Regional Partnership for
African Fisheries Policy Reform (RAFIP)

# Community-led Fisheries Management and Microfinance in Senegal and Cabo Verde

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# Acknowledgements

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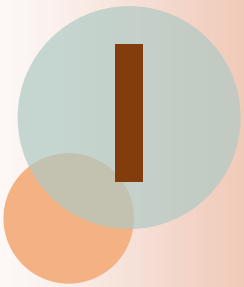
# Abbreviations and Acronyms

| English abbreviations and acronyms | | Corresponding French abbreviations and acronyms | |
|---|---|---|---|
| CV | Cabo Verde | | |
| CMA | Community Management Association | | |
| | | CMS | Crédit Mutuel du Sénégal |
| | | DGRM | Directeur Général des Ressources Marines |
| EF | Women entrepreneurship | EF | Entreprenariat féminin |
| GEF | Global Environment Facility | | |
| IMCRP | Integrated Marine and Coastal Resource Management Project | GIRMaC | Projet de Gestion Intégrée des Ressources Marines et Côtières |
| LAFC | Local Artisanal Fisheries Concil | CLPA | Conseil Local des Pêches Artisanales |
| LFC | Local Fishers Committee | CLP | Comité Local des Pêcheurs |
| MCS | monitoring, control, and surveillance | | |
| | | MFP | Ministério das Finanças |
| | | MIEM | Ministério das Infraestructuras e Economia Marítima |
| PIU | Project Implementation Unit | | |
| | | POPDA-CV | Projecto Plano Operacional para o Desenvolvimento da Pesca Artesanal em Cabo Verde |
| REC | Fisher reconversion | REC | Reconversion |
| RGA | Revenue Generating Activity | AGR | Activité Génératrice de Revenus |
| SMFRP | Sustainable Management of Fish Resources Project | GDRH | Projet de Gestion Durable des Ressources Halieutiques |
| SN | Senegal | | |
| TURF | Territorial Use Rights in Fisheries | | |
| WARFP | West Africa Regional Fisheries Program | PRAO | Programme Régional des Pêches en Afrique de l'Ouest |



# Introduction

## 1. About WARFP

The World Bank's West Africa Regional Fisheries Program (WARFP) addresses challenges of marine fisheries management in West Africa. The program's overall development objective is *to support countries to maintain or increase priority fish stocks and the benefits that they can provide to West Africa, with a focus on benefits for poverty reduction and food security*.[1] The first-phase WARFP projects started for Cabo Verde, Senegal, Liberia, and Sierra Leone in 2010; for Guinea-Bissau in 2011; for Ghana in 2012; and for Mauritania and Guinea in 2015.

WARFP seeks solutions toward sustainable and profitable fisheries in West Africa at the regional, national, and community levels. **Regional** solutions must be sought since many of the important fish stocks of West Africa are shared between multiple coastal states. The countries also share the problem of illegal, unreported, and unregulated (IUU) fishing. The countries are further linked through the markets of both inputs (such as labor and fishing boats) and outputs (trade with partners within and outside the region). Thus, a regional approach is essential for effective coordination across countries to maximize sustainable benefits from the resources and the related industry.

As is often the case globally, West Africa's marine fisheries have been seriously underperforming due to biological and economic overfishing.[2] To address the problem at the **national** level, WARFP focuses on the two

[1] The program objective has been adjusted since it was first formulated in the original program approved in 2009. The original program objective was *to "sustainably increase the overall wealth generated by the exploitation of the marine fisheries resources of West Africa, and the proportion of that wealth captured by West African countries*."

[2] Biological overfishing occurs when fishers catch more fish than what nature can sustainably produce. Economic overfishing means that reduction of fishing activity can increase profits primarily by reducing the costs of fishing.

fundamental steps of (i) putting in place enabling conditions, notably policy, regulatory, and institutional frameworks for effectively governing the sector; and (ii) securing financial, physical, and human-resource capacity to implement management policies.

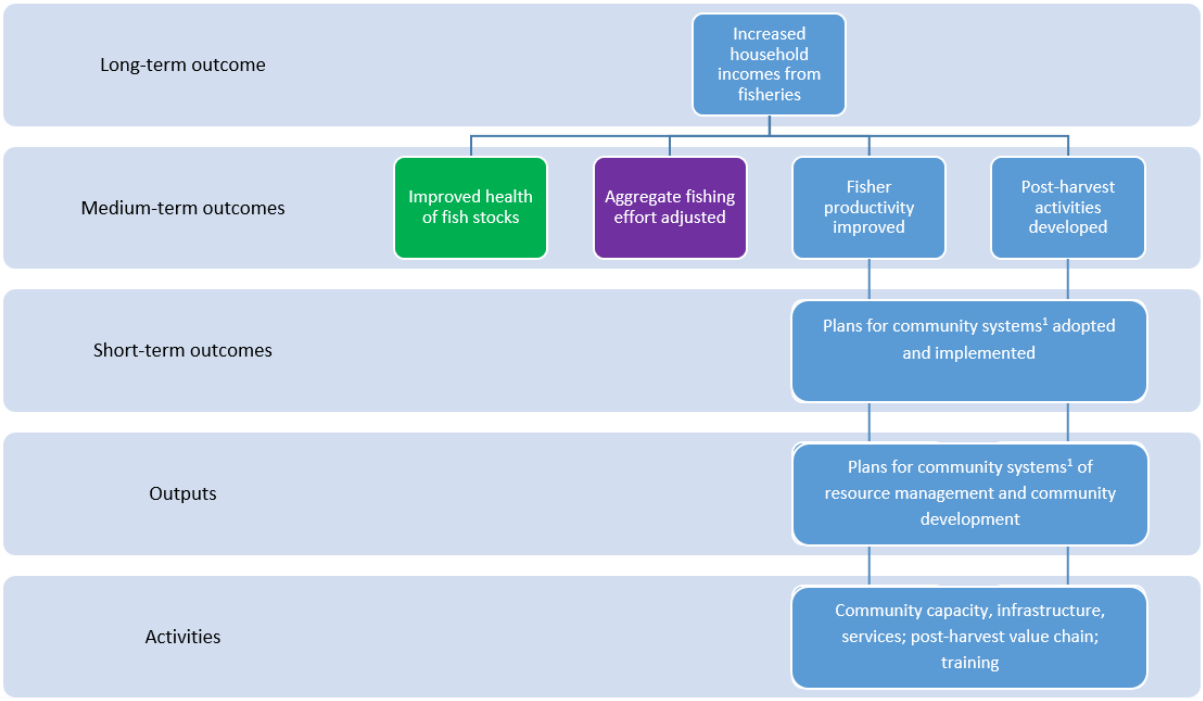
**Communities** will be directly impacted when policies to reduce aggregate fishing effort are pursued to address overfishing, affecting the livelihoods of fishers and those employed in related industries. Therefore, implementing policies aiming toward sustainable and profitable fisheries requires the cooperation of fishing communities, and providing adequate support to communities is essential for the transition to be efficient and less disruptive, especially for the vulnerable. This report concerns WARFP activities at the community level in Senegal and Cabo Verde in the first phase project that closed in 2016.

## WARFP theory of change

The WARFP pursues its program development objective, which encompasses social, economic, and environmental dimensions, following the WARFP Theory of Change. It consists of (1) a program-level objective; (2) a set of short-term, medium-term, and long-term outcomes; and (3) a set of "outcomes chain" diagrams (flow charts) that relate types of activities and outputs and the evolution of expected outcomes in the short, medium, and long runs for each of the long-term outcomes.

One of the flow charts is most relevant to this report. More precisely, the fourth chart describes the activities and outcomes toward the objective of "increased household incomes from targeted fisheries in West African coastal communities" with a focus on activities in fishing communities targeted for actors engaged in fish-related work (Figure 1). Together with outcomes pursued under other objectives (green and purple boxes), outcomes of WARFP community activities will contribute to increase household incomes from fisheries in fishing communities (the top box).

**Figure 1. The fourth chart from the WARFP Theory of Change**




"Community systems of resource management and community development" is a loose concept of active engagement of fishing communities in deciding how local fish resources and fishing activities are managed and how the well-being of the communities and community members can be improved. Specific community activities may include community catch and stock monitoring, participatory surveillance system, establishment of marketing cooperative/association, development of alternative livelihood opportunities, and so forth. The design and planning of these community systems should be community driven, and these community systems should be inclusive and transparent.

## WARFP approach to community activities: some definitions

In many countries, the national capacity to manage marine fisheries is weak, and WARFP takes the approach of **community-led fisheries management** to moblize communities to fill the gap in local fisheries management. In practice, this materializes through the empowerment of local fishers associations with the ability to design, implement, and supervise fisheries management activities in defined areas.

WARFP has piloted community-led fisheries management in selected sites in Senegal and Cabo Verde. A "fishing community" involved in a project site is often determined as a result of project design choice and does not necessarily correspond to a preexisting administrative unit. A project site can comprise either a neighborhood, several neighborhoods, a village, or even several

villages that are deemed important to be included in the site for the purpose of local fisheries management as well as other additional considerations explained in section IV.1.b. In the past, the terms "community" and "site" have been used interchangeably. In this report, we refer to the sites involved with WARFP as **community sites**.

Whenever possible, WARFP has put existing fishers associations in charge of community-led fisheries management. When nonexistent, new associations were created. Within the first-phase project in Senegal and Cabo Verde, we refer to the local organizations in charge of designing, implementing, and supervising community fisheries management activities as **community management associations (CMAs)**.[3]

A CMA is established in each WARFP community site in Senegal and Cabo Verde. Each CMA is tasked to (a) organize community members and stakeholders; (b) set rules regarding the use and management of the local marine fisheries resources within a specified area or territory, referred to in this report as a **community management area;** and (c) implement various activities to ensure that the rules are respected and to improve the state of local fisheries and the well-being of the community members.

Over time, a community-led fisheries management system may evolve into a more formal **co-management** arrangement between the government and the CMA.[4] This formalization requires several legal steps, as detailed in the next section for Senegal and Cabo Verde. Co-management arrangements could eventually lead to the introduction of rights-based fisheries management applied at the community level (for example, territorial use rights in fisheries, TURF) or at the individual level (for example, fishing quotas).

## 2. Objective of the Report

This report is concerned about the WARFP community activities implemented in the WARFP first-phase project in Senegal and Cabo Verde. These two countries were among the four countries with which the WARFP program began in 2010. The two countries are thus generally more advanced among the WARFP countries in terms of national fisheries reform and community activities. Senegal and Cabo Verde are now entering the second phase of the WARFP series of projects. The aim of the report is to take stock of the results of the community activities in these two countries from the first phase to inform project design and implementation of the second phase and for the other countries.

The specific objectives of the report are:

[3] In the past, the term CMA may have been used to mean "co-management association." Here, the term is used in a broader sense.

[4] The term co-management refers to the involvement of different stakeholders, such as the government and a resource user association, in the management of specific resources.

1. To summarize the results achieved and lessons learned in the community activities during the first phase of WARFP project in Senegal and Cabo Verde; and
2. To identify knowledge gaps that need to be resolved in order to deliver quality results at scale in the second phase project and in other countries.

The report focuses on the following three main community activities implemented under WARFP in Senegal and Cabo Verde:

- **Establishment of CMAs**: Both countries piloted community-led fisheries management by establishing CMAs in selected community sites. The report describes the performance of the CMAs and investigates the factors associated with performance variability.
- **Revenue generating activities (RGAs)**: CMAs introduced community-managed enterprises supported by WARFP in both countries. The report describes the activities chosen and implemented by the communities and discusses their contribution toward the objective of WARFP community activities.
- **Microcredit program**: WARFP also implemented programs to financially support small projects proposed by individual households in both countries. The report describes the programs, including the borrower eligibility and the arrangement with commercial banks, and the performance of these projects and discusses program design issues identified.

This report was prepared based on the review and synthesis of previous project reports as well as other relevant documents. A two-weeks mission by the consultant was conducted in Senegal and Cabo Verde in summer 2016, which enabled a series of interviews of the project implementing units (PIUs) as well as fishers, processors, and beneficiaries of the microcredit programs in selected community sites (a list of the people interviewed is available in Appendix I).

II

# Establishment of CMAs

This section describes the process of establishment of CMAs within WARFP in the two countries. The community sites chosen and their characteristics are also presented. Section IV provides the evaluation of their performance.

## 1. Senegal

### Community sites

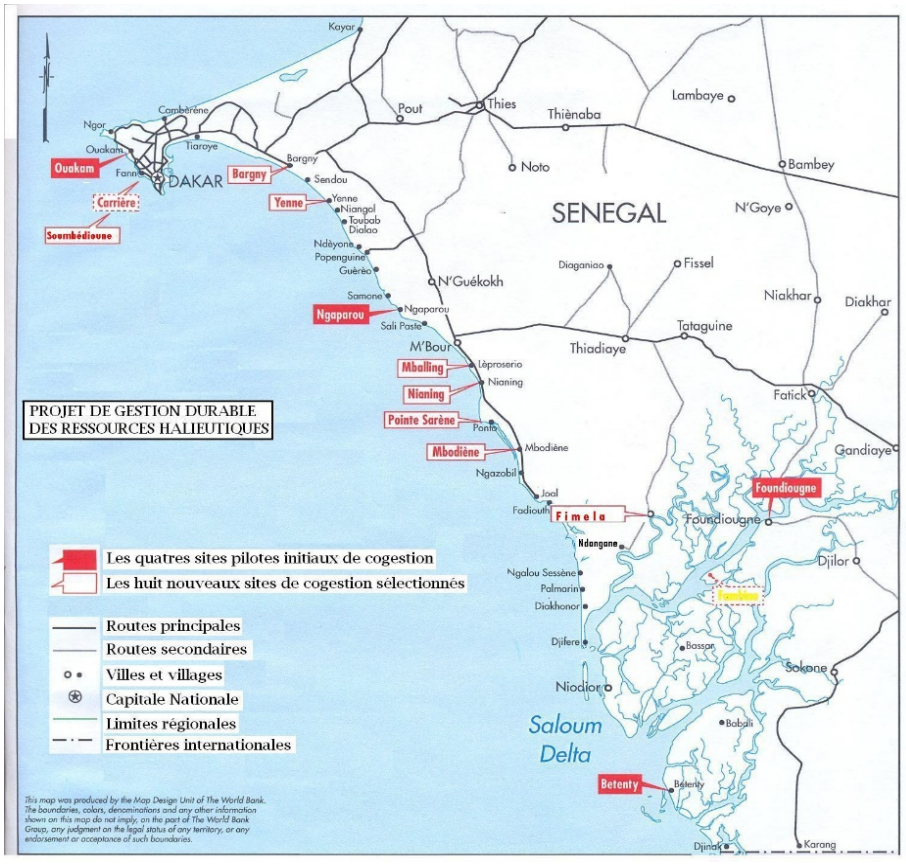
In Senegal, the World Bank started promoting a community-led approach to fisheries management in 2004 under the Integrated Marine and Coastal Resource Management Project (IMCRP; *Projet de Gestion Intégrée des Ressources Marines et Côtières, GIRMaC*). This project promoted the introduction of CMAs in four community sites: Ouakam and Ngaparou in the Cap-Vert Peninsula (Dakar region) and Foundiougne and Bétenty in the Saloum River Delta (Fatick region).

When additional resources from the Global Environment Facility (GEF) became available, the Sustainable Management of Fish Resources Project (SMFRP; *Projet de Gestion Durable des Ressources Halieutiques, GDRH*) was designed to replicate and expand the application of community-led fisheries management to eight additional community sites: Soumbédioune, Bargny, and Yenne in the Cap-Vert Peninsula (Dakar region); Mballing, Nianing, Pointe Sarène, and Mbodiène in the Thiès region; and Fimela-Ndangane in the Saloum river Delta (Fatick region) (see figure 2 for the geographical locations of the regions).

The GDRH project was approved in 2008 and closed in 2012. Figure 3 displays the sites location, with red rectangles indicating the four initial GIRMaC sites, and white rectangles indicating the eight additional GDRH sites.

**Figure 1. Map of the administrative regions of Senegal**


**Figure 2. Map of the 12 sites involved in the GIRMaC and GRDH projects**




*Source:* COMO 2010.

With the GIRMaC under implementation and the GDRH approved, the World Bank launched the West Africa Regional Fisheries Program (WARFP; *Programme Régional des Pêches en Afrique de l'Ouest, PRAO*) in order to address the fundamental problem of weak governance of the fisheries at the country and regional levels. The WARFP community-led fisheries management activities in Senegal encompass the 12 sites of the GIRMaC and GDRH.

Table 1 summarizes some characteristics of each community site. A more detailed description is given in Appendix II.

**Table 1. Summary characteristics of community sites in Senegal**

| | Ouakam (neighbordooh of Dakar) | Ngaparou (individual coastal village) | Foundiougne (21 villages) | Bétenty |
|---|---|---|---|---|
| **Initial project** | GIRMaC (2006) | GIRMaC (2006) | GIRMaC (2006) | GIRMaC (2006) |
| **Region/Departement/Arrondissement** | Cap Vert Peninsula | Thies/Mbour/Sindia | Saloum Delta | Saloum Delta |
| **CLPA** | Dakar-Ouest | Sindia-NORD | Foundiougne | Missirah |
| **Environment** | Very urban (proximity to Dakar); important spawning grounds | Urban | semi-urban | rural, mangroves with an extremely rich biodiversity |
| **Number of inhabitants** | 67,481 (2004) including 27,000 in the traditionnal village | 11,742 (2007) | 4,935 (2002) | 5,190 (2008) |
| **Principal ethnies** | Ouolof, but fishers are mostly Lébous | Sérère | Sérère and Ouolof | Mandingue (90%), Sérère |
| **Average age of fishers** | 31 | 30 | 35 | 36 |
| **Number of fishers** | 400 operating with pirogues + 55 on foot | 250 operating with pirogues | 180 operating with pirogues, 170 on foot | Around 1,500 (there is a mistake in the ESEP report) |
| **Number of fishmongers** | 15 | 30 | 45 | 24 |
| **Number of fish processors** | 2 | 100 | 25 | 298 |
| **Landings data ton/year** | 1,000 | 1,100 | 3,000–4,000 tons/y | 1,200 |
| **Number of pirogues** | 151 | Between 170–250 | 350 (for the 21 villages) | around 100 |
| **Targeted species** | Sardinelle, horse mackerel, demersals | Green crayfish, snapers | Bonga fish, shrimps | Bonga fish, shrimps |
| **Other industries** | Business, tourism, agriculture | Business | Agriculture, business and tourism | Agriculture and business |
| **RGA** | Poultry farm | Fishing gear supply shop | Fishing gear + store for women | Tourists camp |
| **Number of microcredit projects funded** | 80 | 0 | 26 | 15 |

*(Continued next page)*

**Table 1. Summary characteristics of community sites in Senegal *(continued)***

| | Soumbédioune (neighborhoods of Dakar: Fann, Point E, Amitié, Gueule Tapée) | Bargny (neighborhoods of Khembé, Bargny Guedji, Miname, Sendou) | Yenne (7 coastal villages of Yène Todd, Yène Guedji, Yène Kao, Nditakh, Niangal, Kelle, Toubab-Dialaw) | Nianing (individual coastal village) |
|---|---|---|---|---|
| **Initial project** | GDRH (2008) | GDRH (2008) | GDRH (2008) | GDRH (2008) |
| **Region/Departement/Arrondissement** | Cap Vert Peninsula | Cap Vert Peninsula, 30km from Dakar, Rufisque | Rufisque, Sangalkame | Thiès region, Mbour department, Malicounda rural community, Sindia |
| **CLPA** | Dakar-Ouest | Rufisque-Bargny | Yène-Dialaw | Sindia-SUD |
| **Environment** | Very urban (in Dakar) | urban | rural | urban/rural |
| **Number of inhabitants** | 35,759 (2002) | 70,000 in 2015 | 31,971 in 2002 | Around 11,000 |
| **Principal ethnies** | Lébous (67%), Guetndarien, Gandiolé | Lébous | Lébous | Wolof adjior (55%), Sérères (18%), Halpoular (18%) |
| **Number of fishers** | Around 2,500 | Around 4,000 | Around 3,700 | Around 1,000 |
| **Number of fishmongers** | Around 500 | 20 | Around 1,300 (including small fishmongers) | Around 30 |
| **Number of fish processors** | Around 50 | Around 1,500 | Around 7,000 | Around 500 |
| | No communitarian RGA yet (land price) | Fishing gear supply shop | Fishing gear supply shop | Poultry farm (eggs) |
| **Number of microcredit projects funded** | 34 | 59 | 19 | 41 |

| | Mballing | Pointe Sarène | Mbodiène | Fimela/Ndangane Sambou |
|---|---|---|---|---|
| **Initial project** | GDRH (2008) | GDRH (2008) | GDRH (2008) | GDRH (2008) |
| **Region/Departement/Arrondissement** | Thiès region, Mbour department, Malicounda rural community, Sindia | Thiès region, Mbour department, Malicounda rural community, Sindia | Thiès region, Mbour department, Nguénième rural community, Sessène | Saloum Delta |
| **CLPA** | Mbour | Sindia | | Fimela |
| **Environment** | urban/rural | rural | rural | |
| **Number of inhabitants** | Around 6,000 | Around 60,000 | Around 3,000 | |
| **Principal ethnies** | Sérère (40%), Gandiolé (20%), olof adjior (10%), Halpoular (10%), Diola (10%) | Sérères (40%), wolof (20%), Guetndarien (20%), Halpoular (20%) | Sérère (80%), Manding (10%), Wolof adjior (10%) | |
| **Number of fishers** | Around 500 | Around 1,000 | 143 | |
| **Number of fishmongers** | | Around 30 | | |
| **Number of fish processors** | Around 200 | Around 500 | 20 | |
| **RGA** | Cattle farming | Cattle farming | Poultry farm (meat) | Poultry farm (eggs) |
| **Number of microcredit projects funded** | 33 | 46 | 13 | 39 |

*Source:* Adapted from Djiby Thiam.
*Note:* CLPA = Conseil Local des Pêches Artisanales.

## Site selection process

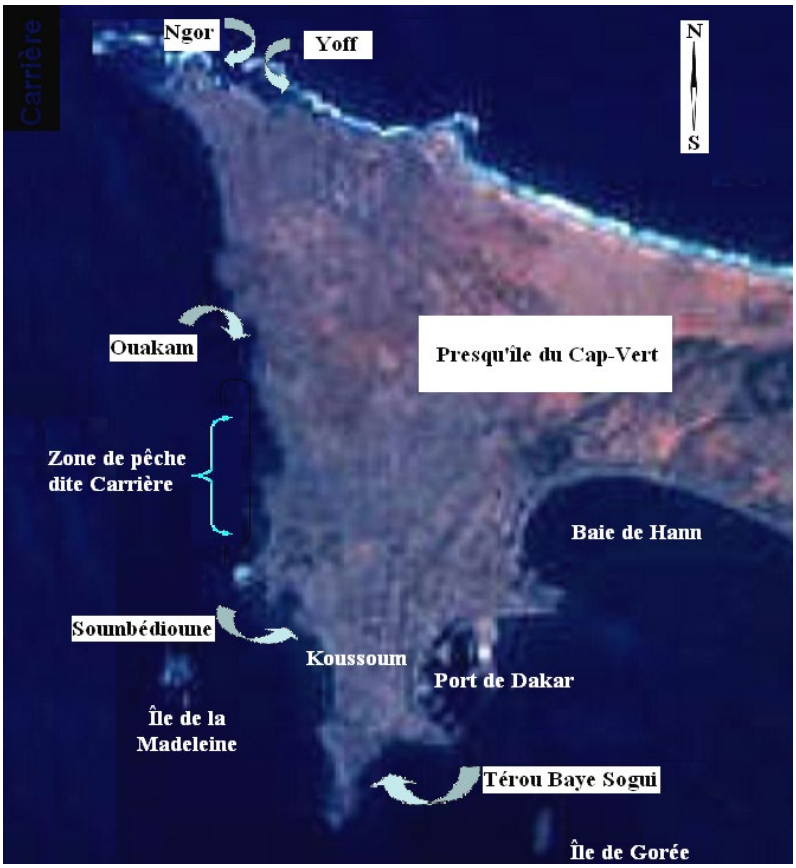
The 12 Senegalese community sites were selected after a scoring process based on two different sets of criteria (see Appendix III for the GRIMaC and GDRH lists of criteria used). Albeit slightly different, the two sets share

common criteria such as the importance of fish resources to the community, the community's willingness to engage in community-led management of fisheries, as well as potential risks linked to community-led fisheries management such as conflicts.

During the selection process for the GIRMaC project, 20 potential community sites were identified: Foundiougne, Diamniadio, Fambine, Djirnda, Dionewar, Niodior, Bétenty, Missirah, Ndangane Sambou, Palmarin, and Djifère in the Saloum River Delta; and Yoff, Ouakam, Soumbédioune, Hann, Thiaroye, Grand Mbao, Rufisque, Ndayane, and Ngaparou in the Cap-Vert Peninsula (the underlined sites are the four selected ones).

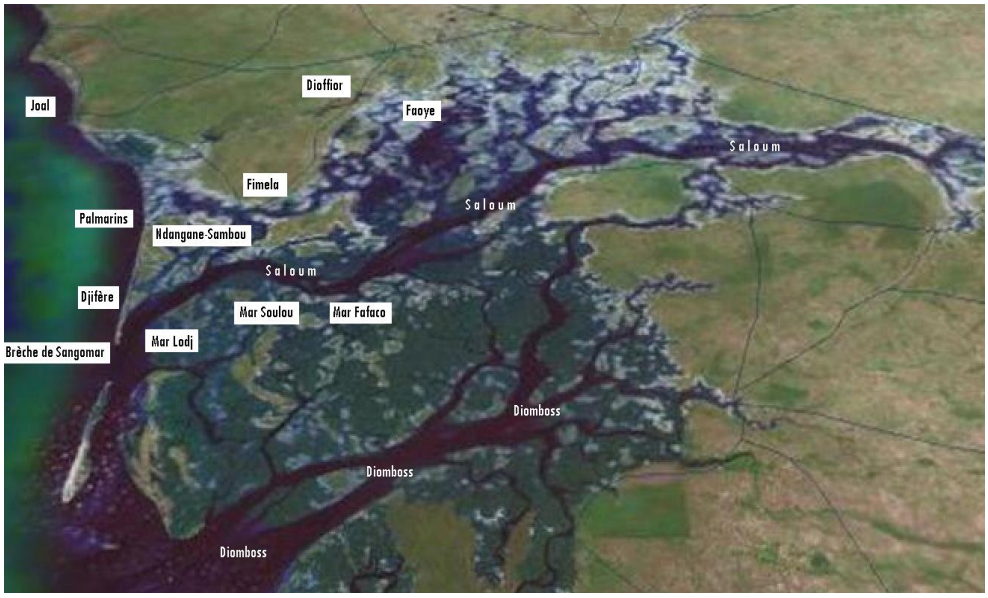
During the selection process of the GDRH additional sites, the potential sites that were pre-selected to undergo further information collection were Ouakam, Ngor, Yoff, Soumbédioune, Térou Baye Sogui, and Koussoum in the Cap-Vert Peninsula (figure 4), and Faoye, Sakhor, Ndoff, Roh, Simal, Djilor-Djidiack, Fimela, Ndangane Sambou, Mar Lodje, Mar Soulou, Mar Fafaco, and Wandié in the Saloum Delta area (Fatick region, figure 5). Finally, four sites were selected in the Petite-Côte area in the Fatick region: Mballing, Nianing, Pointe Sarène, and Mbodiène.

**Figure 4. Potential sites for the SMFRP community management activities in the Cap-Vert Peninsula**




*Source:* D. Thiam.

**Figure 5. Potential sites for the GDRH community management activities in the Saloum River Delta**




*Source:* D. Thiam.

## Local governance structure

In Senegal, in most cases, fishers associations had been present on the selected community sites prior to the beginning of World Bank projects. However, they were considerably strengthened under the GIRMaC and GDRH through investments in human and physical capital. In particular, the World Bank projects built a Fisher's House (*Maison du Pêcheur*) in each community site to serve as an administrative office as well as a meeting place for the community members.[5] The restructuring of the existing fishers associations in the project sites led to the establishment of local fishers committees (LFCs; *Comité Local des Pêcheurs, CLP*). The CLPs are the community management associations (CMAs) in WARFP-Senegal, and a CLP has been established in each of the 12 community sites. As such, CLPs only exist in the community sites involved (or scheduled to be involved) with WARFP activities, and not elsewhere.

CLPs are private associations in charge of restoring and sustainably managing fish resources. The CLP's members are fishers, fishmongers, and processors from any of the neighborhoods/villages within the defined community site. CLPs are responsible for the implementation of local initiatives related to fisheries and participate in the monitoring, control, and surveillance (MCS) of fishing grounds. In addition to implementing and monitoring the WARFP activities, CLPs are in charge of preventing and solving conflicts between different users; they are also the focal points for the fisheries

[5] The only site where no Fisher's House was built is Soumbédioune. Because of the extremely high price of land, it was one of the community's requests that this place be built in the second phase of the project.

administrations, the local authorities, donor agencies, neighboring villages, and professional organizations. See the next section for the legal status of CLPs.

Not to be confused with CLPs are the Local Artisanal Fisheries Councils (LAFC; *Conseil Local des Pêches Artisanales, CLPA*), which were created by a ministerial decree in 2008. CLPAs are local public umbrella organizational structures that consist of one or several villages. Multiple stakeholders participate in the CLPAs, including fishers, fishmongers, processors, local leaders such as elders, the fisheries administration, and a representative of the executive. Twenty-two CLPAs had been created as of the time of the consultancy, but only a handful are functional. The CLPs are institutionally subordinated to the CLPAs, the latter of which are supposed to approve all the co-management activities developed by the CLPs, prior to any consideration from the minister.

### Progression of CMA responsibilities in local fisheries management

The CLPs are expected to assume greater responsibilities in the design and implementation of fisheries management measures over time. The following is an outline of the progression that each CLP is envisaged to follow.

1) First, a ministerial ruling recognizes the community-led fisheries management initiative undertaken by a CLP. This recognition does not grant the CLP the ability to implement measures.
2) Second, a "co-management agreement" is signed by the president of the CLP and the Ministry of Fisheries and Maritime Economy. This document defines each stakeholder's role and responsibilities and recognizes the rights of the CLP to implement measures.
3) Third, a prefectural decree grants the the CLP with the right to implement fisheries management activities as defined in the co-management agreement. These activities often include the management of a marine area, and this area is precisely defined with GPS coordinates and specified in the prefectural decree.
4) Ultimately, though no CLP has reached this point yet, it is envisaged that the CLPs will be granted with administrative responsibilities in local fisheries management. Examples of responsibilities envisaged at this stage include (a) setting license fees to vessels for fishing inside the marine area managed by the the CLP, (b) issuing licenses and collecting license fees, and (c) setting total allowable catch or quotas over the whole array of species present in the marine area it supervises.

The last (fourth) step would represent a more advanced arrangement of fish resource co-management between the state and CLP over a defined area. It could be close to granting CLPs with territorial use rights in fisheries (TURFs), or use and exclusion rights over the fishery resources within a specific area. Effective administration of TURFs owned by CMAs could be considered as the

ultimate goal of the community-led fisheries management approach promoted by WARFP.

Naturally, such legal progression will take time. In order for the government to grant a CLP greater responsibilities, the CLP need to demonstrate sufficient autonomy, a thorough understanding of the issues at stake, as well as implementation capacity. It also requires strong legal foundations. In Senegal, the Fisheries Code *(Code de la Pêche)* was fully revised in 2015, while the revision started in 2008. The new Fisheries Code defines the technical conditions to provide a legal basis for introducing formal co-management arrangements and TURFs.

The existing CLPs are in different stages of progression and thus assume different levels of responsibilities in the design and implementation of fisheries management measures. The variation in their progress seems primarily due to the starting date of the involvement of communities with World Bank projects. The more advanced communities in terms of assumed management responsibilities are those involved under the GIRMaC project: **Ouakam, Foundiougne, Bétenty,** and **Ngaparou**. The relevant prefectural decrees were signed in 2007 and the CMAs have since been implementing the community fisheries management activities. **Bargny, Yenne, Soumbédioune,** and **Fimela-Ndangane** have the exact same legal advancement as the prefectural decrees were signed in February 2015. However, they have been implementing activities only for the past two years, and therefore have less experience in community-led fisheries management. Finally, CLPs have been established in **Nianing, Mballing, Mbodiène,** and **Pointe Sarène**. The marine area to be managed by the CLPs has been officially defined, and the "co-management agreement" was rencently approved. A neighboring village, Warang, has just decided to create a CLP in order to participate in the management of the newly defined marine area.

### CMA fisheries management activities

Table 2 synthetizes the fisheries management activities implemented by eight CMAs in Senegal (that is, CLPs) as of August 2016. The four remaining CLPs of Nianing, Mballing, Mbodiène, and Pointe Sarène, located on the Petite Côte, are currently working together to design a common community management area that would be jointly managed by the four LFCs. Further explanations of community activities are presented in Appendices III and IV.

**Table 2. Activities implemented by LFCs in Senegal**

| Community sites | Co-management agreement | Community-led fisheries management initiatives |
|---|---|---|
| | | ***Initial GIRMaC community sites*** |
| **Ouakam** | Regulation of the fishing effort in the traditional fishing zone of Ouakam | Initiative 1: Cleaning of polluted sea beds<br>• Training of local divers<br>• Cleaning operations conducted on rocky sea beds<br>Initiative 2: Creation of a no take zone<br>• Identification and tagging of the zone<br>• Construction and submersion of artificial reefs[6] in the zone<br>Initiative 3: Creation of a regulated fishing zone<br>• Identification and tagging of the zone<br>• Identification and tagging of the fishing areas<br>• Regulation over the area |
| **Ngaparou** | Regulation of the fishing activities, recovery of the green crayfish stocks and associated species in the waters neighboring Ngaparou | Initiative 1: Green lobster stock management (*Panulirus regius*)<br>• Protection of juvenile and breeding crayfish (release of female lobsters carrying eggs and control on the size of the crayfish)<br>Initiative 2: Creation of a regulated fishing zone<br>• Tagging of a no take zone also forbidden to jet skis<br>• Tagging of a regulated fishing area (Prohibition of certain fishing gears and limitation of the daily fishing effort)<br>Initiative 3: Submersion of artificial reefs and fish aggregating devices (FAD)<br>• Tagging of the reefs area ("buffer zone")<br>• Construction and submersion of artificial reefs in the zone<br>• Construction and submersion of a FAD |
| **Foundiougne** | Regulation of the shrimp fishery in the Saloum waters | Initiative 1: Replacement of unauthorized fishnets[7]<br>• Improvement of fishing selectivity to target shrimps<br>Initiative 2: Implementation of a biological rest period for shrimps<br>• Closure of the shrimp fishery during the month of August<br>Initiative 3: Identification and protection of the habitats with a large juvenile shrimp concentration |
| **Bétenty** | Implementation of shrimp fishery closure periods and use of "Killy" fishnets with large meshes | Initiative 1: Implementation of periodical closures of the shrimp fishery<br>• Identification of the biological rest periods and implementation<br>Initiative 2: Improvement of the fishing gears selectiveness<br>• Replacement of unauthorized drifting nets<br>Initiative 3: Identification and protection of the habitats with a large juvenile shrimp concentration |

*(Continued next page)*

[6] Artificial reefs are used for stock restoration as they provide spawning grounds to many coastal species. They are usually located within the no take zone and have to be monitored regularly to ensure that fishers do not illegaly target them.

[7] Many fishnets currently being used are illegal as the small diameter of the meshes leads to the catch of juvenile fish. The activity therefore aims at replacing these illegal fishnets with authorized ones.

**Table 2. Activities implemented by LFCs in Senegal *(continued)***

| Community sites | Co-management agreement | Community-led fisheries management initiatives |
|---|---|---|
| | | ***Additional GDRH community sites*** |
| **Soumbédioune** | Management of the white grouper fishery (thiof, *Epinephelus aeneus*) and associated species in Soumbédioune's community management area | Initiative 1: Management of the white grouper fishery and associated species<br>• Protection of juvenile and breeding groupers (biological rest period and control on the size of the groupers fished)<br>• Regulation of the access to the co-management area<br>• Reduction of the fishing effort in the co-management area<br>Initiative 2: Management of the octopus fishery (*Octopus vulgaris*)<br>Initiative 3: Management of selected fisheries: cicadas (*Scyllarides sp.*); green crayfish (*Panilurus regius*); urchins (Echinides); abalones (*Haliotis spp*); limpets (*Patella spp*); les barnacles (Lepadomorpha); and mussels (*Mytilus spp*) |
| **Bargny** | Management of the white grouper fishery (*Epinephelus aeneus*) and associated species in Bargny's community management area | Initiative 1: Management of the white grouper fishery and associated species<br>• Protection of juvenile and breeding groupers (biological rest period and control on the size of the groupers fished)<br>• Reduction of the fishing effort in the management area<br>• Regulation of the access to the management area<br>Initiative 2: Management of pelagic species (*Sardinella spp.* juveniles)<br>Initiative 3: Restore and extend the existing artificial reefs |
| **Yenne** | Management of the white grouper fishery (*Epinephelus aeneus*) and associated species in Yenne's community management area | Initiative 1: Management of the white grouper fishery and associated species<br>• Protection of juvenile and breeding groupers (biological rest period and control on the size of the groupers fished)<br>• Reduction of the fishing effort in the management area<br>• Regulation of the access to the management area<br>• Limitation of the catch in the management area (max 2 boxes of 15 kg each per pirogue per day)<br>Initiative 2: Management of the octopus fishery (*Octopus vulgaris.*)<br>Initiative 3: Restore and extend the existing artificial reefs |
| **Fimela-Ndangane** | Management of the coastal shrimp (*Penaeus notialis*), the white grouper (*Epinephelus aeneus*) and tilapias in Fimela-Ndangane's community management area | Initiative 1: Management of the coastal shrimp fishery<br>• Protection of the juveniles (biological rest period)<br>• Improvement of the fishnet selectiveness<br>Initiative 2: Management of the white grouper fishery<br>• Protection of the juveniles (biological rest period and size control on the groupers fished)<br>Initiative 3: Management of tilapias (*Sarotherodon melanotheron* or Poika and *Tilapia guineensis* or Wass)<br>• Identification and protection of the habitats with a large juvenile concentration and the breeding grounds of adults<br>Initiative 4: Management of shellfish: Mangrove oysters (*Crassostrea gasar*), clams (*Anadara senilis*), sea snails (*Murex spp* and *Cymbium Spp*<br>• Biological rest period and size control on the shellfish collected |

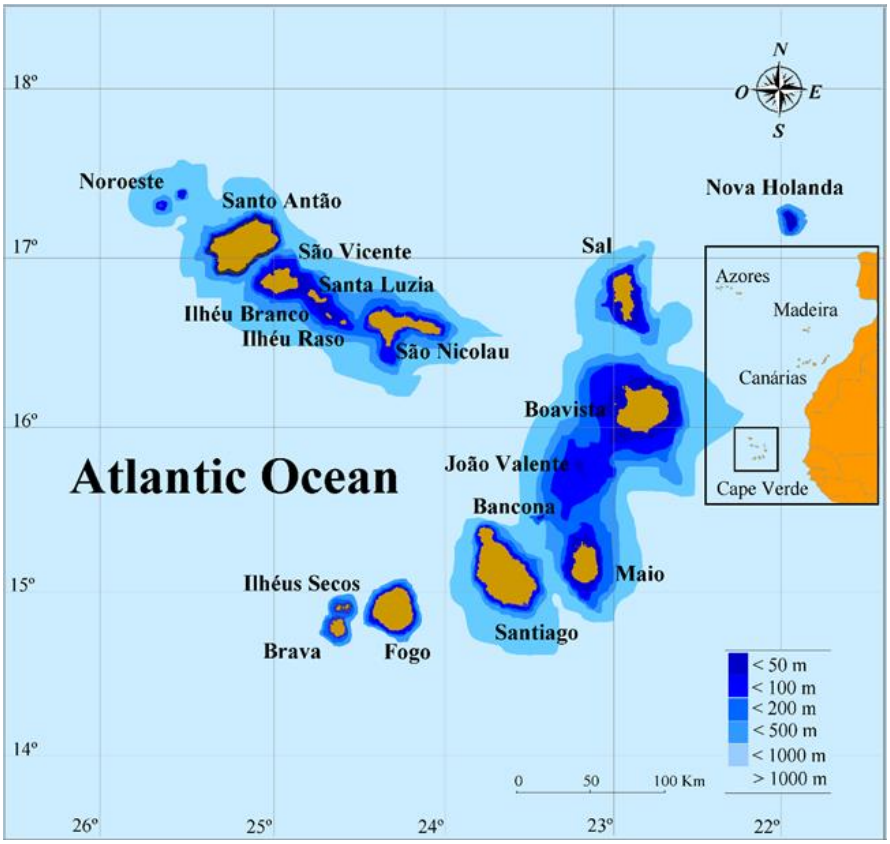
*Source:* Adapted from Djiby Thiam.

# 2. Cabo Verde

## Community sites

In Cabo-Verde, the World Bank fisheries-related activities started with WARFP in 2010. Prior to the involvement of the World Bank was a Spanish Cooperation Project,[8] which also focused on the archipelagos' fisheries.

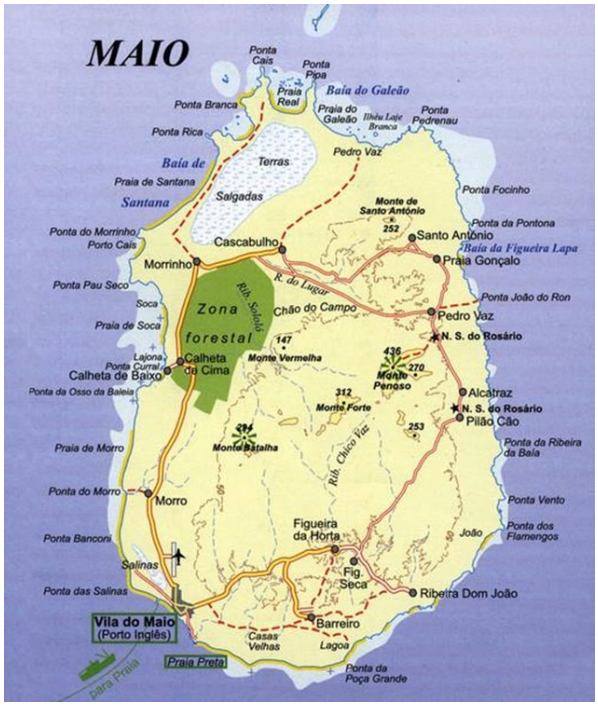
**Figure 6. Map of Cabo Verde**




*Source:* Medina (2008).

[8] Projecto Plano Operacional para o Desenvolvimento da Pesca Artesanal em Cabo Verde (POPDA-CV).

**Figure 7. PRAO-CV Plans de Cogestion des Pêches, 2016**





*Source:* PRAO-CV (2016).

The WARFP activities have taken place in two different islands: Sal and Maio. On each island, two community sites were chosen to pilot community-led fisheries management. On Maio Island, the northern community site, **Vindos do Norte**, consists of the villages of Calheta, Alcatraz, Pedro Vaz, Praia Gonçalo, Cascabulho, Morrinho, and Porto Cais; while the southern community site, **Vindos do Sul**, consists of the villages of Porto Inglês, Ribeira Don João, and Barreiro. On Sal Island, the two community sites entail a smaller number of villages than on Maio Island. The northern community site of **Palmeira** includes the villages of Palmeira and Espargos, while the village of **Santa Maria** by itself is the southern community site.

Table 3 summarizes some characteristics of each community site. A more detailed description is given in Appendix IV.

**Table 3. Summary characteristics of community sites in Cabo Verde**

| | Vindos do Norte (Calheta, Alcatraz, Pedro Vaz, Praia Gonçalo, Cascabulho, Morrinho, Porto Cais) | Vindos do Sul (Cidade de Porto Inglês, Ribeira Don João, Barreiro) | Palmeira (Palmeira, Espargos) | Santa Maria |
|---|---|---|---|---|
| **Initial project** | WARFP (2010) | WARFP (2010) | WARFP (2010) | WARFP (2010) |
| **Region/Departement/ Arrondissement** | Maio island, northern half | Maio island, southern half | Sal island, western/northern coast | Sal island, southern coast |
| **Number of inhabitants** | 6,952 total for Maio | | 25,657 (2010) for the whole island including 17,403 in Espargos; 6,609 in Santa Maria; 1,424 in Palmeira | |
| **Average age of fishers** | 29-39 (29%), 51-61 (29%) | | 29-39 (46%), 40-51 (32%) | |
| **Number of fishers** | 73 | 64 | 173 | 88 |
| **Number of fishmongers** | 30 | 59 | 59 | 21 |
| **Number of fish processors** | | | 3 | 13 |
| **Landings data ton/year** | 834 tons in 2012 for the entire Maio Island (without bucin and crayfish) | | 223 tons in 2012 for the entire Sal Island (without bucin and crayfish) | |
| **Number of pirogues** | 102 for the entire Maio Island | | 151 for the entire Sal Island | |
| **Targeted species** | Bucin, lobsters, tuna-like, small pelagic | | Grouper, lobsters, small pelagic | Grouper, lobsters, small pelagic |
| **Other industries** | Agriculture (624 people) | | Tourism (56% of all tourists going to Cabo Verde go to Sal, employs 66% of the working population), business, salt industry | |
| **RGA** | Ice-making factory | Ice-making factory | Semi-industrial fishing vessel to fish baits for the pelagic fishery | Semi-industrial fishing vessel to fish baits for the pelagic fishery |

*Source:* Adapted from Djiby Thiam.

## Site selection process

The site selection process in Cabo Verde was different than the one used in Senegal. In the first stage, the government and the WARFP project implementation unit (PIU) selected two islands on which they wished to promote the implementation of a co-managed marine protected area. The idea was to select one island in the Barlavento region (Santo Antão, São Vincente, São Nicolau, Sal, or Boavista), and another island in the Sotavento region (Maio, Santiago, Fogo, or Brava).

In the second stage, the emphasis was placed on ecological considerations: because of the structure of the archipelagos and the marine

currents, the different islands are strongly interconnected, with some islands functioning as ecological "sinks" and others as their ecological "sources," where fish eggs and larvae are passively carried by currents from the sources to the sinks. The decision was to focus on source islands with the rationale that protecting the sources is much more effective from a resources-management point of view, because ecological sources contribute to populating the islands that function as ecological sinks. A study based on the eggs and larvae of the grouper, a highly sedentary species once adult, identified the islands of Sal and Boavista in the the Barlavento region and Maio in the Sotavento region acting as sources.

The selection process then looked at the fisheries activities conducted on these islands and how important this sector was. Priority was placed on (a) whether the islands had organized fishers associations that could participate in the design of marine protected areas and (b) whether local municipal organizations were willing to work with fishers. The Islands of Maio and Sal were selected on the basis of having a more active and organized fisheries sector. Boavista is considered for subsequent phases of the project.

Finally, on each selected island, the decisions regarding "community site" were made, that is, which villages were to be included in each site. It is envisaged that, eventually, all fishing villages in the selected islands are to participate in the system of community-led fisheries management. However, for the first phase project of the WARFP, only the villages that showed significant interest to be part of the project were selected. For instance, in Sal, Pedro de Luma was not selected despite being one of the three most important fishing villages of the island.

## Local governance structure

As in Senegal, existing fishers associations in Cabo Verde were restructured into CMAs at selected WARFP community sites, except for the northern region of Maio Island, where a new CMA was created. On each island, two CMAs are now active: the northern CMA and the southern CMA. The selected villages with fishing activities mainly in the northern part of each island were linked to the island's northern CMA, and similarly the villages fishing in the southern part of the island were linked to the island's southern CMA. The rationale was that people have to be included in the management of the area where they directly fish.

On Maio, one fishers association existed in Porto-Inglês but was barely functional. It was restructured and became the CMA called "*Associação dos Atores de Cogestão pesqueira dos Vindos do Sul,*" now referred to as the community site of Vindos do Sul. At the same time, the WARFP promoted the creation of the CMA called "*Associação dos Atores de Cogestão pesqueira dos Vindos de Norte*," the community site of Vindos do Norte, based in Calheta.

On Sal Island, the two CMAs are the "*Associação dos Pescadores de Palmeira*" (north) and the "*Associação dos Pescadores de Santa Maria*" (south). The two associations had existed prior to the WARFP but each

underwent an important restructuring process, and new elections were held to choose the bureau members of the associations.

In Cabo Verde, each of the four CMAs has already prepared a "co-management plan," which is waiting to be endorsed by the government in order to be implemented (endorsement was scheduled to happen in August, 2016).

### Progression of CMA responsibilities in fisheries management

In Cabo Verde, the process leading to more formal co-management arrangements is similar to the one in Senegal and had just started in summer 2016. The CMAs are legally established but CMA fisheries management activities have not been officially recognized yet. Once a "co-management plan" is officially recognized, the central government can sign a ministerial decree to grant the CMAs with the responsibilities to implement and manage the activities. This is scheduled to happen before February 2017.

The process of granting CMAs with greater management responsibilities will take time, as it is necessary for the communities to have a sound knowledge and understanding of the implications of community-led fisheries management activities, including the knowledge about the biological processes at stakes.

### Update February 2018

Four CMAs were legally established with internal governance structures (a general assembly, a board, and technical committees) in 2015 and their capacity was enhanced by four local community leaders/facilitators who were mainstreamed into Director General of Marine Resources (*DGRM: Directeur Général des Ressources Marines*) in January 2016. Each association conducted a rapid assessment of the coastal demersal fisheries, and developed new rules for state recognition. Four co-management action plans (targeting priority fisheries) were developed and validated at the communities with the active participation of local partners and feedback from central government, incorporating community income-generating activities. The action plans were implemented with the support of a temporary consultant and later by permanent expert local community leaders trained for this purpose.

Four co-management agreements were prepared for signature by the minister in charge, the presidents of the municipalities, and presidents of the CMAs. The agreements were to legalize the partnership and stipulate the responsibilities of each signatory party. Coastal communities, local and central administrations, and partners were sensitized on co-management needs and benefits. Although the co-management agreements were approved by local authorities (state/island level), these agreements were not signed by the government (federal level) by project closing.

# Alternative Livelihood Programs

As stated in the introduction section, the fisheries in West Africa face the problem of biological and economic overfishing. Reducing aggregate fishing effort is known to be the single most effective action to restore the fish stocks as well as for reducing excess costs. However, efforts to limit fishing face practical challenges, especially when fishers rely on fishing activities for their household incomes.

In order to encourage fishers and fishing boats to exit the fishing industry and to compensate transitory income losses due to such exit, the WARFP project piloted two sets of programs to support alternative livelihoods in Senegal and Cabo Verde. Under the first program, each community chose a "revenue generating activity." The second is a microcredit program targeted for individual households to start a small-scale enterprise that is unrelated to fisheries.

## 1. RGA Program

The community Revenue Generating Activities (RGA) program is concerned with the promotion of alternative activities to be managed by CMAs. For each CMA, at least one RGA was to be financed through the WARFP. The income earned by the RGA is then intended to ensure the functioning of the CMA even after the closure of the World Bank project.

### Senegal

In Senegal, the RGAs were selected by the CLPs after a process that comprised four stages: (i) information and awareness raising by a specialist in community participation; (ii) participatory, collective identification of potential ideas for the community RGA; (iii) participatory, collective prioritization of the activities; and (iv) feasibility assessment with the involvement of a consulting firm. At the

end of this process, the proposed RGA project was submitted to the Bank for approval for each community site. Table 4 provides a list of RGAs implemented in Senegal. No RGA was implemented in Soumbédioune due to the prohibitive price of land. In most communities, the land price was fairly low and a parcel of land was provided to the CLP by a village chief.

**Table 4. RGA in Senegal**

| | Ouakam | Ngaparou | Foundiougne | Bétenty | Soumbédioune | Bargny |
|---|---|---|---|---|---|---|
| Revenue Generating Activity | Poultry farm (meat) | Fishing gear / supplies store / Ice-Factory | Fishing gear / supplies store + ex-shrimp fishmongers women store | Tourist camp / 4 subprojects to commercialize processed octopus | Poultry farm (eggs) (planned) | Fishing gear / supplies store |
| Initial investment (CFAF) | 20,889,067 | 25,697,241 + 20,650,000 | 28,594,917 + 11,000,000 | CFAF 3,409,200 | | 13,440,304 |
| Equipments (CFAF) | 8,088,000 | 29,999,515 | | | | 57,293,080 |
| Beginning of the acitivities | July 19, 2010 | July 5, 2010 | October 1, 2010 July 19, 2010 | July 2010 | | |
| Jobs created | 3 | 2 | 2 + 2 | | | |
| Comments | 3 former fishers | 1 former fishmonger, 1 former fisher | 1 former fishmonger, 1 former fisher | Concerns regarding the functioning of the RGA | Due to the very high price of land, no RGA was able to be implemented yet | |

| | Yenne | Mballing | Nianing | Pointe Sarène | Mbodiène | Fimela-Ndangane |
|---|---|---|---|---|---|---|
| Revenue Generating Activity | Fishing gear / supplies store | Cattle farming | Poultry farm (eggs) | Cattle farming | Poultry farm (meat) | Poultry farm (eggs) |
| Initial investment (CFAF) | 14,430,267 | 39,253,132 | 69,545,254 | 27,639,258 | 85,177,356 | 49,509,968 |
| Equipments (CFAF) | 60,275,938 | 14,912,000 | 37,673,348 | 19,910,000 | 9,437,000 | 25,891,000 |
| Implementation date | | | | | | |
| Jobs created | | | | | | |
| Comments | Strongly needed due to landlocked geographic situation | | Seems to be functioning correctly, demand for eggs is stronger than production | Status unknown | | |

The Senegalese RGAs were entirely financed through the World Bank project, and the income they earned is planned to go to a bank account managed by the CLPs. Each RGA has a management committee and a control committee. These committees include CLP members as well as those in charge of the RGA.

The RGAs had to be unrelated to fisheries, but an exception is made to allow for the construction and financing of fishing gear/supplies stores. These stores were expected to reduce the transportation costs faced by fishers and to allow them to use less destructive fishing gears. Other RGAs include cattle farming, poultry farming, and a tourist camp. See section iv for further discussions of RGA activities and their performance.

**Cabo Verde**

The financing of RGAs in Cabo Verde was quite different than in Senegal, as CMAs would have to borrow money in order to supplement the WARFP-CV funds. Indeed, US$25,000 from the WARFP was planned to be used to finance each of the four RGAs but, if this amount was not sufficient, the remaining funds would have to come from elsewhere. The CMAs would be able to borrow from a special fund that was created in 2014 by Novo Banco, Ministério das Infraestructuras e Economia Marítima (MIEM) and Ministério das Finanças (MFP). The fund was to be reserved for artisanal fishers (note that this is different from the microcredit fund described in the next subsection).

The RGAs in Cabo Verde were not implemented, but the communities involved have already selected potential investment projects. On Maio, the construction of ice plants has been identified as the priority investment, for both CMAs based in Calheta (community site of Vindos do Norte) and Porto Inglês (community site of Vindos do Sul), in order to allow for a better preservation of fisheries products. However, the PIU is concerned about the associations' ability to ensure the maintenance of such factories. In the past, similar factories existed in Porto Inglês but quickly became unusable due to the absence of qualified workers to maintain them. Furthermore, while the CMAs consider the ice plants could provide alternative income-generating opportunities and contribute to reducing local fishing pressure, it is uncertain whether that would happen in practice.

On Sal Island, the RGAs selected by the two CMAs are somewhat original. One big issue in Sal is the prevalence of semi-industrial fishing vessels in the coastal fishing grounds where artisanal pirogues operate. The semi-industrial fishing vessels enter this area in order to catch small demersal fish to be used as bait for offshore fishing of larger fish species. Fishing for small demersal fish takes place only nearshore, where artisanal fishers mainly operate. They fish in the nearshore fishing grounds at night using bottom trawling and lights, an extremely destructive technique. With this process, they are able to catch 5 to 10 tons of fish in a single night, while a pirogue typically harvests less than 50 kg of fish per day. This situation has been identified as one of the main drivers of stock depletion nearshore, as bottom trawling results in the destruction of spawning grounds. To tackle this issue, the two CMAs of Palmeira and Santa Maria proposed to buy two semi-industrial fishing vessels in order to catch small demersal fish nearshore themselves, and then to sell them to the other semi-industrial and industrial fishing vessels. They were

confident that with this agreement, semi-industrial vessels would stop venturing into the nearshore inner zone to practice bottom trawling.

## 2. Microcredit Program

The WARFP project in Senegal and Cabo Verde also included a microcredit program to support fishing households that transition away from fisheries-related activities and as part of the social safeguard measures required in the World Bank procedure. The microcredit programs in Senegal and Cabo Verde were to be implemented in partnership with local commercial banks. However, the two programs differ both in their targeted beneficiaries and in their administrative guidelines. Table 5 summarizes these differences.

In Senegal, an agreement was signed in May 2010 between the Crédit Mutuel du Sénegal (CMS) and the WARFP. The agreement specified that CFAF 500,000,000 would be put in an account managed by CMS to finance (i) "fisher reconversion" projects, aimed at fishers specialized in coastal demersal fishing or fish processors, and (ii) "women entrepreneurship" projects, aimed at woman living with a fisher or being involved in fisheries-related activities. Each project was to be funded for the duration of five years. The WARFP-SN provided a guarantee in the amount of CFAF 250,000,000 to cover the CMS against potential repayment defaults. When the microcredit beneficiaries did not pay back, 100 percent of the amount was taken out of the CFAF 250,000,000 guarantee.

In Cabo Verde, the agreement was signed in June 2015 between the Ministério das Finanças (Ministry of Finance) and Novo Banco. The agreement stipulated that the ministry would cover Novo Banco against risks up to 85 percent of any microcredit granted, including administrative fees, for the duration of two years. This fund could be used to finance investment projects only outside of the fisheries sector.[9]

In Cabo Verde the microcredit projects must also contribute to the employment of current fishers who decided to exit the fisheries sector. In practice, this meant that if an owner of a pirogue was requesting a microcredit, he had to exit the fishing activity and, in the new enterprise, commit to offer employment to the other fishers that worked on his pirogue (usually two or three fishers). This would avoid net employment loss due to the microcredit program and contribute to reducing the fishing pressure, as the pirogue would then be bought out by the government.

Note that the eligibility criteria of the Senegalese microcredit program pertained to the borrower attributes, while the Cabo Verde program focused on the quality of proposed microcredit projects. As seen in the next section, this difference would have important implications in the implementation of the microcredit funds.

[9] Subsequently Novo Banco was closed and the funds were transfered to another bank.

**Table 5. Differences between the Senegalese and Cabo Verdean microcredit agreements**

| | Senegal | Cabo Verde |
|---|---|---|
| **Total available fund** | CFAF 500,000,000 (between US$800,000 and US$1,000,000, due to the volatility of the exchange rate) | US$300,000 |
| **Interest rate (APR)** | 9%/year constant rate | 5%/year maximum |
| **Administrative fees** | An initial payment of CFAF 10,000<br>3% of loan amount to be paid prior to the lending | CVEsc 1,500<br>0.75% of loan amount to be paid prior to the lending |
| **Down payment** | 10% of the total loan amount approved | 10% of the total loan amount approved |
| **Eligibility criteria** | Common applicant eligibility criteria/ requirements:<br>• submit a written request to the LFC<br>• membership of the LFC<br>• recognized by the LFC as living in the community site<br>• commitment to use the credit for a non-fisheries-related activity<br>• commitment to be assisted by the technical expert<br>• respect community management measures and the LFC regulation<br>• positively evaluated by the LFC<br><br>Specific criteria for reconversion:<br>• a fisher specialized in coastal demersal fishing, a processor or a fishmonger<br>• provide an official document proving the affiliation with the fisheries sector<br>• between 18 and 45 years of age<br><br>Specific criterion for women entrepreneurship:<br>• a woman living with a fisher or being involved in fisheries-related activities (processing, business, etc.) | Projects criteria<br>• projects belong entirely to former operators of the artisanal fisheries segment<br>• if a pirogue owner benefits from the microcredit, he has to commit to propose employment to the fishers who work on his boat<br>• project underwent an economic viability analysis<br>• do not require complex technology<br>• do not require complex equipment that could increase maintenance costs<br>• no negative environmental impact<br>• promote autonomous or priority activities (defined in an appendix)<br>• the borrower followed a training prior to the credit<br>• the credit has to be between CVEsc 300,000 and CVEsc 1,500,000 (US$3,000 and US$15,000) |
| **Duration** | 0 to 12 months for credit related to working capital, and up to 36 months for credit related to investments | 2 years maximum |
| **Grace period** | Unknown | 4 months |
| **Penalty** | 0.5% | 1% maximum |

*Source:* Adapted from Djiby Thiam.

In Senegal, 405 projects have been financed through the fund managed by CMS for a total of CFAF 259,064,704 (approximately US$470,000) (table 6). The vast majority of projects were labeled as “women entrepreneurship” (EF) (355 projects), while only 50 were labeled “fisher reconversion” (REC). Most of the projects were investments in small businesses (for example, clothing, food, cosmetics) and agriculture (for example, vegetable gardening, poultry farming, cattle farming), with a few projects in the areas of restaurant and transportation.

**Table 6. Project composition by site**

| Site | Number of projects financed (Ref October 2015) | | | Total amount (CFAF) | | | Average amount per project (CFAF) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | EF[a] | REC[b] | Total | EF | REC | Total | EF | REC |
| **Bargny** | 59 | 55 | 4 | 29,259,000 | 22,765,000 | 6,494,000 | 495,915 | 413,909 | 1,623,500 |
| **Betenty** | 15 | 11 | 4 | 10,808,850 | 3,488,850 | 7,320,000 | 720,590 | 317,168 | 1,830,000 |
| **Foundiougne** | 26 | 26 | 0 | 10,937,225 | 10,937,225 | 0 | 420,663 | 420,663 | 0 |
| **Mballing** | 33 | 27 | 6 | 17,674,245 | 12,376,820 | 5,297,425 | 535,583 | 458,401 | 882,904 |
| **Mbodiène** | 13 | 9 | 4 | 5,961,000 | 3,708,100 | 2,252,900 | 458,538 | 412,011 | 563,225 |
| **Ndangane Sambou/ Fimela** | 39 | 28 | 11 | 27,491,511 | 17,753,545 | 9,737,966 | 704,911 | 634,055 | 885,270 |
| **Nianing** | 41 | 38 | 3 | 24,511,200 | 21,036,700 | 3,474,500 | 597,834 | 553,597 | 1,158,167 |
| **Ouakam** | 80 | 77 | 3 | 57,660,305 | 55,660,305 | 2,000,000 | 720,754 | 722,861 | 666,667 |
| **Pointe Sarene** | 46 | 38 | 8 | 36,599,642 | 17,353,423 | 19,246,219 | 795,644 | 456,669 | 2,405,777 |
| **Soumbédioune** | 34 | 32 | 2 | 19,429,948 | 16,397,948 | 3,032,000 | 571,469 | 512,436 | 1,516,000 |
| **Yene** | 19 | 14 | 5 | 18,731,778 | 12,725,653 | 6,006,125 | 985,883 | 908,975 | 1,201,225 |
| **Total** | 405 | 355 | 50 | 259,064,704 | 194,203,569 | 64,861,135 | 7,007,784 | 5,810,745 | 12,732,735 |

*Source:* Adapted from Rapport d'activités consolidé microcredit.
a. EF = Entreprenariat féminin = women entrepreneurship
b. REC = Reconversion (fisher).

In Cabo Verde, 23 projects have been selected and rated as eligible for microcredit funding. They were awaiting the financing at the time of the mission. Note that the total number of beneficiaries is estimated at 69, which results from 23 projects times 3 people per project. This is a rough estimate of the number of beneficiaries, where it is assumed that each pirogue employs three fishers and "reconversion" of one fisher implies an exit of all three fishers from the sector.

IV

# Results Obtained and Lessons Learned

In this section, we summarize the observations on the performance of the WARFP activities described in sections II and III and attempt to draw lessons. Given the lack of data that describe specific attributes of activities implemented under the project and their resulting outcomes, rigorous statistical analysis could not be conducted and the observations presented here are mostly anecdotal. The next section (section V) discusses a suggested framework to overcome this weakness.

## 1. Community-led Fisheries Management Approach

As discussed in the introduction section, the WARFP promotes improved fisheries management through community-level engagement especially where the government capacity to monitor and regulate local fisheries is not adequate. Promotion of community-led fisheries management seems to be an appropriate approach in Senegal and Cabo Verde. In Senegal, while the national framework of fisheries management is well developed, the actual capacity to implement such framework at the local level is weak. Similarly, Cabo Verde faces difficulties in securing public officials responsible for monitoring and assisting local fisheries on each island. In both countries fishers associations existed prior to the World Bank projects, and the culture of "working in groups" is well established. In such circumstances, mobilizing existing community organizations to assume certain responsibilities of local fisheries management seems appropriate and a most effective way to supplement the capacity of the public sector.

Thus, the review here focuses on how the WARFP approach of community-led fisheries management behaved during the first phase project in Senegal and Cabo Verde. In particular, we focus on (a) how the community

sites were selected, (b) whether the CMAs established under the project performed well, and (c) characteristics of well-functioning CMAs.

Overall, the CMAs established in Senegal (that is, CLPs) have successfully laid the foundation for community-led management of the local fisheries, and the model can be replicated in the rest of the country and in most other WARFP countries. However, as was seen in Table 2, their community activities have been limited to the management of primary production, ranging from the management of fishing grounds (including habitats and fish stocks) to fishing techniques and aggregate fishing effort. Going forward in the second phase, a wider scope of activities could be pursued. In particular, communities would likely benefit from coordination of post-harvest activities (for example, processing, marketing) as well as catalyzing synergies with other related industries (for example, tourism, retail outlets, restaurants).

### a. Site selection and definition of WARFP community

While many of the WARFP CMAs evolved from existing fishers associations, in several cases, the CMAs were created in the process of site selection and "community formation" of the World Bank projects to introduce community-led fisheries management systems. Sometimes the selection of villages and neighborhoods to be clustered in a community site appears ad hoc, and the resulting WARFP community does not necessarily exhibit a "sense of community" and cohesion.

The process of clustering neighborhoods and villages in a community site must account for two major factors: (i) ecological consideration of the boundary of community fisheries management area and (ii) the size of the resulting community to be covered by a CMA. Depending on the characteristics of the local fisheries and habitats, a greater management area covered by a CMA typically has a greater impact on the management of fisheries resources. On the other hand, the size of a community is related to community "cohesion" and, therefore, community engagement in sustainable resource management, is thought to decrease as the size of the community increases. Thus, working with smaller community sites likely yields a greater probability of success of the community-led fisheries management system, all else equal.

One lesson from the WARFP first phase is that there seems to be a tradeoff between these two factors of community site selection. One example is from the Thiès region of Senegal, where the WARFP project focused on the smaller villages of Nianing, Mballing, Pointe Sarène, and Mbodiène, which situate along the coast between the larger towns of Mbour and Joal.[10] Since Mbour and Joal each have a very important population of fishers and they share fishing grounds with the fishers in Nianing, Mballing, Pointe Sarène, and Mbodiène, from the fisheries management perspective, an effective community fisheries management area and an associated CMA could have

[10] The Japan International Cooperation Agency (JICA) had fisheries co-management projects in Senegal that focused on the two coastal towns of Mbour and Joal.

been formed by engaging the four villages as well as the two towns. Instead, the four CMAs in each of the four villages of Nianing, Mballing, Pointe Sarène, and Mbodiène are currently working together to design a system of common management area that combines the four community management areas of the CMAs.

Another example is the community site of Foundiougne, which includes as many as 21 villages. The sheer number of villages might not be optimal in terms of community cohesion. However, it was deemed necessary to include all of these villages in one site represented by a single CMA as the main fisheries management measure promoted in the area is the sustainable management of the shrimp fishery, which concerns all these 21 villages.

Going forward, the WARFP can employ a selection and community formation process that balances these tradeoffs. In particular, the main question is whether internal cohesion can be "nurtured" after the creation of a CMA so the site selection should focus on the needs of fisheries management or whether development of smaller, well-functioning CMAs with a strong sense of community should be the short-run priority, which could later be merged with the others to ensure sufficient geographical coverage. Section V offers several suggestions for upfront analysis that can be useful for improving the design of the WARFP community-led fisheries management approach.

### b. Heterogeneous performance of CMAs

#### *Senegal*

In Senegal, performance of the CLPs is heterogeneous but some very positive results have been achieved. **Ngaparou** is clearly the best functioning CLP among the 12 CLPs in Senegal. This CMA is extremely dynamic, with high attendance rates to its meetings. This CLP took upon itself to find ways to provide assistance to fishers in need. The fishers from Ngaparou decided to find funding sources to provide capital to the CLP, without waiting for the community RGA that was scheduled to be built. First, they enacted a CFAF 500 flat tax on gasoline purchase at the Ngaparou's station. This amount, although small, has since the beginning funded the effort to link fishers to the CLP's operations. The tax amount has been raised twice since the beginning. Second, the CLP also established a fee of several thousand CFA francs to be paid by fishmongers' trucks that would come to Ngaparou to buy fish. Finally, donations are also collected from private donors and family members living abroad.

This funding allows the CLP to provide assistance to fishers in several ways, without any expected repayment. For instance, when an artisanal pirogue goes missing, the fishers do not wait for the official rescue patrol to go out at sea and search for the missing boat; instead, the CLP charters a boat and pays for the gasoline to immediately try to locate the pirogue. Likewise, when a fisher's child is ill, the CLP pays for the medical expenses. Furthermore, if a fisher's family member suddenly dies, the CLP pays for the funeral, which can be

extremely costly in Senegal. Fishers do not view these actions as charity, because they are the one to organize them, and they also contribute to the funding of the CLP through the gasoline tax.

The CLP also came up with an idea to involve the migrant fishers: each bill received at the gasoline station is marked with a number, and this number is then put inside of a lottery at the end of each month. One GPS navigation device can be won each month through the lottery; therefore, when migrants pay the flat tax at the gasoline station and contribute to providing funding to the CLP, they also have a chance to win a GPS device (which costs around CFAF 250,000). A GPS device is a necessary tool for offshore fishing, and thus access to such a device is expected to encourage fishers to move away from the crowded the coastal demersal fishery. Overall, all these initiatives contribute to building trust in the CLP's ability to provide assistance to its members. They foster cohesion and cooperation within the community.

Other communities with particularly well-functioning CLPs are Foundiougne, Soumbédioune, and Yenne. In **Foundiougne**, fishers trust the association to provide assistance during the closure of the shrimp fishery, which was decided by the CLP in order to provide a biological rest period and which is scheduled to last one month. For the past two years, the CLP has bought rice and sugar to distribute to the fishers' families during the shrimp biological rest period, to compensate for the foregone income. In **Soumbédioune**, past conflicts over poaching during the closure of the fisheries have been solved within the CLP, through discussions and monetary sanctions. Finally, in **Yenne**, semi-industrial fishers who often travel to Guinea to fish high-value species like thiof agreed not to land their catch in Yenne during the closure of the thiof fishery, in order to support the regulation implemented by the CLP regarding a thiof biological rest period. As a result, any thiof landed in Yenne during the thiof biological rest period can be considered illegal.

In **Ouakam**, the CLP is working quite well but some difficulties emerged following a national regulation that does not authorize dive fishing of lobsters. The key community fisheries management idea was to reduce the fishing pressure on lobsters, but to counteract the loss of income due to a reduction of quantity with an increase in unit value realized through an eco-label. However, the lobsters caught in Ouakam, as they were caught in dive fishing, were not allowed to be eco-labeled. Furthermore, divers from Ouakam were found poaching thiof in Soumbédioune's management area. Their fishing gear was seized, but dive fishing is such a lucrative activity that the fines are not considered dissuasive enough (a diver can hunt 700 kg of thiof in one night, while a hook-and-line fisher considers 50 kg a good day's catch).

**Bargny** is the poorest-functioning CLP among the 12 CMAs of Senegal. This is mainly due to a great lobbying effort made by the purse seine fishers to neutralize the fisheries management activities promoted by the CLP, in particular the biological rest period for shrimp. The CLP had to completely stop implementing fisheries management activities for an entire year because of the pressure from the purse seiners. The situation seems to be improving, and the first biological rest period was respected in 2016. This progress was due to

the great effort made by WARFP to invest in building human capital: the PIU explained the biological processes at stakes to the group of purse seine fishers, and why it was in their best interest to respect the biological rest period.

***Cabo Verde***

Likewise, in Cabo Verde, performance of the CMAs is diverse but overall largely positive. An "exemplary" CMA is the one of Vindos do Norte, based in Calheta, Maio Island: the attendance rate to meetings is extremely high and members of the association are particularly proactive. For instance, when funds were needed to organize participatory surveillance patrols, the association took upon itself to organize a party to raise funds in order to finance the patrols.

Similarly, on Sal, the CMA of Palmeira is a model of a well-functioning CMA. It is well structured and managed, and was recently granted a new office by the city hall. The other association on the island, Santa Maria, also records a good attendance rate to meetings, despite the particularly important opportunity cost of this participation: Santa Maria is a touristic center with several seaside resorts and the industry is such that young fishers and fishmongers can often work a second job outside of fishing hours.

However, the fishers association of Vindos do Sul, based in Porto Inglês on Maio Island, is lagging behind in terms of member engagement and overall performance. The attendance rate for meetings was as low as zero, and people had to go from door to door to gather enough members. Two reasons seem to explain this lack of involvement. First, Porto Inglês has historically been the recipient of a large amount of international aid, both financial and in terms of fisheries infrastructures. People have speculated that the fishers association somehow got used to being a passive recipient of international development, and needed some time to understand the community-led management approach promoted by WARFP, as this was completely different from previous international aid. A second explanation is a past local political conflict. The PIU also promotes awareness raising among the CMA members and hosts small meetings, which seem to be working.

### c. Determinants of CMA performance and community engagement

There is a multiplicity of factors that can explain the good functioning of the CMAs. At this stage, it is difficult to provide any clear-cut account of these determinants. Distinct explanations have been proposed, but the most important criterion seems to be the *cohesion* of the community. In Senegal, people in "communities" composed of only one village like Ngaparou seemed to start working together faster, simply because everyone already knew each other before the implementation of the CLP. They are often extended relatives, and therefore more likely to trust each other to respect the activities implemented by the CMAs and to demonstrate altruistic behaviors. Likewise, a rural environment seems more likely to induce cooperation as well as involvement in the community initiatives. The CLP of Yenne, despite blending members from seven different villages, seems to be functioning well and this

might be due to the relative rural isolation of these villages, which contributes to building cohesion.

Also in Cabo Verde, the fact that the communities are located on small islands is thought to play a positive role in cohesion. The sense of community can be very strong: for instance, in Calheta, when one fisher's son became ill, the members of the fishers' association mobilized the financial resources necessary to pay for the medical expenses and send the child to Praia.

Another determinant that has been put forward by the community participation specialists is the presence at CMA meetings of older fishermen who could advocate the necessity to manage resources sustainably. For instance, in Calheta, older fishers stated that 30 years ago they were able to collect lobsters on the seashore in waters 50 centimeters deep, while nowadays the situation is such that lobsters are rarely found in waters less than 10 meters deep.

A strong leadership in the CMA is also likely to be a determinant positively influencing the involvement of fishers. This is particularly the case in the CMA of Palmeira, where the president of the CMA is said to be a charismatic fisher who spent time abroad before returning to Cabo Verde. He is currently seeking to hand over his position in order to allow for a change in the management.

Finally, experiences in Senegal tend to show that ensuring a regular renewal of the people in charge of the CMAs could lead the overall population to feel more involved. In some cases, a small group of fishers were in charge of the management of the CMA for several years, with little turnover. This may have caused the other fishers to feel less involved in the management of the CMA.

## 2. Alternative Livelihood Programs

As discussed in section III, two programs to support alternative livelihoods and income opportunities in the community sites were implemented in Senegal and Cabo Verde. Both programs—the RGAs implemented at the community level and the microcredit program targeted at the household level—were intended to contribute toward the WARFP program objective, in particular toward the objective of reducing aggregate local fishing effort. The question to ask in deriving lessons from these activities is—did the programs contribute toward the WARFP objectives?

As seen next, the observations from the field indicate that in many cases these programs were somewhat disconnected from the rest of the WARFP community activities, in particular from the activities implemented at the community level to manage fish resources (for example, habitat management, control of aggregate fishing effort, and technologies). It almost appeared as if there was a separate community-driven development (CDD) project within the fisheries project (WARFP). As is detailed next for each of the two programs, the divergence between the intended objective and the actual delivery of the programs seems to be a design issue. In particular, the choice of eligible or

funded projects under both programs could have been made more strategically so that the consistency with the other community fisheries management activities pursued by the CMAs could be maintained. Both programs can provide communities and community members with opportunities to earn incomes in other economic activities than fishing, but whether that will result in the local reduction in aggregate fishing effort depends on how well fishing activities are managed within the community. For example, "alternative" livelihood opportunities will simply be "additional" income-earning opportunities to fishing unless the condition of exit from the sector is truly monitored and enforced. If the programs encourage the exit of more entrepreneurial fishers from the sector, there will be a clear need for assisting the fishers that remain in the industry to improve their practices in order to improve the community fisheries (for example, with less destructive fishing gear).

These observations lead to another question—are these the appropriate instruments to encourage reduction in the local aggregate fishing effort in fishing communities? These programs partly intended to induce behavioral changes within the communities and among the community members. There are many other instruments and incentive mechanisms for behavioral change that can be adopted in similar contexts. For example, performance improvement at the community level could be leveraged through an introduction of competition for grants for innovative projects. At the individual level (fishers, fishing households), other possible instruments include conditional cash transfers and payments for ecosystem services. Both at the community and individual levels, social marketing and targeted communication may be effective, and schemes to exploit peer pressure and comparison could also be designed. Going forward, there is a large scope for improvements in the design of WARFP alternative livelihood activities and community activities in general.

### a. Community Revenue Generating Activities

To date, more than CFAF 600,000,000 (around US$1,000,000) has been invested in the Senegalese RGAs managed by the CLPs. However, there is an important lack of information regarding the performance of these RGAs and we were not able to draw systematic lessons from their implementation. This issue is addressed in section V, but we nonetheless present some results here.

In **Foundiougne**, the fishing gear supply shop was really needed due to the village's landlocked geographic location and the high transportation costs incurred by fishers to buy fishing gear in other villages. However, like in all the other fishing gear supply shops created within the project's RGA, wholesale prices were not negotiated with wholesalers, and the RGAs shops had to purchase at the retail price. It is believed this issue has arisen due to the form of contract required by the World Bank: several wholesalers were asked for their prices, and the store that offered lowest prices was then selected to be the supplier of the fishing gear supply shop. But the prices declared by the

wholesalers concerned retail prices, which were not renegotiated by the RGA shops afterwards. As a result, the RGAs had to procure their supplies at higher prices, which did not seem to allow them to make enough profits as they could not afford to increase their own selling price without losing customers. **Ngaparou**'s RGA was in the same situation and needed to renegotiate the supply prices.

Beside the fishing gear/supplies store, another RGA was promoted in **Foundiougne** after purchasing under WARFP fishnets with larger mesh size to reduce the catch of juvenile shrimp. This measure was extremely effective to reduce the catch of juveniles, but it had the unintended consequence of reducing opportunities for the women who used to process smaller shrimps, as the smaller shrimps were not caught anymore. In order to provide alternative employment to these women, the WARFP financed the construction of a second shop to be managed by these women. However, concerns were raised regarding its profitability.

On the **Petite Côte** (Mballing, Nianing, Pointe-Sarène, and Mbodiène), it has been argued that the veterinarian contracted to work with the four RGAs implemented (cattle and poultry farming) was also in charge of negotiating the cattle feed supply price. This strategy has been described as inefficient and extremely costly.

In **Bétenty**, it seems that the touristic site created is not performing well. The tourism sector is regressing in the area, and the beach surrounding the touristic camping site has been said to be filled with litter.

Overall, some RGAs are believed to have great potential with only minor implementation issues that can be adjusted, like in Ngaparou and Foundiougne, while other RGAs are regarded as completely disconnected from the actual needs or the business opportunities of the community. It has been argued that the selection process employed to determine RGA activity in each village was inadequate and biased, as it did not allow the community to fully express its needs. According to some observers, the various participation specialists arrived at the villages with a prepared list of potentially good RGAs ideas, and systematically ruled out any proposition that was not on the list. However, we were unable to confirm this claim. Aquaculture does not seem to have been considered, while according to community participation specialists, some fishers reluctant to exit the fisheries sector might have agreed to exit fishing and start fish farming instead. Finally, all the interviewees believe that the RGAs promoted through the World Bank projects can at best contribute to the funding of the CMAs, but will never be sufficient to guarantee the lasting functioning of the fishers associations.

The RGAs in Cabo Verde were not yet implemented as of August 2016.

### b. Microcredit program

This section focuses on the project's microcredit program in Senegal as it is now completed there, while it has yet to begin in Cabo Verde. The repayment rate was as high as 94 percent, and a preliminary study done over 365 projects

showed that 341 projects exhibited a positive gross margin. Across 329 projects, cumulative net revenues per project were on average CFAF 591,043 at the time of the survey. The positive results of the program were also confirmed by the preliminary survey, which showed that some households that benefited from the microcredit program were now able to increase their production capacity and to invest in other activities, for example, to take charge of the household's needs during the fishing closure, to pay for their child education, to pay for religious expenses, to hire other family members, and to build new facilities. Furthermore, several women returned to CMS on their own to ask for a second microcredit, even after the end of the CMS/WARFP agreement. The new conditions offered an interest rate of 13 percent, much higher than the 9 percent previously offered.

However, field interviews conducted in Nianing, Soumbédioune, and Yenne reveal that many aspects of the microcredit initiatives were inappropriate and need to be improved if similar programs are to be implemented in the future.

***1. Delay in the implementation***

The microcredit program in Senegal experienced significant delays: while the agreement between WARFP-SN and CMS was signed in May 2010, the first loans began at the end of 2013. This delay negatively impacted the ability of the program to deliver its planned results. The agreement was meant to last five years and to expire in May 2015, regardless of its implementation starting date. More than 2,000 people were not able to receive credits due to this delay, mostly because there would not have been enough time left to the potential beneficiaries to repay. Furthermore, many potential beneficiaries who had prepared their eligible microcredit applications retracted their applications because they regarded this delay as a clear lack of seriousness on the part of WARFP and CMS.

Similar issues may arise in Cabo Verde, where 23 micro-projects have already been prepared but were awaiting financing since 2013 due to administrative delays.

***2. Age eligibility criteria***

People interviewed in the Senegalese villages unanimously stated that the age criterion for eligibility for microcredit was ill-conceived. According to them, many fishers looking to exit the fishing sector were not able to benefit from the microcredit program as they were older than 50 years, while applicants had to be between 18 and 45 years old to receive a microcredit. This is particularly problematic as one of the objectives of the microcredit program was to reduce the aggregate local fishing pressure. Since most pirogue owners are older than 50 years old, reconversion under the program mainly targeted fishers who did not own a pirogue. As a result, it was argued that if a pirogue owner lost a young fisher, who exited fishing upon receiving a credit, he easily would be able to find another fisher to work on his pirogue, yielding no effect on the overall fishing pressure. It is worth noting that Ngaparou, one of the

exemplary communities in terms of community-led fisheries management, had foreseen this issue. Accordingly, after multiple meetings of its CLP, Ngaparou decided not to promote microcredit as they were extremely skeptical of its ability to reduce the fishing pressure.

We can predict that this age issue is not likely to arise in Cabo Verde, where the agreement's eligibility criteria focus on the projects themselves and not on the applicants for funding. In Cabo Verde, the applicants of the 23 approved projects are committed to (i) offer to hire all the crew members of the pirogue in order to avoid unemployment; and (ii) sell the pirogue to the government in order to retire it from fishing. However, unless new entry into fishing is discouraged, reduction of existing fishing capacity will not necessarily reduce the overall fishing effort.

***3. Job reconversion vs. improvement of fishing techniques***

People interviewed also stated that it should be possible to use the reconversion microcredit to buy new fishing gear. This was actually forbidden by the eligibility criteria, as one of the objectives of the microcredit program was to reduce the fishing pressure and therefore the fund should aim to shift fishers away from fishing. But in many cases this was practically impossible, mostly because fishers who have been fishing for several generations would not accept this sudden change. However, these fishers stated that they were in many cases still using unauthorized fishing gear that was deemed too destructive, like nets with too small mesh sizes. They asked for the possibility to buy new fishing gear to replace the unauthorized one. This discussion indicates that there was a strong disconnect between the intention of the microcredit program and its practicality in achieving the intended objectives.

***4. Loan duration***

Microcredit beneficiaries also stated that they felt the amount they had to pay back at the end of each month was too high. They suggested the possibility of repayment over a longer period (most of them had less than a year to pay back their loans).

***5. Grace period***

It appears that the Senegalese microcredit agreement stipulated that the first repayment had to occur at the end of the first month. This was found to be difficult to achieve by many microcredit beneficiaries. Furthermore, several participants who were interviewed also stated that they had to refrain from asking for a credit to invest in agriculture, because of the latency period inherent to any agricultural production system, where there is a substantial time lag before the benefits of investments materialize.

In Cabo Verde, the four-month grace period stipulated in the microcredit agreement is likely to alleviate this issue.

***6. Interest rate***

In Senegal the interest rate of 9 percent (APR) was deemed too high, and several fishmongers suggested that it should be lowered to 6 percent. Given the important number of microcredit banks operating in Senegal, the competitive nature of the market, and the guarantees provided by the WARFP to the private bank, it is possible that a future deal could be negotiated for a lower rate.

## 3. Project Continuity

Overall, the community-led fisheries management approach promoted by the WARFP in Senegal and Cabo Verde seems to yield positive results and to succeed in uniting the fisheries sector stakeholders around common interests. Although community engagement varies across fishing associations, meeting participation can be high and the activities implemented by the CMAs are taken seriously.

The "series of projects" approach of the WARFP is essential to achieving its objectives. Effectively building institutions of community-led fisheries management that are able to propose and implement management initiatives takes a lot of time. Experts who were interviewed argued that at least 15 years would be necessary before the CMAs will be able to function effectively on their own without external assistance. Lasting results can be achieved only in the absence of extended breaks in the CMA activities. The first phase of the WARFP ended in September 2016, and stakeholders involved in the implementation of the WARFP were concerned about the continuity and seamless transition into the second phase of the project. Institutional memory and the capacity that has been built is a valuable asset of the project's investment, and smooth and timely transition into the second phase itself will be an important factor of success of the second phase project. Cabo Verde has already taken a measure to reduce the potential negative impacts of the transition period: the PIU has negotiated with the government that after the closure of the first phase, the community facilitators currently employed by WARFP-CV and working with the CMAs would continue to work and would be paid by the Ministry of Fisheries. This is a meaningful step to ensure the project's lasting results.

V

# Knowledge Gaps

Although the available information has made it possible to answer a wide array of questions, much remains unanswered regarding the community-led fisheries-management approach and the impacts of the alternative livelihood programs.

## 1. Understanding the Impacts of the Transition Assistance Measures

In order to determine to what extent certain interventions (in this case RGA and microcredit in particular) achieved their objectives, a lot more needs to be learned about how things changed before and after the interventions, both at the household and community levels. Further data collection through community and household surveys, as well as rigorous econometric analysis, would generate more definitive conclusions regarding the effectiveness of the specific activities implemented under WARFP.

A more thorough analysis of the microcredit and RGA programs would allow an estimate of the effects of these programs on household incomes and poverty as well as on the aggregate fishing pressure in the community. It would increase our understanding of whether such measures actually reduce the aggregate fishing effort, as well as insights on the intertwined dynamics of local renewable resources exploitation and poverty.

Such survey and analytical work are feasible. We already have acquired the list of the beneficiaries of the microcredit programs. In Senegal, the CLPs have confirmed that it would be easy to reach out to the beneficiaries to conduct additional surveys.

## 2. CMA Performance and Effectiveness of Community Activities

The effectiveness of community activities seems to be related to the performance and functioning of the CMAs. In particular, the engagement of members within the associations is of paramount importance. This suggests that knowing which factors contribute to a better functioning of the CMAs is essential.

In particular, prior to the implementation of a development project including a community-led fisheries management component, a better understanding of the determinants of the involvement within the CMAs would allow us to question which communities have a greater probability of yielding better performance. This would be of tremendous assistance during the site-selection process, which calls for prioritization tools in order to achieve a cost-effective selection.

A better understanding of the determinants of community involvement would also be useful during the implementation phase. For example, how to increase the attendance to meetings and the community cohesion around CMA activities are practical matters.

The WARFP pilot community sites thus far offer a unique opportunity to conduct a comparison between communities. Detailed surveys at the CMA level and rigorous statistical analysis of the results would help provide insights into the determinants of community engagement.

## 3. Understanding the Fishing Village Economy

Statistical analysis based on community and household surveys would help in attributing certain factors (for example, intervention, household characteristics, community characteristics) to outcomes in question (local aggregate fishing effort and household incomes). WARFP-SN started collecting statistical data regarding the fisheries effort and several biological variables. However, with many activities ongoing simultaneously, perfect attribution of factors to outcomes would be impossible, and the dynamic interactions between factors cannot be explicitly studied. For example, knowing how RGA and microcredit programs interact with each other and whether they are complementary toward aggregate fishing effort reduction is a critical question when replicating such activities in other communities and in other countries. A detailed case study that can address linkages of various activities and conditions within a fishing village economy is necessary. A computable general equilibrium (CGE) modeling applied at the level of a local economy (for example, the LEWIE—Local Economy-Wide Impact Evaluation—model) seems a useful tool to investigate the linkages of the economy of fishing communities and to identify potential points of intervention.

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# Appendices

## Appendix I. List of People Interviewed

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| | | | | | |
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| | | | | | |
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| | Issa Diop | LFC Yenne | | | 773029080 |
| | Mamadou Niang | LFC Yenne | | | 782708579 |
| | Amademe Saub | LFC Yenne | | | 777749693 |
| | Ablay Niang | LFC Yenne | | | 775000794 |
| | Pape Mbongue | LFC Yenne | | | 703235314 |
| | Adama Thiandoum | LFC Yenne | | | 777339199 |
| | Aminata Durif | LFC Yenne | | | 775374918 |
| | Mbaye Ndiome | LFC Yenne | | | 773153437 |
| | Alassane Thoubane | LFC Yenne | | | 778238455 |

| | Name | Organization | Position | Email | Tel |
|---|---|---|---|---|---|
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| | Alassane Niang | LFC Yenne | | | 775436420 |
| | Idy Ndiome | LFC Yenne | | | 776408825 |
| | Ibrahima Saw | LFC Yenne | | | 772603035 |
| | Modon Ndiaye | LFC Yenne | | | 703643644 |
| | Ndialou Yow | LFC Yenne | | | 775643333 |
| | Souleymane Seo | LFC Yenne | | | 770260777 |
| | Adama Ndiaye | LFC Yenne | | | 775361686 |
| | | | | | |
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| | Modou Thiaw | LCF Nianing | VP | thiaw4modou@yahoo.fr | 775081188 |
| | Raphael Ndou | LCF Nianing | | | |
| | Gilbert Bouré Sarr | | | | 774063718 |
| | Fatou Sène | | Treasurer | | 771349774 |
| | Peudo Hdiabou Diou | | Microcredit beneficiary/ woman and fish products transformer | | |
| | Daba Tine | | Microcredit beneficiary/ woman and fish products transformer | | 771180049 |
| | Coumba Faye | | Microcredit beneficiary/ woman and fish products transformer | | 771435150 |
| | Emilie Guignano Sarr | | Microcredit beneficiary/ woman and fish products transformer | | |
| | Ephigenie Sarr | | Présidente caisse de solidarité des femmes de Nianing | | 771696896 |
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| | Alame Diagne | LFC Soumbédioune | Women's group president | | 773976250 |
| | Aliou Ba | | Director? | | 775463487 |
| | Issa Fau | LFC Soumbédioune | President | | 777100700 |
| | Hamida Seye | LFC Soumbédioune | LFC Vice president, fishmongers president | | 774824575 |
| | | | | | |
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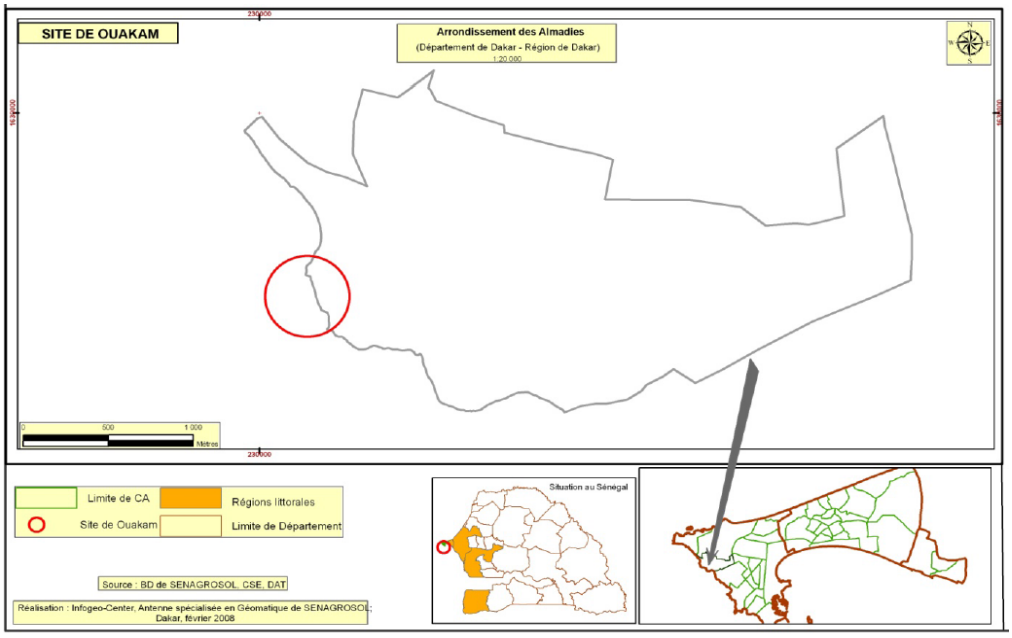
# Appendix II. Site Description

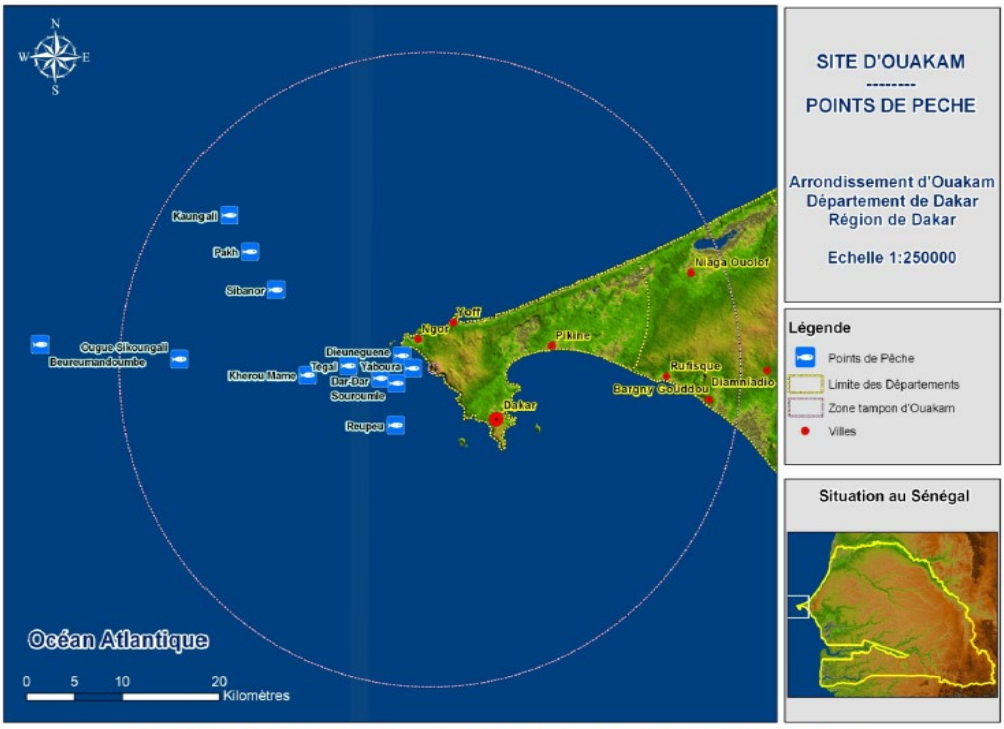
## a. Ouakam

### Figure A1. Ouakam geographic location




*Source:* rapport ESEP Ouakam 2008.

### Figure A2. Fishing sites for Ouakam




*Source:* ESEP report 2008.

Ouakam is located on the extreme West Coast of the Cap-Vert Peninsula, in an urban environment close to Dakar, with extremely rocky marine habitats which offer rich spawning grounds to an important diversity of demersal species.

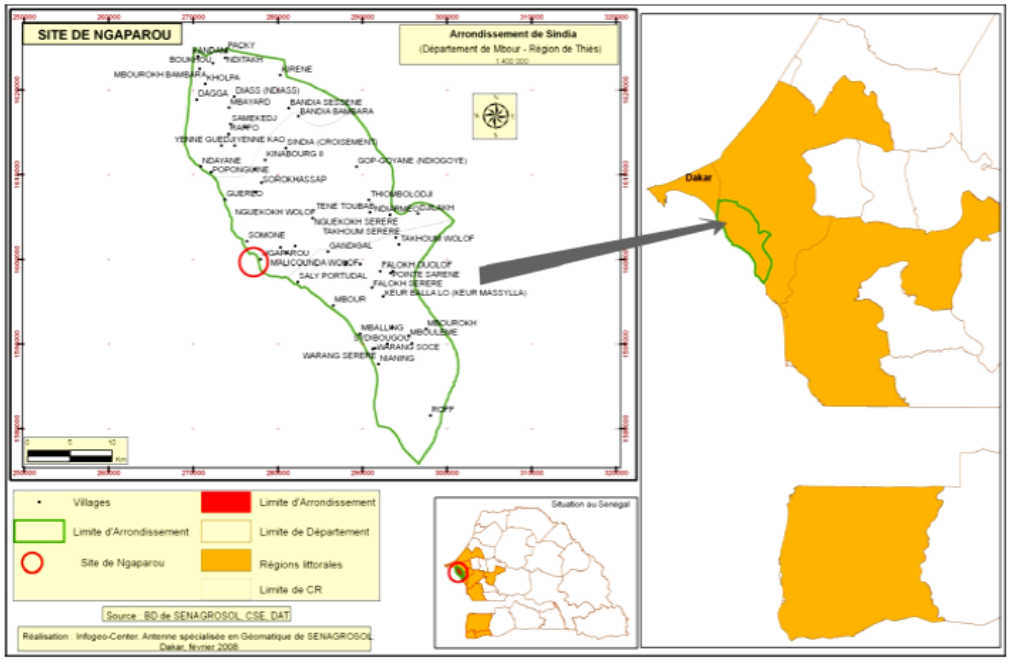
- It is the most populated site in the WARF project: the 2004 census accounts for 67,481 inhabitants, and among them around 27,000 residents are in the "traditional village", a place in Ouakam where all the fishers live.
- 500 people are directly employed in the fisheries sector (including 370 fishers working with pirogues and 50 collecting seashells on foot).
- Due to its proximity to Dakar, Ouakam is well integrated to the markets linked with fisheries such as tourism and the export of fisheries products. Transportation costs are significantly reduced and the fishing gear is easily accessible.
- The main fishing gear used remain hooks and lines, employed by 60% of fishers, but a diversity of methods coexists.
- One of the particularities of the site is the important number of "divers", who use only a wet suit and work with several different pirogues.
- Most fishers practice around Ouakam, but can go as far as 8 miles out in the sea.
- There is not enough time-series data about catch volumes to provide estimates for the trends and the pressures on the stocks. However, according to local fishers, the marine habitats have been extremely damaged due to the use of dynamite, some species are thought to be importantly depleted and conflicts were perceived as multiplying.
- Many people who originally were fishers started investing in other sectors such as aviculture, housing and tourism
- The standard of living in Ouakam is relatively above the national average, which partly explains a low emigration rate. In most neighborhoods, houses are permanent structures equipped with modern commodities. Unemployment can be substantial but the young Senegalese will find informal work in the fisheries sector.
- The mean income per pirogue is around CFAF 60,000 per day from November to July. It is shared between the fishers and the pirogues owners, which results in a revenue of CFAF 10,000 to CFAF 20,000 per fishers.
- The national poverty line was defined as less than CFAF 500 per day. The mean expenditures per household were estimated at CFAF 4,800 for 8 to 10 people, which is around the poverty line. A majority of the people asked claimed that the site became more prosperous. Rich fishers can own several pirogues, motors and nets. In Ouakam they can also own several houses and have the ability to rent them. On the contrary, poor fishers do not own any fishing material and completely rely on others to practice their activity. Few fishers are able to save. When fishing was considered lucrative in the past, many now define

this activity as precarious. The poorest households seem to be migrants that arrived to the village a few years ago.

- To preserve the resource and spawning grounds, two areas were regulated: A restricted fishing area (Zone à Exploitation Réglementée, (ZER)) containing massive rocks and important fishing grounds. Net fishing is forbidden and the amount of pirogues is limited to 100 per day. There is also a size control of the animals fished. A prohibited fishing area (Zone de Pêche Interdite (ZIP)) is also present, where access is strictly forbidden. Artificial coral reefs were installed.

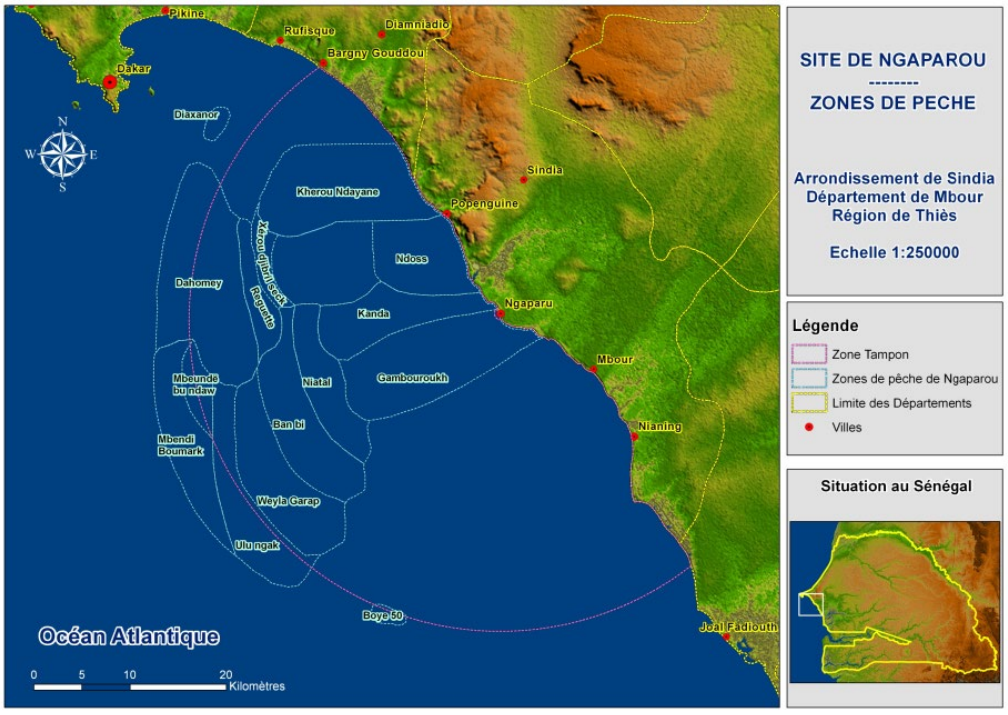
## b. Ngaparou

**Figure A3. Ngaparou**




*Source:* Rapport ESEP synthèse 2008

**Figure A4. Fishing sites for Ngaparou**



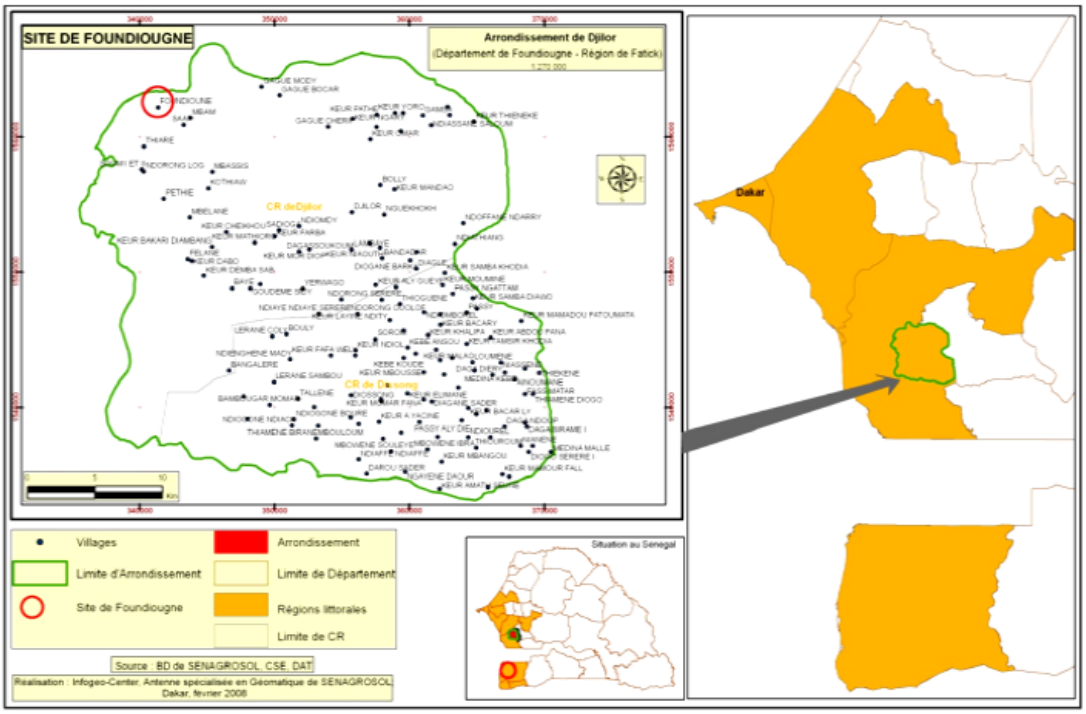

*Source:* ESEP report 2008.

Ngaparou is located south of Dakar in the region of Thiès, Mbour department. It is a vast sand beach without fishing infrastructures, well connected to the national road and close to urban centers. This site is also composed of a single village, which participates in building a strong sense of community. Ngaparou has been hailed as one of the major success of co-management activities, and the local LFC seems to be functioning extremely well. The village's chief is very implied in the fisheries activities and is also the president of the LFC.

- The population of Ngaparou is growing very fast, from 4,973 in 2002 to 11,742 in 2007.
- Surveys provided an estimation of 250 fishers, who increasingly land their catch in Ngaparou, as well as around 100 processors and 30 fishmongers. It is also marked by the arrival of fishers from Yoff and Nianing.
- The village suffers from erosion, which already destroyed several houses.
- Few NGOs work with the village, as the standard of living are relatively good compared to other Senegalese places. However, the inhabitants unanimously declared that they became poorer since they had to abandon agricultural activities.
- There have been multiple conflicts with industrial fishing vessels which tend to fish within the artisanal fisheries area (<7 miles). This is an important issue as most of the fishers of Ngaparou operate within the coastal area. Fishers can however leave for one to three months to fish near Yoff, Soumbédioune, Thiaroye, Mbour and Bargny, but tend to increasingly land their catch in Ngaparou.
- Different fishing gears are used, but the most important ones remain hooks and lines, longlines and driftnets, although nets are not widely employed. There are no seashells collectors.
- The targeted species vary with the seasons, but we can note that octopus fishing is extremely important from July till October. The green crayfish is also of paramount importance, and a management plan was designed to insure an acceptable level of this resource. Overall, fished species have an important market value.
- Fishmongers declared having trouble finding ice, while fishers complain about the difficulty to find wood to build new pirogues.
- Similar to Ouakam, which is also close to an urban center, most of the fish production is used for direct consumption, either locally or for the hotels and restaurants nearby. Ngaparou itself is increasingly becoming a tourism destination.
- Agriculture is barely practiced anymore because of past droughts and the lack of arable land. Business is the other main activity.
- The LFC implemented regulated fisheries areas with alternate closures of the coastal zone. Artificial coral reefs were also installed.

## c. Foundiougne

### Figure A5.3 Foundiougne




*Source:* Rapport ESEP synthèse 2008.

### Figure A6. Foundiougne fishing sites

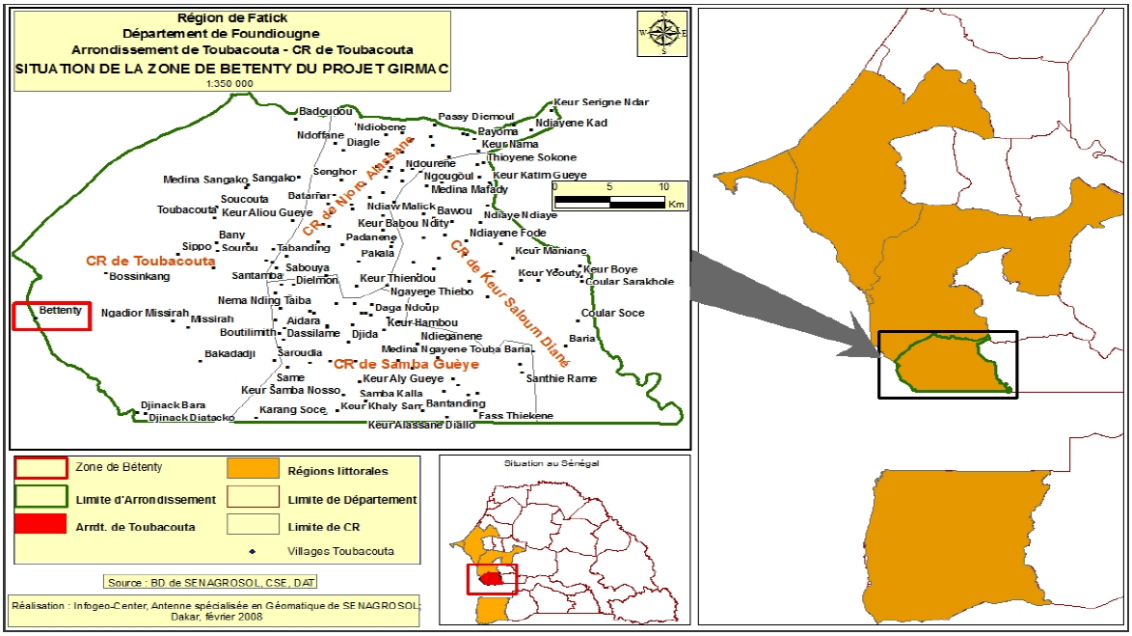

*Source:* ESEP 2008.

Foundiougne is located in the Saloum river delta. The co-management project for this site encompasses 21 different villages: Foundiougne, Djirnda, Fambine, Maya, Diamniadio, Baout, Rofangué, Vélingara, Félir, Fayaco, Mbam, Gagué Chérif, Gagué Bocar, Gagué Mody, Kamatane Bambara, Kamatane Ngamsa, Kamatane Mbar, Keur Yoro, Keur Gory, Soum, and Thiaré. Foundiougne suffers from its landlocked situation, partly caused by the poor state of the Fatick-Foundiougne road. It is one of Senegal's poorest villages.

- The population of Foundiougne was estimated to 4,935 in 2002.
- There were around 350 fishers in the village (180 operating with pirogues and 170 on foot). The majority of them are locals but some also come from neighboring regions and countries. 2/3 of the youth work in fisheries. 45 fishmongers and 25 processors were also identified in 2008.
- About a third of the fishers come from other regions such as Casamance, Joal, Dakar, and even other countries like Gambia and Guinea Bissau. Fishers from Foundiougne also leave their village to settle in other fishing ports, including in neighboring countries. More than 700 foreigners take part in the sector's activities
- Foundiougne is particularly famous for its shrimp fishery.
- Seashells are not collected in Foundiougne, but this activity can employ most of the neighboring villages' women.
- Fish processing is extremely important and can concern up to 70% of the landings. Processing remains artisanal, although a private factory was built in Foundiougne but used to face difficulties to comply with European norms.
- Because of the availability of ice and fuel, as well as the proximity of markets, Foundiougne attracts many of the regional fishery's sector activity.
- The specific co-management initiatives focus on a no-fishing period for shrimps and the interdiction to fish immature shrimps.
- The specific issues in Foundiougne are the difficulty to conserve the products, the lack of fishing gear and landing sites, the lack of hygiene, the degradation of the mangrove and the fishing of immature shrimps.
- Agriculture is in regression, with difficulties to get inputs and equipment, but some agro pastoral livestock systems are working. The fisheries sector is clearly growing and remain the main activity.

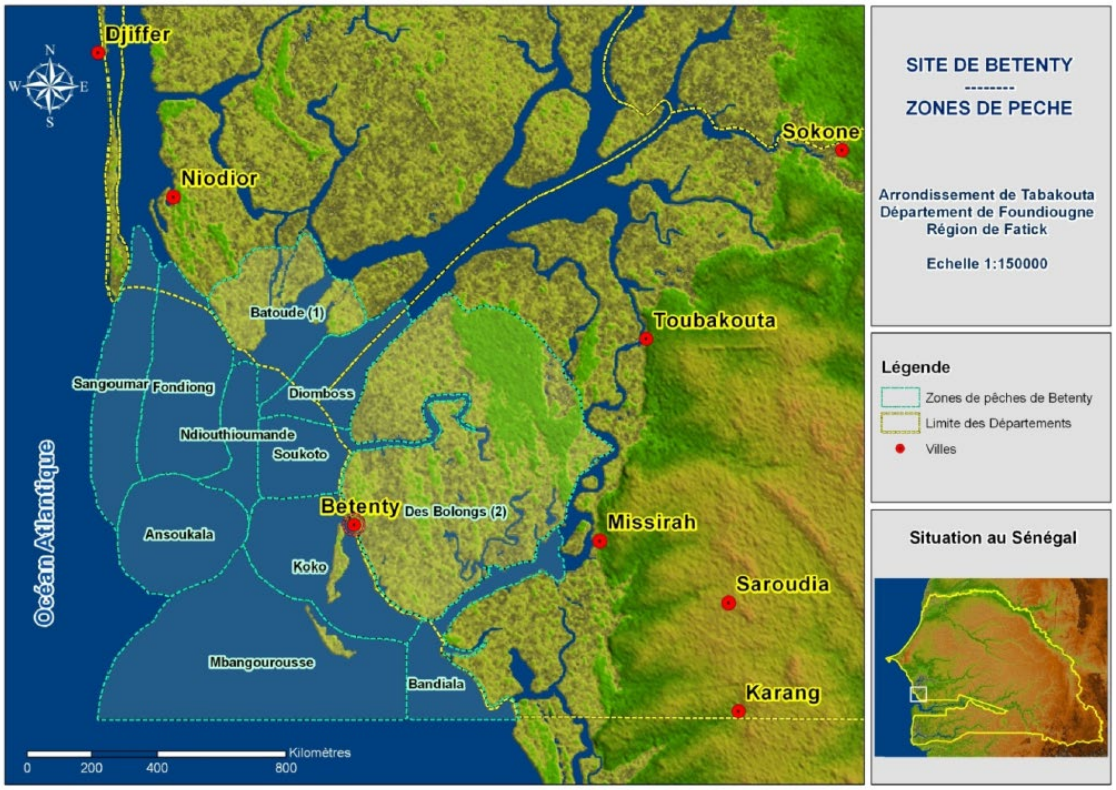
## d. Bétenty

### Figure A7. Bétenty




*Source:* Rapport ESEP synthèse 2008.

### Figure A8. Bétenty fishing sites




*Source:* ESEP report 2008.

Bétenty pertains to the rural community of Toubacouta, in the Fatick region, among an important network of rivers with an opening to the Atlantic Ocean. It is composed of multiple islands and is extremely rich in biodiversity due to the surrounding mangrove. The fishing center of Missirah regulates the villages of Bétenty, Missirah, Bassinkong and Djinack. Bétenty's biggest issue is its poor connection to markets and the difficulty to sell its fish products in a timely manner. In terms of income, the village is slightly above the national average. However, due to the lack of job opportunities, it ranks among the first villages in terms of emigration.

- In 2008 Bétenty had a population of 5,190 inhabitants, 90% of them are mandingue and 10% are sérère.
- There LFC estimates that there are around 1,500 fishers in Bétenty, with an average age of 36 years old. There are also 24 fishmongers, with an average age of 49 years old, who sell the fish products principally to Gambia, then Dakar and Djifer.
- Most of the women (80% of 1,400 women) collect seashells and alternate this activity with agriculture and fish processing.
- Shrimps is the main fishery.
- The fishing gear used is diverse but the main techniques are the use of félé-félé, LS, kili, and beach seine.
- Eco tourism started in 2007 in partnership with the IUCN. Agriculture is the main activity and employs 75% of the population, also working in livestock extensive farming. Fisheries is the second main activity and we can note the importance of the exploitation of forestry products.
- Living standards seem to have improved but many families still live below the national poverty line (CFAF 500/day).
- The principal issue is the absence of connection to markets, and people declared the construction of a 40km-long road to link Bétenty to Toubacouta as their priority. They also state the diminution of catches and the difficulty to conserve fishery products. According to them, the diminution of catches is primarily due to overexploitation and the use of illegal fishing gear.
- Co-management activities include the periodical closure of fishing in the area, the replacement of illegal fishnets, participatory surveillance, training and participatory research.

### e. Soumbédioune

Soumbédioune is a one-kilometer wide beach part of Dakar agglomeration. Like Ouakam, it is located in the Cap-Vert Peninsula. This area is both geographically limited and potentially extremely rich in terms of fisheries resources because of its rocky marine spawning grounds. The peninsula is home to the greatest artisanal fleet in Senegal, and provides 15–20% of national landings. However, it is under important urban pressure due to municipal waste and the increase in touristic seaside infrastructures. Water contamination and the use of destructive fishing techniques such as dynamite have considerably reduced the long-term productivity of demersal fisheries.

- Soumbédioune had a population of approximately 36,000 inhabitants in 2002.
- The number of fishers is estimated to 2,500; the main fishing gear used are hooks and lines, but like in Ouakam there seems to be an increase of underwater fishing.
- Around 500 fishmongers operate in Soumbédioune, as well as 50 processors.
- Soumbédioune is directly facing the Madeleine island, a marine protected area home to several species of birds and whales; this location offers potential for synergies in terms of environmental management, and some fishers converted to tourism.
- The main species targeted are thiof and octopus, especially between June and August.

### f. Bargny

Bargny is also located on the Cap-Vert Peninsula, about 30 kilometers away from Dakar. The coastal part of Bargny which gathers the fishing activities regroup the districts of Khembé, Bargny Guedji, Miname and Sendou. However, like Soumbédioune and Ouakam, Bargny has its own town mayor. It is close to an other fishing village involved inco-management activities: Yène Todd.

- The whole town of Bargny had an estimated population of 36,516 inhabitants in 2002.
- The number of fishers is thought to be very high, with approximately 4,000 people involved in the activity.
- The city installed artificial reefs to provide spawning grounds to several species

### g. On the Petite Côte: Yenne, Mballing, Nianing, Mbodiène and Pointe Sarène

The site of Yenne (or Yène) is located on the Petite Côte, Rufisque region, along with the villages of Mballing, Nianing, and Pointe Sarène. It is a very rural and isolated site composed of 7 neighboring villages: Yène Todd, Yène Guedji, Yène Kao, Nditakh, Niangal, Kelle, and Toubab-Dialaw.

- The population was estimated to 31,971 in 2002 for the seven different villages
- The number of fishers is around 3,700 and it is believed that 1,300 fishmongers operate between the 7 villages.
- There is a functional landing site.
- Also on the Petite Côte, Mballing is located 4 kilometers away from the city of Mbour, a major touristic destination. As such, the price of land of the area is increasing. Mballing is a relatively young village, extremely dynamic. The population was estimated to be around 6,000 people.
- The number of fishers is around 500, with an important population of processsors
- The main targeted species are octopus and tuna-like fish. The village respects biological rest periods for these species.

Little information is available for Nianing, Mbodiène, and Pointe-Sarène.

### h. Fimela-Ndangane

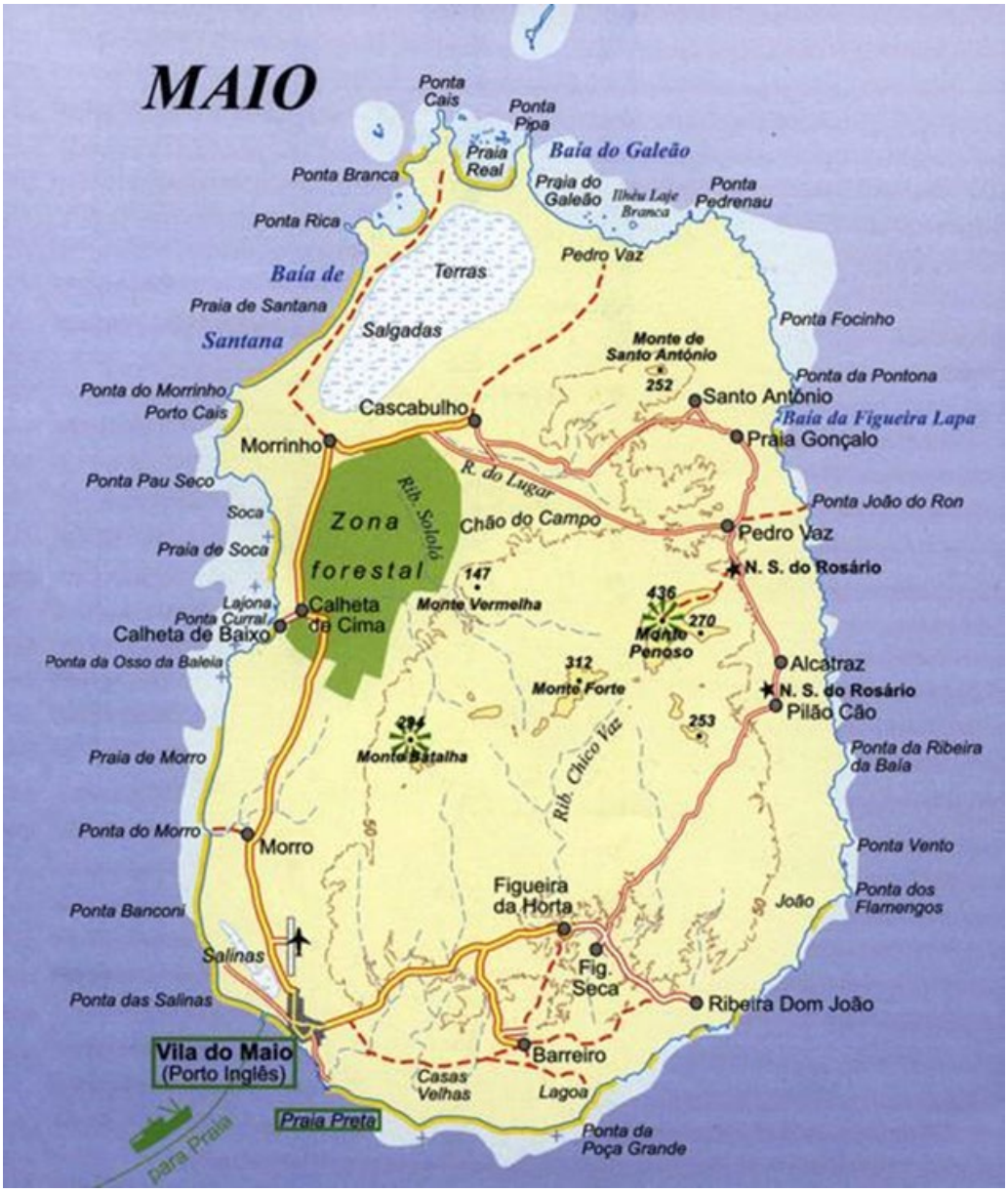
Fimela is located in the Saloum River Delta region, like Foundiougne and Bétenty. The region is not a real Delta per se, but is composed of 3 rias of marine waters, with different levels of salinity. Fimela-Ndangane are included in an area recognized as a RAMSAR site since 1984, due to its important mangroves and biodiversity. The region is an important spawning ground as well as a migration spot for many species; 114 fish species have been identified in the region.

- We were not able to collect information regarding the number of inhabitants and the fishers population. The main targeted species are ethmalosa, tilapia, shrimp, and mullets.
- An important seashell-collecting activity is conducted in the region and targets oysters and cockles (“bucardes”).
- Many migrants from Saint Louis, Guinea Bissau, and other regions come to the area to fish shrimps. This is the source of several conflicts with the indigenous population, as migrants are said to use destructive fishing techniques such as driftnets, set nets, and beach seines.
- The mangrove is under pressure because of deforestation and various species seem overexploited. In particular, for shrimps fishing, the nets’ mesh appears to be too small and to retain juvenile shrimps. Other risk factors include population growth, municipal waste and

contamination from the biggest agglomerations (Kaolack, Fatick, Foundiougne,…).

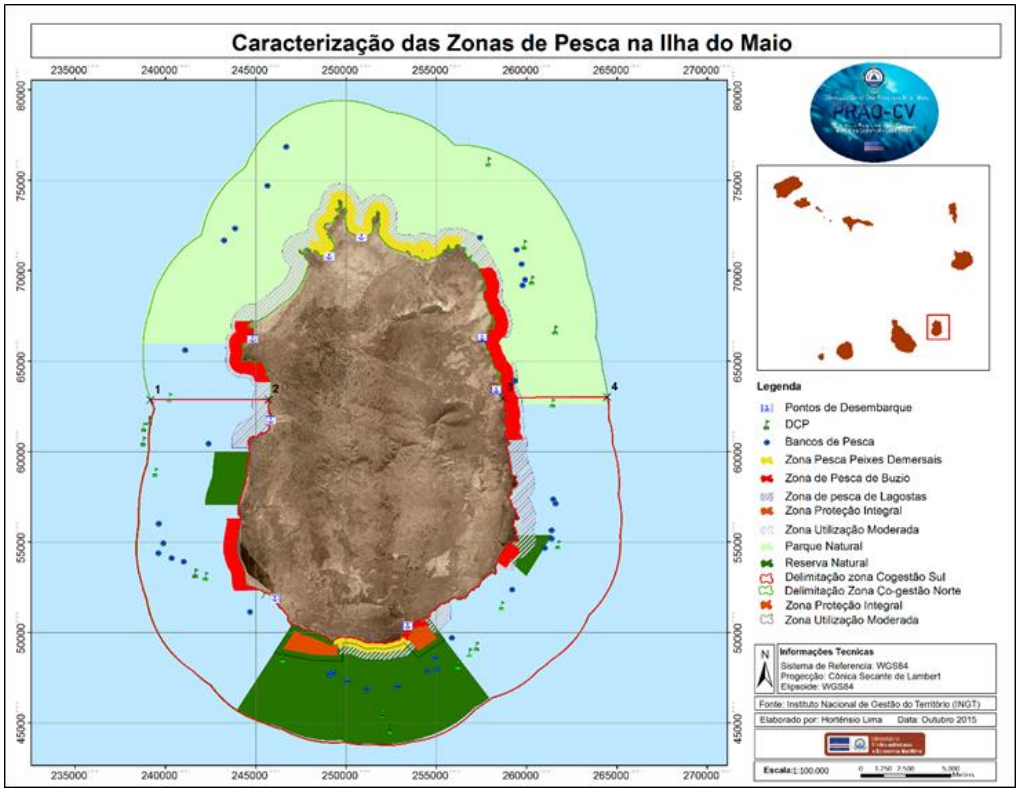
### i. Ilha do Maio

**Figure A9. Map of Maio island**




*Source:* Plan de cogestion des pêches de l'associação dos atores de cogestão dos Vindos do Norte.

**Figure A10. Fishing sites in Maio and project of regulated fishing zones**




*Source:* Plano de Cogestão Maio 2016

Among the Sotavento islands, Maio is 275km$^2$ and had a population of 6,952 inhabitants in 2010. The main sectors are fisheries and agriculture, with some coal and salt extraction activities. The two communities involved in co-management of fisheries are Vindos do Norte, which gathers the 7 northern villages of Calheta, Alcatraz, Pedro Vaz, Praia Gonçalo, Cascabulho, Morrinho, and Porto Cais, and the southern community of Vindos do Sul, which gathers the 3 villages of Porto Inglês, Ribeira Don João, and Barreiro. Due to the lack of disaggregated data, we proceed with a presentation of the entire island, which we believe will still give a good overview of the communities' situation.

- Maio is one of the archipelago's more isolated islands. There are few aerial and marine transportation possibilities and the harbor of Porto Inglês is inadequate to accommodate the ships. Praia remains the greatest market for the primary sector's production.
- There are around 150 fishers and 89 fishmongers on the island, with very few processors.
- The main fishing gear used are hooks and lines, with small nets to capture pelagic fish.
- A fishers' association has officially existed on Maio since 1977.
- There are different landing sites all around the island: Vila do Porto Inglês, Calheta, Pedro Vaz, Praia Gonçalo, Porto Cais, Laje Branca, Ribeira D. João, and Barreiro.

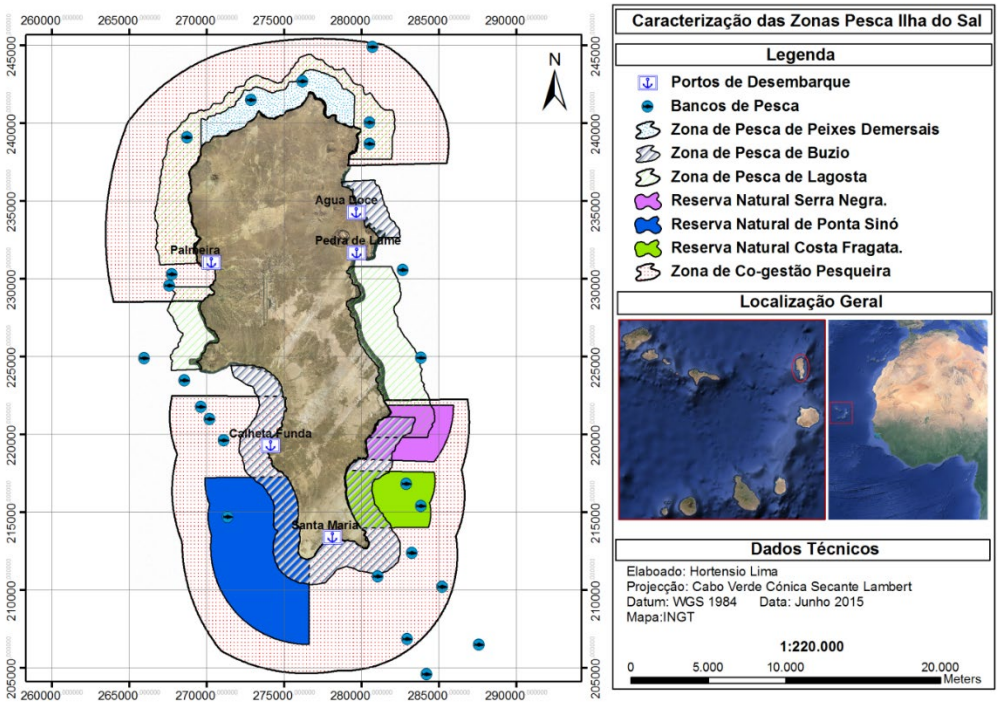
- Most of the fisheries products landed in Maio are either locally consumed or sold in Praia's principal market.
- Fishers are concerned with the decline in catches, which in their opinion is primarily due to an increase in the fishing pressure, and the catch of immature lobsters and egg-bearing female lobsters. An issue is also the presence of semi-industrial fishing vessels, which come within the coastal zone reserved to artisanal fisheries and employ destructive fishing techniques.
- Fishers stated that most important issues were the inability to conserve the products (there is no ice-making factory on the island), the lack of training about conservation techniques like fish smoking, the lack of funds to invest in more efficient product marketing strategies, and the lack of marine security gear like life vests and GPS.
- The communities' sub-projects have not started yet and are waiting for approval, but the proposed co-management activities encompass the creation of a 224km$^2$ area with alternate fishing between different zones. They also propose the implementation of management measures for selected fisheries, illegal, unreported, and unregulated (IUU) fishing awareness raising among local hostels, regulation of authorized fishing gear, the distribution of fishing licenses, participatory surveillance, and research and biodiversity conservation.

## j. Ilha do Sal

**Figure A11. Map of Sal island**


*Source*: Plan de cogestion des pêches de l'associação dos atores de cogestão do Palmeira.

**Figure A12. Fishing sites in Sal and project of regulated fishing zones**




*Source:* Plano de Cogestão Sal 2016.

Being one the two primary destinations of tourists, Sal is among the most dynamic islands of the country. It is well connected to the archipelago through an international airport, as well as with regular ships. Fisheries and tourism are the most important sector, and other activities include the salt industry. With 216km$^2$ and 25,657 inhabitants in 2010, most of the population is concentrated in the city of Espargos (17,403 inhabitants). The communities involved in fisheries co-management are Plameira (comprised of Espargos and Palmeira) for the Northern part of the island, and Santa Maria in the south.

- Fisheries is one the main activities with approximately 260 fishers, 80 fishmongers and 16 transformers.
- The main fishing gear used are hooks and lines, but around 45 fishers also dive to collect certain species
- A great part of the catch is sold to hotels and restaurants. Many young fishers also work part time in the tourism industry
- The co-management activities proposed are essentially the same than those proposed on Maio island; this comes from the fact that the exploited species are quite the same on the two islands, as well as the difficulties met by the fisheries sector. Regulated fishing areas have also been proposed with two different zones, north and south of the island.

# Appendix III. Sample of the Available Information about the Communities

Below is a sample of the available data on each site. We decided to only provide a sample, as the amount of information available is important and spans over dozens of documents.

## GIRMaC communities (all 4 sites)

Excerpt of data available from ESEP Synthese 2008

**Tableau 4 : Principales espèces débarquées au niveau des quatre sites pilotes**

| Ouakam | Ngaparou | Foundiougne | Bétenty |
|---|---|---|---|
| Seiche | Seiche | Ethmalose | Crevette |
| Volute | Poulpe | Mulet | Ethmalose |
| Poulpe | Langouste | Tilapia | Mulet |
| Chinchard | Sole | Crevette | Tilapia |
| Sars, | Chinchard | Baraccuda | Seiche |
| Mérous | Dorade | Mâchoiron | Cymbium |
| Diagramma | Pageot | Sompatt | |
| Bonites | Sars | Faux perroquet | |
| Raies | Cymbium | Capitaine | |
| Dentex | Espadon | Dorade | |
| Cigales | vivaneau | Otolithe | |
| Langoustes | | Mérous | |

**Tableau 5 : Effectifs des unités de pêche dans les quatre sites pilotes**

| | | Ouakam | Ngaparou | Foundiougne | Bétenty |
|---|---|---|---|---|---|
| **pêche avec pirogue** | Active | 134 | 238 | 36 | 110 |
| | Inactive | 26 | 8 | 4 | - |
| **Pêche à pied** | | 4 | 0 | 170* | 53* |
| **Total** | | 164 | 246 | 210 | 163 |

* *Les chiffres proviennent du Recensement National de la Pêche Artisanale Maritime Sénégalaise de 2006. Il sont relatifs aux seuls villagescités ci-dessus .*

**Tableau 6 : Effectifs des pêcheurs dans les quatre sites pilotes**

| | Ouakam | Ngaparou | Foundiougne | Bétenty |
|---|---|---|---|---|
| Pêcheurs à pirogue : | 366 | 246 | 180 | 111 |
| - dont pêcheurs allochtones | 6% | 22% | 28% | 17% |
| - dont pêcheurs saisonniers | 3% | 17 % | 22% | 28% |
| Manœuvres | 40 | | | |
| Ramasseurs | 40 | | | 25 permanentes |
| Pêcheurs à pied | 15* | 0 | 170 | 53 |

* Chiffre sensiblement différent des résultats du recensement de 2006

**Tableau 7 : Emplois dans la pêche dans les quatre sites pilotes**

| | Ouakam | Ngaparou | Foundiougne | Bétenty |
|---|---|---|---|---|
| Age moyen | 31 | 30 | 35 | 36 |
| Ancienneté (en années) | 17 | 14 | 13 | 18 |
| Emplois/Pirogue | 9 | 6 | 3 | 8 |

**Tableau 8 : Volume des débarquements mensuels de poisson (en tonne)**

| | Ouakam | Ngaparou | Foundiougne* | Bétenty |
|---|---|---|---|---|
| Production Min | 20 | 62 | 250 | ND |
| Production Max | 46 | 170 | 330 | ND |

**Tableau 9 : Destination moyenne de la production de la pêche (En %)**

| | Ouakam | Ngaparou | Foundiougne* | Bétenty | Moyenne |
|---|---|---|---|---|---|
| Consommation locale en frais | 37 | 7 | 19 | 10 | 18 |
| Mareyage vers les marchés du pays | 0 | 45 | 33 | 75 | 38 |
| Mareyage vers les usines | 60 | 37 | 0 | 0 | 24 |
| Transformation artisanale | 3 | 11 | 48 | 15 | 19 |

* Il s'agit de la catégorie de poisson. Les crustacés sont majoritairement destinés au mareyage et les mollusques à la transformation artisanale.

**Tableau 10 : Bénéfice annuel net d'une pirogue (en Fcfa)**

| | Ouakam | Ngaparou | Foundiougne | Bétenty |
|---|---|---|---|---|
| Bénéfice net | 3.583.185 | 2.852.566 | 6.269.657 | 11.049.000 |

**Tableau 29 : Structures de concertation et d'encadrement dans les sites pilotes du GIRMaC**

| Site | Organisation |
|---|---|
| **Ouakam** | Comité Local des Pêcheurs (regroupe tous les pêcheurs) |
| | Association de Pêcheurs de Ouakam |
| | Groupements d'Intérêt Economique |
| | Groupements de Promotion Féminine |
| | Associations Sportives et Culturelles |
| | Associations de développement |
| | Mutuelles d'épargne et de crédit |
| | Mutuelles de santé |
| **Ngaparou** | Comité Local des Pêcheurs |
| | Une fédération des GIE de Ngaparou regroupant 17 GIE de mareyeurs et de femmes transformatrices |
| | Trois GIE de mareyeurs comptant chacun 4 à 5 membres |
| | Un GIE des pêcheurs (30 membres) |
| | Collectif National des Pêcheurs Artisanaux |
| | Une Association Sportive et Culturelle |
| | Cinq Associations religieuses (dahira) |
| **Foundiougne** | Comité Local des Pêcheurs |
| | Comité Local de Pêche Artisanale |
| | Comité de plage (non fonctionnel) |
| | GIE « Gaalgui » pour l'exploitation de la crevette (250 pêcheurs et 45 mareyeurs) |
| | Cinq GIE de pêcheurs organisés en Union Locale |
| | Trois GIE de femmes transformatrices |
| **Bétenty** | Comité Local des Pêcheurs |
| | Comité de plage (non fonctionnel) |
| | Deux Groupements de Promotion Féminine (50 membres chacun) |
| | Cinq GIE pour la pêche |

**Change in Catch Volume and Market Price over time in co-management pilot sites (2005-2007)**

| Ouakam | | Year | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Targeted species** | | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** |
| "Thiof" Epinephelus aenus | Quantity of catches (Kg) | N/A | N/A | 10,100 | 13,960 | 22,200 | 17,200 | 23,300 |
| | Commercial value (FCFA) | N/A | N/A | 38.020,000 | 52,431,000 | 76,250 | 55,540,000 | 85,511,000 |
| | Average price/unit (FCFA/Kg) | N/A | N/A | 3,670 | 3,980 | 3,380 | 3,620 | 4,500 |
| **Ngaparou** | | **Year** | | | | | | |
| **Targeted species** | | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** |
| Green Lobster | Quantity of catches (Kg) | 770 | 700 | 1,575 | 1,561 | 1,645 | 2,835 | 4,095 |
| | Commercial value (FCFA) | 5,075,000 | 4,515,000 | 11,200,000 | 11,161,500 | 11,322,500 | 13,272,000 | 28,962,500 |
| | Average price/unit (FCFA/Kg) | 4,900 | 6,000 | 6,270 | 6,850 | 5,727 | 5,700 | 6,725 |
| **Betenty** | | **Year** | | | | | | |
| **Targeted species** | | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** |
| Coastal shrimp | Quantity of catches (Kg) | 365,700 | 336,200 | 340,700 | 328,900 | 296,900 | 237,200 | 229,400 |
| | Commercial value (FCFA12) | 146,280,000 | 184,910,000 | 204,420,000 | 197,340,000 | 207,830,000 | 213,480,000 | 183,520,000 |
| | Average price/unit (FCFA/Kg) | 400 | 550 | 600 | 600 | 700 | 900 | 800 |

Source: Data collected at the pilot co-management sites by the fishing communities in partnership with the local fisheries administration, and data validated by the Fisheries Authorities at regional or central level.

*Source:* IRC GiRMaC

**Table 3.1.: CPUE and the revenue per vessel in the four area-based co-management pilot sites (2005-2011)**

| | Sites | Targeted, high-commercial value demersal species | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|---|---|
| Total harvest per year (Kg) | Ouakam | Thiof | n/a | n/a | 10,100 | 13,960 | 22,200 | 17,200 | 23,300 |
| | | Green lobster | n/a | n/a | 1,300 | 1,500 | 1,850 | 5,050 | 4,800 |
| | Ngaparou | Green lobster | 770 | 700 | 1,575 | 1,561 | 1,645 | 2,835 | 4,095 |
| | Foundiougne | coastal white shrimp | n/a | n/a | 343,370 | 287,190 | 362,835 | 274,232 | 431,625 |
| | Betenty | coastal white shrimp | 365,700 | 336,200 | 340,700 | 328,900 | 296,900 | 237,200 | 229,400 |
| Number of operating small-scale vessels | Ouakam | Thiof | n/a | n/a | 135 | 133 | 142 | 140 | 140 |
| | | Green lobster | n/a | n/a | 135 | 133 | 142 | 140 | 140 |
| | Ngaparou | Green lobster | 103 | 140 | 83 | 90 | 103 | 105 | 103 |
| | Foundiougne | coastal white shrimp | n/a | n/a | 127 | 120 | 142 | 160 | 300 |
| | Betenty | coastal white shrimp | 65 | 59 | 62 | 53 | 57 | 51 | 59 |
| Total harvest per vessel and year (Kg/small-scale vessel)(CPUE) | Ouakam | Thiof | n/a | n/a | 75 | 105 | 156 | 123 | 166 |
| | | Green lobster | n/a | n/a | 10 | 11 | 13 | 36 | 34 |
| | Ngaparou | Green lobster | 7 | 5 | 19 | 17 | 16 | 27 | 40 |
| | Foundiougne | coastal white shrimp | n/a | n/a | 2,704 | 2,393 | 2,555 | 1,714 | 1,439 |
| | Betenty | coastal white shrimp | 5,626 | 5,698 | 5,495 | 6,206 | 5,209 | 4,651 | 3,888 |
| Average landed prices (XOF/Kg) | Ouakam | Thiof | n/a | n/a | 3,670 | 3,980 | 3,380 | 3,620 | 4,500 |
| | | Green lobster | n/a | n/a | 8,500 | 8,340 | 5,000 | 5,000 | 5,500 |
| | Ngaparou | Green lobster | 4,900 | 6,000 | 6,270 | 6,850 | 5,730 | 5,700 | 6,730 |
| | Foundiougne | coastal white shrimp | n/a | n/a | 600 | 600 | 550 | 500 | 750 |
| | Betenty | coastal white shrimp | 400 | 550 | 600 | 600 | 700 | 900 | 800 |
| Total revenue per year (XOF) | Ouakam | Thiof | n/a | n/a | 37,067,000 | 55,560,800 | 75,036,000 | 62,264,000 | 104,850,000 |
| | | Green lobster | n/a | n/a | 11,050,000 | 12,510,000 | 9,250,000 | 25,250,000 | 26,400,000 |
| | Ngaparou | Green lobster | 3,773,000 | 4,200,000 | 9,875,250 | 10,692,850 | 9,425,850 | 16,159,500 | 27,559,350 |
| | Foundiougne | coastal white shrimp | n/a | n/a | 206,022,000 | 172,314,000 | 199,559,250 | 137,116,000 | 323,718,750 |
| | Betenty | coastal white shrimp | 146,280,000 | 184,910,000 | 204,420,000 | 197,340,000 | 207,830,000 | 213,480,000 | 183,520,000 |
| Total revenue per small-scale vessel per year (XOF/vessel) | Ouakam | Thiof | n/a | n/a | 274,570 | 417,750 | 528,423 | 444,743 | 748,929 |
| | | Green lobster | n/a | n/a | 81,852 | 94,060 | 65,141 | 180,357 | 188,571 |
| | Ngaparou | Green lobster | 36,631 | 30,000 | 118,979 | 118,809 | 91,513 | 153,900 | 267,567 |
| | Foundiougne | coastal white shrimp | n/a | n/a | 1,622,220 | 1,435,950 | 1,405,347 | 856,975 | 1,079,063 |
| | Betenty | coastal white shrimp | 2,250,462 | 3,134,068 | 3,297,097 | 3,723,396 | 3,646,140 | 4,185,882 | 3,110,508 |

Source: Local offices of Department of Fisheries Control and the LFCs.

**Ouakam**

Excerpt from ESEP Synthese 2008

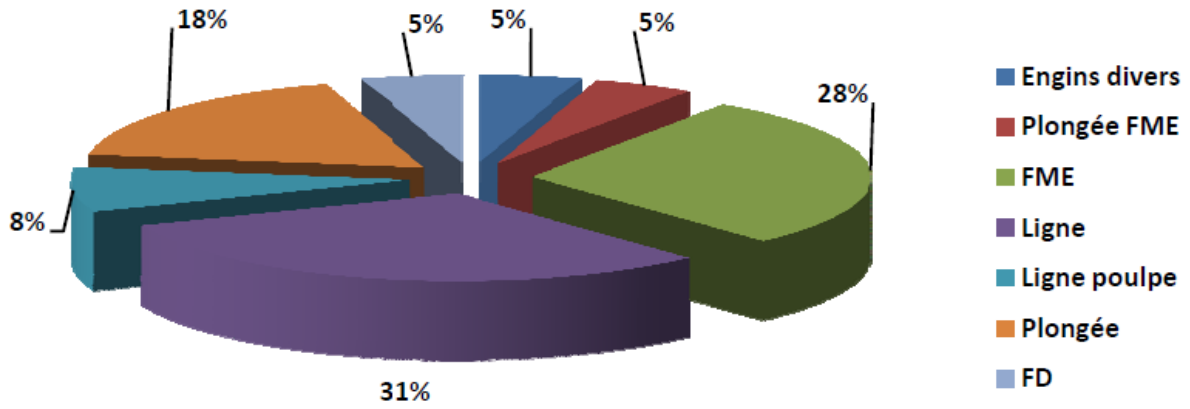



**Figure 3 : Techniques de pêche pratiquées à Ouakam**

**Tableau 17 : Evolution mensuelle des indicateurs de l'EP au site de Ouakam**

| Paramètre | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Moy. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pirogues présentes dans le site | 165 | 165 | 165 | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 | **157,5** |
| Jours de pêche par pirogue et par mois | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | **25** |
| Durée de la sortie de pêche (en heures) | 5h45 | 5h45 | 5h45 | 5h45 | 5h45 | 5h45 | 5h45 | 5h45 | 5h45 | 5h45 | 5h45 | 5h45 | **5h45** |

**Tableau 18: Evolution mensuelle de la production par sortie de pêche et par pirogue au site de Ouakam (en Kg)**

| Espèce | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Moy. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sar | 200 | 200 | 200 | 150 | 100 | 20 | 20 | 20 | 20 | 30 | 200 | 200 | 113 |
| Poulpe | 15 | 15 | 15 | 15 | 15 | 5 | 4 | 4 | 4 | 4 | 15 | 15 | 10,5 |
| Badèche | 15 | 15 | 15 | 15 | 15 | 5 | 4 | 4 | 4 | 4 | 15 | 15 | 10,5 |
| Cigale | 1 | 1 | 0 | 0 | 8 | 8 | 8 | 8 | 4 | 4 | 4 | 4 | 4,1 |
| Dentex | 6 | 6 | 6 | 6 | 8 | 8 | 8 | 5 | 5 | 5 | 6 | 6 | 6,2 |
| Moyenne globale* | 15 | 15 | 17 | 17 | 17 | 9 | 10 | 10 | 10 | 10 | 67 | 64 | 21,7 |

**Tableau 25 : Localisation géographique des zones de pêche et des principales espèces cibles au site de Ouakam**

| Zone de pêche | | Localisation | | Périodes de forte fréquentation (mois) | | | | | | | | | | | | Principales espèces Cibles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N° | Appellation | Distance (heures/Miles) | Orientation | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| 1 | Dieuneguene | 0,32 miles | Nord-ouest | x | x | x | x | x | | | | | | | x | Mérou, badèche, poulpe |
| 2 | Yaboura | 0,32 miles | Ouest | x | x | x | x | x | | | | | | | x | Mérou, badèche, poulpe, chinchard |
| 3 | Kherou Mame | 1,61 miles | Ouest | x | x | x | x | x | | | | | | | x | Mérou, badèche, poulpe, diagramme, cigale, langouste |
| 4 | Dar-dar | 1,07 miles | Ouest | x | x | x | x | x | | | | | | | x | Mérou, badèche, poulpe, diagramme, cigale, langouste |
| 5 | Tegal | 1,07 miles | Nord-ouest | x | x | x | x | x | | | | | | | x | Mérou, badèche, poulpe, diagramme, cigale, langouste |
| 6 | Sibanor | 3,23 miles | Nord-ouest (360°) | x | x | x | x | x | | | | | | | x | Mérou, badèche, sar, chinchard, seiche, poulpe |
| 7 | Pakh | 3,77 miles | Nord Nord-ouest (360°) | x | x | x | x | x | x | x | x | x | x | x | x | Mérou B., sar, badèche, vivaneau, courbine, cigale |
| 8 | Kaungali | 4,04 miles | Nord Nord-ouest (360°) | x | x | x | x | x | | | | | | | x | Langouste, cigale, diagramme, mérou B, badèche |
| 9 | Ougue Sikoungali | 4,04 miles | Ouest | | | | | | x | x | x | x | x | x | x | Mérou J., badèche, diagramme, pristipome |
| 10 | Beureumandoumbe | 8,09 miles | Ouest | | | | | | x | x | x | x | x | x | x | Fiatole, courbine, badèche, langouste |
| 11 | Souroumle | 0,53 miles | Sud-ouest | x | x | x | x | x | x | x | x | x | x | x | x | Sole, badèche, Mérou B |
| 12 | Reupeu | 0,53 miles | Sud | x | x | x | x | x | x | x | x | x | x | x | x | Sole, langouste, baraccuda, calmar |

**Tableau 8: Effectifs des unités de pêche dans les centres de débarquement du poste de contrôle de Yoff**

| | | Unité de pêche avec pirogue | | | Unité de pêche à pieds | | | Total |
|---|---|---|---|---|---|---|---|---|
| | | Active | Inactive | Indéterminé | Active | Inactive | Indéterminé | |
| Enquête Pêche Artisanale 2006 | Yoff | 397 | 158 | 6 | 45 | 1 | 2 | 609 |
| | Ngor | 153 | 5 | 10 | 1 | | | 169 |
| | Ouakam | 121 | 26 | | 4 | | | 151 |
| | Total poste de contrôle | 671 | 189 | 16 | 50 | 1 | 2 | 929 |
| Enquête Etude GIRMaC (Ouakam) | | 114 | 26 | - | - | - | - | 140 |

*Source : CRODT/ISRA, 2006 et enquête GIRMaC*

Tableau 9: Catégories et effectifs des engins de pêche utilisés à Ouakam

| | Filet maillant encerclant | Filet dormant de fond | Filet dormant de surface | Ligne seiche | Ligne simple motorisée | Ligne simple non motorisée | Ligne poulpe | Ligne glacière | Ligne normale | Pêche sous marine | divers |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Recensement 2006 | 10 | 33 | 31 | 53 | | | 30 | 3 | | 4 | 1 |
| Enquête complémentaire 2008 | 12 | 50 | 100 | | 12 | 15 | 120 | - | - | 5 | - |

*Source : CRODT/ISRA, 2006 et enquête étude GIRMAC, 2008*

Tableau 10: Types et effectifs des engins de pêche utilisés au niveau du poste de contrôle de Yoff

| | stpf | spn | fme | fmds | fdf | fds | tm | cas | ln | ltr | ls | lp | lg | pal | ep | psm | div |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yoff | 16 | 5 | 1 | 2 | 14 | 4 | | 2 | 292 | 98 | 4 | 131 | 23 | 12 | 5 | 56 | 4 |
| Ngor | | 2 | | | | | 9 | | 148 | 6 | | 1 | | 2 | | 2 | |
| Ouakam | | | 10 | | 33 | 31 | | | | | 53 | 30 | 3 | | | 4 | 1 |

*Source : CRODT/ISRA, 2006*

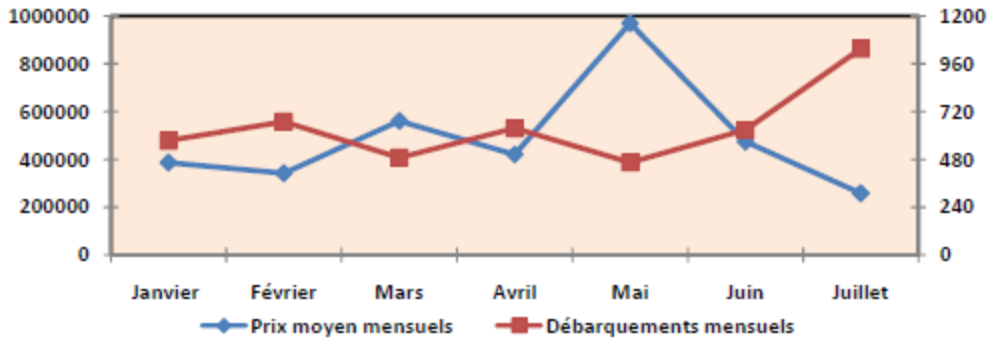



**Figure 7: Evolution de la production des principales ressources exploitées au site de Ouakam (En Kg)**

Excerpt from ESEP Ouakam

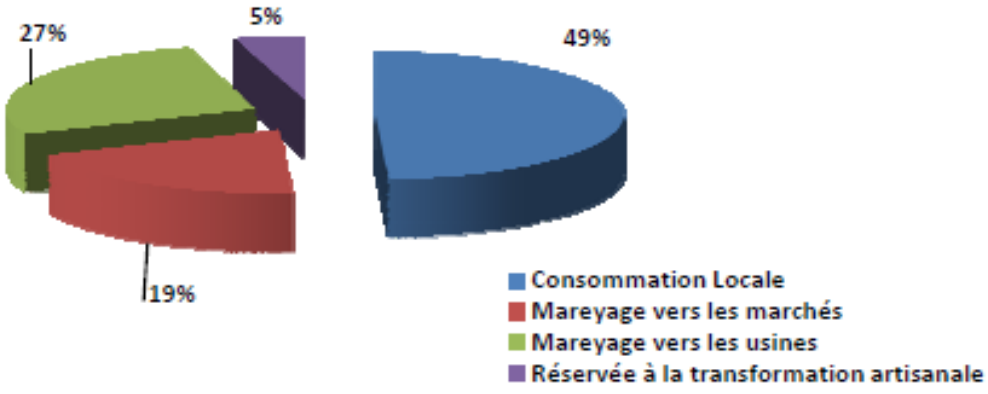



**Figure 8: Ventilation des débarquements au niveau du poste de contrôle de Yoff (Janvier à Juillet 2007)**

Tableau 7: Données relatives à l'équipement de pêche à Ouakam

| | Durée de vie (Années) | Age moyen (Années) | Taux d'amortissement | Durée restante pour l'amortissement (Années) | Coût (Fcfa) | Montant de l'amortissement (Fcfa) |
|---|---|---|---|---|---|---|
| Pirogue | 8 | 6 | 0,13 | 2 | 410.976 | 52.039 |
| Moteur | 11 | 6 | 0,09 | 5 | 825.278 | 75.714 |
| Engin | 2 | 4 | 0,50 | -2 | 388.328 | 194.606 |
| Gilet | 3 | 3 | 0,33 | 0 | 24.059 | 7.948 |

Tableau 8: Comparaison entre la rémunération des facteurset leur amortissement

| | Rémunération réelle (Fcfa) | Amortissement | Suramortissement |
|---|---|---|---|
| Pirogue | 1.519.470 | 52.039 | 1.467.431 |
| Moteur | 1.640.385 | 75.714 | 1.564.672 |
| Engin | 2.201.438 | 194.606 | 2.006.831 |

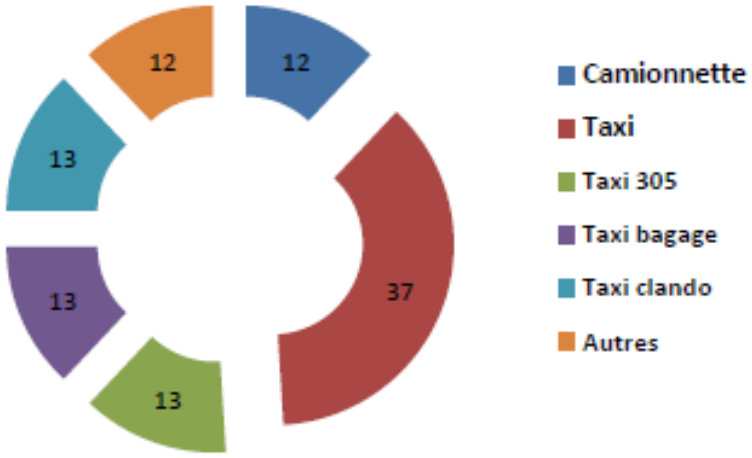



Figure 9: Moyens de transport de poisson à Ouakam

Tableau 9: Données sur le mareyage à Ouakam

| | Nombre de mareyeurs | | Quantité achetée (kg) | | Prix d'achat (Fcfa) | | Prix de revente (Fcfa) | |
|---|---|---|---|---|---|---|---|---|
| Espèces commercialisées | Espèce 1[4] | Espèce 2 | Espèce 1 | Espèce 2 | Espèce 1 | Espèce 2 | Espèce 1 | Espèce 2 |
| Cigale | 1 | 1 | 20 | 30 | 10.000 | 10.500 | 10.300 | 11.000 |
| Langouste | 1 | 1 | 10 | 30 | 7.000 | 6.000 | 7.800 | 6.300 |
| Poulpe | 1 | | 20 | | 1.450 | | 1.800 | |
| Poulpe | 1 | | 100 | | 2.000 | | 2.100 | |
| Requin | 1 | | 300 | | 100 | | 125 | |
| Sar blanc | 1 | | 200 | | 2.000 | | 2.100 | |
| Seiche | 1 | | 75 | | 1.400 | | 1.600 | |
| Mulet | | 1 | | 200 | | 1.250 | | 1.300 |
| Divers | | 1 | | 100 | | 2.000 | | 2.200 |

Tableau 10: Lieux de vente des espèces 1 et 2[5]

| | Autres | Dakar | Dakar Mbour | Djifer | Gambie | Grande Epicerie | Mbour | Mbour Dakar | Nga parou | Saint dakar | Soumbe-dioune |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Espèce 1 | 3 | 4 | - | - | - | 1 | - | - | - | - | 1 |
| Espèce 2 | 6 | 1 | 1 | - | - | - | - | - | - | - | 1 |

[4] Le numéro de l'espèce désigne son ordre d'importance pour un mareyeur donné (Exemple : Espèce 1 désigne la première espèce ciblée par le mareyeur concerné).
[5] Idem

Tableau 11: Marge commerciale par espèce commercialisée

| | Quantité (Kg) | Prix d'achat (FCFA) | Prix de revente (FCFA) | Marge commerciale |
|---|---|---|---|---|
| Mareyeur 1 | | | | 20.000 |
| Sar Blanc | 200 | 2.000 | 2.100 | 20.000 |
| Mareyeur 2 | | | | 35.000 |
| Poulpe | 100 | 1.450 | 1.800 | 35.000 |
| Mareyeur 3 | | | | 17.500 |
| Requin | 300 | 100 | 125 | 7.500 |
| Mulet | 200 | 1.250 | 1.300 | 10.000 |
| Mareyeur 4 | | | | 10.000 |
| Poulpe | 100 | 2.000 | 2.100 | 10.000 |
| Mareyeur 5 | | | | 23.000 |
| Langouste | 10 | 7.000 | 7.800 | 8.000 |
| Cigale | 30 | 10.500 | 11.000 | 15.000 |
| Mareyeur 6 | | | | 15.000 |
| Cigale | 20 | 10.000 | 10.300 | 6.000 |
| Langouste | 30 | 6.000 | 6.300 | 9.000 |
| Mareyeur 7 | | | | 35.000 |
| Seiche | 75 | 1.400 | 1.600 | 15.000 |
| Divers | 100 | 2.000 | 2.200 | 20.000 |

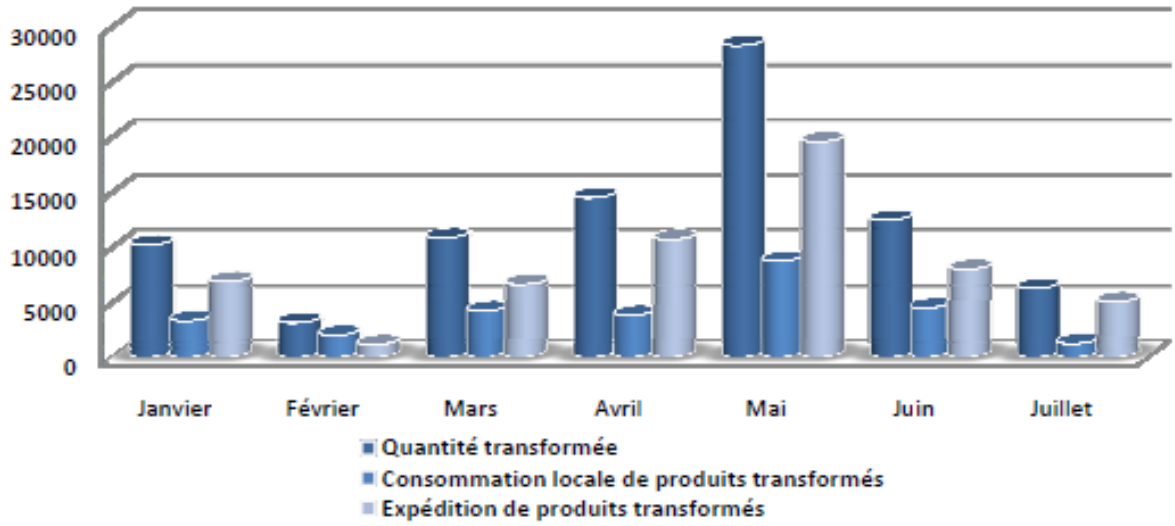



**Figure 10: Production du poisson transformé au niveau du poste de contrôle de Yoff et sa ventilation pour l'année 2007 (En poids sec)**

**Tableau 12 : Attentes vis-à-vis des programmes de cogestion à Ouakam**

| | Effectifs | Pourcentage |
|---|---|---|
| Préservation des ressources | 31 | 32 |
| Amélioration des conditions de pêche | 9 | 9 |
| Augmentation des rendements / rentabilité | 4 | 4 |
| Bonne gestion des ressources | 22 | 23 |
| Amélioration de la qualité des espèces | 2 | 2 |
| Développement /promotion de la pêche | 14 | 14 |
| Gestion des conflits | 9 | 9 |
| Pas de résultats | 4 | 4 |
| Autres | 3 | 3 |
| **Total** | 98 | **100** |

| Indicateur | | Signification | Valeur |
|---|---|---|---|
| Population du site | | Taille de la population du site pilote ou du village traditionnel de pêche dans le cas d'une grande agglomération | Village traditionnel : 27.000 habitants (2004) |
| Nombre de ménages | | Idem | Village traditionnel : 3.270 ménages (2004) |
| Taux de scolarisation | | Proportion de la population ayant franchi le cap de l'enseignement primaire | 74% |
| Effectif pêcheurs à pirogue | | Effectif total des pêcheurs exploitant des pirogues | 366 |
| Pêcheurs à pirogue | Autochtones | Population totale des pêcheurs du site | 94% |
| | Allochtones | Population totale des pêcheurs immigrés | 6% |
| Pêcheurs à pied | | Population totale des pêcheurs à pied | 15 |
| Ramasseuses/Ramasseurs | | Population totale des ramasseuses (ou ramasseurs) | 40 |
| Mareyeurs | | Population totale de mareyeurs | 15 |
| Micro mareyeurs | | Population totale de micro mareyeurs | |
| Transformatrices | | Population totale de transformatrices | 2 |
| Total activités | | Total des activités liées à la pêche | 500 |

*Etat de référence : Ressources naturelles 1/2*

| Indicateur | | Signification | Valeur |
|---|---|---|---|
| Biodiversité | Richesse spécifique des peuplements | Inventaire des espèces présentes dans les limites de la zone de Projet | Cf. Rapport de Synthèse, Tableau 25 |
| | Structure des peuplements | Importance relative des espèces les unes par rapport aux autres | Cf. Tableau 6 |
| | Stocks des principales espèces exploitées | Volume de biomasse ou potentiel de production des principales espèces cibles | |
| Limites de la zone d'activité | Lieu de pêche le plus éloigné | Localisation du lieu de pêche le plus éloigné en miles ou durée de trajet | 400 m de fond |
| | Superficie de la zone d'activité | Superficie en ha/Km² de la zone d'activité des unités de pêche | |
| | Durée moyenne sortie de pêche | Durée moyenne de la sortie de pêche toutes techniques de pêche confondues | |
| Indices d'abondance-Durée de sortie | Idem | Idem | |
| | Durée sortie de pêche-Ligne simple | Durée moyenne de la sortie de pêche | 9 heures |
| | Durée sortie de pêche-Ligne traîne | Durée moyenne de la sortie de pêche | 5 heures |
| | Durée sortie de pêche-Palangre espadon | Durée moyenne de la sortie de pêche | |
| | Durée sortie de pêche-Filet dormant | Durée moyenne de la sortie de pêche | 5 heures |
| | Durée sortie de pêche-Filet dérivant de surface | Durée moyenne de la sortie de pêche | |
| | Durée sortie de pêche-Filet maillant encerclant | Durée moyenne de la sortie de pêche | 5 heures |
| | Durée sortie de pêche-Filet maillant dormant | Durée moyenne de la sortie de pêche | 6 heures |
| | Durée sortie de pêche-Senne de plage | Durée moyenne de la sortie de pêche | |
| | Durée sortie de pêche-kili | Durée moyenne de la sortie de pêche | |
| | Durée sortie de pêche-Cueillette et ramassage | Durée moyenne de la sortie de pêche | |

*Etat de référence : Ressources naturelles 2/2*

| Indicateur | | Signification | Valeur |
|---|---|---|---|
| Indices d'abondance-Captures par unité d'effort | Espèces importantes | Principales espèces débarquées en volume | Une vingtaine d'espèces cibles. Poissons : sardinelles, chinchard, daurades grises, sars, mérous, thonidés, badèches et voiliers. Céphalopodes : poulpe, seiche. Crustacés : cigales, langoustes. |
| | Capture par sortie de pêche | Volume moyen des captures par sortie de pêche (En Kg) toutes espèces confondues | 21,7 |
| | Capture par sortie de pêche - Dentex | Volume des captures par sortie de pêche | 6,2 |
| | Capture par sortie de pêche – Sar | Volume des captures par sortie de pêche | 113 |
| | Capture par sortie de pêche - Poulpe | Volume des captures par sortie de pêche | 10,5 |
| | Capture par sortie de pêche - Seiche | Volume des captures par sortie de pêche | |
| | Capture par sortie de pêche – Badèche | Volume des captures par sortie de pêche | 10,5 |
| | Capture par sortie de pêche - Cigale | Volume des captures par sortie de pêche | 4,1 |
| Effort de pêche | Unités de pêche avec pirogue | Effectif des unités de pêches avec pirogue actives dans le site | 165 |
| | Unités de pêche sans pirogue | Effectif des unités de pêches à pied actives dans le site | 15 |
| | Pirogues autochtones | Effectif des pirogues autochtones présentes dans le site | |
| | Pirogues allochtones | Effectif des pirogues allochtones en visite dans le site | |
| | Engins de pêche | Effectif des engins de pêche utilisés dans le site | 12 filets maillants encerclants ; 100 filets dormants de surface;<br>12 lignes simples motorisées ou palangre de traîne;<br>120 lignes poulpe;<br>15 Lignes simples non motorisées;<br>50 filets dormants de fond;<br>5 pirogues pour la pêche sous marine ;<br>100 plongeurs individuels |
| | Nombre de sorties | Nombre moyen de sorties de pêche par an | 238 |

*Etat de référence : Socio économie*

| Indicateur | | Signification | Valeur |
|---|---|---|---|
| Emplois et revenus | Taux de chômage | Proportion de la population en âge d'activité et sans travail fixe | Taux de chômage relativement élevé |
| | Taux de pauvreté | Proportion de la population dont la dépense journalière est inférieure à 500Fcfa | Niveau de vie des populations est relativement plus élevé que la moyenne nationale |
| | Revenu pêche | Revenu individuel annuel généré par la pêche | 720.000 Fcfa |
| | Autres revenus | Revenu individuel annuel généré par des activités autres que la pêche | 480.000 Fcfa |
| | Revenu pêche pirogue | Revenu journalier moyen par pirogue | 60.000 Fcfa |
| | Revenu pêche à pied | Revenu journalier moyen par pêcheur à pied | |
| | Revenu ramassage coquillages | Revenu journalier moyen par ramasseuse / ramasseur | |
| | Revenu mareyeur | Revenu mensuel mareyeur | |
| | Revenu micro mareyeur | Revenu mensuel micro mareyeur | |
| Production et débouchés | Production globale | Production globale du site toutes espèces confondues | 20 à 46 tonnes/mois |
| | Consommation locale | Quantité consommée dans la région dont fait partie le site | 37% |
| | Mareyage marchés | Quantité commercialisée en dehors de la région dont fait partie le site | 60% |
| | Transformation | Quantité de poisson transformée dans le site et issue de la pêche locale | 3% |
| | Prix poisson | Prix moyen des 5 espèces principales | 500 Fcfa (dorade grise, ...) à 10.000 (Cigale) |
| Rentabilité | Rentabilité pêche pirogue | Bénéfice annuel net d'une pirogue | 3.580.000 Fcfa |
| | Rentabilité pêche à pied | Revenu annuel d'une unité de pêche à pied | |
| | Rentabilité mareyage | Bénéfice annuel net d'un mareyeur | 7.500 à 35.000 Fcfa/Opération |
| | Rentabilité ramassage | Revenu annuel d'une ramasseuse | |
| | Rentabilité transformation | Bénéfice annuel net d'une unité de transformation | |

## Etat de référence : Gouvernance locale et de cogestion

| Indicateur | Signification | Valeur |
|---|---|---|
| Effectif GIE | Effectif des GIE actifs dans le site | 5 |
| Adhésion GIE | Proportion des professionnels organisés dans des GIE | |
| Effectif Associations professionnelles | Effectif des associations professionnelles actives dans le site | 3 |
| Adhésion Associations professionnelles | Proportion des professionnels organisés dans des associations professionnelles | |
| Adhésion aux initiatives cogestion | Proportion des professionnels qui adhérent aux initiatives de cogestion | |

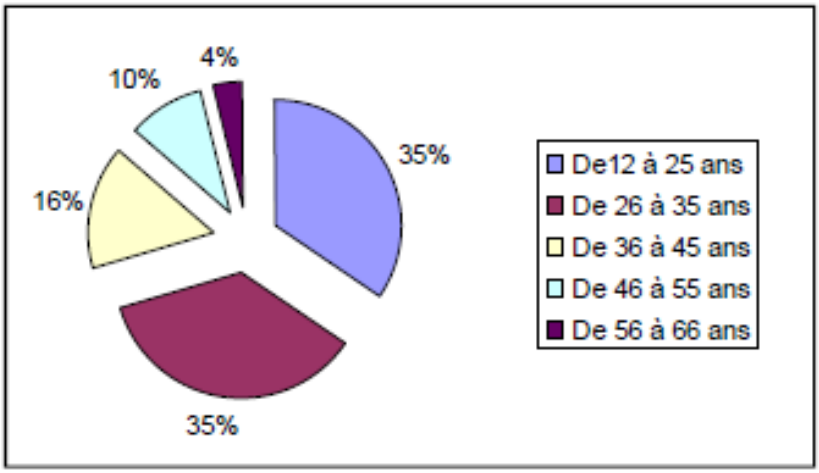
**Annexe 1: Liste des espèces débarquées au niveau du poste de contrôle de Yoff en Janvier 2007**

| | Débarquements (Kg) | Prix moyen au Kg (Fcfa) | Valeur Commerciale Estimée (Fcfa) |
|---|---|---|---|
| Badèche (Mecteroperca rubra) | | | |
| Baliste (Balistes carolinensis) | 100 | 100 | 10000 |
| Bar tâcheté (Dicentrarchus punctatus) | 300 | 400 | 120000 |
| Carpe Blanche (Pomadasys sp) | 1800 | 200 | 360000 |
| Carpe rouge (Lutjanus fulgens) | | | |
| Chinchard jaune (Decapterus ronchus) | 12500 | 200 | 2500000 |
| Chirurgien (Acanthurus monroviae) | | | |
| Coryphène commune (Coryphaena huppus) | 150 | 500 | 75000 |
| Courbine (Argirosoma regius | 1500 | 300 | 450000 |
| Cymbium neptune (Cymbium pepo) | 3100 | 300 | 930000 |
| Dorade Grise (Plectorh Mediterranens) | 1500 | 100 | 150000 |
| Fausse morue (Epinephelus aenus) | 200 | 800 | 160000 |
| Grondin volant (Cephalacanthus volitants) | 100 | 100 | 10000 |
| Langoustes vertes (Palinurus Spp) | 300 | 10000 | 3000000 |
| Mérou de gorée (Epinephelus goreensis | 250 | 800 | 200000 |
| Mérou gris (Epinephelus caninus | 100 | 1000 | 100000 |
| Mérou de méditerrané (Epinephelus gigas | 100 | 1000 | 100000 |
| Mulet (Mugil spp) | 600 | 200 | 120000 |
| Murex | 500 | 300 | 150000 |
| Otolithe du Sénégal (Pseudolithus senegalensis | 3600 | 300 | 1080000 |
| Pageot (Pagellus coupei) | 4500 | 500 | 2250000 |
| Poisson trompette (Fistularia tabbacarria) | 800 | 200 | 160000 |
| Poulpes (Octopus vulgaris) | 9000 | 1000 | 9000000 |
| Sar (Diplodus Spp) | 6500 | 1000 | 6500000 |
| Seiches (Sepia officinalis) | 19600 | 1200 | 23520000 |
| Sole langue (Cynoglossus Spp) | | | |
| Sole roche | | | |
| Volute trompe de cochon (Cymbium cymbium) | 1200 | 200 | 240000 |
| Volute trompe d'éléphant (Cymbium glan) | 15000 | 100 | 1500000 |
| **Total** | **83300** | **632** | **52685000** |

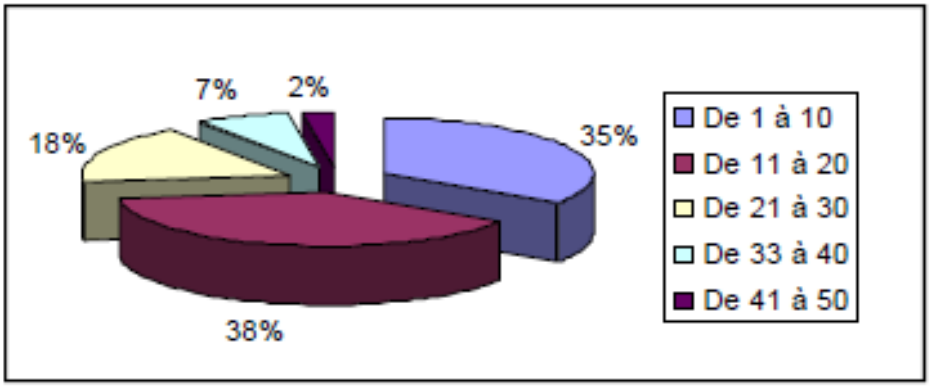
## Annexe 2 : Liste des engins de pêche

| | |
|---|---|
| St-pf | Senne tournante pirogue filet |
| St-pp | Senne tournante pirogue porteuse |
| St-pn | Senne tournante pirogue navette |
| Sp-d | Senne de plage digeul |
| Sp-n | Senne de plage normale |
| Fme | Filet maillant encerclant |
| Fmdf | Filet maillant dérivant de fond |
| Fmds | Filet maillant dérivant de surface |
| Fdf | Filet dormant de fond |
| Fds | Filet dormant de surface |
| Tm | Trémail |
| Cas | Casier |
| Ln | Ligne normale |
| Ltr | Ligne traîne |
| Ls | Ligne seiche |
| Lp | Ligne poulpe |

## Annexe 3: Age des pêcheurs à Ouakam



## Annexe 4: Ancienneté dans la profession

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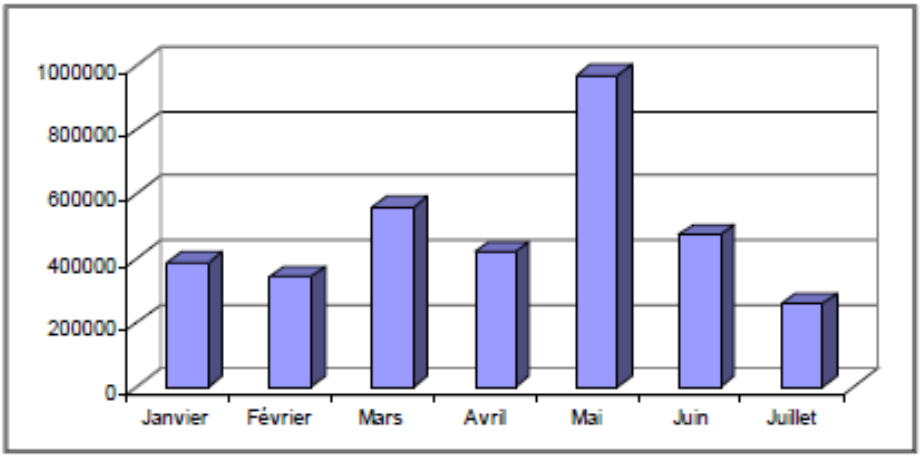
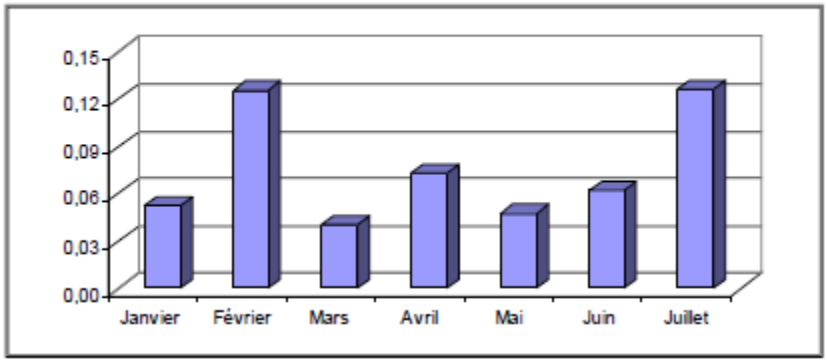
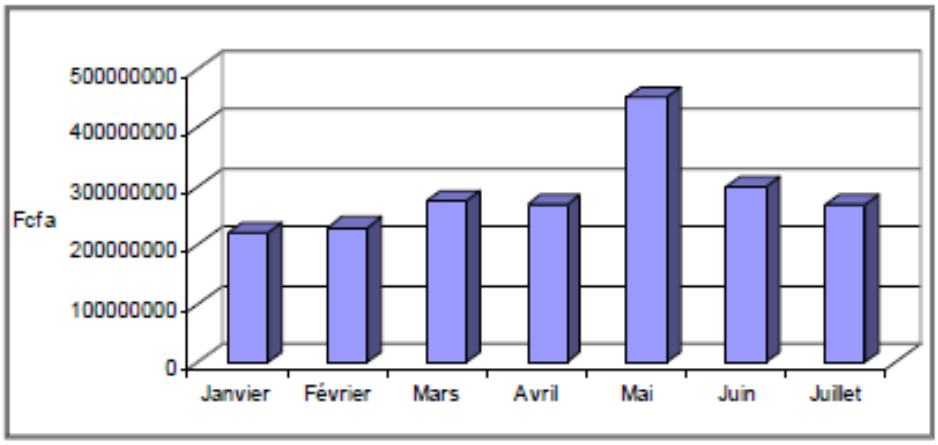
## Annexe 6: Débarquements mensuels au niveau du poste de Yoff (2007)



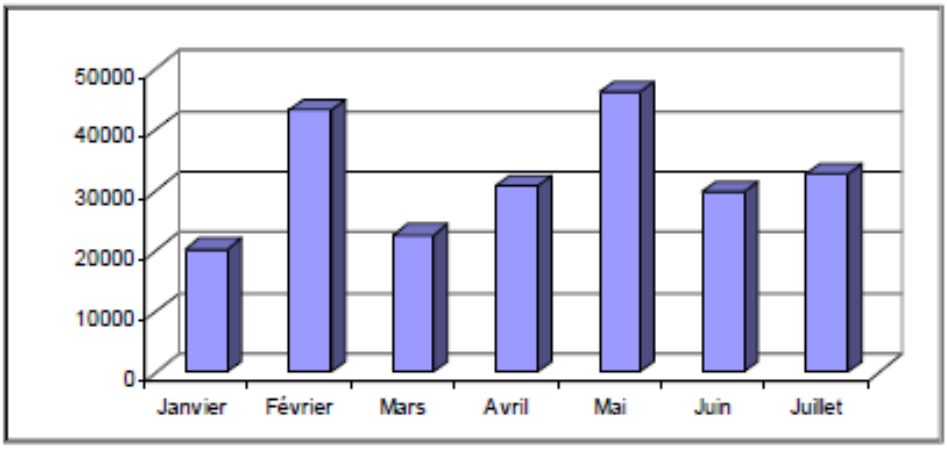

## Annexe 7: Part des débarquements à Ouakam sur les débarquements totaux du poste de contrôle de Yoff (2007)



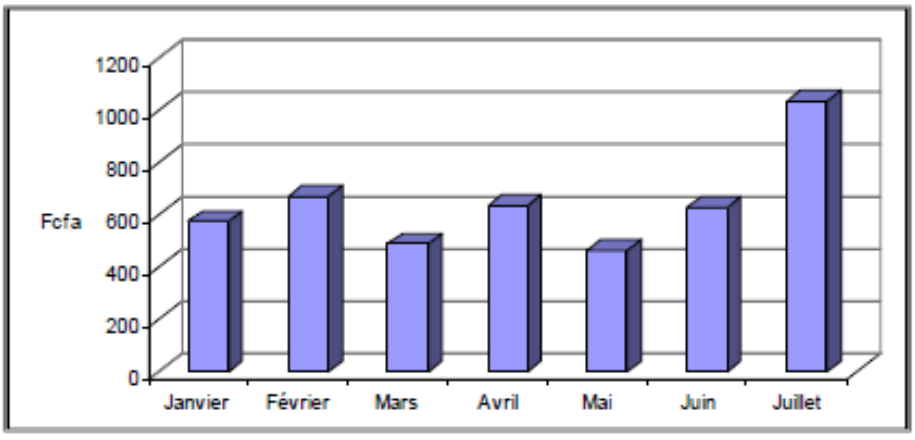
**Annexe 8: Valeur commerciale estimée des débarquements au niveau du poste de contrôle de Yoff**



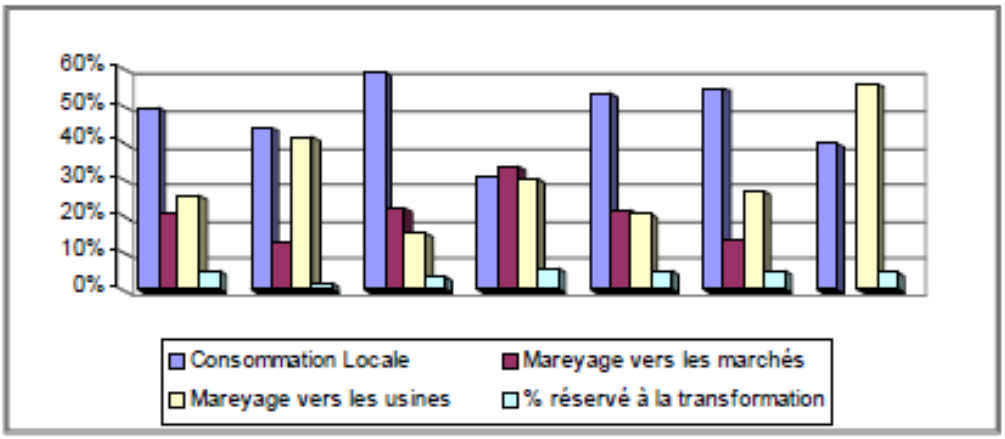

**Annexe 5: Débarquements mensuels à Ouakam (2007)**




**Annexe 9: Prix moyen du poisson au niveau du poste de contrôle de Yoff**



## Annexe 10: Evolution mensuelle de la part de chaque destination des produits débarqués au niveau du poste de contrôle de Yoff




## Annexe 5: Professions antérieures des pêcheurs

| Professions | Nombre de pêcheurs |
|---|---|
| Pêcheur | 46 |
| Agriculteur | 3 |
| Commerçant | 5 |
| Mareyeur | |
| Artisan | 7 |
| Fonctionnaire | 1 |
| Maçon | 9 |
| Ébéniste | 8 |
| Tailleur | 4 |
| Militaire | 1 |
| Mécanicien | 3 |
| Navigateur | |
| Peintre | 1 |
| Carreleur | 1 |
| Chaudronnier | 1 |
| Coupeur de bois | |
| Électricien | 1 |
| Restaurateur | 1 |
| Manutentionnaire | 1 |
| **Totaux** | 93 |

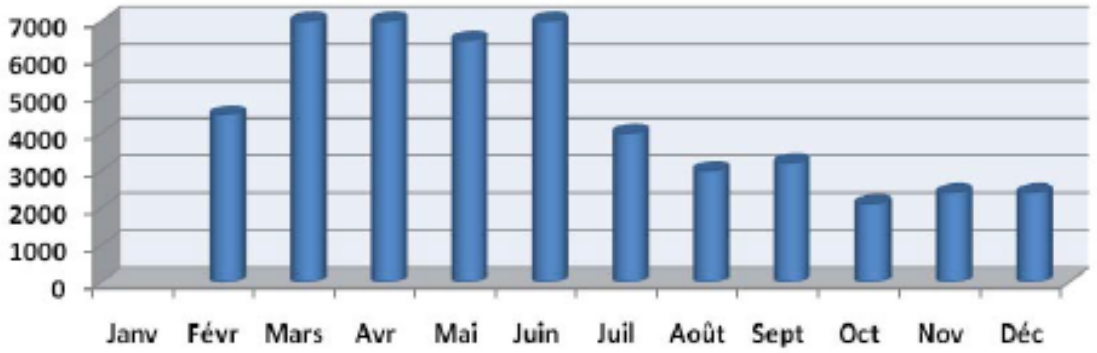



Figure 11 : Production du poisson transformé à Ngaparou (Année 2006)

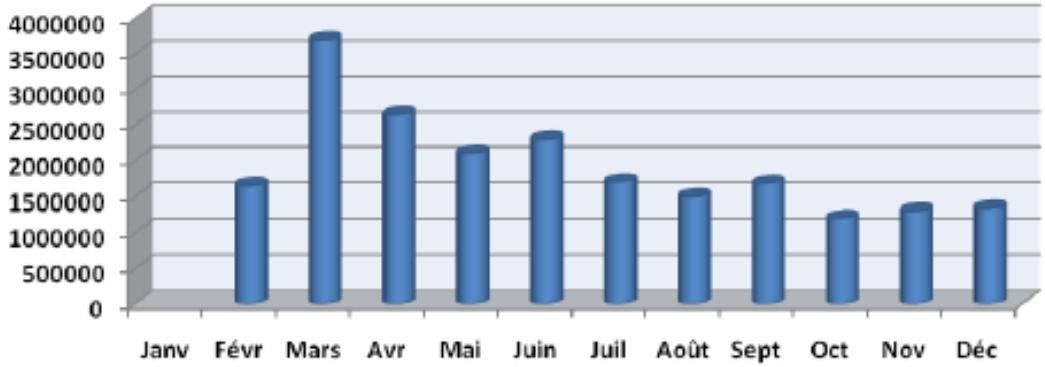



Figure 12 5: Evolution de la valeur commerciale des produits transformés à Ngaparou (Année 2006)

Following: source IRC GiRMaC

**Ngaparou: Fishing vessels (2005-2011)**

| Year | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|
| Local fishing vessels | 103 | 140 | 83 | 90 | 103 | 105 | 103 |
| Seasonal fishing vessels | 88 | 46 | 34 | 35 | 29 | 43 | 40 |
| **TOTAL** | **190** | **186** | **117** | **125** | **131** | **148** | **143** |

| Year | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|
| Local fishermen | 410 | 558 | 330 | 360 | 410 | 418 | 410 |
| Foreign fishermen | 350 | 184 | 136 | 140 | 114 | 172 | 160 |
| **TOTAL** | **760** | **742** | **466** | **500** | **524** | **590** | **570** |

**Foundiougne**

Excerpts from ESEP Foundiougne

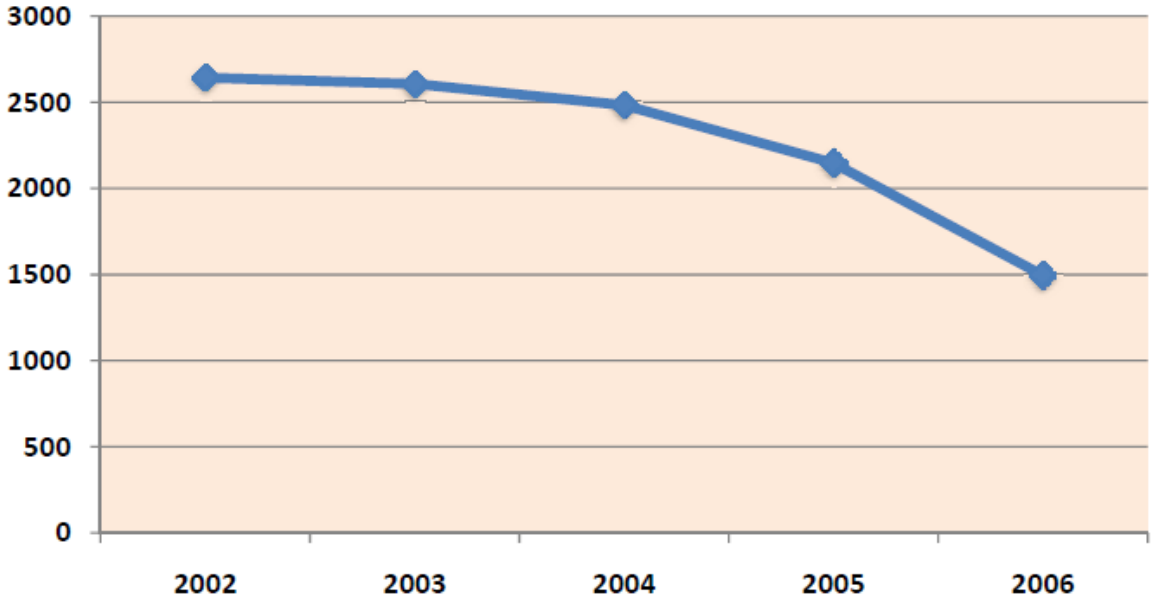



**Figure 8: Evolution de la production halieutique globale à Foundiougne entre 2002 et 2006 (En tonne)**

**Foundiougne: Catch Volume Data for Various Species (2007-2011)**

| | Shrimp | Ethmalose | Mullet | Tilapia | Barracuda | Total |
|---|---|---|---|---|---|---|
| 2007 | 343,370 | 770,650 | 212,050 | 193,500 | 10,250 | 1,529,820 |
| 2008 | 287,190 | 742,400 | 292,550 | 275,250 | 10,700 | 1,608,090 |
| 2009 | 362,835 | 630,300 | 180,450 | 171,350 | 22,600 | 1,367,535 |
| 2010 | 274,232 | 815,660 | 252,521 | 307,336 | 44,622 | 1,694,371 |
| 2011 | 431,625 | 631,940 | 416,780 | 709,530 | 140,830 | 2,330,705 |

**Market Prices**

| | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|
| Landing Price (CFAF) | 473,341,600 | 486,081,000 | 449,300,836 | 476,866,035 | 982,549,250 |

Excerpts from IRC GIRMaC

**Fishing Vessels**

| | | | | | |
|---|---|---|---|---|---|
| No. of fishermen | 1,600 | 1,700 | 1,710 | 1,750 | 2,650 |
| No. of vessels | 127 | 120 | 142 | 160 | 300 |

Average Shrimp Count/kg

| | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|
| Number of shrimp (count) / kg | 178 | 96 | 92 | 88 | 115 |

Change in Average Market Price (CFAF) at landing for Various Species

| | Shrimp | Ethmalose | Mullet | Tilapia | Barracuda |
|---|---|---|---|---|---|
| 2007 | 600 | 100 | 300 | 350 | 900 |
| 2008 | 600 | 100 | 300 | 350 | 950 |
| 2009 | 550 | 100 | 250 | 300 | 1,000 |
| 2010 | 500 | 100 | 300 | 200 | 1,750 |
| 2011 | 750 | 150 | 300 | 200 | 2,000 |

***Bétenty***

**Annexe 2: Situation du parc piroguier de Bétenty et du poste de contrôle de Missirah entre Février et Septembre 2007**

| | | Locales | | | | Etrangères | Total Général | | |
|---|---|---|---|---|---|---|---|---|---|
| | | PM[10] | PV[11] | Total | %PM | PM | PM | PV | Total |
| Février | Bétenty | 40 | 50 | 90 | 0,44 | 7 | 47 | 50 | 97 |
| | Total PC Missirah | 97 | 129 | 226 | 0,43 | 7 | 104 | 129 | 233 |
| | Bétenty/PC Missirah | 0,41 | 0,39 | 0,40 | | 1,00 | 0,45 | 0,39 | 0,42 |
| Avril | Bétenty | 45 | 50 | 95 | 0,47 | ? | ? | 50 | ? |
| | Total PC Missirah | 85 | 120 | 205 | 0,41 | 25 | 110 | 120 | 230 |
| | Bétenty/PC Missirah | 0,53 | 0,42 | 0,46 | | | | | |
| Mai | Bétenty | 45 | 50 | 95 | 0,47 | ? | ? | 50 | ? |
| | Total PC Missirah | 85 | 120 | 205 | 0,41 | 4 | 89 | 120 | 209 |
| | Bétenty/PC Missirah | 0,53 | 0,42 | 0,46 | | | | | |
| Juillet | Bétenty | 36 | 45 | 81 | 0,44 | ? | ? | 45 | |
| | Total PC Missirah | 100 | 120 | 220 | 0,45 | 7 | 107 | 120 | 227 |
| | Bétenty/PC Missirah | 0,36 | 0,38 | 0,37 | | | | | |
| Août | Bétenty | 36 | 45 | 81 | 0,44 | ? | ? | 45 | |
| | Total PC Missirah | 100 | 120 | 220 | 0,45 | 8 | 108 | 120 | 228 |
| | Bétenty/PC Missirah | 0,36 | 0,38 | 0,37 | | | | | |
| Septembre | Bétenty | 47 | 45 | 92 | 0,51 | ? | ? | 45 | |
| | Total PC Missirah | 100 | 120 | 220 | 0,45 | 10 | 110 | 120 | 230 |
| | Bétenty/PC Missirah | 0,47 | 0,38 | 0,42 | | | | | |

**Annexe 3: Utilisation des engins de pêche à Bétenty et au poste de contrôle de Missirah**

| | | Unités locales | | | | | | | | | | | | Unités étrangères | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | SP | FME | FMDF | FMDS | LS | FD | Kili | Fixe | Li | TM | PAL | EP | LS | Kili | SP | FME | Pal | FD |
| Février | Bétenty | 3 | 8 | 5 | 10 | 30 | 45 | 50 | | | | 5 | 40 | | | | 7 | | |
| | Total PC Missirah | 3 | 14 | 23 | 52 | 100 | 91 | 62 | | | | 7 | 118 | | | | 7 | | |
| | Bétenty/PC Missirah | 1,00 | 0,57 | 0,22 | 0,19 | 0,30 | 0,49 | 0,81 | | | | 0,71 | 0,34 | | | | 1,00 | | |
| Avril | Bétenty | 3 | 10 | | 30 | | 40 | 50 | | | | 3 | 60 | | | | | | |
| | Total PC Missirah | 6 | 12 | 19 | 67 | | 82 | 60 | | | | 170 | | 10 | 40 | 2 | 3 | | 5 |
| | Bétenty/PC Missirah | 0,50 | 0,83 | 0,00 | 0,45 | | 0,49 | 0,83 | | | | 0,02 | | | | | | | |
| Mai | Bétenty | 2 | 6 | | 12 | | | | 40 | | | 1 | 20 | | | | | | |
| | Total PC Missirah | 3 | 9 | 17 | 28 | | | | 82 | | | 2 | 49 | | | | 3 | | 1 |
| | Bétenty/PC Missirah | 0,67 | 0,67 | | 0,43 | | | | 0,49 | | | 0,50 | 0,41 | | | | | | |
| Juillet | Bétenty | 2 | 5 | | | 10 | 15 | 40 | | | | | | | | | | | |
| | Total PC Missirah | 4 | 6 | 10 | | 61 | 60 | 40 | 40 | | | | | | | | 7 | | |
| | Bétenty/PC Missirah | 0,50 | 0,83 | | | 0,16 | 0,25 | 1,00 | | | | | | | | | 0,00 | | |
| Août | Bétenty | 2 | 5 | | 20 | | 25 | 50 | | | | | 26 | | 15 | 2 | 6 | | |
| | Total PC Missirah | 4 | 6 | 13 | 73 | 9 | 71 | 52 | | | | | 99 | | 15 | 2 | 6 | | |
| | Bétenty/PC Missirah | 0,50 | 0,83 | | 0,27 | | 0,35 | 0,96 | | | | | 0,26 | | 1,00 | 1,00 | 1,00 | | |
| Septembre | Bétenty | 2 | 5 | | 30 | | 26 | 50 | | | | 4 | 10 | | 15 | | | | |
| | Total PC Missirah | 4 | 7 | 16 | 68 | 25 | 61 | 60 | | | | 5 | 70 | | 15 | 1 | 7 | | |
| | Bétenty/PC Missirah | 0,50 | 0,71 | | 0,44 | | 0,43 | 0,83 | | | | 0,80 | 0,14 | | 1,00 | 0,00 | 0,00 | | |

**Annexe 4 : Liste des engins de pêche**

| Codes | Signification |
|---|---|
| St-pf | Senne tournante pirogue filet |
| St-pp | Senne tournante pirogue porteuse |
| St-pn | Senne tournante pirogue navette |
| Sp-d | Senne de plage digeul |
| Sp-n | Senne de plage normale |
| Fme | Filet maillant encerclant |
| Fmdf | Filet maillant dérivant de fond |
| Fmds | Filet maillant dérivant de surface |
| Fdf | Filet dormant de fond |
| Fds | Filet dormant de surface |
| Tm | Trémail |
| Cas | Casier |
| Ln | Ligne normale |
| Ltr | Ligne traîne |
| Ls | Ligne seiche |
| Lp | Ligne poulpe |
| Lg | Ligne glacière |
| Pal | Palangre |
| Ffc | Filet fixe à crevette |
| Kil | Killi |
| Ep | Epervier |
| Hp | Huître-pagne |
| Psm | Pêche sous marine |
| Div | Divers |

**Bétenty: Detailed Catch Data for Shrimp and fishing vessels (2005-2011)**

| Year | Catch ('000 kg) | No. of Fishermen | Price (FCFA) | Market Price (CFAF) | Shrimp count/kg | No. of fishing vessels |
|---|---|---|---|---|---|---|
| 2005 | 365.7 | 831 | 400 | 146,280,000 | 226 | 65 |
| 2006 | 336.2 | 768 | 550 | 184,910,000 | 179 | 59 |
| 2007 | 340.7 | 784 | 600 | 204,420,000 | 184 | 62 |
| 2008 | 328.9 | 672 | 600 | 197,340,000 | 175 | 53 |
| 2009 | 296.9 | 727 | 700 | 207,830,000 | 144 | 57 |
| 2010 | 237.2 | 693 | 900 | 213,480,000 | 138 | 51 |
| 2011 | 229.4 | 649 | 800 | 183,520,000 | 141 | 59 |

N.B.: A majority of shrimp harvesters work on foot; those on boats normally are two to a boat. Prices quoted are landing price/kg for fresh shrimp.

## GRDH (all 8 sites)

Excerpts from CRODT WWF 2012 (same for following data)

| Site GDRH | Type de site | Milieu humain concerné | Population estimée | Estimation des catégories socioprofessionnelles dans la pêche |
|---|---|---|---|---|
| **Ouakam** | urbain | Village traditionnel de Ouakam | 50000 actuellement (43 188 d'après recensement 2002) | -400 pêcheurs<br>-3 transformatrice<br>-10 mareyeurs |
| **Soumbédioune** | urbain | Fann / Point E / Amitié/ Gueule Tapée | Environ 40 0000 (35 759 en 2002) | - 2500 pêcheurs<br>- 500 mareyeurs et micro-mareyeurs<br>- 4 femmes transformatrices<br>- 50 écailleuses |
| **Bargny** | urbain | Khembé, Bargny Guedji, Miname et Sendou. | 50 000 environ (36 516 en 2002 pour Toute la commune de Bargny) | -4 000 pêcheurs<br>-1 500 transformatrices |
| **Yène** | Rural | Yène Todd, Yène Guedji, Yène Kao, Nditakh, Niangal, Kelle, Toubab-Dialaw | Environ 40 000 (31971 en 2002) | -3 700 pêcheurs;<br>-1300 mareyeurs ;<br>-7000 transformatrices |
| **Mballing** | rurbain | Village de Mballing | 6000 habitants | -500 pêcheurs ;<br>-200 transformatrices ; |
| **Nianing** | rurbain | Village de Nianing | 11000 habitants | -1000 pêcheurs<br>-500 transformatrices<br>-30 mareyeurs |
| **Pointe Sarène** | rural | Village de Pointe Sarène | 60000 habitants | - Environs 1000 ; pêcheurs ;<br>- 500 transformatrices<br>- 30 mareyeurs ; |
| **Mbodiène** | rural | Village de Mbodiène | 3000 habitants | -143 pêcheurs<br>-20 transformatrices |

**Tableau 1 : Infrastructure de pêche sur les sites**

| Sites | Quai de pêche a | Site de transformation | Station carburant hors-bord | Fabrique de glace |
|---|---|---|---|---|
| **Ouakam** | Débarcadère aménagé | Site très réduit non aménagé | Une station en difficulté | Néant |
| **Soumbédioune** | Débarcadère non aménagé | Site très réduit non aménagé | Trois stations | Néant |
| **Bargny** | Un débarcadère non aménagé | Six sites non aménagés | Deux stations | Néant |
| **Yène** | Un quai aménagé | Deux sites de non aménagés | Trois stations | Un centre frigorifique<br>Une fabrique de glace à Niangal |
| **Mballing** | Un quai de pêche non fonctionnel. | Un site non aménagé | Une station non fonctionnelle | Néant |
| **Nianing** | Un débarcadère aménagé non fonctionnel | Un site non aménagé | Une station fonctionnelle | Néant |
| **Pointe Sarène** | Un débarcadère non aménagé | Un Site e non aménagé | Une station fonctionnelle | Néant |
| **Mbodiène** | Néant | Néant | Néant | néant |

**Tableau 2 : Infrastructures et services sur les sites**

| Sites | Infrastructure scolaire | Infrastructure sanitaires | Infrastructure commerciale | Infrastructures hôtelière | Services administratifs |
|---|---|---|---|---|---|
| Ouakam | -33 établissements scolaires<br>· 3 centres d'éducation spécialisée<br>· 3 centres de formation professionnelle | 1- centre de santé<br>· 1 poste de santé<br>· 1 infirmerie militaire<br>· 1 hôpital militaire<br>· 1 infirmerie des Sœurs Spiritaines<br>· 1 clinique privée<br>· 8 pharmacies | -2 marchés<br>· 1 centre commercial (en construction) | | -4 bases militaires<br>· 1 école de gendarmerie<br>· 1 poste de gendarmerie |
| Soumbédioune | -1 CEM<br>-1 Lycée<br>-9 écoles élémentaires | 2 centres de santé<br>1 service d'hygiène<br>1 hôpital<br>1 IPM | 3 grands marchés | | |
| Bargny | 1 lycée<br>2 CEM<br>5 collèges privés<br>8 préscolaires | 5 postes de santé<br>1 dispensaire<br>1 maternité<br>2 cliniques | | | Un poste de contrôle des pêches |
| Yène | 8 écoles élémentaires<br>6 préscolaires<br>1 CEM (Niangal<br>1 Lycée (Niangal)<br>1 Centre d'accueil | 2 postes de santé<br>3 maternités<br>6 cases de santé<br>1 clinique | | -4 hôtels<br>-8 auberges | Un poste de contrôle des pêches |
| Mballing | -1 école préscolaire<br>-1 école élémentaire<br>-1 Collège d'enseignement moyen (CEM*<br>-2 écoles coraniques<br>1 centre de formation en couture | -1 poste de santé<br>-1 maternité | | 1 auberge | |
| Nianing | -1 CEM<br>-1collège privé<br>-2 écoles élémentaires publiques<br>-4 écoles élémentaires privées<br>-4 écoles préscolaires publiques<br>-3 écoles préscolaires privées<br>-1 centre de sauvegarde et réinsertion sociale | -1 poste de sante<br>-Une case de santé en construction | Un marché | - 1 grand hôtel fermé depuis 4 ans<br>-11 auberges | 1 poste de service des eaux et forêts |
| Pointe Sarène | 1 CEM avec des abris provisoires<br>1 école élémentaire publique<br>1 école maternelle publique | 1 poste de santé | | 1 hôtel non fonctionnel<br>-3 campements | |
| Mbodiène | 1 école primaire privée<br>1 école primaire publique<br>1 école préscolaire publique<br>1 école préscolaire privée | 1 poste de santé<br>1 dispensaire privé | Une marché non fonctionnel | -Un hôtel<br><br>-5 auberges | |

**Tableau 3 : Age moyen des chefs de ménages selon les sites**

| Site GDRH | Moyenne | Minimum | Maximum |
|---|---|---|---|
| Ouakam | 45,09 | 32 | 87 |
| Soumbédioune | 42,22 | 25 | 86 |
| Bargny | 49,90 | 37 | 78 |
| Yène | 57,67 | 45 | 85 |
| Mballing | 60,67 | 57 | 65 |
| Nianing | 49,91 | 30 | 65 |
| Pointe Sarène | 55,90 | 45 | 78 |
| Mbodiène | 58,33 | 38 | 80 |
| Total | 51,51 | 25 | 87 |

**Tableau 4 : Age moyen des membres dans les ménages selon les sites**

| | Age | |
|---|---|---|
| Sites GDRH | Moyenne | Maximum |
| Ouakam | 22,68 | 87 |
| Soumbédioune | 22,97 | 86 |
| Bargny | 21,98 | 78 |
| Yene | 21,54 | 85 |
| Mballing | 16,35 | 65 |
| Nianing | 19,82 | 65 |
| Pointe Sarene | 20,54 | 78 |
| Mbodienne | 20,92 | 80 |
| Total | 20,79 | 87 |

**Figure 4 : Sexe des chefs de ménage selon les sites**

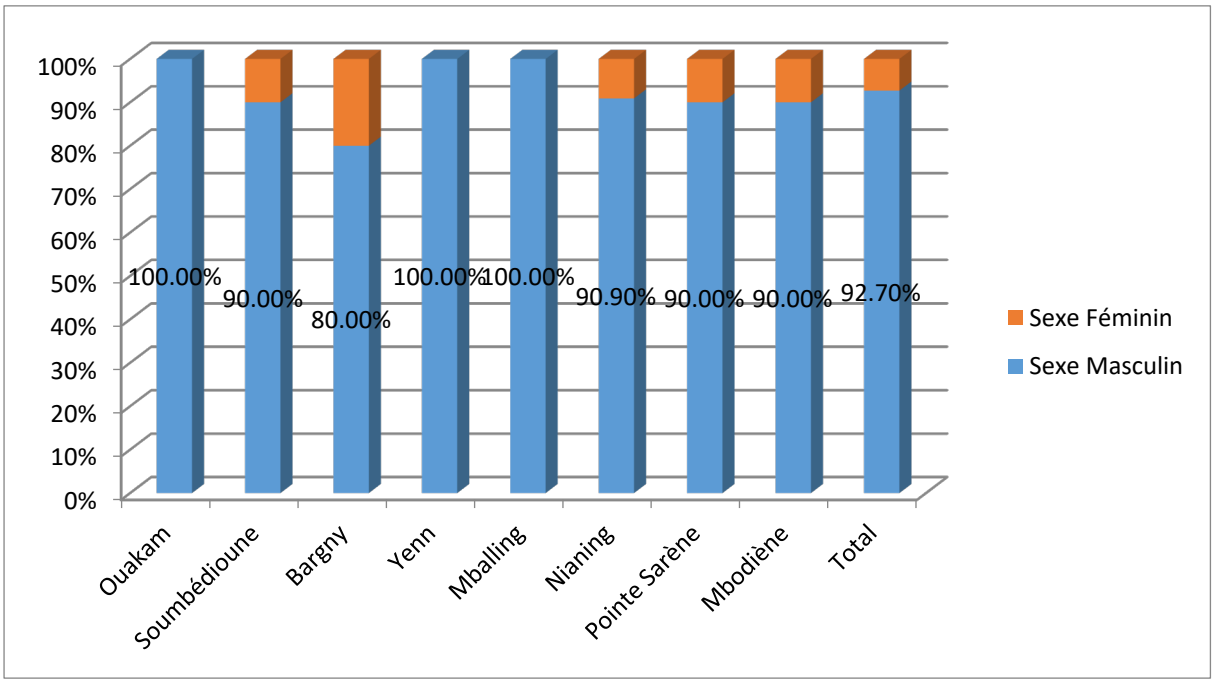



**Figure 5 : Structure par sexe des membres des ménages**

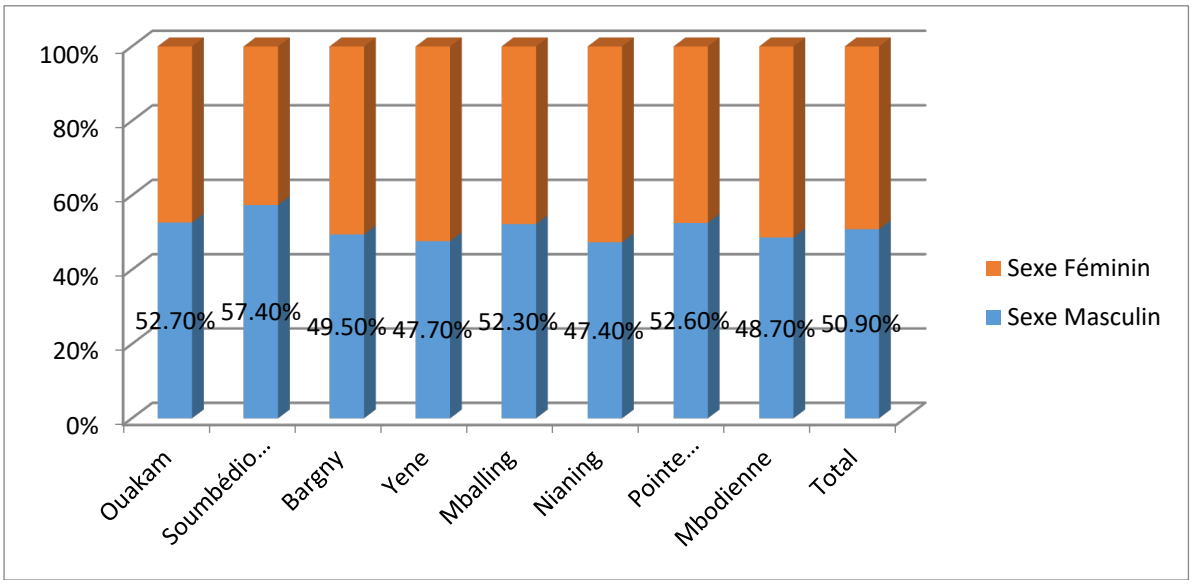


**Figure 6 : Situation matrimoniale des chefs de ménage sur les sites**

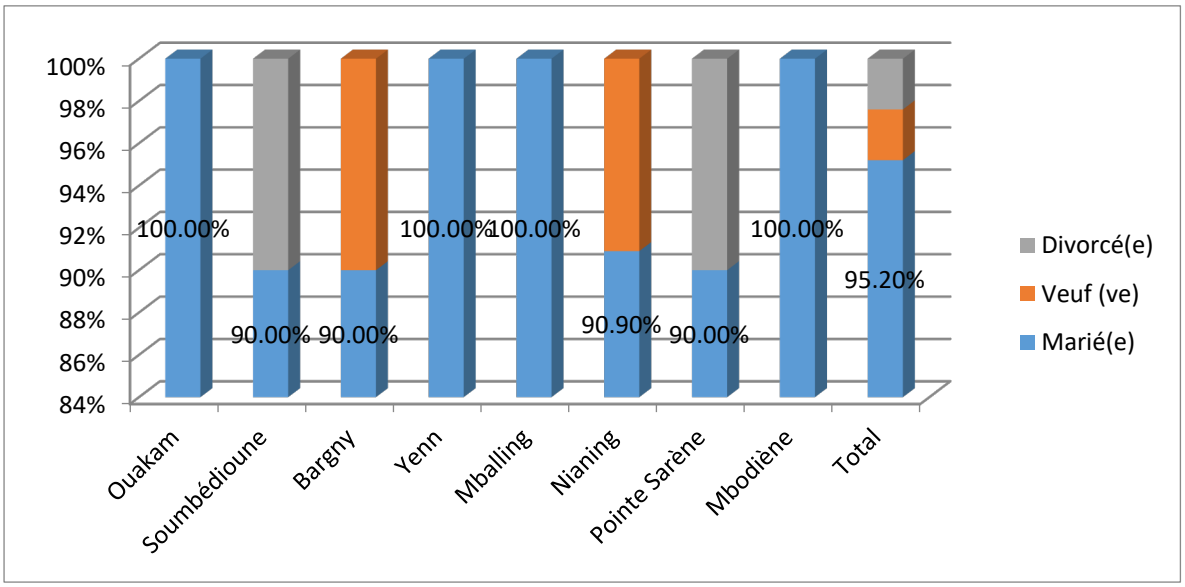



**Figure 7 : Situation matrimoniale des membres selon les sites**

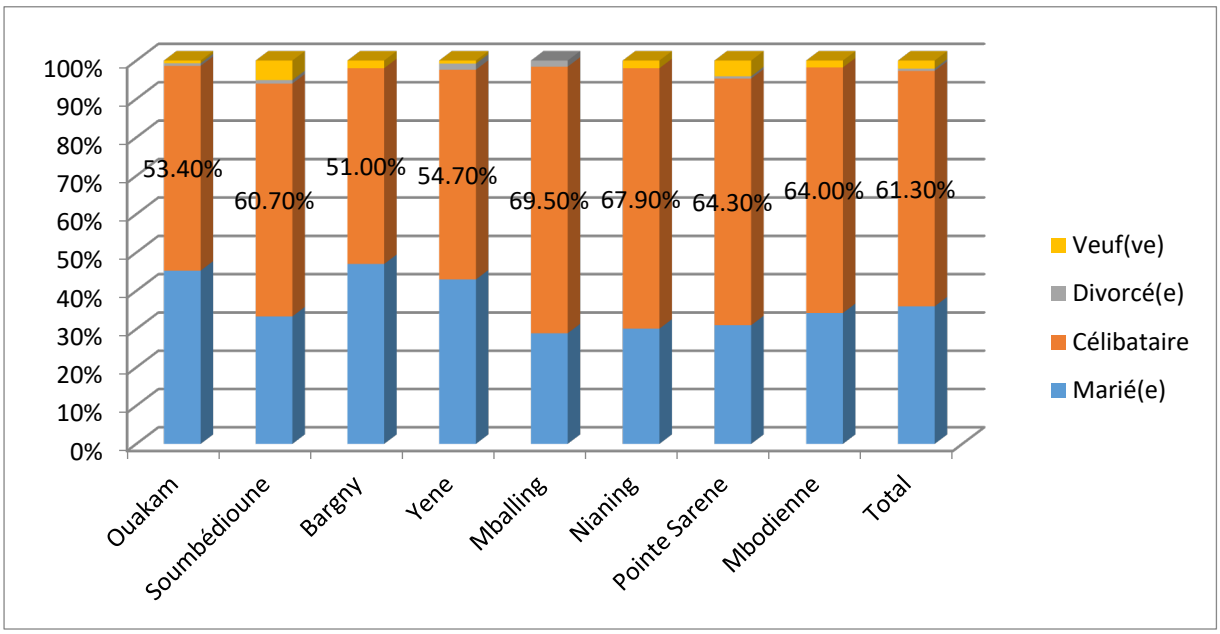


**Tableau 5 : Situation matrimoniales des membres des ménages selon l'âge**

| Age | | | |
|---|---|---|---|
| Situation matrimoniale | Moyenne | Minimum | Maximum |
| Marié(e) | 35,74 | 22 | 85 |
| Célibataire | 14,00 | 0 | 60 |
| Divorcé(e) | 33,14 | 30 | 48 |
| Veuf (ve) | 62,00 | 30 | 87 |

**Tableau 6 : Niveau d'instruction des chefs de ménages selon les sites**

| | Niveau d'instruction des chefs de ménage | | | | | |
|---|---|---|---|---|---|---|
| Site GDRH | Aucune | Alphabétisation | Primaire | Secondaire | Arabe/Coran | Total |
| Ouakam | | | 54,5% | | 45,5% | 100,0% |
| Soumbédioune | | 10,0% | 40,0% | 10,0% | 40,0% | 100,0% |
| Bargny | | | 60,0% | 10,0% | 30,0% | 100,0% |
| Yène | | | 30,0% | 20,0% | 50,0% | 100,0% |
| Mballing | 20,0% | | 10,0% | 10,0% | 60,0% | 100,0% |
| Nianing | 9,1% | 18,2% | 9,1% | 9,1% | 54,5% | 100,0% |
| Pointe Sarène | 50,0% | 20,0% | 10,0% | 20,0% | | 100,0% |
| Mbodiène | 50,0% | | 30,0% | 20,0% | | 100,0% |
| Total | 15,9% | 6,1% | 30,5% | 12,2% | 35,4% | 100,0% |

**Tableau 7 : Niveau d'instruction des membres des ménages selon les sites**

| Sites | Niveau d'instruction des autres membres | | | | | | |
|---|---|---|---|---|---|---|---|
| | Aucune | Alphabétisation | Primaire | Secondaire | Supérieur | Coran/arabe | Total |
| Ouakam | | | 61,0% | 11,4% | ,8% | 26,8% | 100,0% |
| Soumbédioune | 1,0% | | 52,4% | 33,0% | | 13,6% | 100,0% |
| Bargny | 2,1% | | 83,5% | 2,1% | 1,0% | 11,3% | 100,0% |
| Yene | 22,4% | 1,6% | 46,4% | 8,8% | 1,6% | 19,2% | 100,0% |
| Mballing | 34,4% | | 28,1% | 8,6% | ,8% | 28,1% | 100,0% |
| Nianing | 29,6% | 1,5% | 38,8% | 14,8% | 1,0% | 14,3% | 100,0% |
| Pointe Sarene | 31,7% | 1,4% | 44,8% | 13,8% | 6,9% | 1,4% | 100,0% |
| Mbodienne | 15,4% | | 47,3% | 33,0% | 1,1% | 3,3% | 100,0% |
| Total | 19,1% | ,7% | 48,4% | 15,0% | 1,8% | 15,0% | 100,0% |

**Tableau 8 : Appartenance communautaires des chefs de ménages selon les sites**

| Site GDRH | Appartenance communautaire | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Guet-ndarien | Lébou | Wolof adjior | Gandiolé | Sérère | Halpoular | Manding | Diola | Autre | Total |
| Ouakam | 9,1% | 63,6% | | | | 18,2% | 9,1% | | | 100,0% |
| Soumbédioune | 11,1% | 66,7% | | 11,1% | | | | | 11,1% | 100,0% |
| Bargny | | 100,0% | | | | | | | | 100,0% |
| Yène | | 100,0% | | | | | | | | 100,0% |
| Mballing | | | 10,0% | 20,0% | 40,0% | 10,0% | | 10,0% | 10,0% | 100,0% |
| Nianing | | 9,1% | 54,5% | | 18,2% | 18,2% | | | | 100,0% |
| Pointe Sarène | 20,0% | | 20,0% | | 40,0% | 20,0% | | | | 100,0% |
| Mbodiène | | | 10,0% | | 80,0% | | 10,0% | | | 100,0% |
| Total | 4,9% | 42,0% | 12,3% | 3,7% | 22,2% | 8,6% | 2,5% | 1,2% | 2,5% | 100,0% |

**Tableau 9 : Types d'habitat des ménages selon les sites**

| Site GDRH | Type d'habitat | | | | | | |
|---|---|---|---|---|---|---|---|
| | Case | Braque | Bâtiment en dur (Zinc) | Bâtiment en dure (ardoise) | Bâtiment en dure (dalle en ciment) | Bâtiment en dure (étage) | Total |
| Ouakam | | 9,1% | 9,1% | 36,4% | 36,4% | 9,1% | 100,0% |
| Soumbédioune | | 20,0% | 10,0% | 50,0% | 20,0% | | 100,0% |
| Bargny | | | | 100,0% | | | 100,0% |
| Yène | | | | 80,0% | 20,0% | | 100,0% |
| Mballing | 10,0% | | 90,0% | | | | 100,0% |
| Nianing | 9,1% | | 72,7% | | 18,2% | | 100,0% |
| Pointe Sarène | 18,2% | | 36,4% | 9,1% | 36,4% | | 100,0% |
| Mbodiène | 30,0% | | 70,0% | | | | 100,0% |
| Total | 8,4% | 3,6% | 36,1% | 33,7% | 16,9% | 1,2% | 100,0% |

**Tableau 10 : Principales sources d'approvisionnement en eau potables des ménages selon les sites**

| Site GDRH | Source d'approvisionnement en eau potable | | | |
|---|---|---|---|---|
| | Puits traditionnel | Borde fontaine individuelle | Borne fontaine publique | Total |
| Ouakam | | 100,0% | | 100,0% |
| Soumbédioune | | 70,0% | 30,0% | 100,0% |
| Bargny | | 70,0% | 30,0% | 100,0% |
| Yène | | 40,0% | 60,0% | 100,0% |
| Mballing | 10,0% | 40,0% | 50,0% | 100,0% |
| Nianing | 9,1% | 54,5% | 36,4% | 100,0% |
| Pointe Sarène | | 90,0% | 10,0% | 100,0% |
| Mbodiène | 20,0% | 70,0% | 10,0% | 100,0% |
| Total | 4,9% | 67,1% | 28,0% | 100,0% |

**Tableau 11 : Principale source d'éclairage des ménages selon les sites**

| Site GDRH | Source d'éclairage | | | | Total |
|---|---|---|---|---|---|
| | Electricité | Lampe tempête (pétrole) | Lampe chinoise | Autre | |
| Ouakam | 100,0% | | | | 100,0% |
| Soumbédioune | 100,0%, | | | | 100,0% |
| Bargny | 100,0% | | | | 100,0% |
| Yène | 100,0% | | | | 100,0% |
| Mballing | 80,0% | | 10,0% | 10,0% | 100,0% |
| Nianing | 63,6% | | 18,2% | 18,2% | 100,0% |
| Pointe Sarène | 72,7% | 9,1% | 9,1% | 9,1% | 100,0% |
| Mbodiène | 60,0% | | 10,0% | 30,0% | 100,0% |
| Total | 84,3% | 1,2% | 6,0% | 8,5% | 100,0% |

**Tableau 12 : Principales source d'énergie de cuisine des ménages selon les sites**

| Site GDRH | Source d'énergie de cuisine | | | Total |
|---|---|---|---|---|
| | Bois | Charbon de bois | Gaz | |
| Ouakam | | 18,2% | 81,8% | 100,0% |
| Soumbédioune | | 44,4% | 55,6% | 100,0% |
| Bargny | | 46,7% | 53,3% | 100,0% |
| Yène | 40,0% | | 60,0% | 100,0% |
| Mballing | 100,0% | | | 100,0% |
| Nianing | 100,0% | | | 100,0% |
| Pointe Sarène | 90,0% | 10,0% | | 100,0% |
| Mbodiène | 100,0% | | | 100,0% |
| Total | 50,6% | 16,5% | 32,9% | 100,0% |

**Tableau 13 : Activité principales des chefs de ménage selon les sites**

| Site GDRH | Activité principale | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|
| | Aucune | Pêcheur | Paysan | Transformateur | Mareyeur | Salarié | Commerçant | |
| Ouakam | | 100,0% | | | | | | 100,0% |
| Soumbédioune | | 80,0% | | | | | 20,0% | 100,0% |
| Bargny | | 80,0% | | 10,0% | 10,0% | | | 100,0% |
| Yène | | 80,0% | | | 10,0% | | 10,0% | 100,0% |
| Mballing | | 50,0% | | | 20,0% | | 30,0% | 100,0% |
| Nianing | | 81,8% | | 9,1% | 9,1% | | | 100,0% |
| Pointe Sarène | | 60,0% | 10,0% | 20,0% | | | 10,0% | 100,0% |
| Mbodiène | 10,0% | 10,0% | 30,0% | 10,0% | | 20,0% | 20,0% | 100,0% |
| Total | 1,2% | 68,3% | 4,9% | 6,1% | 6,1% | 2,4% | 11,0% | 100,0% |

**Tableau 14 : Activité secondaires des chefs de ménages selon les sites**

| Site GDRH | Activité secondaire | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Aucune | Pêcheur | Paysan | transformateur | Mareyeur/micro mareyeur | Salarié | Commerçant/ banabana | Autre | Total |
| Ouakam | 81,8% | 9,1% | | | | 9,1% | | | 100,0% |
| Soumbédioune | 50,0% | 20,0% | | | 10 | 10,0% | 10,0% | | 100,0% |
| Bargny | 60,0% | | | 10,0% | 10,0% | | | 20,0% | 100,0% |
| Yène | 50,0% | 20,0% | 10,0% | | | | | 20,0% | 100,0% |
| Mballing | 30,0% | 10,0% | 10,0% | | | | 50,0% | | 100,0% |
| Nianing | 81,8% | 18,2% | | | | | | | 100,0% |
| Pointe Sarène | 20,0% | 10,0% | 10,0% | | 10,0% | | | 50,0% | 100,0% |
| Mbodiène | 40,0% | 40,0% | 10,0% | | | | | 10,0% | 100,0% |
| Total | 52,4% | 15,9% | 4,9% | 1,2% | 3,6% | 2,4% | 7,3% | 12,2% | 100,0% |

**Tableau 15 : Activités principales des autres membres des ménages selon les sites**

| Village | Activité principale | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Aucune | Pêcheur | Maraîcher | Salarié | Mareyeur/microm areyeurs | Transformateur | Commerçant/Banabana | Ménagère/ autre | Elève/étudiant | Artisans/ autres | Total |
| Ouakam | 33,1% | 29,7% | | 2,7% | 6,1% | | 2,0% | 8,1% | 18,2% | | 100,0% |
| Soumbédioune | 14,8% | 17,2% | | 4,1% | 1,6% | ,8% | 1,6% | 49,2% | 8,2% | 2,5% | 100,0% |
| Bargny | 34,7% | 21,8% | 1,0% | | 2,0% | 5,9% | 3,0% | 13,9% | 17,8% | | 100,0% |
| Yene | 50,8% | 15,6% | 1,6% | ,8% | | 2,3% | 1,6% | 5,5% | 21,1% | ,8% | 100,0% |
| Mballing | | 14,1% | | | 9,4% | 3,1% | 1,6% | 31,3% | 40,6% | | 100,0% |
| Nianing | | 20,9% | ,5% | ,5% | ,5% | 3,1% | 1,5% | 38,8% | 34,2% | | 100,0% |
| Pointe Sarene | 42,1% | 18,1% | ,6% | 1,8% | | 9,4% | 4,7% | 5,3% | 18,1% | | 100,0% |
| Mbodienne | 53,1% | 5,3% | | 7,1% | 1,8% | ,9% | ,9% | 6,2% | 24,8% | | 100,0% |
| Total | 27,0% | 18,3% | ,5% | 2,0% | 2,5% | 3,3% | 2,2% | 20,3% | 23,5% | ,4% | 100,0% |

**Tableau 16 : Activités secondaires des autres membres**

| Village | activité secondaire | | | | | | |
|---|---|---|---|---|---|---|---|
| | Aucune | Pêcheur | Maraîcher | Transformateur | Commerçant/ Banabana | Ménagère | Total |
| Ouakam | 100,0% | | | | | | 100,0% |
| Soumbédioune | 95,1% | ,8% | | | ,8% | 3,3% | 100,0% |
| Bargny | 100,0% | | | | | | 100,0% |
| Yene | 97,7% | ,8% | | | | ,8% | 100,0% |
| Mballing | 99,2% | | | | | | 100,0% |
| Nianing | 100,0% | | | | | | 100,0% |
| Pointe Sarene | 94,7% | | ,6% | ,6% | 1,2% | 2,3% | 100,0% |
| Mbodienne | 94,7% | 2,7% | | | ,9% | 1,8% | 100,0% |
| Total | 97,7% | ,5% | ,1% | , ,1% | ,4% | 1,0% | 100,0% |

**Tableau 17 : Les revenus moyens dans les différentes activités selon les sites**

| Site GDRH | | Revenu moyen mensuel pêche | revenu mensuel transformation | Revenu mensuel mareyage | revenu salaire |
|---|---|---|---|---|---|
| Ouakam | Moyenne | 560000,00 | 50000,00 | 800000,00 | 275000,00 |
| | Minimum | 200000 | 50000 | 400000 | 200000 |
| | Maximum | 1000000 | 50000 | 1500000 | 350000 |
| Soumbédioune | Moyenne | 950000,00 | 50000,00 | 800000,00 | |
| | Minimum | 150000 | 50000 | 400000 | |
| | Maximum | 2000000 | 50000 | 1500000 | |
| Bargny | Moyenne | 630000,00 | 212500,00 | 600000,00 | |
| | Minimum | 150000 | 150000 | 500000 | |
| | Maximum | 2000000 | 300000 | 700000 | |
| Yène | Moyenne | 590000,00 | 175000,00 | 416666,67 | |
| | Minimum | 100000 | 150000 | 150000 | |
| | Maximum | 2000000 | 200000 | 600000 | |
| Mballing | Moyenne | 175000,00 | 138000,00 | 312500,00 | |
| | Minimum | 50000 | 40000 | 150000 | |
| | Maximum | 400000 | 200000 | 500000 | |
| Nianing | Moyenne | 266666,67 | 91000,00 | 450000,00 | |
| | Minimum | 100000 | 25000 | 300000 | |
| | Maximum | 800000 | 200000 | 600000 | |
| Pointe Sarène | Moyenne | 583333,33 | 124000,00 | 275000,00 | |
| | Minimum | 200000 | 50000 | 150000 | |
| | Maximum | 1000000 | 200000 | 400000 | |
| Mbodiène | Moyenne | 26666,67 | | | 75000,00 |
| | Minimum | 10000 | | | 40000 |
| | Maximum | 50000 | | | 120000 |
| Total | Moyenne | 453636,36 | 133260,87 | 508333,33 | 141666,67 |
| | Minimum | 10000 | 25000 | 150000 | 40000 |
| | Maximum | 2000000 | 300000 | 1500000 | 350000 |

**Tableau 18 : Perception des professionnels sur les niveaux de revenus selon les sites**

| Site GDRH | Perception sur les niveaux de revenus | | | Total |
|---|---|---|---|---|
| | Très faible | Faible | Moyen | |
| Ouakam | 40,0% | 20,0% | 40,0% | 100,0% |
| Soumbédioune | 40,0% | 40,0% | 20,0% | 100,0% |
| Bargny | 25,0% | 25,0% | 50,0% | 100,0% |
| Yène | 60,0% | 20,0% | 20,0% | 100,0% |
| Mballing | 16,7% | 50,0% | 33,3% | 100,0% |
| Nianing | 33,3% | 16,7% | 50,0% | 100,0% |
| Pointe Sarène | 16,7% | 33,3% | 50,0% | 100,0% |
| Mbodiène | 20,0% | 80,0% | | 100,0% |
| Total | 31,0% | 35,7% | 33,3% | 100,0% |

**Tableau 19 : Première destination des revenus des chefs de ménages**

| Site GDRH | Destination des revenus | | | | | | Total |
|---|---|---|---|---|---|---|---|
| | Nourriture | Equipement domestique | Construction | Santé | Scolarisation | Equipement pêche | |
| Ouakam | 100,0% | | | | | | 100,0% |
| Soumbédioune | 100,0% | | | | | | 100,0% |
| Bargny | 90,9% | | | | | 9,1% | 100,0% |
| Yène | 100,0% | | | | | | 100,0% |
| Mballing | 90,0% | | 10,0% | | | | 100,0% |
| Nianing | 83,3% | | | 8,3% | | 8,3% | 100,0% |
| Pointe Sarène | 90,0% | 10,0% | | | | | 100,0% |
| Mbodiène | 87,5% | | | | 12,5% | | 100,0% |
| Total | 92,7% | 1,2% | 1,2% | 1,2% | 1,2% | 2,4% | 100,0% |

**Tableau 20 : Seconde destination des revenus selon les sites**

| Site GDRH | Seconde destination des revus des chefs de ménages | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|
| | Nourriture | Construction et équipement domestique | Santé | Scolarisation | Cérémonie familiale | Achat équipement pêche | Autre | |
| Ouakam | | 6,7% | 6,7% | 33,3% | | 53,3% | | 100,0% |
| Soumbédioune | | | 11,1% | 33,3% | 5,6% | 44,4% | 5,6% | 100,0% |
| Bargny | | 15,4% | | 23,1% | 15,4% | 38,5% | 7,7% | 100,0% |
| Yène | | 23,5% | 5,9% | 17,6% | 5,9% | 41,2% | 5,9% | 100,0% |
| Mballing | | 12,3% | 16,7% | 27,8% | | 33,3% | | 100,0% |
| Nianing | | 4,8% | 19,0% | 19,0% | | 57,1% | | 100,0% |
| Pointe Sarène | 4,8% | | 19,0% | 4,8% | | 71,4% | | 100,0% |
| Mbodiène | | 29,0% | 18,7% | 23,7% | 30,0% | | | 100,0% |
| Total | ,7% | 12,1% | 12,6% | 22,5% | 7,2% | 42,7% | 2,2% | 100,0% |

**Tableau 21 : Techniques de pêche pratiquées selon les sites**

| Site GDRH | Techniques de pêche pratiquées sur les sites | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Ligne sortie quotidienne | Ligne marée | Sorti quotidienne filet dormant | Filet maillant encerclant | Sortie quotidienne filet dérivant | Senne de plage | Senne tournante | Epervier | Pêche sous-marine | Total |
| Ouakam | 44,4% | | | 5,6% | 33,3% | | | | 16,7% | 100% |
| Soumbédioune | 65,0% | 15,0% | 10,0% | | | | | | 10,0% | 100% |
| Bargny | 16,0% | | 56,0% | | | 4,0% | 24,0% | | | 100% |
| Yène | 42,1% | 21,1% | 36,8% | | | | | | | 100% |
| Mballing | 9,1% | | 81,8% | | | 4,5% | | | 4,5% | 100% |
| Nianing | 10,5% | | 84,2% | | | 5,3% | | | | 100% |
| Pointe Sarène | 9,5% | | 81,0% | | | 4,8% | | | 4,8% | 100% |
| Mbodiène | | | | | | | | 100,0% | | 100% |
| Total | 26,9% | 4,8% | 51,0% | ,7% | 4,1% | 2,8% | 4,1% | ,7% | 4,8% | 100% |

## *Excerpt from "Etude Etats de référence"*

**Tableau 22 : Effectifs des unités par catégorie d'engins de pêche selon les sites**

| Sites | Ligne | Filet maillant | Senne de plage | Senne tournante | Pêche-sous marine | Mixte/autres | Total |
|---|---|---|---|---|---|---|---|
| Ouakam | 150 | 90 | | | 20 | 50 | 310 |
| Soumbédioune | 380 | 20 | 4 | | 30 | 16 | 450 |
| Bargny | 42 | 208 | 17 | 96 | | 119 | 482 |
| Yène | 294 | 300 | 5 | | | 100 | 699 |
| Mballing | 5 | 95 | 4 | | 5 | | 109 |
| Nianing | 30 | 250 | 2 | | | 20 | 302 |
| Pointe Sarène | 5 | 170 | 5 | | 5 | 20 | 205 |
| Mbodiène | | | | | | 11 | 11 |
| Total | 906 | 1133 | 37 | 96 | 60 | 336 | 2568 |

**Tableau 23 : Organisation d'affiliation des professionnels selon les sites**

| Site GDRH | Organisation d'affiliation des professionnels | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Aucune | CLP | Autre organisation locale | CLPA | FENAGIE | CNPS | FENATRAMS | Total |
| Ouakam | 27,3% | 25,5% | 38,2% | 9,1% | | | | 100,0% |
| Soumbédioune | 30,8% | 18,5% | 17,7% | 7,7% | 7,7% | 7,7% | | 100,0% |
| Bargny | 27,3% | 16,4% | 38,2% | 9,1% | | | 9,1% | 100,0% |
| Yène | 23,1% | 26,2% | 35,4% | 7,7% | 7,7% | | | 100,0% |
| Mballing | 5,3% | 57,9% | 21,1% | 5,3% | 5,3% | | 5,3% | 100,0% |
| Nianing | 4,3% | 69,6% | 13,0% | 4,3% | 8,7% | | | 100,0% |
| Pointe Sarène | 4,0% | 72,0% | 12,0% | 4,0% | 8,0% | | | 100,0% |
| Mbodiène | 22,2% | 55,6% | 11,1% | 11,1% | | | | 100,0% |
| Total | 14,5% | 46,5% | 24,5% | 6,5% | 5,6% | ,8% | 1,6% | 100,0% |

**Tableau 24 : Les mesures en cours et les mesures envisagées sur les sites**

| Sites | Mesures en cours | Mesures envisagées |
|---|---|---|
| **Ouakam** | La création d'une zone à exploitation réglementée (ZER)<br>La création d'une zone interdite de Pêche (Z I P).<br>Le nettoyage des fonds marins (filets perdus, débris divers) | La création d'une zone à exploitation réglementée (ZER)<br>La création d'une zone interdite de Pêche (Z I P).<br>Le nettoyage des fonds marins (filets perdus, débris divers) |
| **Soumbédioune** | | Interdit de débarquer des poulpes d'un poids inférieur à 400 g ;<br>Exploitation de la cigale du 1er novembre au 31 décembre<br>Exploitation de la langouste du 1er juin au 31 juillet<br>Exploitation des oursins du 1er juin au 31 août<br>Interdiction de la palangre ;<br>Interdiction de tous les types de filets ;<br>Interdiction de la pêche à la ligne avec utilisation d'appâts vivants<br>immersion de récifs artificiels<br>création d'une zone de pêche protégée<br>nettoyage des rochers |
| **Bargny** | Zone de récif artificiel | Repos biologique sur le Thiof en juin de chaque année ;<br>Interdiction de pêcher des thiof de moins de 45 cm ;<br>Interdiction de la palangre ;<br>Interdiction de tous les types de filets ;<br>Sennes tournantes à mailles réglementaires autorisées à opérer de juillet à août<br>Cent (100) pirogues maximum autorisées par jour ;<br>Durée des sorties est fixée à huit (8) heures de mer par sortie ;<br>Les sorties autorisées se feront du lever au coucher du soleil ;<br>Extension de la zone des récifs artificiels |
| **Yène** | Zone de récif | Repos biologique sur le Thiof en juin de chaque année ;<br>Interdiction de pêcher des thiof de moins de 45 cm ;<br>Interdiction de la pêche à la dynamite ;<br>Interdiction de la pêche à la palangre ;<br>interdiction de tous les types de filets ;<br>Autorisation de Cinquante (50) pirogue par jour dans l'aire de cogestion |
| **Mballing** | - Repos biologique sur le poulpe<br>- Repos biologique sur le cybium<br>- Immersion de vase de ponte pour le poulpe<br>- Alevinage de cybium | ➢ Interdiction des types de pêche suivants :<br>filets dormants non réglementaires,<br>chasse sous-marine,<br>pêche à l'explosif ;<br>palangre ;<br>senne tournante;<br>filet maillant encerclant ;<br>filet maillant dérivant de surface ;<br>le filet dérivant de fond ;<br>le filet plongeant ;<br>➢ 50 pirogue /J dans l'aire de cogestion<br>➢ Pirogue immatriculée sans glacière<br>➢ 20 filets par pirogue dans la zone de cogestion<br>➢ Repos biologique sur le Poulpe et le cybium, la seiche et la langouste<br>➢ Alevinage des de cybium juvéniles |
| **Nianing** | - Repos biologique sur le poulpe<br>- Repos biologique sur le cybium<br>- Immersion de vase de ponte pour le poulpe<br>- Alevinage de cybium | Identiques à Mballing |
| **Pointe-Sarène** | - Repos biologique sur le poulpe<br>- Repos biologique sur le cybium<br>- Immersion de vase de ponte pour le poulpe<br>- Alevinage de cybium | Identiques à Mballing |
| **Mbodiène** | Interdiction de filets maillant et de sennes dans la lagune | Même mesure qu' à Mballing plus<br>- repos biologique de la carpe dans la lagune<br>- Interdiction des éperviers à maille non réglementaire<br>- Interdiction des filets maillants et des sennes dans la lagune ;<br>- Interdiction de filets (FD, FME, SP,…) au niveau de l'embouchure ;<br>- Relâchement des juvéniles de carpe |

**Tableau 25 : Etendu et limites des aires de cogestion sur les sites**

| Sites | Etendue et limite de l'aire de cogestion |
|---|---|
| Ouakam | |
| Soumbédioune | L'aire de cogestion du site de Soumbédioune va du Cap Manuel à la limite avec le site de Ouakam. Cette limite serait à hauteur de l'hôtel Radisson. |
| Bargny | Le site de Bargny va de Khembé (non loin de l'usine Bata) à l'entrée du village de Yène Todd, soit sur une longueur de sept (7) Km. |
| Yène | L'aire de cogestion du site de Yène a la particularité de s'étendre le long des sept (7) villages composant le site et assimilable à des quartiers d'une même localité. Elle va donc de Yène Todd à Toubab Dialaw. |
| Mballing | La zone des initiatives sur le site de Mballing couvre une superficie de 6 km2 (longueur 3 km et largeur 2 km). |
| Nianing | La zone des initiatives couvre une superficie de 15 km2 (longueur 7,5 km et largeur 2 km). |
| Pointe Sarène | La zone des initiatives couvre une superficie de 15 km2 (longueur 7,5 km et largeur 2 km). |
| Mbodiène | La zone des initiatives couvre une superficie de 10 km2 (longueur 5 km et largeur 2 km). |

**Tableau 26 : Niveau de connaissance des professionnels à la base des mesures en cours selon les sites**

| Mesures en cours | Sites | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | Ouakam | Soumbédioune | Bargny | Yène | Mballing | Nianing | Pointe Sarène | Mbodiène | |
| Aucune | 7,1% | 19,2% | 37,0% | 63,6% | | | | 29,4% | 14,7% |
| repos biologique sur le poulpe | | | | | 26,7% | 25,0% | 34,0% | | 13,7% |
| Repos biologique sur le cymbium | | | | | 20,0% | 25,0% | 24,5% | | 10,7% |
| Alevinage de cymbium | | | | | 26,7% | 25,0% | 22,6% | 5,9% | 11,2% |
| Interdiction de pêcher dans la zone de récif | | | 7,4% | 9,1% | | | | | 1,5% |
| Immersion de vases de ponte pour le poulpe | | | | | 26,7% | 25,0% | 18,9% | | 9,6% |
| Interdiction de capturer des juvéniles | | | 29,6% | 27,3% | | | | | 5,6% |
| Interdiction du filet dérivant (félé-félé) | 10,7% | | 7,4% | | | | | | 2,5% |
| Interdiction de la pêche à la dynamite | 42,9% | 42,3% | 7,4% | | | | | | 12,7% |
| Limitation des sorties | | | 7,4% | | | | | | 1,0% |
| Interdiction du monofilament | 10,7% | 30,8% | | | | | | | 5,6% |
| Interdiction de pêcheur dans la lagune | | | | | | | | 58,8% | 5,1% |
| Pêche exclusive à la ligne dans la zone réglementée | | | 3,7% | | | | | | ,5% |
| Interdiction des autres plongeurs de venir à Soumbédioune | | 3,8% | | | | | | | ,5% |
| Interdiction de la pêche à 4,5 m aux alentours de l'île de la Madeleine | | 3,8% | | | | | | | ,5% |
| Interdiction de la pêche aux filets dans la ZPP | 28,6% | | | | | | | 5,9% | 4,6% |
| Total | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Tableau 27 : Niveau de connaissance des professionnels à la base des mesures envisagées sur les sites**

| Mesures envisagées | Sites | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | Ouakam | Soumbédioune | Bargny | Yène | Mballing | Nianing | Pointe Sarène | Mbodiène | |
| Aucune | 71,4% | 62,5% | 34,5% | 14,3% | | | | 5,9% | 21,5% |
| Instaurer une zone de pêche protégée (ZPP) | 7,1% | 37,5% | 6,9% | 10,7% | 64,3% | 87,5% | 94,4% | 94,1% | 46,9% |
| Augmenter le nombre de récifs et étendre leur zone d'immersion | | | 24,1% | 32,1% | | | | | 10,0% |
| Interdire la senne de plage | | | | | 14,3% | 12,5% | 5,6% | | 4,1% |
| Nettoyage des rochers | | | 13,8% | 28,6% | | | | | 7,5% |
| Limiter le nombre de sorties journalières | | | 6,9% | 3,6% | | | | | 1,9% |
| Limiter les nombre de filet dans la zpp | | | | 3,6% | | | | | ,6% |
| Interdire la pêche des juvénile | | | 10,3% | | | | | | 1,9% |
| Surveiller la zone des récifs | | | 3,4% | 7,1% | | | | | 1,9% |
| Exiger les débarquements dans le village | | | | | 21,4% | | | | 1,9% |
| Immersion de récif dans la zpp | 21,4% | | | | | | | | 1,9% |
| Total | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Tableau 28 : Justifications des mesures par les professionnels selon les sites**

| Sites | Justificatifs des mesures | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|
| | Protéger les lieux de pêche en face du village | Restaurer la ressource | Réglementer l'utilisation des engins jugés nocifs | Organiser les sorties de pêche | Relever le prix au débarquement | Eviter les conflits | Autre | |
| Ouakam | | 53,6% | 42,9% | | | | 3,6% | 100,0% |
| Soumbédioune | 3,1% | 46,9% | 46,9% | | 3,1% | | | 100,0% |
| Bargny | 9,1% | 40,9% | 27,3% | 9,1% | 4,5% | 9,1% | | 100,0% |
| Yène | 20,0% | 50,0% | 10,0% | | 20,0% | | | 100,0% |
| Mballing | 33,3% | 33,3% | 23,8% | | 7,1% | | 2,4% | 100,0% |
| Nianing | 35,1% | 36,8% | 24,6% | | | 3,5% | | 100,0% |
| Pointe Sarène | 26,3% | 47,4% | 2,6% | | 23,7% | | | 100,0% |
| Mbodiène | 12,1% | 54,5% | 33,3% | | | | | 100,0% |
| Total | 20,2% | 43,9% | 26,7% | ,8% | 6,1% | 1,5% | ,8% | 100,0% |

**Tableau 29 : Niveau de connaissance des instances de prise de décision selon les sites**

| Sites | Instance instaurant les mesures | | | | | |
|---|---|---|---|---|---|---|
| | Population locale | Projet | Groupe de pêcheurs | Service des pêches | Parcs nationaux | Total |
| Ouakam | | 28,0% | 64,0% | 4,0% | 4,0% | 100,0% |
| Soumbédioune | 25,0% | 10,7% | 64,3% | | | 100,0% |
| Bargny | 50,0% | 25,0% | 25,0% | | | 100,0% |
| Yène | 12,5% | 50,0% | 37,5% | | | 100,0% |
| Mballing | 88,1% | 11,9% | | | | 100,0% |
| Nianing | 72,4% | 27,6% | | | | 100,0% |
| Pointe Sarène | 62,3% | 30,0% | 7,7% | | | 100,0% |
| Mbodiène | 88,9% | 7,4% | 3,7% | | | 100,0% |
| Total | 61,5% | 18,5% | 19,2% | ,4% | ,4% | 100,0% |

**Tableau 30 : Connaissance des structures de mise en œuvre des mesures selon les sites**

| | Structure de mise en œuvre | | | | |
|---|---|---|---|---|---|
| Sites | CLP | GIE interprofessionnel | Service des pêches | Autre | Total |
| Ouakam | 40,9% | | 54,5% | 4,5% | 100,0% |
| Soumbédioune | 29,6% | 3,7% | 63,0% | 3,7% | 100,0% |
| Bargny | 35,7% | 7,1% | 14,3% | 42,9% | 100,0% |
| Yène | 50,0% | 10,0% | 30,0% | 10,0% | 100,0% |
| Mballing | 85,7% | 14,3% | | | 100,0% |
| Nianing | 100,0% | | | | 100,0% |
| Pointe Sarène | 81% | | 19,1% | | 100,0% |
| Mbodiène | 73,9% | | | 26,1% | 100,0% |
| Total | 66,1% | 4,2% | 17,7% | 12,1% | 100,0% |

**Tableau 31 : Perception des professionnels sur le niveau de respects des mesures en cours selon les sites**

| Sites | Respects des mesures en cours | | |
|---|---|---|---|
| | Oui | Non | Total |
| Ouakam | 26,7% | 73,3% | 100,0% |
| Soumbédioune | 13,3% | 86,7% | 100,0% |
| Bargny | 20% | 80% | 100,0% |
| Yène | 10,0% | 90% | 100,0% |
| Mballing | 100,0% | | 100,0% |
| Nianing | 100% | | 100,0% |
| Pointe Sarène | 91,7% | 8,3% | 100,0% |
| Mbodiène | 100,0% | | 100,0% |
| Total | 63,8% | 36,2% | 100,0% |

**Tableau 32 : Appréciation des facteurs de respects des mesures en cours par les populations selon les sites**

| Sites | Facteurs de respect des mesures existantes | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | Une bonne sensibilisation | Adhésion de la population | Appui de partenaires | charisme et crédibilité des leaders | Sanctions encourues | Appui administration des pêches | Avantages procurés aux populations | Autres | |
| Ouakam | 45,5% | 48,5% | 6,1% | | | | | | 100,0% |
| Soumbédioune | 6,3% | 27,1% | 54,2% | | 12,5% | | | | 100,0% |
| Bargny | 18,9% | 21,6% | 13,5% | 13,5% | 10,8% | 13,5% | 5,4% | 2,7% | 100,0% |
| Yène | 1,3% | 15,6% | 67,5% | 1,3% | 13,0% | 1,3% | | | 100,0% |
| Mballing | | 57,9% | 36,8% | | | 5,3% | | | 100,0% |
| Nianing | 22,2% | 24,7% | 40,7% | 11,1% | | | | | 100,0% |
| Pointe Sarène | 26,7% | 35,6% | 28,9% | 2,2% | | 6,7% | | | 100,0% |
| Mbodiène | 23,1% | 41,0% | 2,6% | 28,2% | 5,1% | | | | 100,0% |
| Total | 17,2% | 29,6% | 36,7% | 7,1% | 5,8% | 2,6% | ,5% | ,3% | 100,0% |

**Tableau 33 : Appréciation des facteurs de non-respect des mesures en cours selon les sites**

| | Facteurs de non respects des mesures existantes | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Sites | Défaut de sensibilisation | Non adhésion de la population locale | Non adhésion des allochtones | Manque de crédibilité des leaders | Manque de collaboration de l'administration | Absence de résultats pour les acteurs | Absence de cohésion sociale | Manque de sanctionounitives | Manque de moyen | |
| Ouakam | 35,3% | 5,9% | 23,5% | 11,8% | 17,6% | | | | | 100,0% |
| Soumbédioune | 25,0% | 13,9% | 11,1% | 2,8% | 27,8% | | 8,3% | 11,1% | | 100,0% |
| Bargny | 9,1% | 15,9% | 13,6% | 13,6% | 29,5% | 2,3% | 6,8% | 9,1% | | 100,0% |
| Yène | 3,9% | 3,9% | 1,3% | 2,6% | 75,3% | | 1,3% | 1,3% | 10,4% | 100,0% |
| Mballing | | | 28,6% | | 39,3% | | | | 32,1% | 100,0% |
| Nianing | | | 15,4% | | 16,9% | | | | 67,7% | 100,0% |
| Pointe Sarène | 1,9% | | 26,4% | 1,9% | 67,9% | | | | | 100,0% |
| Mbodiène | | | 46,0% | | 44,0% | | | | 10,0% | 100,0% |
| Total | 5,8% | 4,0% | 19,6% | 3,0% | 44,0% | ,3% | 1,8% | 2,3% | 18,8% | 100,0% |

**Tableau 34 : Appréciation des professionnels sur le respect des mesures envisagées selon les sites**

| Sites | Respect des mesures envisagées | | Total |
|---|---|---|---|
| | Oui | Non | |
| Ouakam | 60,0% | 40,0% | 100,0% |
| Soumbédioune | 20,0% | 80,0% | 100,0% |
| Bargny | 25,0% | 75,0% | 100,0% |
| Yène | 32,4% | 67,6% | 100,0% |
| Mballing | 60,0% | 40,0% | 100,0% |
| Nianing | 64,5% | 35,5% | 100,0% |
| Pointe Sarène | 75,0% | 25,0% | 100,0% |
| Mbodiène | 81,0% | 19,0% | 100,0% |
| Total | 54,1% | 45,9% | 100,0% |

**Tableau 35 : Perception sur les facteurs de respect des mesures envisagées selon les sites**

| Sites | Facteurs de respects des mesures envisagées | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|
| | Une bonne sensibilisation | Adhésion de la population | Appui de partenaires | Charisme et crédibilité des leaders | Les sanctions encourues | Appui de l'administration des pêches | Avantages procurés aux populations | |
| Ouakam | 16,7% | 33,3% | | 16,7% | 16,7% | | 16,7% | 100,0% |
| Soumbédioune | 27,3% | 9,1% | 36,4% | 9,1% | | 18,2% | | 100,0% |
| Bargny | 11,8% | 15,7% | 17,7% | 15,7% | 15,7% | 13,7% | 9,8% | 100,0% |
| Yène | 20,8% | 20,8% | 18,9% | 7,5% | 3,8% | 18,9% | 9,4% | 100,0% |
| Mballing | 5,1% | 41,0% | 17,9% | | 7,7% | 28,2% | | 100,0% |
| Nianing | 10,9% | 32,7% | 21,8% | 1,8% | 5,5% | 27,3% | | 100,0% |
| Pointe Sarène | 20,0% | 20,0% | 20,0% | 20,0% | | 20,0% | | 100,0% |
| Mbodiène | 31,6% | 36,8% | 31,6% | | | | | 100,0% |
| Total | 15,1% | 26,8% | 20,5% | 6,7% | 7,1% | 19,2% | 4,6% | 100,0% |

**Tableau 36 : Perception sur les facteurs de non respect des mesures selon les sites**

| Sites | Facteurs de non respect des mesures envisagées | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | Défaut de sensibilisation | Non adhésion de la population locale | Non adhésion des allochtones | Manque d'"appui de la part de l'administration des pêche | Manque de moyens de surveillance | Absence de résultats pour les acteurs | Absence de cohésion sociale | Manque de sanction punitives | |
| Ouakam | | | 57,1% | | 46,1% | | | | 100,0% |
| Soumbédioune | 9,1% | | 36,5% | | 45,4% | | | 9,1% | 100,0% |
| Bargny | 5,7% | 5,7% | 8,0% | 8,0% | 60% | 3,4% | 5,7% | 4,5% | 100,0% |
| Yène | 16,4% | 14,8% | 1,6% | 9,8% | 45,9% | | 6,6% | 4,9% | 100,0% |
| Mballing | | | 15,9% | | 84,1% | | | | 100,0% |
| Nianing | 3,2% | 1,6% | | 4,8% | 91,9% | | | | 100,0% |
| Pointe Sarène | 4,7% | 4,7% | 37,2% | | 53,5% | | | | 100,0% |
| Mbodiène | 3,8% | 19,6% | 30,8% | | 35,1% | | | | 100,0% |
| Total | 5,8% | 6,2% | 15,5% | 4,1% | 63,3% | ,8% | 2,5% | 2,2% | 100,0% |

**Tableau 37 : Appréciations des professionnels sur les mesures selon les sites**

| Sites | Appréciation sur les mesures | | | | Total |
|---|---|---|---|---|---|
| | Très efficace | Efficace | Peu efficace | Pas efficace | |
| Ouakam | 14,3% | 28,6% | 7,1% | 50,0% | 100,0% |
| Soumbédioune | | 23,1% | 38,5% | 38,5% | 100,0% |
| Bargny | 8,3% | 91,7% | | | 100,0% |
| Yène | 40,0% | 60,0% | | | 100,0% |
| Mballing | 92,5% | 7,6% | | | 100,0% |
| Nianing | 82,6% | 17,4% | | | 100,0% |
| Pointe Sarène | 69,2% | 23,1% | 7,7% | | 100,0% |
| Mbodiène | 76,9% | 23,1% | | | 100,0% |
| Total | 67,0% | 23,3% | 3,6% | 6,1% | 100,0% |

**Tableau 38 : Niveau de connaissance des professionnels des espaces choisis pour les ZPP et les récifs**

| Sites | Connaissance de zone de pêche protégées ou de récif sur les sites | | Total |
|---|---|---|---|
| | Oui | Non | |
| Ouakam | 100,0% | | 100,0% |
| Soumbédioune | 10% | 90,0% | 100,0% |
| Bargny | 100,0% | | 100,0% |
| Yène | 100,0% | | 100,0% |
| Mballing | 5,0% | 95,0% | 100,0% |
| Nianing | 10% | 90,0% | 100,0% |
| Pointe Sarène | 5,0% | 95,0% | 100,0% |
| Mbodiène | 20% | 80,0% | 100,0% |
| Total | 40,0% | 60,0% | 100,0% |

**Tableau 39 : Perceptions des populations sur l'état des ZPP et des zones de récif selon les sites**

| Sites | Perception sur l'état de la ZPP ou récif | | | | |
|---|---|---|---|---|---|
| | N'a pas encore démarré(e) | Démarre timidement | Bien démarré et en pleine activité | En léthargie | Total |
| Ouakam | 47,4% | 36,8% | 5,3% | 10,5% | 100,0% |
| Soumbédioune | 100,0% | | | | 100,0% |
| Bargny | 5,0% | 5,0% | 5,0% | 85,0% | 100,0% |
| Yène | | 5,0% | | 95,0% | 100,0% |
| Mballing | 100,0% | | | | 100,0% |
| Nianing | 100% | | | | 100,0% |
| Pointe Sarène | 100,0% | | | | 100,0% |
| Mbodiène | 100,0% | | | | 100,0% |
| Total | 74,6% | 4,6% | 1,0% | 19,3% | 100,0% |

**Tableau 40 : Perceptions des populations sur l'état d'application des règles sur les ZPP et zone de récif**

| Sites | Perception sur l'application des règles de gestion | | | | |
|---|---|---|---|---|---|
| | Pas encore démarré pour appliquer des règles | Règles existant mais pas appliquées | Règles existant mais peu appliquées | Règle bien appliquées | Total |
| Ouakam | 5,6% | 72,2% | 16,7% | 5,6% | 100,0% |
| Soumbédioune | 100,0% | | | | 100,0% |
| Bargny | 5,3% | 68,4% | 21,1% | 5,3% | 100,0% |
| Yène | 15,0% | 55,0% | 10,0% | 20,0% | 100,0% |
| Mballing | 100,0% | | | | 100,0% |
| Nianing | 100,0% | | | | 100,0% |
| Pointe Sarène | 100,0% | | | | 100,0% |
| Mbodiène | 63,2% | 31,6% | | 5,3% | 100,0% |
| Total | 51,6% | 35,2% | 7,4% | 5,7% | 100,0% |

**Tableau 41 : Perception des professionnels sur le dispositif de surveillance selon les sites**

| Sites | Perception sur le dispositif de surveillance | | | | |
|---|---|---|---|---|---|
| | Pas encore mis en place | Pas efficace | Peu efficace | Efficace | Total |
| Ouakam | 3,6% | 32,1% | 57,1% | 7,1% | 100,0% |
| Soumbédioune | 100,0% | | | | 100,0% |
| Bargny | 3,8% | 30,8% | 61,5% | 3,8% | 100,0% |
| Yène | 10,5% | 52,6% | 36,8% | | 100,0% |
| Mballing | 96,2% | | | 3,8% | 100,0% |
| Nianing | 93,5% | | | 6,5% | 100,0% |
| Pointe Sarène | 100,0% | | | | 100,0% |
| Mbodiène | 75,0% | | | 25,0% | 100,0% |
| Total | 59,0% | 14,4% | 20,7% | 5,9% | 100,0% |

**Tableau 42 : Perception des professionnels sur les infrastructures relatives à l'accès au ZPP et zone de récif**

| Sites | Perception sur les infractions relatives à l'accès au ZPP/récif | | | | | |
|---|---|---|---|---|---|---|
| | Inexistantes | Peu fréquentes | Assez fréquentes | Très fréquentes | En permanence | Total |
| Ouakam | 4,2% | 4,2% | 37,5% | 41,7% | 12,5% | 100,0% |
| Soumbédioune | 8,7% | 73,9% | 17,4% | | | 100,0% |
| Bargny | | | 4,8% | 28,6% | 66,7% | 100,0% |
| Yène | | | 20,9% | 37,5% | 41,7% | 100,0% |
| Mballing | 65,5% | 27,6% | 6,9% | | | 100,0% |
| Nianing | 18,8% | 37,5% | 43,8% | | | 100,0% |
| Pointe Sarène | 83,3% | 5,6% | 5,6% | 5,6% | | 100,0% |
| Mbodiène | 79,3% | 10,3% | 10,3% | | | 100,0% |
| Total | 31,4% | 22,2% | 21,8% | 12,0% | 12,5% | 100,0% |

**Tableau 43 : Perception sur le degré den motivation des professionnels à participer à la surveillance**

| Sites | Perception sur le degré de motivation à participer à la surveillance | | | | | Total |
|---|---|---|---|---|---|---|
| | Très peu motivé | Peu motivé | Moyennement motivé | Bien motivé | Très bien motivé | |
| Ouakam | 20,0% | 5,0% | 5,0% | 70,0% | | 100,0% |
| Soumbédioune | 54,5% | 30,3% | 9,1% | 6,1% | | 100,0% |
| Bargny | 26,3% | 68,4% | 5,3% | | | 100,0% |
| Yène | 38,1% | 52,4% | | 9,5% | | 100,0% |
| Mballing | | | 17,6% | 70,6% | 11,8% | 100,0% |
| Nianing | | 4,2% | 8,3% | 81,3% | 6,3% | 100,0% |
| Pointe Sarène | | 6,3% | 6,3% | 87,5% | | 100,0% |
| Mbodiène | | 5,0% | 15,0% | 65,0% | 15,0% | 100,0% |
| Total | 18,0% | 20,1% | 8,2% | 49,5% | 4,1% | 100,0% |

**Tableau 44 : Perception des moyens de fonctionnement de contrôle et de surveillance des CLP sur les sites**

| Sites | Perception sur les moyens de contrôle et de surveillance | | | Total |
|---|---|---|---|---|
| | Inexistant | Très peu | Moyen | |
| Ouakam | 20,0% | 65,0% | 15,0% | 100,0% |
| Soumbédioune | 86,3% | 13,6% | | 100,0% |
| Bargny | 94,7% | 5,3% | | 100,0% |
| Yène | 89,5% | 10,5% | | 100,0% |
| Mballing | 45,2% | 40,5% | 14,3% | 100,0% |
| Nianing | 48,5% | 39,4% | 12,1% | 100,0% |
| Pointe Sarène | 78,3% | 8,7% | 13,0% | 100,0% |
| Mbodiène | 80,0% | 15,0% | 5,0% | 100,0% |
| Total | 64,6% | 27,3% | 8,1% | 100,0% |

**Tableau 45 : Niveau de connaissance du GDRH par les professionnels sur les sites**

| Sites | Connaissance GDRH | | | Total |
|---|---|---|---|---|
| | Oui | Non | J'en ai entendu parler | |
| Ouakam | 8,7% | 78,3% | 13,0% | 100,0% |
| Soumbédioune | 2,6% | 60,6% | 36,8% | 100,0% |
| Bargny | 3,7% | 83,0% | 14,3% | 100,0% |
| Yène | 12,5% | 34,4% | 53,1% | 100,0% |
| Mballing | 54,5% | 22,7% | 22,7% | 100,0% |
| Nianing | 40,0% | 33,3% | 26,7% | 100,0% |
| Pointe Sarène | 15,2% | 24,2% | 60,6% | 100,0% |
| Mbodiène | 14,3% | 45,7% | 40,0% | 100,0% |
| Total | 16,8% | 49,1% | 34,1% | 100,0% |

**Tableau 46 : Appréciation de l'intervention du GDRH par les professionnels sur les sites**

| Sites | Appréciation sur l'intervention du GDRH | | | Total |
|---|---|---|---|---|
| | Il n'a encore rien fait | Pas encore démarré | Très timide | |
| Ouakam | 14,7% | 64,7% | 20,6% | 100,0% |
| Soumbédioune | 12,5% | 70,8% | 16,7% | 100,0% |
| Bargny | 6,8% | 62,7% | 30,5% | 100,0% |
| Yène | 15,9% | 72,7% | 11,4% | 100,0% |
| Mballing | 22,2% | 35,6% | 42,2% | 100,0% |
| Nianing | 28,6% | 57,1% | 14,3% | 100,0% |
| Pointe Sarène | 11,3% | 64,2% | 24,5% | 100,0% |
| Mbodiène | 2,0% | 77,6% | 20,4% | 100,0% |
| Total | 14,2% | 63,1% | 22,7% | 100,0% |

## Cabo Verde, Maio island

**Tableau 1 : Distribution spatiale (par communauté) des acteurs de la pêche (Île de Maio)**

| **Communauté** | **Profession des acteurs de la pêche** | | | | | |
|---|---|---|---|---|---|---|
| | **Pêcheur** | **Plongeur** | **Vendeuses de poissons** | **Armateur** | **Pêcheur sportif** | **TOTAL** |
| **Vindos do Norte:** | | | | | | |
| Cidade de Porto Inglês | 38 | 10 | 21 | 0 | 1 | **70** |
| Ribeira Don João | 3 | 0 | 0 | 1 | 0 | **4** |
| Barreiro | 13 | 0 | 9 | 1 | 0 | **23** |
| ***Sous-total 1*** | ***54*** | ***10*** | ***30*** | ***2*** | ***1*** | ***97*** |
| **Vindos do Sul:** | | | | | | |
| Calheta | 32 | 8 | 43 | 9 | 0 | **92** |
| Alcatraz | 3 | 4 | 9 | 1 | 0 | **17** |
| Pedro Vaz | 3 | 0 | 1 | 0 | 0 | **4** |
| Praia Gonçalo | 6 | 0 | 4 | 1 | 0 | **11** |
| Cascabulho | 3 | 0 | 1 | 1 | 0 | **5** |
| Morrinho | 6 | 2 | 1 | 0 | 0 | **9** |
| Porto Cais | 6 | 0 | 0 | 0 | 0 | **6** |
| ***Sous-total 2*** | ***59*** | ***14*** | ***59*** | ***12*** | ***0*** | ***144*** |
| **TOTAL** | **113** | **24** | **89** | **14** | **1** | **241** |

**Source :** DGRM/PRAO-CV, 2015.

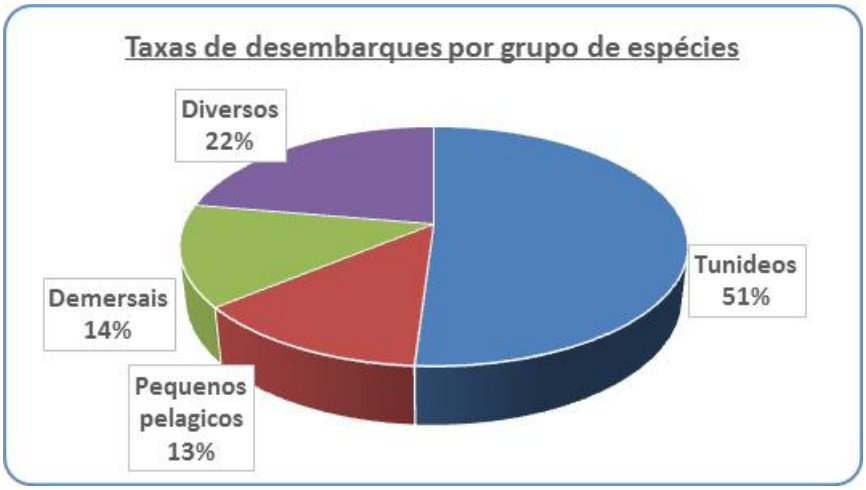
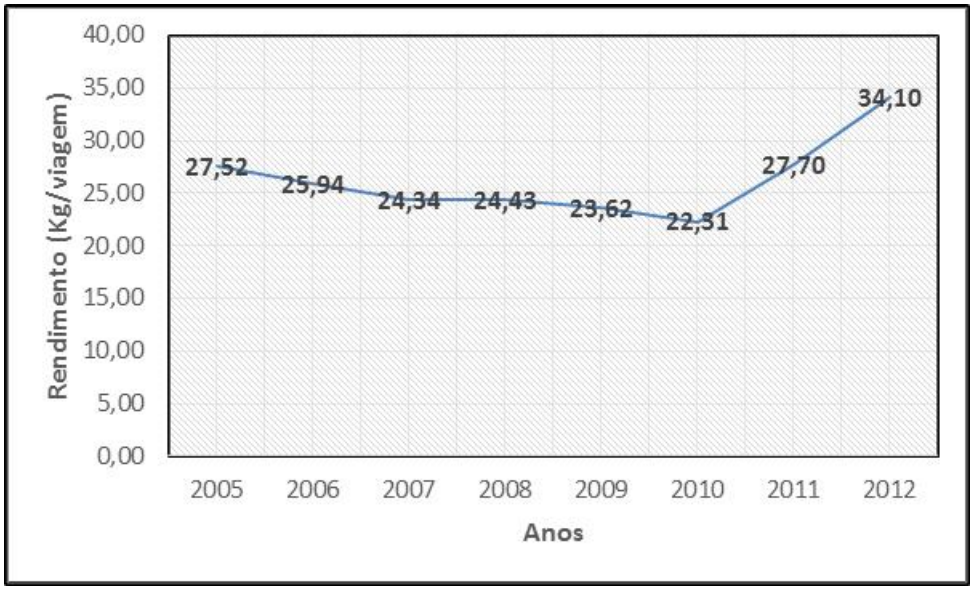



**Figure 1 : Distribution des produits débarqués par groupe d'espèces 2012 Source: INDP, 2012.**




Evolution du taux de captures exprimé en kg/voyage (2005 – 2012)

**Source:** INDP, 2012

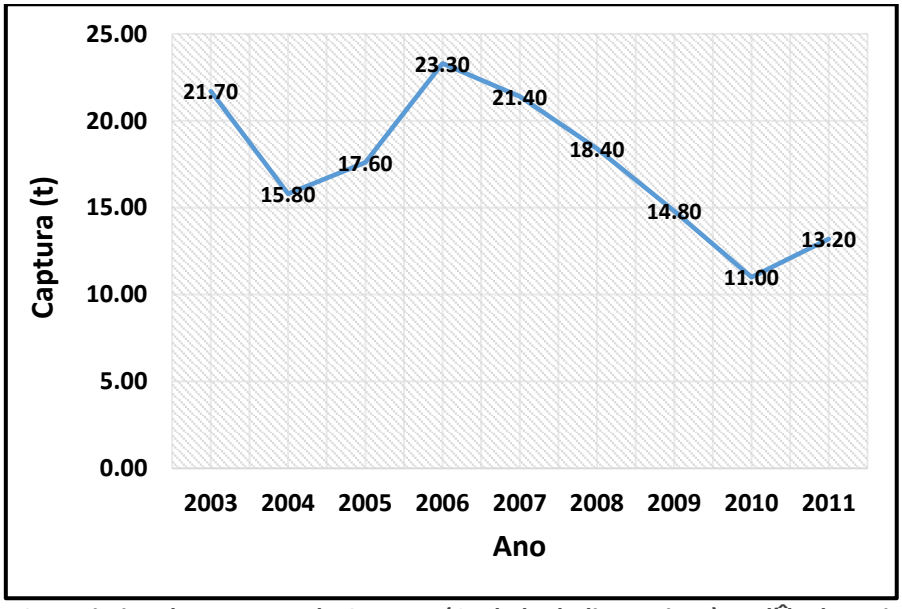
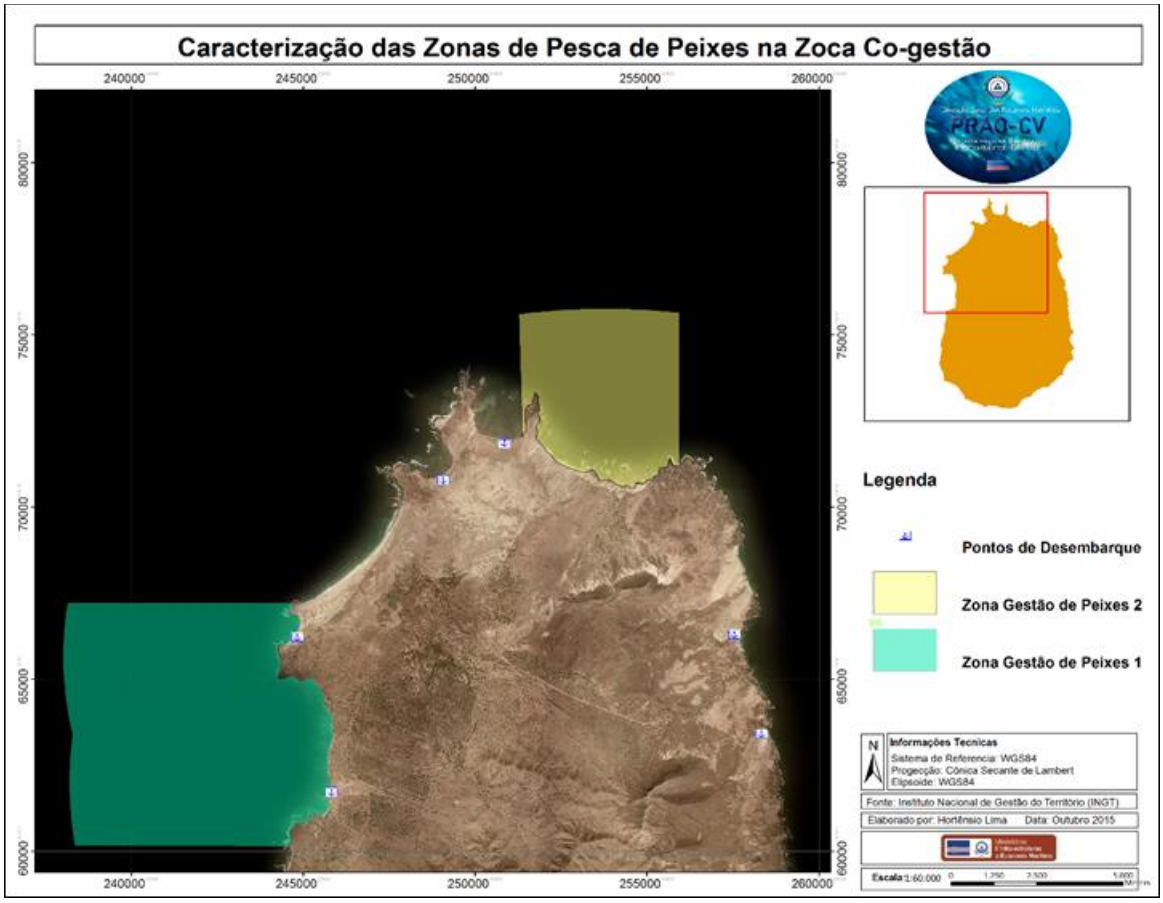


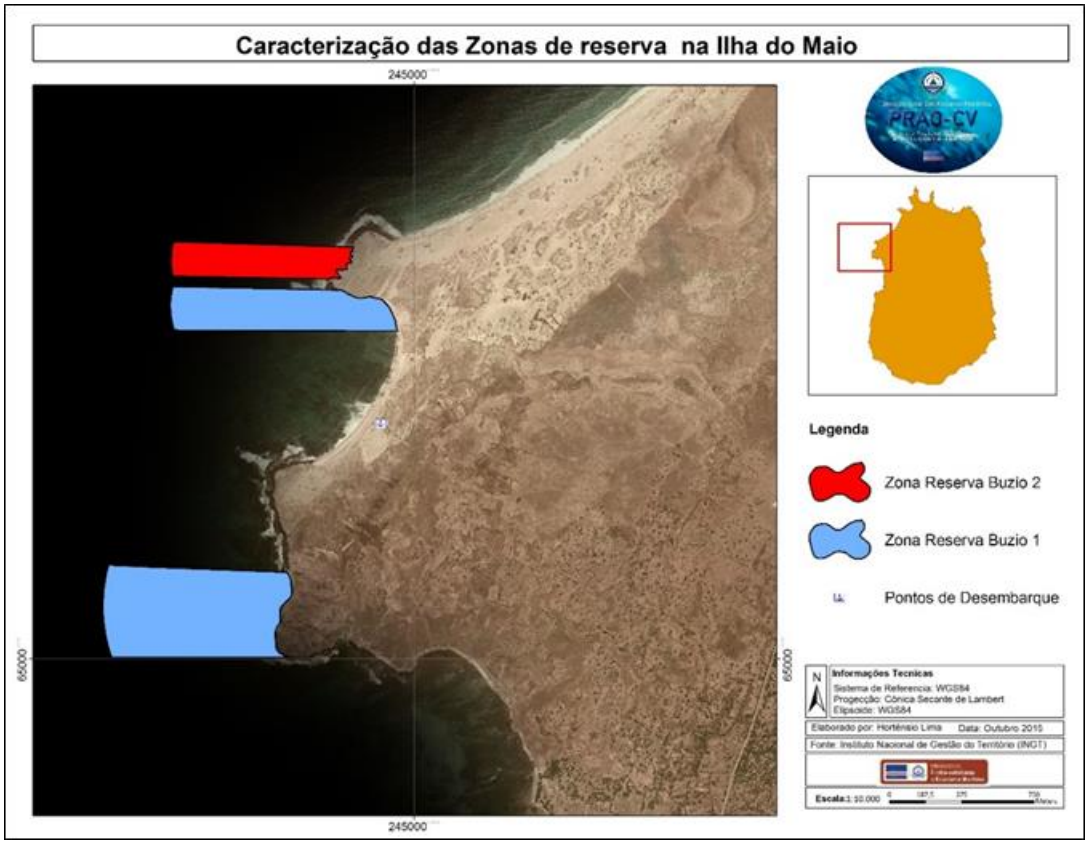

**Figure 9 : Variation des captures de Garoupa (Cephalopholis taeniops) sur l'Île de Maio de 2003 à 2011 Source: INDP, 2011.**



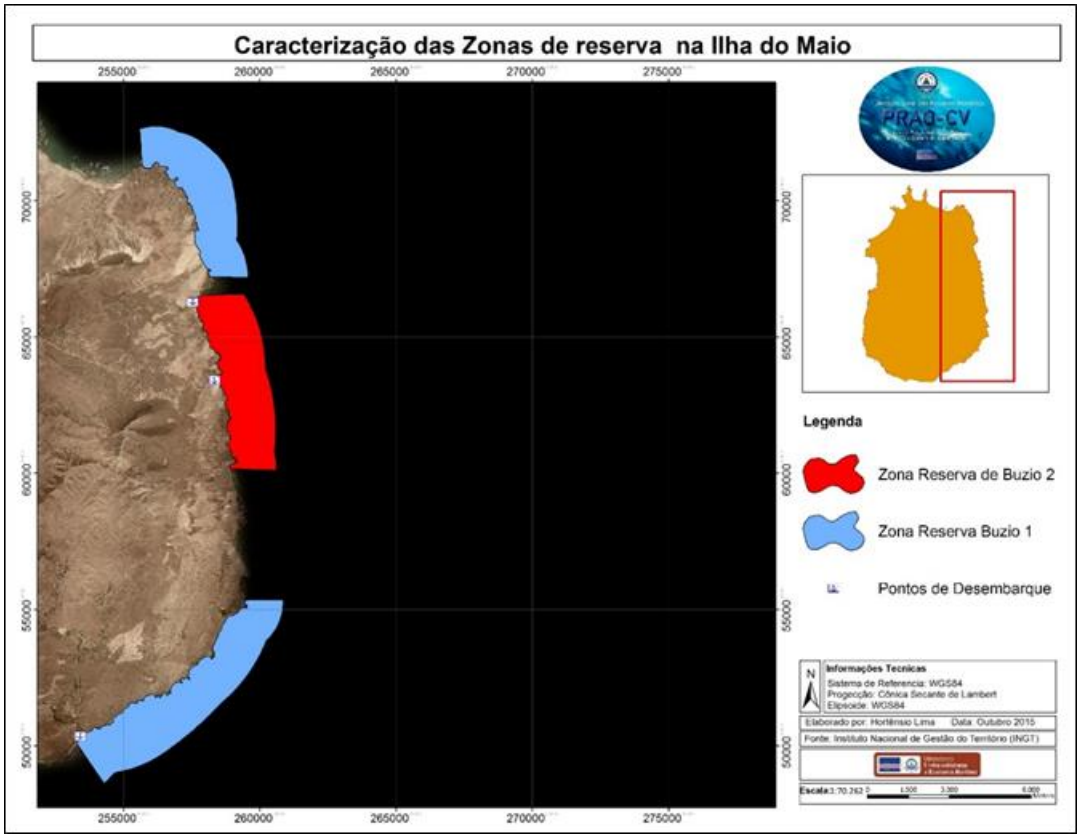

**Carte 1 : Carte Zones de restrictions spatiales et temporelles pour la pêche de poissons**

**Mesures de gestion 6:**

- ✓ Etablir une période temporaire et rotative de 24 mois fermée pour la pêche au niveau de 02 zones de pêche identifiées par les pêcheurs (zone 1 et zone 2 sur la carte 4) afin de réduire l'effort de pêche et de permettre une récupération des espèces de poissons dans l'aire. On ferme la zone 1 pendant 24 mois puis on l'ouvre à la pêche, et on ferme à son tour la zone 2 pendant la même durée.




**Carte 2 : Les zones réservées pour la gestion (rotation) de la pêche de Búzio cabra dans la zone de Calheta (Nord-Ouest de l'île)**

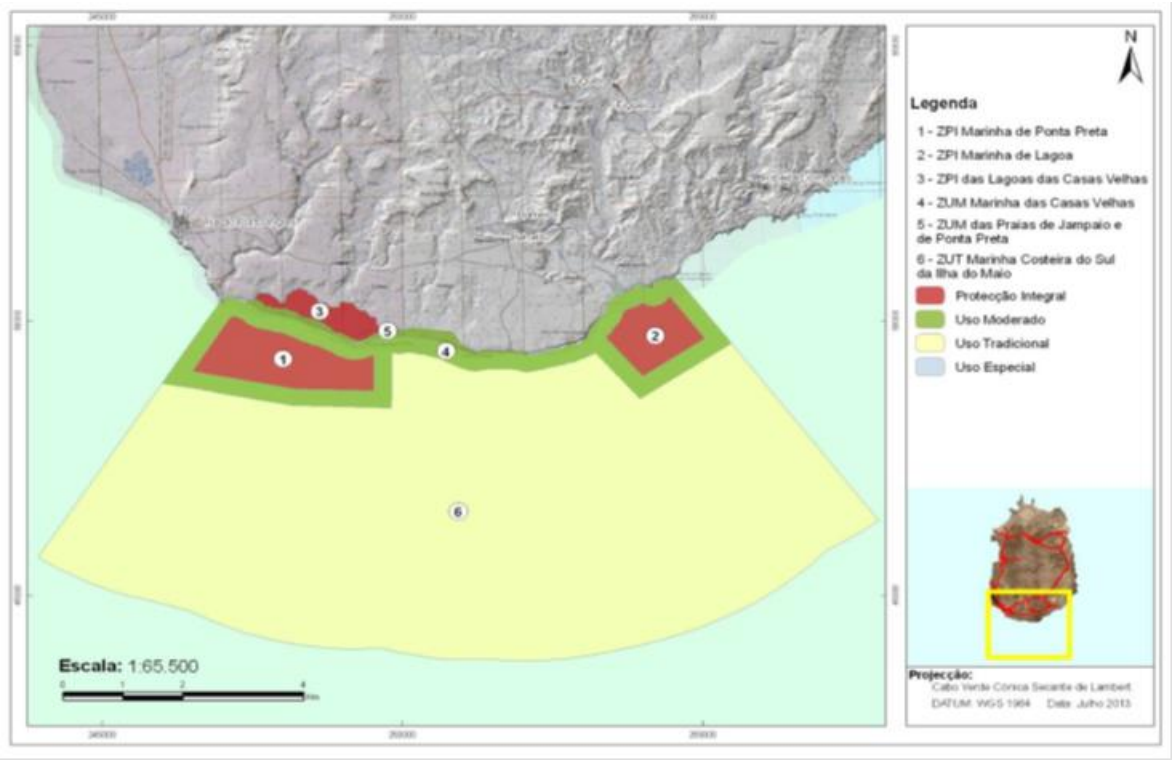



**Carte 3 : Les zones réservées pour la gestion (rotation) de la pêche de Búzio cabra à l'Est de l'île.**

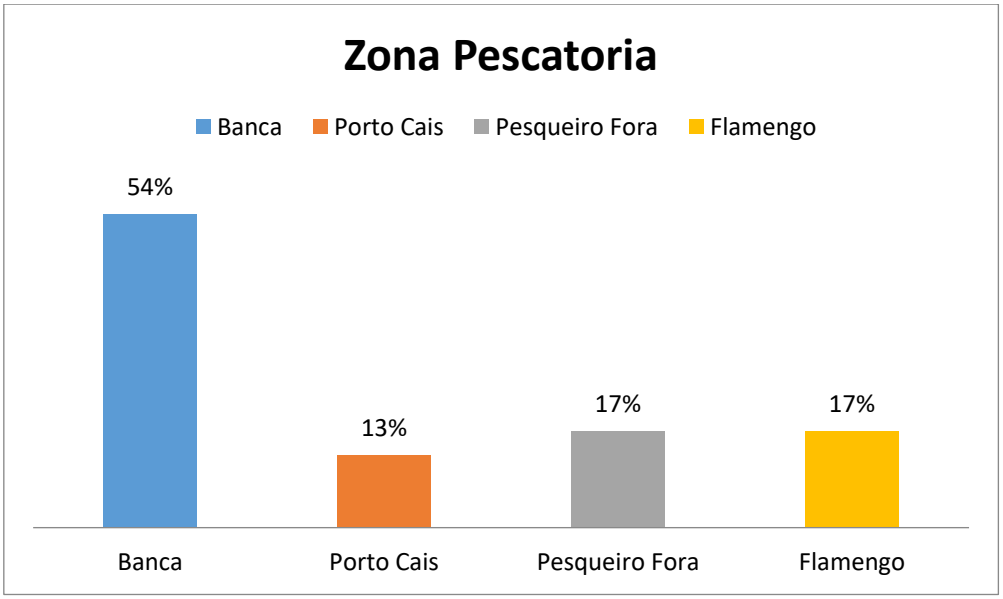
Les restrictions spatiales et temporelles de pêche dans l'aire de cogestion visent à protéger les juveniles et les individus reproducteurs des espèces disponibles. Selon la zonation de la Réserve Marine de Casas Velhas au Sud de l'Île de Maio (réalisée dans le cadre du Plan de gestion du réseau d'aires protégées de l'Île de Maio), deux (02) Zones de Protection Intégrale (ZPI) et une (01) Zone à Usage Modéré furent identifiées et sont les suivantes:

- ✓ ZPI marine de Ponta Preta;
- ✓ ZPI marine de Lagoa;
- ✓ ZUM marine des Casas Velhas.

Les ZPI servent à protéger strictement les zones où on observe une abondance particulière de ressources halieutiques et les zones de régénération des ressources. Les ZUM servent de zones d'amortissement des ZPI et servent aussi parfois de protection d'aires de régénération des poissons.




**Carte 4 : Carte Zonation de la Réserve marine de Casas de Velhas**



Inquerito socio economico maio

| Resultados | % | Despesas | % |
|---|---|---|---|
| 20 a 30 | 0 | 20 a 30 | 13 |
| 31 a 40 | 4 | 31 a 40 | 58 |
| 41 a 50 | 4 | 41 a 50 | 13 |
| 51 a 80 | 25 | 51 a 80 | 4 |
| 81 a 120 | 50 | 81 a 120 | 4 |
| mais de 130 | 8 | | 0 |
| não responderam | 8 | não responderam | 8 |

Os resultados mensais obtidos pelos pescadores, comparados com as despesas são satisfatórios.

**Quadro 2 – Maio: Nível de Instrução (oportunidades inv)**

| No | Nível de Instrução | Total | %/Total |
|---|---|---|---|
| 1 | Sem instrução | 07 | 9,00% |
| 2 | Alfabetizado | 27 | 33,00% |
| 3 | Ensino Básico Integrado | 45 | 56,00% |
| 4 | Ensino Secundário | 01 | 1,00% |
| 5 | Formação Profissional | 43 | 53,75% |
| | TOTAL | 80 | 100 |

**Quadro 4 – Repartição dos Pescadores por Ilha/Comunidade**
**Quadro 4.1. Maio (op inv)**

| Número de Ordem | Comunidade | Número | %/Total |
|---|---|---|---|
| 1 | Barreiro | 10 | 11 |
| 2 | Calheta | 34 | 43 |
| 3 | Cascabulho | 02 | 2 |
| 4 | Morrinho | 01 | 1 |
| 5 | Pedro Vaz | 03 | 3 |
| 6 | Praia Gonçalo | 04 | 5 |
| 7 | Vila Porto Inglês | 26 | 33 |
| | TOTAL | 80 | 100 |

**Quadro 5 – Repartição dos Pescadores por Faixa Etária (Anos)**
**Quadro 5.1.Maio (op inv)**

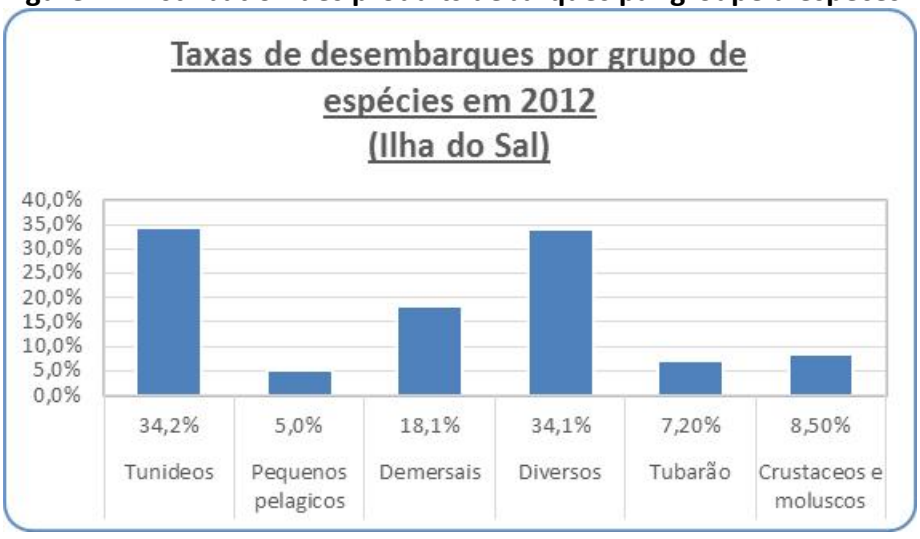
| Número de Ordem | Faixa (Anos) | Número | %/Total |
|---|---|---|---|
| 1 | 18-28 | 17 | 21 |
| 2 | 29-39 | 19 | 24 |
| 3 | 40-50 | 22 | 28 |
| 4 | 51-61 | 21 | 26 |
| 5 | >60 | 1 | 1 |
| | TOTAL | 80 | 100.0 |

**Tableau 2 : Distribution spatiale (par communauté) des acteurs de la pêche (Île de Sal)**

| Communauté | Profissão dos atores de pesca | | | | | | |
|---|---|---|---|---|---|---|---|
| | Pêcheur | Plongeur | Vendeuses de poissons | Transfor-matrices de poissons | Armateur | Pêcheur sportif | TOTAL |
| **Associação dos Pescadores de Palmeira:** | | | | | | | |
| Palmeira | 108 | 26 | 34 | 1 | 3 | 0 | **172** |
| Espargos | 30 | 9 | 25 | 2 | 1 | 0 | **67** |
| ***Sub-total 1*** | ***138*** | ***35*** | ***59*** | ***3*** | ***4*** | ***0*** | ***239*** |
| **Associação dos Pescadores de Santa Maria:** | | | | | | | |
| Santa Maria | 80 | 8 | 21 | 13 | 0 | 11 | **133** |
| ***Sub-total 2*** | ***80*** | ***8*** | ***21*** | ***13*** | ***0*** | ***11*** | ***133*** |
| **TOTAL** | **218** | **43** | **80** | **16** | **4** | **11** | **372** |

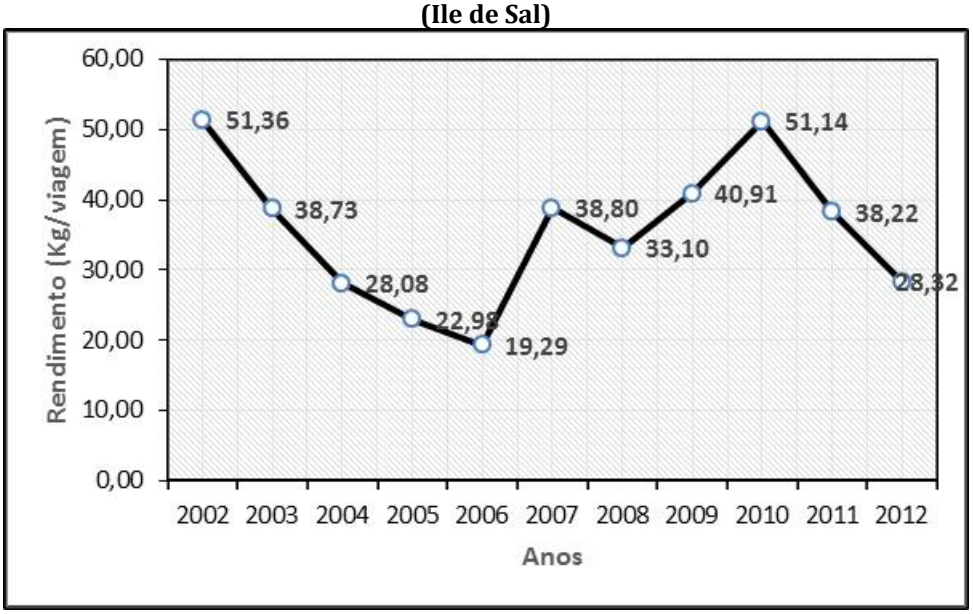
***Source:*** DGRM/PRAO-CV, 2015.

**Figure 1 : Distribution des produits débarqués par groupe d'espèces 2012**



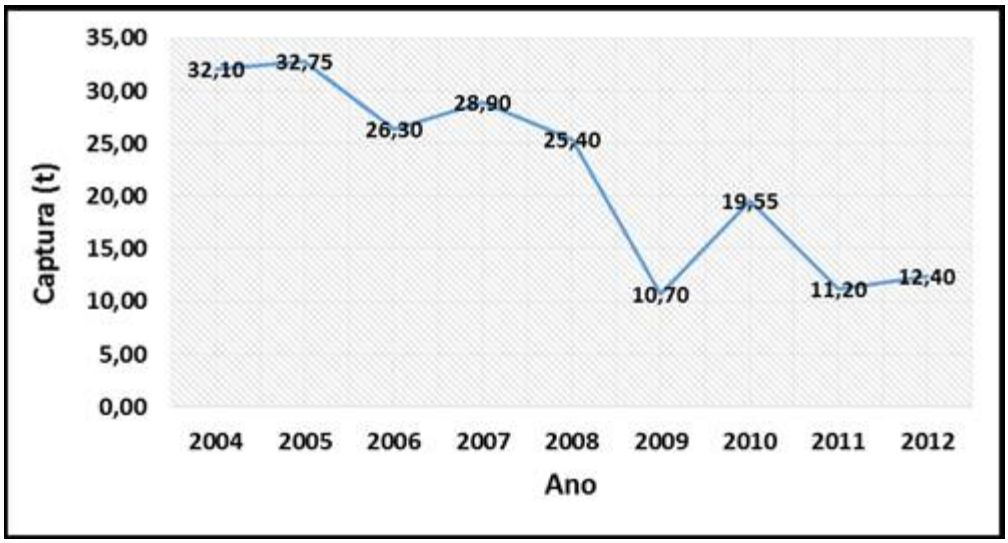

***Source:*** INDP, 2012.

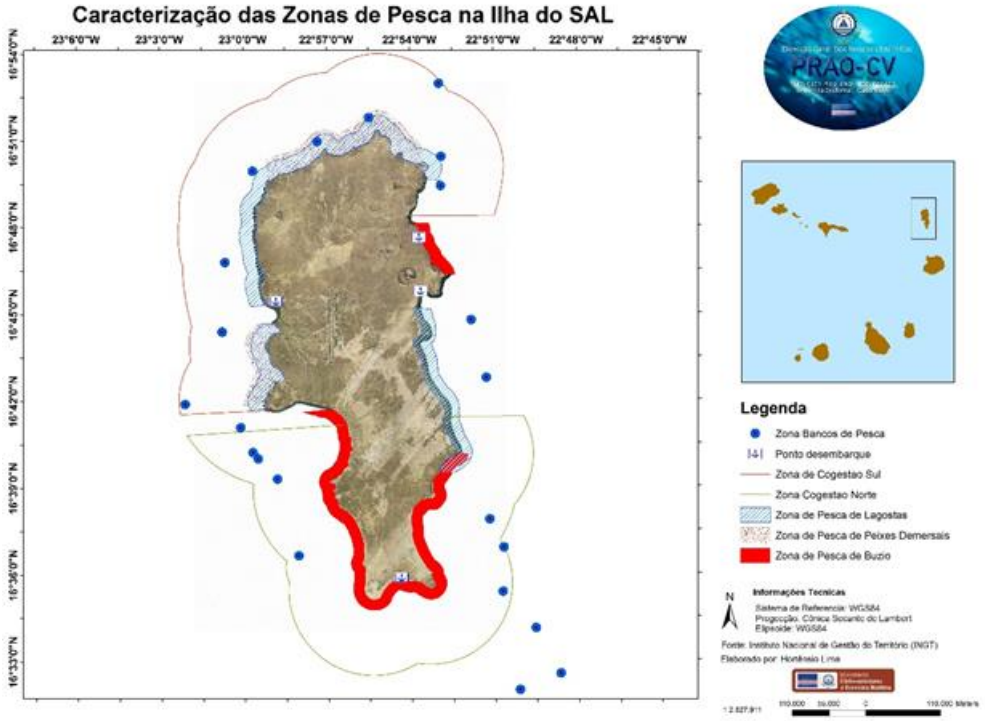
**Figure 2 : Evolution du taux de captures exprimé en kg/voyage (2005 – 2012) (Ile de Sal)**




**Source:** INDP, 2012

**Figure 9 : Variation des captures de Garoupa (Cephalopholis taeniops) sur l'Île de Sal de 2004 à 2012 Source: INDP, 2011.**






**Carte 5 : Delimitation des deux (02) aires de cogestion des pêches sur l'Ile de Sal (Palmeira au Nord et Santa-Maria au Sud).**

| INDP | 2000 | 2005 | 2010 |
|---|---|---|---|
| **N° de botes de pesca artesanal** | | | |
| Santo Antão | **132** | **101** | **121** |
| São Vicente | **117** | **87** | **92** |
| São Nicolau | **52** | **64** | **81** |
| Sal | **90** | **119** | **120** |
| Maio | **68** | **53** | **67** |
| Santiago | **478** | **361** | **479** |
| **Total (6 ilhas)** | **937** | **785** | **960** |
| **N° de pescadores artesanais** | | | |
| Santo Antão | **534** | **303** | **472** |
| São Vicente | **573** | **261** | **336** |
| São Nicolau | **170** | **192** | **164** |
| Sal | **235** | **357** | **262** |
| Maio | **148** | **159** | **114** |
| Santiago | **1728** | **1083** | **1069** |
| **Total pescadores (6 ilhas)** | **3388** | **2355** | **2417** |
| **Produção pesca artesanal (toneladas)** | **2000** | **2005** | **Dados 2009** |
| Santo Antão | **568** | **558** | **594** |
| São Vicente | **1623** | **1435** | **692** |
| São Nicolau | **335** | **186** | **524** |
| Sal | **326** | **260** | **312** |
| Maio | **452** | **447** | **587** |
| Santiago | **2518** | **1298** | **993** |
| **Total Produção (6 ilhas)** | **5822** | **4184** | **3702** |

**Quadro 3 – Sal: Nível de Instrução (oportunidades inv)**

| No | Nível de Instrução | Total | % |
|---|---|---|---|
| 1 | Sem instrução | 19 | 15 |
| 2 | Alfabetizado | 2 | 2 |
| 3 | Ensino Básico Integrado | 78 | 63 |
| 4 | Ensino Básico Complementar | 22 | 17 |
| 5 | Ensino Secundário | 2 | 2 |
| 6 | Formação Superior | 1 | 1 |
| TOTAL | | 124 | 100 |

**Quadro 4.2 – Sal (op inv)**

| Número de Ordem | Comunidade | Número | %/Total |
|---|---|---|---|
| 1 | João Lobo | 5 | 4 |
| 2 | Baía | 6 | 5 |
| 3 | Canelona | 29 | 23 |
| 4 | Morraça | 38 | 31 |
| 5 | Banco Fiura | 6 | 5 |
| 6 | Bancona | 9 | 7 |
| 7 | Mor Leste | 31 | 25 |
| | **TOTAL** | **124** | **100.0** |

**Quadro 5.2 – Sal (op inv)**

| Número de Ordem | Faixa (Anos) | Número | %/Total |
|---|---|---|---|
| 1 | 18-28 | 11 | 9 |
| 2 | 29-39 | 51 | 41 |
| 3 | 40-50 | 45 | 36 |
| 4 | 51-61 | 14 | 11 |
| 5 | >60 | 3 | 3 |
| | **TOTAL** | **124** | **100** |

## Appendix IV. Site Selection Criteria

**Table 1. Eligibility criteria for the IMCR project**

**PROGRAMME DE GESTION INTÉGRÉE DES RESSOURCES MARINES ET CÔTIÈRES**

CRITERES DE SELECTION DES SITES PILOTES

Fiche de cotation

Nom du site : ..... Zone d'intervention : .....

| | Base d'évaluation |
|---|---|
| | **Critère I : Proximité de stocks démersaux principalement exploités par la communauté** |
| 1 | Importance ressource démersale côtière et sédentaire exploitée (potentialités, diversité…) |
| 2 | Importance de l'exploitation de la ressource démersale côtière et sédentaire pour la communauté locale |
| 3 | Etat de dégradation de la ressource démersale côtière |
| 4 | Sédentarité des pêcheurs du site (dépendance au site) |
| 5 | Importance des menaces et des facteurs de dégradation des ressources halieutiques locales |
| | **Critère II : Marques d'intérêt de la communauté à mettre en œuvre des initiatives locales de cogestion pour ces ressources** |
| 6 | Existence d'initiatives locales passées, récentes ou en cours de gestion des ressources |
| 7 | Force du lien communautaire (cohésion, …) |
| | **Critère III : Bénéfices escomptés par la communauté dans la mise en place d'initiatives locales de cogestion** |
| 8 | Prise de conscience de l'importance de l'augmentation attendue des revenus au niveau individuel |
| 9 | Prise de conscience de l'importance de l'augmentation attendue des revenus au niveau de la collectivié |
| | **Critère IV : Nature et étendue des risques liés aux initiatives de cogestion locale** |
| 10 | Risques de conflits entre différents métiers de la pêche |
| 11 | Risques de conflits entre autochtone et allochtones |
| 12 | Risques pour l'organisation sociale locale |
| | **Critère V : Caractère structurant du site** |
| 13 | Appartenance à un Conseil Local de Pêche Artisanale (CLPA) pilote |

**Table 2. Eligibility criteria for the SMFRP**

| Critères de sélection des sites de cogestion | |
|---|---|
| Importance des ressources halieutiques dans le site et les espaces adjacents | |
| La proximité de stocks démersaux principalement exploités par la communauté | |
| Permanence des activités de pêche dans le centre et saisonnalité | |
| Niveau de pression sur les espaces | Autochtones |
| | Allochtones/migrants |
| Importance des activités de pêche sur le site (parc piroguier, débarquement, valorisation, etc) | |
| Existence ou non de formes de gestion traditionnelle communautaire locale dans le site (Modèle exemplaire, appropriation espace, etc) | |
| Désir de la communauté pour mise en oeuvre d'initiatives de cogestion locale y compris la création de Zones de Pêche Protégées (ZPP) ou de Zones d'immersion de récifs artificiels (ZIRA) | |
| Bénéfices escomptés par les communautés dans la mise en œuvre d'initiatives de cogestion locale dans le site | |
| Risques potentiels associés à la mise en œuvre d'initiatives de cogestion locale (y compris la création de Zones de Pêche Protégées (ZPP) ou de Zones d'immersion de récifs artificiels (ZIRA) | |

**Detailed eligibility criteria for microcredit**

Cabo Verde

4. São elegíveis os projectos de investimento que obedeçam aos seguintes critérios:

a) Sejam detidos na sua totalidade por ex-operadores da pesca artesanal reconvertidos profissionalmente em actividades alternativas a pesca, que constituem o grupo alvo do sistema de financiamento concebido no âmbito da presente Convenção;

b) Contribuam para a reinserção no mercado de trabalho por conta própria dos referidos operadores;

c) Estejam enquadrados no princípio de reconversão profissional sem pedras de emprego, promovida pela DGRM via PRAO-CV;

d) Sejam acompanhados de um estudo de viabilidade económico - financeira;

e) Não exijam tecnologias complexas e difíceis de serem interiorizadas pelos seus operadores;

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f) Não exijam equipamentos complexos, que possam requerer uma gestão ou manutenção especializada, ou que possam, pelos seus elevados custos, aumentar os encargos de funcionamento, encarecer ou inflacionar os preços dos produtos finais;

g) Não gerem impactos ambientais negativos;

h) Fomentem actividades auto-sustentadas ou definidas como prioritárias, conforme o Anexo I a esta convenção;

i) Tenham os seus promotores beneficiado de formação profissional prévia pela DGRM/PRAO-CV;

j) Assegurem uma comparticipação do promotor de, pelo menos, 10 % do valor solicitado;