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## **Deliverable D5.2**

# **Report on challenges and suggestions for improvements**

28/09/2020



## Executive Summary

The EU is obliged to ensure sustainable utilization of the fisheries' resources to which EU fleets have access to, both in the high seas and through bilateral agreements, based on the principles of good economic and social governance. This is mainly done through cooperation with Regional Fisheries Management Organisations (RFMOs) and national authorities in partnership countries to improve knowledge and management of the fisheries. Inadequate governance of these fisheries can hinder the goal of sustainable utilization of fisheries' resources, resulting in suboptimal or over-exploitation of shared and straddling fish stocks. On the other hand, limited knowledge regarding the processing and market conditions in partner coastal states has contributed to substantial criticism regarding the social and economic benefits that the international fisheries actually bring to the partners' countries. In line with the overall objective of the FarFish project to ensure sustainability and profitability in EU fisheries outside of Europe, this document will utilize the knowledge acquired across the FarFish project to develop tools to contribute to the application of a RFMS. To this end, two separate analyses will be conducted based on the output from WP2, WP3 as well as the MR0 and MR1 developed in WP4. First from the evaluation of governance structures done in WP3, we identify the institutional challenges obstructing the achievement of the intended governance principles as expressed in the relevant fisheries agreements (SFPA, bilateral and multilateral). Second, from the case study characterization and description of the value chains done in WP2 and WP3 respectively, we analyse the processing and market strengths, weaknesses, opportunities and threats for the selected case studies. The main challenges from these analyses will be summarized in the form of road maps, which visualize the pathways towards achieving the ambitions identified through the RFMS process in the FarFish project.

The six international fisheries analysed in this document face several challenges, many of which are shared across case studies. The lack of adequate data reporting and collection constitutes one of the major issues found across all cases. This issue is of particular relevance to ensure adequate management of the shared stocks. For each case, specific actions were identified as feasible pathways to improve this issue. In the fisheries managed through SFPAs, a common need was to strengthen the observer program via training for personnel or by improving or harmonising data reporting protocols. In the case of Mauritania and Senegal, black hake fisheries face the same challenge: a lack of a separate assessment of the two black hake species fished in these waters, due to the lack of proper identification. In this case, the two Coastal States could take a common approach and in collaboration train crew members and observers in the visual identification of these two species, which might result in more efficient utilisation of resources and potential cooperation among the coastal states towards overcoming this shared challenge.

Further, a lack of adequate monitoring, surveillance and control of the fisheries activities was also identified in all the cases. Insufficient human and technical resources, lack of adequate infrastructure and in some cases, the need to harmonize information systems were the main causes for the



implementing of the required monitoring protocols and inspections. For this challenge, each of the CSs have defined a set of actions. In particular, the analysis of the VMS and AIS data and, working towards their transmission from all fleets active in the areas, was identified as an important step to overcome this challenge. Furthermore, in the fisheries managed by SFPA, an improvement of the observer's program was identified also as an important step forward to improve the MCS.

In the analysis of the processing and market conditions, the most common issue identified was the lack of processing in the partner countries. In some cases, this is due to lack of installed capacity. In other cases, there are disincentives to land catches in their ports where EU ports are preferred. Furthermore, there is a generalized lack of knowledge about the value chain in the partner countries due to the lack of adequate market data to conduct more detailed evaluations that can facilitate access to these markets and improve the business environment for EU investors.

All the challenges identified above have been discussed and analysed in light of the implementation of a RFMS in the six FarFish case studies. Operators and authorities' representatives have discussed in length these issues and identified feasible actions to help overcoming some of these issues. These solutions were linked to the challenges identified in this document and incorporated into a roadmap for these fisheries to follow up on the development of the strategies identified.

By utilizing the knowledge acquired across the FarFish project and by producing applicable tools, FarFish hopes to improve the conditions of these fisheries, so that they can achieve their overarching objective of sustainable utilisation of these valuable resources.



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# 1 Introduction

The EU is obliged to ensure sustainable utilization of the fisheries' resources to which EU fleets have access to, both in the high seas and through bilateral agreements, based on the principles of good economic and social governance. This is mainly done through cooperation with Regional Fisheries Management Organisations (RFMOs) and national authorities in partnership countries to improve knowledge and management of the fisheries. Inadequate governance of these fisheries can hinder the goal of sustainable fisheries, resulting in suboptimal utilization or overexploitation of shared and straddling fish stocks. On the other hand, limited knowledge regarding the processing and market conditions in partner coastal states has contributed to substantial criticism regarding the social and economic benefits that the international fisheries actually bring to the partners countries. This deliverable assesses the institutional challenges facing EU fisheries in distant waters, as well the processing and market conditions in the studied coastal states, through the identification of barriers and pathways for progress within the current governance system and market structures in selected FarFish case studies. The institutional assessment focuses on the current status, needs and challenges in relation to the successful implementation of the intended governance principles, through the identification of goals and intended governance principles as expressed in the relevant fisheries agreements (SFPA, bilateral and multilateral). The analysis of processing and market conditions focuses on the identification of the strengths, weaknesses, opportunities and threads identified throughout the stakeholder interactions and value chain evaluations performed within FarFish.

In line with the objective of the FarFish project to “improve knowledge on EU fleet fisheries and their management outside of Europe, while ensuring sustainability and long-term profitability”, this document will contribute to the development of strategies to overcome the challenges that have been identified during the project's life, in the selected fisheries. This document analyses the work from WP2, WP3 as well as the MRO and MR1 from WP4. Respectively, WP2 conducted the CS characterization in D2.1 (Erzini et al., 2017) to describe the CS in all relevant aspects, such the geographical and biological boundaries, fisheries activity and production as well as management procedures, relevant authorities and stakeholders, overall objectives, etc. Subsequently, WP3 developed on the CS characterization and elaborated on the actual development of the Management Recommendation, by specifically evaluating the governance structures and describing and mapping the value chains of the difference CS (Isaksen et al., 2019; Kvalvik et al., 2019; Vidarsson et al., 2019). Finally, WP4 translates this knowledge and, in collaboration with stakeholders, develops the MR for each CS (Mikkelsen, 2018). The work from these WPs has shed light on important challenges in the development of these international fisheries and partnership agreements. This document gathers and analyses the identified challenges through an assessment of institutional challenges and a SWOT analysis for processing and market conditions. The goal being to develop a roadmap to how the identified weaknesses and challenges may be overcome.



At this stage of the FarFish project, MR1 has already been audited and the MR2 invitation has been circulated, therefore it is possible to conduct a deeper analysis of the challenges in light of the outcome targets and potential actions already elaborated in the MR1, with the aim to effectively contribute to their SMART<sup>1</sup> development in MR2. As mentioned, the analysis of the identified challenges will be conducted from two fronts, first the assessment of the institutional challenges and second, an evaluation of strengths, weaknesses, opportunities and threats (SWOT) for processing and market conditions from the value chain evaluation. The outcome of this deliverable is a roadmap for each of the FarFish case studies, that will serve as a tool to visualize and follow up the strategies identified to overcome some of the issues identified within the project. Through this approach, this document aims to contribute to the second version of the MR for each CS and to the implementations of a RFMS in these fisheries. The document is divided in three sections starting with the methodology, followed by the case-specific identification of institutional challenges, SWOT analysis and finally the roadmap. The document will conclude with final remarks.

## 2 Methodology

The first analysis is the assessment of the institutional framework and challenges for sustainable governance of EU fisheries in distant waters. The assessment is conducted as a content analysis of relevant documentation. The leading questions raised in this section are:

- 1) What is needed to operationalize the intended governance principles
- 2) How has the governance system presently operationalised the principles
- 3) Which challenges has been detected in the system to implement the principles

The aim is to set the benchmark for the evaluation of the performance of the governance of these fisheries and to point at strategies to improve the institutional framework or the performance within. The material used to establish this benchmark differs among the different case studies. The analysis of the four SFPAs case studies, namely Cape Verde, Senegal, Mauritania and Seychelles takes as a starting point the SFPAs agreement itself and accompanying protocols to establish the governance principles and how they are operationalized. These principles set the institutional framework for the governance of these fisheries. The performance of these obligations is then considered based on the Ex-post/Ex-ante evaluations of the agreements, joint scientific committee meetings reports as well as findings from the work conducted in D3.3 and D4.1 (Kvalvik et al., 2019; Mikkelsen, 2018). The challenges identified are therefore linked to the commitments established in the protocol and is not a comprehensive list of all the challenges that might exist for the sustainable governance of these

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<sup>1</sup> Refers to the concept that a meaningful strategic objective should be specific, measurable, achievable, result-oriented, and time-bound (i.e. SMART).

fisheries. For the governance of the fisheries in the SEAFO area, the convention and accompanying regulatory measures are the basis for establishing the governance principles and how it is operationalised, while the performance review and findings in D3.3 and D4.1 are used to identify institutional challenges. For the EU fisheries in the South West Atlantic high seas area, relevant international instruments devoted to the regulation of fishing with straight application to deep-sea fisheries on the high seas and other international binding obligations and resolutions, as well as the specific EU regulation of this fisheries is used as input, together with the findings in D3.3 and D4.1.

Secondly, a SWOT analysis of the processing and market conditions in the different FarFish CS will be conducted. The components of this SWOT are first, the strengths and weaknesses which are usually internal characteristics of the processing sector in the Coastal States that can be considered as advantages or disadvantages compared to others. Second, the opportunities and threats which are external factors that the EU operators and others can take advantage of or may result in problems. This was done through a review of the findings in D3.4 and D4.3. Additional information was collected through interviews with case study leaders and relevant stakeholders where possible. The objective of this SWOT analysis is to find pathways to increase value added from the fisheries under the SFPAs and high seas fisheries in FarFish. This objective can be achieved through improving in the fishery operations, processing and market conditions in the host country or related port areas. Currently most of the catches from these areas are processed in the EU. If raw materials shift from being processed in the EU to being processed in the host country, there will be trade-offs in value added between the areas. We have not considered net effects but discussed potential for each of the parties separately. The findings of the SWOT analysis will be described briefly in each of the CS and further presented in a matrix where the internal factors (i.e. strengths and weaknesses) will be matched with its external factors (i.e. opportunities and threats), to provide a systematic view of the results for strategic purposes.

The final output of this study will be the development of roadmaps to contribute towards overcoming some of the challenges identified in the previous analyses. As the results from the institutional assessment and the SWOT analysis are mostly gathered from previous deliverables and ongoing analysis in FarFish, some of the issues encountered have been already addressed in the MR1 according to the RFMS process. Following the RFMS, at this stage of the project, operators and authority have agreed upon the issues that can be addressed through the MR and a first version of it has been agreed upon and audited. The MR1 for each of the CS presented in D4.3. will be utilised as the foundation for developing the roadmaps, to build on the work that has been done and agreed upon. The findings from the first audit presented in D5.1 will be considered as avenues for improving the second MR and will be considered in the roadmap for each case study as items to be reviewed. Consequently, the aim of these roadmaps will be to contribute to the visualization and communication of the specified actions and key activities to achieve the outcome targets by compiling all the tasks and actions in a format that





allows for easy visualization and communication amongst different partners. The roadmaps will further assign a deadline to delivering results, as well as defining the responsible party, promoting ownership, clarity and direction for the future of the project.

## 3 Case Study 1: South-West Atlantic (FAO Area 41)

### 3.1 Assessment of Institutional challenges

#### 1- Operationalization of the principles – what is needed?

The South West Atlantic –SWA (FAO 41) is considered as a high seas area which is well-defined by the Convention of the Law of the Sea (UNCLOS) as those waters beyond 200 miles from a nation’s coastline. The SWA is not managed by any RFMO with the legal capability to regulate demersal or deep-water fisheries, beyond international law limitations on the right of States to authorize their nationals to engage in fishing on the high seas.

In those cases where there is an absence of a RFMO, management, monitoring and control are mostly dealt with from different bilateral agreements and other legal mechanisms. Thus, the principle of the freedom of the high seas (art. 87 UNCLOS) does not imply a permanent license for unrestrained use (Ásmundsson, 2016). In fact, a growing international regulatory framework has been developed, including binding and voluntary mechanisms. The UNCLOS set wide-ranging obligations to protect and preserve the marine environment (Part XII) and to conserve and manage high seas living resources (Part VII, Section 2), among others (UNCLOS, 1982).

In addition, different international instruments are devoted to the regulation of fishing and they have straight application to deep-sea fisheries on the high seas. These instruments include treaties like the United Nations Fish Stocks Agreement, the FAO Port State Measures Agreement or the FAO Compliance Agreement, as well as soft law instruments, such as the FAO Code of Conduct for Responsible Fisheries, the International Plan of Action on IUU Fishing or the International Guidelines for the Management of Deep-Sea Fisheries on the High Seas (Hakapää, 2013). Therefore, cooperation among states operating in the high seas becomes somehow mandatory, either through RFMOs or through specific arrangements.

#### 2- How has the governance system presently operationalised the principles?

In order to operationalize the principles, we need to use the broad international instruments and legal mechanisms for governing the high seas. So far, the most relevant legal instruments in high seas

governance have been identified, establishing a link between these and the institutional challenges detected in the SWA case study, as portrayed in Table 1.

*Table 1 Institutional challenges to operationalized principles*

Operationalized	Institutional Challenges
<p>The South Atlantic Fisheries Commission (SAFC) was created to facilitate the exchange of fisheries data, joint research cruises, joint scientific analysis, and recommended coordinated conservation advice between Argentina and UK governments.</p>	<p>From 2005 to 2017 it was not possible to maintain an active cooperation, which was shortly recovered along 2018 based on scientific collaboration in shortfin squid fishery. However, data exchange and transfer of information must be extensible over time, in a more stable way. International cooperation lacks an effective forum for discussing management measures, sharing data or resolving conflicts.</p>
<p>UNGA Resolution 61/105 (VMEs)<sup>2</sup>; and from management of deep-sea fisheries in the High Seas through the FAO International Guidelines<sup>3</sup>.</p>	<p>Lack of enforcement regarding the protection and conservation biodiversity of areas beyond national jurisdiction (ABNJ) and particularly the SWA subareas, 41.1.3; 41.3.2 Asymmetrical compliance between different operators (EU-non-EU) linked to different standardization criteria.</p>
<p>SOLAS - International Convention for the Safety of Human Life at Sea, 1974 (SOLAS Convention)<sup>4</sup>. The main objective of the SOLAS Convention is to establish minimum standards related to the construction, equipment and use of ships, compatible with their safety</p>	<p>Lack of a level playing field: some operators develop social and biological dumping practices as they do not abide by rules regarding safety at sea.</p>
<p>MARPOL - The International Convention for the Prevention of Pollution from Ships or MARPOL 73/78 is a set of international regulations with the objective of preventing pollution by ships. Its objective is to preserve the marine environment by eliminating pollution by hydrocarbons and other harmful substances, as well as minimizing possible accidental discharges.</p>	<p>Lack of a level playing field: some operators develop social and biological dumping practices as they do not abide by rules regarding environmental issues.</p>

<sup>2</sup> UN General Assembly (2017) Resolution 61/105 Sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments. UNGA A/RES/61/105. 21pp. Available at: <https://undocs.org/A/RES/61/105>

<sup>3</sup> European Commission (2008) Council Regulation (EC) No 734/2008 of 15 July 2008 on the protection of vulnerable marine ecosystems in the high seas from the adverse impacts of bottom fishing gears. Official Journal of the European Union, L 201/8

<sup>4</sup> International Maritime Organization. (2001) SOLAS. International Convention for the Safety of Life at Sea, 1974, and 1998 Protocol relating thereto.

<p>The <i>Agreement on Port State Measures (PSMA)</i>, the first binding international agreement to specifically target IUU fishing<sup>5</sup>.</p>	<p>The lack of enforcement of port state control measures, and the non-ratification of FAO PSMA, can lead to different levels of compliance on control of fishing activities.</p> <p>Ratification and implementation of the FAO PSMA is a must to deal with the problem of transshipments at sea and at port (e.g. case of landings from Chinese jiggers in Montevideo).</p> <p>Effective fighting with those cases of convenience flags and vessels without nationality linked to IUU fishing practices.</p> <p>Future oil prospecting in marine waters from Argentina, which might potentially affect the right of innocent passage, in particular to the port of Montevideo.</p>
<p>ILO Work in Fishing Convention No.188</p>	<p>Provide effective protection, improve and standardize working conditions for EU and NON-EU workers within the SWA subareas, 41.1.3; 41.3.2</p>
<p>STCW-F - Training for Fishermen - The International Convention on Training, Certification and Guard Standards for Fishing Vessel Personnel, 1995 (STCW-F 1995), establishes the certification requirements and minimum training for crews of vessels sea fishing of 24 meters of equal or greater length.</p>	<p>Lack of a level playing field: some operators develop social and biological dumping practices as they do not abide by rules regarding the minimum standards related to training, certification and guardianship for fishing people, which countries are obliged to meet or overcome.</p>

### 3.2 SWOT Analysis for processing and market conditions in South West Atlantic

Catches from the EU fleet in the SW Atlantic are predominantly hake, rock- and southern cod, grenadier, squid, blue shark and swordfish. The fleet primarily consists of Spanish and British freezer trawlers. Fleets from China, Taiwan and Korea are also strongly present in the international waters that are not governed by RFMO.

#### Strengths:

- Relatively high-yield fishery providing economically attractive harvesting
- Good logistics
  - Large-scale commercial fishery for the same species in neighbour zones
- Well-developed value chains
  - As supply from other areas is large, the catches from SW Atlantic feed well into well-established value chains.

<sup>5</sup> FAO (2009) Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing. Rome, FAO.

### Weaknesses:

- Illegal practices
  - There is likely IUU fishing, illegal on-board labour conditions and breaches of safety rules. These are hiding dumping practices and placing the EU fleet at competitive disadvantage
- Lack of reporting on catch data from other countries' vessels
  - This is likely to compromise the stock assessment information which can negatively affect the fishing strategy or decision-making of the operators,
- EU vessels at competitive disadvantage compared to some other fleets
  - EU fleet is restricted to fishing outside of national EEZ; it means the EU must share those fishing areas with other EU fleet and non-EU fleet, which do not abide by the same rules under their national flags.

### Opportunities:

- Better management of resources information can improve the yield
  - Improve data collection to strengthen the decision-making in terms of long-term cost-benefit analysis
  - Promote and build on existing initiatives (e.g. joint Falkland-Argentina research and oceanographic surveys) to exchange of data, joint research and coordinated conservation
- Improved competitive position of EU vessels
  - Implement sustainable management with the commitment of the whole fleet, particularly having the significant progress has been made in the last 15 years from scientific research (e.g. IEO ATLANTIS Project) since the adoption of UNGA Resolution 61/105 (VMEs) and from management of deep-sea fisheries in the High Seas through the FAO International Guidelines
  - The Coastal States have expressed their willingness to cooperate at the international level to enhance the sustainable management of resources.
  - Activate new market tools to tackle and prevent unfair competition through more effective control of imports of fish into the EU market (to avoid social and economic dumping).

### Threats:

- Reduction of fishing area
  - Areas have previously been reduced due to expansion of EEZ's and closure of fishing areas due to UNGA resolutions adopted by EU
- Increased effort from EU and non-EU countries
  - If effort increases, then EU vessels yield is likely to be reduced, particularly if no sustainable measures are not implemented

- Reduced market access
  - There is uncertainty and alternative scenarios associated with Brexit regarding access to the EU market, change of trade and tariff policies and fisheries management (including joint ventures regime) in the Falklands, amongst others.
- Competition for space
  - The Argentinian regulations that authorize oil prospection in marine waters may affect the right of innocent passage to the port of Montevideo, affecting the supply chain.
  -

The SWOT analysis matrix in Table 2 summarizes the findings of the analysis above.

*Table 2 Summary of SWOT Analysis for processing and market conditions in the SWA high-seas fisheries*

<p><b>Strengths</b></p> <p>Relatively high-yield fishery providing economically attractive harvesting</p> <p>Good logistics</p> <p>Well-developed value chains</p>	<p><b>Weaknesses</b></p> <p>Illegal practices</p> <p>Lack of reporting on catch data</p>
<p><b>Opportunities</b></p> <p>Better management of resources can improve yield</p> <p>Implement same restrictions for other countries' fleets as for EU</p> <p>Willingness to cooperate for sustainable management of resources</p> <p>New Market tools to prevent unfair competition</p>	<p><b>Threats</b></p> <p>Reduction of fishing area</p> <p>Increased effort from EU and non -EU countries</p> <p>Reduced market access</p> <p>Competition for space</p>

### 3.3 Roadmap for South West Atlantic high-seas fisheries

The roadmap for high-seas fisheries in the SWA (FAO Area 41) the challenges identified in the assessments above and associated with the Outcomes Targets (OTs) defined in MR1 as they provide solutions for some of the challenges encountered in these fisheries. These OTs have been audited in Deliverable 5.1 (FarFish, 2019) and some of them need further revision. The roadmap summarizes the specific actions needed to achieve the OTs, considers the issues raised in the audit and aims to be a tool to follow up the development and achievement of these targets.

The main challenge for the operationalization of governance principles is the lack of a competent regional fisheries body that can regulate, monitor and control the activities off all the vessels operating in the SWA area. This issue was identified in the MR1 (FarFish, 2020). The solution for it is described in OT1.1 that aims to develop a soft-law mechanism by initiating the dialogue between all stakeholders

involved in these fisheries. To this end, a conference will be organized with focus on the sustainable management of Areas Beyond National Jurisdiction-ABNJ (FAO-41). This conference could improve international cooperation and become an effective forum for discussing management measures, sharing data or resolving conflicts. The most important aspect to achieve OT1.1 is to ensure that the attendance to this conference represents all fleets active in the area, as mentioned in the audit process the high seas' fisheries in the SWA (FarFish, 2019).

Another related challenge identified in the governance analysis, is the lack of common social and environmental standards which leads to different practices between operators from different countries (flying different flags). This asymmetry hinders the level playing field for all operators in this area, and it's a competitive disadvantage for fleets that abide to international and national standards, like the EU fleet, compared to other fleets. For this challenge, the MR1 suggested OT1.3 and OT1.4. The first refers to setting a pilot project on operational coordination through the development of a Specific Control and Inspection Programme for international fleets operating in SWA and the second, the compliance of both EU and non-EU fleet to VMEs protection in accordance with UNGA 61/105 and FAO Guidelines for the Management of Deep-Sea Waters in the High Seas. To achieve these outcomes is important to define mechanisms to ensure compliance that includes a clear sanctions system as mentioned on the audit, which could be included in the Specific Control and Inspection Programme described in OT1.4

Further, gaps in the AIS/VMS data in this area indicate that not all operators are transmitting signals as required which reduces the already limited information available on the fishing activities in this area. MR1 suggests OT1.2 to overcome this issue, which strives for commitment to transmit VMS/AIS signals. The main challenge to accomplish this target is to define how compliance can be ensured. Specific actions could be taken to strive for compliance from all fleets. The international conference should include the topic of data transmission and ensure all stakeholders are striving to comply with the requirement. A sanction system and its application should be also discussed.

Finally, the weaknesses and threats identified in the SWOT analysis are strongly linked to the lack of a forum to discuss issues such as the illegal practices, the lack of reporting and the threat to increase fishing effort from all fleets in the area. The international conference should also serve as a forum to discuss market issues in connection with the sustainability of this fisheries.

The Roadmap 1 South-West Atlantic high-seas fisheries shows the suggested actions to improve the challenges identified for the international fisheries in this area.



## Roadmap 1 South-West Atlantic high-seas fisheries

Implementation matrix for the Roadmap for South-West Atlantic High-seas			Delivered	Short term	Medium term	Long term
			2019	2020	2022	2025
<b>Objective</b>	<b>1.</b>	<b>Contribute to a level playing field for international fleets involved</b>				
<b>Outcome</b>	<b>1.1.</b>	<b>Soft-law mechanism [International Conference] focused on sustainable management in ABNJ (FAO 41)</b>				
Action	1.1.1.	Strive for representative number of invited stakeholders attending the Conference representing all fleets active in the area				
Key activities		Joint publication from the conference results		<b>WP3 /FAO Common Oceans ABNJ Program</b>	review	review
Action	1.1.2.	Verify that international Conference is been held				
Key activities		Produce a document of good practices for sustainable management in the ASW from Conference		<b>WP3 /FAO Common Oceans ABNJ Program</b>	review	review
		Embed the Conference in the current International Ocean Governance Agenda of the European Commission		<b>WP3 /FAO Common Oceans ABNJ Program</b>	review	review
<b>Objective</b>	<b>2.</b>	<b>Contribute to improved fishing and conservation through monitoring, control and surveillance mechanisms</b>				
<b>Outcome</b>	<b>1.2.</b>	<b>All vessels transmit VMS and AIS signals</b>				
Action	1.2.1.	Verify operator compliance				
Key activities		Develop a big-Data analysis of AIS data by CSIC	<b>WP6-CSIC / WP1-CETMAR</b>	review	review	
		Ensure that compliance with data transmission is discussed in international conference	<b>WP1-CETMAR</b>			
<b>Outcome</b>	<b>1.3</b>	<b>Theoretical frame for a Specific Control and Inspection Programme in FAO 41 as basis for a future pilot project on a joint deployment plan for this region available</b>				
Action	1.3.1.	Pilot Project launched				
Key activities		Develop a proposal of pilot project		<b>LDAC / WP1-CETMAR</b>	review	review
<b>Outcome</b>	<b>1.4</b>	<b>Both EU and non-EU fleet VMEs protection in accordance with UNGA 61/105 and FAO Guidelines for the Management of Deep-Sea Waters in the High Seas</b>				
Action	1.4.1.	Ensure compliance through effective sanction mechanisms				
Key activities		Include sanction mechanism for non-compliance with VME protection to all fleets		<b>LDAC / WP1-CETMAR</b>	review	review
<b>Objective</b>	<b>3</b>	<b>Improve market conditions</b>				
<b>Outcome</b>	<b>1.5</b>	<b>Initiate dialogue on market-related issues affecting sustainability of fisheries</b>				
Action	1.4.1.	Discuss market-related aspects in international conference		<b>WP1-CETMAR</b>		

## 4 Case Study 2: South-East Atlantic (FAO Area 47)

### 4.1 Assessment of Institutional challenges

The high-seas fisheries in the statistical area 47 fishery is governed by the South East Atlantic Fisheries Organisation (SEAFO), a non-tuna RFMO established in April 2001. The target species in the SEAFO Convention Area (CA) include alfonsino, boarfish/pelagic armourhead, orange roughy, skates, sharks, deep-sea crab, and toothfish. The coastal states that border the SEAFO area are Angola, Namibia and South Africa. SEAFO authorities are comprised by the Commission, the Scientific Committee (SC), the Compliance Committee (CC), the Standing Committee on Administration and Finance (SCAF), and the Secretariat. SEAFO employs an ecosystem and precautionary approach to fisheries management when deciding on management and conservation measures. The Commission adopts resolutions and recommendations based on scientific advice from the Scientific Committee; and monitoring, control and surveillance (MCS) advice from the Compliance Committee (CC).

#### **Convention on the conservation and management of fishery resources in the South East Atlantic Ocean**

The South East Atlantic Fisheries Organisation (SEAFO) was entering into force as a regional fisheries management organisation (RFMO) in 2003. The contracting to this convention committed to ensuring the long-term conservation and sustainable use of all living marine resources in the South East Atlantic Ocean, and to safeguarding the environment and marine ecosystem in which the resources occur. The contracting parties are Angola, the European Union, Japan, Rep. of Korea, Namibia, Norway, and South Africa.

#### The SEAFO System of observation, inspection, compliance and enforcement

The so-called SEAFO System – the system of observation, inspection, compliance and enforcement contains all the measures to ensure compliance with SEAFO regulations. SEAFO’s Compliance Committee handles the system. The system has developed a comprehensive strategy on MCS (Monitoring, Control and Surveillance) for the fisheries in the SEAFO Convention Area.

#### **Operationalization of the SEAFO System – what is needed**

How to operationalize the principles are described in the SEAFO System of observation, inspection, compliance and enforcement (2018). The SEAFO System is divided into 8 chapters and 29 articles as shown in Table 3.



Table 3 SEAFO system structure

Ch.	Name	Article
I	General Provisions	1. Scope 2. Definitions 3. Co-operations and contact points
II	Control measures	4. Authorisation and notification to fish 5. Prohibition of transshipment in the Convention Area 6. Vessels requirements 7. Marking of gear 8. Retrieval of lost or abandoned fishing gear 9. Labelling of frozen products of fishery resources
III	<b>Monitoring of Fisheries</b>	10. <b>Information on fishing activities</b> 11. Communication of vessel movements and catches 12. Periodic reporting of catch and fishing effort by Contracting Parties 13. <b>Vessel monitoring system (VMS)</b> 14. Monitoring of transshipments in port
IV	At sea inspection	15. Scope and application 16. Notification to inspect at sea 17. At sea inspection reports and procedures
V	<b>Observer program</b>	<b>18. Scientific observer programme</b>
VI	<b>Port State control</b>	19. Scope 20. Designation of ports 21. Advanced request for port entry of foreign vessels 22. Port entry: authorisation or denial of foreign vessels 23. Use of ports by foreign vessels 24. <b>Inspections</b> 25. Procedure in the event of apparent infringements
VII	<b>Measure to promote compliance</b>	26. <b>Sightings and identifications of non-contracting party vessels</b> 27. Listing of IUU vessels 28. Summary of reporting obligations
VIII	Research	29. Vessels conducting fishing research

### Current operationalization and related challenges

From the SEAFO System we have identified the areas where there are challenges in operationalizing the principles. The challenges mainly relate to Chapter III, V, VII and VII.

#### Chapter III Monitoring of fisheries

Operationalized	Institutional challenges
Art. 10 - Information on fishing activities	Low capacity to physically control vessels at sea and in port. Lack of e-logbooks.
Art. 13 - Vessel monitoring system (VMS)	Some countries have problems with VMS requirements described by the SEAFO system.

### **Chapter V Observer programme**

<b>Operationalized</b>	<b>Institutional challenges</b>
Art. 18 - Scientific observer programme	The SEAFO Secretariat has commissioned an observer training programme. Low fishing activity might cause observers' lack of experience.

### **Chapter VI Port State Control**

<b>Operationalized</b>	<b>Institutional challenges</b>
Art. 24 - Inspection	The SEAFO Secretariat has commissioned a port inspector training program. Low fishing activity might cause observers' lack of experience.

### **Chapter VII Measures to promote compliance**

<b>Operationalized</b>	<b>Institutional challenges</b>
Art. 26 - Sighting and identification of non-contracting party vessels	Low fishing activity by Contracting Party

Currently, there is very little fishing activity in the SEAFO area, but should the fishing pressures increase, the need to address identified shortcomings like lack of sufficient MCS capacity and e-logbooks would need to be addressed. The FarFish project has identified concrete steps and tools that could improve the monitoring and control of the EU fisheries in SEAFO area. The main suggestions will be presented in the next section, accompanied with a Roadmap on how they could be implemented.

Considering the current level of fishing in the SEAFO area, SEAFO stands out as a modern and well-functioning RFMO.

## **4.2 SWOT Analysis for processing and market conditions in SE Atlantic**

As there is only very limited fishing occurring in this area, no SWOT analysis is performed for this case study. The main weakness is that yields from potential fisheries are too low to provide economically sustainable activity.

## **4.3 Roadmap for the South East Atlantic high-seas fisheries**

The fisheries in the SEA high seas are managed through a well-structured RFMO since 2003, when the SEAFO entered into force. The SEAFO provides a clear structure to regulate the fishing activities in the area and a protocol for observation, inspection, compliance and enforcement, yet some challenges were identified in the operationalization of these principles in the analyses presented above. The

governance analysis pointed at the difficulties to monitor the fisheries due to lack of physical and technical capacity, respectively the lack of trained human resources, namely trained on board observers and port inspector and second, the difficulties to fulfil the data transmission requirements.

The very little fishing activity in the area in recent years provides limited information on the scope of the challenges under higher fishing pressure with limit the resources available to tackle them. Nevertheless, the RFMS conducted for the SEA area points at possible actions in case of increased fishing activities. Two main objectives were identified. The first refers to improving the knowledge base for sustainable fisheries management and, the second to supporting the fight against IUU fisheries by utilizing the latest available satellite system and tools.

Three outcome targets (OTs) were agreed upon in MR1 by authorities and operators' representatives to find pathways to support these objectives in the area. The first OT2.1 refers to the reporting of all catches via e-logbooks. The suggested action is to develop a pilot project to introduce e-logbooks through enabling dialogues between the SEAFO and its contracting parties. The introduction of e-logbooks contributes to improving the capacity of the organization to monitor and control the fishing activities. Moreover, better data collection in the area also contributes to better stock assessment which benefits the ecological sustainability of the fisheries in the area.

The second and third OTs, support the first objective of improving the knowledge base but also support the fight against IUU fisheries. OT2.2 aims for the transmission of either AIS or VMS signals for all vessels fishing in the area. The specific actions suggested to achieve this is to estimate the proportion of vessels, either EU or non-EU geo-located or with redundant (AIS+VMS) geolocation, which was done through a big-Data analysis of AIS data conducted within the FarFish project. In addition, FarFish also approached the SEAFO to request VMS data and strive for ensuring funding for the full adoption of the VMS transmission for the least developed member countries of SEAFO. OT2.2 has therefore contributed to support better enforcement of the SEAFO regulations. Finally, OT2.3 in MR1 strives for all vessels fishing in this area to have trained observers on board. Although this is a recommended OT in MR1, it can positively contribute towards better data collection and towards better enforcement of regulations. Potential collaboration could be found to conduct trainings in the area or the establishment of observers' program with broader that can serve not only this but other fishing areas that need to improve their observers' capabilities.

Yet, considering the low fishing activities in the area is not clear that resources will be sufficient to carry out the actions necessary to reach this OT, as already stated in the first audit of this MR in D5.1. Therefore, for all OTs a specific evaluation of the available resources for the implementation of the outcome practice should be included.

The Roadmap 2 South-East Atlantic high-seas fisheries includes the objectives identified above, the outcome targets agreed upon in the MR1, including recommended OTs. The roadmap further specifies the necessary actions to achieve the OTs and suggests key activities, assigning responsible parties and deadlines for each activity.



## Roadmap 2 South-East Atlantic high-seas fisheries

Implementation matrix for the Roadmap for South-East Atlantic High-seas			Delivered	Short term	Medium term	Long term
			2019	2020	2022	2025
<b>Objective</b>	<b>1.</b>	<b>Improve the knowledge base for sustainable fisheries management</b>				
<b>Outcome</b>	<b>2.1.</b>	<b>Reporting of all catches via e-logbooks.</b>				
Action	2.1.1.	Develop a pilot project to introduce e logbooks				
Key activities		A pilot project could be developed for deep sea crab fishery, which the Namibian fleet is targeting	WP3 MATIS/SEAFO -	ongoing	review	review
Action	2.1.2.	Initiate a dialogue meeting between SEAFO and contracting party defined as a developing country				
Key activities		initiating the dialogue between MFMR and SEAFO for the development of a pilot study	WP3 MATIS/SEAFO -	ongoing	review	review
<b>Objective</b>	<b>2.</b>	<b>Support the fight against IUU fisheries by utilizing the latest available satellite system and tool</b>				
<b>Outcome</b>	<b>2.2.</b>	<b>All vessels transmit AIS or VMS signals</b>				
Indicator	2.2.1.	Proportion of vessels, either EU or non-EU, geolocalization				
Key activities		Develop a big-Data analysis of AIS data by CSIC	WP6 - CSIC	review	review	
Indicator	2.2.2.	Proportion of vessels, either EU or non-EU, with redundant (AIS+VMS) geolocation				
Key activities		Approach SEAFO to requesting VMS data	WP3 - MATIS	review	review	
		Strive to ensure funding for least developed countries members of SEAFO for the full adoption of the VMS transmission	WP3 - MATIS	review	review	
<b>Outcome</b>	<b>2.3.</b>	<b>All vessels have onboard observers</b>				
Action	2.3.1.	No specific action is defined				
Key activities						



## 5 Case Study 3: Cape Verde SFPA Tuna Fisheries

### 5.1 Institutional Challenges Cape Verde

#### SFPA between the EU and Cape Verde

The Institutional framework for the EU tuna fisheries in Cape Verde is the SFPA agreement and the corresponding protocols. The new protocol was signed in May 2019 and covers a period of five years. The EU and Cape Verde have a long-standing relation in the field of fisheries, which started in 2007. This new protocol, which applies provisionally as of today, contains a yearly EU financial contribution of €750 000, including €350 000 annually earmarked to promote the sustainable management of fisheries in Cape Verde, notably through measures aiming at reinforcing control and surveillance capacities and supporting local fishing communities.

#### Governance principles in the SFPA-agreement

The scope of the Agreement is written in *Article 1*. In short, the scope is to promote responsible fishing in the Cape Verde fishing zone based on the principle of non-discrimination. Cape Verde undertake to apply the same technical and conservation measures to all industrial tuna fleet operating in its fishing zone with the aim of contributing to proper fisheries governance. The protocol is divided into 16 articles as shown in the Table 4.

*Table 4 Cape Verde SFPA protocol article structure*

<b>Article 1:</b> Principles	<b>Article 9:</b> Cooperation in the field of the blue economy
<b>Article 2:</b> Period of application	<b>Article 10:</b> Suspension of the implementation of this Protocol
<b>Article 3:</b> Fishing opportunities	<b>Article 11:</b> Electronic data exchange
<b>Article 4:</b> Financial contribution	<b>Article 12:</b> Confidentiality of data 1.
<b>Article 5:</b> Sectoral support	<b>Article 13:</b> Applicable provisions of national law
<b>Article 6:</b> Scientific cooperation to ensure responsible fishing	<b>Article 14:</b> Termination
<b>Article 7:</b> Review of fishing opportunities and technical measures by mutual agreement	<b>Article 15:</b> Provisional application
<b>Article 8:</b> Promoting cooperation among economic operators	<b>Article 16:</b> Entry into force

## Operationalization of the principles – what is needed

The Annex in the Protocol on the implementation of the Fisheries Partnership Agreement between the European Community and the Republic of Cape Verde (2019-2024) describes how to operationalize the intended principles. The Annex is divided into chapters and sections as shown in Table 5.

*Table 5 Cape Verde Annex to SFPA protocol structure*

Ch.	Name	Sections/ subchapter
I	General provisions	1. Designation of the competent authority 2. Fishing zone 3. Appointment of a local agent 4. Bank account
II	Fishing authorisations	1. Applicable procedures 2. Fees and advance payments
III	Technical conservation measures	
<b>IV</b>	<b>Catch reporting</b>	
V	Landing and transshipments	1. Notice 2. Landing incentives
<b>VI</b>	<b>Control and inspection</b>	1. Entering and leaving the fishing zone <b>2. Vessel position messages – VMS</b> <b>3. Inspection</b>
VII	Infringements	1. Handling of infringements 2. Detention of a vessel – information meeting 3. Penalties for infringements – compromise procedure 4. Legal proceeding – bank security 5. Release of the vessel and the crew
<b>VIII</b>	<b>Signing-on of seamen</b>	<b>1. Number of seamen to sign on</b> 2. Free choice of seamen 3. Seamen’s contracts 4. Seamen’s wages 5. Seamen’s obligations 6. Failure to sign on seamen
<b>IX</b>	<b>Observers</b>	<b>1. Observation of fishing activities</b> 2. Designated vessels and observers 3. Flat-rate financial contribution 4. Observer’s salary 5. Embarkation conditions 6. Observer’s obligations 7. Embarkation and landing of observers 8. Observer’s duties 9. Observer’s report

### **Current operationalization and related challenges**

From the Annex we have identified the areas where there are some challenges in operationalizing the principles. The challenges mainly relate to Chapter IV, VI, VIII and IX.

#### **Chapter IV Catch reporting**

Chapter IV about catch reporting has a numbered list of nine points describing how to ensure compliance and control of EU-fleet activities in the Cape Verdean EEZ.

<b>Operationalized</b>	<b>Institutional challenges</b>
To ensure compliance and control of EU-fleet activities	Lack of harmonization between Cape Verde and EU data. Technical barriers to effective data sharing. No compliance with declaration on shark landings.

#### **Chapter VI Control and inspection**

<b>Operationalized</b>	<b>Institutional challenges</b>
Inspections	High seas control within the EEZ of Cape Verde has been ineffective and few inspections at sea has been undertaken, limiting the effectiveness of ensuring EU fleet compliance.

#### **Chapter VIII Signing-on of fishers**

<b>Operationalized</b>	<b>Institutional challenges</b>
Number of fishers to sign on	Hard to find qualified Cape Verdean fishers to the pole-and-line vessels and tuna seiners. This is not a problem for the EU longlines, which exceeds the number of seamen required in the Protocol.

#### **Chapter IX Observers**

<b>Operationalized</b>	<b>Institutional challenges</b>
Observation of fishing activities	The conditions for observers have not been fulfilled since there is no provision for observers in the Cape Verdean legislation and no observer corps is established yet.

The ex-post and ex-ante evaluation study done in 2018 of the SFPAs between the EU and Cape Verde addressed the institutional challenges. The FarFish project has identified concrete steps and tools that could improve knowledge and stock management, and the monitoring and control of the EU fisheries within the EEZ of Cape Verde. The main suggestions will be presented in the Roadmap on how they could be implemented.

## 5.2 SWOT Analysis for processing and market conditions in Cape Verde

The SFPA allows 71 EU vessels access to fishing for tuna and tuna-like species in Cabo Verde EEZ; up to 28 purse seiners, 30 long liners and 13 pole-and-liners from Spain, Portugal or France. About 65% of the allowed vessels participated during 2015-2017. The EU vessels landed about 18.500 tons in Cabo Verde, of which 10.000 from the SFPA agreement. Only vessels from Spain and Portugal land there, as the French vessels land in Dakar, Senegal. In addition, Abidjan, Ivory Coast, also competes for landings.

Landed fish are to a large extent sold to the processing firms FRESCOMAR and ATUNLO CV, Spanish owned firms. Pole-and-line do not land in CV, and shark is exported directly. By-products are processed into meals and oil. FRESCOMAR and ATUNLO accounted for about 80% of CV export of seafood. FRESCOMAR also imports a high share of its tuna raw materials from the Seychelles. FRESCOMAR is primarily producing canned tuna and mackerel. ATUNLO produces frozen and loins of tuna.

### Strengths

- Fairly well-managed tuna fisheries (Erzini et al., 2017; Mikkelsen et al., 2018)
  - Subject to catch and effort limits defined by ICCAT. The main species, skipjack tuna, was assessed as being within sustainable levels in 2014. An important shark species, blue shark, was assessed as capable of sustaining relatively high levels of fishing mortality. Managed by DGRM, INDP, IMP, coast guard and seafood safety authority.
- Industrial hub
  - Mindelo is the hub of operations for many vessels operating in the South Atlantic, catching both tuna and other species operating in the South Atlantic. There are available transshipment services, shipyard and supplies of inputs. This is a sign that vessels find logistical benefits from operating from Cabo Verde. However, EU vessels have given mixed feedback concerning the suitability of Mindelo.
- Economic incentives to land and process in Cabo Verde.
  - EU vessels obtain a discount on port charges of 10 Euro per tonne landed and further 10 Euro for landings that are processed.
- Good export agreements with the EU
  - tariff-free entry to the EU market for wholly originating products
  - certain quota of non-originating canned tuna and mackerel products

### Weaknesses

- Prohibition of live-bait catches.
  - This is allowed in Senegalese waters and may disincentivize long-liner's catch in Cabo Verde waters.
- Relatively high cost of support services (Monteiro, 2016).
- Relatively low profitability for long-liners.



- Depressed sales prices by the primary dominant buyer and increases in operating costs, including landing fees.
- Seasonality in tuna fishery
  - Tuna stocks are generally available only for 3-4 months (September - January). Thus, in order to be efficient and profitable, catching needs also to take place in other zones. This hampers the domestic fleet, giving EU-vessels with licenses in multiple zones an advantage.
- Dominant buyer
  - There are primarily two sales channels, FRESCOMAR cannery and the local fresh market. The buyer concentration may result in a less efficient first-hand market, in particular this may hamper the domestic fleet with less bargaining power.
- Commodity good produced
  - Canned and loins of tuna are commodities with few opportunities for differentiation yielding benefits on a longer term.

### Opportunities

- Increase production
  - Currently, vessels land catches in the area in different ports along the West African region. An obvious opportunity is thus to obtain more of these catches. With quotas being the primary limiting factor, this will of course be negative for other ports.
- Increase value-adding
  - For the CV, increasing the share of value-added products is likely to increase value adding in CV as well as the demand for labour and jobs.
- Increase supply of fresh fish (tuna and tuna-like) to local markets, including the large tourism sector.
- Increase exploitation of lesser known demersal species.

### Threats

- Competition for landings
  - Mirroring the CV opportunity to increase its share of landings, other ports are likely to also seek to increase their share.
- IUU fisheries
  - Surveillance and control of fishing is limited, increasing IUU fishing may decrease the raw materials available
- Competition in processing
  - CV currently imports raw materials used in processing. Changes in competitive positions may see raw material supply and processing reduced in CV.

The SWOT analysis matrix in Table 2 summarizes the findings of the analysis above.

Table 6 SWOT Analysis processing and market conditions in Cape Verde SFPA

<p><b>Strengths</b></p> <p>Fairly well-managed tuna fisheries</p> <p>Industrial hub.</p> <p>Economic incentives to land and process in Cabo Verde.</p> <p>Good export agreements with the EU</p>	<p><b>Weaknesses</b></p> <p>Prohibition of live-bait catches.</p> <p>Relatively high cost of support services</p> <p>Relatively low profitability for longliners.</p> <p>Seasonal fishery for tuna</p> <p>Dominant buyer.</p> <p>Commodity good produced</p>
<p><b>Opportunities</b></p> <p>Increase production</p> <p>Increase value-adding</p> <p>Increase supply of fresh fish to local markets</p> <p>Increase exploitation of lesser known demersal species.</p>	<p><b>Threats</b></p> <p>Competition for landings</p> <p>IUU fisheries</p> <p>Competition in processing</p>

### 5.3 Roadmap for Cape Verde fisheries

From the challenges mentioned above, the governance challenges referring to catch reporting and control and inspections, were identified as the most feasible to tackle within the RFMS. The catch data limitations are mostly due to technical barriers for data sharing and lack of harmonized catch data protocols in conformity with ICCAT. The latter is in particular relevant for the reporting of shark and swordfish landings. The issue with the insufficient control and inspections within the EEZ of Cape Verde is due to few and ineffective inspections, which is mostly related to the inability to fulfil the observers' condition in the agreement, due to lack of trained human resources.

According to the RFMS for Cape Verde, MR1 suggested concrete actions to overcome the issues mentioned above. For improving data collection, and ensuring conformity with ICCAT reporting requirements, the suggested solution is to develop and implement a harmonized catch data protocol that requires reporting of both target species and bycatches including swordfish and blue shark. The key activity to achieve this objective is to establish a more detailed recording which includes species, volume and also sizes and number of individuals landed. This OT is a step forward for the improvement of data collection in Cape Verde and will contribute also towards better monitoring of the fishing activities, improved biological data and also contributes to the ecological sustainability of the fisheries in this area.

The OT3.2 relates to compliance with the transmission of AIS and/or VMS signals from all vessels fishing in this area. This outcome can be achieved by facilitating the access to the VMS and AIS data

for all vessels fishing in Cape Verde and, conduct a data analysis comparing VMS data with AIS data from Global Fishing Watch. This OT3.2. is a feasible way to contribute towards improving data collection and governance in The EEZ of Cape Verde, yet it is important to strive to ensure the compliance from all operators. This was point out in the first audit and could be tackled by including a sanction component for non-compliance.

A recommended outcome was suggested in MR1 for Cape Verde, to strengthen the observer's program in Cape Verde. According to the analyses above and to the first audit D5.1 to the MR, this is very relevant outcome and would constitute an effective solution toward tacking the insufficient and ineffective monitoring, as well as improve data collection. Strengthening the observers' program can be supported by the FarFish project, by facilitating training material and contents produced in the project.

Finally, for the weaknesses and threats found in the SWOT analysis, the most feasible set forward within an RFMS is to improve the knowledge about the value chain and the processing and market conditions in Cape Verde. To this end, sufficient information should be collected to assess the harvest and trade flows of tuna products in the country. This information can be collected by conducting interviews, implement questionnaire with harvesters, processors, sellers and trade data. Roadmap 3 summarizes the defined objectives, outcomes and specific actions suggested to improve the challenges and weaknesses identified for the Cape Verde fisheries.

Implementation matrix for the Roadmap for Cape Verde			Delivered	Short term	Medium term	Long term
			2019	2020	2022	2025
<b>Objective</b>	<b>1.</b>	<b>Improve data collection in conformity with ICCAT on bycatch of swordfish and blue shark</b>				
<b>Outcome</b>	<b>3.1.</b>	<b>A harmonized catch data protocol in place that facilitates improved reporting of swordfish and blue shark commercial and biological data</b>				
Action	3.1.1.	Improved data recording in e-logbooks of all catches (target- and bycatches)				
Key activities		More detailed recording than only species and volume e.g. sizes and number of individuals		WP2 - CCMAR	review	
Action	3.1.3.	Harmonised data protocols in place				
Key activities		Document and submit templates about information in data submission from operators	ORPAGU	Ongoing	review	review
		Perform an analysis of all current catch data protocols, forms and templates, which the EU fleet is obliged to submit to their flag state, Cape Verde and ICCAT	WP2 - CCMAR	review	review	
		Provide an example reporting template, and suggesting how harmonization can be achieved		WP2 - CCMAR	review	
		Analyse discrepancy between reported catches in the databases of Eurostat (EU), ICCAT and Cape Verde to improve the quality of data for comparison and scientific purposes		WP2 - CCMAR	review	
<b>Objective</b>	<b>2.</b>	<b>Support the fight against IUU fisheries by utilizing the latest available satellite system and tool</b>				
<b>Outcome</b>	<b>2.4.</b>	<b>All vessels transmit AIS and/or VMS signals</b>				
Action	2.1.1.	Proportion of vessels, either EU or non-EU, geolocalization				
Key activities		Facilitate initiative to access to VMS/AIS data from Cape Verde for both EU fleet and non-EU fleet		COSMAR/DNEM	review	review
		Analyse VMS data and compare it with the AIS data obtained from the Global Fishing Watch		COSMAR/DNEM	review	review
Action	2.1.2.	Proportion of vessels, either EU or non-EU, with redundant (AIS+VMS), geolocalization				
Key activities		Facilitate initiative to access to VMS/AIS data from Cape Verde for both EU fleet and non-EU fleet		COSMAR/DNEM	review	review
		Analyse VMS data and compare it with the AIS data obtained from the Global Fishing Watch		COSMAR/DNEM	review	review
<b>Outcome</b>	<b>3.2.</b>	<b>Strengthened observer program in place (Recommended)</b>				
<b>Action</b>	<b>3.2.1</b>	<b>Define as obligatory OT</b>				
Key activities		Facilitate training material and content. Seek for regional collaboration				
<b>Objective</b>	<b>3.</b>	<b>Improve knowledge in value chain, processing and market conditions</b>				
<b>Outcome</b>	<b>3.3.</b>	<b>Trade flow data from operators provided</b>				
Action	3.3.1.	Study harvest and trade flows in tuna products				
Key activities		Conduct interviews, implement questionnaire with harvesters, processors, sellers and trade data		WP3 - UoP		

## 6 Case Study 4: Senegal tuna and hake fisheries

### 6.1 Assessment of Institutional Challenges

#### SFPA between the EU and the Senegal

The main fishing governance framework between the Republic of Senegal and the EU into the Senegal EEZ is the SFPA agreement and the corresponding Protocol. The Protocol offers fishing possibilities for tuna fisheries and includes a limited access to black hake, as a deep demersal component.

The present protocol between the EU and Senegal came into force in November 2014 and did expire on 19 November 2019. Based on the relevant negotiating directives, the Commission conducted negotiations with the Government of the Republic of Senegal with a view to concluding a new Protocol to the Agreement. Following these negotiations, a new Protocol was initialled on 19 July 2019. The Protocol covers a period of five years from the date of its provisional application, i.e. from the date on which it was signed, as stated in Article 16 thereof.

In accordance with the priorities of the fisheries policy reform, the new Protocol provides fishing opportunities for EU vessels in Senegalese waters, on the basis of the best available scientific advice and following the recommendations of the International Commission for the Conservation of Atlantic Tunas (ICCAT). This new Protocol takes into account the results of an evaluation of the previous Protocol (2014-2019) and of a forward-looking assessment of whether a new Protocol should be concluded. The Protocol will also enable the European Union and Senegal to work more closely on promoting sound exploitation of fishery resources in Senegalese waters and support efforts by Senegal to develop its blue economy, in the interests of both Parties (European Commission, 2019a).

Among the SFPA, other institutional frameworks are converging as Senegal is cooperating under the general framework of the Cotonou Agreement. For the period 2014-2020, the National Indicative Programme (NIP) makes provision (an allocation of €347 million specifically) for strengthening democratic governance, agricultural development and the water and sanitation sector. Actions in the fishing sector are made through the Regional Indicative Programme and more specifically through the framework of the PESCAO project, the aim of which is to improve governance in the fisheries sector and combat illegal fishing with funding over the 2018-2024 period (European Commission, 2019b)

In this sense, Senegal is ratifying most of the international instruments relating to international fisheries governance. For instance, Senegal is a contracting and cooperating party to the Regional Fisheries Management Organizations, which have competence over the fisheries targeted into Senegal EZZ. Also, Senegal has ratified the FAO Port State Measures Agreement in 2017, a positive development given the importance of the port of Dakar for the landings of fisheries products caught in various zones of the sub-region by vessels flying a wide range of flags.

On the other hand, a roadmap for the development of the fishing sector was adopted in 2016 in the sectoral policy on the development of fisheries and aquaculture (LPSDPA, in French) for the 2016-2023 period, itself a part of the Plan Senegal Emergent (PSE). The LPSDPA provides for support to sustainable management of resources, development of aquaculture and promotion of fisheries products through a horizontal programme to strengthen the capacity of sectoral actors. The 2016-2023 LPSDPA also sets a follow-up evaluation framework which includes an annual joint review involving partners, among whom the EU (European Commission, 2019b).

### **Operationalization of the principles – what is needed**

#### *Governance principles according to the SFPA-agreement*

The principles of the Agreement are written in *Article 3*. In short, the main goal is to promote the responsible and sustainable fishing in the Senegalese waters as provided for in FAO's Code of Conduct for Responsible Fishing. Thus, the SFPA is implemented in accordance with Article 9 of the Cotonou Agreement on essential elements regarding human rights, democratic principles, law and good economic and social governance.

In addition, the Agreement establishes a cooperation on the arrangements for fisheries monitoring into Senegal EEZ, where the rules, conditions and measures for the conservation and management will be effective, particularly working to prevent illegal, unreported and unregulated fishing.

Beyond those principles, governance in Senegal EEZ is addressed in fishing regulations in Senegal which are based on two main texts, Law No. 98-32 of 14 April 1998 on the Maritime Fishery Code (well-known as "the Code of 1998") and Decree no. 98-432 of 10 June 1998 laying down the detailed rules for the application of the law on the maritime fishing code. A new Maritime Fisheries Code was adopted in 2015. The text comprises 138 articles divided into 10 titles. The main objective of the new Code is to increase penalties against IUU fishing, to organize co-management of fisheries, and to ban the manufacture and import of monofilament and multifilament nets. The Senegalese Fisheries Code establishes the principle for the conservation, management and monitoring measures of the various fisheries, through the establishment of fisheries management plans (Kvalvik et al., 2019)

### **How has the governance system presently operationalised the principles?**

The Annex in the Protocol: *Conditions governing fishing activities by European Union vessels in Senegalese fishing zone* describe on how to operationalize the principles. The Annex is divided into chapters and sections as shown in the Table 7:

Table 7 Senegal SFPa protocol structure

Ch.	Name	Sections
I	General Provisions	
II	Fishing Authorizations	
III	Technical Measures <sup>6</sup>	
IV	<b>Control, Monitoring and Surveillance</b>	<b>1. Catch reporting arrangements</b> 2. Entering and leaving Senegalese water 3. Transshipment and landings <b>4. Vessel monitoring system (VMS)</b> <b>5. Observers</b> <b>6. Inspection at sea and in port</b> 7. Infringements 8. Participatory monitoring-fight against IUU fishing
V	Signing-on of seamen	

### Current operationalization and related challenges

From the Annex we have identified the areas where there are some relevant challenges to operationalize the principles. The challenges mainly related to **Chapter IV**.

#### **Chapter IV** Control, Monitoring and Surveillance

This is probably the most comprehensive chapter with eight different sections. We have identified section 1, 4, 5 and section 6, as the most challenging.

#### **Section 1: Catch recording arrangements**

Operationalized	Institutional challenges
Catch reporting through the ERS	Insufficient availability/reporting of bycatch data within the black hake fisheries. Lack of information on discards and bycatch. Although the ERS system seems to be resolved, there is uncertainty about the operability and capability on the new software at the Senegalese Fisheries Monitoring Centre (FMC).
Black hake identification (Guidelines were provided by IEO)	Absence of datasets of catches and effort by type of black hake: both species of black hake ( <i>M. polli</i> and <i>M. senegalensis</i> ) are mixed in catches and reported together as the common name 'black hake'; thus, these two species of black hake neither are separated in catches nor in fishery statistics). Uncertainties on the way to conduct the stock assessment. It is necessary to conduct separate assessments for scientific purposes, including spatial and temporal distribution. More scientific collaboration is required. Regular surveys (biological and oceanographic) targeting deep-sea demersal species need to be conducted

<sup>6</sup> Appendix 2: It does contain the fishing logbooks for demersal and highly-migratory species

Data exchange	<p>Lack of harmonization between Senegal and EU data (INMARSAT vs ARGOS).</p> <p>Reduced reporting systems, especially regarding the non-availability of recruits.</p> <p>Development a system to register the observer data electronically in order to be shared with other scientific institutions</p> <p>Improve communication between the Senegalese authorities and the EU about the dysfunctions of the information exchange system, particularly when it fails.</p>
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#### Section 4: Vessel monitoring system (VMS)

Operationalized	Institutional challenges
Catch data automatically transmitted to the FMC <sup>7</sup>	<p>The programme of measures to modernise the Fisheries Monitoring Centre (FMC) and for scientific research has to be strengthened.</p> <p>Lack of transmission on the position of EU fishing vessels (VMS); currently it is just working for EU pole and line vessels and for national vessels.</p> <p>Improve the system for transmission of the fishing vessels position (VMS), as it is just only working for Senegalese vessels (except EU pole and line)</p>
PESCAO project funding	<p>To implement a system for visualization of VMS data from EU vessels.</p> <p>Strengthen transparency in sectoral support actions, e.g. to develop a system that allows to overcome technical issues between IMMARSAT and ARGOS systems, to achieve tangibles contributions.</p>

#### Section 5: Observers

Operationalized	Institutional challenges
National observer programme within the Protocol	<p>Difficulties with data validation and reporting when the programme needs to be expanded to cover other fleets more than the national fleet.</p> <p>Insufficient and irregular number of observers to comply with provisions of monitoring established in the SFPa protocol.</p> <p>Lack of training of technical observers to identify and quantify catch species composition</p> <p>Improve bycatch registration, self-sampling protocols, monitoring of catch, effort and sizes for black hake as target and by catch species.</p> <p>Lack of template for registration of bycatch species from scientific institutions.</p> <p>Complex logistics is hampering the extension of the observer programme particularly to cover the longline fleet.</p> <p>Ensure generational renewal of observers</p> <p>Strength the coordination at regional level from the creation of join protocols with other countries like Mauritania, Gambia, Morocco, Guinea Bissau</p> <p>Develop specific training and capacity building for scientific sampling observers</p>

<sup>7</sup> Responsible from the Directorate for the Monitoring and Protection of Senegalese Fisheries (DPSP)



## Section 6: Inspections at sea and in port

Operationalized	Institutional challenges
Inspector coverage	<p>Insufficient control observer's coverage (number) for inspections at sea to comply with controls established in the SFPA protocol.</p> <p>Lack of human and material resources and staff constraints.</p> <p>Develop specific training and capacity building for inspector observers.</p>
Sea patrol vessels activities (2 coastal patrol vessels and 3 high seas patrol vessels).	Difficulties in effectively combining port inspections with different monitoring, surveillance and control systems (AIS+VMS+ERS)

### 6.2 SWOT Analysis for processing and market conditions in Senegal

Products from the Senegalese Industrial fisheries (around 100 000 t) are primarily sold to Ivory Coast, Europe and South Korea (DG-Mare 2019). Artisanal small pelagics (around 400 000 t) are primarily sold in local markets. A high share of these catches is sold directly to consumers and about ¼ is traditionally processed before being sold to local markets and in neighbouring countries. These value chains are important as food and livelihoods may be impacted by the expansion of the fishmeal/-oil industry in the region driven by foreign investment, especially Turkish and Chinese. The increased demand for raw materials for these processing plants may especially reduce the supply of fish to these traditional value chains. This can have clear negative social impacts, that are not reflected in the SWOT analysis, focusing on processing in Senegal.

SFPA covers black hake and tuna species. Two Spanish trawlers can fish black hake. These have been a freezer and fresh fish trawler since 2015 but were joined by two other freezer trawlers in 2017. In 2017 the fishery was almost exclusively frozen. Both tuna seiners and pole-and-line vessels have been active in the tuna fisheries. Tuna seiners are based in Abidjan due to landings and maintenance facilities. Pole-and-line vessels are based in Dakar.

Some loin processing in Dakar based on pole-and-line catches. Some canning. In Abidjan, frozen tuna is primarily canned. Some stored refrigerated and shipped to Europe.

#### Strengths:

- Relatively strong resource supply
  - EU Pole-and-line tuna catches are landed in Dakar (even though they aren't processed in Senegal afterwards)
  - Catches are shipped by refrigerated boats and able to serve market for fresh tuna
- Increasing landings/transshipment in Dakar from purse seine fleet
  - Up from 5 to 21' tonnes from 2015 to 2017, this indicates increased competitiveness for Dakar port
- Reasonable infrastructure available

- Landing infrastructures, storage & export companies, two canneries
- Profitable agreement for EU, according to DG-Mare

#### **Weaknesses:**

- Catches from EU SFPA are only little processed in Senegal: most of the products are directly shipped to Asia (tuna) and Europe (hake, tuna).
  - Most of the added value along the value chain is going to EU (and also in other West African countries, where many crew members come from). Only around 30% of total SFPA's added value would benefit Senegal (DG-Mare 2019)
  - There are only little processing capacities (and they work below full rate), despite knowledge and potential to process EU SFPA catches into more added-value products suited for European market, with Dakar as a base bringing together stable conditions and sufficient infrastructure, alongside with local artisanal fishing. Therefore, more added value and economic activity could be captured by the host country. In this sense, the Pole and Line Tuna Fishery Improvement Project (FIP) launched last year by a multi-stakeholder alliance including European and Senegalese shipowners as well as operators and distributors of processed products has highlighted the shortfall that Senegal faces vis-à-vis its hosting tuna fishery.
- Tuna vessels ship-owners (both from EU and Senegal) have weak business relations with canneries
  - This reduces the raw materials available for these processing plants and hence value adding in Senegal. Improving these relations could increase supply and activity.
- Overexploitation of hake
  - Local fisheries have expanded since 2016
- Catch of black hake is frozen onboard
  - Less available for local processing, as most is landed in Vigo and Las Palmas
- Overfishing of bigeye tuna

#### **Opportunities:**

- Increase share of EU purse seine landings under SFPA
  - With the SFPA with Gabon ending, EU purse seiners land more in Cape Verde and Senegal to the detriment of the historic ports of Abidjan (Ivory Coast) and Tema (Ghana) (DG-Mare Dataset, 2020). Therefore, there are opportunities for Senegal to increase its attractiveness, by improving the reception capacity for purse seiners and their catches, in particular given that some infrastructures are already operational in Dakar. This increase in industrial activity could complement the important artisanal activity in the region, without competing for the resource, since these are globally different fisheries.

- This will make more raw materials available for processing and other value adding activities.
- Growing interest for hake in West African markets (Ivory Coast, Cameroun)
  - This may increase the share of hake being landed, processed and distributed from Senegal, yielding increased activity and value added
- Infrastructure is being developed in neighbouring countries
  - Cabo Verde with Mindelo, Mauritania with Nouadhibou.
  - Growing activities in the area for both tuna and hakes. But these ports may also be competitors

**Threats:**

- Overexploitation of resources, especially hake from neighbouring fishing zones
  - This will likely reduce the quantity both fished and landed, with negative impact on activity and value added
- Since hake is not a surplus fishery anymore, this category may be removed from EU SFPA
  - With reduced hake available for the EU, economic contribution will be reduced. Activity and value added related to these species will also be reduced.
- Developing ports in neighbouring countries (Mindelo, Nouadhibou) may be seen as competitors, especially for tuna landings and storage/processing.

The SWOT analysis matrix in Table 8 summarizes the findings of the analysis above.

*Table 8 SWOT Analysis processing and market conditions in Senegal SFPA*

<p><b>Strengths</b></p> <p>EU Pole-and-line tuna catches are landed in Dakar</p> <p>Increasing landings/transshipment in Dakar from purse seine fleet</p> <p>Reasonable infrastructure available</p> <p>Profitable agreement for EU, according to DG-Mare</p>	<p><b>Weaknesses</b></p> <p>Little processing in Senegal</p> <p>Tuna vessels shipowners (both from EU and Senegal) have weak business relations with canneries</p> <p>Overexploitation of hake</p> <p>Catch of black hake is frozen onboard</p> <p>Overfishing of bigeye tuna</p>
<p><b>Opportunities</b></p> <p>Increase share of purse seine landings</p> <p>Growing interest for hake in West African markets (Ivory Coast, Cameroun)</p>	<p><b>Threats</b></p> <p>Overexploitation of resources, especially hake from neighbouring fishing zones</p> <p>Since hake is not a surplus fishery anymore, this category may be removed from EU SFPA</p> <p>Developing ports in neighbouring countries (Mindelo, Nouadhibou) may be seen as competitors, especially for tuna landings and storage/processing</p>

### 6.3 Roadmap for Senegal fisheries

From the governance and SWOT analyses presented above, several challenges were identified for the Senegalese SFPA. Although this Protocol includes tuna fisheries, the focus of the FarFish project for the implementation of an RFMS will be on the black hake's fisheries component of the agreement. Other issues found through the SWOT analysis in the processing and market conditions include all fisheries in the Protocol.

The challenges can be grouped into three main sets of issues. The first issue relates to catch data reporting and collection, with specific concern on the uncertainties on the way to conduct the stock assessment for the two black hake species fished in the area. It is necessary to conduct separate assessments for scientific purposes. The second set of issues refers to insufficient monitoring and control, particularly the lack of transmission on VMS data; which it is only working for EU pole and line vessels and for national vessels. Also, the technical barriers for data exchange, lack of trained observers and lack of sufficient and efficient port inspections were identified in the governance section. The third set of issues relates to the threats and weaknesses identified in the SWOT analysis, mostly concerning the little processing in Senegal and weak business relations between shipowners and canneries in the country, which can be attributed to lack of knowledge on the value chain in Senegal and their value chain.

The data collection challenges and species disaggregation in the black hake fisheries were both identified through the RFMS by the authorities and operator's representatives. Two solutions were put forward in the MR1 with the OT4.1 and OT4.2. The OT4.1. refers to making bycatch data available while OT4.2 refers to providing information on the proportion of the two species of black hake. For making bycatch data available, this information should be specified in the fishing logbooks and included in the observer's report, that should be made available to the respective parts, including IEO, CRODT and the master of the vessel. For providing information on the proportion of the two species of black hake, three specific actions were defined. First, training of Senegalese observers in visual species identification of black hake through the creation of a joint approach following the guidelines provided by IEO in the CSC. Second, collecting fin samples of black hake to conduct a molecular analysis for identifying the two species, which requires a sampling protocol, templates for data collection to train both observers and crew in fishing vessels. And third, the molecular analysis to verify visual identification of black hake. All of these actions were considered feasible and relevant in the first audit of this MR presented in Deliverable 5.1 with few comments for their implementation.

The insufficient monitoring and control could be tackled by striving to ensure transmission of VMS and/or AIS signals for the whole fleet fishing in this area. This outcome is described in OT4.3 in MR1 and could be supported by providing the proportion of vessels, either EU or non-EU with redundant geolocation (AIS+VMS) through the development of big-Data analysis for AIS signals.

Finally, for improving knowledge in the value chain, processing and market conditions in Senegal, the recommended OT4.4 was put forward and includes collecting trade flow data on black hake and tuna.

This outcome could be achieved by conducting interviews with administration, operators, processors, distributors and buyers (Senegal and Europe).

The Roadmap 4 for the Senegalese SFPAs summarizes the objectives, outcomes and actions suggested to improve the challenges encountered for in the adequate implementation of the agreement. The roadmap also defines timing and responsibility for the required activities.



Roadmap 4 for Senegal SFPA

Implementation matrix for the Roadmap for Senegal SFPA			Delivered	Short term	Medium term	Long term
			2019	2020	2022	2025
<b>Objective</b>	<b>1.</b>	<b>Enhance data collection for species identification of black hake in catches</b>				
<b>Outcome</b>	<b>1.1.</b>	<b>Provide information on the proportion of the two species of black hake in catches</b>				
Action	1.1.1	Training of Senegalese observers in visual species identification of black hake.				
Key activities		Create a joint approach following the guidelines provided by IEO in the CSC for training Senegalese	CRODT/IEO	ongoing	review	review
Action	1.1.2	Collection of fin samples of black hake for molecular analysis				
Key activities		Provide a sampling protocol, templates for data collection.	CRODT	ongoing	review	review
Action	1.1.3	Molecular analysis to verify visual identification of black hake				
Key activities		Lead collection of samples and logistics for transport from vessel to laboratory facilities	WP2-CCMAR / WP1-CETMAR	ongoing	review	review
<b>Outcome</b>	<b>1.2.</b>	<b>Bycatch data in black hake fishery available</b>				
Action	1.2.1	Bycatch data specified by operators in fishing logbook to IEO and/or CRODT				
Key activities		Ensure that reporting of bycatch species in the E-logbook contain the requested information	OPROMAR	ongoing	review	review
		Ensure that bycatch is reported in the same way in observers report and fishing logbooks	OPROMAR	ongoing	review	review
		Periodic review of E-logbook reports	OPROMAR	ongoing	review	review
Action	1.2.2.	Observers report, including bycatch data made available to IEO and/or CRODT and master of vessel				
Key activities		Ensure that the observers report contain bycatch data	IEO/CRODT	ongoing	review	review
<b>Objective</b>	<b>2.</b>	<b>Support the fight against IUU fisheries by utilizing the latest available satellite system and tool</b>				
<b>Outcome</b>	<b>2.1.</b>	<b>VMS and/or AIS signals are transmitted</b>				
Action	2.1.1	Proportion of vessels, either EU or non-EU, geolocated				
Key activities		Develop a big-Data analysis by Work Group 6 leader CSIC for AIS signals	WP6 - CSIC	ongoing	review	review
Action	2.1.1	Proportion of vessels, either EU or non-EU, with redundant (AIS+VMS) geolocation				
Key activities		Develop diagnostic assessment to detect suspicious dynamic		WP6 CSIC/LDAC	review	
<b>Objective</b>	<b>3.</b>	<b>Improve knowledge in value chain, processing and market conditions</b>				
<b>Outcome</b>	<b>3.1.</b>	<b>Trade flow data on black hake provided</b>				

Action	3.1.1.	Flows for both EU and local hake fisheries provided				
Key activities		Gather existing data (JSC, DG-MARE, CRODT) and conduct interviews with operators and administration	WP3 - UoP	WP5 - UoP	WP3 - UoP	
Action	3.1.2	Economic data in each steps of the value chains provided (EU fisheries)				
Key Activities		Conduct interviews with administration, operators, processors, distributors and buyers (mostly in Spain)			WP3 - UoP	
Action	3.1.3	Economic data in each steps of the value chains provided (local market)				
Key Activities		Conduct interviews with fishermen, processors, distributors and buyers of hake in Senegal to obtain better understanding of potential of hake in the west-African market		WP5 - UoP		
<b>Outcome</b>	<b>3.2</b>	<b>Trade flow data on EU tuna fisheries provided</b>				
Action	3.2.1	Flows for pole-and-line vessels provided, both from EU and from national regime				
Key Activities		Conduct interviews with administration, operators, processors and distributors based in Senegal and in Europe	WP3 - UoP	WP5 - UoP	WP3 - UoP	
Action	3.2.2	Economic data in each steps of the value chains provided (EU fisheries and local regime)				
Key Activities		Conduct interviews with administration, operators, processors, distributors and buyers (Senegal and Europe)		WP5 - UoP	WP3 - UoP	



## 7 Case Study 5: Mauritania Mixed Fisheries

### 7.1 Assessment of Institutional Challenges

The Institutional framework for the EU tuna fisheries in Mauritania is the SFPA agreement from 2006 and the corresponding protocol from 2015. The agreement expired in November 2019 and a new one is under negotiation. The current protocol is extended for one year and therefore used in this deliverable together with the Ex-post and ex-ante evaluation Mauritania (European Commission, 2019c), the Joint Scientific Report Mauritania (2019) and the FarFish deliverables D3.3, D.4.3 and D7.4 (FarFish, 2018, 2020; Kvalvik et al., 2019).

#### Governance principles in according to the SFPA-agreement

The scope of the Agreement is written in *Article 1*. In short, the scope is to establish a cooperation that secure responsible fishing in the waters of Mauritania to guarantee the conservation and sustainable exploitation of fisheries resources and developing the Mauritanian fisheries sector. The principles and objectives are defined in *Article 3*. In addition to promote responsible fishing, the parties shall cooperate carry out ex-ante and ex-post evaluations and ensure that the Agreement is implemented in accordance with the principles of good economic and social governance.

#### **Operationalization of the principles – what is needed**

The Annex in the Protocol: *Conditions governing fishing activities by EU vessels in Mauritanian fishing zones* describes how to operationalize the principles. The Annex is divided into chapters as shown in Table 9.

*Table 9 Mauritania SFPA Annex chapters*

Chapter	Name
I	General provisions
II	<b>Licenses</b>
III	Fees
IV	<b>Catch reporting</b>
V	Landings and transhipments
VI	<b>Monitoring</b>
VII	Infringements
VIII	<b>Satellite monitoring system (VMS)</b>
IX	<b>Signing-on of Mauritanian fishermen</b>
X	<b>Scientific observers</b>
XI	Details of implementation of exploratory fishing



## Current operationalization and related challenges

A general challenge, that relates to the overall objective of responsible and sustainable fishing activities and the scientific cooperation in *Article 4*, is that Mauritanian authorities lack transparency regarding data sharing. Mauritanian authorities don't provide annual details about other public and private agreements. Furthermore, data related to activities of non-EU vessels by flag aren't available, as well as data related to activities of national vessels (in particular those operating under joint venture or chartering under the national regime: Turkish purse seiners, Chinese vessels). Therefore, a global vision of the exploitation of resources in the fishing area is impossible, as well as the comparison with agreements involving entities other than EU.

From the Annex we have identified the areas where there are some challenges in operationalizing the more concrete principles. The challenges mainly relate to Chapter II, IV, VI, VIII, IX and X.

### Chapter II Licenses

Operationalized	Institutional challenges
Licenses transmitted by fisheries agents based in Mauritania.	Delayed transmission of vessel licenses from Mauritania. Lack of transparency and efficiency of fisheries agents.

### Chapter IV Catch reporting

Operationalized	Institutional challenges
Fishing logbooks: paper and electronic	Mixed reporting of the two black hake species. Double use of electronic and paper logbook. Confusion around the use of common species name instead of scientific names.
Fishing Datasheets with specified authorized by-catches	Possible underreporting of by-catch in small pelagics (category 6) Discard of important part of by-catches in the shrimp fisheries (category 1).
Data exchange between the parties	Lack of harmonization between IMROP, IEO and DG MARE data. Poor communication between authorities and operators.

### Chapter VI Monitoring

Operationalized	Institutional challenges
FMC	Reception difficulties at the FMC. Insufficient monitoring of the consumption of TAC when the catches reach 80 % of the TAC (especially black hake trawlers and bottom long-liners).
Inspections conducted by the Coast Guard and the Ministry of Fisheries.	Lack of implementation of Technical Measures (first capture sizes, mesh size, biological stoppage, zoning, etc.)

### Chapter VIII Satellite Monitoring System (VMS)

Operationalized	Institutional challenges
IMROP	Lack of competence in the use of VMS data.

### Chapter IX Signing-on of Mauritanian fishermen

Operationalized	Institutional challenges
Possible Mauritanian fishers is made available every year.	Lack of qualified local crew in categories 1 and 5. Logistical challenges.

### Chapter X Scientific observers

Operationalized	Institutional challenges
Observer trained in 2009-10 by a foreign consultant through an externally funded programme that ended. No current observer programme with the EU-fleet, but 40 observers are stationed throughout Mauritania.	Lack of observers and observations. No adequate sampling coverage for EU trawlers the last three years. Some trawlers in category 6 (small pelagics) refuse to take on board scientific observers Lack of feedback from observers to the operators.
Standardization workshop for observer's work methodologies (2019) as a starting point for cooperation.	Lack of standardization in the data collection process between observers from EU (IEO) and Mauritania (IMROP) for category 1 (shrimps).

The fisheries agreement between Mauritania and the EU expired in November 2019, but the parties have agreed to extend it for one year to allow the European fishing to take place while the parties negotiate a new agreement. Presumably several of the identified challenges will be addressed in the new agreement. Meanwhile, the FarFish project has identified concrete steps and tools that could improve knowledge and stock management, and the monitoring and control of the EU fisheries in Mauritanian waters. The main suggestions will be presented in the section, accompanied with a Roadmap on how they could be implemented.

## 7.2 SWOT Analysis for processing and market conditions in Mauritania

Mauritanian waters are highly productive and hosts large fisheries for both demersal and pelagic species. The SFPA dates back to a fisheries agreement in 1987, and cooperation has continued since then, with a brief suspension in the second half of 2014 and 2015. Currently the EU is allocated fishing opportunities for shrimp, demersal fish, tunas and small pelagics, totalling 287,500 tonnes.

Current catches from the EU fleet are predominantly landed in other countries than Mauritania, and hence not entering value chains in or involving Mauritania. Shrimps and pomfret are landed in mainland Spain, hakes generally in Las Palmas and tuna primarily in Cape Verde, Dakar, Canary Islands

and Abidjan. EU vessels are currently not allowed to fish within 20 nm of the coast, leading to decreased catches of small pelagic species and a shift in both species and fleet composition. Now primarily consisting of horse mackerel and sardines, being frozen in boxes, the small pelagics have to be transhipped in Mauritania. From here they are generally shipped to Las Palmas where they are distributed to markets primarily in Europe and Africa. There is a requirement for a small share of catches to be physically landed in Mauritania, but vessels often pay a fee to avoid this. Thus, the quantities being available for processing in Mauritania from EU vessel catches is low.

### Strengths:

- High productivity waters
  - Strong resource base
- Numerous processing facilities for small pelagic species
  - This results in a dynamic sector and strong demand for fish
- Industrial Free Zone in Nouadhibou
  - Profit tax and other levies exemptions as well as tariff free trade
- Political will to retain the supply chain more in the country
- Biggest EU-SFPA
  - Mauritania is in a good bargaining position as the EU fleet is quite dependent on this agreement
- Landings in Mauritania is mandatory
  - Catches are required to be landed in Mauritania, except for Cat. 4 & 5 + Cat.1 during warm season). This gives processors in Mauritania an advantage in raw material sourcing and can thus be a strength for this sector. For other processors, this complicates and adds cost to the distribution of some products and is thus also present in “weaknesses”.

### Weaknesses:

- The sector for EU catches is not related to Mauritania.
  - Most of the EU catches are only transhipped/landed in Nouadhibou, before being exported out of the country without being processed (with some categories that don't even land in Mauritania). The EU vessels have only weak links with local services providers (no maintenance).
- Strong dependence on the Spanish market for certain fishing categories.
  - A vast majority of shrimps (Cat. 1), hakes (Cat 2. & 2B), other demersal species (Cat. 3) are sold in Spain. This exposes the value chains to risk related to conditions in a single market. For example, reduced shrimp prices in Spain induced a decrease in profitability and effort in the Mauritanian shrimp fisheries.
- EU vessels are restricted to operating far from the coasts



- Limits and zones vary between SFPAs categories, but agreements have generally increased the distance from shore. This has reduced the available fish abundance and has other negative impacts for the EU fleet. Access to certain species are undermined (sardinella cat.6, langoustine cat.1, squid and cuttlefish in extra authorization in cat.2b)
- This has resulted in reduced profitability and effort from all fishing categories
- Overexploitation of resources
  - Horse mackerel is considered overexploited, as well as sardinella and ethmalosa (Cat. 6)
  - Hake catches are considered fully exploited to overexploited. In addition, there is a lack of data concerning hake catches
- Mandatory landings in Mauritania
  - Except for Cat. 4 & 5 + Cat.1 during warm season. This point is also present in “strengths” because it generates positive outcomes for Mauritania

#### **Opportunities:**

- Mandatory landings of frozen hake and bycatch in Nouadhibou
  - Resources available for domestic processing and marketing
- Increased landings of tuna
  - Currently, no tuna is landed in Mauritania. As both EU and other vessels catch tuna close to Mauritania, there may be opportunities for activity if shipowners consider this an economically more attractive option than other ports. This may stem from better logistical opportunities
- Anchovy experimental fishery has been launched
  - This may also increase landings and provide opportunities for both processing and serving consumer markets and fish meal and oil facilities.
- Opportunities to shift fish from meal/oil to human consumption
  - A large share of current landings in Mauritania are processed to oil/meal
  - The value adding and profitability from processing to fish meal and oil is likely less than for direct human consumption. Several pelagic fisheries in Europe have made this transition when technology and cold-chains are developed. This creates an opportunity for other processing sectors to take over these raw materials.
- Increase mandatory landings for small pelagic species
  - Currently 2% of small pelagic species caught are required to be landed in Mauritania. Although more is landed (not from EU vessels), there is potential for increasing local value-adding through higher landing requirements. This will, of course, negatively influence the current receivers in the value chain.
- Increased demand for hake in West Africa

- There is a growing hake industry in Dakar (Senegal) in order to be exported in growing West African markets (Ivory Coast, Cameroun). This could increase the demand and raise prices and attractiveness for hakes fished in Mauritania. This could both be realized through increased fishery and/or prices, increased landings and shipments to Senegal/Ivory Coast/Cameroon and increased processing in Mauritania. Only a shift in current landings will negatively influence current receivers of raw materials.

**Threats:**

- IUU and overfishing
  - May lead to reduced quotas and catches, as well as rising costs.
- Economic recession
  - Fish meal and oil are commodity products where demand is likely to be negatively influenced if the world economy goes into recession. This will reduce value added from these resources.
- Development of foreign industrial fleet for small pelagics under Mauritanian regime, targeting horse mackerel to provide fish meal factories
  - Horse mackerel are already fully exploited. Risk of overexploitation and reduced yield in the future
  - Reduced quotas for the EU and higher tariffs
- Reduced quotas to EU vessels
  - EU is only allowed to fish surplus left by Mauritania. This surplus may be considerably reduced and may possibly lead to reduced EU opportunities. Of course, this would have a positive side for the vessels that are allocated increased quotas.

The SWOT analysis matrix in Table 10 summarizes the findings of the analysis above.

Table 10 SWOT Analysis processing and market conditions in Mauritania SFPA

<p><b>Strengths</b></p> <p>High productivity waters</p> <p>Numerous processing facilities for small pelagic</p> <p>Industrial Free Zone in Nouadhibou</p> <p>Political will to retain the supply chain more in the country</p> <p>Biggest EU-SFPA</p> <p>Landings in Mauritania is mandatory</p>	<p><b>Weaknesses</b></p> <p>The sector for EU catches is not related to Mauritania</p> <p>Strong dependence on the Spanish market for certain fishing categories.</p> <p>EU vessels are restricted to operating far from the coasts</p> <p>Overexploitation of resources</p> <p>Mandatory landings in Mauritania</p>
<p><b>Opportunities</b></p> <p>Mandatory landings of frozen hake and bycatch in Nouadhibou</p> <p>Increased landings of tuna</p> <p>Anchovy experimental fishery has been launched</p> <p>Anchovy experimental fishery has been launched</p> <p>Increase mandatory landings for small pelagic catches</p> <p>Increased demand for hake in West Africa</p>	<p><b>Threats</b></p> <p>IUU and overfishing</p> <p>Economic recession</p> <p>Development of foreign industrial fleet for small pelagic fisheries under Mauritanian regime, targeting horse mackerel to provide fish meal factories</p> <p>Reduced quotas to EU vessels</p>

### 7.3 Roadmap for Mauritanian fisheries

The Mauritanian SFPA is the largest agreement from the EU with a coastal state and faces many challenges as identified in the previous governance and SWOT analyses. The challenges can be summarized as first, a general lack of transparency in data sharing, catch data reporting collection and exchange between relevant parties; second, the insufficient MCS, particularly affecting the track of TAC utilisation; third, the lack of qualified personnel for data reporting, inspections and for the observer’s program and; fourth, issues related to the processing and market conditions.

These challenges were also identified according to the RFMS in the discussions between authorities and operators’ representatives. For the issues related to data collection for adequate stock assessment in black hake fisheries OT5.1 and 5.2 were defined in MR1 (FarFish, 2020). OT5.1 aims to improve the quality of the current stock assessment by providing information on the proportion of the two species of black hake in catches in all hake fleets, as well as all fleets with hake bycatches as specified in OT5.2. The specific actions put forward to achieve these outcomes include training crew members to visually identification of black hake species and in collecting fin samples of black hake. The samples collected by the trained crew members will then go to molecular analysis to verify the visual identification made on board.

The issues related to insufficient MCS were tackled through OT5.3, OT5.4 and OT5.5 by striving to improve knowledge and data collection and reporting for all operators in the different small pelagic and shrimp categories. However, no specific actions were defined in MR1. The latter was highlighted in the first audit in D5.1, which specifies the need to define specific actions to achieve these targets.

On the issues related to the lack of trained observers, OT5.6 strives for full on-board observer coverage on all high-capacity pelagic vessels. This outcome was defined as recommended, yet it is very relevant as it could contribute towards improving the issues related to the stock assessment, improve data availability and support the fight against IUU fisheries.

Finally, OT5.7 aims to improve knowledge in the value chain, processing and market conditions, by increasing data from the trade flow of small pelagic and other species fished by the EU fleet in Mauritania. This OT although recommended, could be achieved by gathering existing data (including MPEM, IMROP, Baltic countries) and also conduct interviews with a sample of operators, vessels, processors and distributors. The importance of collecting this type of data was highlighted as very relevant in the first audit of the Mauritanian CS

Description of the suggested actions to improve the conditions of this case study, in accordance with the management recommendations, are summarized in Roadmap 5.



Roadmap 5 for Mauritania SFPA

Implementation matrix for the Roadmap for Mauritania SFPA			Delivered	Short term	Medium term	Long term
			2019	2020	2022	2025
<b>Objective</b>	<b>1.</b>	<b>Improve the quality of the current stock assessment for the species included in the agreement</b>				
<b>Outcome</b>	<b>1.1.</b>	<b>Information on the proportion of the two species of black hake in catches provided</b>				
Action	1.1.1.	Visual identification of black hake species from subsamples				
Key activities		Create training materials in accordance to the IEO identification guide	WP3-MATIS	ongoing	review	review
Action	1.1.2.	Collection of fin samples of black hake for molecular analysis				
Key activities		Trained scientific observers can do the identification and collection of fin samples	OPROMAR	ongoing	review	review
Action	1.1.3	Preliminary molecular analysis study to verify visual identification of black hake				
Key activities		Provide comprehensive protocol with video clips illustrating the sampling procedure	WP2 - CCMAR	ongoing	review	review
<b>Outcome</b>	<b>1.2.</b>	<b>Information on black hake caught as bycatch provided</b>				
Action	1.2.1.	Training of skippers and crews in visual species identification of black hake				
Key activities		Encourage the fleet to participate in a self-sampling program	OPROMAR/WP3	ongoing	review	review
Action	1.2.2.	Visual species identification from subsamples of black hake as bycatch species				
Key activities		Encourage authorities to train scientific observers in visual black hake identification and sample collection	OPROMAR/WP3	ongoing	review	review
Action	1.2.3	Collection of fin samples from visually identified black hakes for molecular analysis				
Key activities		Provide a sampling protocol, templates for data collection.	WP2-CCMAR / WP1-CETMAR	ongoing	review	review
Action	1.2.4.	Preliminary molecular analysis to verify visual identification of black hake species				
Key activities		Lead collection of samples and logistics for transport from vessel to laboratory facilities	WP2-CCMAR / WP1-CETMAR	ongoing	review	review
<b>Outcome</b>	<b>1.3.</b>	<b>Increased on-board observer coverage on all high-capacity pelagic vessels in place</b>				
Action	1.3.1.	No action specified for this outcome yet				
Key activities		--				
<b>Objective</b>	<b>2.</b>	<b>Enhance level playing field Lack of level playing field where all operators oblige to the same rules</b>				
<b>Outcome</b>	<b>2.1.</b>	<b>Data on all catches, discards and by-catches provided (Recommended)</b>				
Action	2.1.1.	No action specified for this outcome yet				





Key activities		--				
<b>Objective</b>	<b>3.</b>	<b>Improve knowledge in value chain, processing and market conditions</b>				
<b>Outcome</b>	<b>3.1.</b>	<b>Trade flow data from small pelagics provided (Recommended)</b>				
Action	3.1.1.	Collect data on volumes and destination for small pelagics from local operators				
Key activities		Gather available data	<b>WP3 - UoP</b>	<b>WP5 - UoP</b>	<b>WP3 - UoP</b>	
		Conduct interviews with a sample of operators, vessels, processors and distributors		<b>WP5 - UoP</b>	<b>WP3 - UoP</b>	
Action	3.1.2	Collect socio-economic data from local operators in the value chain for small pelagics				
Key activities		Gather existing data (including MPEM, IMROP, Baltic countries) and		<b>WP5 - UoP</b>	<b>WP3 - UoP</b>	
		Conduct interviews with a sample of operators, vessels, processors and distributors		<b>WP5 - UoP</b>	<b>WP3 - UoP</b>	
<b>Outcome</b>	<b>3.2</b>	<b>Trade flow data from other species fished by EU provided (Recommended)</b>				
Action	3.2.1	Collect data on volumes and destination for other species fished by EU				
Key Activities		Gather existing data available	<b>WP3 - UoP</b>		<b>WP3 - UoP</b>	
Action	3.2.2	Socio-economic data on each steps of the value chain provided				
Key Activities		Gather data from administration (including Spain, Senegal, Ivory Coast)	<b>WP3 - UoP</b>	<b>WP5 - UoP</b>	<b>WP3 - UoP</b>	
		Conduct interviews with a sample of operators, vessels, processors and distributors		<b>WP5 - UoP</b>	<b>WP3 - UoP</b>	



## 8 Case Study 6: Seychelles Tuna Fisheries

### 8.1 Institutional Challenges Assessment

Seychelles is one of the most fisheries dependent countries in the world. The country is located in the Indian Ocean which is the second largest global tuna producing area and the most significant region for the EU fleet. Industrial tuna fishing remains one of the most important sources of foreign currency earnings in the economy of Seychelles. The Seychelles is a hub for commercial fish trade in the western Indian Ocean, with regular transshipments of fish by industrial fishing vessels, as well as landings by purse seine vessels

The fisheries partnership between EU and Seychelles has been running for over three decades, since it was first signed in 1987. The current EU-Seychelles Fisheries Partnership Agreement (FPA) covers the period from 2014 to 2020 and allows for 40 tuna seiners and 6 surface longliners from Spain, France and Italy to target tuna and tuna-like species within Seychelles EEZ. The EU countries included in the agreement are Spain, France, Portugal and Italy.

The Institutional framework for the EU tuna fisheries in Seychelles is the SFPA agreement and the corresponding protocols. A new SFPA is agreed on, but the protocol is not yet available. Ex-post and ex-ante evaluation Seychelles (European Commission, 2019d) and the FarFish deliverables D3.3, D.4.3 and D7.4 (FarFish, 2018, 2020; Kvalvik et al., 2019)

#### Governance principles according to the SFPA-agreement

The scope of the Agreement is written in *Article 1*. In short, the scope is to establish a cooperation that secure responsible fishing in the waters of Seychelles to guarantee the conservation and sustainable exploitation of fisheries resources and developing the Seychelles fisheries sector. The principles are defined in *Article 3*. In addition to promote responsible fishing, the parties shall cooperate, carry out ex-ante and ex-post evaluations, and ensure that the Agreement is implemented in accordance with the principles of good economic and social governance.

#### **Operationalization of the principles – what is needed**

How to operationalize the principles of good economic and social governance is described in the Annex in the Protocol: *Conditions for the pursuit of fishing activities by European Union vessels in Seychelles waters*. The Annex is divided into chapters and sections as shown in Table 11.

Table 11 Chapters and Section from Annex to Seychelles SFPA Protocol

Ch.	Name	Sections
I	Management measures	1.Application and issue of fishing authorisations 2.Fishing authorization – fees and advance payments 3.Supply vessels
II	Fishing areas	
III	<b>Monitoring</b>	1. <b>Catch recording</b> 2.Catch communication and leaving Seychelles' water 4.Landing 5. <b>Transshipment</b> 6.Vessel monitoring system (VMS)
IV	<b>Embarking seamen</b>	
V	<b>Observers</b>	
VI	Port equipment and use of supplies and services	
VII	<b>Control</b>	
VIII	<b>Enforcement</b>	

### Current operationalization and related challenges (2&3)

From the Annex we have identified the areas where there are some challenges in operationalizing the principles. The challenges mainly relate to Chapter III, IV, V, VII and VIII.

#### Chapter III Monitoring

This is probably the most comprehensive chapter with five different sections. We have identified section 1 and section 5 as the most challenging.

#### Section 1: Catch recording

Operationalized	Institutional challenges
Paper logbooks	Struggle to implement ERS that will give even more accurate and reliable data. Frequent delays in submission of logbook data from Spanish purse seiners.
Catch data is automatically transmitted to the FMC	The SFA in general, and the FMC, has a lack of resources to handle the catch data. Data is not necessarily analysed and verified.
Data exchange between the parties	Lack of harmonization between Seychelles and EU data.
Quota on yellowfin	Suspect misreporting that will affect the catch data.

#### Section 4: Transshipment

Operationalized	Institutional challenges
Supervision of transshipments.	Lack of control by Seychelles, transshipments takes place without official control and data collection. Seychelles must trust disaggregated data from the actors themselves, often delayed.

#### Chapter IV Embarking fishers

Operationalized	Institutional challenges
A list of possible Seychelles fishers is sent to the EU every year.	Lack of qualified local crew. Poor reporting systems, especially regarding the non-availability of recruits.

#### Chapter V Observers

Operationalized	Institutional challenges
National observer programme with training of observers. Observer capacity has been strengthening in the last few years.	Problems with data validation and reporting when the programme expanded to cover other fleets than the national. Complex logistics is hampering the extension of the programme to cover the longline fleet. Observer coverage has declined*.

*\*This is probably due to the implementation of CCTV observation system (Closed-Circuit Television – camera recordings).*

#### Chapter VII Control

Operationalized	Institutional challenges
Inspector training	Lack of resources
Air and sea patrol activities. Coast Guard patrols accompanied by SFA Officers.	Low patrol capacity and difficulties in maintaining equipment, getting supply and spare parts. Lack of resources in the Coast Guard might make them unable to react to reporting of irregularities.
FMC	Equipment vulnerability with technical challenges that have broken down the VMS system for shorter periods.

Several of the identified challenges are addressed in the new SFPA agreement. It will further strengthen the *capacity* to monitor and control the EU feet fishing in Seychelles water, amongst other through ERS and EMD (Electronic Monitoring Device), reinforcement of the role of observers and the possibility of carrying out joint EU-Seychelles inspections on EU vessels fishing in Seychelles' water. The financial contribution of the EU and EU ship owners to promote the sustainable management of

the marine environment and fisheries in Seychelles are also strengthened<sup>8</sup>. Further, steps and tools identified in the FarFish project will be elaborated on the Roadmap.

## 8.2 SWOT Analysis for processing and market conditions in Seychelles

The EU – Seychelles SFPAs, which ran in the period January 2014 – January 2020, allowed up to 46 EU vessels (40 purse seiners and 6 surface and long-liners, from Spain, France, Italy or Portugal) to fish for tuna species under an annual reference tonnage of 50,000 – the largest tuna agreement in the South West Indian Ocean. In recent years, the uptake of about 30 purse seiners have been roughly 56,000 tons of skipjack and yellowfin tuna in the Seychelles EEZ, also some bigeye and albacore tuna are caught.

Port Victoria serves as a major hub port for purse seiners' tuna landings from the West Indian Ocean, who rely heavily on fish aggregating devices (FADs) in their operation. EU vessels' tuna landings are transhipped from Seychelles to other destinations (Mauritius, Madagascar or directly to the EU), while about 20-25 % is canned by the local Indian Ocean Cannery (owned by Thai Union Frozen Products Co. Ltd) – the second largest tuna cannery, employing over 2,500 workers. Canned tuna is the largest export product from the Seychelles, in the range of 35,000 tonnes annually, with the EU (France, UK, Italy and Germany) as the largest market. The Seychelles have preferential tariffs on canned tuna to the EU and fulfil the EU health and sanitary requirements.

### Strengths:

- Central location resulting in favoured landing location
  - The Seychelles and Port Victoria is a central location for tuna purse seiner vessels operating in the South West Indian Ocean. This results in a favoured landing location. As such, they receive catches from other regions than Seychelles EEZ, and Port Victoria functions as home base for West Indian Ocean purse seine tuna fleet
  - Moreover, the SFPAs have demonstrated that the sector support in the Seychelles have created benefits (port facilities etc.) for multiple stakeholders, including government, local fishers and communities and foreign vessel operators.
- Preferential tariffs - Cotonou Agreement with EU
  - The preferential tariffs agreement with the EU on canned tuna (Cotonou) constitute a considerable strength for the Seychelles seafood sector and export. Also, the transhipment of frozen tuna to Europe enjoys this benefit, where National standards for health and sanitary requirements modelled on EU and FAO regulations.
- National standards for health and sanitary requirements modelled on EU and FAO regulations

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<sup>8</sup> (European Commission Press, 2019)

- Along with tariffs, this provides favourable trading environment with EU
- Strong brand names for tuna products in UK and France
  - Seychelles canned tuna have strong brand names for tuna products in UK and France (*John West & Petite Navire*, respectively), and is – despite modest market share – the most important ACP-supplier of tuna (the 79 countries from Africa, Caribbean and Pacific within the Cotonou-agreement with EU).
- Good biological stock status and prospects
  - According to FAO (2014), the industrial tuna fisheries in the Seychelles are relatively well enforced and carried out with good compliance. Although there is uncertainty around biological resources, this places the Seychelles-centered fisheries in a good position.

#### **Weaknesses:**

- IUU fishing by unlicensed vessels a longstanding problem
  - Despite robust management mechanisms in place, and high product traceability, IUU fishing by unlicensed vessels has been a longstanding problem, representing a great concern for long term sustainability for these highly migratory species, as pointed to by the IOTC.
- Strong reliance on canned tuna, being a price sensitive commodity
  - Seychelles seafood exports have a strong reliance on canned tuna, being a price sensitive commodity.
- Strong dependence on single market and strong vertical integration
  - Vertically integrated value chain from cannery to supermarket may place less emphasis on innovation and product upgrading.
  - The main market, Europe, received approximately 99% of processed tuna exports from the Seychelles (WWF & SIF, 2019). Hence, opportunities for higher prices and diversification are limited, underlined by the high degree of vertical integrated links between cannery and supermarkets.

#### **Opportunities:**

- High share of purse seine landings transhipped to other countries for processing
  - A relatively high share of purse seiner's tuna landings to the Seychelles (75 %) is transhipped to other countries (EU, Mauritius or Madagascar) for processing (Lecomte et al., 2017). The capacity of the existing cannery is underutilized, which should warrant a certain potential for increased local processing
- Canning dominating product form
  - Canning is today the dominating seafood processing technology in Seychelle's seafood value chain, and the dominating seafood export product. Hence, Seychelles has a potential for diversifying to other value-added products.

- New technology and training may improve monitoring of IUU fishing
  - for instance, increased sea patrols and development of drones for monitoring sea areas.
  - Continued sectoral support, with training of local crew and port facilities, could enable erecting an industrial purse seine fleet in the Seychelles for attending self the natural resource in their waters, independent of other flag states.

**Threats:**

- Yellowfin tuna stock is in poor state
  - One major threat is the poor state of the yellowfin tuna stock, established by the IOTC, which has led to catch restrictions after 2016, and concurrently raw material shortage for the Seychelle canning industry. This is the most profitable tuna species, contributing the most to catch value. Hence, catch reductions in catches will have negative socio-economic impact, to both EU-vessels and downstream activities – locally as well as abroad.
- Tariff changes may reduce competitiveness of Seychelles tuna products compared to Asian competitors

The SWOT analysis matrix in Table 12 summarizes the findings of the analysis above.

*Table 12 SWOT Analysis processing and market conditions in Seychelles SFPA*

<p><b>Strengths</b></p> <p>Central location resulting in favoured landing location</p> <p>Preferential tariffs</p> <p>National standards for health and sanitary requirements modelled on EU and FAO regulations</p> <p>Strong brand names for tuna products in UK and France</p> <p>Industrial tuna fisheries relatively well enforced and with good compliance</p>	<p><b>Weaknesses</b></p> <p>IUU fishing by unlicensed vessels a longstanding problem</p> <p>Strong reliance on canned tuna, being a price sensitive commodity</p>
<p><b>Opportunities</b></p> <p>High share of purse seine landings transhipped to other countries for processing</p> <p>Canning dominating product form</p> <p>New technology and training may improve monitoring of IUU fishing</p>	<p><b>Threats</b></p> <p>Yellowfin tuna stock is in poor state</p> <p>Tariff changes may reduce competitiveness of Seychelles tuna products compared to Asian competitors</p>

### 8.3 Roadmap for Seychelles Fisheries

Although Seychelles has a well-established institutional and legal framework, several challenges were identified in this CS in the governance and SWOT analysis presented above and during the process of implementing a RFMS. The main topics identified as challenges are first, the lack of knowledge, from catch and by-catch data reporting to knowledge about ecosystem impacts from allowed fisheries practice like the FADs. Second, the need to establish gazette marine zones to protect vulnerable ecosystems. Third, insufficient MCS in the vast EEZ of Seychelles at sea and on land, to control transshipments and landings. Fourth, technical challenges in VMS and AIS data transmission and the lack of a well-established operators' program and last, issue related to the value chain, processing and market conditions in the value chain.

According to the progress in the RFMS, a set of objectives were defined by authorities and operators' representatives, as the most attainable for improving the challenges identified in the SFP. The first objective is to improve the scientific knowledge base for managing these fisheries. For this, OT6.1 was defined, aiming for the harmonization of a fisheries information system. This OT can be achieved by reporting on all relevant data protocols for the EU fleet and by creating a standardized fisheries information system.

The lack of adequate catch reporting is tackled by OT6.2, which aims to develop a protocol that includes all catches of non-target species in e-logbooks. This target can be achieved by developing a catch template for non-target species to be implemented in the e-logbooks. Yet, this OT needs to be revised according to the first audit (FarFish, 2019) by verifying if existing procedures could be improved to attain this objective and avoiding additional efforts put on the operators.

The important issue of protecting vulnerable ecosystems in Seychelles' EEZ is tackled by OT6.4 and OT6.6. The first OT6.4 refers to the provision of data on the use of FADs within Seychelles EEZ. OT6.6 strives to the commitment from all fleets to honour Marine Protected Areas (MPAs) and no-take zones identified in the Seychelles Marine Spatial Planning process (SMSP). This OT6.6 could be ensured by analysing VMS or AIS data to verify operators' compliance. The compliance with VMS and AIS data transmission from all operators is defined in the recommended OT6.5. Yet, as mentioned in the governance analysis, the VMS and AIS data transmission faces some technical problems, which the OT6.5 should strive to solve, as OT6.6 depends on these technical problems to be solved.

Other issues, like the need for updating the observers' program can be tackled by the implementation the recommended OT6.3 which refers to setting conditions for better coordination of the observer programme in terms of content, processes and data sharing.

For the market and processing weaknesses and threats, a potential solution is to increase the knowledge in the value chain by studying harvest and trade flow data in tuna products. This can be defined as an OT in the second MR and implemented by conducting interviews and questionnaires with harvesters, processors, sellers and further investigate trade data.



The Roadmap 6 summarizes the objectives and outcomes that has been set in the FarFish project and the specific steps to accomplish them.



## Roadmap 6 for Seychelles SFPA

Implementation matrix for the Roadmap for Seychelles SFPA			Delivered	Short term	Medium term	Long term
			2019	2020	2022	2025
<b>Objective</b>	<b>1.</b>	<b>Improving the scientific knowledge base for the fisheries management</b>				
<b>Outcome</b>	<b>6.1.</b>	<b>Harmonized fisheries information system in place</b>				
Action	6.1.1.	Report on all relevant data protocols for EU fleet fishing under the FPA agreement				
Key activities		Analyse data protocols in catch and effort (E-logbooks)		WP2 - CCMAR	implement	review
		Structure data flows and communications		WP2 - CCMAR	implement	review
Action	6.1.2.	Standardized fisheries information system				
Key activities		Identify standards and indicators to generate protocols	LDAC/OPAGAC/SFA	ongoing	review	review
		Define needs for technical assistance and capacity building at SFA	IOTC / Operators	review	review	
<b>Outcome</b>	<b>6.2.</b>	<b>Catches of non-target species registered in e-logbooks</b>				
Action	6.2.1.	Template for catch protocol for non-target species to be implemented in e-logbooks				
Key activities		Review data gaps for the non-target species	WP2-CCMAR / IOTC	review	review	
		Explore non-target species in the data limited model (DLM) developed by FarFish partner CSIC in WP6	WP6-CSIC / WP2-CCMAR	ongoing	review	review
<b>Outcome</b>	<b>6.4.</b>	<b>Provision of data on the use of FADs within Seychelles EEZ</b>				
Action	6.4.1	includes catch data, operating costs and other data relevant for estimating the socio-economic impact of using FADs				
Key activities						
<b>Objective</b>	<b>2.</b>	<b>Support the fight against IUU fisheries by utilizing the latest available satellite system and tool</b>				
<b>Outcome</b>	<b>6.5.</b>	<b>VMS or AIS signals are transmitted</b>				
Action	6.5.1	Transmission of VMS or AIS signals				
Key activities		Explore ideas on monitoring of fisheries in MPAs applying new methods and tools		SFA	review	
<b>Outcome</b>	<b>6.3.</b>	<b>Updated observer program in place</b>				
Action	6.3.1	Development of a protocol for a shared pool of observers		SFA	review	
Key activities		Integrate ongoing actions to create regional observer programme		LDAC / SFA / OPAGAC	review	review
		Setting up of a mixed/combined system comparing information compiled by observer sampling on board with information originated by EMS		SFA	review	review



<b>Objective</b>	<b>3.</b>	<b>Enhance a level playing field where all fleets comply by the commitment to honour Marine Protected Areas (MPAs)</b>				
<b>Outcome</b>	<b>6.6</b>	<b>MPAs and no-take zones identified in the SMSP are respected</b>				
Action	6.6.1.	Operator compliance verified by analysis of VMS or AIS data				
Key activities		Analyse VMS or AIS data to verify operators' compliance to honour MPAs		SFA	review	
<b>Objective</b>	<b>4.</b>	<b>Improve knowledge in value chain, processing and market conditions</b>				
<b>Outcome</b>		<b>Trade flow data provided</b>				
Action		Study harvest and trade flows in tuna products				
Key activities		Conduct interviews, implement questionnaire with harvesters, processors, sellers and investigate trade data		WP3 - UoP	review	



## 9 Final remarks

This deliverable presented a thorough analysis of the challenges encountered during the implementation of the RFMS in the FarFish project for the selected case studies. The challenges were analysed both from a governance and from a market perspective. With this deliverable the knowledge that has been collected and analysed by different Work Packages in the project have been gathered, summarized and further developed into comprehensive tools that can be used further by the project's partners. In particular, we analysed the work from WP2 with the case study characterization, WP3 with the governance and value chain analyses and by WP4 with the management recommendations. This deliverable contributes to the overall objective of the project by assessing the institutional challenges of the EU fisheries in distant waters through the identification of barriers and pathways for progress within the current governance system.

The institutional assessment focused on describing the current status, needs and challenges in relation to the successful implementation of the intended governance principles in the selected case studies. Further, we identified strengths, weakness, opportunities and threats based on value chain evaluations done in WP3 and further exploration of market circumstances according to information gathered during the different interactions with stakeholders. With the consolidation of challenges both from a governance and a market perspective, it was possible to verify that feasible solutions have been suggested to tackle these issues and that specific steps have been defined in the implementation of the RFMS process. With this knowledge, we further developed comprehensive but easily readable roadmaps that could be followed by different

The deliverable has highlighted that FarFish case studies have several challenges in common. The lack of adequate data reporting and collection was a shared challenge for all cases. This issue is of particular relevance for the adequate management of shared stocks and for the sustainability of the species in these areas. In most cases, specific actions have been suggested to improve data collection and thereby also the stock assessment. Another common issue encountered was the limited capacity of the coastal states to conduct adequate monitoring, surveillance and control of the fisheries activities of the international fleets in their waters, mainly due to the lack of human and technical resources and infrastructure, as well as difficulties in implementing the required monitoring protocols (i.e. VMS, ERS). For this challenge, each of the CS have defined a set of actions according to the RFMS to tackle the issues according to their capabilities and specific needs. The outcomes and specific actions identified through the RFMS were gathered and analysed to verify their relevance and applicability in the light of this consolidated analysis to produce the roadmaps that can lead the road to improving the conditions of these important fisheries.

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