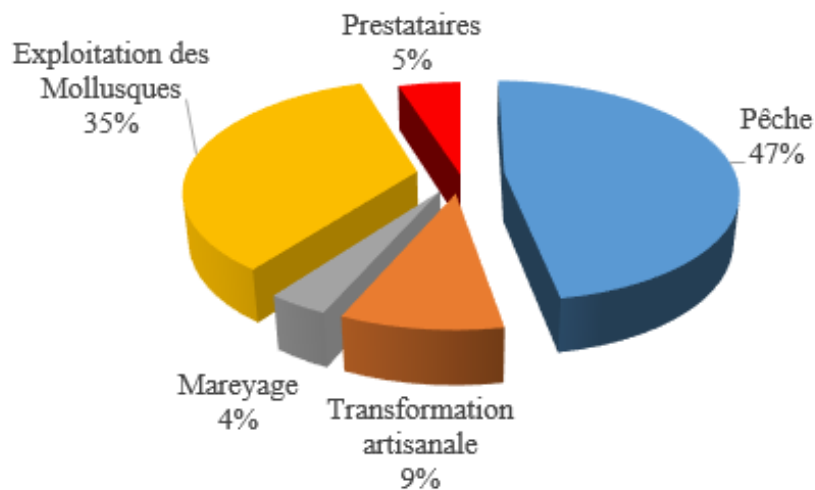


Figure 9. Fisheries socio-professional categories in the Sine Saloum

6. **Participatory Mapping.** CSE carried out a mapping exercise that integrated field data into the final mapping products. More than 15 products were produced and made available to the USAID/COMFISH Plus team and stakeholders for the purpose of developing CLs in these CLPAs.

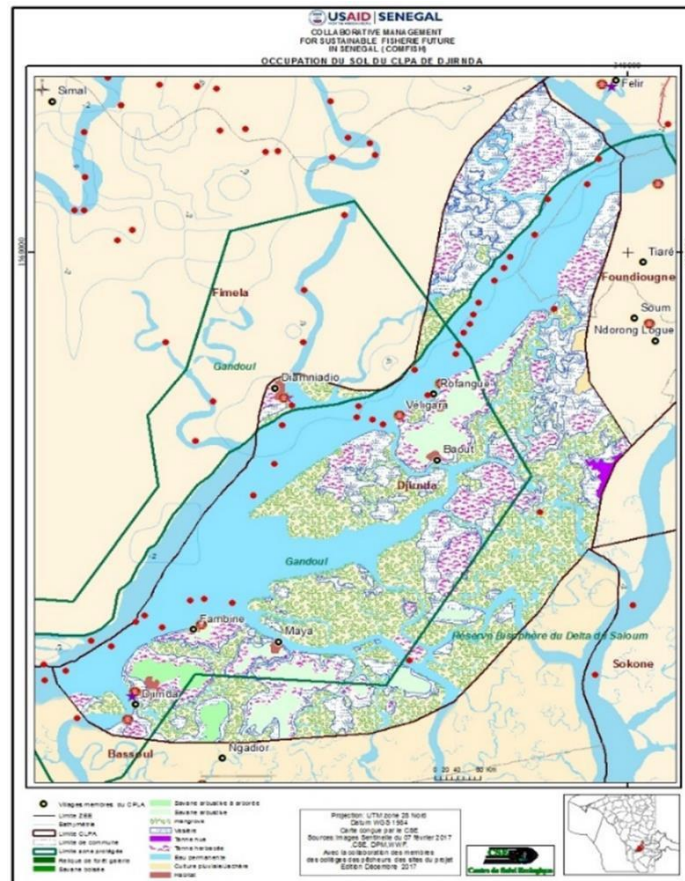


Figure 10. Land use in the Djiirnda CLPA

7. **Focus group discussion with actors to identify constraints and potential solutions.** In order to identify the constraints on fishing and the fishing sector in the Sine Saloum, focus group discussions by colleges (CLPA fishermen, fishmongers, processors, mollusk harvesters) were conducted. In all 167 focus group discussions were facilitated involving 2,449 actors.
8. **Harmonization and validation of fisheries management rules.** Harmonization meetings were organized to identify and propose rules common to various fisheries resources. Representatives of the ICC, including the CLPA Secretary, and project facilitators were present for each CLPA. At the end of the meetings, the actors were satisfied with the proposed rules for sustainable management of fishery resources.
9. **Drafting of the CL document** integrating, baseline information, maps, and fisheries management rules proposed by stakeholders in each CLPA.
10. and 11) **Review and validation of the new CL.** Between December 2017 and February 2018, workshops were held for feedback on and validation of the new CLs of the 7 Sine Saloum CLPAs. All members of the ICC, the area Prefect or Sub-Prefect and the de-concentrated fisheries services attended these meetings and validated the CLs. This includes a step for technical validation by the fisheries administration.
12. **Approval and signature by the authorities.**
13. **Vulgarization.** To popularize the new rules of these CLs, the project printed copies (40 for each CLPA) and distributed them to the actors. Community relays, under the supervision

of the Heads of fishing stations and the project facilitator, made village level visits to explain the contents of the document and its usefulness as a tool for the management of fisheries resource. Seventeen villages were covered by these visits with a total of 645 participants including 345 women.

New CL implementation. Project support for CL implementation began with capacity building of the CLPA, members of the ICC and the 5 commissions. It also included support for participatory surveillance, which enables effective implementation of the rules of the CL. Twenty-eight members of the surveillance committees of the 7 CLPAs received capacity building on participatory monitoring from May 1-5, 2018 in Foundiougne facilitated by an official of the DPSP. Topics included: the legal and institutional framework of fisheries surveillance in Senegal; participatory surveillance mission modalities (strategic approach, mission team composition, equipment, mission implementation, inspection and reporting); safety-at-sea; role and responsibility of the fisher supervisor; and, the fisheries code. The project also supported preparation of an annual work plan for implementation of each CL. Annual work plans include capacity building activities and are shared with all of the CLPA's partners for support of the identified priority actions. The annual work plan is a key tool for monitoring implementation of the rules of the CL.

Each of the 7 CLPAs was provided with a desk, a computer, a printer and 50 meeting chairs. Executive Board members were trained on the sound management of the equipment provided.



Figure 11. Equipment received by the Missirah CLPA in the presence of the Sub-Prefect

Evaluating, updating and renewing CLs. Evaluation and updating of on-going CLs was carried out in 10 CLPAs in order to update local management rules for effective local governance of fisheries. A total of 20 focus groups were organized in the CLPAs of Mbour, Sindia Nord, Sindia Sud, Joal Fadiouth, Cayar, Saint Louis, Rufisque/Bargny, Yene/Dialaw, Ziguinchor, and Kafountine. These consultations involved 464 actors composed of wholesalers, fishermen, male/female processors and service providers to collect information related to the implementation of CLs.

The information was shared in feedback workshops with the CLPA Coordination and Advisory Committees (ICC) and helped identify achievements, constraints and recommendations to readjust the CL implementation process. In some CLPAs, these feedback workshops were presided over by the Sub-Prefects or Prefects of the locality. In other CLPAs, the CLPA

secretaries (Post Heads or Departmental Inspectors) were invited to chair the meetings. Overall, the conclusions of the workshops showed the effective contribution of CLs in the sustainable management of fisheries resources. The CLs have encouraged the actors to pay fees for fishing licenses, register their boats, conform with the mesh size, reduce intra and inter-professional conflicts and align with hygiene and quality standards in the landing and processing centers.

The actors suggested actions for a more effective implementation of CLs, such as strengthening the financial resources of CLPAs; CL socialization through the media and translation into local languages; increasing the number of surveillance outings; strengthening of actors' capacity; and periodic consultations between the different trades. New measures were also suggested for incorporation into CLs, such as the legal status of "fisher self-surveillance" that is expected to be approved in a Ministerial Order soon.

CLs for the CLPAs of Cayar, Mbour, Joal, Rufisque/Bargny, Yene/Dialaw, Ziguinchor, Kafountine and Saint-Louis were formally updated as a result of this process. Sinda Nord and Sud are on a cycle to be formally updated next year. To help popularize the new rules of the updated CLs, the project produced 40 copies for each CLPA.

Theatrical performances to support CL implementation. Based on the success of theatrical performances and public shows organized by the USAID/COMFISH project and at the request of actors, the project facilitated theatrical performances in four CLPAs (Mbour, Joal, Kafountine and Saint-Louis) to support implementation of their CLs on the topics of juvenile fishing and safety at sea. The events were very well received with hundreds in attendance.

Capitalization Products

[Capitalisation de la démarche du projet USAID COMFISH en matière d'élaboration et de mise en œuvre des outils de cogestion des ressources halieutiques au Sénégal](#)

Video: Local Conventions, local governance tools for the sustainable management of fisheries resources (September 2018) (French with English subtitles) <https://www.youtube.com/watch?v=5YOEo8X4h1M>

Video: Les Conventions locales, outils de gouvernance locale des ressources halieutiques au Sénégal, (2018) <https://www.youtube.com/watch?v=wQqOLcbiWO8>

Results Component 3: Enhanced Capacity to address IUU Fishing

Expected Results	Actual Results
• High level political visibility and Senegalese regional leadership in preventing and combatting IUU fishing • Continued support to participatory CLPA surveillance reduces the occurrence of poor fishing practices and strengthens implementation of CLs and FMPs • National Task Force to Combat IUU Fishing set up and Action Plan formulated, with initial actions implemented • Strengthened legal, judicial and institutional capacity • Strengthened sub-regional, regional, and international cooperation on IUU fishing, including assistance to the CSRP to analyze opportunities for strengthening its role in such efforts	• Sub-Regional Fisheries Commission (CSRP) Ministerial Conference convened in May 2017, resolving a 4-year institutional stalemate, enabling the CSRP to move forward in fulfilling its' mandate to harmonize member countries' policies for the protection, conservation and sustainable exploitation of their fisheries resources. • MPEM Ministerial delegation U.S. Study Tour on IUU fishing in May 2018 highlighted the importance of the ecosystem approach with a broad coordination of the institutions involved in the management of maritime and territorial issues and strengthened networking with U.S. agencies. • A nationally televised round table on IUU fishing provided an opportunity to discuss causes, consequences and solutions, and to reaffirm the political will of key institutions and actors to address the issue. • Legal texts reviewed and recommended updates validated to strengthen post-harvest quality controls and traceability. • CLPA participatory surveillance expanded in geographic coverage and frequency of missions. 12 CLPAs, conducted 342 missions, 4,788 artisanal canoes were inspected, with 575 boardings at sea. • Order introduced recognizing the legal status of fishermen participating in surveillance brigades.

USAID/COMFISH Plus worked in a targeted and strategic manner at the International, Sub-regional, National and local levels to support innovative approaches and increased capacity for leadership, partnership, policy formulation and implementation in Senegal's on-going efforts to combat IUU fishing in the artisanal and industrial sectors. This was in support of the National Strategy to fight against IUU Fishing in Senegal (2013), National Plan of Action to fight against IUU fishing in Senegal (2014), the revised LPSP-PA (2016-2023) and the revised Fisheries Code (2015).

CSRP Ministerial Conference. The CSRP is an intergovernmental body created in 1985 through a Convention bringing together seven member states: Cabo Verde, The Gambia, Guinea, Guinea Bissau, Mauritania, Senegal and Sierra Leone. The main mandate of the CSRP is to harmonize member countries' policies for the protection, conservation and sustainable exploitation of their fisheries resources and to strengthen their cooperation for the benefit of their respective populations. USAID/COMFISH Plus provided financial assistance to organize the 29th Extraordinary Session of the Coordination Committee of the Sub-Regional Fisheries Commission (CSRP), followed by the 18th Extraordinary Session of the Conference of Ministers of the CSRP on May, 17-18, 2017 in Dakar. This provided the Conference of Ministers of the CSRP the opportunity to take resolutions to enable the CSRP to emerge from an institutional stalemate it had been in since 2013 that required revisions to its' statutory texts. The situation prevented it from exercising its mission and playing its role of harmonizing fisheries policies and coordinating the various interventions and initiatives to contribute to combatting IUU fishing and to improved management of shared resources in the CSRP area, including for small pelagics. As a result of this initiative, a new CSRP Permanent Secretary was appointed and installed as of July 31, 2017 and the CSRP was able to move forward on key issues.

In September 2017 it hosted a sub-regional workshop for the “Validation of the comparative study on the harmonization of fisheries legislation in the CSRP area with the Convention on Minimum Access Conditions (CMAC)”. This is a key step in the process of harmonizing the conditions for access to fisheries resources in the CSRP area and will contribute to more effective control of IUU fishing in the CSRP area. The CMAC, which entered into force in 2012, contributes to the harmonization of general principles and rules on sustainable fisheries, but also meets the conditions for sub-regional integration of fisheries policies in the CSRP zone. Validating this study gives the CSRP a sub-regional legal instrument in line with relevant international rules on sustainable fisheries.



Figure 12. CSRP Ministers at the May 2017 Conference of Ministers closing ceremony

U.S. Study Tour on IUU Fishing. A study tour was organized by USAID/COMFISH Plus from April 28 to May 4, 2018 in collaboration with USAID/Senegal, USAID/Washington and other U.S. Government agencies. The ministerial delegation visited Rhode Island and Washington DC and shared experiences on the management of fisheries resources, including strategies to address IUU fishing and to identify avenues for collaboration with US institutions working in the same field. These included meetings with the University of Rhode Island Graduate School of Oceanography, the Rhode Island Department of Environmental Management, Rhode Island Congressman Jim Langevin, a fishing gear manufacturer, USAID/Washington Africa Bureau, E3 Bureau, and the Bureau for Food Security, as well as NOAA, USCG, the State Department and the Stimson Center. The delegation was led by the Minister of Fisheries and Maritime Economy (MPEM), and included the Director of Fisheries Protection and Surveillance (DPSP), the Director of Fisheries Processing Industries (DITP), the Coordinator of the Research and Planning Unit (CEP) of the MPEM, and the Head of the Inspection and Control Division of the DPSP. The USAID/Senegal COMFISH Plus Activity Manager also participated.

This visit provided a number of key lessons in addressing IUU fishing:

- The importance of coordination and information exchange between national and regional institutions;
- Mutual understanding of the management and surveillance system for an improved grasp of the roles and responsibilities of the different structures involved;
- The US and Senegal share a similar vision on many issues of IUU fishing;
- The importance of research and scientific input to decision-making;
- The importance of the ecosystem approach with a broad coordination of the institutions involved in the management of maritime and territorial issues;
- The importance of statistical data (fishing effort, catches) in the management policy governing the stocks and fisheries;
- The importance of traceability of fishery products;
- The capacity of Senegal as a regional leader on IUU fishing.



Figure 13. The MPEM Study Tour delegation to the US on IUU Fishing at their first stop, The University of Rhode Island's Graduate School of Oceanography

A debriefing was held at USAID/Senegal following the delegation's return. Follow-up on post study tour action plan activities are in process directly between the various agencies involved.

The Ministerial involvement in understanding and combatting IUU fisheries, through global collaboration, places this type of work at the appropriate level for meaningful action.

Televised debate on IUU fishing. To increase awareness on the devastating effects of IUU fishing in Senegal and help to promote vigorous measures against this problem, the USAID/COMFISH Plus project, in collaboration with the MPEM and its technical arm in charge of Fisheries Protection and Surveillance (DPSP) facilitated organization of a nationally televised (RTS) roundtable on IUU fishing. The roundtable brought together the Director of the DPSP, Navy Captain Mamadou Lamine Ndiaye (also representing his line ministry), the Chief of Party of the USAID/COMFISH Plus project, Dr. Khady Sane Diouf, the National CLPA Network Coordinator, Abdoulaye Ndiaye, and a member of FENAGIE Pêche, Mouhamadou Kandji. Panelists discussed the causes, consequences and solutions to the problem of IUU fishing that seriously undermines efforts to promote sustainable fisheries in Senegal.

There are several causes to IUU fishing, both in industrial and artisanal fisheries: high profits, growth in markets for fishery products, including juveniles, resource depletion following a continuous increase in fishing effort, overcapacity of the fishing industry, and weak surveillance. The consequences are economic, social, and environmental. Several solutions were recommended during this debate. Political will has been reaffirmed in particular with the new Fisheries Code, the National Plan to Combat IUU Fishing, the Task Force, and local governance bodies (CLPA and CLPA networks). The existence of institutions empowered to combat IUU fishing at regional (CSRP) and international (FAO, EU) levels was forcefully reiterated. Debate participants unanimously hailed the efforts of the USAID/COMFISH Plus project for a concerted management of fisheries in Senegal.

Workshop to update legal texts on post-harvest quality controls and traceability. The USAID/COMFISH Plus project also provided support to MPEM through the Department of Fisheries Processing Industries (DITP) to organize a workshop to share and validate the draft review of Order N° 69-132 of February 12, 1969 on quality control of fishery and aquaculture products. The 1969 Order has become obsolete and inadequate to the current context. Food

safety is emerging as a real imperative both in economic and public health terms. Reviewing the decree makes it possible to meet the current requirements and improve the competitiveness of the Senegalese fishing industry. The new text will improve national regulations and allow the competent authority to carry out official controls with a better reference system that takes account of the traceability of Senegalese fishery products. It will promote the export of artisanal products from a responsible and regulated fishery.

Participatory Surveillance. Participatory surveillance for enforcement of CL rules in the fishing zones, at the fishing docks, and at fish processing sites is a pillar activity of a strengthened CLPA governance framework. In tandem with increasing levels of voluntary compliance driven by stakeholder participation in fisheries management rulemaking, participatory surveillance aims to strengthen and extend capacity for enforcement in the artisanal sector. Participatory surveillance activities initiated under the USAID/COMFISH project were expanded with the support of USAID/COMFISH Plus. At the request of the administration and actors, the number of surveillance outings financed per CLPA per month was increased from two to three. In addition, as part of extension of the CL process to Sine Saloum, new surveillance committees were established in 7 CLPAs in that zone and received capacity building training.

Marine outings and beach inspections were supported by the project in 12 CLPAs (Mbour, Joal Fadiouth, Sindia Nord, Sindia Sud, Rufisque/Bargny, Yenne/Dialaw, Cayar, Kafountine, Ziguinchor, Saint-Louis, Palmarin). A total of 4,788 canoes were inspected, with 575 boarded at sea. The most common offenses included: insufficient lifejackets in the canoe or lack of wearing lifejackets; absence of fishing license and unregistered canoes; non-regulatory fishing gear; use of prohibited nets (e.g. monofilament), catching and processing juvenile sardinella, spearfishing at the Petite Côte, non-compliance with hygiene conditions in the fishing docks, processing on ground, and poor storage conditions. The nature of the infractions indicates the continuing need to popularize the Fishing Code at the same time participatory surveillance is conducted. Surveillance agents offer awareness-raising and warnings before applying sanctions, but fines and seizures of fishing equipment or products was also necessary.

The volume of juveniles in catches was noted in many fishing centers. When found, they were seized and destroyed. For example, 94 tons of juveniles were seized and destroyed at Rufisque and 47 tons at Kafountine in 2017. In 2018 in Joal/Fadiouth approximately 100 crates of juvenile sardinella were seized during an operation. At processing sites some people have been imposed fines of more than \$2,500 for processing juveniles. Meanwhile, data that is limited in scale and scope collected by the newly established joint data collection units at 4 sites from November 2017 to June 2018 indicates a noticeable size composition of legal fish in 3 out the 4 sites (Cayar, Hann, Mbour). In Joal, only about 16% of the landings were sub-legal size fish. These are noticeable improvements in comparison to previous years based on DPM and CRODT accounts, but trends cannot be confirmed based on the limitations of this sample.

To build capacity, foster learning and improve systems, USAID/COMFISH Plus supported exchange meetings among CLPA surveillance commissions on the constraints of participatory surveillance. The diagnostic revealed organizational and technical constraints and potential solutions. The table below summarizes some of the difficulties encountered during surveillance trips and solutions proposed.

Table 3: Constraints facing co-surveillance brigades and solutions proposed

Constraints	Proposed Solutions
• Delay in planning of surveillance operations; • Insufficient number of trips; • Sluggishness of some commission members; • Poor preparation of trips; • Lack of training due to surveillance committee turnover; • Too much mediation in case of boarding; • Patrol report not accessible to the actors; • Non-compliance with weather warnings; • No cover in case of accident; • Information in surveillance trip reports is neither exhaustive nor harmonized; • Poor control of the fishing code by most coastal station heads; • Absence of security coverage for land trips; • No status for the fisher-supervisor; • Insufficient means (obsolescence of equipment, lack of surveillance canoe in certain sites, working clothes, name badges); • Narrowness of the fishing area strictly reserved for artisanal fishing (5km width) in Joal because of the contiguity with the ZPP of the Petite Côte and the MPA of Joal.	• Train surveillance teams on the fishing code and surveillance techniques; • Provide surveillance brigades with equipment (motorized canoe, working clothes, name badges); • Establish a fishery insurance that will take into account the land part; • Propose a patrol report template; • Share patrol reports with all stakeholders; • Increase the number of trips; • Apply the penalties provided for; • Make the trips in a timely manner.

In the interest of institutionalizing participatory surveillance USAID/COMFISH worked with a national insurance provider, an IT provider and stakeholders to develop an insurance product to cover fishermen participating in surveillance missions. On these joint missions, fishermen are the only parties not insured by an employer and participate at considerable personal risk. Under COMFISH Plus, following evaluation of the scheme and stakeholder feedback, a bid for renewal of the service was not successful due to lack of responsiveness of the service providers to the expectations of beneficiaries and the project. Finding a suitable and sustainable market- based insurance platform for the case of participatory surveillance and for artisanal fishermen in general linked to safety at sea early warning systems remains a challenge.

While the status of fishermen participating in surveillance is administratively recognized, they do not have legal status. In September 2018, an Order was introduced to legally recognize the status of fishermen participating in co-surveillance missions and define the modalities of their selection and operations. The Order notes the possibility, but not the obligation, of the administration providing insurance in this case, strictly limited to the conduct of the surveillance mission.

The project also facilitated meetings in Joal, St. Louis and Cayar with Marine Protected Area (MPA) teams aimed to see how the DPSP surveillance brigades and the management committees of the MPAs can pool their efforts for an effective participatory surveillance of fisheries. The MPAs are better equipped than CLPA/DPSP co-surveillance brigades. Upstream synergies do exist because the same actors make up the CLPA participatory surveillance brigades and MPA management committees. Synergizing was more visible in Saint Louis, where the MPA sends an agent to the CLPA/DPSP co-surveillance brigade during sea trips. At the MPAs of Joal Fadiouth and Cayar, joint operations were rare. The exchanges with the MPA teams showed willingness and availability of these teams to synergize better for a more effective participatory monitoring.

In FY18, the project reinforced the capacity of 18 CLPA surveillance committees with the provision of safety-at-sea equipment. A total of 190 lifejackets, 7 GPS and 35 sailing slickers were distributed.



Figure 14. Participatory surveillance training in Foundiougne

Results Component 4: Deployment of the Fisheries National Climate Change Adaptation Plan

Expected Results	Actual
• A system of weather alerts to fishermen initially launched by USAID/COMFISH covering the Senegal coast reaches all fishermen through a network of fishermen cell phones, landing site flags, and local radio stations • Fishing boat losses, and fishermen injuries and fatalities reduced • Climate information supply and use expanded • Effectiveness of CLPA adaptation actions assessed • Challenges and opportunities for artisanal fishing insurance reviewed • Actions taken to support and implement the national Climate Change Adaptation Fisheries Plan	• Approval and signature of the National Adaptation Plan (NAP) for Fisheries and Aquaculture Horizon 2035 on November 3, 2016. • Participation of COMFISH Plus and MPEM in COP 22 in Marrakech, Morocco 12-20 November 2016 to announce and share the Fisheries NAP globally. • National Platform on Fisheries and Climate Change (PN-PCC) established by inter-ministerial Order in May 2017, operational and supporting Fisheries NAP implementation, including development of climate finance opportunities. • ANACIM trained in information technology and marine modelling for more precise real time transmission of weather alerts. • 3,047 actors, including 2,021 women, trained in climate change adaptation in more than 100 workshops coast-wide. • 109,000 actors in the fisheries sector (29,519 women) use climate information for early warning/safety at sea through 71,662 alerts sent by the national SMS alert system linked to landing site flags and local radio stations. • Annual Work Plans for 6 local adaptation plans developed and implemented • Capacity of more than 115 institutions strengthened in climate change and exchange of climate information at national, regional and local levels, including 35 CLPAs.

The National Adaptation Plan for Fisheries and Aquaculture Vision 2035 signed and presented at UNFCCC COP-22. The Minister of the Environment and Sustainable Development (MEDD) and that of MPEM jointly signed the Fisheries NAP on November 03, 2016 at the Ministry of Maritime Fisheries. It was developed with the technical and financial support of the USAID/COMFISH project. This national level endorsement marked a milestone for integration of the climate change dimension into national planning. This agreement on the part of two Ministries contributes to the integration of climate change as a “Strategic Action” into “Strategic Axis 3” of “Specific Objective 1” of the LPSP/PA 2016-2035. The Fisheries NAP thus contributes to the implementation of the LPSP/PA and proposes adaptation measures budgeted at 139 billion FCFA by 2035. The two ministries actively participated in the UNFCCC COP-22 in Marrakech with technical support from USAID/COMFISH Plus to help present the Fisheries NAP at a session hosted by USAID. Sharing of Senegal’s experience in fisheries and climate change at the COP was also an opportunity to gain interest and potential financial support from international organizations such as the FAO and UNDP. Over 2 years, the project

continued to support the Government of Senegal to share the Senegal Fisheries NAP experience internationally, including at a regional NAP Global Network - USAID/WaBiCC project workshop in Togo in October 2017 and a German (GIZ) funded PAS-PNA project Webinar in July 2018.

The National Strategy to operationalize the Fisheries NAP validated. To operationalize the Fisheries NAP, an implementation strategy incorporating a five-year Action Plan was developed. Technical validation meetings were organized: the first in February 2017 (between the technical experts of MEDD and MPEM); the second national validation meeting was held in July 2017 with all stakeholders involved. The strategy reflects the adaptation options outlined in the Fisheries NAP in a five-year Operational Action Plan with an 80.6 billion fcfa budget.

National Platform to follow-up on implementation of the Fisheries NAP created. Consultation frameworks between the fisheries and environment sectors for climate change adaptation and the signing of the Fisheries NAP also resulted in an inter-ministerial Order N°

07-980 of May 12, 2017 on the “Creation of a national climate change fisheries platform (PNPCC)” between MPEM and MEDD. At the institutional and regulatory level, this framework accompanies the process of operationalizing the Fisheries NAP and will continue after USAID/COMFISH Plus. The governance bodies responsible for steering this platform were put in place and are composed of professionals and key players in the fisheries sector, state structures such as the Ministries of Finance and Environment, Parliament, the Economic Social and Environmental Council, the High Council of Local Communities, NGOs, Technical and Financial Partners, research institutes and universities and the private sector. The officers of the Platform (President, Vice-President and Secretary) were officially installed on September 27, 2017. The President comes from the National Inter-Professional Artisanal Fisheries Council (CONIPAS), the Vice-President from the High Council of Local Communities (HCCL), and the Secretariat from DPM.

USAID/COMFISH Plus provided technical assistance to the platform as it developed Rules of Procedure, a Communication Plan & an Annual Work Plan. To support implementation of the PN-PCC/SN’s operational plan, five thematic groups were established on: External Relations, Capacity Building, Communication, Monitoring and Evaluation and Fundraising. These groups will do advocacy, including a civic call to all the stakeholders, for strong engagement and responsible involvement of the population in the management of environmental issues. As these thematic groups are the technical arms of the PN-PCC/SN coordination bureau, their operation is essential for implementation of the actions identified in the management documents of the Platform. In order to better communicate with government authorities and grassroots communities, a PN-PCC logo was validated and a website <http://pnpsc.sn/institutions-membres/> created with project assistance so that stakeholders are assured of a level playing field in terms of information and are capable of synergizing and harmonizing their efforts and their resources to ensure that climate change mitigation measures are coordinated and effective at all levels to the benefit of the adversely impacted populations.



Figure 15. Logo of the National Platform for Fisheries and Climate Change

The first local fisheries climate change platform was set up in July 2018 in Mbour with project assistance. Local platforms will constitute the technical arms of the PN-PCC/SN at the local level to better take into account the needs and specificities of community actors and to better contribute to the integration of climate change adaptation best practices and knowledge into policies. The multi-stakeholder and sector-wide platforms will be the integrated framework for shared governance of climate change issues between local and national levels, but also for harmonization of adaptation measures for more durable financing.

Capacity Building of the PN-PCC: Workshop on climate change financing. The PN-PCC/SN Annual Work Plan included important capacity-building actions, in particular those on climate change financing and accessing the UNFCCC Green Climate Fund that were considered a priority for implementation of the Fisheries NAP. USAID/COMFISH Plus collaborated with the USAID/CEADIR project (Climate Economic Analysis for Development Investment and Resilience) to organize a workshop on this topic from June 19-21, 2018 for USAID/Senegal Economic Growth Team partners in both the fisheries and agriculture sectors. The workshop brought together all the members of the PN-PCC/SN and the members of the National Platform for Science - Policy Dialogue for the adaptation of agriculture and food security to climate change, “CCASA/SENEGAL Platform”. The workshop helped participants better understand the UNFCCC Green Climate Fund for adaptation and gave them methods and tools to help develop bankable projects and programs with the fund.

The Fisheries NAP was the first sectorial NAP implemented in Senegal and one of the world's first for fisheries. This Plan and the multi-agency and stakeholder institution platform to facilitate its' implementation, put Senegal at the forefront of recognizing and reacting to the influence of climate on fisheries management.

Early Warning System (EWS) for Safety at Sea strengthened in partnership with ANACIM and the USAID/CINSERE project. The project enabled more than 109,302 actors, including 29,519 women, to increase their capacity to adapt to the effects of climate change by strengthening synergies and partnerships to improve both delivery and uptake of climate information services provided by the EWS initiative established under the USAID/COMFISH project in response to priorities identified by local stakeholders as they developed local adaptation plans. Continued partnership with the National Agency of Civil Aviation and Meteorology (ANACIM) and a new partnership with the USAID/CINCERE project resulted in more than 3,047 people trained directly, including 2,021 women in more than 100 replicated training workshops and more than 71,662 alerts disseminated over 2 years. The system disseminates alerts by SMS used directly by recipients with cell phones and used by landing site committees to post a flag to indicate green (safe seas), yellow (warning), and red (dangerous seas, no outings). Local radio is also used to disseminate the alerts.

USAID/COMFISH Plus provided financial support for the SMS platform and strengthened the capacities of ANACIM forecasters in marine weather modeling through a 2-week international training in November 2016 to enable them to increase the precision and specificity of climate information service broadcasts to artisanal fisheries actors for improved safety at sea. For sustainability of the system, partners worked with the DPSP to develop a roadmap that spelled out key actions to be carried out, including setting up monitoring units and steering committees at the local level.

The focus of project support was based on a review of the system by the CLPAs of Rufisque/Bargny, Yenne/Dialaw, Mbour, Sindia Nord/Sindia Sud, Joal/Fadjiouth, Saint Louis, Casamance and Sine Saloum. It was carried out at two levels: in colleges during information

gathering meetings and in “mbaars” (the actors’ rest areas). Review findings were validated by the ICCs of the CLPAs. The review enabled the main beneficiaries to identify constraints, assess meteorological information requirements and propose ways of improving and sustaining the system. Overall, all actors appreciate the EWS because of its contribution to the safety of fishermen at sea. One of the limitations identified was the delay sometimes observed in the reception of alerts by local actors. Another was the need for voice alerts that can be accessed by those who are not literate. The USAID/CINCERE Project is addressing this constraint. The EWS has been attributed by local actors with lives saved, however, the number of lives lost in accidents at sea is not showing a downward trend in recent years. The Lessons Learned section of this report discusses this challenge in more detail.

Local Climate Change Adaptation Plans implemented. Climate change adaptation planning in the artisanal fisheries sector in Senegal began at the community level under the USAID/COMFISH project with the development of 6 local adaptation plans in Rufisque/Bargny, Sindia Nord, Sindia Sud, St. Louis, Ziguinchor and Kafountine. To facilitate implementation of these plans, USAID/COMFISH Plus supported the CLPAs of Ziguinchor, Kafountine and Saint Louis to set up monitoring/steering committees recognized legally at the Prefecture level, to develop Annual Work Plans with concrete activities and budgets that were regularly evaluated and updated, and to develop, validate with local administrative authorities, and implement more than 10 Terms of Reference for the various structures involved in adaptation plan implementation. The steering committees include deconcentrated technical services, representatives of CLPAs and local elected representatives, making it possible to ensure coordination and monitoring of implementation of adaptation plan measures, and to promote an inclusive and concerted dialogue around the issue taking into account local specificities and the needs of the various stakeholders at the grassroots level.

Local adaptation plan elements supported by the project included: local EWS for safety at sea activities, activities implemented by women processors to develop sustainable fuel supplies and energy efficient fish processing technologies (including solar dryers), strengthening functionality of MPA Management Committees in Joal, Cayar, St. Louis, Gambia MPAs, institutional support to the MPAs of Saint Louis, Kassabalanta Counda, Niamone Kalounaye, and Abéné for monitoring mangroves and other risk areas (51 missions); outreach missions on sand mining in Saint-Louis, and implementation of sardinella, ethmalosa and octopus FMPs, among others.

Integration of climate change considerations into fisheries management has emerged as a normative best practice among fishing communities in Senegal. The opportunity to engage in a process of vulnerability assessment and climate adaptation planning is in high demand in CLPAs where the USAID/COMFISH projects did not have the time and resources to assist, such as in the Sine Saloum.

Capitalization Products

[Changement climatique et Pêche : Expériences des projets USAID/COMFISH et USAID/COMFISH Plus \(2018\) - French](#)

[Climate change and fisheries : The experience of USAID/COMFISH and USAID/COMFISH Plus projects \(2018\) -English](#)

Video: Climate change and Fisheries: USAID/COMFISH Plus Experience (September 2018) (French with English sub-titles): <https://www.youtube.com/watch?v=vuVoNy6Na-I>

5.2.2. IR2: Governance strategies, policies and best practices identified, tested, assessed and applied to build ecosystem resilience to threats to biodiversity conservation and climate risk

Expected Results ¹¹	Actual Results
- Sardinella co-management plans are effectively implemented - Ethmalosa co-management plans are reviewed by the National Consultative Council on Marine Fisheries (CNCMP), and recommendations submitted to the Minister of Fisheries - Flexible governance systems for fisheries provide proactive adaptation measures to respond to the uncertainties of a changing climate - Collaborative inter-agency research and science supports the implementation and updating of collaborative fisheries management plans - Fisheries research collaborative platform established among IUPA, CSE, CRODT, and IRD/IFAN	- Participatory sardinella FMPs effectively implemented including: - Annual activity plans validated by CLPA ICCs - Implementation monitored at local level by a CLPA unit - Implementation monitored at zonal level in collaboration with a scientific monitoring body - Accompaniment by capacity strengthening actions (training, equipment, and financial support) - Reactivation and validation of 3 annual action plans and development of 8 annual action plans the CLPAs implementing sardinella and ethmalosa FMPs. - Sub-Regional ethmalosa FMP harmonization meeting conducted with DPM, WAMER/PNUD, CSRP, and others supporting management of this fishery. Participatory ethmalosa FMPs developed for Sine Saloum and the Ziguinchor Region. - Implementation of the Sine Saloum ethmalosa FMP initiated. - National sardinella and ethmalosa FMP development on-going informed by the zonal participatory FMPs and associated scientific research and local knowledge. - Scientific research partners (CRODT, IUPA, IFAN and CSE) support the FMP development and implementation process with research addressing gaps in knowledge. 6 joint data collection units (CRODT, CLPAs, DPM) piloted and producing data for sardinella and ethmalosa FMP implementation and decision-making. - Data collected in 5 MPAs to monitor effects of MPAs on fish populations. - Fisheries and Aquaculture Sector GIS web application transferred to DPM. - National Canoe Registration Program database updated with information on 1594 outstanding license plates for more effective management of fishing effort. - The 2018 Performance Report of the Fisheries Sector Review produced by the Research and Planning Unit of the MPEM with project support. - LPSD-PA results based management framework for monitoring and evaluation strengthened.

Participatory Fisheries Management Plans – Sardinella Fishery. Implementation of the five participatory sardinella FMPs started in 2017. For the Grand Cote Nord and Casamance Plans, approval by the Minister (only in 2018), establishment of the consultation frameworks (see figures 15 and 16 below), development of three-year action plans and training and awareness raising of the Fisheries Code and FMP were the focus. The Grande Côte Sud, Cap Vert and Petite Côte plans were at a more advanced stage. The first activity supported by USAID/COMFISH Plus consisted of collaborative development of an implementation strategy that was amended by the CLPA coordinators and validated by the DPM's Technical Working Team (ETT). The strategy gives broad lines of implementation and identifies the key stakeholders and their tasks and how to monitor plan implementation. Implementation can be summarized by the following activities:

- An action plan is extracted from the three-year fisheries plans and used as a basis for an annual planning of the activities. This action plan is developed by local implementation units (URM) and validated by the ICC of the CLPAs.

¹¹ One expected result was an error. "The sixth and final local co-management plan for Sardinella is reviewed by the CNCMP and recommendations submitted to the Minister of Fisheries". There are 5 local sardinella FMPs and 2 Ethmalosa FMPs

- Implementation monitoring is carried out at three levels: local (by a local implementation unit (URM in French)); zonal (by the zonal implementation unit (UZM in French)); and, scientific (through a scientific monitoring framework).
- The URM in the CLPA is responsible for planning activities, monthly assessment of progress in action plan implementation, identifying constraints related to implementation, discussing new management initiatives identified during implementation and identifying funding gaps for the various activities. The diagram below shows its composition.

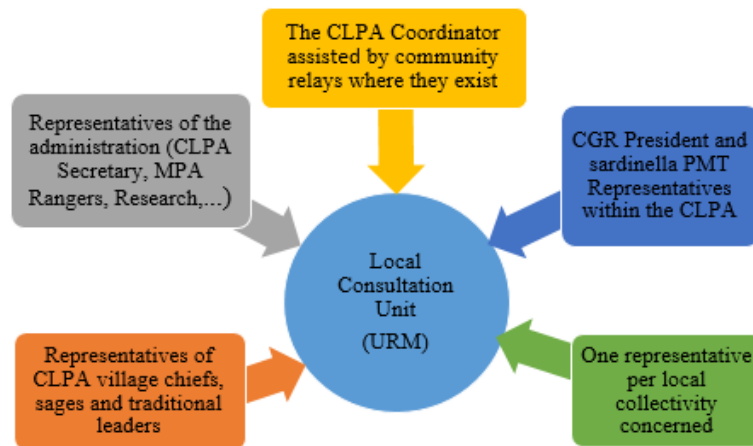


Figure 16. The local implementation unit for sardinella FMP implementation

The UZM, unlike the local unit, covers all CLPAs in a local sardinella management plan area. Its mission is much reduced and focuses on quarterly evaluations of implementation constraints of the management plan in the URM and the use of scientific information and other partners to support implementation. The diagram below shows the composition of the zonal unit.

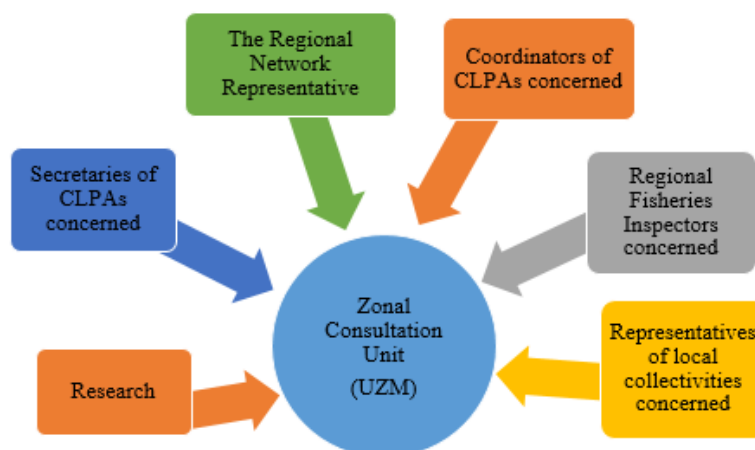


Figure 17. The zonal implementation unit

The scientific monitoring framework involves all the scientific institutions involved in the project. These include CRODT, IUPA, IFAN and CSE, which provide scientific input into the analysis of results (biological, economic and social impacts of the management plan).

The table below shows the missions of the different implementation units and the scientific monitoring framework.

Table 4: Mission of the FMP implementing units and the scientific framework

Local Implementation Unit (URM)	Zonal Implementation Unit (UZM)	Scientific Monitoring Framework
• Plan annual activities and submit for validation • Monthly assessment of progress in annual action plan implementation • Identify constraints in the implementation of the action plan • Monitor results obtained after implementing the action plan • Discuss new management initiatives identified during PGP implementation • Identify the funding gaps for the activities in the colleges involved in the implementation of the sardinella management plans.	• Quarterly evaluate the monthly meetings of the URM and formulate recommendations to the URM • Inform on results at the zonal level • Analyze constraints and propose solutions for implementation • Use scientific information from joint data collection units and other partners to guide management plan implementation • Document all meetings	• Scientifically follow-up the management plan implementation • Provide technical and scientific support • Validate all scientific information (data collection, studies, etc.) • Analyze result indicators

To achieve the expected results and impacts, a capacity building program for the actors and institutions involved accompanied implementation of the FMPs. Capacity building consisted of equipment, training, and financial support for the execution of activities. Twenty-one monthly evaluation meetings were held at URM during which the action plans were evaluated and new plans designed. At the UZM level meetings, strong recommendations were made for further popularizing the Fisheries Code, updating boat registration in all CLPAs, and holding national consultations on participatory surveillance. ETT meetings were held in February and June 2018 to get feedback on the progress of sardinella FMP implementation and ethmalosa FMP development.

Participatory Fisheries Management Plans – Ethmalosa Fishery. USAID/COMFISH Plus coordinated its’ support for development of participatory ethmalosa FMPs with DPM, GO-WAMER/PNUD, CSRP and others contributing to management planning for this fishery in the sub-region. Following a harmonization meeting at the regional level, the process of developing an ethmalosa national development plan (PAN) was launched. A participatory study/diagnosis in the administrative regions of Saint Louis, Fatick, Thies, Ziguinchor and Dakar was prepared by these institutions using methodologies set up by the USAID/COMFISH project and taking advantage of the fisheries information on ethmalosa developed by USAID/COMFISH. The diagnoses confirmed the results obtained in the focus groups organized previously by the USAID/COMFISH project. The results also showed the awareness and commitment of actors on the need for sustainable management of this fishery while confirming threats to its sustainability (e.g. illegal mesh size and use of monofilament). Based on solutions proposed by the actors related to the findings of the diagnosis, a preliminary draft of the ethmalosa PAN was prepared and reviewed by local actors. The next step will be a national validation and development of the sub-regional plan by CSRP.

This information was also used in development and implementation of local participatory ethmalosa FMPs in the Sine Saloum and the Ziguinchor Region. These are considered to be implementing the national plan at the local level. Feedback sessions with stakeholders on the findings of studies by IUPA on the selectivity of gillnets targeting ethmalosa were highly effective in engaging fishermen, who were in favor of increasing the minimum mesh size for the fishery based on the scientific evidence. The recommendation was integrated into ethmalosa FMPs and is recommended for inclusion in the Fisheries Code (See Success Story in Annex).

The framework described above for setting up implementing bodies for the sardinella FMPs was also applied in the case of ethmalosa and was completed in the Sine Saloum with USAID/COMFISH Plus support. The UZM consultation units bring together the CLPAs of the area covered by the ethmalosa FMP (Toubacouta, Missirah, Foundiougne, Djirnda, Bassoul, Niodior, Fimela and Djifère). A participatory approach was used involving animation and training activities (updating community-based actors, selection of members and institutions, and training of members). Following establishment of FMP implementing bodies, FMP validation workshops were organized from April 9-17, 2018 in the CLPAs in the presence of the respective area administrative authorities. All CLPAs unanimously approved the FMP, which was subsequently approved by the administrative authority through an Order. The document, validated and approved at the local level, was sent to the DPM, the line authority to extend it to the Minister of Fisheries for final approval, which was given in July 2018.

Implementation started immediately after validation with the development of a monthly action plan, the training of trainers on the fisheries code, and its popularization. The capacity of URM members was strengthened to follow up on FMP implementation, specifically on the practical modalities of meeting organization (preparation, reporting and follow-up of meeting recommendations). The first UZM meeting was in June 2018 in Foundiougne as part of activity monitoring. During the meeting, the strategy and the missions of the UZM were shared with UZM members. The CLPAs individually reviewed activities implemented to popularize the Fisheries Code. In accordance with the mission of this zonal unit, consultations also included ethmalosa trade. Given the complexity of the sector, it was agreed to continue discussions at all levels of the industry for better pricing of ethmalosa in the Sine Saloum.

In support of FMP implementation, the project provided technical and financial assistance for scientific research to address identified gaps in knowledge of the ethmalosa fishery and for scientific committee meetings to share and apply the findings to fisheries management decision making. A scientific workshop was held at CRODT on June 27 and 28, 2018 to share research results. It included local experts from the local scientific institutions (IUPA, IFAN, CSE, CSRP) involved in fisheries, the senior fisheries managers of the Department of Continental Fisheries (DPC), DPM and the Ministry, representatives of CLPAs, members of the media and faculty and students of local universities. The research reports are included in the Project Publications list in Annex 4. A status of the stock was presented by CRODT using a data-poor model (Catch- MSY). It was determined that the stock is slightly overfished by about 20% over MSY and that the average size is diminishing as fishing mortality is increasing. In addition, the average mesh size in use by fishermen (averaged 28 mm) is smaller than the optimum (sustainable) mesh size of 36 mm determined by the selectivity study of IUPA.

IFAN presented the results of its' work conducting 8 monthly sampling missions in Saint-Louis and Joal from November 2017 to June 2018 to estimate the size structure of landed ethmalosa and to subsample some of the individuals for age and size at sexual maturity. The study shows a size distribution more spread out in Saint-Louis than in Joal. The largest sizes were observed in St. Louis where a larger average size compared to Joal was found to be statistically significant. The two populations of *E. Fimbriata* appear to have different breeding times and size at first maturity is higher in St. Louis. Absolute and relative fecundities are similar between the two sites. The maximum age observed between the two populations is comparable and growth is faster in Joal. In the process, IFAN created an otolith image database of its' otolith samples for future reference. This activity was part of a consultation process for the diagnosis of the ethmalosa fishery in Senegal, in collaboration with the various stakeholders to support its FMP.

Joint Data Collection Units on *Sardinella* and *Ethmalosa* fisheries established. A pilot joint data collection program was established and collected landings and effort data at four sites (Mbour, Joal, Cayar and Hann) over a period of 7 months beginning in November 2017 with the participation of CLPAs (See Project Publications in Annex 4). The main objective of this pilot program was to improve collaboration between research agencies and actors in the field for a more informed and effective participation at all levels in formulating, implementing and monitoring FMPs. This collaborative research, brought together CRODT, DPM and representatives of stakeholders at the CLPA level helped to:

- Build the capacity of stakeholders;
- Improve the process of collecting information on fishing effort, vessels, landings, size of landed species and fish prices on landing, as well as master data entry and data processing and analyze the results obtained;
- Popularize research results by relying on project facilitators and community relays;
- Eliminate duplication of efforts between DMP and CRODT and improve the quality of sampling through the collaborative efforts of the two agencies.

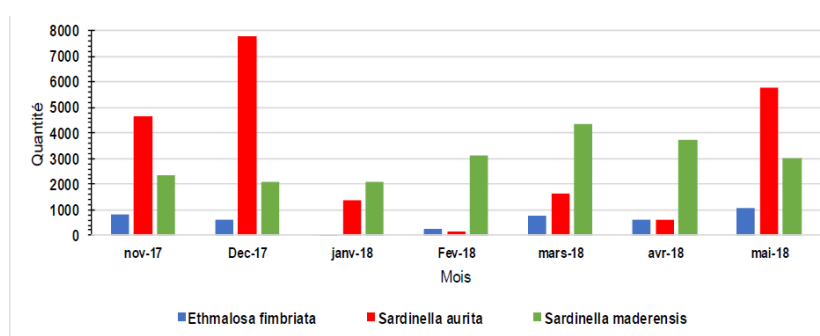


Figure 18. Total Monthly Capture (in tonnes) by species of interest at the 4 Joint Data Collection

The pilot joint data collection program demonstrated how landings and effort data can be consolidated into a single database that can be shared between CRODT and DPM to improve data quality and save time and cost in the daily operation by the two agencies. The two agencies generally collect the same information using different sampling methodologies which produce conflicting figures on landings and effort. This discrepancy in the figures has a significant negative impact on stock assessment and management decision-making. Collection and analysis of scientific data carried out by the joint data collection units in a collegiate way has already contributed to information for monitoring the status of sardinella and ethmalosa stocks and will continue to do so over the long term as local FMPs are implemented. On-going and consistent implementation of this approach is needed to track and confirm such trends over time. Expansion of the pilot to 2 additional units was supported by IRD through CRODT, indicating the potential for replication and appropriation of the approach.

Study of the Bio-Ecological effects of MPAs on small pelagic fish populations. The project contributed to understanding the effects of MPAs on fisheries management and biodiversity conservation with support to research partner IUPA to conduct baseline surveys for Niamone-Kalounayes, Gandoul and Casa Balantacounda MPAs and monitoring surveys in the St. Louis and Joal MPAs. Multiple stations inside and outside the MPAs were sampled beginning in September 2017. At each station, the fish captured were counted and weighed to estimate yields. A sub-sample of individuals was weighed, measured and dissected to determine sex and stage of sexual maturity. At each site, salinity, dissolved oxygen content, conductivity, temperature and pH were also measured. The results of the baseline surveys will be an essential reference for the Ministry of the Environment to track the effect of the MPAs on management of sardinella and ethamolse.

Participatory Fisheries Management Plans – Octopus Fishery. USAID/COMFISH Plus also supported CLPAs to implement locally the national octopus fishery management plan developed with the assistance of Japan and other donors, continuing a collaboration initiated under the USAID/COMFISH project. With the support of the project and the other partners, 12,000 octopus pots were sunk into the water in September 2017 in the Department of Mbour. The ceremony was presided by the Minister of MPEM at the Joal Fadiouth fishing dock in the presence of the Japanese Ambassador. The president of the CLPA of Joal Fadiouth reminded participants of the positive results of the management measures in place for enhancing octopus habitat with the sinking of the pots and the biological rest period, among other measures supported in this CLPA by the partners. Fisheries management successes like the case of octopus in Senegal are important for the demonstration effect they provide to resource users and the administration for applying the same fundamental principles of sustainable fisheries management to the more challenging context of small pelagic fisheries.

Development of the Fisheries and Aquaculture Sector GIS web application and transfer to DPM. Development of a GIS web application for the fisheries sector started with the USAID/COMFISH project and continued under USAID/COMFISH Plus with implementation of the database component and configuration of the various functionalities of the GIS platform with the support of USAID/COMFISH Plus through CSE. Based on the recommendations of a knowledge-sharing workshop on implementation progress in February 2018, training sessions were organized for representatives of the different institutions involved. Official transfer of the system to the DPM was done at the end of July 2018. The domain name is: www.sig-peche.sn. As the World Bank and other donors also support the MPEM/DPM to develop its' GIS and database capacity in the fisheries sector going forward, it will be important for DPM to coordinate efforts to ensure a high quality, efficient platform that does not duplicate effort.

Canoe registration: mounting outstanding plates and assessing the level of execution of the National Registration Program (PNI). In 2006, the Government of Senegal set up a computerized boat registration system, with the support of Technical and Financial Partners such as the World Bank (PRAO-SN). The Government of Senegal must ensure sustainability of the PNI for an effective control of fishing effort in the context of fisheries management policies and in order to consolidate the achievements of registration to date. Due to CL and FMP implementation supported by the project, as of June 2018, 7 fisheries control posts had a detailed knowledge of the status of their license plates following audits and sensitization to remove plates after a duplication was ascertained, or after a boat was no longer operational or had temporarily settled at another site. With the difficulties noted in the registration and mounting of plates and tags, the DPM requested USAID/COMFISH Plus to organize a mission in the maritime regions to assist the deconcentrated services in updating the national database with the latest information. The mission was conducted in July and August 2018 and resulted in recommendations to: delete from the database 1,594 unclaimed registration plates if not claimed within 3 months, and all canoes for which a permit has never been paid since 2015.

“With regard to fishing permits, the recovery rate is one of the highest in the country [at 61%]. It should be noted that USAID/COMFISH Plus has supported several control posts in the Fatick Region in participatory monitoring with CLPA stakeholders, which would explain this high rate of permits.” DPM Field Mission Report

Ministry of Fisheries and Maritime Economy Sector Review Report 2018. As part of the monitoring of its Social and Economic Policy, the Government of Senegal carries out a Joint Annual Review (RAC) whose purpose is to report on the performance recorded in the execution of projects and programs and to draw conclusions and provide recommendations for an improved

effectiveness in the implementation of public policies.

For a collaborative monitoring of the implementation of the Emerging Senegal Plan (PSE), the State of Senegal, in 2015, set up the Harmonized Framework for the Monitoring and Evaluation of Public Policies (CASE). This harmonized framework embodies the principles of Results Based Management (RBM) for effective management of public resources (Decree No. 2015-679 of May 26, 2015). Subsequently, ministerial-level review mechanisms have been set up to report on the implementation of sector policies and share with all stakeholders. The various sector review reports are synthesized and consolidated to develop the National RAC Economic and Social Policy Paper that is validated by a Presidential Council.

USAID/COMFISH Plus supported the Research and Planning Unit (CEP) of the MPEM in the process of developing and sharing the 2018 performance report of the annual fisheries sector review. In accordance with CASE guidelines, the sector review document was produced as part of a process involving all stakeholders with technical and political validation stages. A participatory and inclusive approach guided the process of drawing up the 2018 MPEM sector review, which was shared by the Minister on March 17, 2018 at King Fahd Palace. This sector review report focused on the progress made, the performance achieved in 2017 and the programming of 2018 activities.

The Sector Policy Letter for the Development of Fisheries and Aquaculture (LPSD/PA) Results Measurement Framework. To achieve the objectives set by the LPSD/PA, projects and programs must be executed with diligence and clarity of expectations, taking into account the results imperatives and the requirements of accountability. Both the West African Economic and Monetary Union (WAEMU) guidelines adopted on June 26, 2009, relating to the management of public finances, and the CASE guidelines establish the principle of RBM. For this reason, the LPSD/PA places particular emphasis on the need to put in place a functional system for monitoring and evaluating interventions in the sector with reliable and relevant indicators. This option also promotes RBM culture and enhances projects and programs transparency and good governance.

Previously, the USAID/COMFISH project supported the CEP in the process of updating the LPSD/PA Results Measurement Framework. USAID/COMFISH Plus mobilized expertise in 2017 to support development of a monitoring and evaluation (M&E) and results sharing system to facilitate timely identification and implementation of required program adjustments and corrections. Results of the process were as follows:

- Diagnostic completed for the current status of the M&E system of the LPSD/PA, and of the programs and projects of the sector.
- Indicators and targets of the LPSD/PA Results Measurement Framework updated and validated.
- An M&E guide for the LPSD/PA and its' projects and programs developed.
- Technical capacity building and equipment (project IT equipment, logistics and rolling stock) needs for central and de-concentrated services evaluated and proposed.
- Meetings to share and discuss the diagnostic and the proposed M&E operational framework organized.

In FY18, the project funded a three-day residential technical workshop during which the expert team's proposals were submitted to a broader group of sector experts for review and validation. This allowed for the updated Results Measurement Framework, indicators and targets, to be shared with stakeholders.

5.2.3. IR3: Enhanced social and economic benefits to artisanal fishing communities provide incentives to a continued sustainable fisheries agenda

Expected Results	Actual Results
- Improved artisanal fish processing methods, sanitation, and quality of products - Empowerment of women's organizations engaged in fisheries benefitting the effective implementation of CLs and participatory FMPs - Women-based community savings and loan in at least 5 new landing areas operate effectively, provide benefits, are growing, and are sustainable - Local small-scale finance enhances the fisheries value chain and well-being of fishing communities and families - Socio-economic impact assessment of project interventions with women's fish processing groups shows beneficiaries perceive many benefits - The voices of women, as well as their contribution in the sector are heard, recognized, and taken into account in an institutionalized manner in the decision making process.	- In 15 women's fish processing hygiene committees: - Hygiene charters implemented and monitored 420 women functionally literate through training partnership with DALN - Action Plans developed - Financial management capacities strengthened - Peer to peer exchange visits conducted - Organizational dynamics of women processors improved in 4 sites to accompany MPEM investment in modern units based on the Cayar model. - Revolving credit totaling 1,500,000 fcfa at 3 new sites (Sendou, Yenne, Ndayane) benefitting 1,043 women processors valued at 3,898,000 fcfa by end of the project (160% growth). - Diversified income generating activities investment of 750,000 fcfa at 2 new sites (Guéréo, Saly) benefitting more than 145 women resulted in revenue of 1,122,000 fcfa by end of the project from rental of tarps, and other equipment purchased with the funds (50% growth). Scale up to 4 additional sites initiated (Mbao, Fass Boye, Pencum Senegal and Peupoguine) benefitting 1000 women. - Continued support to diversified income generating activities for women fish processing groups in Missirah and Diamniadio. - Site improvements, materials and equipment provided for women processing groups (for the implementation of hygiene charters) in 6 sites. - Cayar modern processing unit demonstrates energy efficient, climate resilient fish processing technology using newly installed solar dryers in partnership with ANER. - Socio-economic assessment of project interventions showed more than 70% of women processors perceive that; they have received training, are more qualified in respecting hygiene and quality rules, in processing technologies and in organization and financial management; processing sites are more hygienic, they have better access to credit, there is increased social solidarity and greater equity.¹² - Update of 1969 Order on quality control of fishery and aquaculture products under review. Will give artisanal processing a status and a professional category, facilitate women's access to bank credit, improve trade of fishery products, and promote the export of artisanal products from a responsible and regulated fishery.

USAID/COMFISH Plus support for empowering women and adding value to processed fisheries products in collaboration with CLPAs and women processors in the sector resulted in the strengthening of 19 women's processor organizations in 12 CLPAs¹³ and more than 1,464 people with improved economic benefits. The project assisted stakeholders to scale up successful innovative approaches piloted under the USAID/COMFISH project to additional sites while continuing to develop and pilot new innovations and business plans, including with the Mantoulaye Guène Economic Interest Group (GIE) Adja Ndoumbé Seck modern processing unit in Cayar, which has served as a model for women's artisanal fish processing in Senegal and the sub-region. At the request of the Ministry, the project strengthened the organizational dynamics of women processors at 4 priority sites¹⁴ receiving investment by MPEM to scale up modern processing units inspired by the Cayar model.

¹² Mbaye, A. 2018. Étude de l'impact des activités de renforcement de capacités des Femmes transformatrices

¹³ 4 MPEM target units: Fass Boye (CLPA Fass Boye), Mbao, Pencum Sénégal (CLPA Pikine) and Goxxu Mbaac (CLPA Saint-Louis). 15 others: Khelkom, Sendou, Domaine Bi, Ndeppé (CLPA Rufisque/Bargny); Yenne-Todd (CLPA Yenne -Dialaw); Ndayane, Guéréo, Saly (CLPA Sindia Nord); Mbaling Village, Pointe Sarène (CLPA Sindia Sud); Mbaling Site (CLPA Mbour); Tann, (CLPA Joal-Fadhiout); Missirah (CLPA Missirah au Sine Saloum); Diamniadio (CLPA Djirnda au Sine Saloum); Cayar (CLPA Cayar).

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Hygiene Charters and Codes of Conduct. Introduced by the USAID/COMFISH Project and considered a major innovation in the artisanal fisheries processing sector, the process of developing and implementing a Code of Conduct and putting in place Hygiene Committees and Hygiene Charters was strengthened and expanded to 4 additional processing sites under USAID/COMFISH Plus. Consultations were organized at every stage of the process, involving all stakeholders (CLPAs, local communities, fisheries departments, NGOs and other grassroots partners). Environmental, financial and administrative management measures identified and formulated by beneficiaries were validated and constitute the Hygiene Charters and Code of Conduct for women processors organized into Economic Interest Groups (GIEs) and Hygiene Committees. To ensure sustainability, USAID/COMFISH Plus provided managerial capacity building in tailored management tools, including action plans drawn up by the hygiene committees, and support for implementation of these action plans with training in financial management and self-organization tools. Community relays trained by the project actively participated in the process and supported women in monitoring implementation of the Codes of Conduct and Hygiene Charters, as well as their wider dissemination. A Guide to Good Hygiene Practices for the Processing of Fishery Products was also produced in French and Wolof and disseminated.

Organizational Dynamics of women processors of Mbao, Pencum Senegal, Fass Boye and Goxxu Mbaac. In accordance with the new LSPD-PA in the context of the program for modernization of artisanal processing areas, and at the request of MPEM, the project provided capacity strengthening in organizational dynamics for women's processing groups at these 4 sites where MPEM invested in scale up of the Cayar modern processing unit model developed under USAID/COMFISH. Governance documents were developed and validated, defining their administrative, financial and environmental management rules and measures, as well as hygiene rules. Women received training on good governance, roles/responsibilities, and administrative and financial management, participated in exchange visits, and received support for diversified income generating activities. Implementation of these measures is now needed to realize their contribution to improving the socio-economic and environmental conditions of women.

¹⁴ Fass Boye, Mbao, Pencum Sénégal and Goxxu Mbaac

Fundraising, Revolving Credit and Income Generating Activities. Hygiene committees collect their own funds to support their operations and programmed activities. The sums are collected through monthly contributions (about 500 fcfa/member), daily subscriptions (about 200 fcfa/member) and fines (about 500 fcfa/infraction). To ensure transparency and monitoring, the project strongly involved relays who provided support to women on a monthly basis to maintain management and monitoring tools made available to them. Bank accounts were opened in the name of the committees for a better management of generated funds. During monthly meetings held by the women all funds collected were communicated to members and future activities planned with a view to efficient and transparent use of resources.

Significance of internal fundraising

"In this locality where women do not have funding from partners, they have initiated a contribution of 150 fcfa per day. At the last count, the GIE had in its coffers the sum of 6,000,000 fcfa [about \$10,700]. This experience, which was the subject of an exchange visit by the managers of other sites, is being reproduced by the processors of the other localities. This experience of the Guéréo processors, supervised by the COMFISH and COMFISH Plus projects, could revolutionize the financing system in processing." A. Mbaye, Consultant

Revolving credit was piloted under USAID/COMFISH and expanded under USAID/COMFISH Plus in response to women who expressed the need for specific credit lines tailored to their needs. Funds were allocated to the most dynamic groups that demonstrated real commitment and determination. These funds are governed by an internal regulation approved by the project which laid down the conditions for allocation, reimbursement, and fining, but the women determined their own interest rate by consensus. Relays, project facilitators and the fisheries administration were involved in the field monitoring mechanism. The revolving credit funds each had positive growth over time and were operating sustainably. These results encouraged the MPEM to grant lines of credit to more than 30 women's GIEs and associations in the fisheries sector through the Ministry's General Delegation to the Rapid Entrepreneurship of Women and Youth mechanism. The success of revolving credit at Cayar resulted in a further investment of 10 million fcfa by the Government, of which 5 million (about \$8,900) was disbursed to them at the end of 2017. They added 2,400,000 fcfa of their own funds so that each of their 74 members could have a credit of 100,000 fcfa.

Income-generating activities for processing groups were supported in Missirah, Diamniadio, Khelcom, Pointe Saréne, Guéréo, Ndayane, Saly, Mbao, Fass Boye, Pencum Senegal and Peupoguine. They are designed to boost empowerment of women in a context of increasing scarcity of fish resources for artisanal processing. Support included equipment such as pushcarts and basins for rental which provided returns sufficient to cover replacement value over a reasonable timeframe and provide additional revenue. In the case of Diamniadio in the Djirnda CLPA in Sine Saloum, salination of the soil, extreme isolation from fresh vegetable markets (1 hour by boat to Foundiougne), and overdependence on fish processing as the only livelihood provided a unique opportunity for market gardening at this site. With improved table-top and raised bed gardening, the project enabled these women to improve their daily diet with availability of fresh vegetables, to increase their income by selling harvested products, and to curtail the risk of accidents at sea due to frequent trips to purchase vegetables. The women were trained on the entire process (from the production of the table up to harvesting), which will contribute to the sustainability of their activities.



Figure 19. Income Generating Activity support to women processors

Literacy training in partnership with the Department of Literacy and National Languages (DALN).

A total of 420 women processors achieved literacy in national languages as a result of 14 functional literacy classes at 14 processing sites, conducted with project support in collaboration with the DALN.¹⁵ The program responds to priority activities identified in annual action plans of the women processors GIE and hygiene committees. It enabled committee members to better understand the tools available to them and to better benefit from their income-generating activities. The activity started in July 2017 with the training of literacy training facilitators within each hygiene

"Now we have our phones and we dial the numbers thanks to literacy, we do not ask anyone else to dial for us or read phone numbers to us." Mbour processor.

committee organized in Mbour with Regional and Departmental literacy officials, CLPA coordinators, project relays, the Departmental Unit of Mbour, and the DALN team. Sessions were conducted in the form of hands on workshops beginning with the identification of the training needs of local actors. Site level literacy courses were delivered and monitored and materials provided in partnership with DALN. This approach built on existing national programs and expertise and established the relationships between DALN, deconcentrated fisheries technical services, CLPAs and women processor committees needed for the sustainability of this activity.



Figure 20. Strengthening women's capacities in financial management

¹⁵ Mballing site (CLPA Mbour), Mballing village (CLPA Sindia Sud), Missirah (CLPA Missirah), Diamniadio (CLPA Djirnda), Sendou (CLPA Rufisque/Bargny), Yenne-Todd (CLPA Yenne-Dialaw), Pointe Sarene, (CLPA sindia Sud), Guereo, Ndayane, Saly, (CLPA Sindia Nord), Nbeppe Domaine Bi (CLPA Rufisque-Bargny), Tanne, Khelkome (CLPA Joal-Fadhiout), Domaine Bi (CLPA Rufisque-Bargny), and Cayar (CLPA Cayar)

Technical training, rehabilitation and material support to the processing areas of Mballing village, Yénne Todd and Pointe Saréne. To increase women's productivity and working conditions, the project supported technical training and repair and rehabilitation of artisanal processing areas in Yenne Todd, Pointe Saréne and Mballing Village. The technical training covered, hygiene, sanitation and quality in the fish processing units; knowledge of material and methods of fish conservation. Repairs included at Pointe Saréne (repair of walls and construction of storage depots, distribution of basins and construction of a gate at the site); at Yénne Todd (repair of the site's fencing wall and construction of a rest area); and at Mballing (refurbishment of garbage disposal area). This process further added value to products processed in these areas with adequate equipment and infrastructures, integrating the hygiene and sanitation aspects in accordance with the health and hygiene charters of these committees.

Inter-committee Exchange Visits. In addition to the women processors capacity building sessions, inter-site exchange visits were organized for representatives of the 15 processing sites to Guéréo, Cayar, and Missirah on topics related to fundraising and financial management, hygiene, quality and value-addition to processed products, and group/organizational dynamics. These informative exchange visits were highly valued by beneficiaries and used participatory and interactive facilitation methods to foster mutual learning, identification of good practices, knowledge acquisition and sharing, and development of know-how. They brought changes in women's practices and behavior, and awareness of the management measures and initiatives developed by their peers, as well as maximizing their effectiveness upon their return. Such very rich practices need to be scaled up to improve the organizational framework of the processors. This approach will also facilitate their networking, which in turn will positively impact on their input and market access. Thus, during these high impact and very cost effective visits, successful experiences were popularized, to encourage an improvement of women's know-how and practices.

Mantoulaye Guène Economic Interest Group (GIE) Adja Ndoumbé Seck modern processing unit in Cayar. The modern processing unit at Cayar established with the support of USAID/COMFISH is the first and currently only artisanal fish processing unit in Senegal to meet the standard and be granted an export agreement by the European Union. USAID/COMFISH Plus continued to accompany the GIE to consolidate achievements, address capacity gaps, and assist it to respond to new market challenges and opportunities. Project support helped the unit to achieve its' own objectives and continue to serve as a model for innovation in the sector nationally and in the sub-region.

Installation of 4 blocks of solar dryers. In partnership with the ANER, the women processors of the modern unit of Cayar were trained and equipped with 4 blocks of "Kiraye" solar dryers to improve the drying and quality of the unit's products. The prototype was developed by the Albert Schweitzer Ecological Center (CEAS), an international NGO. This will especially help women during the rainy season, as the products will dry sheltered from the rain. ANER provided a theoretical and practical training of 20 women. These facilities are part of an alternative dynamic of modernization of processing areas with standardized, environment-friendly and energy-saving equipment (reducing the pressure on firewood, litter, mangrove wood, etc.). In addition, this new technology improves the quality and the quantity of production and further increases fishers' income in a sustainable, climate resilient way that also reduces processor exposure to health risks from smoke.



Figure 21. Solar dryers installed at the Cayar modern processing center

Operation and maintenance of the unit and capacity building. Since 2016 at the request of the DITP, the project supported a quality manager for the women for control and compliance with the requirements of the international food standards. She was responsible for monitoring maintenance on the site and quality control for goods produced by the unit in order to ensure that the unit maintained the national and European Union certification. All programs (disinfection and rat control, medical check-ups, etc.) were conducted regularly to comply with the HACCP principles. She also helped women in the sound financial management of the GIE; for that purpose, she was trained on Saari software. The women were given a computer and a printer for their accounting. For market access and diversification to other innovative fish products, women were trained on both smoking techniques (hot and cold) for large fish such as barracuda, lesser African threadfin and tuna. This 4-day session involved about 20 women, Cayar Fisheries Department officials, the CLPA Coordinator, the COMFISH Plus Facilitator and the Quality Manager. The training not only reinforced the standards needed to maintain the unit's EU certification, but also facilitated U.S. FDA (Food and Drug Administration) certification through a private actor for exporting the unit's smoked products to the United States.

Monitoring management. The project provided support from a team of experts to monitor the units' business plan, develop an updated plan, evaluate overall management and advise on implementation of a price negotiation system. The decline of Cayar's signature processed sardinella product "Kejaax" as the principal product and source of revenue for the unit was the most significant development in recent years. It is attributed to decreased availability of and access to primary product during most of the year. The unit's ability to quickly adapt and diversify production, realizing increased revenue in the process, was another significant development. This outcome demonstrates the relevance and sustainability of the capacity development process facilitated by the USAID/COMFISH and USAID/COMFISH Plus projects at the Cayar unit. Due to the advocacy and demonstrated capacity of the Cayar women, the Minister of Fisheries asked CAPSEN SA (which lands most of the tuna at the port of Dakar) to grant a quota to the women of Cayar. Following a visit by the CEO and Director of marketing to the Cayar unit, fish pricing and supply modalities were negotiated, and CAPSEN made the commitment to supply the unit with 20 tons of tuna per month for the production of "dried-salted fish" as long as the women demonstrate that they will consistently purchase this quantity and have the financial capital to do so. The women have already supplied one client with a large order for export. In the units' business plan review, alternatives were also proposed to improve use of the unit at capacity. For example, a refrigerated truck to supply primary product from other fishing zones, like Mbour, the fishing dock of the Port of Dakar, and Joal, where fish is landed all year.

Production: In addition to the African market (containers of dried-salted tuna are shipped to the Republic of Congo), the visibility of the unit has allowed access to the European and American markets (dried-smoked shrimp is shipped to the USA). The Cayar women produced their first 20 foot container (12,600kg) of dried salted tuna in FY18 quarter 3. It took them four days to finalize the operation within the unit. Previously, fish waste (heads, guts, etc.) were not valued, but with the various hands-on training they received, the women have now found an outlet and signed a contract with a factory called *Afrique Azote*, which will buy all their production waste, failing which they can also sell it to Burkinabé traders. Empty salt bags they did not know what to do with are now sold for recycling to other uses. In addition, when not in use for processing their own orders, the unit offers processing services at a per kg rate with participating women taking a share and the unit taking a share. As a result of these diversified production strategies, the Cayar unit is able to operate more continuously over the last year than previously and compared to other processing sites.

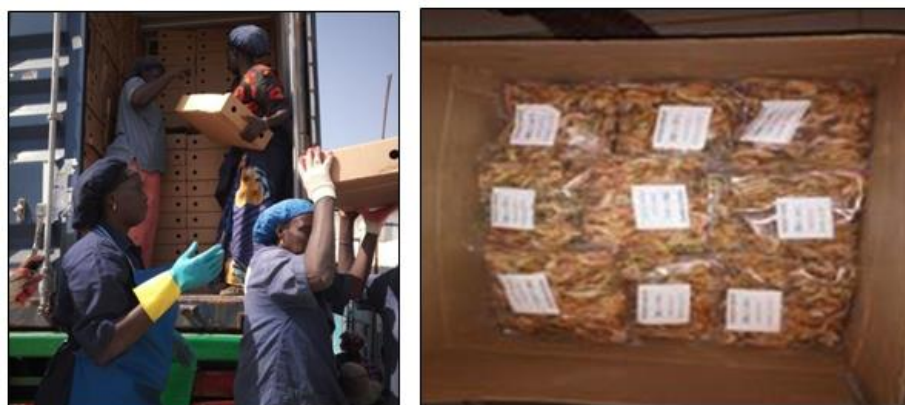


Figure 22. Women loading the container with dried-salted tuna bound for Republic of the Congo and Packaged smoked shrimp for export to the USA

Table 4: Summary of the production unit's revenue from diversified products and sources

YEARS 2015-2018			
Raw Material Production	Quantity (KG)	Value (FCFA)	Destination
Dried-salted (Tuna, Lesser African Threadfin, Marine Catfish)	79,250	31,550,000 (\$57,363)	France, Germany, Republic of the Congo
Smoked (Jackfish, Croaker, Marine Catfish, Shrimp, Barracuda)	4,123	1,236,900 (\$2,249)	France, England, United States of America, Canada
Dried-braised (<i>sardinella aurita</i> , <i>sardinella maderensis</i>)	9,788	6,085,300 (\$11,064)	Local and national markets
OTHER ACTIVITIES			
Training service provided inside the unit			FCFA 250,000 (\$455)
Revolving Credit			FCFA 7,940,260 (\$14,436)
Francophone Africa Climate Initiative Prize (ICAF), COP22 2016 edition and Gowamer Prize, 2016 edition			FCFA 2,250,000 (\$4090)
TOTAL			FCFA 49,312,460 (\$88,058)

Capitalization Products

[Autonomisation des femmes dans la transformation artisanale des produits halieutiques \(2018\) - French](#)

[Empowering Women in Artisanal Processing of Fisheries Products \(2018\) - English](#)

Video: Enhancing Fish Processing and Empowering Women (2018) (Wolof and French with English subtitles)
<https://www.youtube.com/watch?v=rIyBF8fDCvw>

VI. LESSONS LEARNED

1. **A project exit strategy that relied on the increased commitment of administrative authorities and local technical services of the government of Senegal to activities supported by the project was effectively implemented through capacity development at all levels (a nested governance approach).** The commitment of administrative authorities and local technical services of the government of Senegal to the active and increasing participation of stakeholders in policy discussion and reform is a result of the USAID/COMFISH and USAID/COMFISH Plus projects' approach to capacity development over seven years. The capacity building program for fisheries management institutions and stakeholders at all levels of fisheries governance contributed to a transformative process of behavior change by providing appropriate approaches and tools for better implementation of ecosystem-based co-management of fisheries. It has also allowed the central administration and deconcentrated structures of MPEM to effectively transfer part of their decision-making power to local communities. Strategies and policies designed at the local level with the support of fisheries technical services have been validated and approved at all levels by the competent authorities. These include CLs to support implementation of the Fisheries Code, participatory FMPs for sardinella and ethmalosa, local climate change adaptation plans, participatory surveillance commissions, and the creation of CLPA Networks among others. This demonstrates that public decision-makers support the community-based approach facilitated by the USAID/COMFISH Plus project and indicates that the processes established will be sustainable. Feedback from participants at the USAID/COMFISH Plus close-out workshop and a significant post-project policy milestone illustrate this important outcome.

"Actors have changed their behavior. Project results will be sustainable for that reason. We do not have all the capacities. We need actors to take decisions and make our work easier. We want all to have the same level of capacity. The advanced must take on charge the others, take initiative to raise their capacity." DPM Representative

"A participative approach, that is what the project did. Now the administration has the courage to come to the actors. This is because of the project." CLPA Representative

"Everything the project does, it is like the fishermen are doing it. That is why it works"
DPM Representative

"The project managed to institutionalize a community approach even without the 'transfer of competence' [decentralization]. This is important." MPA Officer

Presidential Order No. 2018-1967 of November 14, 2018

Allocating the proceeds of license fees and fishing authorizations

This Order approved by the Minister of MPEM and the Minister of Economy, Finance and Planning provides legal authority for implementation of the return of 60% of artisanal canoe license fees to CLPAs for their operations. Return of this revenue will contribute to the financial sustainability of CLPAs and will incentivize canoe registration and licensing, which is essential for more effective management of fishing effort. Its' approval demonstrates:

- 1) Increasing advocacy and leadership capacity of CLPA actors to demand accountability and action from government on unmet obligations; and increasing credibility and maturity of CLPAs as a governance body;
- 2) Increasing confidence of state authorities in local actors until they have the means to ensure their sustainable operations. Networking has also played a major role at this level.

- 2. Establishment of Local Agreements (CLs) is extremely important for strengthening the capacities of CLPAs.** To operationalize CLPAs, their capacities must be strengthened and this is most effectively done by the development and implementation of CLs. This requires additional time and financial resources for CLPAs not yet included in the CL process. For a more effective contribution to the sustainable management of fishery resources in the Fatick Region, the Djifer and Fimela CLPAs of the Department of Fatick) must be integrated into the process. This was the subject of an official request from the Regional Inspector of Fatick. The same applies to two CLPAs in the Kaolack Region (Kaolack and Gandiaye) and the eleven new CLPAs installed in the Ziguinchor Region. Seventeen CLPAs in five Regions are now implementing approved CLs. Department, Region and National level CLPA Networks have been established and community relays have formed an association. The CL process is understood and championed by Regional and Sub-Regional authorities and fisheries technical services. This expansion and institutionalization of the community of practice for CL establishment and implementation is an opportunity for more efficient replication of the process. Robust stakeholder engagement components at the heart of the CL process are essential to maintain in replication, even though they can be time consuming and costly, especially in remote zones.
- 3. Updating CLs is an important process.** It helped revise and improve the documents by incorporating new management rules (adaptive management). Consultations with colleges as part of the review of CLs also helped to assess the effective contribution of CL documents to the sustainable management of CLPA fisheries. Local actors have a need for their own rules of management for a better compliance with national law. Updating CLs has become more important as CLPA capacity and the participation of local actors in fisheries management decision-making has increased and expanded to more CLPAs. It provides a mechanism and a process for CLPA level alignment of management measures with other CLPAs when harmonization needs are identified.
- 4. Systematic development of annual work plans in the CLPAs is an effective tool for implementation of CLs.** The fact that the CLPAs renew their work plans each year after carrying out an evaluation of the previous work plan demonstrates ownership of the processes promoted by the project. Accompanying CLPAs in the completion of these annual planning cycles was an effective approach for their institutionalization. The plans increased CLPA capacity to engage internal and external support for CL implementation by providing a menu and a timeline of well-defined actions or “points of entry.” The annual work

planning practice was adopted for sardinella and ethmalosa FMPs, local adaptation plans and hygiene committees and has likewise contributed to their institutionalization.

5. **CLPA fundraising strategies are feasible in most of the partner CLPAs and the strategies are positioned to be sustainable based on systems for local planning and ownership.** CLPAs have demonstrated that they are appropriating and applying concepts of improved financial management and financial self-sufficiency with more than \$43,000 raised by 10 CLPAs in 2017 and 2018 and the number of strategies employed increasing from 6 to 15 during that time. The fact that several CLPAs implement the same strategy, such as sale of membership cards and contributions from GIEs, indicates that these strategies are likely to be institutionalized. Peer to peer sharing and networking among CLPAs facilitated the replication of successful strategies. However, mobilization of human, material and financial resources of CLPAs is a challenge for the effective implementation of co-management. CLPAs need technical resources to provide a secretariat, as well as logistics and capital to support operating expenses and achieve priority activities in their action plans. The CLPA Operational Support Fund provided for by the Fisheries Code implies the return of funds from canoe licensing to CLPAs. This remains to be implemented, but the Order providing legal authority for the measure was finally approved in November 2018 (See text box above) Further development of diversified fundraising strategies will remain important for CLPAs as license fee returns will not meet all of their needs.
6. **Two key outreach and capacity development strategies, community relays and community radio, played a pivotal role in facilitating the emergence of CLPAs as a functional governance framework.** They address a fundamental challenge facing CLPAs to reach and engage a maximum number of artisanal fisheries sector actors at the community level and link them to the CLPA, deconcentrated technical services and government authorities, as well as to project initiatives such as USAID/COMFISH and others. The value added of these strategies in the fisheries co-management process was evidenced by demand for their expansion under USAID/COMFISH Plus and by their subsequent evolution towards local appropriation and sustainability as follows:
 - a. **Community relays.** These community volunteers were selected by CLPA ICCs to assist in the process of CL development, community outreach, communication to the CLPA level and between the CLPA and the project. As USAID/COMFISH Plus expanded CLPA capacity and participatory FMP development to the Sine Saloum, a total of 31 relays were serving this function in the 17 CLPAs with CLs. The potential for sustainability of this system was emerging in several forms as USAID/COMFISH Plus closed: CLPA internal and external fundraising and fundraising potential was demonstrably increasing as effective internal strategies were identified and as the government of Senegal took steps to implement codified funding mechanisms that would give CLPAs the resources to cover the costs of Relays. Some Relays were being selected as CLPA Coordinators and CLPA Network Coordinators, effectively capitalizing on their experience and capacity for CLPA leadership and favoring a strong understanding of the important role that community relays fill for CLPA outreach going forward. Relays had formed an Association of Community Relays that might enable greater capacity to network, support each other and seek support in their roles.
 - b. **Community radio.** Through its' support for 11 local radio partnerships covering 15 stations, USAID/COMFISH Plus facilitated a strong working relationship between

CLPAs, their local radio stations, and fishing community audiences to inform and dialogue on ecosystem-based fisheries co-management issues. Even as project funding ended, the radios are now very aware of critical issues in the fisheries sector and their importance to local audiences. They are committed to continuing to provide a platform for the sector and have a portfolio of content and a network of local resource persons they can continue to call upon.



Figure 23. Community Radio station broadcasting on fisheries issues

7. **Participatory surveillance operations have become stronger over time and have been extended to more CLPAs.** They have shifted from mainly awareness-raising actions and warnings to increasingly strict enforcement. This functionality of the CLPA surveillance brigades has begun to yield important results in bringing down infringements linked to bad practices in the fisheries. Finding a suitable insurance platform for participating fishermen and for artisanal fishermen in general linked to safety at sea early warning systems remains a challenge. Strategies such as combining CLPA/DPSP and MPA surveillance missions and resources to improve efficiency and lower the cost of surveillance have been identified to facilitate sustainability.
8. **The EWS for Safety at Sea introduced and scaled up an innovation that raised awareness, changed behavior and mitigated risk, but it needs to be reinforced and business models for sustainability of CIS IT delivery platforms explored.** The project enabled more than 109,302 fisheries sector actors to use climate information services to improve resilience to climate change through the EWS/Safety at Sea program established and implemented in collaboration with ANACIM and the USAID/CINCERE project. In 2018, vocal alerts (audio messages) were added to the system to address the constraint of high illiteracy rates among fishermen, a major limitation noted during evaluation of the service. Over 2 years, more than 3,047 people participated in 103 replicated training workshops. More than 71,662 alerts were disseminated and further communicated to landing site actors through a system of flags posted at the beach and radio broadcasts. In spite of these efforts, and some notable examples of lives saved, since 2017 the number of lives lost at sea has increased. The need for more robust and longer term systemic improvements such as affordable electronic or satellite tracking devices for artisanal canoes, use of higher visibility lighting systems in place of flags at landing sites, and insurance schemes for fishermen, in addition to continued training, awareness raising, compliance

incentive schemes and effective canoe registration, licensing and managed access have been identified by stakeholders. The need to ensure financial sustainability and cost-efficiency of the system through market-led business models as demand for CIS increases and private sector service providers compete for market share has also been identified by implementing partners as a priority that needs to be further developed. These opportunities were beyond the timeframe and resources of the two-year project to address. At the same time, the underlying causes of increasing economic vulnerability and overexploited natural resources are driving artisanal fishermen to take ever greater risks to maintain their livelihoods. Reducing loss of life at sea and improving fisher resilience to the impacts of climate change is ultimately dependent on reversing these trends.

9. A sectoral approach to the National Adaptation Plan (NAP) process in Senegal, led by the economically important fisheries sector, was successful in starting from the bottom-up, with local adaptation plans informing and catalyzing the development of the NAP for the fisheries sector (Excerpted from Lessons Learned shared on the NAP Global Network Blog.)¹⁶ Starting with the development of six local climate adaptation plans, the adaptation planning process supported by USAID/COMFISH and continued by USAID/COMFISH Plus resulted in the formulation and adoption of a NAP for the entire fisheries sector in 2016. While using a sectoral approach, the experience has demonstrated the need and value of multi-sector and multi-actor integrated planning and governance. Four key lessons were drawn from this experience and the USAID/COMFISH Plus project's continuing support for the process since 2016 for better integration of climate adaptation in local and national planning documents:

- a. Stakeholder consultation: Understanding and involving actors at all levels. The need to involve institutions at all levels to work together on the issue for a given sector has been of paramount importance to the success of all adaptation planning exercises. Linked to this, the process revealed the importance of developing a good understanding of all the stakeholders involved in national and local climate change activities and their commitments. Consideration of the concerns and adaptation needs of all stakeholders involved at both the national and local level is needed for planning that is inclusive and sustainable.
- b. Identifying the most effective leverage/entry point. It is important to find the most effective strategies to influence the sector concerned to integrate climate adaptation into its policies and strategies. One of the strategies is to work for the ownership of the whole process by grassroots communities, which in the case of Senegal eventually became a means of pressure for the central authorities to join the process.
- c. Establishing coordination mechanisms at all levels. For sustainability reasons, but also for harmonization of implementation actions between the national and local levels, it is imperative to create coordination committees on climate change. In Senegal, a national climate change fisheries platform and local committees have been set up to support the implementation and monitoring and evaluation of the Fisheries NAP and local climate change adaptation plans, respectively.
- d. Ongoing technical mentoring at all levels. As climate change is a complex issue, technical (and financial) support is needed at all levels. Supporting the strengthening of

¹⁶ <http://napglobalnetwork.org> and at <https://www.climatelinks.org/blog/bottom-key-lessons-learned-senegal%E2%80%99s-nap-process>

institutional and stakeholder capacities at all levels (local, regional and national) to implement an ecosystem-based approach towards sustainable fisheries, taking into account climate change impacts in the fisheries sector has been a key factor of success in Senegal's process.

- 10. A framework for collaborative research established with project support has allowed fishery stakeholders to understand how to appropriate scientific data to improve their knowledge of fisheries, apply it to management decision-making, and increase voluntary compliance with management rules at the local level.** Collection and analysis of scientific data carried out by the CLPA/CRODT/DPM joint data collection units is already contributing to information for monitoring the status of sardinella and ethmalosa stocks and will continue to do so over the long term as local FMPs are implemented. Sharing of research results among research institutions supporting ecosystem-based fisheries co-management has improved the quality and availability of scientific information for decision-makers at all levels. The project's facilitation and technical support of an applied research approach linking academic research to the needs of resource users and policymakers has produced concrete and lasting results for improved management of fisheries resources (See Success Story in Annex 3).
- 11. The USAID/COMFISH Plus project's investment in socio-economic empowerment of women artisanal fish processors demonstrated approaches that improved conditions, increased benefits for women in the sector, and leveraged further investment from both government and the private sector.** In Cayar, where project support led to the first artisanal fish processing unit in Senegal approved for export to the European Union, women processed 9,788 kg of sardinella using improved techniques and earned more than \$10,800. Sustainability of the Cayar center's activities was further strengthened for diversification of revenue streams through application of improved processing techniques to other species. The Cayar women applied their leadership and advocacy capacity to convince the Minister of Fisheries to negotiate a quota of 20 tons per month of tuna from traders at the port of Dakar. In the first half of 2018, they earned \$56,300 processing 79,250kg of salted-dried tuna for the African and European markets. Another export client obtained FDA approval for the Cayar center's smoked products and intends to invest in additional smoking technology at the center to increase production capacity for export to the U.S. The approaches demonstrated at Cayar were used as a model for MPEM investments in scaling up modernization of artisanal processing areas in the country. At 4 sites where MPEM constructed new processing units over the last two years, the project supported the process by strengthening the organizational capacity of women's groups. In addition, as a result of USAID/COMFISH Plus, 19 processing sites in 12 CLPAs coast-wide implemented hygiene charters and a total of 1,464 women processors realized direct economic benefits from revolving credit and/or material and training for income generating activities with returns on the project investment of more than 50% and up to 160%. These results, demonstrating the capacity of women processing groups to take the lead in self-improvement encouraged the MPEM to grant lines of credit to more than 30 women's GIEs and associations in the fisheries sector through the Ministry's General Delegation to the Rapid Entrepreneurship of Women and Youth mechanism.

At the same time, socio-economic assessment results indicated that women processors in general experienced increasing challenges in accessing primary product to process and in accessing higher value markets and income. The capacity to meet national and international

standards, diversify types of products and species processed as well as services offered, competitively access capital and primary product, diversify clients, attract and negotiate profitable sales agreements, and effectively and transparently manage finances is increasingly critical to address these challenges. USAID/COMFISH and COMFISH Plus interventions have catalyzed scaled-up investment and provided successful and adaptive approaches for both organizational and technical capacity development in these skill sets. Successful implementation at scale requires continued accompaniment now that demonstrated approaches, tools and infrastructure are being simultaneously put in place. As the Cayar experience has shown, continued innovation will be important as market dynamics in the post-harvest sector are rapidly changing due to increased demand for resources that ultimately have a limited sustainable supply.

- 12. Good governance at all levels is the foundation for sustainable fisheries resource management.** As part of his visit to learn about US Government support for sustainable fisheries in Senegal, His Excellency the Ambassador of the United States to Senegal and Guinea Bissau, visited the Guéréo site in the Sindia Nord CLPA to meet the communities of women working in artisanal fish processing, with the support of the USAID/COMFISH Plus project. He highlighted the importance of governance at all levels. He said, *“Coming to Guéréo, I was only hoping to find fish, but in reality I found more than that: fish, vegetables, cereals, understanding, dialogue, dialogue between actors, literacy, that allows women to write in these registers, their names, dates of birth, phone numbers and even pictures, which is what we call good governance, and I'm happy to see that cooperation between the US and Senegal can help to establish good governance in Senegal. I will tell politicians to come and learn good governance in Guereo”* U.S. Ambassador to Senegal, Tulinabo S. Mushingi



Figure 24. U.S. Ambassador to Senegal visiting women processors in Guéréo.

- 13. Lack of synergy and coherence of interventions of the various actors in the fisheries sector constitutes a challenge to the process of establishing policies and strategies to contribute to stakeholder behavior change and rational management of fisheries resources.** The need to strengthen mechanisms for synergy and reinforce the coherence of interventions at all scales should be a priority going forward. This will require time, resources and further capacity building of the various stakeholders.

VII. RECOMMENDATIONS

7.1. For the CLPAs and CLPA Networks

Continue consistent and regular implementation of core CLPA governance procedures and functions. A critical mass of CLPAs have demonstrated their increasing capacity to fulfill the role envisioned and legally defined for this structure in the Fisheries Act and implementing Orders. Solid institutionalization and sustainability of the CLPA governance structure will be earned through the repeated application of good governance principles and processes over time. This means ensuring that CLPAs serve effectively to represent all constituencies in the artisanal sector. This includes women, who are currently underrepresented in CLPA leadership, as well as professional fishermen's organizations that have often played a lead representational role with technical services, the administration, and projects in the absence of a functional CLPA governance framework.

Continue advocacy with local elected authorities (Town Halls) so that they are more active in the management of CLPAs in their communes. Management of the fisheries sector remains an area of non-transferred competence under the exclusive authority of the central administrative authorities (the Ministry, the governor and the prefecture). This implies approval of all community management rules by the central authority. Although this power has not yet been transferred to elected Local Authorities (Town Halls), they are responsible for Community Development Planning in the areas inhabited by fishing communities and should be more engaged with CLPA management.

Conduct peer to Peer sharing and exchange visits for CLPA governing bodies, colleges and commissions, including women processors. This highly educative and accessible practice ought to be scaled up to improve cross CLPA and cross site learning, capitalization, harmonization and institutionalization of good practices. Peer to peer exchanges together with strong networking also serve to amplify the voice of local actors in driving positive change in the artisanal fisheries sector through the identification and rapid dissemination of practical solutions to common problems and creating a unified voice for recommending resource-user tested approaches to policymakers.

7.2. 2019 For the Ministry of Fisheries and Maritime Economy

Accelerate initiatives to better manage access and control effort, capitalizing on the engagement and capacity of the CLPA governance framework to contribute to rational approaches and efficient implementation. Act on the Presidential Order of November 2018 on allocation of a percentage of artisanal license fees to CLPAs for their functioning in order to continue to incentivize registration and licensing in support of the moratorium on new vessel registration and as a basis for managing access. Feedback from the DPM's August 2018 mission in CLPAs to resolve outstanding registration plates and update the national database indicates that where USAID/COMFISH Plus provided strong capacity development support (i.e., to recently develop CLs and the ethmalosa FMP in the Fatick Region), licensing rates were among the highest in the country.

Central authorities should be present in addition to the local administration for inter-CLPA meetings for the harmonization of management rules. These are very important moments of exchange between actors and with the technical services, making it easier to ensure sustainable co-management in these areas.

Support the functionality and Annual Work Plan of the National CLPA Network. Facilitate its administrative, operational and financial capacity, including office space. The link this and the regional and department level CLPA networks create with CLPAs coast wide is growing in importance as fisheries co-management is strengthened and the need for broad-based consensus for harmonized measures and improved effectiveness through high rates of voluntary compliance increases.

Update and finalize National sardinella and ethmalosa management plans (PNA). The development of these Plans can now be strongly informed by the experience of the local plans and the scientific and local knowledge gathered to develop and implement them. Completion of the national PNA process will facilitate the urgent need for improved management of these fisheries at the national level and will strengthen Senegal's leadership role in their management at the level of the Sub-Region.

Coordinate data platforms. Following transfer of the fisheries sector GIS platform and database developed with the support of USAID/COMFISH Plus to the DPM and as the World Bank and other donors also support the MPEM/DPM to develop its' GIS and fisheries database capacity going forward, it will be important for the DPM to coordinate efforts to ensure a comprehensive, high quality, efficient platform that creates synergy and does not duplicate effort.

Strengthen participatory surveillance and initiatives to combat IUU Fishing. Approval of the Order in process to define the criteria for selection, role and legal status of fishermen participating in surveillance will address some of the challenges identified by stakeholders based on the experience of participatory surveillance to date. Provide, or support development of, insurance options for participating fishermen as provided for in the proposed Order. At the national, sub-regional and international level, build on the lessons learned and the relationships established with U.S. Agencies during the U.S. Study Tour on IUU Fishing to increase inter-agency coordination, collaboration, information sharing and capacity building to reduce Senegal's economic, food security, and environmental losses from IUU.

Scale up capacity building for artisanal processors and complete the process of finalizing an order setting the conditions to operate as a professional artisanal processor of fishery and aquaculture products. Additional support is needed in terms of promoting good practices, improving processing techniques, and management of the quality and hygiene of fisheries products, and all actions involved in the process with a view to bringing up to standards the hygiene and quality of products in the artisanal processing industry. The main actions to be carried out can be summed up as follows: improving production conditions and infrastructure (site development); formalizing "artisanal processing" activities by providing incentives and harmonizing standardization measures at regional level, which includes a marketing approach that takes into account consumer preferences and value addition along the value chain. A prerequisite for achieving this result is to put in place an adequate legal and institutional framework, governing the profession of artisanal fish processing in Senegal. A proposed Order is the result of a review of Order 69-132 of February 12, 1969 relating to official control of fishery and aquaculture products led by the Department of Fishery Processing Industries (DITP). The Order, laying down the conditions governing artisanal processors of fishery and aquaculture products, gives artisanal processing a status and a professional category. It will facilitate women's access to bank credit, improve trade of fishery products, and promote the export of artisanal products from a responsible and regulated fishery

7.3. 2019 For USAID

Continue support for CLPA and CLPA Network capacity development in financial management and financial sustainability strategies. Financial sustainability of CLPAs is at a critical juncture. Internal fundraising is successfully gaining momentum. Legal authority for implementation of the return of 60% of artisanal fishing license revenue to CLPAs to fund operations was finally secured by Presidential Order on November 14, 2018. Continued capacity development support and accompaniment of the process is needed to facilitate timely, rigorous, and transparent implementation of this long awaited measure at scale to the benefit of the existing 39 CLPAs. Early success and effective mitigation of risk will be important factors in building the confidence of CLPAs and their constituents, as well as the Government of Senegal, to transfer and effectively use and account for these funds. CLPA Networks could play an important role in capacity development and monitoring of the CLPAs at scale.

Equally critical is that effective implementation of the return of a percentage of licensing fees for CLPA functioning is an incentive for CLPAs to ensure that all canoes are licensed. Effective registration and annual licensing of the more than 19,000 artisanal canoes currently operating in Senegal is essential for any meaningful management of fishing effort, starting with implementation of the current law placing a moratorium on registration of new canoes.

Develop a learning agenda on the dynamics of the contribution of marine fisheries to food security in Senegal as harvest and post-harvest value chains are improved and higher percentages of the catch are potentially directed into higher value products, export markets, and/or fishmeal and as climate change impacts the productivity, range and timing of migratory patterns of food security species. Explore the changing roles of artisanal women processors and small traders in these trends and their role as drivers of sustainable fisheries management. This should include continued support for the MPEM/DPM to work with stakeholders to improve official statistics on the contribution of women processors in the sector. For example, the socio-economic assessment of project investments in the processing sector found that “The establishment of registers summarizing production in Cayar, but also in the other sites, provided more reliable statistics which are used very often by the fisheries administration since there are no official statistics on the number of women active in the fisheries sector.”

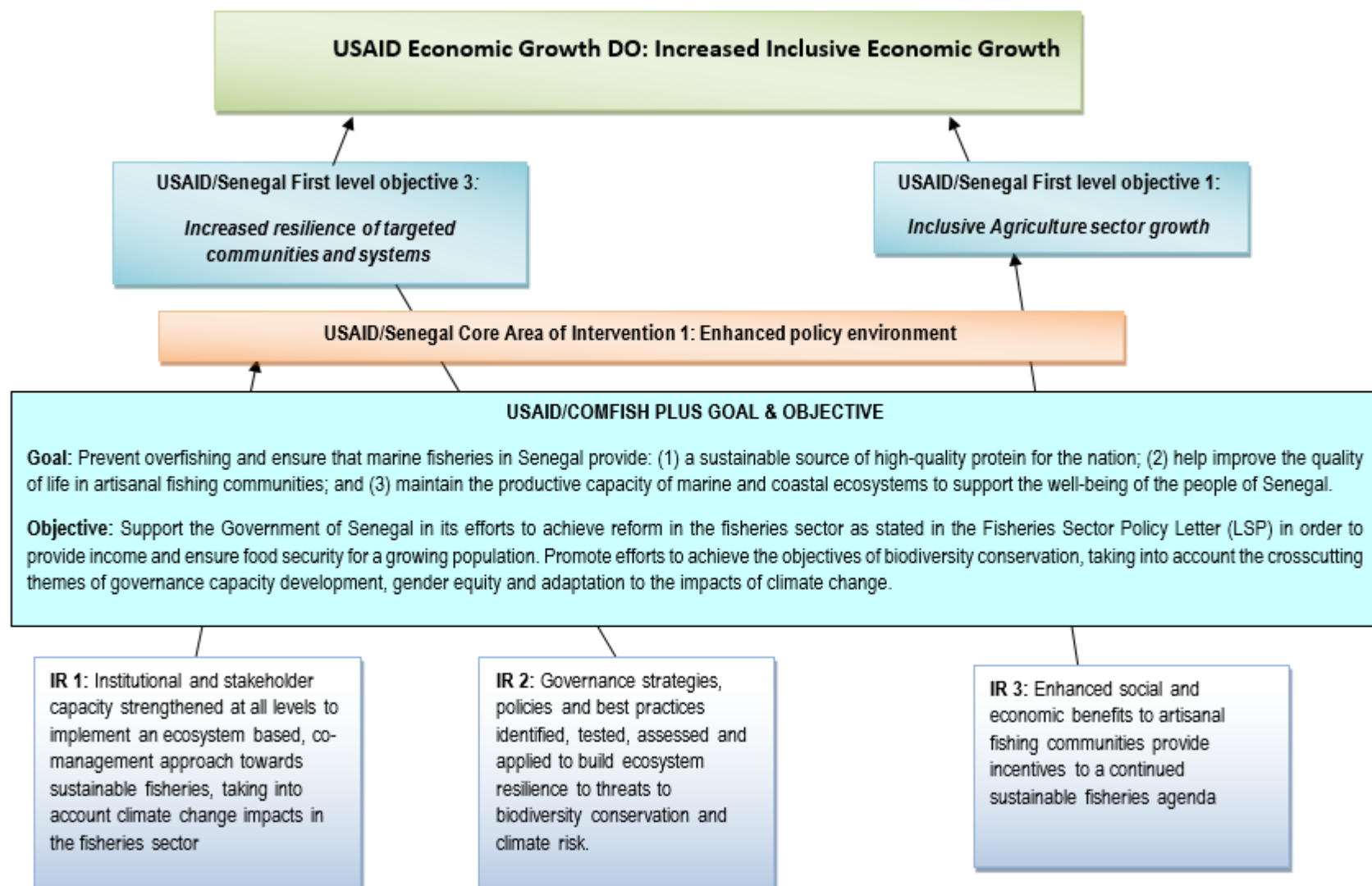
Support the PNPPC Action Plan to develop climate financing opportunities through development of a portfolio of bankable programs and projects aligned with the Green Climate Fund and other available mechanisms.

Facilitate sustainability of the EWS/Safety at Sea program through development of market-based private sector partnerships. These should include consideration of insurance mechanisms for fishermen and continued outreach, education and capacity building at the level of fishing communities, as well as opportunities to test and scale up affordable satellite or GIS vessel tracking technology for artisanal canoes.

VIII. FINANCIAL REPORT

COMPREHENSIVE FINANCIAL REPORT					
COMFISH PLUS					
OCTOBER 2016 TO OCTOBER 2018					
	Award Budget	Year 1 Expense	Year 2 Expense	Cumulative	Balance
URI Personnel	497,257	226,109	266,624	492,733	4,524
URI Fringe	280,584	122,511	128,376	250,886	29,698
Consultants and Subcontracts	1,712,975	757,653	966,242	1,723,894	(10,919)
Travel	467,256	124,621	615,415	740,036	(272,780)
Capital Equipment	44,545	36,091	(60)	36,032	8,513
Other direct costs	596,720	252,512	108,039	360,552	236,168
Total Direct	3,599,337	1,519,497	2,084,636	3,604,133	(4,796)
Indirect	924,246	448,645	468,518	917,163	7,083
Total Direct and Indirect	4,523,583	1,968,143	2,553,153	4,521,296	2,287

ANNEX 1. USAID/COMFISH Plus Results Framework



ANNEX 2. PROJECT PERFORMANCE

Indicator Statement	Base-line year	Baseline value	LOP Target	Year 1 FY17 Target	Year 1 FY17 Actual	Year 2 FY18 Target	YR2 FY18 Actual	LOP	% LOP Target	Observations
1. Number of individuals who have received USG supported short term agricultural sector productivity or food security training (EG.3.2-1)	2016	3,557	6,650	3500	M=2,534 F=1,486 T=4,020	3150	M=3,752 F=1,989 T=5,741	M=6286 F=3475 T=9,761	147%	A total of 360 training workshops were organized, reaching 9,761 people, 36% women . The 147% achievement of the LOP target is due largely to 12 National CLPA Network workshops and more workshops than expected in 9 Sine Saloum CLPAs, including Palmarin/Djifère and Fimela/Ndagane
2. Number of people trained in sustainable natural resources management and/or biodiversity conservation as a result of USG assistance (EG.10.2-4)	2016	3,557	6,650	3500	M=2,534 F=1,486 IUUF=4,020 T=4,020	3150	M=3,752 F=1,989 IUUF= 5,741 T=5,741	M=6286 F=3475 T=9,761	147%	All project trainings are categorized as both productivity/food security (EG 3.2-1) and natural resource management (EG 10.2-4). Under EG 10.2.4, all fall under the IUU Fishing disaggregate.
3. Number of people supported by the USG to adapt to the effects of climate change (EG.11-5)	2015	109,329	109,329	109,329	109,329	109,329	109,329	M=79,810 F=29,519 T=109,329	100%	109,329 fishers continue to benefit from climate services provided by ANACIM due to the SMS platform put in place by the project.
4. Number of laws, policies, regulations, or standards addressing climate change adaptation formally proposed, adopted, or implemented as supported by USG assistance (EG.11-3)	2016	13	9	5	8	4	6	14	156%	2 Hygiene charters: Mballing site and Ndayane (approved) 1 Fisheries & Aquaculture NAP (approved) 2 hygiene charters for the women of Diamniadio and Missirah (approved) 1 Order on the establishment of the National Fisheries Climate Change Platform (approved)

Indicator Statement	Base-line year	Baseline value	LOP Target	Year 1 FY17 Target	Year 1 FY17 Actual	Year 2 FY18 Target	YR2 FY18 Actual	LOP	% LOP Target	Observations
										1 Order approving the Saint Louis PLA Monitoring and Steering Committees (approved) 1 Strategy for the operationalization of the Fisheries & Aquaculture NAP (formally proposed) 2 Orders creating PLA implementation monitoring committees in Ziguinchor and Kafountine; 2 Orders creating PLA Steering Committees for Ziguinchor and Kafountine; 2 Regulations for revolving funds for Yene Dialaw and Sendou women. 156% achievement of the LOP target is due primarily to separate orders for PLA monitoring and steering committees.
5. Number of people trained in climate change adaptation supported by USG assistance (EG.11-1)	2016	1,116	2,090	1100	M=488 F=932 T=1,420	990	M=538 F=1,089 T=1,627	M=1026 F=2021 T=3,047	146%	103 training events linked to climate change adaptation. 146% achievement of LOP target and the 66% women participants is due to more than 12 workshops in Financial Management, Administration, Literacy and Good Governance for women processors.
6. Number of fishery users to whom tailored Climate Information Services (CIS) are made available (custom)	2015	109,329	109,329	109,329	109,329	109,329	109,329	M=79,810 F=29,519 T=109,329	100%	ANACIM platform supported by the project continued to distribute early warning weather alerts to 109,329 fishers across Senegal
7. Number of fishery beneficiaries with	2016	961	1,100	1000	961	100	M=264 F=42	M=1230 F=193	129%	New CLPA actors were from Diogu�, Elinkine, Oukout and Djiffer,

Indicator Statement	Base-line year	Baseline value	LOP Target	Year 1 FY17 Target	Year 1 FY17 Actual	Year 2 FY18 Target	YR2 FY18 Actual	LOP	% LOP Target	Observations
effective access to and understanding of CIS (custom)					Continu-ing M=817 F=144 156 new M=149 F=7 T=1117		T=306	T=1,423		Diouloulou, Baila, Nyassia, and Niaguis. 129% achievement of LOP target is due to increased number of workshops organized with support of the USAID/CINSERE Project.
8. Number of people using climate information or implementing risk-reducing actions to improve resilience to climate change as supported by USG assistance (EG.11-6)	2015	109,329	109,329	109,329	109,329	109,329	109,329	M=79,810 F=29,519 T=109,329	100%	The 109,329 fishers continue to use climate services distributed by ANACIM through the platform and other channels
9. Number of farmers and others who have applied improved technologies or management practices with USG assistance (EG.3.2-17)	2016	42,837	23,323	13,993	20,952 M=20,952	9,330 new	20,952 continuing 8,886 new M=8,886	29,838 M=29,838	128%	20,952 producers are documented in the 10 CLPA where the CLs are applied. 8,886 new fishers in Palmarin/Djifère, Fimela/Ndangane, Toubacouta, Missirah, Sokone, Foundiougne, Niodior, Bassoul and Djirnda CLPAs with new CLs and/or implementing FMPs. 128% achievement of LOP target due to more fishers than originally estimated in the 10 CLPAs.
10. Number of local fishery organizations able to disseminate CIS (custom)	2016	0	32 (CLPAs)	29	35	32	39	39	121%	With USAID/CINSERE Project support, ANACIM training reached all of the 39 existing CLPAs. 121% achievement of LOP target.

Indicator Statement	Base-line year	Baseline value	LOP Target	Year 1 FY17 Target	Year 1 FY17 Actual	Year 2 FY18 Target	YR2 FY18 Actual	LOP	% LOP Target	Observations
11. Number of hectares of biologically significant areas under improved natural resource management as a result of USG assistance (EG.10.2-2)	2016	1,404,565	1,484, 206	1,404, 565	1,404, 565	1,484,206	1,484,206	1,484,206	100%	Estuarine areas of the Sine Saloum added in FY18 as CLs and ethmalosa FMP approved and implementation initiated. Sardinella FMPs and local adaptation plan implementation started in previous hectares.
12. Number of institutions with improved capacity to assess or address climate change risks supported by USG assistance (EG.11-2)	2016	0	250	150	58	100	115	173	69%	69% achievement of LOP is due to elevated target in year 1 that was not appropriately adjusted to account for no double counting of the same institution within the fiscal year. Institutions include CLPAs, monitoring and steering committees for local adaptation plans, the National Platform for Fisheries and Climate Change, ANACIM and women processor GIEs among others.
13. Number of fishery organizations that are represented in the Steering Committee and governance structure of CINSERE (custom)	2016	0	1 ASPRODEB represents CLPAs	1	0	1	0	0	0%	No Steering Committee meeting held by CINSERE
14. Number of for-profit private enterprises, producers organizations water users associations women's groups, trade and business associations, and community based organizations (CBOs)	2016	0	190	90	63	100	112	175	92%	Women's groups and associations and others in more than 19 CLPAs

Indicator Statement	Base-line year	Baseline value	LOP Target	Year 1 FY17 Target	Year 1 FY17 Actual	Year 2 FY18 Target	YR2 FY18 Actual	LOP	% LOP Target	Observations
receiving USG food security related organizational development assistance (EG.3.2-4)										
15. Number of households benefiting directly from USG interventions (EG.3-1)	2016	16,533	17,000	17,000	16,533	17,000	19,558	19,558	115%	The 16,533 households under COMFISH continue to be COMFISH Plus beneficiaries. 3,025 households of 9 CLPAs of Sine Saloum (Toubacouta, Sokone, Missirah, Foundiougne, Djirnda, Niodior, Bassoul, Palmarin/Djifère and Fimela/Ndangane) were added in FY18. 115% achievement of LOP target is due to higher number of households in the Sine Saloum CLPAs than originally anticipated.
16. Number of hectares of biologically significant areas showing improved biophysical conditions as a result of USG assistance (EG.10.2-1)	2016	0	1,404, 565	0	n/a	1,404,565	1,404,565	1,404,565	100%	Total marine area where COMFISH Plus has been implemented out to 20 nautical miles including selected MPAs. Covers sardinella and octopus stocks and biodiversity in the MPAs of Cayar, Joal, Saint Louis, Bamboung and Abene.
17. Number of people with improved economic benefits derived from sustainable natural resource management and/or biodiversity conservation as a result	2016	0	2,151	1,000	F=140 T=140	1,151	F=1,464 T=1,464	F=1,464 T=1,464	68%	Women processors benefiting from revolving credit and/or material and training for income generating activities that are realizing positive returns at Ndayanne and Guéréo (Sindia Nord), Saly (Mbour), - Diamniadio and Missirah (Sine Saloum), Sendou (Rufisque/Bargny), Yenne Todd (Yenne/Dialaw), and

Indicator Statement	Base-line year	Baseline value	LOP Target	Year 1 FY17 Target	Year 1 FY17 Actual	Year 2 FY18 Target	YR2 FY18 Actual	LOP	% LOP Target	Observations
of USG assistance (EG.10.2-3)										Cayar. 127% achievement of Y2 target. 68% of LOP target due to conservative counting of only those whose benefit could be directly documented. An additional 1000 women benefitted from diversified livelihood investments where return on investment was not yet measured are counted, then the LOP would be met, but these beneficiaries were not included.
18. Number of laws, policies, or regulations that address biodiversity conservation and/or other environmental themes officially proposed, adopted, or implemented as a result of USG assistance (EG.10.2-5)	2016	28	8	3	11	5	22	33	412%	2 sardinella FMPs approved (Grande Côte Nord and Casamance) 4 Hygiene charters : Mballing site, Ndayane, Diamniadio and Missirah (approved) 1 Fisheries & Aquaculture NAP (approved) 1 Order approving the Saint Louis PLA Monitoring and Steering Committees (Approved) 1 Strategy for operationalization of the Fisheries & Aquaculture NAP (formally proposed) 1 Order approving establishment of the National Fisheries Climate Change Platform (approved) 1 Strategy for the implementation of sardinella FMPs (validated) 2 Orders creating PLA implementation monitoring committees in Ziguinchor and Kafountine;

Indicator Statement	Base-line year	Baseline value	LOP Target	Year 1 FY17 Target	Year 1 FY17 Actual	Year 2 FY18 Target	YR2 FY18 Actual	LOP	% LOP Target	Observations
										2 Orders creating PLA Steering Committees in Ziguinchor and Kafountine; 2 Regulations for revolving funds for women from Yène Dialaw and Sendou; 3 sardinella FMPs from Grande Côte Sud, Cap Vert, Petite Côte implemented ; 1 ethmalosa FMP in Sine Saloum proposed for the CLPAs of Toubacouta, Missirah, Djirnda, Bassoul, Niodior, Foundiougne, Fimela and Palmarin; 5 Orders for ethmalosa FMP implementation for the CLPAs of Palmarin, Fimela, Toubacouta, Missirah, Djirnda and Foundiougne; 3 CLs proposed for the CLPAs of Sokone, Missirah and Toubacouta; 4 CLs adopted for the CLPAs of Foundiougne, Bassoul, Niodior and Djirnda; 412% achievement of LOP target is due to the 5 ethmalosa FMP implementation orders and separate orders for PLA monitoring and steering committees.

ANNEX 3. SUCCESS STORIES



USAID
FROM THE AMERICAN PEOPLE

THE
UNIVERSITY
OF RHODE ISLAND
GRADUATE SCHOOL
OF OCEANOGRAPHY



Feed the Future (FTF) and Biodiversity COMFISH Plus Project

PENCOO GEJ

(Collaborative Management for a Sustainable Fisheries Future in Senegal)

SUCCESS STORY

“FISH LESS, EARN MORE”

Experienced fishermen and the next generation of researchers combine forces to find out how and inform policymakers

Experienced master fishermen at Joal, the largest artisanal fish landing site in Senegal, and the twenty other fishermen in the room nod in agreement and share their feedback as they listen to Alioune Faye, a young researcher and PhD candidate at Senegal’s University Institute for Fisheries and Aquaculture of the University of Cheikh Anta Diop (IUPA/UCAD). Alioune is presenting the conclusions of applied research conducted in collaboration with fishermen in the Joal and Sine Saloum area of Senegal to ground truth the findings in five feedback sessions with more than seventy-four experienced practitioners.

The study looked at which fishing net mesh sizes and hanging ratios work best for reducing the catch of juvenile fish of the *Ethmalosa fimbriata* species before they reach reproductive size.¹⁷ This knowledge is critical for ensuring catches do not reduce productivity of the fishery to unsustainable levels, and for maximizing yield for fishermen.

Interest is high among the fishermen. *Ethmalosa* makes up more than 5% of total artisanal small pelagic fish landings in Senegal and is an important food security species for the population. Overfishing has put pressure on the fishery and associated livelihoods, including artisanal fishing, processing and trading in the species.

The study finds that the most effective minimum mesh size for *ethmalosa* is 36-40 millimeters, which is larger than the 30-32 millimeters allowed by the Fisheries Code and used by most fishermen. The finding is not unusual. What is unusual is that the fishermen from all five landing sites agree. They are committed to sharing the results broadly through their networks and to adopting the new standard themselves immediately. They also champion the recommendation that the Fisheries Code, local agreements to implement the code, and *ethmalosa* fishery management plans nationwide in Senegal and in the sub-region should officially require the larger minimum mesh size. This is in spite of the short term economic difficulty fishermen will

17 A. Faye et al. / Turk. J. Fish. Aquat. Sci. 18:761-769 (2018) http://www.trjfas.org/uploads/pdf_1217.pdf

experience to implement the change. It means they will have to use separate nets for ethmalosa and sardinella, the other main species they fish.

The USAID/COMFISH Plus project has facilitated a fundamental change in the way fishermen, researchers and policymakers work together to address the challenges of sustainable fisheries management in Senegal. Through its' technical and financial assistance, the project has encouraged researchers, and especially a new generation of young academics, to:

- focus on applied research topics that are meaningful for practitioners in the sector,
- engage practitioners in the research itself, and
- invest in reporting out and refining their research findings in consultation with the fishing community members whose practices it informs.

Understanding and ownership of research findings by fishermen, in combination with the Local Artisanal Fisheries Council (CLPA) governance framework that USAID/COMFISH Plus has helped to strengthen and institutionalize in Senegal, is enabling resource users to be effective leaders in fisheries co-management decision-making.

'When the mesh size is bigger, the fish can grow and reproduce. You catch bigger fish; you make more money. You catch fewer fish of higher quality; you make more money. So, we can fish less and earn more.' Master Fisherman, Joal

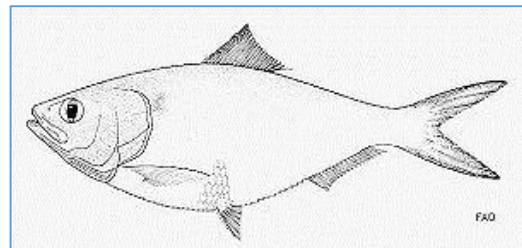
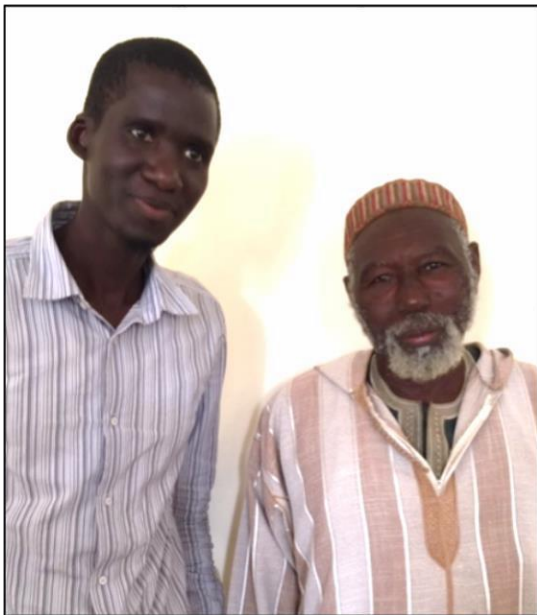


Photo : Ethmalosa fimbriata (FAO)

Photo: Researcher Alioune Faye and master fishermen collaborate to find best fishing practices (Photo credit: Karen Kent)



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Feed the Future (FTF) and Biodiversity COMFISH Plus Project

PENCOO GEJ

(Collaborative Management for a Sustainable Fisheries Future in Senegal)

SUCCESS STORY

Prohibition on Going to Sea at Night: Local Artisanal Fisheries Councils aligned with the Minister



Photo: The National CLPA Network Coordinator, Abdoulaye Ndiaye, at a press briefing confirming that a national consensus of Local Artisanal Fisheries Councils (CLPAs) proposed and support the Minister's order (Credit: Mbourtv June 14, 2018 - https://www.youtube.com/watch?v=_tLVz9aU9QI)

Aboulaye Nadiaye, Coordinator of the one-year old National Network of Local Artisanal Fisheries Councils recently found himself in front of the cameras in a televised press briefing defending the bottom up origins of a new Ministerial order to harmonize prohibitions on night fishing nationwide. The scenario was remarkable because it illustrates concretely the transformation from top down to bottom up decision-making that is taking place in the artisanal fisheries sector in Senegal. Not long ago, a national government authority would have been the one facing cameras to defend the decision and educate the public about its' importance. Today, the importance of local governance and the value of strong governance networks linking local resource users to policymakers at the national level is recognized by interested parties at all levels.

Sardinella is the marine fish that Senegal's population and economy relies on most for food and income. Artisanal fishermen, who bring in 80% of fish landings in the country, are struggling to provide for their families, maintain their livelihoods and supply the country, the West Africa Region and international markets with fish. Increased fishing effort has put pressure on the resource, putting it at risk of depletion if unsustainable rates of extraction increase.

The Government of Senegal has recognized that reversing these trends requires a new approach, one that includes fishermen and fishing communities as decision-makers and leaders in the management of the fisheries resources upon which their livelihoods depend. As a result, 39 Local Artisanal Fisheries Councils (CLPAs) were created along Senegal's marine coast and in its' marine estuaries. The Ministry of Fisheries and the CLPAs, with the support of partners like USAID's COMFISH Plus project, have been working to strengthen the capacity of CLPAs to put in place and adhere to locally identified best fishing practices that are in alignment with Senegal's Fisheries Act. CLPA networks, including a National Network were also established to support this participatory approach.

The process has been showing positive results. One of the best practices many CLPAs put in place under the authorities they now exercise in their zones is seasonal prohibitions on night fishing of sardinella. The seasonal bans range from none in some CLPAs to 4 or even 6 months in others. The seasonal bans also have varying start and end dates. Because sardinella moves up and down the coast across CLPA zones, lack of uniformity on night fishing prohibitions emerged as a problem. It caused conflict as fishermen moved to fish in open zones when their own zone was closed. The desired effect of the prohibitions, reducing pressure on the resource, could also be cancelled out as a result.

Realizing the urgency of the issue for their livelihoods and understanding their capacity to lead a problem solving process, the CLPAs relied on their newly established networks to play the role of convening and consensus building. After a year and a half of consultations that included 100% of Senegal's 39 CLPAs, a recommendation was made to the Ministry. The Final Ministerial order adopted the CLPAs recommendation for a 4-month closure from June to September in all zones. That is why, when one CLPA complained to the media about the decision of the Minister, it was the National CLPA Network, and not the administration, that held a press briefing to remind the public and fisheries stakeholders that this was a bottom up solution.

"People will always criticize, but tomorrow when there are no fish, everyone will say that the Minister should do something. If you are the Minister, you will say 'who deserves support, those who are doing something, or those who only criticize?'" National CLPA Network Coordinator

These developments highlight the important role that the National CLPA Network played in coordinating and communicating a consensus approach among CLPAs and to decision-makers at the national level. The adaptive power of the CLPA governance framework to respond to challenges that arise when decision-making is deconcentrated and to be pro-active in their role as problem solvers on issues of national importance in the sector has been demonstrated and shows promise for the sustainability of fisheries co-management in Senegal.

ANNEX 4. PROJECT PUBLICATIONS

FY2017 (October 2016 – September 2017)

1. USAID/COMFISH Final Report (2011-2016)
2. USAID/COMFISH Plus FY17 Quarter 1 Progress Report (October – December 2016)
3. USAID/COMFISH Plus Année Fiscal 2017, Rapport Trimestriel 1 (octobre – décembre 2016)
4. USAID/COMFISH Plus FY17 Quarter 2 Progress Report (January – March 2017)
5. USAID/COMFISH Plus Année Fiscal Rapport Trimestriel 2 (janvier – mars 2017)
6. USAID/COMFISH Plus FY17 Quarter 3 Progress Report (April – June 2017)
7. USAID/COMFISH Plus Année Fiscal Rapport Trimestriel 3 (avril – juin 2017)
8. USAID/COMFISH Plus FY17 Annual Report (October 2016 – September 2017)
9. USAID/COMFISH Plus Année Fiscal 2017 Rapport Annuel (octobre 2016 – septembre 2017)
10. Plan Nationale d'Adaptation du Secteur de la Pêche et de l'Aquaculture Face au Changement Climatique Horizon 2035 [Climate Change National Adaptation Plan for the Fisheries and Aquaculture Sector Horizon 2035] (octobre 2016)
11. Stratégie de mise en œuvre du Plan National d'Adaptation du secteur de la pêche et de l'Aquaculture aux effets du changement climatique [Implementation Strategy for the National Adaptation Plan for Fisheries and Aquaculture] (février 2017)
12. Regional and International Fisheries Management and Governance in West Africa, (May 17, 2017)
13. Plan de Gestion Participatif de la pêche de l'ethmalose dans la zone du Sine Saloum, [Ethmalosa Participatory Fisheries Management Plan in the Sine Saloum zone] (juillet 2017).
14. Stratégie de Mise En Œuvre du Plan de Gestion Participatif Ethmalose [Implementation Strategy for the Ethmalosa Participatory Fisheries Management Plan] (2017)
15. Etude sur la selectivité des filets maillants à ethmalose utilisés dans les îles du Saloum et à Joal, IUPA, juillet 2017.
16. A. Faye et al. / Turk. J. Fish. Aquat. Sci. 18: 761-769 (2018) Gillnet Selectivity for Ethmalosa fimbriata in Saloum Delta and Joal (Senegal).
17. Extraits de la Loi Portant Code de la Pêche Maritime et de son Décret d'Application Pour la Mise en Œuvre des Plans de Gestion Participatifs de la Sardinelle au Sénégal [Excerpts from the Maritime Fisheries Code and its Implementing Decree for Implementation of Participatory Management Plans for Sardinella in Senegal]

FY2018 (October 2017 – September 2018)

18. USAID/COMFISH Plus FY18 Quarter 1 Progress Report (October – December 2017)
19. USAID/COMFISH Plus Année Fiscal 2018, Rapport Trimestriel 1 (octobre – décembre 2017)

20. USAID/COMFISH Plus FY18 Quarter 2 Progress Report (January – March 2018)
21. USAID/COMFISH Plus Année Fiscal 2018, Rapport Trimestriel 2 (janvier – mars 2018)
22. USAID/COMFISH Plus Quarter 3 Progress Report (April – June 2018)
23. USAID/COMFISH Plus Summary Annual Report 2018 (October 2017 – September 2018)
24. Diagnostic participatif des GIE des femmes transformatrices de produits halieutiques de Cayar, Yenne Todd, Guéréo, Pointe Sarène et Missirah dans le cadre du projet COMFISH Plus pour une Amélioration de la Qualité et une meilleure mise en marché des produits transformés, [Participatory diagnosis of GIEs of women fish processors in Cayar, Yenne Todd, Guereo, Pointe Sarene and Missirah as part of the COMFISH Plus project for Quality Improvement and Better Marketing of Processed Products] Yacinthe Momar Diop (December 2017)
25. Convention Locale : CLPA de Sokone [Local Agreement] (December 2017)
26. Convention Locale : CLPA de Missirah [Local Agreement] (December 2017)
27. Convention Locale : CLPA de Bassoul [Local Agreement] (January 2018)
28. Convention Locale : CLPA de Niodior [Local Agreement] (January 2018)
29. Convention Locale : CLPA de Djirnda [Local Agreement] (January 2018)
30. Convention Locale : CLPA de Toubacouta [Local Agreement] (January 2018)
31. Convention Locale : CLPA de Foundiougne [Local Agreement] (January 2018)
32. Mise en place des unités de mise en œuvre du Plan de Gestion Participatif de la pêcherie de l'ethmalose dans les CLPA du Sine Saloum [Establishment of implementation units for the for the Ethmalose Fishery Participatory Management Plan in CLPAs of Sine Saloum], Minata Dia, (March 2018)
33. Capitalisation de la démarche du projet USAID/COMFISH en matière d'élaboration et de mise en œuvre des outils de cogestion des ressources halieutiques au Sénégal, (septembre 2018).
34. Emergence des CLPA dans la gouvernance des pêcheries artisanales au Sénégal, septembre 2018.
35. Emergence of CLPAs in Artisanal Fisheries Governance in Senegal (September 2018)
36. Changement climatique et Pêche : Expériences des projets USAID/COMFISH et USAID/COMFISH Plus, (septembre 2018)
37. Climate Change and Fisheries; The Experience of USAID/COMFISH and USAID/COMFISH Plus, (September 2018)
38. Autonomisation des femmes dans la transformation artisanale des produits halieutiques, (septembre 2018)
39. Empowering Women in Artisanal Processing of Fisheries Products (September 2018).
40. Manuel de procédures Réseau national CLPA 2018 [National CLPA Network Administrative and Financial Procedures Manual]

41. Guide De Bonnes Pratiques d'Hygiene Pour La Transformation Des Produits Halieutiques [Guide to Good Hygiene Practices for the Processing of Fishery Products] (French)
42. Guide De Bonnes Pratiques d'Hygiene Pour La Transformation Des Produits Halieutiques (Wolof)
43. Rapport sur les sessions de formation tenues à l'intention des femmes transformatrices de poisson des sites de Missirah, Pointe Sarrène, Guéreuw, Yenne Todd et Cayar, [Report on the training sessions held for women fish processors] Momar Yacinthe Diop.
44. Etude du renforcement institutionnel des Conseils Locaux de Pêche Artisanale (CLPA) et de ses impacts sur la gestion des ressources halieutiques, [Study of Institutional Strengthening of CLPAs and its' Impacts on the Management of Fishery Resources] Adama Mbaye, (septembre 2018)
45. Etude de L'impact des activités de renforcement de capacités des transformatrices, [Study of Capacity Building Activities for Fish Processors] Adama Mbaye, (septembre 2018)
46. Rapport d'évaluation du Premier Plan d'affaires 2015-2017 du Gie Mantoulaye Guene de Cayar et Elaboration du Plan d'affaires 2018-2022, [Evaluation report of the first business plan 2015-2017 of GIE Mantoulaye Guene of Cayar and development of the Business Plan 2018-2022], El Hadjih Niasse, (juillet 2018)
47. Synthèse des connaissances disponibles et étude de la perception des acteurs sur l'utilisation du monofilament, [Synthesis of available knowledge and study of actors' perception of the use of monofilament] CRODT, (juillet 2018)
48. Profil des pêcheries des Sardinelles et de l'Ethmalose au Sénégal, [Profile of Sardinella and Ethmalose fisheries in Senegal] CRODT, (juillet 2018)
49. Etat des connaissances sur la pêche de l'ethmalose au Sénégal, [Status of knowledge on the Senegalese ethmalosis fishery] CRODT, (juillet 2018)
50. Mise en place d'un système de collecte des données sur les pêcheries des petits pélagiques à travers des cellules mixtes, [Establishment of a data collection system on small pelagic fisheries through joint data collection units] CRODT, (juillet 2018)
51. Rapport annuel des activités dans les AMP de Gandoul, Niamone, Kalounayes et Kasabalanta Counda, [Annual report of activities in the MPAs of Gandoul, Niamone, Kalounayes and Kasabalanta Counda] IUPA, (2018)
52. Etude de la structure des tailles, de la croissance et de la reproduction d'Ethmalosa fimbriata à Joal et Saint-Louis, [Study of the size, growth and reproduction structure of Ethmalosa fimbriata in Joal and Saint-Louis] IFAN/IRD, (juillet 2018)
53. Mission de suivi du Plan de Pérennisation de l'immatriculation des embarcations de pêche artisanale [Follow-up mission of the Plan for the registration of small-scale fishing boats] DPM, (juillet-août 2018)

54. Biophysical impact assessment and resilience of marine resources in Senegal under fisheries resource management of USAID-COMFISH and COMFISH Plus (2011-2018), Najih Lazar (2018)

Videos

Three Thematic Capitalization Videos in French and English:

Les Conventions locales, outils de gouvernance locale des ressources halieutiques au Sénégal, (January 2018) (French) <https://www.youtube.com/watch?v=wQqOLcbiWO8>

Local conventions, local governance tools for the sustainable management of fisheries resources (September 2018) (French with English subtitles)
<https://www.youtube.com/watch?v=5YOEo8X4h1M>

Changement Climatique et Peche: Expérience du projet USAID/COMFISH Plus (August 2018) (French) <https://www.youtube.com/watch?v=rJ8bSrnBLyg>

Climate Change and Fisheries: Usaid Comfish Plus Experience (September 2018) (French with English subtitles): <https://www.youtube.com/watch?v=vuVoNy6Na-I>

Enhancing Fish Processing and Empowering Women (September 2018), (Wolof and French with English subtitles) <https://www.youtube.com/watch?v=rIyBF8fDCvw>

Other USAID/COMFISH Plus videos:

Lancement d'un site Web pour les acteurs de la pêche artisanale au Sénégal [Launch of a website for artisanal fishermen in Senegal] (February 2017)
<https://www.youtube.com/watch?v=RHfYFSc9wg6Y>

Mise en œuvre du plan local d'adaptation du secteur de la pêche à Saint-Louis [Implementation of St. Louis local adaptation plan]. (May 2017).
https://www.youtube.com/watch?v=U-yG5Gzxisw&feature=em-share_video_user

Débat Pêche INN au Sénégal [Televised IUU Fishing National Round Table] (June 30, 2017, RTS) https://www.youtube.com/watch?v=FJtH3_O9b0k

USAID/COMFISH Videos published in FY17:

Projet USAID/COMFISH : Cinq ans au service de la pêche artisanale au Sénégal [Five years of contribution to the collaborative management of fisheries resources in Senegal] (March 2017) <https://www.youtube.com/watch?v=N-3vdkp8qXc>

Empowering Senegalese Fish Processing Women (March 2017) (French and Wolof with English subtitles) <https://www.youtube.com/watch?v=ORz2fVwj70Q>

Plan de gestion participatif de la pecherie de sardinelles [Sardinella Participatory Fisheries Management Plan] (March 2017)
<https://www.youtube.com/watch?v=nKB2Qf70g3s>

A selection of online media coverage:

Mbourtv Pêche -Interdiction d’aller en mer la nuit :Les CLPA en phase avec le ministre [\[Fisheries – Prohibition on going to sea at night : CLPAs in alignment with the Minister\] \(June 14, 2014\).](https://www.youtube.com/watch?v=_tLVz9aU9QI_) (https://www.youtube.com/watch?v=_tLVz9aU9QI_)

All Africa [Mauritania: Closure of Ministerial Conference of the CSRP \(19 May 2017\)](#)

Dakar Actu [28th Extraordinary Session of the Committee of the CSRP: A new version launched \(18 May 2017\)](#)

News JS [Co-management of fisheries in Senegal: The CLPA national bureau established \(15 June 2017\)](#)

La Vie Senegalaise [Artisanal fisheries : establishment of the national network of CLPAs \(15 June 2017\)](#)

Lactuacho.com [Fisheries : installation of the national office of CLPAs : What will it change ? \(19 June 2017\)](#)

Le Quotidien [Rufisque : Transmission of weather alerts : a guide for fishers \(April 2017\)](#) <https://www.lequotidien.sn/rufisque-transmission-des-alertes-meteorologiques-le-guide-des-pecheurs/>

ANNEX 5. EMMP – Project

Category of Activity from Section 3.5, 3.7 and 3.10, of the Senegal EG Food Security and Natural Resource Management PIEE (April 2016)	Environmental Threats	Mitigation Measures	Who is Responsible for Monitoring?	Sources of Verification	Monitoring Method	Frequency of Monitoring
Engaging the government, supporting local communities, planning and outreach Education, technical assistance, and training of stakeholders Technical studies, research and analyses Awareness, outreach and behavior change communications Study tours and peer to peer exchanges Training of government employees Supporting CLPAs and fisherman groups to enforce laws and regulations around fishing practices Realizing behavior change and achieving co-management	Activities that aim to increase public participation in policy making including engaging the government in dialogue at the local and central level to better manage marine fisheries and combat IUU fishing; mobilization of communities for development and enforcement of laws and regulations protecting natural resources; community planning and strategy development present no foreseeable adverse environmental impacts. Per section 3.10 of the Senegal EG Food Security and Natural Resource Management PIEE, these activities are determined to be Categorical Exclusions.	No mitigation measures	CoP	Workplans, Quarterly Reports, and materials prepared for capacity building, training, and studies	Review of materials	Quarterly
Influencing government policies Building the capacity of stakeholders at all levels of governance (fisheries administration and CLPA institutions, research and education) Improving the sustainability of fishery resources and coastal and marine	All activities that may directly affect fish production and marine resources must evaluate how activities to be implemented will interact with the environment. Environmental impacts of capture marine fisheries include overharvesting; catch of unwanted or	Inclusion of fishers in sustainable fisheries management, monitoring and enforcement of management measures Training, demonstration, and enforcement of fisheries rules that reduce over-exploitation, destructive fishing practices, and catch of non-target fish and juveniles.	CoP and Senior Fisheries Officer	Local Agreements, and FMPs CLPA meeting minutes and reporting	Review of implementation of Local Agreements and FMPs CLPA reports and consultations	Quarterly

Category of Activity from Section 3.5, 3.7 and 3.10, of the Senegal EG Food Security and Natural Resource Management PREE (April 2016)	Environmental Threats	Mitigation Measures	Who is Responsible for Monitoring?	Sources of Verification	Monitoring Method	Frequency of Monitoring
ecosystems by promoting best practices	undersized (juvenile) fish stocks; destructive fishing practices (destructive gear, bottom structure damage, use of toxic substances, and dynamite fishing); lost gear and nets ("ghost" fishing leading to additional depletion of resources and damage to non-target species such as turtles, marine mammals, and birds); ecosystem stress; and changes in fish population structures. Additional information for impact and mitigation planning related to fisheries can be found at the USAID's Sector Environmental Guidelines: http://www.usaidgems.org/Sectors/fisheries.htm And at https://www.usaid.gov/sites/default/files/documents/1865/FishAquaGuide14Jun13Final.pdf	Insurance program which supports participatory enforcement thereby reducing bad fishing practices. Co-management capacity development with CLPAs and coordination and collaboration at the central and local level Ecosystem-based fisheries management strategies Use of local and scientific knowledge in fisheries planning and management				
Post-harvest fisheries activities including: 1. Improved processing methods, equipment, storage, packaging, transport and sales 2. Small scale construction to improve landing sites, and processing facilities	Improved facilities could result in disturbance to existing landscape/habitat and sensitive ecosystems, or degrade water resources, cause sedimentation to surface waters or contamination of groundwater and surface water.	A technical monitoring construction committee monitors construction and evaluates its compliance with validated plans and ensures that building permits and licenses are obtained as appropriate and necessary. No activities at sites within 30 meters of a permanent or seasonal stream or water body.	CoP	Construction plans/ designs and photos of all facilities constructed Official government	Review of approved plans and documents, site inspection, photos, and periodic review of performance related to	Quarterly

Category of Activity from Section 3.5, 3.7 and 3.10, of the Senegal EG Food Security and Natural Resource Management PIEE (April 2016)	Environmental Threats	Mitigation Measures	Who is Responsible for Monitoring?	Sources of Verification	Monitoring Method	Frequency of Monitoring
3. Small scale construction and rehabilitation for water and sanitation structures 4. Development of Best Practice Processing Compacts (including handling and food safety) with groups of women processors 5. Strengthening the role of women in the fisheries value chain through management training and support for women fish processing associations Fish processing is addressed by section 3.7 of the PIEE (Post-harvest and food processing activities).	Increasing the demand and value of fish products, packaging, and marketing could in theory give incentive to increase fishing effort and contribute to overfishing. Fish processing effluents and solid waste may produce adverse effects on the receiving coastal and marine environment. Land use change related to small-scale construction may disturb habitat and local hydrology. Runoff from cleared ground or materials stockpiles during construction can result in sedimentation/fouling of surface waters. Construction may result in standing water on-site, which readily becomes breeding habitat for mosquitoes and other disease vectors; this is of particular concern as malaria is endemic in most of Senegal. Increased and air and noise pollution can result during construction or rehabilitation from the actions of construction equipment and workers. Local procurement of construction materials (timber, fill, sand and gravel, etc.) may have adverse local impact Smoke drying fish may have safety and health risks for fish processors	During periodic site visits questions are raised and improvement measures proposed. Codes of good practice are developed and adopted by all members of fish processing groups, including safeguards to protect workers from occupational safety and health hazards. Codes of Good Practice include agreement to not purchase or process juvenile fish Fisheries management plans (FMP) and Local Agreements developed and implemented to prevent overfishing and illegal fishing. Support for medium to large scale fish processing activities will require Positive determination and an EA. Review USAID Food Processing sector guide: http://www.usaidgems.org/Documents/MSEs/USAID_MSE_Sector_Guideline_Food_Processing_2013.pdf And small scale construction guidelines: (http://www.usaidgems.org/sectorGuidelines.htm) (http://www.usaidgems.org/Documents/VisualFieldGuides/ENCAP_VsIFldGuide--Construction_22Dec2011.pdf)		approvals of construction FMPs and Local Agreements to prevent overfishing Technical reports Codes of Good Practice (hygiene and agreement to not process juvenile fish)	Codes of Good Practice Consultations with CLPA Committees	

Category of Activity from Section 3.5, 3.7 and 3.10, of the Senegal EG Food Security and Natural Resource Management PIEE (April 2016)	Environmental Threats	Mitigation Measures	Who is Responsible for Monitoring?	Sources of Verification	Monitoring Method	Frequency of Monitoring
	and fish processing may generate odor pollution. Discharge of waste water to may degrade coastal and aquatic habitat Inefficient smoke drying with wood contributes to deforestation Impacts related to small-scale construction are found in Section 3.5 of the PIEE (Building productive infrastructure)					

ANNEX 6. EMMR – Life of Project

Category of Activity from Section 3.5, 3.7 and 3.10, of the Senegal EG Food Security and Natural Resource Management P1EE (April 2016)	Monitoring/mitigation measure	Responsible party	Monitoring Plan			Monitoring method	Cost estimate (USD)	Monitoring Log	
			Indicator	Source of verification	Reporting frequency of monitoring			Date	Result
Engaging the government, supporting local communities, planning and outreach Education, technical assistance, and training of stakeholders Technical studies, research and analyses Awareness, outreach and behavior change communications Study tours and peer to peer exchanges Training of government employees Supporting CLPAs and fisherman groups to enforce laws and regulations around fishing practices Realizing behavior change and achieving co-management.	No mitigation measure. The stakeholders were trained on sustainable management of fisheries resources, fishing code and fisheries legislation, hence contributing to a positive impact on the environment.	Project Manager (CoP)	-Number of people trained -Number of institutions strengthened	AMELP Workplans, Quarterly Reports, and materials prepared for capacity building, training, and studies Technical reports	Quarterly	Collection of data by the field staff Review of materials by the M&E and CoP	No cost	LoP	1. 9,761 Stakeholders trained 2. 39 CLPA
Influencing government policies Building the capacity of stakeholders at all levels of governance (fisheries administration)	Inclusion of fishers in sustainable fisheries management, monitoring and enforcement of management measures	CoP and Senior Fisheries Officer	-Types of participants in the processes of elaboration and implementation of the various	AMELP Workplans, Quarterly Reports, and materials	Quarterly	Collection of data by the field staff Review of materials by	Cost \$19,964	LoP	342 participatory monitoring trips 1 Strategy for implementation of sardinella FMPs validated

and CLPA institutions, research and education) Improving the sustainability of fishery resources and coastal and marine ecosystems by promoting best practices	Training, demonstration, and enforcement of fisheries rules that reduce over-exploitation, destructive fishing practices, and catch of non-target fish and juveniles. Insurance program which supports participatory enforcement thereby reducing bad fishing practices. Co-management capacity development with CLPAs and coordination and collaboration at the central and local level Support to the CLPA Network setting up Ecosystem-based fisheries management strategies Use of local and scientific knowledge in fisheries planning and management		strategies and policies developed -Number of people and institutions trained in sustainable and participatory resource management -Number of participatory monitoring trips -Number of activities to monitor and evaluate implementation of strategies developed Implementation of joint research units at local level Implementation of the consultation framework for sardinella FMPs	prepared for capacity building, training, and studies		the M&E and CoP Review of implementation of Local Agreements and FMPs CLPA reports and consultations			2 sardinella FMPs approved (Grande Côte Nord and Casamance) 3 sardinella FMPs implemented (Grande Côte Sud, Cap Vert, Petite Côte) Arretes for Ethmalosa FMP implementation in Palmarin, Fimela, Toubacouta, Missirah, Djirnda and Foundiougne CLPAs 1 Ethmalosa FMP in Sine Saloum proposed for the CLPAs of Toubacouta, Missirah, Djirnda, Bassoul, Niodior, Foundiougne, Fimlea and Palmarin 1 Ethmalosa FMP Casamance final ready for validation
Post-harvest fisheries activities including:	A technical monitoring construction committee monitors construction and evaluates its compliance with validated plans and	CoP and Climate change officer	-The modern processing unit -Equipment: number of fish-drying racks	AMELP Workplans Quarterly Reports, and materials	Quarterly	Field visits Evaluation and	No cost	LoP	3 workshops on Hygiene and Quality for women of Guéréo, Yène Todd & St. Louis

3. Improved processing methods, equipment, storage, packaging, transport and sales 4. Small scale construction to improve landing sites, and processing facilities 5. Small scale construction and rehabilitation for water and sanitation structures 6. Development of Best Practice Processing Compacts (including handling and food safety) with groups of women processors 7. Strengthening the role of women in the fisheries value chain through management training and support for women fish processing associations Fish processing is addressed by section 3.7 of the PIEE (Post-harvest and food processing activities)	ensures that building permits and licenses are obtained as appropriate and necessary. No activities at sites within 30 meters of a permanent or seasonal stream or water body. During periodic site visits questions are raised and improvement measures proposed. Codes of good practice are developed and adopted by all members of fish processing groups, including safeguards to protect workers from occupational safety and health hazards. Codes of Good Practice include agreement to not purchase or process juvenile fish Fisheries management plans (FMP) and Local Agreements developed and implemented to prevent overfishing and illegal fishing. Support for medium to large scale fish processing activities will require Positive determination and an EA.		-Number of ovens -Number of potable water sources -Number of loans -Code of conduct -Local agreement -Number of assessment and monitoring of code of conduct implementation -Fisheries plans	prepared for capacity building, training, and studies, Code of conduct Monitoring and assessment reports		monitoring Meetings Data collected by the field staff or partners		3 workshops on Good governance for women of Goxu Mbacc, Pencium Senegal and Fasse Boye Missirah Women's Training Workshop on Processing Techniques Cayar: Use of improved oven equipped with stack. Solar dryers installed. 20 women trained by ANER.. 10 sites visited (healthiness committees) 10 action plans developed 11 sites visited (hygiene committees) Putting in place admin., management and financial tools for 15 Hygiene Committees
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	Review USAID Food Processing sector guide: http://www.usaidgems.org/Documents/MSEs/USAID_MSE_Sector_Guideline_Food_Processing_2013.pdf And small scale construction guidelines: (http://www.usaidgems.org/sectorGuidelines.htm) (http://www.usaidgems.org/Documents/VisualFieldGuides/ENCAP_VsIFldGuide--Construction_22Dec2011.pdf)								
Adaptation to global climate change activities including: 1. Planting vegetation or trees for coastal protection 2. Improved fish processing to increase resilience of fisheries sector households 3. Support to protect life and property at sea, including weather alerts and safety at sea programs 4. Coastal development setbacks 5. Inclusion of climate change considerations in fisheries management plans and CLPA Local Agreements	Vulnerability assessments Formally approved Adaptation Plans and implementation of adaptation actions with no foreseeable adverse environmental impacts. Avoidance of hard structures and beach nourishment in favor of soft solutions, e.g. restoration of natural vegetation for erosion and flood control.	COMFISH Plus Climate Change Officer	Number of Plans, policies, strategies, adaptation rules/regulations Number of hygiene charters Number of monitoring committees	AMELP Strategic documents Activities Reports etc.		Field visits Evaluation and monitoring Meetings Data collected by the field staff or partners	Cost \$2,294	LoP	4 hygiene charters (Ndayane, Mballing Site, Diamniadio et Missirah) adopted. Totaling 15 in place. Plus 4 at MPEM investment sites = 19. 1 decree establishing the National Fisheries Climate Change Adaptation platform 5 Thematic Groups set up for studies, research, training, Project & program design, information, Communication & awareness raising, fundraising & external relations, M&E

								109,329 fishers benefit from climate services provided by ANACIM due to the SMS platform put in place by the project for early warning of extreme weather. Local participatory evaluations for stakeholder feedback conducted. 6 local Climate Change adaptation plans approved and implemented, including 51 monitoring missions for mangroves and high risk areas in MPAs, outreach on sand mining, etc. NAP- Fisheries operationalized through a national platform and steering committee Survey on access and use of CIS in CLPAs of Mbour and Saint Louis 1 workshop on Climate Finance in Dakar
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