Framework contract MARE/2011/01
Evaluation and impact assessment activities for DG MARE

Lot 3 – Retrospective and prospective evaluations on the international dimension of the Common Fisheries Policy

Specific contract n° 16

Ex post and ex ante evaluation of the protocol to the Fisheries Partnership Agreement between the EU and the Republic of Mauritius

Final report

January 2016

MUS211R01A

COFREPECHE France Aquaculture | MRAG | POSEIDON Aquatic Resource Management Ltd | nfds Nordenfjeldske Development Services

This report has been prepared with the financial support of the European Commission.

This report must be cited in as follows:

COFREPECHE, NFDS, MRAG and POSEIDON, 2015. Ex post and ex ante evaluation of the protocol to the Fisheries Partnership Agreement between the EU and the Republic of Mauritius (Framework contract MARE/2011/01 – Lot 3, specific contract 16). Brussels, 141 p.

Cover photo: Per Erik Bergh

COFREPECHE: 32 rue de Paradis, 75010 Paris, France. info@cofrepeche.fr

Version: Final report	Report ref: MUS211R01A Number of pages: 141 (all included)	Date issued: 18 January 2016

Action	First name	Surname	Organisation Position
Author(s)	Tim	Davies	MRAG Team leader
	Sandy	Davies	NFDS Fisheries scientist
	Sebastien	Metz	MRAG Fisheries economist
Peer review	Robert	Wakeford	MRAG Peer reviewer
Proofreading and edition	Anna	Mees	MRAG Editor
Approval and validation	Etienne	Jarry	COFREPECHE Consortium focal point

Executive summary

Introduction

1. This report provides an ex post evaluation for the existing Protocol to the Fisheries Partnership Agreement (FPA) between the European Union (EU) and the Republic of Mauritius. The current Protocol entered into force on 28 January 2014, and is valid until 27 January 2017. The Protocol enables EU fishing vessels to operate in the waters of Mauritius. The evaluation considers the Protocol in terms of its relevance, coherence, effectiveness, efficiency and sustainability. It also provides an ex ante evaluation to support the potential negotiation and implementation of a new Protocol.

Country background

2. Mauritius gained independence from Britain in 1968 and opted to become a Republic in 1992. It has an estimated total population of 1.27 million people in 2015. The 2013 Ibrahim Index of African Governance ranked Mauritius as the top country in Africa for good governance.
3. Mauritius has developed since independence into a middle-income diversified economy with industrial, financial, tourist, agricultural and fisheries sectors. The fisheries sector contributes approximately 1.4 % to gross domestic product (GDP). Between 1997 and 2008, the economy grew at an average rate of 4.6 % annually.

The Indian Ocean and Mauritius tuna fishery and environment

4. Globally the Indian Ocean (IO) is the second-largest production area for tuna, after the Pacific Ocean. The total global catch of tuna and tuna-like species exceeded 7 million tonnes (t) in 2012, due largely to increasing trends in catch of skipjack and yellowfin tuna. In 2014, catch from the IO accounted for 20 % of global catch.
5. The IO is the region that provides most of the tuna catch for the EU fleet. Since the start of the fishery in the early 1980s, purse seine catches by EU fleets in the IO have shown an increasing trend, until reaching a peak in 2003 with a total of more than 407 000 t. Catch in 2012 dropped to the lowest level since 1993, due to relatively low skipjack catch and to a lesser extent bigeye catch, but rebounded in 2013–2014.
6. Longliners in the IO yielded a total annual average catch of 104 000 t between 2005 and 2014. Yellowfin and bigeye tuna were the dominant species in the catch, while swordfish and albacore also made a significant contribution to the overall total catch. The Taiwanese fleet accounted for almost 70 % of this catch while the European fleet landed just 8.6 % with an average annual landing of around 9 000 t.

Fisheries governance in Mauritius

7. The fisheries legislation currently in force in Mauritius is the Fisheries and Marine Resources Act 2007 (Act No. 27 of 2007) which took effect on 8 May 2008. The Act provides for the management of fisheries, and the conservation and protection of marine resources.
8. Mauritius' Government website states that the vision for fisheries is 'to be an economic pillar with due regard to sustainability of aquatic resources and social development for the benefit of all stakeholders.' The Government Programme 2015 reflects the vision of the government to transform Mauritius into an ocean State by promoting the ocean economy as one of its main pillars of development.
9. Monitoring, Control and Surveillance (MCS) is the responsibility of the Fisheries Planning and Management Division of the Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Islands. All licensed boats and vessels are required to be Vessel Monitoring System (VMS) compliant. Mauritius lacks patrol vessel capacity although recent regional cooperation with Indian Ocean Commission (IOC) projects has provided some support. The Fisheries Monitoring Centre has participated in the joint patrols and in some cases has coordinated these patrols.

10. Over the last year, the Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Islands was formed as a result of a merger of previously separated ministries; consequently restructuring has been and is under way, which has been a lengthy and challenging task for the organisation. It is expected that the enactment of a new fisheries act will add further momentum to this process. For the tuna fishery, the new act will bring many resolutions of the Indian Ocean Tuna Commission (IOTC) into the legal framework and thus place Mauritius in a stronger position to negotiate sustainable access plans for the tuna resources.

Fisheries in Mauritius

11. The artisanal fishery of Mauritius is comprised of small boats, most of which are propelled by around 15 horse power outboard motors, rowing and sailing boats, and fishers operating from the shore. The main species caught include red snapper, emperor, unicorn fish and cobbler fish. The Government of Mauritius has taken actions to reduce fishing in the overexploited lagoon by making it more appealing to fish around anchored fish aggregating devices (FADs), paid for and maintained by the government.

12. Five semi-industrial non-tuna vessels fished on the shallow banks of Saya de Malha and Nazareth in 2012, and the same reported to have been active in 2015. They produced 1 281 t of frozen fish, mainly lethrinids (91 %) and snappers/groupers (9 %), from a total of 431 fishing days in 2012.

13. Commercial aquaculture consists of the production of giant freshwater prawn, red tilapia and marine red drum fish, rabbit fish and sea bream. Today, aquaculture contributes USD 2 million annually to the Mauritian economy. In-lagoon aquaculture has emerged recently, with 15 sites available for marine aquaculture. Farming of high-value and niche products such as seaweed, oyster and oyster pearl, crabs, sea urchins and other shellfish is also being encouraged.

14. In 2009, about 300 t of tuna were caught by artisanal and semi-industrial fishers. It appears from available information that the catch today may now be lower than this, reportedly this is likely to be due mainly to the aging and inefficiency of the vessels, which reduces their ability to go to sea for longer periods. Industrial fishing vessels currently targeting tunas in the Mauritian EEZ include national and foreign vessels. The total contribution from fishing authorisations in 2014 was reported to be EUR 1 739 254: the EU contributed 21 % of this and the largest contribution to the income came from the foreign longliners, mainly Taiwanese at 51 %.

15. Somali piracy has been a problem in the region since the 1990s, with serious and costly impacts for some countries close to Somalia. The current threat of piracy to EU fishing vessels operating in the waters of Mauritius appears to be low. There was no reported evidence that port activity had been reduced due to piracy in Port Louis, rather it may have increased due to longliners locating further south and east.

The Fisheries Partnership Agreement between the EU and Mauritius

16. Mauritius and the EU initialled their first bilateral fishing agreement in 1989. The latest fisheries Protocol covers the period 28 January 2014 to 27 January 2017 with an annual reference tonnage of 5 500 t per year, generating an annual financial contribution of EUR 660 000, of which EUR 302 500 is for the support and implementation of Mauritian sectoral fisheries policy and maritime policy. Targeted actions no longer exist and, since the 2004 reform, FPAs have been designed to provide sectoral support. EU vessels must comply with the applicable national legislation of Mauritius unless otherwise provided under the Protocol and the annex (Article 10, Protocol).

17. The total catch by the EU fleet in 2014 within the Mauritian fishing zone was 510 t, harvested by 10 EU purse seine vessels and five EU longliners. This represented 9.3 % of the total reference tonnage under the protocol. In 2015, the total catch for the first three trimesters was almost equivalent, with 489 t (8.9 % of the reference tonnage).

18. More than 70 % of the fishing opportunities offered to purse seine vessels in the Protocol were taken by Spanish and French vessels in both years. However, only 10 vessels in 2014 and five vessels in 2015 declared an entry in the Mauritian fishing zone, reportedly because tuna populations were mostly situated outside the Mauritian fishing zone.
19. Only French surface longliners took up the fishing opportunities available in the Protocol in 2014 and 2015. Just over half (18 of 29 in 2014) of the fishing opportunities available to the French longliner fleet were taken up. It has been indicated that in recent years Spanish longliners were not operating at the latitude of the Mauritian fishing zone, which may explain why none of these vessels have applied for a fishing licence in Mauritius.

Ex post evaluation findings

20. The **effectiveness** of the FPA and Protocol in achieving its specific objectives:
    a. The tuna species targeted by the EU purse seine fleets are skipjack, yellowfin and bigeye tuna. In the IO, two of these species (skipjack and bigeye) are not currently overfished nor have overfishing, but one species (yellowfin) is currently overfished and overfishing is continuing. Skipjack and yellowfin tuna are the most abundant species in EU purse seine catches, comprising 47 % and 45 % of total catch in 2014 respectively. We therefore can conclude that EU fleets are mainly catching fish classified as 'sustainable', but only by a very fine margin.
    b. The FPA provides a binding legal framework for control of fishing by EU vessels in the waters of Mauritius that supports the framework of the IOTC and the national framework of Mauritius. A significant contribution is made through the Protocol's provisions on sectoral support, part of which focuses on ensuring sustainable development and conservation of aquatic living resources.
    c. All EU purse seine vessels fishing in Mauritian waters in 2014 and 2015 held authorisations, demonstrating the importance afforded to this access right. The FPA is contributing to the annual creation of EUR 180 000 of value added for Mauritius. It can be estimated that at least half of the purse seiner catch is utilised by the Mauritian seafood-processing sector.
    d. The FPA aims to support the development of a sustainable fisheries sector in Mauritius in line with the ambitions of the government. The government has demonstrated its commitment to sustainability and is making efforts to improve this in the future while also making the sector an important economic earner. The Protocol aims to embark up to 10 local seamen on the EU fleet while operating in Mauritian waters, but to date has not been successful partly due to lack of available qualified crew and logistical challenges.
21. The **efficiency** of the FPA and Protocol in achieving the desired effects at a reasonable cost:
    a. The effective cost of access was EUR 975 per tonne caught in 2014 and EUR 999 in 2015 when taking into account payments made by the EU and vessel owners. The EU supports the most part of the cost of access: 74 % in 2014 (for a cost of EUR 701 per tonne) and 71 % in 2015 (for a cost of EUR 714 per tonne). The cost of access paid by vessel owners represents almost 30 % of the fishing income generated in the fishing zone, which exceeds the 5 % level vessel owners consider to be a maximum for access cost. The high cost per tonne is due to lower catches in the Mauritian fishing zone in these years.
    b. In 2014, 41 % of the EU sectoral support budget allocation was utilised and the remainder was rolled over to the next year. The delays were justified and mainly associated with procurement issues and confounded by restructuring of the new Ministry. The main improvement that may be useful for the sector support is that a permanent mechanism is set up for the industry and civil society to engage in a dialogue with the Ministry.
    c. It is estimated that Mauritius benefited from an additional EUR 191 000 in value added in 2014 and EUR 181 000 in 2015, mainly captured through the fleet payments for access, but also by the provision of goods and services for EU fishing vessels.

22. The economy of the FPA and Protocol in achieving the desired effects at best price: For actions being implemented, EU sectoral support is well utilised and appropriate to Mauritian sector targets. Cooperation with other regional initiatives, especially to achieve the protection of the EEZ, is deemed to have been cost effective and efficient for Mauritius. Mauritius has made considerable progress in implementing its environmental policy and promoting sustainability. EU contributions have been paid as requested and to the designated bank accounts.

23. The relevance of the FPA and Protocol in terms addressing needs and problems:

    a. Vessel owners highlighted the relevance of the FPA as it is part of the existing network of FPAs currently active in the region. This provides more clarity and medium-term stability than would a private arrangement. The Protocol is relevant to Mauritius as it provides a framework for the income generation from surplus stocks whilst ensuring better compliance with management measures than those under private agreements with foreign vessels. The EU has also been a long-term partner in association to the fisheries sector in Mauritius and the western IO as a whole. This partnership is being reinforced and is important to both parties for strengthening the sustainable exploitation of the tuna stocks in the western IO.

    b. The Protocol can be described as relevant to the needs of EU consumers as it contributes to the security of canned tuna and whole frozen product supplies to the EU market for processing and retail trades.

24. The **coherence** of the FPA and Protocol with other interventions:

    a. The Protocol is coherent with the Common Fisheries Policy (CFP) and IOTC resolutions and management measures. There is coherence with regional policy on issues such as VMS, observers, local employment and the promotion of Regional Fisheries Management Organisations (RFMOs).

    b. There is a good level of coherence between the FPA and the regional programmes such as the SmartFish project where assistance has been given on developing sector policy, capacity building on fisheries personnel and training in MCS. Mauritius has integrated the EU standards for exports into its own relevant regulations, and has an on-going system for updating these regulations to keep them coherent with EU standards.

    c. Mauritius promotes sustainable and responsible fisheries development, an objective that is in line with the objectives of the FPA. The FPA Protocol is coherent with the fisheries and development policies.

Ex ante evaluation findings

25. In terms of **needs** to be met:

    a. In the short term, the EU needs to achieve continuity in maintaining fishing opportunities for the European fleet in the western IO region and to maintain the supply of fish and fish products to the EU market. Mauritius needs to maintain the revenue stream provided by the EU financial contribution and to benefit under the terms of the Protocol from sectoral support.

    b. In the long term, the needs of both parties are similar. In addition, Mauritius needs to ensure that it continues to develop the infrastructure and facilities to maintain its position as an important hub for the tuna fisheries in the western IO, and to build human and institutional capacity within Mauritius to enable it to function as an efficient and responsible fishing nation.

26. In terms of **added value** of EU involvement, the FPA provides a vehicle for a coordinated approach that would not be as easily achieved at the level of Member States in the case where there was no FPA. The FPA provides the necessary stability and transparent rules and provisions that are applicable to all Member States involved in the fisheries, thereby ensuring the best economic benefit for both the EU and Mauritius.

27. In terms of **objectives to be achieved**, the challenge facing Mauritius will be to develop its institutions in the coming years, build the capacity of its staff, and ensure the efficient and effective running of all aspects of its fisheries management system to achieve long-term sustainability of its fisheries. With respect to tuna and tuna-like species, regional cooperation in this endeavour is essential. The EU has a major interest in the success of Mauritius.

28. In terms of **policy options** available, it is appropriate to continue with the FPA and negotiate a new Protocol. In the longer term, an integrated regional approach could be developed that would cover all tuna species involved and could harmonise specific provisions of the FPAs, notably on the matter of embarkation of local crew and on the recognition of regional fishing observers.

29. In terms of **lessons learnt**, fishing opportunities were not fully utilised in respect to the reference tonnage to date, which reflects the migratory nature of the fishery and the weakness of the reference tonnage system, vessel reference tonnage and price per tonne within the system of calculating the cost of access. It may be beneficial to view access right as a set fee. If reference tonnage is to continue to be used within the calculation of access fee the level set should also take into account the environmental fluctuations that are associated with highly migratory species.

Recommendations

30. The evaluation recommends that:

    a. A new Protocol should be negotiated between the EU and Mauritius to facilitate continuation of their mutually beneficial partnership on fisheries.

    b. Sectoral support should continue in line with the core areas identified by Mauritius: ensuring sustainable development and conservation of aquatic living resources, safeguarding of the EEZ and territorial waters, and contribution towards the sustainability of marine resources and ecosystems through the participatory approach.

    c. Open communication channels between the EU and the Mauritius authorities should continue to be maintained in both directions and the sound basis already in place should be built on. This will continue to ensure that both parties are able share information about changes in their operating environment in a timely manner and facilitate mutual support and co-operation especially in international processes.

31. When a new Protocol is negotiated, the following recommendations should be taken into account:

    a. Access rates should relate to the economic importance of the right to fish within the Mauritian fishing zone, as part of the regional strategy for fishing, rather than just the reference tonnage that is confusing to all.

    b. A regional approach should be explored further with those IO coastal States currently involved in an FPA with the EU to support the implementation of coherent terms and conditions at the regional level. These could include an agreed approach to the cost of access and coherent approaches to embarking coastal states' crew and observers.

Résumé

Introduction

1. Ce rapport présente l'évaluation ex post de l'actuel protocole de l'accord de partenariat dans le secteur de la pêche (APP) entre l'Union européenne (UE) et la République de Maurice. Le protocole actuel est entré en vigueur le 28 janvier 2014, et est valable jusqu'au 27 janvier 2017. Le protocole permet aux navires de pêche de l'UE d'opérer dans les eaux de Maurice. L'évaluation examine le protocole en termes de pertinence, de cohérence, d'efficacité, d'efficience et de durabilité. Ce rapport fournit également une évaluation ex ante afin d'appuyer la négociation potentielle et la mise en œuvre d'un nouveau protocole.

Contexte du pays

2. Maurice a obtenu son indépendance de la Grande-Bretagne en 1968 et a choisi de devenir une république en 1992. Sa population totale estimée en 2015 compte 1,27 million de personnes. L'indice Ibrahim de gouvernance africaine de 2013 classe Maurice comme étant le premier pays d'Afrique en termes de bonne gouvernance.

3. Maurice s'est développé depuis son indépendance en une économie diversifiée à revenu moyen comprenant des secteurs industriels, financiers, touristiques, agricoles ainsi que de pêche. Le secteur de la pêche contribue d'environ 1,4 % au produit intérieur brut (PIB). Entre 1997 et 2008, l'économie a progressé à un taux annuel moyen de 4,6 %.

La pêcherie thonière et l'environnement à Maurice et dans l'océan Indien

4. L'océan Indien (OI) est la deuxième plus grande zone mondiale de production de thon, après l'océan Pacifique. La capture mondiale totale de thon et d'espèces apparentées a dépassé 7 millions de tonnes (t) en 2012, principalement en raison de tendances à la hausse dans la capture de listao et de thon albacore. En 2014, la capture provenant de l'océan Indien représentait 20 % de la capture mondiale.

5. L'océan Indien est la région qui fournit la plus grande partie de la capture de thon de la flotte de l'UE. Depuis le démarrage de la pêcherie au début des années 1980, les captures à la senne par les flottes de l'UE dans l'OI ont suivi une tendance haussière, jusqu'à atteindre un pic en 2003 avec un total de plus de 407 000 t. La capture en 2012 a chuté à son plus bas niveau depuis 1993 en raison d'une capture relativement faible de listao, ainsi que de thon obèse dans une moindre mesure, mais a rebondi en 2013-2014.

6. Les palangriers de l'OI ont produit une capture moyenne annuelle totale de 104 000 t entre 2005 et 2014. L'albacore et le thon obèse étaient les espèces dominantes dans la capture, tandis que l'espadon et le thon germon ont également contribué de manière significative à la prise totale globale. La flotte taïwanaise représentait près de 70 % de cette capture tandis que la flotte européenne n'a débarqué que 8,6 % avec un débarquement annuel moyen de l'ordre de 9 000 t.

La gouvernance des pêches à Maurice

7. La législation actuellement en vigueur en matière de pêche à Maurice est la Loi n° 27 de 2007 sur la pêche et les ressources marines (*Fisheries and Marine Resources Act*), qui a pris effet le 8 mai 2008. La loi prévoit la gestion des pêcheries, ainsi que la conservation et la protection des ressources marines.

8. Le site internet du gouvernement de Maurice indique que la vision en ce qui concerne les pêches est « d'être un pilier économique tenant compte de la durabilité des ressources aquatiques et du développement social au bénéfice de toutes les parties prenantes. » Le Programme gouvernemental de 2015 reflète la vision du gouvernement de transformer Maurice en un État-océan en mettant en avant l'économie de l'océan comme l'un de ses principaux piliers de développement.

9. Le suivi, contrôle et surveillance sont la responsabilité de la division de planification et de gestion des pêches du ministère de l'économie océanique, des ressources marines, de la pêche, des services maritimes et des îles. Tous les bateaux et navires sous licence sont tenus de se conformer au système de surveillance des navires (VMS). Maurice ne possède pas la capacité d'opérer un navire de patrouille, bien qu'une coopération régionale récente avec des projets de la Commission de l'océan Indien (COI) ait fourni un certain soutien. Le centre de surveillance des pêches a participé aux patrouilles conjointes et a, dans certains cas, coordonné ces patrouilles.

10. Le ministère de l'économie océanique, des ressources marines, de la pêche, des services maritimes et des îles a été formé au cours de l'année dernière à la suite de la fusion de ministères préalablement séparés; en conséquence, une restructuration a été et est en cours, ce qui a été une tâche longue et difficile pour l'organisation. Il est prévu que la promulgation d'une nouvelle loi sur la pêche accentuera encore ce processus. En ce qui concerne la pêche thonière, la nouvelle loi ajoutera de nombreuses résolutions de la Commission des thons de l'océan Indien (CTOI) au cadre juridique et placera donc Maurice dans une position plus forte afin de négocier des plans d'accès durables aux ressources thonières.

Le secteur des pêches de Maurice

11. La pêche artisanale de Maurice est composée de petits bateaux, dont la plupart sont propulsés par des moteurs hors-bord d'environ 15 chevaux, de bateaux à rame ou à voile, et de pêcheurs opérant à partir du rivage. Les principales espèces capturées sont le vivaneau, l'empereur, le nason et le panga. Le gouvernement de Maurice a pris des mesures dans le but de réduire la pêche dans le lagon surexploité, en rendant plus attractive la pêche sur des dispositifs ancrés de concentration de poissons (DCP), financés et entretenus par le gouvernement.

12. Cinq navires non-thoniers semi-industriels ont pêché sur les bancs peu profonds de Saya de Malha et de Nazareth en 2012, et ceux-ci ont déclaré avoir été en activité en 2015. Ils ont produit 1 281 t de poisson congelé, principalement des lethrinidés (91 %) et vivaneaux/mérous (9 %) en un total de 431 jours de pêche en 2012.

13. L'aquaculture commerciale comprend la production de crevette géante d'eau douce, de tilapia et de poisson-tambour rouge, de poisson-lapin à queue tronquée et de sargue doré. Actuellement, l'aquaculture contribue 2 millions d'USD annuellement à l'économie mauricienne. L'aquaculture lagunaire s'est développée récemment, avec 15 sites ouverts à l'aquaculture marine. La culture de produits à haute valeur ajoutée et de niche tels que les algues, l'huître et l'huître perlière, les crabes, les oursins et autres coquillages est également encouragée.

14. En 2009, environ 300 t de thon ont été capturées par les pêcheries artisanales et semi-industrielles. Il ressort de l'information disponible que la capture actuelle pourrait désormais être inférieure à cela ; apparemment, cela serait susceptible d'être dû principalement au vieillissement et à l'inefficacité des navires, ce qui réduit leur capacité à prendre la mer pour de longues périodes. Les navires de pêche industriels ciblant actuellement les thons dans la ZEE mauricienne comprennent des navires nationaux et étrangers. Il est rapporté que la contribution totale provenant des autorisations de pêche en 2014 était 1 739 254 EUR : l'UE a contribué à hauteur de 21 %, et la plus grande contribution à ce revenu provenait des palangriers étrangers, majoritairement taïwanais, à hauteur de 51 %.

15. La piraterie somalienne est un problème dans la région depuis les années 1990, avec des effets graves et coûteux pour certains pays proches de la Somalie. La menace actuelle en termes de piraterie pour les navires de pêche de l'UE opérant dans les eaux de Maurice semble être faible. Rien dans les rapports ne semble indiquer que l'activité portuaire ait été réduite à Port Louis à cause de la piraterie ; elle pourrait avoir augmenté, au contraire, en raison du repositionnement des palangriers vers le sud et vers l'est.

L'accord de partenariat dans le secteur de la pêche entre l'UE et Maurice

16. Maurice et l'UE ont paraphé leur premier accord de pêche bilatéral en 1989. Le protocole de pêche actuel couvre la période du 28 janvier 2014 au 27 janvier 2017, avec un tonnage annuel de référence de 5 500 tonnes, générant une contribution financière annuelle de 660 000 EUR, dont 302 500 EUR sont destinés à l'appui et à la mise en œuvre de la politique sectorielle des pêches ainsi que de la politique maritime mauricienne. Les actions ciblées n'existent plus et, depuis la réforme de 2004, les APP ont été conçus pour fournir un appui sectoriel. Les navires de l'UE doivent se conformer à la législation nationale applicable de Maurice, sauf disposition contraire prévue dans le cadre du protocole et de son annexe (protocole, article 10).
17. La capture totale de la flotte de l'UE dans la zone de pêche de Maurice en 2014 était de 510 t, pêchée par 10 senneurs de l'UE et cinq palangriers de l'UE. Cela représentait 9,3 % du tonnage de référence total dans le cadre du protocole. En 2015, la capture totale des trois premiers trimestres était presque équivalente, avec 489 t (8,9 % du tonnage de référence).
18. Plus de 70 % des possibilités de pêche offertes aux senneurs dans le protocole furent utilisées par des navires espagnols et français durant ces deux années. Toutefois, seuls 10 navires en 2014 et cinq navires en 2015 ont déclaré une entrée dans la zone de pêche de Maurice ; apparemment, cela serait dû aux populations de thon étant la plupart du temps situées en dehors de la zone de pêche de Maurice.
19. Seuls les palangriers de surface français ont utilisé les possibilités disponibles dans le protocole en 2014 et en 2015. Un peu plus de la moitié (18 sur 29 en 2014) des possibilités de pêche offertes à la flotte palangrière française a été utilisée. Il a été indiqué que ces dernières années les palangriers espagnols n'opéraient pas à la latitude de la zone de pêche mauricienne, ce qui pourrait expliquer pourquoi aucun de ces navires n'a demandé de licence de pêche à Maurice.

Conclusions de l'évaluation ex post

20. **Efficacité** de l'APP et son protocole dans l'atteinte de ses objectifs spécifiques:
    a. Les espèces de thon ciblées par les flottes de senneurs de l'UE sont le listao, l'albacore et le thon obèse. Dans l'OI, deux de ces espèces (listao et thon obèse) ne sont pas actuellement surexploitées et ne sont pas soumises à de la surpêche, mais une espèce (albacore) est actuellement surexploitée et est continuellement soumise à une surpêche. Le listao et l'albacore sont les espèces les plus abondantes dans les captures des senneurs de l'UE, représentant respectivement 47 % et 45 % des captures totales en 2014. Nous pouvons donc conclure que les flottes de l'UE capturent principalement des poissons classés comme « durables », mais seulement par une marge très fine.
    b. L'APP fournit un cadre juridique astreignant pour le contrôle de la pêche par les navires de l'UE dans les eaux de Maurice, appuyant le cadre de la CTOI et le cadre national de Maurice. Une contribution importante est fournie par les dispositions du protocole sur l'appui sectoriel, dont une partie vise à assurer le développement durable et la conservation des ressources aquatiques vivantes.
    c. Tous les senneurs de l'UE pêchant dans les eaux mauriciennes en 2014 et en 2015 détenaient des autorisations, démontrant l'importance accordée à ce droit d'accès. L'APP contribue à la création annuelle de 180 000 EUR en valeur ajoutée pour Maurice. On peut estimer qu'au moins la moitié de la capture des senneurs est utilisée par le secteur mauricien de transformation des produits de la mer.

d. L'APP vise à soutenir le développement d'un secteur des pêches durable à Maurice, en ligne avec les ambitions du gouvernement. Le gouvernement a démontré son engagement envers la durabilité et travaille pour améliorer cela à l'avenir tout en transformant le secteur en une source importante de revenus économiques. Le protocole vise à embarquer 10 marins au sein de la flotte de l'UE lorsque celle-ci opère dans les eaux mauriciennes mais cela n'a encore jamais fonctionné à ce jour, en raison de l'absence de marins qualifiés et de difficultés logistiques.

21. **Efficience** de l'APP et son protocole au regard de l'atteinte des effets désirés à un coût raisonnable:

a. Le coût effectif de l'accès était 975 EUR par tonne capturée en 2014 et 999 EUR en 2015, tenant compte des versements effectués par l'UE et par les propriétaires de navires. L'UE couvre la majeure partie du coût de l'accès: 74 % en 2014 (pour un coût de 701 EUR par tonne) et 71 % en 2015 (pour un coût de 714 EUR par tonne). Le coût de l'accès versé par les propriétaires des navires représente près de 30 % des revenus de pêche générés dans la zone de pêche, ce qui dépasse le niveau de 5 % que les propriétaires des navires considèrent comme étant un maximum pour le coût de l'accès. Le coût élevé par tonne est attribuable à la baisse des captures au sein de la zone de pêche mauricienne au cours de ces années.

b. En 2014, 41 % de l'allocation budgétaire de l'UE destinée à l'appui sectoriel a été utilisée et la portion restante a été reportée sur l'année suivante. Les délais étaient justifiés et principalement associés à des problèmes de passation de marchés, et aggravés par la restructuration du nouveau ministère. La principale amélioration pouvant être utile à l'appui sectoriel est qu'un mécanisme permanent est mis en place afin que l'industrie et la société civile entrent en dialogue avec le ministère.

c. Il est estimé que Maurice a bénéficié de 191 000 EUR en valeur ajoutée en 2014 et 181 000 EUR en 2015, captés principalement à travers les versements de la flotte pour l'accès, mais aussi par la fourniture de biens et de services aux navires de pêche de l'UE.

22. **Économie** de l'APP et son protocole au regard de l'atteinte des effets désirés au meilleur prix: pour les actions mises en œuvre, l'appui sectoriel de l'UE est bien utilisé et adapté aux objectifs du secteur mauricien. La coopération avec d'autres initiatives régionales, en particulier en vue de parvenir à la protection de la ZEE, est considérée comme ayant été économique et efficiente pour Maurice. Maurice a fait des progrès considérables dans la mise en œuvre de sa politique environnementale ainsi que dans la promotion de la durabilité. Les contributions de l'UE ont été versées tel que demandé et sur comptes bancaires désignés.

23. **Pertinence** de l'APP et son protocole au regard de traitement des besoins et problèmes:

a. Les propriétaires des navires ont souligné la pertinence de l'APP car celui-ci fait partie du réseau existant d'APP actuellement actifs dans la région. Cela procure plus de clarté et de stabilité à moyen terme qu'un accord privé. Le protocole est pertinent pour Maurice car il fournit un cadre pour la génération de revenus à partir de stocks excédentaires, tout en assurant une plus grande conformité avec les mesures de gestion que dans le cadre d'accords privés avec des navires étrangers. L'UE a également été un partenaire à long terme en association avec le secteur de la pêche à Maurice et l'OI occidental dans son ensemble, ce partenariat est en cours de renforcement et est important pour les deux parties afin de renforcer l'exploitation durable des stocks de thons dans l'OI occidental.

b. Le protocole peut être décrit comme étant pertinent pour les besoins des consommateurs de l'UE, car il contribue à la sécurité de l'approvisionnement du thon en conserve et des produits congelés entiers vers le marché de l'UE pour les secteurs de la transformation et de la vente.

24. **Cohérence** de l'APP et son protocole avec d'autres interventions:
    a. Le protocole est cohérent avec la politique commune de la pêche (PCP) ainsi que les résolutions et mesures de gestion de la CTOI. La cohérence avec la politique régionale est avérée sur les questions de VMS, d'observateurs, d'emploi local et de promotion des organisations régionales de gestion des pêches (ORGP).
    b. Il existe un bon niveau de cohérence entre l'APP et les programmes régionaux tels que le projet SmartFish, dans lesquels l'appui est focalisé sur le développement de la politique sectorielle, sur le renforcement des capacités du personnel des pêches, ainsi que sur la formation en matière de suivi, contrôle et surveillance (SCS). Maurice a intégré les normes d'exportation de l'UE au sein de ses propres réglementations pertinentes, celles-ci sont mises à jour régulièrement afin d'assurer leur cohérence avec les normes de l'UE.
    c. Maurice promeut le développement durable et responsable de la pêche, ce qui est un objectif en ligne avec ceux de l'APP. Le protocole de l'APP est cohérent avec les politiques des pêches et de développement.

Conclusions de l'évaluation ex ante

25. En termes de **besoins** à satisfaire:
    a. À court terme, l'UE a besoin d'assurer une continuité dans le maintien de possibilités de pêche pour la flotte européenne dans la région de l'océan Indien occidental ainsi que de maintenir l'approvisionnement de produits de la pêche vers le marché de l'UE. Maurice a besoin de maintenir le flux de revenus généré par la contribution financière de l'UE et de bénéficier de l'appui sectoriel selon les termes du protocole.
    b. À long terme, les besoins des deux parties sont similaires. En outre, Maurice doit veiller à perpétuer le développement de l'infrastructure et des installations afin de maintenir sa position de centre névralgique pour les pêcheries thonières de l'OI occidental, et à renforcer les capacités humaines et institutionnelles à Maurice afin de se donner une chance de fonctionner en tant que nation de pêche efficiente et responsable.
26. En termes de **valeur ajoutée** de l'implication de l'UE, l'APP fournit un véhicule pour une approche coordonnée qui ne serait pas aussi facile à appliquer au niveau des États membres dans le cas où il n'y aurait pas d'APP. L'APP fournit la stabilité nécessaire, ainsi que les règles et dispositions transparentes et applicables à tous les États membres impliqués dans les pêcheries, assurant ainsi le meilleur bénéfice économique à la fois pour l'UE et Maurice.
27. En termes d'**objectifs** à atteindre, le défi de Maurice sera de développer ses institutions dans les années à venir, de renforcer les capacités de son personnel et d'assurer le fonctionnement efficient et efficace de tous les aspects de son système de gestion des pêches afin de d'assurer la durabilité à long terme de ses pêcheries. En ce qui concerne le thon et les espèces apparentées, la coopération régionale est essentielle dans cet effort. Le succès de Maurice est un intérêt majeur pour l'UE.
28. En termes d'**options de politiques** disponibles, il convient de continuer avec l'APP et de négocier un nouveau protocole. À plus long terme, une approche régionale intégrée qui couvrirait toutes les espèces de thon concernées et harmoniserait les dispositions spécifiques de l'APP pourrait être développée, notamment sur la question de l'embarquement de membres d'équipage nationaux et en ce qui concerne la considération des observateurs de pêche régionaux.

29. En termes d'**enseignements tirés**, les possibilités de pêche n'ont pas été pleinement utilisées en ce qui concerne le tonnage de référence à ce jour, ce qui reflète la nature migratoire de la pêcherie et la faiblesse du système de tonnage de référence, du tonnage de référence des navires et du prix par tonne au sein du système de calcul du coût de l'accès. Il pourrait être avantageux de considérer le droit d'accès comme un frais fixe. Si l'on doit continuer à prendre en compte le tonnage de référence dans le calcul des frais d'accès, le niveau fixé devrait également prendre en compte les fluctuations environnementales associées aux espèces hautement migratoires.

Recommandations

30. L'évaluation recommande:
    a. Un nouveau protocole devrait être négocié entre l'UE et Maurice afin de faciliter la poursuite de leur partenariat mutuellement bénéfique en matière de pêche.
    b. L'appui sectoriel devrait continuer en ligne avec les domaines clés identifiés par Maurice: assurer le développement durable et la conservation des ressources aquatiques vivantes, la protection de la ZEE et des eaux territoriales, et la contribution à la durabilité des ressources marines et des écosystèmes à travers l'approche participative.
    c. Les modes de communication entre l'UE et Maurice devraient être maintenus ouverts dans chaque direction et la base déjà en place devrait être renforcée. Cela garantira que les deux parties sont en mesure de partager des informations en temps opportun en ce qui concerne les changements dans leur contexte opérationnel, et à faciliter le soutien et la coopération mutuelle, en particulier dans les processus internationaux.
31. Lorsqu'un nouveau protocole sera négocié, les recommandations suivantes devraient être prises en compte:
    a. Les droits d'accès devraient refléter l'importance économique du droit de pêche dans la zone de pêche de Maurice, dans le cadre de la stratégie régionale pour la pêche plutôt que de simplement refléter le tonnage de référence qui constitue une source de confusion pour tous.
    b. Une approche régionale devrait être approfondie avec les États côtiers de l'océan Indien actuellement impliqués dans un APP avec l'UE afin de soutenir la mise en œuvre de termes et conditions cohérents au niveau régional. Ceux-ci pourraient inclure une approche convenue en ce qui concerne le coût de l'accès ainsi que des approches cohérentes en ce qui concerne l'embarquement de membres d'équipage et d'observateurs issus des États côtiers.

Resumen ejecutivo

Introducción

1. El presente informe ofrece una evaluación ex post del Protocolo vigente al Acuerdo de Colaboración en el Sector Pesquero (ACSP) entre la Unión Europea (UE) y la República de Mauricio. El actual Protocolo entró en vigor el 28 de enero de 2014 y es válido hasta el 27 de enero de 2017. El Protocolo permite a los buques pesqueros de la UE operar en aguas de Mauricio. La evaluación toma en consideración la pertinencia, coherencia, eficacia, eficiencia y sostenibilidad del Protocolo. Este informe también incluye una evaluación ex ante para apoyar la negociación e implementación potencial de un nuevo Protocolo.

Información sobre el país

2. Mauricio se independizó de Gran Bretaña en 1968 y optó por convertirse en una República en 1992. Cuenta con una población total estimada de 1.27 millones de habitantes en 2015. El Índice Ibrahim de Gobernabilidad Africana de 2013 clasificó Mauricio como el primer país de África en materia de buen gobierno.
3. Mauricio ha desarrollado, desde la independencia, una economía diversificada de ingresos medios, contando con sectores industrial, financiero, turístico, agrícola y pesquero. El sector pesquero aporta aproximadamente el 1.4 % al producto interno bruto (PIB). Entre 1997 y 2008, la economía creció a una tasa promedio anual de 4.6 %.

La pesquería de atún y el medio ambiente del Océano Índico y Mauricio

4. A nivel mundial, el Océano Índico (OI) es la segunda mayor zona de producción de atún, después del Océano Pacífico. La captura total mundial de túnidos y especies afines superó los 7 millones de toneladas (t) en 2012, debido en gran parte al aumento de la captura de listado y rabil. En 2014, las capturas en el OI representaron el 20 % de las capturas mundiales.
5. El OI es la región de donde procede la mayoría de las capturas de atún de la flota de la UE. Desde el inicio de la pesquería en la década de los 1980s, las capturas de cerco por las flotas de la UE en el OI han mostrado una tendencia creciente, hasta alcanzar un pico en 2003 con un total de más de 407 000 t. En 2012, las capturas cayeron al nivel más bajo desde 1993, debido a un nivel relativamente bajo de capturas de listado, y en menor medida de patudo, sin embargo el nivel de capturas se restableció en 2013-2014.
6. Los palangreros en el OI produjeron un promedio anual total de capturas de 104 000 t entre 2005 y 2014. El rabil y el patudo fueron las especies dominantes en las capturas, aunque el pez espada y el atún blanco también contribuyeron significativamente a las capturas totales. Las capturas de la flota taiwanesa representó cerca del 70 % de estas capturas mientras que la flota europea desembarcó apenas el 8.6 % con un desembarque promedio anual alrededor de 9 000 t.

Gobernanza de la pesca en Mauricio

7. La legislación pesquera vigente en Mauricio es la Ley de Pesca y Recursos Marinos de 2007 (Ley n. 27 de 2007) que entró en vigor el 8 de mayo de 2008. La Ley establece la ordenación de las pesquerías, y la conservación y protección de los recursos marinos.
8. La visión política declarada en el sitio web del Gobierno de Mauricio precisa que el sector pesquero debe "ser un pilar económico tomando en cuenta la sostenibilidad de los recursos acuáticos y el desarrollo social en beneficio de todos los actores". El Programa de Gobierno 2015 refleja dicha visión gubernamental que aspira a convertir Mauricio en un Estado del océano promoviendo la economía del océano como uno de sus principales pilares del desarrollo.

9. La actividades de Seguimiento, Control y Vigilancia (SCV) están bajo la responsabilidad de la División de Planificación y Ordenación Pesquera del Ministerio de la Economía del Océano, Recursos Marinos, Pesca, Transporte e Islas Exteriores. Todos los barcos y buques con licencia deben cumplir con el Sistema de Localización de Buques (VMS por su nombre en inglés). Mauricio carece de capacidad en materia de buques de patrulla aunque algunos proyectos de cooperación regional con la Comisión del Océano Índico (COI) han recientemente facilitado algún apoyo. El Centro de Vigilancia Pesquera ha participado en las patrullas conjuntas y en algunos casos ha asegurado la coordinación de las patrullas.

10. Durante el último año, se ha formado el Ministerio de Economía del Océano, Recursos Marinos, Pesca, Transporte e Islas Exteriores como resultado de una fusión de ministerios previamente separados; por ende una reestructuración se ha puesto y está todavía en marcha, lo que ha sido una tarea larga y difícil para la misma organización. Se espera que la promulgación de una nueva Ley de Pesca dará un nuevo impulso a este proceso. Para la pesca del atún, la nueva ley permitirá incorporar en el marco legal numerosas resoluciones de la Comisión del Atún para el Océano Índico (CAOI) y por lo tanto colocará Mauricio en una posición más fuerte para negociar planes de acceso sostenibles para los recursos atuneros.

La pesca en Mauricio

11. La pesca artesanal de Mauricio se compone de pequeñas embarcaciones, la mayoría de las cuales son impulsadas por motores fueraborda alrededor de 15 caballos de potencia, de botes de remo y vela, y de pescadores que operan desde la orilla. Las principales especies capturadas son el pargo, el emperador, el pez unicornio y el panga. El Gobierno de Mauricio ha tomado medidas para reducir la pesca en la laguna sobreexplotada haciendo más atractiva la pesca alrededor de Dispositivos de Concentración de Peces (DCP) anclados al fondo, financiados y mantenidos por el gobierno.

12. Cinco buques semi-industriales no atuneros pescaban en las aguas poco profundas de los bancos Saya de Malha y Nazaret en 2012, y los mismos buques se declararon activos en 2015. Produjeron 1 281 t de pescado congelado, principalmente lethrinidos (91 %) y pargos/meros (9 %), en un total de 431 días de pesca en 2012.

13. La acuicultura comercial consiste en la producción de langostino de río, tilapia y corvinón ocelado, sígano y sargo. Hoy en día, la acuicultura contribuye 2 millones de dólares USD anuales a la economía de Mauricio. Se ha recién desarrollado la acuicultura en laguna costera, con 15 sitios disponibles para la acuicultura marina. Asimismo, se está promoviendo la acuicultura de productos de alto valor y de nicho tales como algas, ostras y perlas de ostras, cangrejos, erizos de mar y otros mariscos.

14. En 2009, alrededor de 300 t de atún fueron capturadas por los pescadores artesanales y semi-industriales. Según la información disponible, se desprende que hoy en día las capturas podrían ser menores, supuesta y probablemente debido al envejecimiento y la ineficiencia de los buques, lo que reduce su capacidad para hacerse a la mar por períodos más largos. Los buques pesqueros industriales actualmente dirigidos a los túnidos en la ZEE de Mauricio incluyen buques nacionales y extranjeros. La contribución total de las autorizaciones de pesca en 2014 fue de 1 739 254 Euros: la UE contribuyó con el 21 % de este total y la mayor contribución a los ingresos provino de los palangreros extranjeros, principalmente taiwaneses con el 51 %.

15. La piratería somalí ha sido un problema en la región desde la década de los 1990s, con impactos graves y costosos para algunos países cercanos a Somalia. Actualmente, la amenaza de la piratería a los buques pesqueros de la UE que faenan en aguas de Mauricio parece ser baja. No se ha reportado evidencia de una reducción en la actividad portuaria a causa de la piratería en Port Louis, más bien dicha actividad podría haber aumentado debido a palangreros localizados más al sur y al este.

El Acuerdo de Colaboración Pesquera entre la UE y Mauricio

16. Mauricio y la UE rubricaron su primer acuerdo bilateral de pesca en 1989. El Protocolo vigente de pesca abarca el período del 28 de enero del 2014 al 27 de enero de 2017, con un tonelaje anual de referencia de 5 500 t por año y una contribución financiera anual de 660 000 Euros, de los cuales 302 500 Euros se destinan al apoyo y la ejecución de las políticas pesquera y marítima de Mauricio. No existen más acciones específicas y, desde la reforma de 2004, los ACSP se han ido diseñando para facilitar apoyo sectorial. Los buques de la UE deben cumplir con la legislación nacional aplicable de Mauricio salvo disposición en contrario en virtud del Protocolo y el anexo (artículo 10 del Protocolo).

17. Las capturas totales de la flota comunitaria para el año 2014 en la zona de pesca de Mauricio fue de 510 t, realizadas por 10 buques de cerco y cinco palangreros de la UE. Esto representó el 9.3 % del tonelaje total de referencia del Protocolo. En 2015, la captura total para los tres primeros trimestres fue casi equivalente, con 489 t (8.9 % del tonelaje de referencia).

18. Más del 70 % de las oportunidades de pesca ofrecidas a los buques de cerco en el marco del Protocolo fueron asignadas a buques españoles y franceses en ambos años. Sin embargo, solamente 10 buques en 2014 y cinco buques en 2015 declararon una entrada en la zona de pesca de Mauricio, supuestamente porque las poblaciones de atún estaban situadas en su mayoría fuera de la zona de pesca de Mauricio.

19. Fueron únicamente palangreros de superficie franceses quienes adquirieron las oportunidades de pesca disponibles en el marco del Protocolo en 2014 y 2015. Poco más de la mitad (18 de 29 en 2014) de las oportunidades de pesca disponibles para la flota palangrera francesa fueron asignadas. Se ha señalado que en los últimos años los palangreros españoles no operaban en la latitud de la zona de pesca de Mauricio, lo que explicaría por qué ninguno de estos buques solicitó una licencia de pesca en Mauricio.

Hallazgos de la evaluación ex post

20. La **eficacia** del ACSP y el Protocolo en lograr sus objetivos específicos:

    a. Las especies de túnidos a las que se dirigen las flotas de cerco de la UE son el listado, el rabil y el patudo. En el OI, dos de estas especies (listado y patudo) no están actualmente sobreexplotadas ni sufren de sobrepesca, pero una especie (rabil) está actualmente sobreexplotadas y sigue sufriendo sobrepesca. El listado y el rabil son las especies más abundantes en las capturas de cerco de la UE, representando respectivamente el 47 % y el 45 % de las capturas totales en 2014. Por lo tanto, podemos concluir que las flotas de la UE se dirigen principalmente a especies clasificadas como "sostenibles", pero sólo por un margen muy delgado.

    b. El ACSP brinda un marco legal vinculante para el control de la pesca por buques comunitarios en aguas de Mauricio que respalda el marco de la CAOI y el marco nacional de Mauricio. Una importante contribución resulta de las disposiciones del Protocolo en materia de apoyo sectorial, parte del cual se dedica a garantizar el desarrollo sostenible y la conservación de los recursos acuáticos vivos.

    c. Todos los buques de cerco comunitarios que faenaban en aguas de Mauricio en 2014 y 2015 eran titulares de autorizaciones, lo que demuestra la importancia otorgada a este derecho de acceso. El ACSP contribuye anualmente a la producción de 180 000 Euros de valor añadido para Mauricio. Se puede estimar que al menos la mitad de las capturas de cerco es utilizada por el sector de procesamiento de productos pesqueros de Mauricio.

d. El ACSP tiene como objetivo apoyar el desarrollo en Mauricio de un sector de la pesca que sea sostenible y en línea con las ambiciones del gobierno. El gobierno ha demostrado su compromiso con la sostenibilidad y está realizando esfuerzos para mejorar su acción en el futuro, haciendo asimismo del sector una importante fuente de ingresos económicos. El Protocolo ambiciona embarcar hasta 10 marineros locales en la flota de la UE que opera en aguas mauricianas, pero hasta la fecha no ha tenido éxito en parte debido a la falta de tripulación cualificada disponible y desafíos logísticos.

21. La **eficiencia** del ACSP y el Protocolo en lograr los efectos deseados a un costo razonable:

    a. El coste efectivo de acceso fue de 975 Euros por tonelada capturada en 2014 y de 999 Euros en 2015 tomando en cuenta los pagos realizados por la UE y los armadores. La UE soporta la mayor parte del coste de acceso: el 74 % en 2014 (por un coste de 701 Euros por tonelada) y el 71 % en 2015 (por un coste de 714 Euros por tonelada). El coste de acceso pagado por los armadores representa casi el 30 % de los ingresos de pesca generados en la zona de pesca, monto que excede el nivel del 5 % considerado por los armadores como un coste de acceso máximo. El alto costo por tonelada se debe a una reducción de las capturas en la zona de pesca de Mauricio en los años considerados.

    b. En 2014, se utilizó el 41 % de la asignación presupuestaria de la UE destinada al apoyo sectorial y el resto se pasó al año siguiente. Los retrasos se justificaron y asociaron principalmente con cuestiones de contratación pública y fueron agravados por la reestructuración del nuevo Ministerio. La principal mejora que puede ser útil para el apoyo al sector es la creación de un mecanismo permanente que permita a la industria y la sociedad civil entrar en diálogo con el Ministerio.

    c. Se estima que Mauricio se benefició de 191 000 Euros adicionales en valor añadido en 2014 y de 181 000 Euros adicionales en 2015, derivados principalmente de los pagos para el acceso de la flota, así como del suministro de bienes y servicios para los buques pesqueros de la UE.

22. La **economía** del ACSP y el Protocolo para lograr los efectos deseados al mejor precio: Para las acciones en ejecución, el apoyo sectorial de la UE está bien utilizado y es adecuado a los objetivos del sector mauriciano. La cooperación con otras iniciativas regionales, especialmente para lograr la protección de la ZEE, se considera como rentable y eficiente para Mauricio. Mauricio ha realizado progresos considerables en la implementación de su política ambiental y la promoción de la sostenibilidad. Las contribuciones de la UE se han pagado conforme a lo solicitado y a las cuentas bancarias designadas.

23. La **relevancia** del ACSP y el Protocolo para abordar las necesidades y problemas:

    a. Los armadores destacaron la relevancia del ACSP como parte de la red existente de ACSP actualmente vigentes en la región. Esto asegura una mayor claridad y estabilidad a medio plazo de lo que haría un acuerdo privado. El Protocolo es relevante para Mauricio porque ofrece un marco para la generación de ingresos a partir de los excedentes, al tiempo que garantiza un mejor cumplimiento con las medidas de ordenación de lo que se habría en el marco de acuerdos privados con buques extranjeros. Además la UE ha sido un socio de largo plazo en la colaboración con el sector pesquero en Mauricio y el OI occidental en su conjunto. Esta colaboración se está fortaleciendo y es importante para ambas partes para reforzar la explotación sostenible de las poblaciones de túnidos en el OI occidental.

    b. El Protocolo puede considerarse relevante para las necesidades de los consumidores de la UE porque contribuye a la inocuidad de las conservas de atún y las reservas de productos congelados enteros destinados al mercado comunitario para su procesamiento y venta al por menor.

24. La **coherencia** del ACSP y el Protocolo con otras intervenciones:
    a. El Protocolo es coherente con la Política Pesquera Común (PPC) y las resoluciones y medidas de ordenación de la CAOI. También es coherente con la política regional en temas como VMS, observadores, empleo local y promoción de las Organizaciones Regionales de Ordenación Pesquera (OROP).
    b. Hay un buen nivel de coherencia entre el ACSP y programas regionales como el proyecto Smartfish que provee asistencia para el desarrollo de la política del sector, el fortalecimiento de las capacidades del personal de pesca y la formación en materia de SCV. Mauricio ha integrado en sus propios reglamentos las normas de la UE en materia de exportación, y mantiene activo un sistema de actualización de estos reglamentos para mantenerlos coherente con las normas de la UE.
    c. Mauricio promueve el desarrollo de una pesca sostenible y responsable, un objetivo que está en línea con los objetivos del ACSP. El Protocolo del ACSP es coherente con las políticas de pesca y desarrollo.

Hallazgos de la evaluación ex ante

25. En cuanto a las **necesidades** por cubrir:
    a. En el corto plazo, la UE debe lograr continuidad en el mantenimiento de las oportunidades de pesca para la flota europea en la región del OI occidental y mantener las reservas de pescado y productos pesqueros destinados al mercado comunitario. Mauricio necesita mantener el flujo de ingresos provenientes de la contribución financiera de la UE y beneficiarse del apoyo sectorial previsto en el marco del Protocolo.
    b. En el largo plazo, las necesidades de ambas partes son similares. Además, Mauricio debe seguir desarrollando la infraestructura y las instalaciones que le permitan mantener su posición como importante centro para la pesca de atún en el OI occidental, y fortalecer la capacidad humana e institucional en Mauricio para poder actuar como nación pesquera eficiente y responsable.
26. En términos de **valor añadido** de la participación de la UE, el ACSP proporciona un medio para la adopción de un enfoque coordinado, lo que no sería tan fácil de lograr a nivel de los Estados miembros en caso de que no hubiese ACSP. El ACSP provee la estabilidad necesaria así como normas y disposiciones transparentes aplicables a todos los Estados miembros que participan en la pesquería, garantizando el mejor beneficio económico tanto para la UE como para Mauricio.
27. En términos de **objetivos** a alcanzar, el reto al que se enfrentará Mauricio es desarrollar sus instituciones en los próximos años, fortalecer las capacidades de su personal, y velar por un funcionamiento eficaz y eficiente de todos los aspectos de su sistema de ordenación pesquera para lograr la sostenibilidad a largo plazo de sus pesquerías. Con respecto a los túnidos y especies afines, la cooperación regional es esencial en este esfuerzo. La UE tiene un gran interés en el éxito de Mauricio.
28. En cuanto a **opciones de política** disponibles, es apropiado seguir con el ACSP y negociar un nuevo Protocolo. A más largo plazo, podría desarrollarse un enfoque regional integrado que cubriera todas las especies de túnidos interesadas y pudiera armonizar algunas disposiciones específicas del ACSP, en particular sobre la cuestión del embarque de tripulación local y el reconocimiento de observadores pesqueros regionales.

29. En términos de **lecciones aprendidas**, hasta la fecha no se han utilizado plenamente las oportunidades de pesca con respecto al tonelaje de referencia, lo que refleja la naturaleza migratoria de la pesquería y la debilidad del sistema de tonelaje de referencia, el tonelaje de referencia de los buques y el precio por tonelada en el sistema de calculo del coste de acceso. Podría ser conveniente considerar el derecho de acceso como una tarifa fija. En caso de que se siga utilizando el tonelaje de referencia para calcular la tarifa de acceso, el nivel establecido debería también tener en cuenta las fluctuaciones ambientales asociadas a las especies altamente migratorias.

Recomendaciones

30. La evaluación recomienda lo siguiente:
    a. Debería negociarse un nuevo Protocolo entre la UE y Mauricio para facilitar la continuación de una colaboración mutuamente beneficiosa en materia de pesca.
    b. El apoyo sectorial debería seguir en línea con los temas centrales identificados por Mauricio: garantizar el desarrollo sostenible y la conservación de los recursos acuáticos vivos, salvaguardar la ZEE y las aguas territoriales, y contribuir a la sostenibilidad de los recursos marinos y ecosistemas por medio del enfoque participativo.
    c. Los canales de comunicación abiertos entre la UE y las autoridades de Mauricio deberían ser mantenidos en ambas direcciones y debería seguir construyéndose sobre la base sólida que ya se ha establecido. Esto seguirá garantizando que ambas partes sean capaces de compartir tempestivamente información sobre los cambios en su entorno operativo y facilitar el apoyo mutuo y la cooperación, especialmente en los procesos internacionales.
31. Cuando se negocie un nuevo Protocolo, deberían tomarse en cuenta las siguientes recomendaciones:
    a. Las tarifas de acceso deberían referirse a la importancia económica del derecho de pesca dentro de la zona de pesca de Mauricio, en el marco de la estrategia regional de pesca, más que únicamente al tonelaje de referencia que es complicado para todos.
    b. Un enfoque regional debería estudiarse más a fondo con los Estados ribereños del OI actualmente involucrados en un ACSP con la UE para apoyar la implementación de términos y condiciones coherentes a nivel regional. Estos podrían incluir la adopción de un enfoque concertado en materia de costes de acceso y enfoques coherentes para el embarque de tripulación y observadores de los Estados ribereños.

Table of contents

ANNEXES

FIGURES AND TABLES

FIGURES

TABLES

Introduction – Purpose and scope of this evaluation

This evaluation provides an ex post evaluation for the existing Protocol to the Fisheries Partnership Agreement (FPA) ([1]) between the European Union (EU) and the Republic of Mauritius ([2]). It also provides a prospective analysis of impacts and an ex ante evaluation of a future Protocol, in order to provide sufficient data and information for the negotiation and implementation of a new Protocol.

The framework and scope of the evaluation are defined by the Terms of Reference provided to the consultants and are informed by the Council Decision of 19 July 2004 on FPAs (COM (2002) 637 final) and the Council conclusions of 19 March 2012 ([3]). The conclusions in particular set out the principles and standards that apply in relation to FPAs, including long-term fisheries sustainability, strengthening Regional Fisheries Management Organisations (RFMOs) and negotiating bilateral and multilateral agreements.

According to the Article 27(4) of the Financial Regulation and Article 21 of its Implementing Rules, Commission Services have to ensure that the spending activities they manage are subject to an ex post and/or ex ante evaluation in terms of the human and financial resources allocated and the results obtained in order to verify consistency with the set objectives. These evaluations must be proportionate to the resources mobilised for, and the impact of, the programme and activity concerned. The Commission requires the evaluation and analysis of impacts to support its focus on improving the quality and coherence of the policy development process.

The current Protocol entered into force on 28 January 2014, and is valid until 27 January 2017. Before the Commission begins negotiating a new Protocol with Mauritius, the Protocol requires:

- factual information and an analysis of the general situation in Mauritius and its fishing sector, covering the economic, financial, political, institutional, social and environmental aspects, and likely developments in the short and medium term;
- a cost–benefit analysis, for the European stakeholders, of the conditions of access to Mauritius waters and fishing possibilities allocated to the European distant-water fleet under the current FPA; and
- a cost–benefit analysis of the current FPA for the EU and Mauritius, assessing in particular its impacts on Mauritius, at the political, institutional, economic, financial, social and environmental level.

It is in response to these requirements that this ex post and ex ante evaluation is being undertaken before the end of the current Protocol.

This report presents information collected from various sources, including Directorate Generals of the European Commission (EC) including Maritime Affairs and Fisheries (MARE), DG Santé, Delegations of the EU, EU Member State administrations, and the professional association groupings of EU ship owners, concerned with the utilisation of fishing possibilities.

The report draws from the findings of a mission in Mauritius that took place between 8 and 14 November 2015 during which discussions were held with key Mauritian stakeholders, including the Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Islands and a wide range of government authorities and private sector players (see Annex E for a full list of people consulted).

[1] Throughout this report when referring to the 'FPA' we refer to the FPA, Protocol, and Annex. When referring specifically to the 'Protocol' we refer to both the Protocol and the Annex.

[2] Throughout this report when referring to Mauritius we refer to the Republic of Mauritius.

[3] Council conclusions on a communication from the Commission on the external dimension of the Common Fisheries Policy, 19 March 2012.

The evaluation also takes into account the regional analysis made in 2014 ([4]), providing the Commission with a more global picture of the fisheries resources and fisheries sector situation and opportunities in the Indian Ocean region.

The findings are presented in nine chapters as follows:

- Chapter 1 presents a general background of the situation in Mauritius;
- Chapter 2 presents the coastal and marine environment, including its fisheries resources and with a focus on the status of fish stocks of importance to the EU;
- Chapter 3 presents an overview of the Indian Ocean tuna fishery including the management framework and the purse seine and longline fisheries;
- Chapter 4 presents detail on fisheries governance in Mauritius and its state of implementation;
- Chapter 5 presents the fisheries in Mauritius and associated information;
- Chapter 6 presents detail about the implementation of the FPA;
- Chapter 7 provides detail of the ex post evaluation of the Protocol by the agreed evaluation criteria;
- Chapter 8 provides an ex ante evaluation of a future Protocol based on the analysis of impacts; and
- Chapter 9 provides some conclusions and recommendations.

[4] POSEIDON, MRAG, NFDS and COFREPECHE, 2014. Review of tuna fisheries in the western Indian Ocean (Framework contract MARE/2011/01 – Lot 3, specific contract 7). Brussels, 165 p. study published 04/06/2014. Available at: http://ec.europa.eu/fisheries/documentation/studies/tuna-western-indian-ocean/report-tuna-fisheries-western-indian-ocean_en.pdf

Presentation of the fisheries partnership agreement and its protocol in force

Table 0-1: Main characteristics of agreement and protocol between EU and Mauritius

Item	Details
Agreement duration	6 years (renewable for 3 years)
Protocol duration	3 years
Date of entry into force (protocol)	28 January 2014
Nature of the agreement	Tuna fishery agreement
Yearly financial contribution	EUR 660 000, of which EUR 302 500 for the implementation of the Mauritius fisheries and maritime policy If the overall quantity of catches of tuna by EU vessels in Mauritius exceeds reference tonnage per year, then the financial contribution shall increase by EUR 65 for each additional tonne caught
Fishing fees to pay by the fishing vessel	EUR 35 per tonne caught Advanced payment fees of: Tuna purse seiners: EUR 3 710 for reference catches: 106 t Surface longliners: EUR 3 150 reference catches: 90 t for vessels of more than 100 GT; EUR 1 750, reference catches: 50 t for vessels of equal to or less than 100 GT
Reference tonnage	5 500 t per year
Number and flags of vessels authorised to fish	Tuna purse seiners – Spain 22, France 16, Italy 2, UK 1 (total 41) Surface longliners – Spain 12, France 29, Portugal 4 (total 45)

Source: European Commission.

1 General background to Mauritius

1.1 Geography and population

1.1.1 Geography

The Republic of Mauritius is an Indian Ocean island state about 2 000 kilometres off the southeastern coast of continental Africa. It includes the two main islands of Mauritius and Rodrigues, the outer islands of St Brandon and Agaléga, and the disputed territories of Tromelin Island and Chagos Archipelago. The country has a land area of 2 040 km^2 and is of volcanic origin and mountainous. The islands are almost entirely surrounded by coral reefs. The total maritime zone is 2.3 million km^2 with an Exclusive Economic Zone (EEZ) of 1.96 million km^2 and a continental shelf of 396 000 km^2 co-managed with the Republic of Seychelles. Further submissions for an Extended Continental Shelf of 303 000 km^2 on seabed and subsoil is anticipated to be made to the Commission on the Limits of the Continental Shelf in respect of Rodrigues and Chagos Archipelago ([5]).

The climate is subtropical and the southeast trade winds blow for much of the year. Summer, the rainy season, is from November to April, and the cooler winter months are between June and September ([6]).

The Constitution of Mauritius states that the islands of Mauritius includes the islands of Mauritius, Rodrigues, Agaléga, Cargados Carajos and the Chagos Archipelago, including Diego Garcia and any other island that is part of the State of Mauritius. Mauritius claims sovereignty over Chagos Archipelago, which the United Kingdom (UK) also claim sovereignty to and refer to as the British Indian Ocean Territory (BIOT). Mauritius and France are also in dispute over Tromelin Island. In the short to medium term, while the status quo remains unaltered, the disputes over the Chagos Archipelago and Tromelin Island are unlikely to make any difference to the fishing opportunities provided by the FPA as the practice of the EU is to exclude areas from the fishing zone that are disputed. In the longer term, Mauritius is determined to pursue its claim of sovereignty.

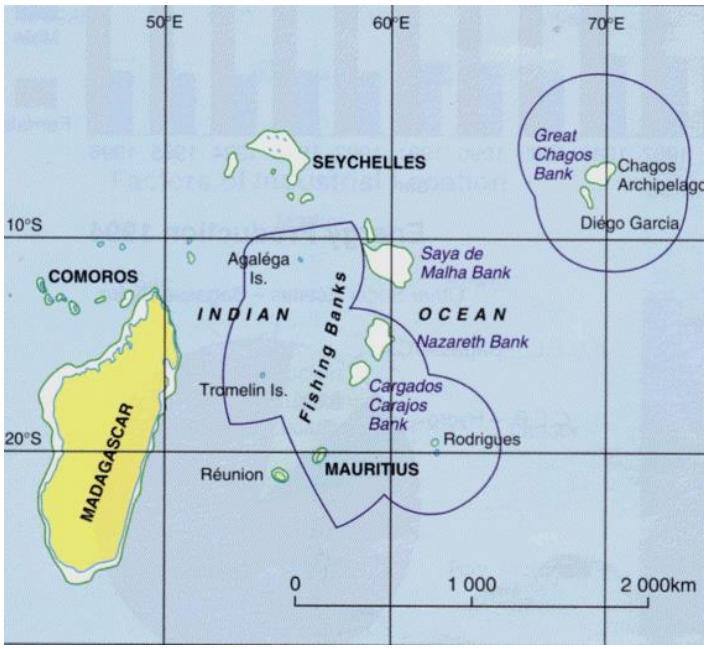

Figure 1.1: Map depicting the waters of Mauritius and the islands forming the Republic of Mauritius including all disputed territories

Source: National Report on Marine Biodiversity of Mauritius 2004.

[5] Available at: http://www.investmauritius.com/investment-opportunities/ocean-economy.aspx

[6] Commonwealth country profiles, Mauritius. Available at: http://www.commonwealthofnations.org/yb-pdfs/mauritius_country_profile.pdf

1.1.2 Population

Mauritius has an estimated total population of 1.27 million people in 2015, 1.25 million of whom live on the island of Mauritius and 38 000 on the second main island of Rodrigues. The islands of Agaléga and Saint Brandon have a total population of less than 300. Population density is high with 630 people per km^2 ([7]).

1.2 Political, economic and social issues

1.2.1 Institutional framework, political context and governance

Mauritius gained independence from Britain in 1968 and opted to become a Republic in 1992. The Constitution provides for a multi-party democracy with a single chamber National Assembly of 70 members. General elections take place every five years. The Head of State is the non-executive President. The Prime Minister and Cabinet exercise political power.

The 2013 Ibrahim Index of African Governance (IIAG) ranked Mauritius as the top country in Africa for good governance, evaluating it on grounds of security and the rule of law, participation and human rights, sustainable economic development and human development ([8]).

1.2.2 Business and investment climate

In 2013, Mauritius was recognised as the most competitive economy in sub-Saharan Africa, overtaking South Africa, and it maintained this position in 2014 ([9]). The World Bank's 2014 report *Doing Business* ranked Mauritius as the best sub-Saharan African country for doing business for the eighth consecutive year ([10]).

1.2.3 National social and development objectives

Mauritius' success in developing its economy can be attributed in part to the decision at independence to establish a parliamentary system in which minority groups were guaranteed representation. This has resulted in a broad commitment to uphold the rule of law and has induced relative political stability ([11]).

Mauritius had a Human Development Index score of 0.771 in 2013, giving it a global rank of 63 out of 187 countries, and placing it within the high human development category. This score is well above the sub-Saharan African average of 0.502 ([12]). Health indicators show improvement, with child mortality down from 23 per 1 000 live births in 1990 to 14.5 in 2013. Youth literacy rate is 96.8 % and the adult literacy rate is now 88.8 %. The Government of Mauritius estimates that less than 1 % of the population lives on less than USD 2 per day.

1.2.4 Economic situation and outlook

At independence, Mauritius was a low-income, monocrop sugar-producing economy, but has developed since then into a middle-income diversified economy with industrial, financial, tourist, agricultural and fisheries sectors. The fisheries sector contributes approximately 1.4 % to gross domestic product (GDP). Between 1997 and 2008, the economy grew at an average rate of 4.6 % annually ([13]). The global economic slowdown resulted in growth

[7] Available at: http://www.commonwealthofnations.org/yb-pdfs/mauritius_country_profile.pdf

[8] Available at: http://business.mega.mu/2013/10/18/good-governance-mauritius-top/

[9] AfDB/OECD/UNDP (2015).

[10] AfDB/OECD/UNDP (2015).

[11] Subramanian, Arvind and Devesh Roy. 2001. 'Who Can Explain the Mauritian Miracle: Meade, Romer, Sachs or Roderick?' IMF Working Paper WP/01.

[12] AfDB/OECD/UNDP (2015).

[13] Available at: https://en.wikipedia.org/wiki/Economy_of_Mauritius

slowing to 3.2 % in 2014, but forecasts for 2015 and 2016 are for growth to increase again to 3.5 % ([14]). Significantly, it has also achieved a more equitable income distribution, with the Gini coefficient falling from 45.7 to 35.9 ([15]) between 1980 and 2012.

The Mauritian Government has produced a 'Blue Print' presenting a plan to achieve High Income Country status by 2025. It envisages an economic growth rate of 8 to 9 % per annum, focusing particularly on information communications technology, the seafood and marine industry, biomedical services and finance ([16]).

1.2.5 Employment

By 2008, the unemployment rate had dropped to 7.2 %. With the downturn in the global economy, it has risen steadily, reaching 8.3 % in 2013 ([17]). In 2012, of the 47 100 unemployed in the country, 20 500 were under the age of 25 ([18]).

It appears there is a mismatch between the skills developed at a higher education level and those required by the labour market, a factor cited as a problem for doing business in Mauritius. Of those unemployed in 2013, 2 200 were graduates ([19]). Among the measures undertaken by the government to address unemployment is the Information and Communications Technology Skills Development Programme, which provides training in information and communication skills for which there is increasing demand ([20]). The need to incorporate school leavers and graduates into the fisheries sector was noted as a high priority for the new Ministry of Oceans Economy, Marine Resources, Fisheries, Shipping and Outer Islands ([21]), with them expected to employ an additional 25 000 people in the next decade. In 2012, direct employment in seafood processing was 6 000, in fishing activities 6 000 and indirectly in the seafood sector 10 000.

1.2.6 Food security

Food security in Mauritius has improved in recent years, mainly through the establishment of a Food Security Fund promoting diversification away from sugar production. Government has made available agricultural land, credit, and facilities for breeding livestock to small farmers. Food crop production is generally for local consumption: less than 1 % of total production is exported. Fish is caught for domestic consumption and for export. After 20 years of diversification, Mauritius produces a wide variety of fruit and vegetables, making it largely self-sufficient in these items. However, due to limitations on the availability of suitable fertile land, several essential food items such as rice and the cereals are imported.

The daily average per capita consumption is estimated at 2 940 calories per person per day. According to the UN Food and Agriculture Organisation (FAO), the minimum average daily energy requirement is about 1 800 kilocalories (7 500 kJ) per person ([22]). The per capita fish consumption was 23 kg per capita in 2011 ([23]).

1.2.7 Environmental policy

Mauritius is credited with having made considerable progress in implementing its environmental policy and has strived to meet the millennium development goal of ensuring environmental sustainability (MDG 7). It has

[14] AfDB/OECD/UNDP (2015). Mauritius, in African Economic Outlook 2015: Regional Development and Spatial |Inclusion. OECD Publishing, Paris.AfDB/OECD/UNDP (2014). Mauritius, in *African Economic Outlook 2014: Global Value Chains and Africa's Industr*ialisation. OECD Publishing, Paris.

[15] World Bank estimate. Available at: http://data.worldbank.org/indicator/SI.POV.GINI

[16] AfDB/OECD/UNDP (2015).

[17] Available at: http://www.indexmundi.com/g/g.aspx?c=mp&v=74

[18] Business Mega, 6 January 2013. 'Challenges of the Mauritian Economy in 2013'. Available at: http://business.mega.mu/2013/01/06/challenges-mauritian-economy-2013/

[19] AfDB/OECD/UNDP (2015).

[20] Ibid.

[21] Pers. comm., Permanent Secretary of Ministry of Oceans Economy, Marine Resources, Fisheries, Shipping and Outer Islands.

[22] "List of countries by food energy intake". Available at: https://en.wikipedia.org/wiki/List_of_countries_by_food_energy_intake

[23] Available at: http://www.globefish.org/total-fish-consumption-per-capita-kg-and-fish-contribution-to-total-proteins-percent.html

developed a National Programme on Sustainable Consumption and Production; undertaken a Study on Environmentally Sensitive Areas; developed an Integrated Coastal Zone Management Framework; updated the National Environmental Strategies; reviewed the implementation of the National Environmental Action Plan; and it has a National Sustainable Development Strategy for the Republic of Mauritius ([24]).

1.3 External relationships

1.3.1 Trade relationships between Mauritius and the EU

Mauritius and the EU enjoy extensive and mutually beneficial trade relations with each other, historically within the context of the Lome and Cotonou Agreements, and since May 2012 ([25]), through the Interim Economic Partnership Agreement (iEPA), signed by Madagascar, Mauritius, Seychelles and Zimbabwe with the EU. The iEPA includes the elimination of duties and quotas for imports from these countries to the EU as well as a gradual liberalisation of EU exports to these countries. The agreement also covers rules of origin, fisheries, trade, defence, development cooperation provisions and mechanisms for settling disputes. The iEPA allows Mauritian operators to benefit from duty-free, quota-free access to the EU market as well as flexible rules of origin on key products including tuna ([26]). Mauritius benefited from the normal tuna derogation and a quota amounting to 3 000 t of preserved tuna and 600 t of tuna loins in 2012.

In terms of total trade flows and foreign direct investment, the EU is Mauritius' most important partner ([27]). In 2012, EU exports to Mauritius were EUR 846 million and Mauritian exports to the EU stood at EUR 1.05 billion. The main Mauritian exports to the EU are sugar, clothing and textiles, and tuna, while the EU's main exports to Mauritius are machinery and transport equipment, food and manufactured goods. About 23 % of Mauritius' imports come from the EU ([28]).

1.3.2 Trade relationship between Mauritius and other states

While about 60 % of Mauritian exports go to the EU, about 56 % of Mauritian imports come from India, China, Malaysia, Thailand and other Asian countries ([29]).

Mauritius is a member of COMESA, which has 19 member states and aims at achieving economic prosperity through regional integration. It is also a member of the SADC Free-Trade Area, which aims at the elimination of customs duties between its members ([30]).

1.3.3 EU development and international cooperation with Mauritius

During the period 2008–2013 under the 10th EDF, the EU–Mauritius development co-operation portfolio had an overall budget of approximately EUR 76 million. The 11th EDF programming document for 2014-2020 is currently in phase of approval and the envelope is set at EUR 9.9 million. The document will be coherent with the Government's growth strategies and namely with its objective of graduating from a Middle Income Country to a High Income Country over the medium term and will focus on tertiary education (including research and innovation).

During the period 2006-2013, Mauritius also benefitted from the EU (budget line) Sugar Accompanying Measures (approximately EUR 278 million), to provide support in restructuring the sugar cane sector and help

[24] AfDB/OECD/UNDP (2015).

[25] EU Delegation, Mauritius. Mauritius and the EU: Trade. Available at: http://www.eeas.europa.eu/delegations/mauritius/eu_mauritius/trade_relation/index_en.htm

[26] Ibid.

[27] EU Delegation, Mauritius. Mauritius and the EU: Trade. Available at: http://www.eeas.europa.eu/delegations/mauritius/eu_mauritius/trade_relation/index_en.htm

[28] Ibid.

[29] Ibid.

[30] Mauritius Trade Easy. Available at: http://www.mauritiustrade.mu/en/trade-agreements/indian-ocean-rim-association

offsetting price cuts of the guaranteed sugar price in the context of the EU Sugar reform. These funds combined with the EDF allocation have been funding several programmes implemented through the budget support aid modality. The support will end in 2016 (last disbursement). Other budget funded activities have been implemented to support Climate Change, Civil Society Organisations and Migration.

Mauritius benefits from all regional projects managed by the Indian Ocean Commission (IOC) and financed by the EU, such as the Programme for the Implementation of a Regional Fisheries Strategy for the Eastern and Southern Africa-Indian Ocean region (also known as SmartFish), and the Programme in Support of the Implementation of the Mauritius Strategy for SIDS, the Programme for Promoting Regional Maritime Security (MASE), the Biodiversity programme, and the Renewable Energies Programme. Mauritius hosts the International Monetary Fund (IMF) Technical Assistance centre AFRITAC South, and the Regional Multi-disciplinary Centre of Excellence (RMCE) financed by the EU regional programmes. Mauritius is actively participating in the eastern and southern Africa region and other regional organisations such as the Common Market for Eastern and Southern Africa (COMESA) and the South African Development Community (SADC) that the EU is also partnering with. Mauritius has benefited from the restructuring of the Regional Integration Support Mechanism (RISM) programme managed by COMESA aimed at fostering regional integration.

1.4 Other relevant regional organisations

Mauritius is a member or similar of:

- South West Indian Ocean Fisheries Commission (SWIOFC), an advisory body, established under the FAO framework in 2004;
- South Indian Ocean Fisheries Agreement (SIOFA), an Agreement adopted at a Conference of Plenipotentiaries for the Adoption of the Southern Indian Ocean Fisheries Agreement, held on 7 July 2006;
- Southern African Development Community (SADC), an intergovernmental economic community established in 1992. Under SADC there is a plan to establish a Regional MCS Fisheries Coordination Centre in Maputo, Mozambique;
- Western Indian Ocean Tuna Organisation (WIOTO), established by the Western Indian Ocean Tuna Organisation Convention, which entered into force in December 1992; however, the Organisation is not currently operative,and Indian Ocean Commission (IOC), an intergovernmental organisation that was created in 1982 at Port Louis, Mauritius and institutionalised in 1984 by the Victoria Agreement in Seychelles.

1.5 Summary of likely developments in the short and medium term

Mauritius has worked hard to establish itself as a key regional player among Indian Ocean island states. The population of Mauritius is currently 1.27 million, but predictions for growth are not significant with a somewhat steady population to 2050, and if correct, will assist Mauritius to achieve its development goals.

The economy maintained real growth of 3.2 % in 2014, driven by forestry and fishing, the same as that achieved in 2013, and growth is forecast to strengthen to 3.5 % in 2015 and 3.6 % in 2016. Mauritius maintained its position as the most competitive economy in sub-Saharan Africa and witnessed a political transition following parliamentary elections in December 2014. The country's relatively small geographic size and high population density means that government and non-state actors in Mauritius are in close collaboration to ensure sustainable spatial development plans for the island-economy ([31]).

The Government of Mauritius has drawn up an economic 'blue-print' offering a strategic vision for a more diversified and resilient economy and an action plan to achieve High Income Country status by 2025. The 'blue-print' plan calls for economic growth of 8–9 % per annum and an upward growth trajectory in ICT, the seafood

[31] Available at: http://www.africaneconomicoutlook.org

and marine industry, as well as the financial, business and biomedical services sectors. The 'Blue' Economy, driven through the Ministry of Oceans Economy, Marine Resources, Fisheries, Shipping and Outer Islands, could contribute to a 1 % rise in the GDP within the next two years.

The fishing, Information Communications Technology and financial services sectors are projected to drive near-term growth. Mauritius is in the process of achieving most of the MDGs by 2015 in line with the EU policy on global poverty reduction with the exception of MDG 3 'Promote Gender Equality and Empower women' more specifically the indicator on elimination of gender disparity in decision-making and MDG 6 'Combat HIV/AIDS, malaria and other diseases' more specifically the indicator on HIV prevalence among the population aged 15–24.

Mauritius has signed with three other countries of the region (Madagascar, Seychelles and Zimbabwe) an interim Economic Partnership Agreement applying since 14th of May 2012. This market access deal includes other agreed chapters such as rules of origin, development cooperation, fisheries, trade, defence and dispute settlement mechanisms. This deal remains open to other countries willing to join at a later stage ongoing negotiations for an FPA between the EU and eastern and southern Africa as a whole include areas such as rules and commitments on services and investment, sustainable development and competition, and trade facilitation. It also includes co-operation on technical barriers to trade and sanitary and phyto-sanitary standards, this is an important agreement, especially for the processing sector in Mauritius and its market access to EU ([32]).

[32] Available at: http://trade.ec.europa.eu/doclib/docs/2012/march/tradoc_149213.pdf

2 Marine environment and fisheries resources

2.1 Coastal and marine environment

The IO is generally accepted as having an area of some 73 440 000 km^2, making up about one fifth of the world's ocean area ([33]). Opinions differ as to the exact borders of the Indian Ocean, which in turn partly determine estimates of its exact size.

2.1.1 Main characteristics of western IO waters

The distribution of tuna relates to oceanographic environmental characteristics, such as the distribution of sea-surface temperatures and chlorophyll concentrations ([34]) vital for photosynthesis and the production of phytoplankton and zooplankton. Primary production is significantly more intense in two regions of the Indian Ocean: the northwest Indian Ocean region adjacent to the Somali coast, where coastal upwelling occurs driven by the monsoons, and in an area known as the Seychelles–Chagos Thermocline Ridge, which is characterised by periodic open oceanic upwelling.

The western IO is characterised by a seasonally reversing monsoon wind system that dominates the ocean climate north of 25° south. This creates differing currents and eddies along the east African coast and within the general circulation of the western IO. These meso-scale processes bring increased nutrient supply to the upper layer during the monsoon seasons, contributing to the growth of phytoplankton blooms twice a year ([35]). The upwelling associated with these processes creates an area of intense biological productivity from the coast of Somalia to the Gulf of Oman.

Another characteristic of the western IO is a relatively shallow thermocline, usually at 50–100 metres (m), which compares with the eastern Indian Ocean where the thermocline is more than 100 m in the area from Sumatra to Sri Lanka ([36]).

Episodes of anomalous oceanographic and atmospheric conditions affect the western IO at irregular intervals. There are effects related with El Niño Southern Oscillation (ENSO) events in the Pacific, although the timing, intensity and modality of the Indian Ocean ENSO are not necessarily synchronised with the ENSO events in the Pacific Ocean. The Indian Ocean dipole is an atmospheric anomaly that could be associated with the ENSO, and which is characterised by warmer than usual surface waters, a deeper thermocline and a reduced primary productivity in the western IO, a pattern that is reversed in the eastern IO ([37]).

Primary production rates in the region vary considerably, with a general pattern of rates increasing as you move from the south of the western IO to the north, this trend is demonstrated in Figure 2.1 that provides the primary production rates within the EEZs of countries of the western IO. Mauritius is indicated as having the lowest primary production of the various EEZs of the western IO. Of the tropical tunas, bigeye is more abundant in a band between about 10º N and 10º S of the equator. Yellowfin tuna (*Thunnus albacares*) are caught mainly in the northern IO (Arabian Sea) and in the region north of the Mozambique Channel ([38]). Skipjack tuna (*Katsuwonus pelamis*) have an SST preference of between 20–32 ºC ([39]) and are widely distributed in the northern and western Indian Ocean.

[33] Available at: http://www.britannica.com/EBchecked/topic/285876/Indian-Ocean/22775/Upwelling

[34] Pei-Fen Lee, I-Chin Chen and Wan-Nien Tseng. 1999 Distribution Patterns of Three Dominant Tuna Species in the Indian Ocean, Proceedings Esri International User Conference, San Diego, California. Available at:

[35] Resplandy et al., 2011.

[36] Longhurst, 1998.

[37] Marsac, 2008.

[38] Ibid.

[39] J.D. Ardill, 1984. Fisheries of the south-west Indian Ocean. Found at: http://www.fao.org/docrep/field/255095.htm

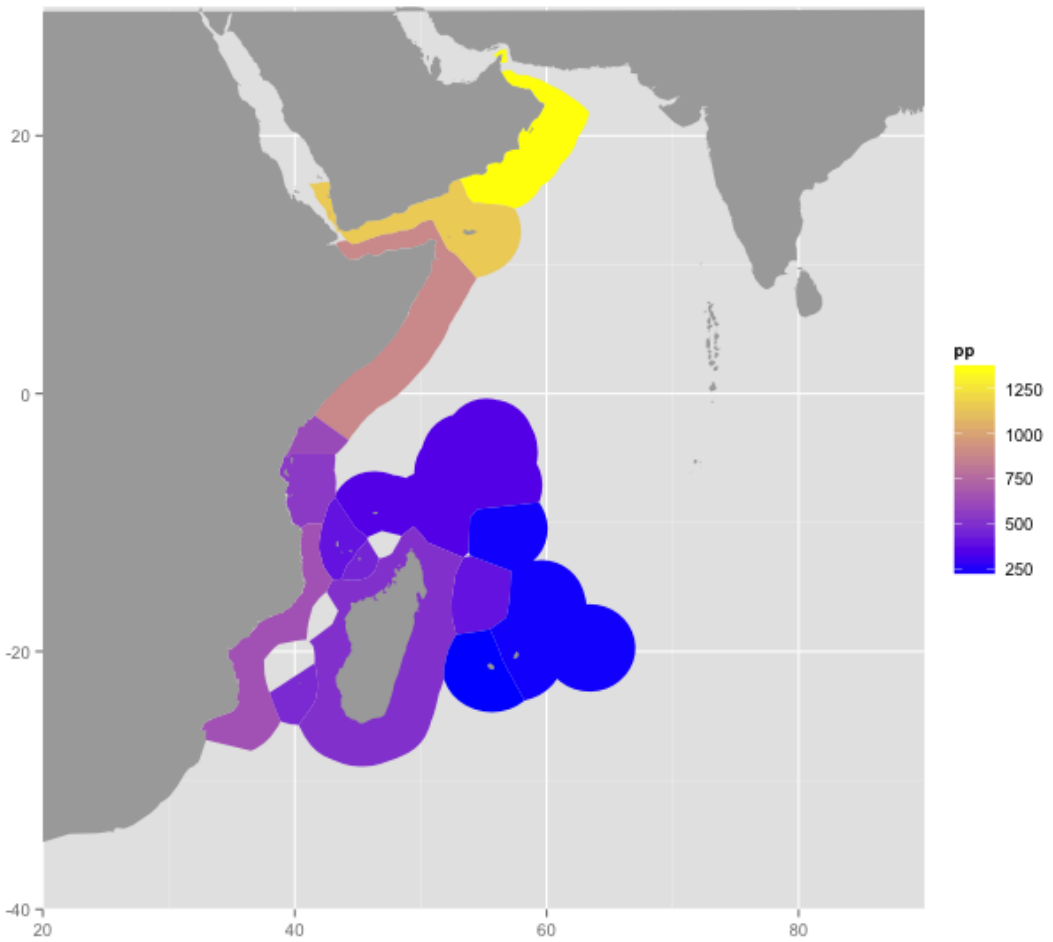

Figure 2.2: Primary production rates within EEZs in the western IO (in mgCm^{-2}day^{-1})

Source: Sea Around Us Project, 2013.

2.1.2 Coastal and marine environment of Mauritius

The Mauritian EEZ extends between 8° S and 24° S and is the most south-easterly EEZ within the western IO.

The coastal environment of the Republic of Mauritius are fringed by lagoons formed between the islands' shorelines and the extensive coral reefs which surround most of the land. The immediate off-lagoon areas fall relatively quickly to considerable depths, however, for fishing purposes vessels fishing for coastal and bank resources generally do not fish deeper than 100 m.

The oceanic environment is determined by large-scale oceanic systems described in Section 2.1.1, modified by the topographical features of the area. It should be noted that primary production is relatively low when compared to that occurring in other EEZs of the western IO, as shown in Figure 2.2.

Mauritius' EEZ has several major shallow banks, including the Nazareth Bank and the vast Saya de Malha Bank on the Mascarene Plateau, as shown in Figure 1.1([40]).

[40] FAO 2006. Fishery Country Profile, Mauritius. Available at: http://www.fao.org/fi/oldsite/FCP/en/MUS/profile.htm

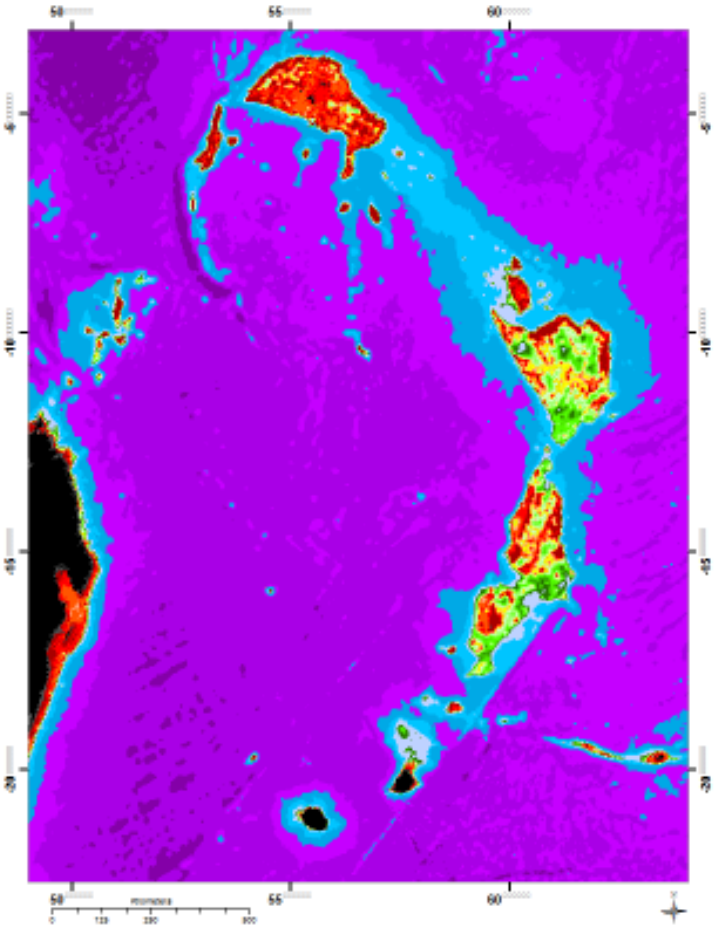

Figure 2.3: The Mascarene plateau, including the Saya de Malha and Nazareth Banks of Mauritius

Colour-coded by depth: red and yellow show areas shallower than 125 m, green to 500 m, and blue to 4000 m

Source: UNESCO.

2.2 Main fisheries resources in Mauritius

2.2.1 Inshore and nearshore resources

The coastal fisheries are essentially multi-species. The main species are emperors (*Lethrinus* spp.), mullet (*Mugil* spp.), rabbitfish (*Siganus* spp.), unicorn fish (*Naso* spp.), parrotfish (*Scarus* spp.), groupers (*Epinephelus* spp.) and goatfish (*Parapenaeus* spp.). Penaeid shrimps, oysters and octopus are also found to a lesser extent. Banks with sandy and coral bottoms are also home to a range of species (see Sections 5.1 and 5.2 for more details).

2.2.2 Offshore resources and shared highly migratory species

Catches are generally associated with areas of good productivity and where other environmental conditions are favourable for targeted species to exist. Tropical tunas are found in the vicinity of the Agaléga Islands, which lie about 1 000 km north of Mauritius Island and form part of the Republic of Mauritius, see Figure 1.1. While albacore (*Thunnus alalunga*) is the most common species in more southern latitudes.

2.3 Regional, and national science/research capacity

The Albion Fisheries Research Centre (FRC) carries out research, development and management for government focusing on fishery resources. Initially supported by the Japanese, the once thriving Centre has decreased in capacity in the last decade and now focuses on monitoring and development projects. Staff

members are active in the Working Groups of the IOTC but there is no in-house analytical capacity to conduct independent studies on the spatio-temporal distribution of spawning, locations of nursery grounds, recruitment relationships, tuna-species life histories or to conduct independent stock assessments. Contributing factors include the limited scientific human resource capacity in Mauritius and, given the highly migratory nature of these stocks, the requirement for conducting such studies and assessments on a much larger regional scale using a much broader dataset. However, Albion FRC collaborates on a small scale with the Institut de Recherche pour le Développement (IRD) in the collection and management of data for the French fleet, and there are plans to strengthen this cooperation ([41]).

Projects of regional significance that staff of Albion FRC are working on, or are participating in, include the Areas Beyond National Jurisdiction (ABNJ) Program that was approved by the Council of the Global Environment Facility (GEF) in November 2011 and is coordinated by the FAO in close collaboration with two other GEF implementing agencies, the United Nations Environment Program (UNEP) and the World Bank. The South West Indian Ocean Fisheries Project (SWIOFP), a GEF-funded, World Bank-implemented project with a pelagic fisheries component that is now completed. In 2014, the South West Indian Ocean Fisheries Governance and Shared Growth Program (SWIOFish), also implemented by the World Bank, essentially took over from the SWIOFP with the objective 'to increase the economic, social, and environmental benefits of SWIO countries from marine fisheries'. The Agulhas and Somali Current Large Marine Ecosystem Programme, a GEF-funded, UN Development Programme (UNDP)-implemented programme adopts an ecosystem approach to management of the east coast of Africa in order to ensure the long-term sustainability of regional living resources through cooperative management of the ecosystems. Tuna resources are not its main focus, but there are overlapping areas of interest in terms of governance, climate change and environmental monitoring that link the programme to tuna resources.

Mauritius Oceanography Institute (MOI) is a parastatal research organisation set up in 1999 mainly to advise the government on oceanographic aspects of areas beyond national jurisdiction, with respect to the seabed delimitation with the Seychelles. The then 25-strong team of scientists worked towards the successful 2005 submission of the joint seabed claim to the UN. Currently, the MOI is reported to be focusing more on coastal and near-shore areas. The National Oceanographic Data Centre (NODC) ([42]) operates as the national oceanographic data archive of Mauritius and is responsible for collecting all research data from any research vessel that operates in Mauritian waters.

A SmartFish report from 2011 ([43]) considers the need to revitalise fisheries research in Mauritius and considers that a major problem concerning research in fisheries and aquaculture in Mauritius is the lack of visibility of existing national organizations, and duplication of activities. Annex J provides a summary of research activities undertaken by Albion FRC, the MOI and the University of Mauritius and this demonstrates the need for a rationalisation of activities.

2.4 Status of fish stocks caught by the EU tuna fishing fleet

Management of tuna and tuna like species in the Indian Ocean is the responsibility of the Indian Ocean Tuna Commission (IOTC). The IOTC Scientific Committee performs stock assessments and is responsible for collecting data on the stock status. Using data from the Scientific Committee, the Working Parties analyse in more detail technical issues relating to the management goals of the IOTC. Each of the major stocks has a Working Party dedicated to it in analysing the status of the stock and offering management recommendations to the Scientific Committee.

[41] Pers. comm., Directorate of Fisheries, Mauritius.

[42] Available at: http://www.nodc-mauritius.org

[43] SmartFish report SF/2011/22 Sauer and Rotsaert 'Revitalisation of fisheries research in Mauritius' http://commissionoceanindien.org/fileadmin/projets/smartfish/Rapport/REVITALIZATION_OF_FISHERIES_RESEARCH_IN_MAURITIUS.pdf

This section provides an overview of the status of the main pelagic stocks targeted by the EU tuna fleet and associated bycatch species. Overall, two of the main tuna species targeted by the EU purse seine commercial fleets (skipjack and bigeye) are not currently overfished nor have overfishing, but one species (yellowfin) is currently overfished and overfishing is occurring (Table 2-1).

Table 2-1: Summary of status of tuna and billfish spp. caught by EU tuna fleet in western IO

Common name	Scientific name	Overfished ($SSB/SSB_{MSY}<1$)	Overfishing ($Fyear/F_{MSY}>1$	Latest assessment year
Skipjack	*Katsuwonus pelamis*	No	No	2014
Yellowfin	*Thunnus albacores*	Yes	Yes	2015
Bigeye	*Thunnus obesus*	No	No	2013
Albacore	*Thunnus alalunga*	No	No	2014
Swordfish	*Xiphias gladius*	Yes	No	2014

Source: IOTC, 2015. Documents to support the 18th session of the IOTC Scientific Committee.

The stock of yellowfin tuna is currently considered to be in an overfished state and continues to suffer from overfishing. Spawning stock biomass in 2014 was estimated to be 23 % of the unfished level, and below that estimated to support MSY. Substantial growth in longline, purse seine, gillnet and handline effort in recent years has increased pressure on the IO stock as a whole, resulting in catch levels that exceed the estimated MSY. There is a very high risk of continuing to exceed sustainable catch levels if effort continues to increase or remains at the current level. It should be noted that there is uncertainty in the assessment of yellowfin tuna stock, particularly regarding the overall level of natural mortality and the estimate of current fishing mortality; as with all stock assessments, the estimated yellowfin tuna stock status should be considered in the context of this uncertainty.

The stock of skipjack tuna is currently considered to be healthy. The spawning stock biomass is estimated to be 57 % of the unfished level, and is above a level that would produce MSY in the long term. However, the recent decline in catch per set on FADs, as well as the large decrease on free school skipjack tuna, are of some concern as the IOTC does not fully understand the cause of those declines.

Bigeye tuna is caught by both purse seine and longline vessels and is not overfished nor is there overfishing. Declines in longline effort since 2007, particularly from the Japanese, Taiwanese, Chinese and South Korean longline fleets, have lowered the pressure on the IO bigeye tuna stock.

Albacore tuna is currently exploited at sustainable levels. Whilst there remains considerable uncertainty about the catch data used in the stock assessment, the results indicate that the stock is not currently being overfished (an improvement from previous years). However, maintaining or increasing catches of albacore is likely to result in declines of biomass, productivity and catch per unit effort (CPUE).

Longline vessels also target swordfish and sharks. Swordfish was historically overfished and biomass remains below the level that would attain maximum sustainable yields. However, recent declines in catch and effort have reduced fishing mortality rates and halted overfishing.

Sharks are often targeted by longliners and also caught as an associated species. Currently, the IOTC uses the IUCN assessments for the threat status of pelagic sharks ([44]), which indicate that the scalloped hammerhead is classified as 'endangered', silky shark and blue shark as 'near threatened', and the oceanic white tip, bigeye thresher and shortfin mako sharks as 'vulnerable' (Table 2-2). A number of associated species are also caught, including black marlin, which is considered as being data deficient.

[44] IUCN Red List of threatened species. Available at: http://www.iucnredlist.org/

Table 2-2: IUCN status of bycatch species of sharks caught by EU tuna fleet in the western IO

Common Name	Scientific Name	Global IUCN threat status
Blue shark	*Prionace glauca*	Near threatened
Oceanic whitetip shark	*Carcharhinus longimanus*	Vulnerable
Scalloped hammerhead shark	*Sphyrna lewini*	Endangered
Shortfin mako shark	*Isurus oxyrinchus*	Vulnerable
Silky shark	*Carcharhinus falciformis*	Near threatened
Bigeye thresher shark	*Alopias superciliosus*	Vulnerable
Black marlin	*Makaira indica*	Data deficient

Source: IUCN Red List 2015 ([45]).

[45] Ibid.

3 The Indian Ocean tuna fishery

Globally, the IO is the second largest production area for tuna, after the Pacific Ocean, and is the region that provides most of the tuna catch for the EU fleet.

The total global catch of tuna and tuna-like species exceeded 7 million t in 2012, due largely to increasing trends in catches of skipjack and yellowfin tuna (FAO, 2014) ([46]) The share of tuna in total fish export value in 2012 was approximately 8 %. In 2014, catches from the western Pacific accounted for 53 %, the eastern Pacific 13 %, the IO 20 %, and the Atlantic and Mediterranean Sea 10 % of the total catch of the principal market tuna species ([47]). These catches are mainly composed of albacore, bigeye, bluefin, skipjack and yellowfin tuna. Globally, 35 % of tuna stocks are considered to be overexploited, and 13 % are fully exploited and are at risk of being overfished, based on the most recent assessments. Skipjack contribute more than one half of global tuna catch; from this perspective of total catch, 87 % of landed tuna comes from healthy stocks.

3.1 International fisheries management framework

3.1.1 International agreements

The national legislation of countries should be consistent with international, regional and sub-regional instruments to which they are committed. Similarly, it should be consistent with agreements made formally as members of an organisation, or decisions accepted as a cooperating non-member. Such states should ideally implement through national legislation any voluntary instruments that have been adopted as international best practice. Several key instruments are relevant to the tropical tuna fisheries of the IO (for a fuller discussion see Annex C):

- The 1982 United Nations Convention on the Law of the Sea ([48]) (UNCLOS) sets the framework within which states must manage their fisheries. It includes rules relating to the EEZ, the high seas and to highly migratory species.
- The UN Fish Stocks Agreement ([49]) provides for the establishment of regional or sub-regional management organisations (Part III).
- The Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing (2009) has not yet entered into force, but the IOTC largely adopted its provisions in its Resolution 10/11 ([50]), which has an application limited to IO ports.

3.1.2 The Code of Conduct for Responsible Fisheries

The Code of Conduct for Responsible Fisheries (1995) is a global voluntary instrument that provides principles and standards for the conservation, management and development of fisheries.

3.2 Regional tuna organisations and their management and enforcement measures

3.2.1 Indian Ocean Tuna Commission

The IOTC is an intergovernmental organisation that has the responsibility for the conservation and management of tuna and tuna-like species in the IO. It also collates data on non-target, associated and dependent species. The IOTC was established in 1996 under the FAO constitution and held its first session in December 1996

[46] FAO, 2014. The State of World Fisheries and Aquaculture 2014. Rome. 243 pp.

[47] ISSF, 2015. ISSF Tuna Stock Status Update, 2015: Status of the world fisheries for tuna. ISSF Technical Report 2015-03A. International Seafood Sustainability Foundation, Washington D.C., USA.

[48] United Nations, 1982, United Nations Convention on the Law of the Sea (UNCLOS).

[49] United Nations, 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.

[50] IOTC, 2011. Resolution 10/11, On Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing.

(IOTC, 2012) ([51]). Its members are from the IO coastal countries and countries, including Mauritius, or regional economic integrated organisations (the EU) that are fishing for tunas in this ocean. It seeks 'to promote co-operation among its Members with a view to ensuring, through appropriate management, the conservation and optimum utilisation of stocks' and by 'encouraging sustainable development of fisheries based on such stocks' ([52]).

It has the power to take legally binding decisions. Its core functions include: reviewing the conditions and trends of the stocks and to gather, analyse and disseminate relevant data and information; working with research and development activities for relevant stocks and fisheries; adopting suitable conservation and management measures to promote the principles of the Agreement; and reviewing economic and social aspects of the fisheries.

3.2.1.1 Geographical coverage

The IOTC area of competence is the Indian Ocean, which is defined for the purpose of the Agreement as being 'FAO Statistical Areas 51 and 57, and adjacent seas, north of the Antarctic Convergence, insofar as it is necessary to cover such seas for the purpose of conserving and managing stocks that migrate into or out of the Indian Ocean' ([53]) (Figure 3.1). This applies to the territorial waters of members of the IOTC, their EEZs and the high seas. In 1999, the Commission extended the western boundary of the IOTC statistical area from 30º E to 20º E, thus eliminating the gap in between the areas covered by the IOTC and ICCAT.

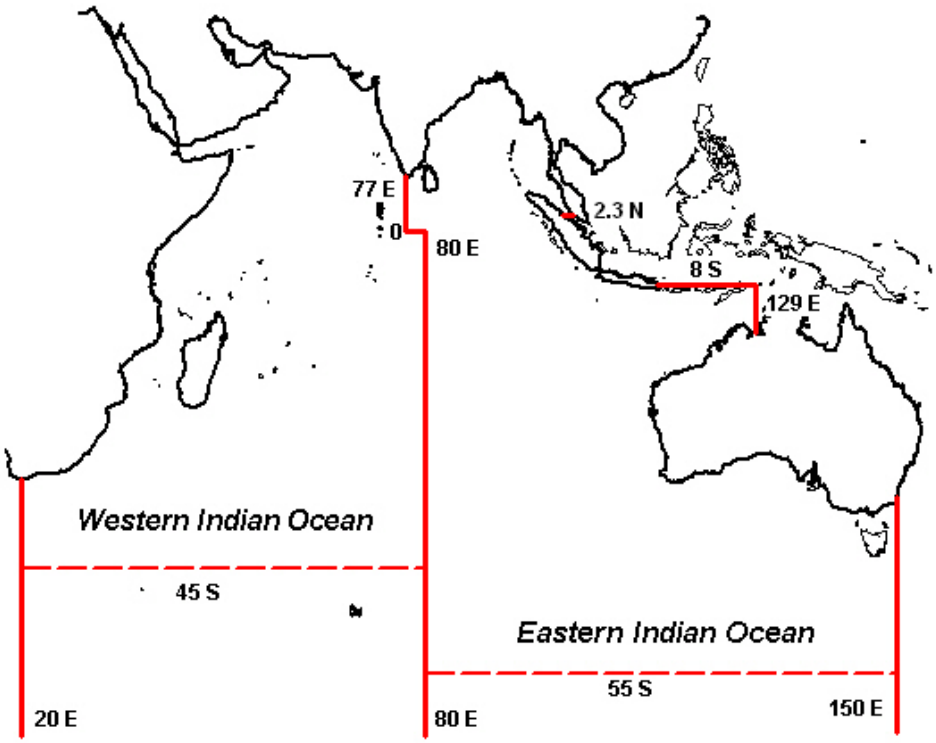

Figure 3.4: Geographical coverage of the IOTC

Source: IOTC website ([54]).

[51] Available at: http://www.iotc.org/assets/iotc_area_l.gif

[52] See http://www.iotc.org/about-iotc

[53] Article 2, Agreement for the Establishment of the Indian Ocean Tuna Commission. Available at: ftp://ftp.fao.org/Fi/DOCUMENT/iotc/Basic/IOTCA_E.pdf

[54] Available at: http://www.iotc.org/assets/iotc_area_l.gif

3.2.1.2 Technical measures applicable to catch tuna in Mauritian waters

The conservation and management measures (CMM) adopted by the IOTC are applicable to species that fall within the mandate of the IOTC. Compliance with the CMMs is overseen by the Compliance Committee of the IOTC. Compliance reports are prepared annually for all members, covering compliance levels over the last year for applicable CMM (Annex D provides the full table of active measures).

In 2015, Mauritius was not compliant with data submission under Res. 05/05 (these are repeated compliant issues), data submission under Res. 15/02, and non-implementation of the observer scheme required by Res. 11/04 (Mauritius had previously been compliant with these latter Resolutions).

The capacity of the IOTC to undertake research rests with the capacity of the research institutions of its members. However, in many of the coastal states, including Mauritius, the ability to contribute scientific data and analysis to regional assessments and studies of highly migratory species is limited and would benefit from being strengthened.

3.2.2 Other regional organisations

Mauritius is a member of the following four regional organisations (see also Section 1.4):

South-West Indian Ocean Fisheries Commission: The SWIOFC was established under the FAO Constitution in 2004, and has a current membership of 12 countries, including Mauritius ([55]). It provides guidance to its members with the objective of promoting the sustainable utilisation of the living marine resources within the countries' EEZs by addressing common problems of fisheries management and development ([56]).

The South Indian Ocean Fisheries Agreement: The objectives of SIOFA, which has been in force since 2012, are to ensure the long-term conservation and sustainable use of the fishery resources in the southern Indian Ocean through cooperation among the Contracting Parties, and to promote the sustainable development of fisheries taking into account the needs of developing states bordering the region. The SIOFA covers fish, molluscs, crustaceans and other sedentary species but excludes the highly migratory species covered by the IOTC.

Indian Ocean Commission: The IOC was founded in 1982 (in force since 1984) and is another inter-governmental organisation comprising Comoros, France (La Réunion), Madagascar, Mauritius and Seychelles ([57]), with a mandate that reaches beyond fisheries. For fisheries, it aims to promote regional co-operation on the conservation, management, and responsible, sustainable exploitation of fisheries resources.

Southern African Development Community: The SADC is a Regional Economic Community, established under the SADC treaty, to galvanise economic integration in southern Africa. Its main objective is to strengthen socio-economic development and co-operation within and between its member states ([58]). The SADC Protocol on Fisheries came into force in 2002 and it guides development of the sector in the region. The SADC is currently working towards a regional MCS coordination centre that will assist in developing regional co-operation in MCS.

3.3 Tuna fishing agreements in the western Indian Ocean

Many coastal states declared EEZs during the 1970s and 1980s, establishing the practice in customary international law, which was later formalised by inclusion in UNCLOS. This development required that foreign vessels obtain permission from coastal states in order to harvest fishery resources in the coastal state's EEZ through some form of fisheries access arrangement. The productivity of the IO provides good opportunities for

[55] Available at: http://www.fao.org/fishery/rfb/swiofc/en

[56] SWIOFP-WWF, 2012. Swan, J. Consultancy for the Harmonization of Fisheries Legislation and Assessment of the Implementation of Fisheries Management Plans and Rights Based Management in the South West Indian Ocean. Victoria, Seychelles.

[57] Available at: http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/EXTREGINI/EXTAFRREGINICOO/0,contentMDK:20627489~menuPK:1592485~pagePK:64168445~piPK:64168309~theSitePK:1587585,00.html

[58] Available at: http://www.sadc.int/index/browse/page/52

many foreign vessels targeting tuna stocks, and remains one of the most important areas for tuna fishing access agreements.

Since the early 1990s, African nations with an EEZ in the IO have entered into a significant number of bilateral fisheries agreements. The EU is an important participant in fisheries access agreements (Table 3-1). In addition, a number of private and joint-venture agreements exist, for which no information is available in the public domain. Up until the mid-2000s, the primary form of fisheries agreements struck between the EU and coastal African nations were fisheries access agreements. In 2004, the EU proposed a new form of access arrangement known a Fisheries Partnership Agreements, which have since evolved into the Sustainable Fisheries Partnership Agreements (SFPAs).

Table 3-1: Summary of active EU fishing agreements for tuna in the western Indian Ocean

Coastal state	Flag state	Agreement	Expiry (status)
Comoros	EU	Fisheries Partnership Agreement	2016 (active)
Madagascar	EU	Sustainable Fisheries Partnership Agreement	2018 (active)
Mauritius	EU	Fisheries Partnership Agreement	2017 (active)
Mozambique	EU	Fisheries Partnership Agreement	2015 (expired)
Seychelles	EU	Fisheries Partnership Agreement	2020 (active)
Tanzania	EU	Sustainable Fisheries Partnership Agreement	In negotiation
Kenya	EU	Sustainable Fisheries Partnership Agreement	In negotiation

Source: EC Europa website ([59]).

SFPAs aim to provide a sustainable and equitable framework for access to fishing grounds of the coastal states, and encouraging economic, scientific and technical co-operation. Under the SFPA, the EU's financial contribution to its partner nation comprises of two components: the first a payment for access to the partner country's waters to enable the EU fleet to undertake fishing activities; and a second component to support the coastal nation's fisheries sector to promote the sustainable development of the coastal nation's fishing industry, through various actions, such as providing training for workers involved in the coastal nation's fisheries sector, the development of science and research, transfer of knowledge and strengthening of monitoring control and surveillance.

Both parties have a shared responsibility in ensuring sustainable exploitation of the targeted stocks through the implementation of the FPA. As part of the agreement, a Joint Committee consisting of representatives from both Parties is established which monitors the application of the FPA and acting as mediator for any disputes concerning the application of the FPA protocol. This Joint Committee meets at least once a year.

SFPAs are more transparent than the traditional fisheries agreements between coastal states and other third country fishing states. All SFPAs and their respective Protocols can be found online at EC Europa ([60]). This high level of transparency has been recognised and welcomed by critics as a step towards combating corruption and illegal fishing.

3.4 The purse seine tuna fishery

3.4.1 Fishing ground evolution

Historically, the pattern of purse seine fleet activity in the western IO has mirrored the seasonal distribution and abundance of tuna (Figure 3.5). Tuna move in a clockwise direction, and at the beginning of the calendar year

[59] Available at: http://ec.europa.eu/fisheries/cfp/international/agreements/

[60] Ibid.

are found towards the east and the Chagos Archipelago, south of the Maldives. In the following months, the fleet follows the tuna westwards into the Seychelles EEZ and further south into Mauritius' EEZ. Between March and April, purse seine activity is concentrated within the southwest Indian Ocean, moving through the Comoros EEZ and into the Mozambique Channel around May to June. The fleet moves northwards around July to the coast of Tanzania and Kenya before operating outside the Somalia EEZ between August and September. Finally, towards the year's end, the fleet starts to move eastwards again towards the Chagos Archipelago. The vast majority of catch is landed at or trans-shipped through Victoria, Seychelles.

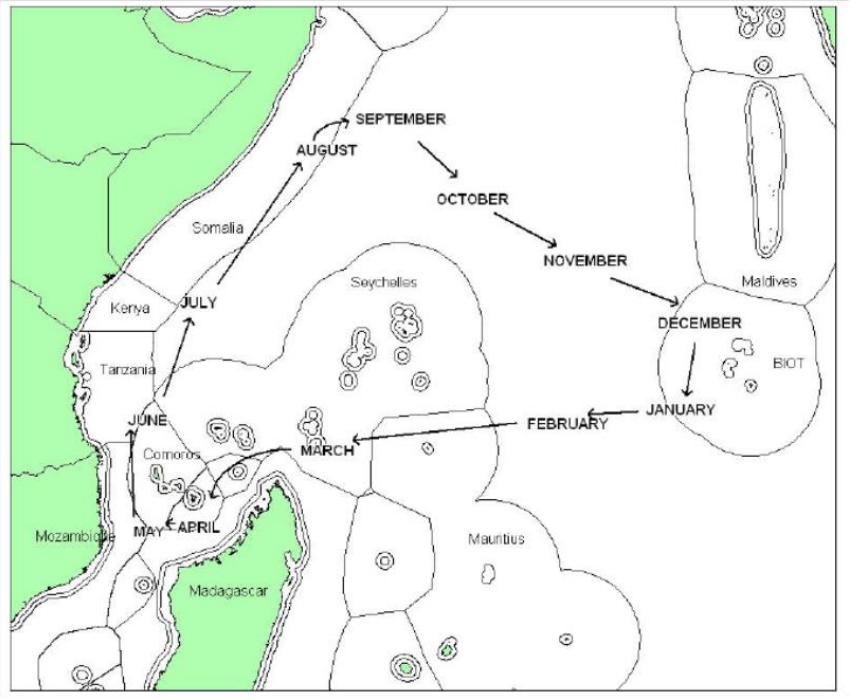

Figure 3.5: Indicative pattern of historical fishing opportunities for tropical tuna in western IO; based on supposed patterns of tuna movement and seasonal fishing conditions

Source: Consultants' analysis of historical purse seine data and understanding of tuna movement.

During the late 2000s, the behaviour of the purse seine fleet changed due to piracy off Somalia. Until 2004, the pattern of fleet movement showed vessels operating along the entire coast of east Africa, including northern productive areas within the Somalia EEZ. However, in 2005 the World Food Programme expressed concerns over the increase in the number of ship hijackings off the coast of Somalia ([61]). In response to the increased risk of vessel hijack, the pattern of purse seine fishing activity started to change in 2006, with little or no fishing occurring within the Somali EEZ.

In 2008, there was a marked increase in the potential risk of pirate attack within the region that prevented the fleet from fishing further north, off the coast of Tanzania. This led to a significant shift in the spatial behaviour of the fleet, which moved to the west and east of Seychelles (between the equator and 10° S) and the Mozambique Channel, resulting in higher landings of skipjack and yellowfin tuna. In recent years, increased levels of security on board purse seine vessels, and a decline in pirate attacks, have enabled part of the fleet to return to the productive waters off the coast of Somalia, although catches have yet to return to former levels.

3.4.2 Fleet evolution

The majority of the purse seine fleet fishing in the IO is comprised of European vessels (mostly fishing under Spanish and French flags) and vessels under Spanish ownership flying the Seychelles flag (Table 3-2). The number of EU vessels remained relatively stable at about 40 until 2008, when the issue of piracy caused several vessel owners to relocate their vessels outside the IO. In 2010, the total number of EU purse seine vessels

[61] Available at: http://www.wfp.org/news/news-release/hijackings-cut-aid-access-south-somalia-lives-risk

dropped to 26. In contrast, the number of Seychelles purse seine vessels remained relatively constant at around or slightly below 10.

Table 3-2: Indicative composition of purse seine fleet fishing in western IO, 2005–2014

Year	European seiners			Other flags			
	Spain	France	Italy	French overseas territories	Seychelles	Iran	Mauritius
2005	20	16	1	0	11	0	0
2006	22	17	1	1	10	0	0
2007	21	17	1	2	10	0	0
2008	17	17	1	2	10	0	0
2009	15	15	1	3	10	0	0
2010	13	8	0	5	9	0	0
2011	13	8	0	5	8	1	0
2012	14	10	0	5	8	0	0
2013	14	8	0	5	7	0	1
2014	15	13*	1*	1	10	0	2

Source: Chassot *et al.* (2015) ([62]). * The Italian flagged vessel re-flagged to France during 2014.

Purse seine catches by EU fleets in the IO have shown an increasing trend since the start of the fishery in the early 1980s, until reaching a peak in 2003 with a total of more than 407 000 t. In 2007, catches showed a sharp decline in response to a reduction in fishing effort ([63]) and have remained relatively stable at around 220 000–270 000 t since 2007. Catches in 2012 dropped to the lowest level since 1993, due to relatively low skipjack and to a lesser extent bigeye catches, but rebounded in 2013–2014 (Table 3-3).

Skipjack tuna has dominated EU purse seine catches, which peaked in 2006 at around 221 000 t before declining to 132 000 t in the following year due to a reduction in fishing effort. Reported catches of skipjack tuna have since remained around 130 000–150 000 t per annum, with the exception of reported landings of 80 500 t in 2012. In comparison, catches of yellowfin tuna peaked earlier in 2004, with a total of approximately 204 000 t. In recent years, catches of yellowfin have declined to approximately 120 000–130 000 t. In addition to skipjack and yellowfin, purse seine vessels also retain a much smaller volume of bigeye and albacore. Interestingly, annual reported catches of bigeye have remained relatively stable at around 20 000–25 000 t whereas relatively small catches (< 1 500 t) of albacore tuna have shown large annual fluctuations. This is primarily because albacore is not directly targeted by the purse seine fleet.

Fish aggregating device (FAD) usage is highly prevalent in the purse seine fleet in the IO and has been steadily increasing since the late 1980s. FADs are man-made objects used to attract large pelagic fish species such as tuna and billfish, and have become more widespread with the increasing size of fishing vessels. In 2005, only 60 % of all tuna caught by EU vessels were associated with FADs. This had increased to 80 % in 2014 ([64]).

[62] Chassot *et al.* 2015. Statistics of the European purse seine fishing fleet and associated flags targeting tropical tunas in the Indian Ocean (1981–2014). IOTC-2015-WPTT17–12. pp31.

[63] A number of vessels left the Indian Ocean as a result of the piracy issue, which led to a 25 % reduction in fishing effort between 2005 and 2009 (IOTC-2010-SC-09).

[64] Chassot *et al.* 2015. Statistics of the European purse seine fishing fleet and associated flags targeting tropical tunas in the Indian Ocean (1981–2014). IOTC-2015-WPTT17–12. pp31.

Table 3-3: Catch (t) by species for EU purse seine fishing fleet, 2005–2014

Year	Yellowfin	Skipjack	Bigeye	Albacore	Other	Total
2005	173 396	188 214	22 009	169	848	384 635
2006	148 791	220 989	20 202	1 358	1 017	392 357
2007	93 139	132 322	21 147	714	285	247 606
2008	112 736	133 997	26 582	1 391	304	275 010
2009	84 700	146 780	26 465	422	65	258 431
2010	101 675	148 263	21 544	207	56	271 746
2011	111 514	129 349	21 439	725	37	263 064
2012	130 071	80 516	16 903	1 206	56	228 752
2013	132 697	114 114	24 134	499	206	271 650
2014	118 005	122 996	19 829	513	172	261 515

Source: Chassot *et al.* (2015) ([65]).

3.4.3 Bycatch and discards

Bycatch is defined as the incidental catch of non-target species, which can either be retained on board or discarded. A detailed study to monitor bycatch and discard rates from the French and Spanish purse seine fleet operating within the IO was conducted between 2003 and 2007 ([66]) (Table 3-4). The results showed that total bycatch of the two fleets totalled on average around 10 000 t annually, corresponding to around 3.5 % of the total catch or 35.5 t of bycatch per 1 000 t of tuna caught.

The results of this study show that discards of tuna were also higher from FADs as compared to fishing on free schools. The annual discard rate of tuna represented 5 177 t or 19.2 t per 1 000 t of tuna caught. The prominent species discarded were undersized tuna and kingfish. The three major tuna species (skipjack, yellowfin and bigeye) were also discarded at small sizes less than 1.5 kg in weight.

Of the total non-retained catch (bycatch and discards) taken by the purse seine fleet, around 1.5 % is billfish. Billfish are more susceptible as a bycatch when FADs are used. Sharks (except whale shark) comprise 10 % of the total bycatch and discards in the purse seine fleet. Silky shark (*Carcharhinus falciformis*) and oceanic whitetip (*Carcharhinus longimanus*) are the two most prominent shark bycatch species. In comparison, ray bycatch is minimal, constituting only 0.7 % of the total bycatch and discard. 33.7 % of the bycatch and discards consists of other fishes like triggerfish, dolphin fish, barracuda, wahoo and others that are mainly caught on FADs. Tuna discards represent the remaining 56 % of non-retained catch.

[65] Ibid.

[66] Amande, Ariz, Chassot, Chavance, Delgado, Gaertner, Murua, Pianet and Ruiz. 2008. By-catch and discards of the European purse seine tuna fishery in the Indian Ocean. Estimation and characteristics for the 2003-2007 period. IOTC-2008-WPEB-12. 26 pp.

Table 3-4: Tuna discards and bycatch (t) estimated for French/Spanish purse seiners in western IO

Species	t	%	t / 1 000 t
Other tuna	5 177	54.0	19.2
Other fish	3 231	33.7	12.0
Shark	964	10.1	3.6
Billfish	148	1.5	0.5
Rays	65	0.7	0.2
Total (t)	**9 585**	**100.0**	**35.5**
Total fishery (t)	**270 235**		

Source: Amande *et al.* (2008) ([67]).

In addition to finfish bycatch, six species of marine turtle are likely to be affected by the tuna fishery. No assessment has been undertaken by the IOTC Working Party on Ecosystems and Bycatch (WPEB) for marine turtles due to the lack of data being submitted by contracting and cooperating non-contracting parties (CPCs). However, the current International Union for Conservation of Nature (IUCN) threat status for each of the marine turtle species reported as caught in IOTC fisheries to date is provided in Table 3-5.

It is important to note that a number of international global environmental accords (e.g. Convention on Migratory Species (CMS), Convention on Biological Diversity (CBD), as well as numerous fisheries agreements oblige states to protect these species. While the status of marine turtles is affected by a range of factors such as degradation of nesting beaches and targeted harvesting of eggs and turtles, the level of mortality of marine turtles due to capture by gillnets and to a lesser extent purse seine fishing and longline is not known.

Table 3-5: IUCN status for turtle species reported caught in fisheries in the IOTC area (as of 2015)

Common name	Scientific name	IUCN threat status
Flatback turtle	*Natator depressus*	Data deficient
Green turtle	*Chelonia mydas*	Endangered
Hawksbill turtle	*Eretmochelys imbricata*	Critically endangered
Leatherback turtle	*Dermochelys coriacea*	Vulnerable
Loggerhead turtle	*Caretta*	Vulnerable
Olive ridley turtle	*Lepidochelys olivacea*	Vulnerable

Source: IUCN Red List of Threatened Species ([68]).

In the purse seine fleet, the most common turtle bycatch species are olive ridley, green and hawksbill turtle. Green and hawksbill turtles are mostly caught due to FAD usage and are often released alive. However, the turtle mortality level for turtles caught on FADs is still unknown. The EU purse seine fleet is transitioning towards adopting ecologically friendly FADs to reduce incidence of turtle bycatch.

[67] Ibid.

[68] Available at: http://www.iucnredlist.org/

3.5 The longline tuna fishery

3.5.1 Fishing ground evolution

The majority of longline vessels operating in the IO have been large Asian fleets from Taiwan (China), Japan and Korea. European longliners from Spain, France, Portugal and UK are present albeit in relatively smaller numbers and size compared with the European presence in the IO purse seine fishery. The EU longline vessels can be grouped into those targeting tropical tunas and those targeting swordfish and sharks. Historically, the Asian longline fleets have targeted valuable bigeye and yellowfin tuna, which occur in both western and eastern Indian Ocean. At the beginning of the year, the Taiwanese fleet used to operate in waters surrounding Kenya and Somalia with a smaller proportion of mainly Japanese and Korean vessels fishing in and around the Mozambique Channel. The majority of the Taiwanese, Korean and Japanese fleet started to move eastwards during February to May to fish on the high seas and the region around the Chagos Archipelago, while some of the other Taiwanese and Japanese vessels moved southwards through the Mozambique Channel to target albacore and bigeye tuna. During June to July fishing effort in the southern IO increased substantially as the Japanese fleet targeted southern bluefin tuna.

In the late 2000s, similar to the purse seine vessels, the longline fleets changed their behaviour because of piracy in the area off Somalia. While the level of reporting for longline catches is of lower resolution than purse seine data (by 5° grid square), information is available to show the fleet moved significantly further eastwards and southwards. In comparison to purse seine vessels, longline vessels are much smaller and due to the nature of their fishing operations have to return to retrieve the gear within 48 hours. These characteristics of the longline fishery make them particularly vulnerable to pirate attack. Following the marked increase in potential risk of pirate attack in 2008, the fleets were observed to have almost completely left the western IO in 2010. It is believed that since 2012 there has been a return by some vessels of the longline fleet to the more northerly fishing grounds, due to the reduced perceived risk of pirate attacks and the presence of armed guards on board ([69]).

3.5.2 Fleet evolution

There are at least 750 active longline vessels operating in the Indian Ocean (eastern and western sectors), comprising EU-flagged vessels, Asian fleets (Taiwan, Japan, Korea, Philippines, China), vessels from island states (Seychelles, Madagascar, Maldives) and coastal states (India, Indonesia, South Africa, Sri Lanka, Tanzania, Mozambique) and vessels flying flags of convenience (Belize, Honduras, Oman, Equatorial Guinea, Panama) ([70]). The estimate also includes vessels associated with unreported fishing activities.

Taiwanese, Japanese and Korean longline fleets represent the majority of the total recorded landings from longline fisheries in the western Indian Ocean. There is wide variation even amongst vessels within fleets of the same flag in terms of size and capacity, and equipment for freezing and on-board storage, due to the vessels coming from different generations and having evolved in response to changing target species and market conditions.

The European longliners operating in the area are fewer in number and smaller than their Asian counterparts. The French fleet operates from La Réunion with a fishery that began in 1991 and comprised 15 operating vessels as of 2009. The Spanish fleet began fishing in the IO in 1993, peaking at 27 vessels in 2007 before shrinking to 13 vessels in 2010, and increasing to 22 vessels in 2014. The Portuguese had six vessels in 2014 and the UK had two vessels in the same year ([71]).

Longliners in the IO yielded a total annual average catch of 104 000 t between 2005 and 2014. Yellowfin and bigeye tuna were the dominant species in the catch, while swordfish and albacore also made a significant

[69] Pers. comm., British Seychelles Fisheries Commission, London 28–30 October 2015.

[70] Based on IOTC List of Active Vessels, 2014. Available at: http://www.iotc.org/vessels

[71] Ibid.

contribution to the overall total catch (Table 3-6). The Taiwanese fleet accounted for just over 60 % of this catch while the European fleet landed just 9.7 %, with an average annual landing of around 9 000 t.

Table 3-6: Average annual effort (hooks) and catch (t) of tuna and tuna-like species by longline fleets in IO, 2005–2014

Flag	Effort (hooks)	Yellowfin	Bigeye	Skipjack	Albacore	S. bluefin	Swordfish	Sharks (all)	Total	%
EU total	9,059,717	511	515	4	479	24	6,825	257	8,615	9.7
EU Spain	5,033,552	-	-	-	-	-	4,189	-	4,189	4.7
EU United Kingdom	84,700	86	-	-	8	-	527	54	674	0.8
EU France (Mayotte)	-	16	17	-	11	-	64	1	109	0.1
EU Portugal	324,165	36	62	4	11	24	1,154	160	1,451	1.6
EU France (La Réunion)	3,617,300	373	435	-	450	-	892	42	2,192	2.5
Australia	568,694	23	69	0	13	2	255	-	362	0.4
China	21,224,226	1,551	4,457	-	1,121	-	485	78	7,692	8.7
Indonesia	169,109	9	0	0	-	-	1	6	17	0.0
Japan	66,417,662	-	-	-	-	-	-	-	-	0.0
Korea	5,013,373	657	334	1	157	253	74	4	1,481	1.7
Madagascar	7,591,210	41	79	0	73	-	45	-	238	0.3
Maldives	453,194	60	444	0	2	-	43	22	571	0.6
Mauritius	565,749	38	15	-	24	-	265	18	360	0.4
Malaysia	2,270,775	92	46	-	831	-	58	-	1,026	1.2
Oman	-	3,101	-	-	-	-	-	229	3,330	3.8
Philippines	-	69	319	-	360	-	11	-	759	0.9
Seychelles	9,825,087	1,881	4,866	0	309	37	843	129	8,066	9.1
Thailand	-	76	271	-	5	-	32	8	393	0.4
Taiwan	158,514,003	15,630	23,995	8	7,798	609	4,714	1,922	54,676	61.8
South Africa	865,512	132	144	0	26	13	233	383	931	1.1
Total	**282,538,310**	**23,874**	**35,554**	**14**	**11,197**	**938**	**13,885**	**3,055**	**88,517**	**100.0**

Source: Consultants' calculations from IOTC database.

Generally, each fleet employs different fishing strategies depending on which species they are targeting (e.g. tunas, swordfish, sharks) and the fishing area and fishing techniques selected. Asian longliners mainly target tuna and these are the most prevalent species in their catch, although the proportions of different tuna species caught vary between the Asian fleets. Albacore, swordfish and shark are the main targets of the Taiwanese longline fleet, while southern bluefin tuna is the most important component in the Japanese longline fleet catch. For the European longline fleet, the swordfish catch far outstrips the catch of major tuna species, and the level of reported shark catches during 2005-2014 was 8.4 % of the total reported by all longliners.

Table 3-7: Total annual catches (t) for longliners in IO, 2010– 2014. Species as for Table 3-6 excluding sharks

Country	2010	2011	2012	2013	2014	Average
EU total	7 467	7 695	6 288	8 664	9 519	8 131
EU Spain	3 116	3 191	4 396	4 766	4 164	3 927
EU United Kingdom	-	-	-	-	1 001	1 001
EU Portugal	2 098	1 989	-	2 076	2 341	2 126
EU France (La Réunion)	2 253	2 515	1 892	1 822	2 013	2 099
Australia	456	260	415	352	327	362
China	8 068	2 207	5 321	7 538	7 429	6 113
Madagascar	-	-	-	334	-	334
Maldives	-	-	33	1 199	-	616
Mauritius	336	89	36	68	-	132
Malaysia	-	-	-	1 241	1 046	1 143
Philippines	-	-	-	-	763	763
Seychelles	6 368	7 762	12 379	10 773	10 659	9 588
Thailand	-	372	468	342	-	394
Taiwan	60 463	71 920	74 786	67 899	44 523	63 918
South Africa	-	1 501	1 246	1 081	667	1 124
Total	**84 499**	**93 327**	**100 979**	**99 512**	**74 933**	**94 220**

Source: Consultants' calculations from IOTC database.

3.5.3 Bycatch and discards

Little information on bycatch and discards was found for EU vessel operations in the Indian Ocean. The Taiwanese longline fishery is the most important longline fleet operating in the Indian Ocean; the following section provides an overview of the bycatch taken by the Taiwanese fleet during the 2000s, sourced from Smartfish (2013) ([72]) and Huang (2011) ([73]).

[72] A review of bycatch and discards issues in the Indian Ocean tuna fisheries. Available at: http://commissionoceanindien.org/fileadmin/projets/smartfish/Rapport/BY_CATCH__FINAL_.pdf

[73] Huang, H. (2011). By-catch of high sea longline fisheries and measures taken by Taiwan: Actions and challenges. *Marine Policy* 35: 712–720.

3.5.3.1 Seabirds

More than 33 species of seabird have been recorded within the Indian Ocean, with six species affected by bycatch. The main species include Indian yellow-nosed albatross (*Thalassarche carteri*), sooty albatross (*Phoebetria fusca*), wandering albatross (*Diomedea exulans*) and Salvin's albatross (*Thalassarche salvini*). In total, bycatch rates were estimated from fisheries observer data to be 0.0002 per 1 000 hooks in tropical areas and 0.0158 per 1 000 hooks in the southern IO between 2004 and 2008 ([74]).

No assessment has been undertaken by the IOTC WPEB for seabirds due to the lack of data being submitted by CPCs. However, the current IUCN) threat status for each of the seabird species reported as caught in IOTC fisheries to date is provided in Table 3-8. The IOTC adopted Resolution 12/06 ([75]) as a precautionary measure to mitigate the impact of longline fishing operation on sea birds.

While the status of seabirds is affected by a range of factors such as degradation of nesting habitats and targeted harvesting of eggs, the level of mortality of seabirds due to fishing gear in the IO remains poorly known.

Table 3-8: IUCN threat status of seabirds reported as being caught in IOTC area fisheries

Common name	Scientific name	IUCN threat status
Atlantic yellow-nosed albatross	*Thalassarche chlororhynchos*	Endangered
Black-browed albatross	*Thalassarche melanophrys*	Near Threatened
Indian yellow-nosed albatross	*Thalassarche carteri*	Endangered
Shy albatross	*Thalassarche cauta*	Near Threatened
Sooty albatross	*Phoebetria fusca*	Endangered
Tristan albatross	*Diomedea dabbenena*	Critically Endangered

Source: IUCN Red List of Threatened Species, 2015 ([76]).

3.5.3.2 Sea turtles

In addition to finfish, surface longline vessels can also have an impact on sea turtles. While there is sparse information on the level of turtle bycatch, IOTC has reported that leatherback turtles are the most common species caught in the gear with lesser numbers of loggerhead, hawksbill and green turtles (IOTC, 2010) ([77]). The average marine turtle catch on longline vessels is estimated to range from 0.005 to 0.3 per 1 000 hooks laid and varies across the season. The IOTC adopted Resolution 09/06 ([78]) as a precautionary measure to mitigate the impact of fishing operation on sea turtles.

3.5.3.3 Sharks

A summary of shark catches reported to IOTC between 2005 and 2014 is provided in Table 3-9 Huang (2011) reported that at least 10 bycatch shark species were recorded in the Indian Ocean, accounting for 4 % of the total number of fish caught, including 2 % blue shark, followed by the silky shark, shortfin mako and bigeye thresher. Of the bycatch sharks, 54 % were released alive or discarded while the sharks captured by different vessels ranged from 1 % to 3.8 % of the total catch in number (Huang and Lui, 2010) ([79]). The life history characteristics (e.g. low fecundity, slow growth and longevity) of shark species mean that they have a low

[74] Huang H. W, Liu K. M. (2010). By-catch and discards by Taiwanese large-scale tuna longline fleets in the Indian Ocean. *Fisheries Research* 106:261–70.

[75] Available at: http://www.iotc.org/cmm/resolution-1206-reducing-incidental-bycatch-seabirds-longline-fisheries

[76] Available at: http://www.iucnredlist.org/.

[77] Available at: http://www.iotc.org/cmm/resolution-1206-reducing-incidental-bycatch-seabirds-longline-fisheries

[78] Available at: http://www.iotc.org/English/resolutions/Resolution_09_06.pdf

[79] Huang H. W, Liu K. M. (2010). By-catch and discards by Taiwanese large-scale tuna longline fleets in the Indian Ocean. *Fisheries Research* 106:261–70.

resilience to fishing effort and high susceptibility to recruitment overfishing. The scarcity of data on the shark fisheries in the region bars progress in management measures and this may make it necessary to adopt precautionary measures such as an IOTC resolution on thresher sharks to prohibit the on-board retention of thresher sharks and obliging vessels to release thresher sharks alive if possible.

Table 3-9 Total reported catch (t) of sharks by longline vessels in IO, 2005-2014. Note that reported catches for sharks are thought to be incomplete and these figures should be interpreted with caution

Flag	Silky	Mako	Oceanic whitetip	Porbeagle	Requiem nei	Hammer-head nei	Thresher nei	Shark nei
EU total	83	1 197	2	-	317	5	-	316
EU Spain	-	-	-	-	-	-	-	-
EU United Kingdom	-	54	-	-	-	-	-	-
EU France (Mayotte)	-	-	-	-	-	-	-	1
EU Portugal	83	1 143	2	-	189	5	v	21
EU France (La Réunion)	-	-	-	-	128	-	-	294
Australia	-	-	-	-	-	-	-	-
China	-	520	257	-	-	-	-	-
Indonesia	1	0	-	-	2	0	8	44
Japan	-	-	-	-	-	-	-	-
Korea	-	4	-	-	-	-	-	38
Madagascar	-	-	-	-	-	-	-	-
Maldives	-	11	8	-	-	2	9	14
Mauritius	-	-	-	-	-	-	-	158
Malaysia	-	-	-	-	-	-	-	-
Oman	-	-	-	-	-	-	-	1 143
Philippines	-	-	-	-	-	-	-	-
Senegal	-	8	-	-	-	-	-	-
Seychelles	-	51	9	0	-	6	1	1 222
Thailand	-	-	-	-	-	-	-	23
Taiwan	847	2 548	5	2	305	1	-	15 513
South Africa	-	3 031	-	-	134	248	20	19
Total	**930**	**7 370**	**281**	**2**	**757**	**263**	**37**	**18 490**

Source: Consultants' calculations from IOTC database.

4 Fisheries governance in Mauritius

4.1 National legislation and agreements

4.1.1 Fisheries legislation

The fisheries legislation currently in force in Mauritius is the Fisheries and Marine Resources Act 2007 (Act No. 27 of 2007) which took effect on 8 May 2008. The act has recently been reviewed and a draft revision is being considered in order to update it to implement international instruments. The draft bill is regarded as confidential and was not available to the authors of this report. The 2007 act repealed the Fisheries and Marine Resources Act 1998.

The act provides for the management of fisheries, and the conservation and protection of marine resources, and for the protection of the marine ecosystems within the Republic of Mauritius and its waters ([80]). The act has 76 sections divided into 10 parts (see Annex F for detail on the parts).

The act is implemented by a series of regulations ([81]), some of which predate the coming into force of the current 2007 act, a selection of these regulations are listed below:

- Amendment of Schedule Regulations 2014 - (GN No. 68 of 2014);
- Licence and Fees Regulations 2013 – (GN No. 288 of 2013) sets out the licence fees payable by foreign and Mauritian longliners, hand-liners and purse-seiners. It also provides samples of the licence form on which the licence is issued:
- Export of Fish and Fish Products (Amendment) Regulations 2012 – (GN No. 209 of 2012) amends the principal regulation 'Fisheries and Marine Resources (Export of Fish and Fish Products) Regulations 2009':
- Bait Gear Licence and Licence Fees Regulations 2012 – (GN No. 214 of 2012) provides for the issuance of a bait gear licence;
- Import of Fish and Fish Products Regulations 2012 - (GN No. 27 of 2012) regulates the import of fish into Mauritius;
- Fishing of Sea Cucumbers (Amendment) Regulations 2012 - (GN No. 18 of 2012) amends the principal regulation, Fishing of Sea Cucumbers Regulations 2009 - (GN No. 110 of 2009) by banning the fishing of sea cucumber for four years until 29 February 2016;
- Prohibition of the Use of Hooks of Small Size Regulations 2011 – (GN No. 128 of 2011) prohibits the use of hooks with a gap[82] of less than 5 mm;
- Prohibition of Removal of Coral and Sea-shell Regulations 2006 – (GN No. 95 of 2006) Principal Regulation;
- Vessel Monitoring System Regulations 2005 – (GN No. 87 of 2005) the principal regulation;
- The Toxic Fishes Regulations 2004 – (GN No. 193 of 2004) amends Fisheries Regulations 1983
- The Marine Protected Areas Regulations 2001 – (GN No. 172 of 2001); and
- Fisheries Regulations 1983 (as amended).

[80] Drawn from http://fisheries.govmu.org/English/Legislation/Pages/Fisheries--Marine-Resources-Act-2007-Amended.aspx

[81] Website of the Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Island as of 2 November 2015. Found at: http://fisheries.govmu.org/English/Legislation/Pages/Regulations.aspx. Note that some of the 21 regulations listed on the Ministry website are redundant.

[82] The gap refers to the distance between the shank of a hook and the point, or the width of the hook, a smaller hook width is used to catch smaller fish and a larger hook width to catch larger fish. This regulation therefore deals with prohibiting smaller hooks.

Amendments to some of these Regulations are anticipated following the approval of the new act, in particular it is anticipated that new legal frameworks for vessel monitoring system (VMS), automatic identification system (AIS) and MCS regulations will be presented for approval.

4.1.2 Fisheries agreements and arrangements

In addition to the FPA with the EU, other agreements and arrangements are in place for national and foreign fishing vessels to access the waters of Mauritius.

The bilateral 'Agreement between the Government of the Republic of Mauritius and the Government of the Republic of Seychelles on Fishing in Mauritian Waters' and the companion 'Agreement between the Government of the Republic of Seychelles and the Government of the Republic of Mauritius on Fishing in Seychelles Waters' were signed in 2005 and are automatically renewed for two years. The agreement permits up to 10 purse seiners and 20 longliners registered to Seychelles to fish for tuna in Mauritian waters. The framework for this access includes: the requirement for vessels to hold a valid licence, to have a transmitting VMS on board, to complete a fishing logbook, to report entry and exit, to not trans-ship at sea, and that ship owners endeavour to trans-ship the catch in a Mauritian port and permit a Mauritian observer on-board if requested by the Mauritian authorities. The agreement also provides a framework for parties to coordinate actions directly or within international organisations to ensure the management and conservation of the living resources in the Indian Ocean, particularly highly migratory species (HMS). The companion agreement is similar but permits up to 10 purse seiners and 20 longliners registered to Mauritius access to fish for tuna in Mauritian waters.

At the 11th Session of the Mauritius–Seychelles Commission on Bilateral Cooperation held in Victoria, Seychelles in October 2015, in respect to fisheries it was agreed to: collaborate on MCS and to eventually have joint patrols in the combined waters to reduce IUU fishing; cooperate on developing aquaculture in particular mariculture; and reciprocally exchange officers in seafood quality control and inspection. It was also proposed (by Mauritius) to find a mechanism to share bycatch for value addition and local consumption and to work towards addressing the issue of retaining bycatch on board at IOTC.

The bilateral 'Fishing Agreement between the Republic of Mauritius and the Japan Tuna Fisheries Co-operative Association for Fishing in Mauritius Maritime Zones' was signed in 2007. All Japanese vessels fishing in Mauritius must fall under this Agreement and up to 50 vessels will be permitted access. The types of fishing vessels are not specified but the annex to the Agreement states that they will be on average 379 GRT and have an average overall length of 56 m. The text of the Agreement is not publically available but available on request and it includes that vessels must have a valid licence granted by Mauritius, they must trans-ship or land all fish caught in Mauritian waters in Port Louis, have transmitting VMS on all vessels, complete a fishing logbook and report entry and exit.

Private agreements exist for non-EU foreign purse seiners and longliners. In addition to the fees (set out in Table 4-1) the vessel must permit observers to board the vessel as required, trans-ship all fish caught in Mauritius waters in Port Louis ([83]), provide entry and exit reports, have a transmitting VMS, and be fitted with and transmit from an AIS transponder.

All agreements active in Mauritius are summarised in Table 4-1.

[83] It was reported in interviews with officials and industry that this is not enforced or complied with.

Table 4-1: Summary of fishing agreements in force in Mauritius (EU and non-EU)

Country with agreement	Type of vessel	Cost for fishing authorisation	Other cost
EU	Purse seine	EUR 35 per tonne caught Advanced payment of fees: tuna seiners: EUR 3 710 for ref catches: 106 t	EUR 660 000, of which EUR 302 500 are dedicated to the implementation of the Mauritius fisheries and maritime policies EUR 65 over reference tonnage
	Longline	EUR 35 per tonne caught Advanced payments of fees: surface longliners: EUR 3 150 ref catches: 90 t for vessels of more than 100 GT; 1 750 EUR, ref catches: 50 t for vessels of equal to or less than 100 GT	
Japan	Longline < 24 m	USD 12 000 for six months USD 20 000 per annum USD 2 500 for additional period of 30 days of part thereof	VMS fee: USD 1 000 for six months USD 2 000 for one year and USD 200 for any additional month
Seychelles	Purse seine	USD 5 000 for each period of 90 days	VMS fee: USD 500 for each period of 90 days
	Longliner	USD 12 000 for six months USD 2 000 for additional period of 30 days of part thereof	VMS fee: USD 500 for 90 days and USD 170 for any additional period of 30 days
Private agreements – foreign vessels	Purse seine	USD 7 500 for 90 days USD 2 500 for additional period of 30 days of part thereof	VMS fee: USD 900 for 90 days and USD 300 for any additional period of 30 days Logbook deposit refundable: USD 1 000 Application fee: MAU 500
	Longline < 24 m	USD 9 000 for 90 days USD 3 000 for additional period of 30 days of part thereof	
	Longline > 24 m	USD 12 000 for 90 days USD 4 000 for additional period of 30 days of part thereof	
Private agreements – Mauritian registered (ownership details not specified)	Purse seine	USD 30 000 per annum USD 7 500 for 90 days USD 2 500 for additional period of 30 days of part thereof	VMS fee: USD 3 600 per annum USD 900 for 90 days USD 300 for any additional period of 30 days Logbook deposit refundable: USD 1 000
	Longliner	USD 1 000 per annum	
	Handliner	USD 1 000 per annum	
Private agreements – foreign registered, Mauritian owned		MAU 5 000 per trip up to 70 days Fee of 7 % of the ex-vessel price of the total catch if 100 % foreign crew, ranging to 0 % if 100 % Mauritian crew (ex-vessel price = MAU 82 per kg)	VMS fee: USD 3 500 Licence fee: USD 1 000 Logbook deposit: USD 1 000 Application fee: MAU 500

Source: Compiled from Licence and Fees Regulations 2013 – (GN No. 288 of 2013).

4.1.3 Fishery products health and sanitary regulations

Tuna and bycatch species caught by EU vessels may at times be traded on the local market, although in practice this is reported to be very rare. When this occurs, no regulations apply to them at the import stage.

The Mauritian Government has placed increasing emphasis on the development of the fish-processing industry in order to increase the contribution that fisheries makes to the economy. The EU is the main market, which requires Hazard Analysis Critical Control Point-based regulations for fish and fish products. It is thus a necessity for Mauritian fish-producing and processing companies to abide by international food safety requirements if they are to export their products to the EU. This has been the key factor driving the adoption and maintenance of the Fisheries and Marine Resources (Export of Fish and Fish Products) Regulations 2009 and Amendment Regulation 2012 (GN 209 of 2012) which provide the national legal framework for the exporting of fish and fishery products. Although this regulation is applicable for exports to any country, the legislation has been based on EU requirements.

The Competent Authority operates a manual of procedures that is a working document that they update on a regular basis, especially to comply with EU standards. The Competent Authority noted that keeping up with these standards is an ongoing challenge that they strive to meet. For example, the export of ornamental fish is a new area being updated.

Official certification of fishery products is needed for them to be able to enter the EU. This is based on the recognition by the EU of the reliability of the non-EU 'competent authority' to implement the food safety standards and is a pre-requisite for the country to be eligible and authorised to export to the EU. The public authorities must ensure credible inspection and controls throughout the production chain, which cover all relevant aspects of hygiene, public health and, in the case of aquaculture products, animal health ([84]).

Mauritius has complied with the formal process ([85]) required for certification and has gained approval for 11 processing plants, two of which process aquaculture products, two cold stores and three freezer vessels ([86]).

4.2 National fisheries policy

Mauritius does not have a fisheries policy as such, but the government website states that the vision for fisheries is 'to be an economic pillar with due regard to sustainability of aquatic resources and social development for the benefit of all stakeholders'. While the mission is 'to provide an enabling environment for the promotion of sustainable development of the fisheries sector and to ensure continued economic growth and social development within the framework of good governance' ([87]).

The Government Programme 2015 reflects the vision of the government to transform Mauritius into an ocean state by promoting the ocean economy as one of its main pillars of development:

- Government is committed to making Ocean Economy an important industry to sustain economic diversification, job creation and wealth.
- A legal framework and a unified regulatory body will be put in place to license, supervise, monitor and regulate the activities of the ocean-related economic operators.
- Technical cooperation and financial assistance will be sought from international organisations and donor countries to ensure that the new industry starts off on a sound foundation.
- A new Fisheries and Marine Resources Bill incorporating international norms and practices for modernising the fisheries sector will be introduced.
- Government will put the fishermen community at the centre of development and will ensure their capacity building and training for improved livelihoods.

[84] Directorate General for Health and Consumers. EU import conditions for seafood and other fishery products. Found at: http://ec.europa.eu/food/safety/international_affairs/trade/docs/im_cond_fish_en.pdf

[85] Ibid.

[86] Available at: http://ec.europa.eu/food/safety/international_affairs/trade/docs/im_cond_fish_en.pdf

[87] Ministry of Oceans Economy, Marine Resources, Fisheries, Shipping and Outer Islands website.

The Mauritian Prime Minister, Sir Anerood Jugnauth, in his keynote address at the opening of the Ministerial meeting of the two-day Indian Ocean Rim Association (IORA) Blue Economy Conference 2–3 September 2015 said, "*My vision is to develop the ocean assets of Mauritius into one of the innovative pillars of our economy. A pillar that would unlock investments of approximately USD 600 million and create 25 000 jobs*". He recalled that the waters of Mauritius represented nearly 1 % of the world's oceans and represented extensive opportunities. The Minister of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Islands, Mr Premdut Koonjoo, stated that the timely historic conference on the blue economy was a priority since many countries were grappling with various challenges on the sustainability of their economic development agenda. With the right policies and strategies, he added, this initiative is bound to take Mauritius to high-income country status in the near future ([88]).

4.3 Organisation of the institutional framework for fisheries

4.3.1 Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Islands

The Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Islands was formed following the elections in December 2014, and is therefore under one year old and still in the process of being established. For this reason, many frameworks and strategies are still in development and the staff are still developing and consolidating their systems. In the future, it is anticipated that there will be many advantages of having the different functions within the same ministry, for example the maritime register and the issuing of fishing authorisations. There is however, limited updated written information on the institutional framework of the ministry as this is still in development.

Fisheries Technical Services falls under the Minister and Permanent Secretary and is headed by a Director of Fisheries with three Assistant Directors covering 1) fisheries planning and management, licencing, MCS and marine resources, 2) aquaculture, marine science and marine conservation and 3) fisheries development, training and laboratories.

Based on the past objectives, the Fisheries Division still aims to:

- undertake fisheries and aquaculture research and development and manage resources for sustainable development;
- consolidate existing knowledge and promote new ideas in fisheries development and management;
- promote the development of the sea food hub in cooperation with all stakeholders;
- promote and regulate the optimal long-term sustainable utilisation of living marine resources;
- foster the interest of Mauritius within the international fisheries community, including encouraging the international trade of fish commodities within the framework of international laws and conventions;
- disseminate information on fisheries; and
- have a national fisheries policy responsive to the aspirations of its stakeholders.

4.3.2 Fishery sector stakeholders

Important aspects and issues relating to fisheries are the responsibility of a number of government ministries, departments and agencies, including:

Ministry of Foreign Affairs, Regional Integration and International Affairs – responsible for ensuring that the outcome of negotiations with respect to fishing access is favourable to the country, and for developing economic and trade relations with third countries and regional bodies;

[88] Available at: http://allafrica.com/stories/201509031504.html?aa_source=nwsltr-oceans-en

Ministry of Finance and Economic Development – responsible for issues of taxation, trade and commerce and fiscal planning and control;

The Mauritius Police Force – the national law enforcement agency. It includes divisions and branches that include an air wing Police Helicopter Squadron, a Maritime Air Squadron and a naval wing-National Coast Guard;

Ministry of Technology, Communication and Innovation – assists with all aspects of the communications and technology especially in respect to MCS;

The Mauritius Ports Authority – a parastatal organisation in Mauritius, it is the sole regulator and manager of the port and its services; and

Board of Investment – the body overseeing any foreign investment in the sector.

Civil society in Mauritius is very active in the environmental sphere and is making strong efforts to restore, protect and replenish corals and coastal habits and to educate youth and tourists. Various non-governmental organisations (NGOs) such as Mauritius Marine Conservation Society, Reef Conservation, Eli Africa, Bird Life International and Mauritius Wildlife Foundation are undertaking projects to contribute to the sustainability of the marine and coastal environment.

Regarding the FPA, an interview with the founder and president of Kalipso, the Mauritian civil society platform, noted in March 2013 ([89]) that local fishers and civil society had mobilised against this agreement based on the low valuation of tuna species caught by foreign fleets compared with the price of tuna on the local market. He noted that fishers' unions and civil society interests had demanded greater transparency in the negotiation process and, for example, access to the minutes of the Joint Committee meetings, the multi-annual sector programme, and the annual evaluations. He noted that a proposal to establish a Mauritian 'consultative committee on fisheries and maritime issues' had been tabled, during interviews in 2015, with various stakeholders and it appeared that this Committee has not been mobilised, possibly due to the changes within the Ministry. The need for such a mechanism was noted by various stakeholders including processors and the ex-chair of a fishermen's group. In particular, the need for dialogue with the government on these issues rather than just information sharing was stressed.

Mauritian Exports Association (MEXA) is a private association of export companies, including fisheries sector exporters. Representatives of MEXA stated that they require access to the resources, a clear set-up for operational procedures to ensure a level playing field and compliance to international regulations such as the Resolutions of the IOTC. They also noted their interest to be able to present projects for Sector Support in addition to government and that local private sector organisations and NGOs should be involved in the development of the sector support programme. They were also keen to ensure that the Sector Support was related to ensuring compliance to regulations and focused on the tuna resources.

Other countries of the IO and members of the IOTC have an interest in the management of the tuna stocks and play an important role through the IOTC in the tuna fisheries of Mauritius. The bulk of the tuna caught in Mauritian waters as well as imported tuna caught in other EEZs of the region is exported after processing. The recipient countries of the tuna caught under the FPA and under other arrangements, including the EU (Spain, Italy and Portugal), China, Kenya, Madagascar, Seychelles, Thailand and USA have a stake in the interest of flow of tuna into these markets. The countries and owners of vessels that fish in Mauritian waters, including Spain, France, Taiwan, Korea and China, have a vested interest in the state of the fishery and the access and management arrangements in place. French and Spanish research institutes (IRD and Instituto Español de Oceanografía (IEO)) also play an active role in science in the region (see Section 2.3).

[89] Available at: http://agritrade.cta.int/Fisheries/Topics/Interview-points-of-view-from-ACP-EU-stakeholders/A-transparent-sustainable-and-equitable-agreement-with-the-EU-will-have-repercussions-for-Asian-fishing-fleets-active-in-Mauritian-waters; an interview was arranged to meet with the founder of Kalipso but unfortunately he was unable to attend and it was not possible to re-schedule.

4.3.3 Monitoring, control and surveillance

The MCS Unit falls within the Fisheries Planning and Management Division that also includes Licensing and Marine Resources Units. In addition to the Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Islands, the National Coast Guard, Mauritius Port Authority and the Ministry of Technology, Communication and Innovation are also involved in MCS activities, as noted in Section 4.3.1, above. The Fisheries Protection Service, established in 2007, is the enforcement arm of the Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Islands. It is staffed by 172 officers and is responsible for control of the fishing activities in the lagoons, the in-shore fisheries, fishing by Mauritian vessels in other country EEZs under bilateral agreements and for joint patrols under regional cooperation arrangements ([90]).

All national and foreign industrial and semi-industrial licensed boats and vessels are required to be VMS compliant. As from the June 2015, they are also required to have AIS transponders on board and may be requested to carry observers. The VMS can monitor the vessels through satellite-based tracking systems. After processing, these data are transmitted to and stored in the database of the Fisheries Monitoring Centre (FMC) at the Albion FRC. The FMC has Inmarsat and Argos VMS, with 113 vessels on Inmarsat and 75 on Argos. In 2012, all national and foreign industrial and semi-industrial licensed vessels were reported to be on the system. The Ministry lacks its own patrol vessel, but recent regional cooperation with IOC MCS project has provided some support. The FMC has participated in the joint patrols and in some cases the FMC has provided the mission coordination centre. A recent additional to the MCS tool-kit has been an armed national coastguard vessel that is available for sharing information on fisheries sightings it is not used for routine fisheries inspections but would in principle be available for fisheries inspections if needed.

The surveillance of the maritime zones of Mauritius is under the purview of the National Coast Guard, which uses three aircraft to monitor the EEZ. The Fisheries Protection Service controls illegal fishing in the lagoons, participates in joint surveillance activities in the maritime zones with the National Coast Guard and assists in the implementation of port state measures in Port Louis (see Table 4-2). Mauritius has only one port of entry at Port Louis (as defined under the Ports Act). All foreign fishing vessels calling to Mauritius are inspected upon arrival and during offloading. Mauritius deposited its instrument of accession to the Director General of the FAO with respect to the Port State Measures Agreement on the 31 August 2015.

Mauritius is a member of FISH-i Africa ([91]), a regional task force of seven countries in the western IO that cooperate to share information and intelligence with the support of an international technical team in order to encourage national actions. The task force has been active since 2012 and has to date had various successes in shining the spotlight on cases of illegal fishing and crime in the fisheries sector that, in some cases has resulted in legal action ([92]). The FISH-i Africa task force is demonstrating the value of regional cooperation and provides capacity building for those engaged.

Currently, fishing vessel logbooks are returned to Albion FRC, verified against data reports received by the FMC and non-conformities recorded. Non-conformities are usually related to vessel positions and failing to report entry and exit to the FMC. In 2012, of the 149 logbooks checked, 39 non-conformities were found resulting in the USD 1 000 deposit not being refunded for these vessels. Mauritius is in the process of procuring an electronic reporting system with the support of sector support from the FPA and which should facilitate improved cross-checking of information.

[90] Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Island, found at: http://fisheries.govmu.org/English/Departments/Fisheries%20Protection%20Service/Pages/default.aspx

[91] See: www.fish-i-africa.org

[92] Ibid.

Table 4-2: Summary of calls into Port Louis by foreign fishing vessels and number of inspections made

Year	Number of fishing vessel visits	Number of inspections made
2012	673	673
2013	831	831
2014	783	783

Source: Compiled from Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Islands information.

The Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Islands has adequate land-based infrastructure and facilities needed to carry out MCS operations, including office space, computers and internet and satisfactory transport. The need for greater capacity building of the staff and facilitation of the staff to regularly participate in regional initiatives needs strengthening if the Ministry is to enforce the national and regional regulations adequately.

See Annex H for a gap analysis of the MCS capacity of Mauritius.

4.3.4 Catch certification

The EU adopted EC Regulation 1005/2008 to prevent, deter and eliminate IUU fishing on 29 September 2008. The regulation, which came into force on 1 January 2010, requires that all imports and landings into the EU of fish and fish products require a catch certificate. Mauritius responded with the Fisheries and Marine Resources (Export of Fish and Fish Products) Regulations of 2009 and the Fisheries and Marine Resources (Export of Fish and Fish Products) (Amendment) Regulations 2012 (see Section 4.1.1).

The Seafood Hub of the Ministry is recognised as the Competent Authority of Mauritius and is empowered to issue an authorisation for export. The prospective exporter is required to provide details of the consignment (species, product type, quantity and source of the fish), the name of the exporter, details of the consignee, the date of shipment, the name of the vessel and container number. The approval to export must be accompanied by a health certificate and a validated Mauritius Catch Certificate ([93]).

The industry reported that the system for catch certifications was improving, but that it was still a paper system. Initially there were problems due to captains' estimates being different to the sorted quantities by species, so now they issue a provisional certificate and only issue the final one after sorting. It was noted that the pure volume of paperwork required for each container, more than 200 pages, makes validation or cross checking challenging.

4.3.5 Seafood hygiene and safety procedures to export fishery products

In addition to the requirements set by Mauritius (listed in section 4.1.3), all imports of fishery products into the EU are subject to official certification by the Competent Authority of Mauritius, that is a Unit within the Ministry. Mauritius is presently listed in Annex II of Commission Decision 2006/766/EC ([94]) establishing the list of third countries and territories from which imports of fishery products in any form for human consumption are permitted. The Competent Authority is responsible for audit of fish processing plants; inspection of fishing vessels; inspection of landing sites; and sampling of fishery products, water and ice for testing microbiological and physico-chemical parameters.

A mission by the Food and Veterinary Office of the EU DG Health and Food Safety ([95]) (DG Santé, previously DG SANCO) to Mauritius in March 2014 aimed to assess the sanitary conditions for fishery products exported

[93] Ministry of Fisheries, 'Export Fish and Fish products', found at: http://www.mauritiustrade.mu/file.php/MINISTRY-FISHERIES-export.pdf?id=281_official_text_file1

[94] Annex II of Commission Decision. Available at: http://www.megapesca.com/eu_regulations_update/Decision_2006_766_EC_06_November_2006.pdf

[95] EU DG Health and Food Safety. Available at: http://ec.europa.eu/dgs/health_food-safety/index_en.htm

to the EU. In general, the mission found that the competent authority was able to offer adequate guarantees concerning the quality of the fishery products exported to the EU, other than those derived from aquaculture. The report notes that the Competent Authority has implemented actions to address three out of seven recommendations of the previous audit report. The remaining four are still in the process of being fully addressed. In order to fully ensure that all fishery products exported to the EU respect EU requirements, corrections and improvements are needed, in particular concerning the legislation/standards, the implementation of Hazard Analysis Critical Control Point and its assessment by the Competent Authority, verification of the eligibility of imported fishery products and the storage of frozen final products. In March 2015, the EU wrote to the Competent Authority to give approval that the outstanding issues were compiled with.

The Competent Authority has started making use of TRACES (Trade Control and Expert System) for tracking the export certificates to the EU.

The Competent Authority has assisted Comoros to set up its own Competent Authority through staff training and exchange of checklists and procedures. Mauritius has further cooperated with China, Russia and South Africa and is in various stages of developing Memorandum of Understanding with these countries with respect to export of fish and fishery products. They have also had initial contact with Brazil. These new contacts with potential markets are driven by the industry.

It was noted by the Competent Authority that the Ministry of Agro Industry and Food Security are planning to develop a 'food control agency' that would bring all associated agencies together in a similar manner to the fisheries one-stop-shop, where all government administrative aspects of fisheries services are maintained together within the Mauritius Port Authority. The service aims to facilitate seamless import and export clearances for business operators of the seafood industry, it comprises of government departments covering, Veterinary Services, Customs and Excise Department and the Passport and Immigration Office.

The Competent Authority has developed three proposals for capacity building within their staff these may be useful for consideration in future Sector Support and have been summarised in Annex G.

4.4 National tuna management and development plan

No tuna management or development plan exists in Mauritius. A Fisheries Master Plan ([96]) for Mauritius was developed with support from the ACP Fish II Project and completed in May 2011. The plan requires funding of MUR 64 million (EUR 1.8 million) to implement all seven strategic objectives, and the Director of Fisheries reported that some projects are already being implemented – even though the Master Plan is awaiting approval by the Cabinet. Delays appear to be due to the establishment of the new Ministry. The Master Plan deals with tuna but is not specifically a tuna plan. The national tuna management and development planning takes place within the framework of the IOTC (Section 3.2).

4.5 Onshore fisheries investment plan: current and future

The Government of Mauritius has established a Board of Investment, which offers investment opportunities in fisheries, trans-shipment, storage and warehousing, and processing of fisheries products ([97]). It also offers investment opportunities in aquaculture, both in lagoon and inland cage culture, and seeks to encourage investment in tuna ranching and fattening in cages ([98]).

[96] Available at: http://acpfish2-eu.org/uploads/projects/id9/110613%20Final%20Technical%20Report%20FINAL.69-184.pdf

[97] Available at: http://www.investmauritius.com/investment-opportunities/seafood.aspx

[98] Available at: http://www.investmauritius.com/investment-opportunities/aquaculture.aspx

4.6 Implementation of the fisheries policies and management plans

Over the last year, the Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Islands was formed. The formation of this new Ministry has been a lengthy and challenging task for the organisation. The restructuring has, among other things, aimed to bring previously disparate aspects of ocean economy and management into closer cooperation. The benefits of this, and the support it may provide to implementing fisheries policy and management plans, is only starting to be felt and the new framework provides a strong platform for improvements to be made.

It is expected that the enactment of the new fisheries act will add further momentum to this process. For the tuna fishery, the new act will bring many resolutions of the IOTC into the legal framework and thus place Mauritius in a stronger position to negotiate sustainable access plans for tuna resources.

The fisheries policy is currently embedded within the overall Government Programme, which to date is still broad and requires further definition at the sector level. Two management plans have been developed for the banks fishery and the deepwater snapper fishery. These are in the initial stages of implementation, and although it is too early to judge whether their implementation is providing the hoped-for results, these plans incorporate the ecosystem approach to fisheries (EAF) management cycle, including using best-available scientific advice (social, economic and natural science) as the basis for management. This integrated EAF approach is in line with the overall vision of the Ministry. The newly restructured organisation is starting to put in place other improvements that will assist them to implement these new management plans, the National Plan of Action (NPOA) for sharks and the NPOA for IUU fishing.

The at-sea observer programme is an area in which the Ministry hopes to make progress in the coming years. To date they have trained five observers through the SWIOFP and in addition the countries of Comoros, Kenya, Madagascar, Mauritius and Seychelles have agreed to share regional observers in the future ([99]).

The last published annual report of the old Ministry of Fisheries was some years ago. More recent reports up to the end of 2014 are currently being drafted. It would be beneficial for the Ministry to fast track this process as annual reporting to stakeholders and the public is an important accountability aspect that has fallen behind. Accountability and dialogue with key stakeholders in the sector – the fisheries, processors, investment board, export organisation and NGOs – was given a boost after the negotiation of the current Protocol for the FPA. This process was encouraging, but mainly because of the restructuring has regressed somewhat. It now needs strengthening, and permanent mechanisms need to be put in place for on-going routine dialogue with all interested parties.

Mauritius has started to take a leadership role in the region and to be active in regional collaborations. For example, in the 2014 IOTC Commission meeting Mauritius tabled two Resolutions – one on limiting FADS and one on bycatch – demonstrating its concerns around implementing ocean management and its interest in becoming a champion in this. These motions were also tabled in cooperation with the private sector, another encouraging aspect.

The MCS unit has, since January 2011, detected 12 infractions or has denied unloading or port access. These have occurred on vessels with the following registrations: four from Taiwan, two from Thailand, two from Sri Lanka, one from the United Kingdom, one from Oman, one from Indonesia and one from South Korea. This demonstrated the efforts under way to implement both the national and international legal frameworks for fisheries compliance. However, once again capacity building and greater interactions with regional and international collaborations in the fight against illegal fisheries and associated crimes would strengthen Mauritius's position even more. The lack of a fisheries research strategy and the very limited research taking place at Albion FRC are areas ripe for improvement – particularly in the area of tuna research – to complement the work undertaken in partnership with IOTC. Assistance has been provided by the SmartFish programme to develop plans for improving the research coordination and planning.

[99] Pers Comms, Directorate of Fisheries, Mauritus.

5 Fisheries in Mauritius

5.1 Artisanal fisheries

The artisanal fishery of Mauritius is comprised of small boats, most (85 % in 2012) of which are propelled by around 15 horse power outboard motors, rowing and sailing boats and fishers operating from the shore. The equipment used includes hook-and-line, basket traps, large nets, harpoons, gillnets and cast nets. The area exploited includes the lagoon and the vicinity of the outer reef. The main species caught include red snapper, emperor, unicorn fish and cobbler fish. The Government of Mauritius has taken actions to reduce fishing in the overexploited lagoon by making it more appealing to fish around FADs paid for and maintained by the government. The hope was that local consumers would readily accept the change of supply to tuna and tuna-like species ([100]).

Fisheries data are collected, by enumerators, from 25 fish landing stations selected randomly from the 60 existing ones around the island ([101]). For 2014, the production of fresh fish was estimated at 459 t, comprising 238 t from the lagoon and 221 t from the off-lagoon. The average catch per fisher-day (CPFD) was 5.2 kg. No details on the volumes by species were available.

Table 5-1: Catch, fisher-days and catch per fisher-day, 2010– 2014

Year	Catch (t)	Fisher-days	Catch per fisher-day (kg)
2010	831	128 754	6.5
2011	892	128 613	6.9
2012	705	118 766	5.9
2013	559	111 963	5.0
2014	459	89 037	5.2

Source: Albion Fisheries Research Centre.

During 2014, 16 large nets and four gill nets were operational. The catch was recorded according to gear type, namely basket traps, hooks and lines, basket traps/lines and harpoons/on foot (see Table 5-2). There were 2 038 fishermen involved in fishing activities in 2014.

Table 5-2: Annual artisanal catch (t) by gear, 2010–2014

Year	Line	Basket trap	Basket trap & line	Large net	Gill net	Harpoon / on foot	Total catch (t)
2010	226.68	266.50	27.99	213.50	7.60	89.09	831.37
2011	185.27	302.90	24.86	280.99	23.88	74.33	892.23
2012	180.10	274.60	20.42	170.94	6.55	51.96	704.57
2013	150.37	208.13	33.63	117.18	7.17	42.83	559.31
2014	164.07	172.06	38.57	52.79	3.84	28.27	459.59

Source: Albion Fisheries Research Centre.

[100] Soobaschand Sweenarain, Value Chain Assessment of the Artisanal Fisheries – Mauritius, SF/2012/8, page 29, June 2012. Retrieved from: http://www.fao.org/3/a-az114e.pdf

[101] Pers. CommsComm., Albion Research Centre 'since February 2015, due to a shortage of staff data collection was not undertaken.'

The price of fish has steadily increased in the last five years. Homard (lobster) is the most expensive species, commanding MAU 885 per kg. However, if lobster is removed, the average for other species is around MAU 200 per kg.

The net fishery is regulated in terms of prescribed size of mesh and length of net, renewal of worn-out nets and a closed season of five months from October to February annually ([102]). Other measures include the banning of the imports of small hooks and a crackdown on illegal fishing ([103]). The net fishery is being minimised by the government through buy backs in order to reduce overexploitation in the lagoon (see Section 6.9). Approximately 1 500 t of fish and 400 t of cephalopods are captured annually, and the majority of the catch is consumed locally ([104]).

An important artisanal industry exists on the island of Rodrigues, which employs approximately 1 500 people. Of whom it is estimated that 500 are women who specialise in octopus hunting on the reef shallows. The remaining 1 000 people are active in the harvesting of cephalopods and coastal fish.

The open access nature of the artisanal fishery makes implementing coastal fisheries management measures challenging ([105]). In the lagoon areas, marine stocking and ranching is taking place in an effort to restore the depleted areas: 1.4 million sea bream fingerlings have been released per year in the last three years in the hope that they will have a positive effect on the fish populations. At the time of writing this report, it was too early to ascertain if the project has been successful.

5.2 Semi-industrial non-tuna fishery

Five vessels fished on the shallow banks of Saya de Malha and Nazareth in 2012, and the same number were reported to be active in 2015. This was a reduction from a high of 10 in 2009. Fifteen fishing trips with an average of 54 days per trip were made. Two of the vessels are locally owned but registered elsewhere, one in Comoros and one in Madagascar, the others are registered to Mauritius. They produced 1 281 t of frozen fish, mainly lethrinids (91 %) and snappers/groupers (9 %) from a total of 431 fishing days in 2012.

The St Brandon fishery has six carrier vessels. Thirty contracted fishermen and 20 fibreglass dories make excursions to capture fish by line and return them to the mother carrier vessel. These fish are either frozen, chilled or salted. In 2012, a total of 180 t of fish was caught in this way.

Sixteen boats were active on Albatross, Soudan and Nazareth banks. In 2012, they completed 119 trips with an average of 12 days each, bringing back 211 t of chilled fish and 19 t of frozen fish. These included 1.55 t of tuna and other species.

Table 5-3 demonstrates the catch by main species in 2012 to 2015. Tuna and tuna-like species were not recorded separately, and are therefore assumed to be of minor importance.

[102] Soobaschand Sweenarain, Value Chain Assessment of the Artisanal Fisheries – Mauritius, SF/2012/8, page 30, June 2012.

[103] Fish Resources in the Lagoon and Off-lagoon.

[104] Convention Spécifique N°34 : Ex-Ante Evaluation Of Existing Conditions In The Fisheries Sector In Mauritius With A View To Concluding A New Fisheries Partnership Agreement And Protocol, Rapport final, page 19, October 2011.

[105] Soobaschand Sweenarain, Value Chain Assessment of the Artisanal Fisheries – Mauritius, SF/2012/8, page 28, June 2012.

Table 5-3: Summary of banks fishery catches by hand line, 2012–2015

Year	Lenthrinidae	*Aprion virescens*	Luntjaindae	Serranidae	Other	Total catch (t)
2012	1 506.4	27.94	3.45	103.3	16.4	1 657.5
2013	1 727.1	31.6	2.0	141.9	20.12	1 922.7
2014	1 448.8	34.2	1.9	157.2	14.15	1 656.3
2015	534.9	12.4	3.2	47.9	1.39	599.8

Source: Albion Centre, compiled by the consultant.

5.3 Aquaculture

Commercial aquaculture consists of the production of giant freshwater prawn, red tilapia and marine red drum fish, rabbit fish and sea bream. Today, aquaculture contributes USD 2 million annually to the Mauritian economy ([106]) and a total production of approximately 0.6 t ([107]). The Board of Investment estimates that aquaculture in Mauritius could produce between 300 and 500 t per production unit in lagoon cage culture and from earthen pond culture along, or on, the coastal belt; and 2 000 t per production unit of offshore cage culture ([108]). An Aquaculture Master Plan has been developed and is being implemented to assist in realising this. Effort is being put into developing marine farming using floating net cages and the government is funding cages and fingerlings and some feeds in the hope of realising some of these estimates. Freshwater aquaculture has been attempted multiple times throughout Mauritian history. However, mainly due to a lack of demand on the local market, only small-scale producers persist ([109]).

In-lagoon aquaculture has also emerged recently, with 15 sites available for marine aquaculture. Farming of high-value and niche products such as seaweed, oyster and oyster pearl, crabs, sea urchins and other shellfish is also being encouraged. Further growth in aquaculture production is identified as having multiple positive impacts for Mauritius: for example, providing Mauritians with good-quality, affordable sea food; diversifying the raw materials supply base from Mauritian fisheries for both domestic consumption and export; increasing sustainable production of sea food; and encouraging foreign investment ([110]).

5.4 The tuna fisheries in Mauritius

5.4.1 Industrial/Non-industrial fisheries

In 2009, it was reported that about 300 t of tuna was caught annually by artisanal and semi-industrial fishers and 350 t was caught by the sports fishery ([111]). However, due to the demise of the capacity at Albion FRC, no official updated figures are available. From information available[112], it appears that the catch today may be lower, due mainly to the aging and inefficiency of the vessels, which reduces their ability to go to sea for longer periods. The non-industrial fisheries largely supply the domestic market where traditionally there is a preference for reef

[106] Gary Morgan, Ross Shotton and David Russell, Elaboration of a Fisheries Master Plan for Mauritius, page 18, May 2011

[107] Pers. Comm., Fisheries Directorate of Mauritius.

[108] Board of Investment and Ministry of Agro-Industry and Fisheries, Potential for Sustainable Aquaculture Development in Mauritius, page 11, December 2007.

[109] Gary Morgan, Ross Shotton and David Russell, Elaboration of a Fisheries Master Plan for Mauritius, page 18, May 2011

[110] Board of Investment and Ministry of Agro-Industry and Fisheries, Potential for Sustainable Aquaculture Development in Mauritius, page 2 and 3, December 2007.

[111] Ibid.

[112] Pers. Comm., Fisheries Directorate of Mauritius.

and demersal fish caught in the lagoon and off-lagoon ([113]). These reef and demersal stocks are fully fished and the government has provided a range of incentives with the objective of diverting fishing effort away from the coastal zone to deep-sea demersal and large pelagic species. To this end, the government has anchored FADs some 5–10 nautical miles outside the lagoon and maintains and renews them when necessary ([114]). However, to meet domestic fish demand, it appears that there is a need for a nationwide campaign to persuade consumers to modify their consumption habits in favour of tuna and tuna-like species ([115]).

Industrial fishing vessels currently targeting tunas in Mauritian waters include national and foreign vessels. The vessels that received fishing authorisations in 2014 and 2015 from the Mauritian Government are provided in Table 5-4. These data are compiled from licence lists and further information provided by the Licensing Unit.

[113] Sweenarain, Soobaschand, 2012. Value Chain Assessment of the Artisanal Fisheries – Mauritius. SmartFish Report SF/2012/8.

[114] FAO Fishery Country Profile, 2006: The Republic of Mauritius.

[115] Sweenarain, Soobaschand, 2012.

Table 5-4: Fishing authorisations issued by Mauritian Government, 2014– 2015

Vessel type	Number of fishing authorisations	Number of vessels	Flag of vessels	Agreement type
2014				
Purse seine	13	13	France	EU
	1			Private*
	14	14	Spain	EU
	9			Private*
	25	9	Seychelles	Seychelles
	1	1	Korea	Private
Total	**63**	**37**		
Longline	16	16	France	EU
	1	1	Seychelles	Seychelles
	6	6	Indonesia	Private
	5	5	Malaysia	Private
	74	70	Taiwan	Private
	2	2	Japan	Japan
Total	**104**	**100**		
Handliner	5	5	Comoros	Private
Total	**5**	**5**		
2015 (to October)				
Purse seine	13	13	France	EU
	18	18	Spain	EU
	7	7	Seychelles	Seychelles
	1	1	Korea	Private
	7	7	Mauritius	Private
Total	**46**	**46**		
Longline		16	France	EU
		2	Seychelles	Seychelles
		3	Thailand	Private
		65	Taiwan	Private
		1	Japan	Japan Agreement
		1	China	Private
Total		**88**		
Handliner	1	1	South Africa	Private
	2	2	Comoros	Private
Total	**3**	**3**		

Source: Compiled by consultant based on licence lists and information from the Licensing Unit. * Private agreements existed for EU vessel owners prior to the FPA Protocol coming into force.

Table 5-5 provides an overview of the different financial contributions by sector for each element of the fleet in 2014 as reported by the Licensing Unit. There were some discrepancies between information provided on the number of authorisations and financial compensation, but withstanding this, the total contribution from vessel authorisations in 2014 was reported to be EUR 1 739 254, the EU contributed 21 % of this and the largest contributor to the income came from the foreign longliners, mainly Taiwanese at 51 %. If the Sector Support is included in the EU contribution, an additional EUR 302 500, this would increase the total contribution to EUR 2 041 754 with the total EU contribution being 32 % and that of the foreign longliners 44 %.

Table 5-5: Direct income for fishing authorisations issued in 2014 (EUR total and %)

Payment source	USD	EUR	%
EU payment total (excluding sector support)		357 500	20.55
EU vessel owner contribution for authorisations under FPA		120 165	6.91
EU vessel owners private (before FPA*)	156 800	115 562	6.64
Japanese vessel owners	26 000	19 162	1.10
Seychelles vessel owners	148 340	109 326	6.29
Private purse seine vessel owners	26 200	19 309	1.11
Private longline vessel owners	1 205 300	888 306	51.07
Mauritian purse seine	142 400	104 949	6.03
Foreign non PS or LL	6 750	4 975	0.29
Total payment for access		1 739 254	100.00

Source: Licensing Unit of Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Islands, including VMS fee and non-refunded logbook fees, and extensions. * Private agreements existed for EU vessel owners prior to the FPA Protocol coming into force.

Catch data collected by Albion FRC is derived from vessel logbooks, although staff at Albion FRC reported that this information is fragmented and incomplete and that they do not systematically analyse the catch data for foreign vessels fishing with Mauritian waters.

Five local semi-industrial boats undertook 54 trips in 2012 and unloaded 36 t of pelagic fish in chilled form. The CPUE was 0.2 kg per hook. Catch composition was: swordfish 47 %, yellowfin 16 %, albacore 15 %, bigeye 8 %, and marlin 4 %. Refer to Table 5-6 and Table 5-7 for the catches by foreign purse seiner vessels within the Mauritian EEZ and for Mauritian purse seine vessels for the western IO and the total for the waters of Mauritius respectively.

Until 2012, the FRC sampled length-frequencies from tuna off-loaded in Port Louis. In 2012 a total of 1 317 skipjack, 1 445 yellowfin and 262 bigeye were sampled. In 2012 Albion FRC collected 118 logbooks from foreign longliners with a total catch of 4 207 t of which 3 071 was reported to have been caught in the Mauritian EEZ. Albacore is the target species of the Asian longliners and in 2012 this was 43.5 % of the catch, with skipjack at 17.3 %, yellowfin at 17.1 % and bigeye at 7.1 %.

Five local semi-industrial boats undertook 54 trips in 2012 and unloaded 36 t of pelagic fish in chilled form. The CPUE was 0.2 kg per hook. Catch composition was: swordfish 47 %, yellowfin 16 %, albacore 15 %, bigeye 8 %, and marlin 4 %.

Table 5-6: Total tuna catches (t) by foreign-flagged purse seine vessels in the waters of Mauritius, 2012– 2014

Year	Yellowfin	Skipjack	Bigeye	Albacore	Total catch	Fishing days
2012	890	195	26	169	1 280	51
2013	1 020	248	108	10	1 386	62
2014	13	62	7	0	82	5

Source: Compiled from Albion FRC.

Table 5-7: Total tuna catches (t) by Mauritian flagged purse seine vessels in the western IO and in the waters of Mauritius, 2013–2014

Year	Yellowfin	Skipjack	Bigeye	Albacore	Others	Total catch	Catch in Mauritian waters
2013	352.00	476.00	27.00	-	-	855.00	0
2014	4 024.80	3 031.71	539.80	45.50	142.35	7 784.16	13

Source: Compiled from Albion FRC.

5.4.2 IUU fishing

Mauritius has an MCS Unit (see section 4.3.3), which has responsibility for combating IUU fishing. The major IUU activity in Mauritius is potential poaching by unlicensed foreign vessels and illegal trans-shipment of tuna catches at sea in order to hide where the fish has been caught ([116]). A notable high point for Mauritius in taking action over IUU fishing was its refusal to allow F/V Premier to offload its catch in Mauritius because of its involvement in illegal fishing in the west African region and a united front made by IO coastal states to act in solidarity and refuse this vessel port services ([117]). This action helped demonstrate the effectiveness of port state measures and regional cooperation in the fight against IUU fishing.

Common violations identified by the FISH-i Africa Task Force that occur within the western IO include[118]: fishing without authorisation; illegal trans-shipment at sea or in port; provision of false, inaccurate or incomplete information; making or use of fraudulent documentation; trading in illegal fish; and corruption of licensing officers, inspectors or observers. Annex I identifies the Mauritian legal framework to respond to these and shows both strengths and weaknesses of the current framework. It is anticipated that some of the weaknesses will be strengthened in the new framework being developed.

The occurrence of multiple fishing vessels operating under one identity and inaccurate reporting of vessel details, assumedly to cover up an illegal or delinquent past is increasingly being uncovered, particularly in longline vessels within the western IO ([119]). Port Louis, as the operational base of many Asian longliners in the western IO, is now working with the neighbouring coastal states through initiatives such as the EU supported Regional Plan for Fisheries Surveillance ([120]) in the southwest Indian Ocean and the FISH-i Africa initiative. Through these initiatives, and by implementing its own PSM, Mauritius has shown an increasing commitment to fight IUU fishing and to share information and intelligence in order to ensure that the fleets operating from its port are legitimate. The EU has been a partner in supporting Mauritius and the region in fighting IUU fishing, such as through the Regional Plan for Fisheries Surveillance. The processing industry and the vessel owners' associations fully support this approach and are united with the government in taking a strong stance on no tolerance to IUU fishing in their waters.

5.4.3 Piracy impacts

Somali piracy has been a problem in the region since the 1990s, with serious and costly impacts for some countries close to Somalia. Mauritius being further southeast has not felt the direct impact as strongly as neighbouring countries but the secondary impact has affected the entire western IO. For example, the fear of piracy forced the longline vessels to relocate away from fishing grounds close to Somalia, such as Kenya and northern Seychelles, to more southerly fishing grounds. This has reportedly reduced the CPUE and thus the

[116] Stop Illegal Fishing, Country Profile: Mauritius.

[117] Available at: http://www.stopillegalfishing.com/sifnews_article.php?ID=109

[118] Pers.Comms. Compliance officer of Mauritius.

[119] See for example, www.fishcrime.info and http://www.stopillegalfishing.com/sifnews_article.php?ID=151

[120] Its main objective is to fight against illegal, unregulated and unreported (IUU) fishing. The Regional Plan aims to reduce IUU fishing in the region, to contribute to fisheries resources conservation and sustainable management, and to improve surveillance in the Indian Ocean. It also contributes to the sustainable management of fisheries resources in the Indian Ocean and the promotion of responsible fishing.

overall catches. The impact on purse seiner fishing patterns has been less significant from a fishery perspective since they have been permitted to go fishing with armed teams on board: the French and Spanish purse seiners may carry up to five security personnel provided by the military (French) or by a private security company (Spanish). The impacts for purse seiners have been in relation to the cost incurred for this security. The threat of piracy has reduced significantly in the western IO, with fishing vessels reportedly reducing their security personnel. However, in November 2015, Somali pirates are reported to have seized an Iranian fishing boat with 15 crew that was fishing reportedly illegally in Somali waters ([121]), demonstrating that the threat is still active.

Piracy in the western IO in general has reduced the ability of governments to monitor the fishery for compliance as national resources, especially coastguards, have been dedicated to the counter-piracy actions. Consequently, and for operational reasons, scientific research and observation of the fishery have been reduced; the at-sea observer programme has been notably set back by the pirate attacks. There was no reported evidence that port activity had been reduced negatively due to piracy in Port Louis, it may have increased due to longliners locating further south and east.

Although Mauritius was not in the epicentre of the piracy threat, since 2010 it has been proactive in the fight against piracy. Mauritius organised the 2nd regional ministerial meeting to fight piracy and promote maritime security in October 2010. This meeting was co-chaired by the EU. In 2011, Mauritius also signed a transfer agreement for captured suspected pirates with the EU. To help Mauritius absorb some of the economic costs, the EU allocated EUR 3 million to support anti-piracy actions. The EU also contributed EUR 1.08 million to the United Nations Office for Drugs and Crime to implement the Joint Counter Piracy Programme in Mauritius until 2013. In 2011, Mauritius passed legislation to permit the prosecution of suspected pirates in Mauritius, namely the Piracy and Maritime Violence Act. The current threat of piracy to EU fishing vessels operating in the waters of Mauritius appears to be low.

5.5 The onshore tuna industry

5.5.1 Ports and infrastructure

Port Louis is by far the most important port in Mauritius, including for the fishing industry. More than 2 200 vessels call at Port Louis annually, roughly one third of which are fishing vessels, (see Table 5-8) ([122]). The harbour has 783 metres of quays that are mainly used by fishing vessels or reefers ([123]). Port Louis has a free port, facilitating processing of imported fish destined for export.

- In 2014, 62 121 t of fish was trans-shipped through Port Louis ([124]), and in 2012, 40 221 t were trans-shipped in the following composition: albacore 37 %, yellowfin 20 %, bigeye 8 %, skipjack 6 %, swordfish 6 %;
- In 2012, 2 242 t of Patagonian toothfish was trans-shipped in Port Louis by French and Australian vessels; this figure has been steadily increasing in the last years;
- In 2012, 3 266 t of deep-sea fish was trans-shipped from deep-sea trawlers, species were mainly alfonsino, cardinal, orange roughy and spiky dory;
- Consultations with the industry in Mauritius noted an interest to develop the capacity of Port Louis to improve the offloading in port.

[121] Available at: http://www.stopillegalfishing.com/news_article.php?ID=1761

[122] IBL Maritime. Available at: http://www.iblmaritime.com/en/portfacilities/

[123] Ibid.

[124] Pers. Comm., Fisheries Directorate.

Table 5-8: Visits to Port Louis by fishing vessels, 2011– 2014

Type of vessel	Flag country	Number of calls			
		2011	2012	2013	2014
Reefer	Taiwan (Province of China)	7	9	8	6
	Bahamas	4	1		
	Indonesia	6	1		
	Netherland Antilles	7	7	1	4
	Mauritius	6	6	10	5
	Malaysia	9	5	7	5
	Spain	2	1	2	
	Thailand	2	4		
	Kiribati				4
	Vanuatu	3	2	6	4
	Japan				1
	Lithuania				1
	Malta				2
	Curaçao		2	1	
	Panama	8	8	6	7
	Singapore	1		1	2
Squids	Taiwan (Province of China)	8	3	1	1
	Liberia				1
Trawler	Japan	2	2	4	3
	Cook Islands	5	5	3	3
	Australia	4	3	4	3
	France	2			1
	South Korea	1	4	4	1
Purse seiner	France	32	36	35	26
	Seychelles		1	1	
	South Korea			2	1
	Portugal			1	
	Mauritius			1	
	Spain	2	2	6	2
Tuna longliner	Taiwan (Province of China)	307	392	523	577
	Indonesia	55	43	52	37
	Malaysia	50	22	21	8
	France			2	1
	Seychelles	10	18	18	6
	South Korea	5	13	9	4
	Belize	18	12	10	4
	Spain	8	11	24	7
	China		9	8	28
	Oman	12	9	4	1
	Philippines		8	6	1
	Japan	3	7	7	2
	Singapore				1
	Thailand		4	3	2
	Tanzania				1
	Portugal	3	4	11	4
	United Kingdom	4	3	4	3
Longliner for Patagonian toothfish	France	15	9	15	3
	Australia	6	5	10	10
Basket traps	France		2		
TOTAL		**612**	**673**	**831**	**783**

5.5.2 Fish processing, distribution markets and trade

The Mauritian seafood-processing sector is well developed compared to that in other Indian Ocean islands. Mauritius is attracting investment because of longstanding political and economic stability and the proactive approach of the Mauritian authorities. Mauritius is also developing as a seafood hub to offer integrated services for the seafood industry, including processing facilities, cold stores and a shipyard.

In May 2015, the DG Santé listed 11 processing plants and two cold stores as meeting EU sanitary and phyto-sanitary standards. Most are in Port Louis on the northwestern side of the island (seven processing plants and two cold stores). The remaining plants are in Pamplemousses (two) and Rivière du Rempart (one).

At the end of 2014, the two largest companies on the island, Princes Tuna and Thon des Mascareignes (TdM), announced they were to merge ([125]). The Mauritian authorities have validated the merge at the beginning of 2015 ([126]). Princes Tuna is a subsidiary of the British group Princes Ltd, a part of the Japanese multinational company Mitsubishi. It currently employs 4 100 staff. Historically, the major producer of canned tuna, the group has extended its product range to offer tuna loins to foreign canneries (mainly in Europe and in the Unites States of America (USA)) and pouches for foodservice and industrial customers. Princes' cans are distributed by the Princes Group, which has large market shares in the United Kingdom and Germany. Before the merger, TdM was an important producer of tuna loins, a semi-finished product destined to be used by European canneries in Spain, Italy and France for the manufacture of canned tuna under other European brands. TdM was also manufacturing niche value-added tuna products (tuna in glass jars, tuna meat in pouches). Princes Tuna is historically linked to Echebastar and Albacora, two Spanish fishing companies deploying several purse seiners in the Indian Ocean. With two factories on the island, Princes is able to process almost 500 tonnes of tuna per day (280 tonnes into tins and 210 tonnes into loins and pouches). The two main species processed are skipjack and yellowfin tuna. The two factories are certified to the major standards requested by large retailers: International Featured Standard, British Retail Consortium Global Standard, Social Accountability SA8000 and Marine Stewardship Council Chain of Custody, but are unable to source any certified fish.

Mer des Mascareignes is another important processing company in Mauritius. It is a joint venture between Ireland Blyth Limited and Sapmer. Ireland Blyth Limited is a publicly owned Mauritian operator while Sapmer is a French fishing company that has several purse seiners operating in the Indian Ocean, notably in the Mauritian fishing zone under French (five vessels) and Mauritian (two vessels) flags. Mer des Mascareignes specialises in dry frozen products maintained at -40 °C to -60 °C. The Sapmer vessels are able to dry freeze their catch at -40 °C on board. The overall objective is to supply the Asian markets for direct consumption (sushi, sashimi) as tuna dry frozen at -40 °C can be consumed directly, unlike tuna species frozen in brine at -9 °C, which have to go through a sterilisation process (canning) before consumption. Until the beginning of 2015, Mauritius was Sapmer's operational base, with purse seiners landing their catch in Port Louis. The recent relocation of the operational base to Victoria (Seychelles) has led to a question mark over the economic viability of Mer des Mascareignes as there needs to be a complex deep-frozen logistics chain linking Victoria and Port Louis. The company is a certified 'Friend of the Sea', is a member of the 'Dolphin Safe' programme and is recognised for 'Responsible Fishing' by Bureau Veritas. The company is currently seeking the SA 8000 accreditation (social accountability).

Exports of fish and fish products constitute an important source of foreign exchange earnings and generate a significant amount of employment and indirect income in Mauritius. In recent years, the value of seafood exports has risen constantly and reached USD 455 million in 2014, 75 % higher than the figure for 2007 (see Table 5-9). Seafood exports represent between 15 % and 20 % of the country exports. There is a strong dependence on the European market, with more than 80 % of the value exported reaching the EU market every year (see Table 5-10).

[125] Available at: http://www.iblgroup.com/fr/news/details/36

[126] Available at: http://www.orange.mu/kinews/dossiers/business/398821/seafood-hub-et-princes-tuna-fusionnent.html

Preserved fish is by far the most important category of product for the Mauritian seafood industry, representing between 75 % and 80 % of seafood exports (in value) (see Table 5-10). This kind of product is almost entirely absorbed by the EU market, with only 2 % to 4 % of the value exported to non-EU markets.

The second most important export category is whole frozen fish. Again, the EU is the major importer, accounting for 41 % of the value exported for this category. The top four importers of frozen products (EU, Taiwan, Thailand and Japan) account for more than 80 % of the value exported from Mauritius.

Table 5-9: Value of seafood exports for Mauritius. Value in thousand USD.

	2007	2008	2009	2010	2011	2012	2013	2014
Live fish	96	113	75	104	124	91	101	92
Fresh fish (whole)	967	631	691	1 185	1 498	989	6 322	8 276
Frozen fish (whole)	60 631	59 807	57 781	68 565	48 618	65 864	82 883	88 964
Fish fillets	495	574	2 927	1 806	4 908	7 564	8 352	37 310
Cured and smoked fish	443	472	1 036	1 346	937	874	880	113
Crustaceans	138	0	14	166	746	994	874	289
Molluscs	653	228	244	167	52	6	31	16
Prepared/preserved fish	198 692	219 548	220 726	250 299	277 545	344 587	375 617	320 334
Prepared/preserved crustacean and molluscs	32	1	10	1	14	13	18	12
Total seafood exports	**262 147**	**281 374**	**283 504**	**323 639**	**334 442**	**420 982**	**475 078**	**455 406**
Total Mauritian exports	2 228 669	2 401 466	1 765 792	1 849 522	2 255 421	2 257 737	2 341 299	2 662 999
Share of seafood in total export value	12 %	12 %	16 %	17 %	15 %	19 %	20 %	17 %

Source: UN Comtrade.

Table 5-10: Share of seafood exports absorbed by the EU market

	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)
Live fish	76	58	60	22	46	25	48	79
Fresh fish (whole)	58	89	89	55	45	53	16	16
Frozen fish (whole)	25	32	41	25	43	40	31	41
Fish fillets	93	88	81	61	42	32	34	33
Cured and smoked fish	95	88	83	91	95	84	94	50
Crustaceans	83	0	7	100	90	100	100	100
Molluscs	6	0	21	5	100	100	97	81
Prepared/preserved fish	97	97	96	98	96	97	98	97
Prepared/preserved crustacean and molluscs	44	100	90	100	100	100	815	75
All seafood exports	**80**	**83**	**85**	**82**	**88**	**87**	**84**	**79**

Source: UN Comtrade.

Mauritius enjoys duty free access to the EU market for originating products under the terms of the Interim Economic Partnership Agreement, as do Seychelles and Madagascar. For non-originating products, Mauritius can use the derogations collectively granted to iEPA signatories, which are set until 2017 to 8 000 tonnes per year for tuna cans and 2 000 tonnes per year on tuna loins. There is, however, competition with neighbouring countries (Seychelles, Madagascar) as there is no national allocation of this derogatory tonnage. The EU *erga omnes* tariff for tuna cans and tuna loins is 24 %.

Mauritius mainly imports tuna from neighbouring countries (Seychelles) and directly from fishing vessels to be handled by its seafood processors.

5.6 Short-term and medium-term outlook for fisheries

Many of the constraints and possible developments to the tuna fishery and industry in Mauritius have been discussed in previous sections. They include:

- A need for improved cross-checking and triangulation between information, in particular in the VMS and logbook information, to allow a clearer picture of catches within the EEZ and within the Indian Ocean as a whole, especially including the artisanal fisheries. The electronic catch log is likely to contribute to this;
- The use of on-board observers (and a regional programme) offers new opportunities for improving MCS, as does electronic catch reporting and some of the strengthened provisions in the proposed draft fisheries act and regulations including the regulation on VMS, AIS and MCS;
- A new opportunity is likely to be the agreement with the Seychelles to find a sharing mechanism for bycatch that is currently landed in the Seychelles. This may offer new opportunities for the onshore processors. Another possibility could be the access of stakeholders to a free market for the by-catch sorted and stored where supply could meet the demand requirements;
- A constraint is the demand for experienced labour and the challenges for Mauritius to develop this capacity in all areas of the industry. The University and the Maritime Training Academy provide options for bridging skills gaps;
- The threat of piracy does not appear to be a serious issue for vessels fishing in the waters of Mauritius;
- The proposed relocation of Sapmer processing to Seychelles will have an impact on the diversity of production and employment in Mauritius (Sapmer currently employs 70 Mauritians). The nine Sapmer purse seiners (five French, two Mauritian, and two Seychelles registered) are operating out of Victoria in the Seychelles as it is closer to the location of the tropical tunas, so the relocation of the very specialised factory (dry freezing at -40 °C) may be economically justified;
- During the high piracy period, which was 2008 to 2012, the number of purse seiners in the western IO went down to around 30 from approximately 50, although in the last two years the number has risen back to around 50. This increase is also linked to the past high sustainability of the four main tuna species and increasing investment in new vessels, particularly by the Chinese – possibly because Pacific tuna stocks are under pressure and China is subsidising its fleet to encourage expansion ([127]);
- Fish being offloaded in Mauritius from the five newly registered Chinese purse seiners cannot be sold to the EU as the vessels are not authorised by DG Santé, it cannot be sold to SADC due to rules of origin so is exported to China. The first catch figures in late 2013 early 2014 were reported to be low and of limited immediate benefit to Mauritius. However, it is likely that the investment by the Chinese may have other, developmental advantages for Mauritius, for example infrastructure development or other investment projects;
- Mauritian development of a national tuna fleet is a strategic choice that other coastal states are also making for a range of reasons, including to ensure a stake in any future quota allocation within the IOTC framework. With this expansion, Mauritius is keen to take on its flag state responsibilities and to develop its MCS system;
- The accession to the FAO Port State Measures Agreement and its implementation to complement the IOTC Port State Measures Resolution, will provide both an opportunity for improvements in the MCS system in Mauritius and demonstrate the commitment Mauritius has to ensuring compliance to the legal framework set out nationally and by the IOTC;
- The participation by Mauritius in tabling the Resolutions at IOTC on FADs and discards in 2014 was an example of the Mauritian Government and industry working together with other partners to ensure sustainability of the fishery within a regional framework;

[127] Pers. comm., processing industry in Mauritius.

- Market access is increasingly being linked to voluntary labelling and certification, although it appears that attempts to gain MSC certification for some elements of the stock have not been successful. It is likely that the region and the industry will work together to find alternative options for improving and maintaining market access, such as through alternative voluntary certification, possibly linked to the African Eco-labelling Mechanism, improvements in packaging, use of byproducts and identifying and accessing alternative markets.
- The Government of Mauritius is viewing the ocean economy as one of the main pillars it wishes to grow to create wealth and employment. However, sustainability of stocks is at the forefront of these efforts. Unemployment is reported as one of the biggest challenges to the new government and the need to incorporate graduate and school leavers into the work force has been identified. For this reason, it is essential to train crew, observers and other players in the fishery sector – both public and private;
- The Government wishes to benefit more from the sector and be a more active player. This was supported by all local groups interviewed and the wish to partner with industry and the EU was expressed strongly by the government. It was noted that a change model is needed, and more effort is required to build on the current capacity. Mauritius has a large EEZ. Mauritian islands, such as the Agaléga Islands, located closer to the migration of the tropical tunas, may offer options for Mauritius to realise further its vision.
- It seems unlikely that foreign distant-water fleet demand for access to the Mauritian EZZ as part of their regional strategy will change in the near future. In 2015, 46 purse seiners (30 from EU) took up authorisation to fish in the waters of Mauritius. This is almost the entire purse seine fleet in the western IO, clearly demonstrating the importance of this access right. In addition, 88 longliners (16 from EU) took up authorisation to fish in Mauritian waters.

6 The Fisheries Partnership Agreement between the EU and Mauritius

6.1 Evolution of the fisheries partnership agreements between the EU and Mauritius

Mauritius and the EU initialled their first bilateral fishing agreement in 1989. In December 2002, the Commission announced the advent of Fisheries Partnership Agreements ([128]). In July 2004, the EU's Agriculture and Fisheries Council agreed to the Commission's proposal for FPAs ([129]). Through these changes in the detail of the agreements, the relationship continued uninterrupted until expiration of the 2003–2007 Protocol. During this period European tuna vessels were able to access the waters of Mauritius against payment of an annual contribution that included support for the development of the national fishing industry. However, the two parties could not agree on the conditions for its renewal. In 2011, exploratory talks began again and led to the identification of a mutually agreeable fishing agreement. On 23 February 2012, the EU and Mauritius initialled a new FPA and Protocol. During the years that no FPA or Protocol were in force, EU vessels obtained private authorisations from Mauritius to fish within its EEZ.

The new fisheries Protocol covers the period 28 January 2014 to 27 January 2017 with a financial contribution of EUR 660 000 of which EUR 302 500 is for the support of the implementation of the Mauritius fisheries and maritime policies. It allows vessels from Spain, France, Portugal, Italy and the United Kingdom to fish in Mauritian waters and is part of the tuna network fisheries agreements in the Indian Ocean ([130]).

Provision is made in the Protocol for new fishing opportunities (Article 6) and the parties undertook to encourage experimental fishing, especially with respect to under-exploited deep-water species (Article 6.2).

6.2 Management measures applicable under the Fisheries Partnership Agreement

EU vessels must comply with the applicable national legislation of Mauritius (Article 10, Protocol). Legislation relevant to the governance of the fisheries sector is reviewed in Section 4.1 of this report. Both the EU and Mauritius are members of the IOTC. Vessels flying the flag of Members or co-operating non-Members, are obliged to comply with the management measures decided on by the IOTC. The management and technical measures of the IOTC and the functioning of the Compliance Committee are discussed in Section 3.2.1.

6.3 Utilisation

6.3.1 Authorisations and uptake of the fishing opportunities negotiated

All European fishing vessels wishing to operate in the Mauritian EEZ must apply for a Fishing authorisation from Mauritius. Purse seiners are required to pay an advance of EUR 3 710 for a reference tonnage of 106 tonnes of catch, plus a rate of EUR 35 per tonne for any excess catch. Surface longliners are required to pay an advance depending on the size of the vessel. Vessels below 100 GT have a reference tonnage of 50 tonnes, corresponding to an annual advance payment of EUR 1 750. Vessels above 100 GT are granted a higher reference tonnage (90 tonnes), corresponding to a higher advance payment of EUR 3 150.

More than 70 % of the fishing opportunities offered to purse seine vessels were taken by Spanish and French vessels in both years. However, only 10 vessels in 2014 and five vessels in 2015 utilised these authorisations by entering and operating in Mauritian waters. The different vessel owners' associations contacted during this evaluation indicated that the tuna populations were mostly situated outside the Mauritian fishing zone during the first two years of the protocol. However, they stressed the fact that there were important variations in the

[128] Communication from the Commission on an integrated framework for fisheries partnership agreements with third countries, 23 December 2002, COM (2002) 637-final.

[129] Council conclusions on fisheries partnership agreements with third countries, 19 July 2004.

[130] Available at: http://ec.europa.eu/fisheries/cfp/international/agreements/mauritius/index_en.htm

migration patterns of tuna stocks that could not be foreseen at the beginning of the fishing season, explaining why the uptake of fishing opportunities is so important. Some vessel owners also indicated that the Mauritian fishing zone is of key importance should some parts of the region become unsafe (e.g. piracy). In 2014, the French purse seine company, Sapmer, announced that it would relocate its base of operation from Port Louis (Mauritius) to Victoria (Seychelles), in order to reduce the steaming time from the fishing zones to its main landing point. This change is expected to reduce the steaming time by 4 to 6 days per fishing trip (a normal fishing trip lasts 45 days). According to the information gathered during interviews, this does not diminish the importance of the Mauritian fishing zone for these vessels, particularly in the north (notably around the Agaléga Islands).

Only French surface longliners took up the fishing opportunities available in the Mauritian Waters in 2014 and 2015 (see Table 6-1). Just over half (18 out of 29 in 2014) of the fishing opportunities offered to the French longliner fleet were made use of. Vessel owners indicated that no French longliners operated in the Mauritian fishing zone when the FPA was not in force, despite attempts to obtain private licences. This resulted in French skippers fishing elsewhere.

Spanish associations representing longliners were contacted but did not respond to our questions. In recent years, other stakeholders have indicated that Spanish longliners were not operating at the latitude of the Mauritian fishing zone. This may explain why none of these vessels has applied for authorisation to fish in Mauritian waters.

Table 6-1 Utilisation of fishing opportunities provided for in the Mauritian Protocol

Fishery/MS		Fishing opportunities (number of vessels)	2014				2015			
			Uptake	%	Declaring catches	%	Uptake	%	Declaring catches	%
Purse seiners	Spain	22	14	64	4	18	17	77	1	5
	France	16	13*	81	6	38	12	75	4	25
	Italy	2	-*	0	-	0	1	50	-	0
	UK	1	-	0	-	0	-	0	-	0
	Total	**41**	**27**	**66**	**10**	**24**	**30**	**73**	**5**	**12**
Surface longliners	Spain	12	-	0	-	0	-	0	-	0
	France	29	18	62	5	17	16	55	6	21
	Portugal	4	-	0	-	0	-	0	-	0
	Total	**45**	**18**	**40**	**5**	**11**	**16**	**36**	**6**	**13**

*One Italian purse seiner reflagged as part of the French fleet for security reasons. In 2015, this vessel reflagged back.

Source: Data received from DG MARE and Mauritius authorities.

6.3.2 Catches and utilisation of the possibilities negotiated

The total catch by the EU fleet in 2014 within the Mauritian fishing zone was 510 t, harvested by 10 EU purse seine vessels and 5 EU longliners. This represented 9.3 % of the total reference tonnage under the protocol. In 2015, the total catch for the first three quarters was almost equivalent at 489 tonnes (8.9 % of the reference tonnage).

As noted before, the purse seiner associations indicated that tuna resources were mainly concentrated outside the Mauritian fishing zone in 2014 and 2015, explaining the low level of catch recorded for both years. As mentioned in Section 3.4, the migration route of tuna stocks crosses the northern part of the Mauritian fishing

zone. Depending on environmental conditions, concentrations of tuna may migrate on a southern pattern, which would imply larger catch in the Mauritian fishing zone.

The French longliners are only deployed in the western part of the Mauritian fishing zone, as the Mauritian fishing zone is only distant from la Reunion by 80 nautical miles. When there was no agreement with Mauritius, only two longliners operated in the eastern part of the French fishing zone. Once access to the Mauritius fishing area, was assured, more vessels were deployed at same time on the eastern side of La Réunion. However, vessel owners indicated that they do not intend to deploy longliners too far into the Mauritian fishing area. These vessels are landing their catch in La Réunion, as most of the La Réunion sector is vertically integrated with vessels tied to specific processors. Travelling further eastward is not considered a viable fishing option at this time. Vessel owners have also noted that the reference tonnage associated with the larger longliners (90 tonnes per vessel for longliners over 100 GT) is too high to be interesting for these vessels when operated from La Réunion: vessel owners estimate the average annual catch around 20 tonnes for longliners over 100 GT. With a fishing licence at EUR 3 150 per year, the average price per tonne is EUR 157.5 which is higher than the EUR 35 per tonne if the 90 tonnes were caught. It corresponds almost to the average annual tonnage for these vessels as recorded by the DCF; French vessels classed as 18-24 longliners in outermost regions caught on average 99 tonnes in 2013, while the Mauritian fishing zone is only accessed for three to four months a year.

Table 6-2 Declared catch in the Mauritian fishing zone

	2014			2015*		
Species	**Spain**	**France**		**Spain**	**France**	
	Seiners	**Seiners**	**Longliners**	**Seiners**	**Seiners**	**Longliners**
Skipjack	57	149		98		
Yellowfin	85	90	2	62		19
Albacore	48	1	2			7
Bigeye	35	22	4			16
Swordfish			14			24
Other species			2			4
Total per segment	**225**	**261**	**24**	**160**	**259***	**70**
Total		510			489	
% reference tonnage		9.15			8.9	

* Data transmitted for the French purse seine catch in 2015 were not disaggregated. Awaiting French administration to transmit provisional detailed data for purse seiners. Catches for 2015 are provisional and not complete.

Source: Data transmitted by DG MARE.

6.3.3 Total payments made to Mauritius

The EU pays Mauritius a total of EUR 660 000 of which EUR 357 500 is for fisheries access and EUR 302 500 is paid to support the sustainable development of the fisheries sector in Mauritius in accordance with a programme agreed between the two parties (see Table 6-3). The EU and vessel owners paid a total of EUR 480 039 for the access to the Mauritian fishing zone. In 2015, payments for access are EUR 500 440 (EU and vessel owners combined).

Compared to the tonnage actually caught in the Mauritian fishing zone, the total cost for access was equivalent to EUR 941 per tonne in 2014 (EUR 701 per tonne paid by the EU and EUR 240 paid by the vessel owners). In

2015, the total payment per tonne is even higher at EUR 999 per tonne (EUR 714 per tonne paid by the EU and EU 285 paid by the vessel owners). This high level of payment per tonne is due to the low level of catch observed during the two first years of the protocol. If the tonnage were fully utilised, the total payment per tonne would only equate to EUR 100 per tonne.

Table 6-3 Summary of total payment (EUR) made to Mauritius by EU and EU vessels

	Full utilisation			Utilisation 2014			Utilisation 2015 (January-October)		
Segment	Seiners	Longliners 100 GT +	Longliners under 100 GT	Seiners	Longliners 100 GT +	Longliners under 100 GT	Seiners	Longliners 100 GT +	Longliners under 100 GT
Reference tonnage or actual catch (t) (1)		5 500		486	10	14	419	0	82
Reference tonnage per vessel (t) (2)	106	90	50	106	90	50	106	90	50
Excess tonnage caught (t) (3)	n.a.	n.a.	n.a.	0	0	0	64	0	0
% additional tonnage / total tonnage (3)/(1)	n.a.	n.a.	n.a.	0	0	0	15%	n.a.	0%
Fishing licences (4)	41	45		27	2	15	30	1	15
Annual advance payment fee (5)*	3 710	3 150	1 750	3 425	2 908	1 616	3 710	3 150	1 750
Additional fee per tonne (6)		35			35			35	
Total advance payments (7) = (5)x(4)	152 110	between 78 750 and 141 750		92 586	5 817	24 236	111 300	3 150	26 250
Payment for excess tonnage (8) = (3)x(6)	n.a.	n.a.	n.a	0	0	0	2,240	0	0
Fleet payments by segment (9) = (7)+(8)**		**192 500**		**92 486**	**5 817**	**24 236**	**113 540**	**3 150**	**26 250**
Total fleet payments (10)		**192 500**			**122 539**			**142 940**	
EU payments for access (11)		357 500			357 500			357 500	
EU payments for sector support (12)		302 500			302 500			302 500	
Total EU payments (13) = (11) + (12)		**660 000**			**660 000**			**660 000**	
% fleet payments / UE payment (10)/(13)		29.2%			18.6%			21.7%	
Total payment for access and sector support (14) = (11) + (13)		**852 500**			**782 539**			**802 940**	
Fleet payment per tonne per segment (15) = (9) / (1)		**35**		**190**	**582**	**1 734**	**271**	**n.a.**	**321**
EU payments for access per tonne (EUR) - all segment combined (16)=(11)/(1)		**65**			**701**			**714**	
Fleet payment per tonne (EUR) - all segment combined (17)=(10)/(1)		**35**			**240**			**285**	
Total payment for access (fleet and EU) (18) = (16) + (17)		**100**			**941**			**999**	
Total payment per tonne (EUR) (19)=(14)/(1)		**155**			**1 534**			**1 603**	

*2014 advance payment based on a partial year

** (9) = (1)*(5) in full utilisation. These calculations do not take into account the potential penalties in the case of non-embarkation of Mauritian seamen.

Source: Consultant's calculation based on data transmitted by DG MARE.

6.4 Economic analysis of the Fisheries Partnership Agreement

6.4.1 Sales values

Purse seine vessels and longliners target different markets. Purse seiners operating in the Indian Ocean freeze their catch on board, either for processing in canneries in the region (Mauritius, Seychelles) or in Europe (Spain notably) or to be shipped as frozen fish for specific markets (fish frozen at -40 °C for loins, steaks, saku blocks). Most of the catch made by purse seiners in the Mauritian fishing zone are landed in Seychelles. However, based on interviews and previous reports, it can be estimated that half of the catch landed in Seychelles is shipped back to Mauritius to be processed by Mautitian seafood companies, while

French longliners operating from La Réunion sell their catch on the fresh market, mainly for export to Europe and sometimes to Asia. These vessels are landing all their catches in La Réunion, where the fish are processed and shipped to the different final markets by air freight.

Table 6-4 Average prices used the catch obtained in 2014 and 2015 in the Mauritian fishing zone

		2014			2015		
	Species	**Spanish purse seiners***	**French purse seiners***	**French longliners****	**Spanish purse seiners***	**French purse seiners***	**French longliners****
Average price (thousand EUR/t)	Skipjack	0.76	0.76	0	0.88	88	0
	Yellowfin	1.56	1.56	3.93	1.29	1.29	3.93
	Albacore	1.82	1.82	2.25	1.93	1.93	2.25
	Bigeye	0.92	0.92	6.58	1.11	1.11	6.58
	Swordfish	0	0	5.50	0	0	5.50
	Other species	1.00	1.00	5.14	1.00	1.00	5.14

Sources: * based on information gathered during interviews
** based on DCF data for 2013 for the longliner segment.

This market differentiation is evident when comparing the species targeted and the price paid to fishing vessels. Purse seiners mainly target skipjack and yellowfin tunas, with an average price ranging from EUR 760 per tonne (skipjack in 2014) to EUR 1 560 per tonne (yellowfin in 2014), while longliner catch mostly comprises swordfish, bigeye and yellowfin, for higher average prices: EUR 5 500 per tonne for swordfish, EUR 6 580 per tonne for bigeye tuna and EUR 3 930 per tonne for yellowfin tuna. Price were obtained from discussion with vessel owners (for the purse seiners) or from the DCF when available (French longliners).

For each segment, the fishing income generated in the Mauritian fishing zone is estimated by combining these prices with the tonnage caught in the Mauritian fishing zone.

Table 6-5 Turnover associated with the catch obtained in 2014 and 2015 in the Mauritian fishing zone

		2014 (full year)				2015 (January – October)			
	Species	**Spanish purse seiners**	**French purse seiners**	**French longliners**	**Total**	**Spanish purse seiners**	**French purse seiners**	**French longliners**	**Total**
Catch in the Mauritian fishing zone (t) (1)	Skipjack	57	149	0	206	98		0	245
	Yellowfin	85	90	2	177	62		19	170
	Albacore	48	1	2	51	0		8	9
	Bigeye	35	22	4	60	0		20	42
	Swordfish	0	0	14	14	0		29	29
	Other species	0	0	2	2	0		6	6
	Total	**225**	**261**	**24**	**510**	**160**	**259**	**82**	**501**
Average price (thousand EUR/t) (2)	Skipjack	0.76	0.76	0		0.88	88	0	
	Yellowfin	1.56	1.56	3.93		1.29	1.29	3.93	
	Albacore	1.82	1.82	2.25		1.93	1.93	2.25	
	Bigeye	0.92	0.92	6.58		1.11	1.11	6.58	
	Swordfish	0	0	5.50		0	0	5.50	
	Other species	1.00	1.00	5.14		1.00	1.00	5.14	
Total value of catch (3) = (1) × (2) (thousand EUR)	Skipjack	44	113	0	156	86		0	216
	Yellowfin	132	140	9	282	80		76	271
	Albacore	87	2	4	93	0		18	20
	Bigeye	32	20	24	76	0		129	154
	Swordfish	0	0	77	77	0		160	160
	Other species	0	0	12	12	0		29	29
	Total	**295**	**275**	**126**	**696**	**166**	**270***	**413**	**850**

Source: Catch data provided by DG MARE. 2015: provisional data. The catch data for the French purse seiners is not known at the species level.

6.4.2 Value added

The method used to estimate the value added associated with the Mauritius FPA follows the method developed for the economic analysis of the EU tuna fleet ([131]).

6.4.2.1 Cost structures used for the evaluation

These calculations are based on vessel cost structures as they are reported in the DCF. The data used for this evaluation were published by the Scientific, Technical and Economic Committee for Fisheries (STECF) in 2015 ([132]). The latest figures reported describe the economic performance of EU fishing fleets in 2013.

The data covering the purse seiners are related to fleet operating in the three major oceans (Atlantic, Indian and Pacific Oceans), although the Indian Ocean represents more than half the catch associated with these segments. Data relating to French longliners outside European waters (two DCF segments: French vessels

[131] COFREPECHE, MRAG, NFDS et POSEIDON, 2014. Analyse économique de la flotte thonière de l'UE – Note de méthode. Contrat cadre MARE/2011/01 - Lot 3, contrat spécifique n° 09. Bruxelles, 32 pp. -

[132] STECF, 2015. The 2015 Annual Economic Report on the EU Fishing Fleet (STECF-15-07). JRC Scientific and Policy Reports

between 12 and 18m using hook in outermost regions and international waters, and French vessels between 18 and 24m using hook in outermost regions and international waters) refer to vessels based exclusively in La Réunion.

Table 6-6 Cost structure used for the calculations

Variable	Unit	Spanish purse seiners	French purse seiners	French longliners
Variable intermediate consumptions (VIC)				
Fuel cost	Litres/day	11 908	10 188	528
Other variable costs	EUR/day	13 583	1 288	536
Core intermediate consumptions (CIC)				
Repairs (variable part)	EUR/day	1 662	2 589	85
Repairs (fixed part)	EUR	497 301	625 341	16 848
Other fixed costs	EUR	936 027	1 056 390	34 747
Crew costs (CC)				
Share of crew costs	%		39	54
Proxy for crew costs	EUR/t	204		
Access rights and duties (ARD)				
Share of port duties	% of turnover	2	2	2

Source: Data published by STECF (2015) for segments ESP OFR PS VL 40xx (Spanish purse seiners), FRA OFR PS VL 40xx (French purse seiners) and a combination of FRA OFR HOK VL1218 and FRA OFR HOK VL1824 (French longliners).

The average cost structures of purse seiners are presenting significant differences, notably in terms of other variable costs and repairs (see Table 6-6). While some explanations were given during the interviews, such as the importance of supply vessels for Spanish purse seiners (although French purse seiners use also supply vessels), it should be noted that no valid explanations have been found for most of the high difference for the "other variable ocsts", which may be due to distinctive accounting methods that may not have been captured by the DCF.

Moreover, it has been mentioned in interviews that wages are not calculated according to the same method:

- French vessels (purse seiners and longliners) are using a share method: crew get a share of the turnover diminished by some shared costs (fuel and variable costs mainly); and
- Spanish vessels have a pay structure mostly based on the tonnage caught by purse seiners.

For the French longliners, the compensations obtained in a scheme ([133]) to compensate the costs associated with the remoteness and the insularity of La Réunion were excluded from the calculations as subsidies are not part of value-added or earnings before interest, tax, depreciation and amortisation (EBITDA).

The method used to calculate costs relies on three major factors: days at sea spent in the Mauritian fishing zone, catches (in value for the turnover, in tonnes for some costs), as well as the share of catch in the Mauritian fishing zone compared to total catch of the fleet segment. Figures published by the IOTC have been used as reference

[133] Council Regulation (EC) No 791/2007 of 21 May 2007 introducing a scheme to compensate for the additional costs incurred in the marketing of certain fishery products from the outermost regions the Azores, Madeira, the Canary Islands, French Guiana and Réunion.

for the total catch of purse seiners for 2014[134]. For the French longliners, DCF data was used as there is perfect match between the DCF segmentation and the longliner fleet from La Reunion. Data for 2014 is used as a proxy for the potential catch in 2015 (Table 6-7).

Table 6-7: Catch in the Mauritian fishing zone and in the Indian Ocean by EU vessels

	2014			2015		
	Spanish Purse Seiners	French Purse Seiners	French Longliners	Spanish Purse Seiners	French Purse Seiners	French Longliners
Catch in the Mauritian fishing zone(t)*	225	261	24	160	259	82
Catch in the Indian Ocean (t)**	133 665	84 227	1 444	*133 665 (2014 as a proxy)*	*84 227 (2014 as a proxy)*	*1 444 (2014 as a proxy)*
Share of catch in the Mauritian fishing zone compared to total catch of the fleet segment	0,17%	0,31%	1,7%	0,12%	0,31%	5,7%

Source: * data provided by the European Commission ** IOTC 2015 - IOTC-2015-WPTT17-DATA04- for the purse seiners and DCF data for the longliners (2014 data used as a proxy for 2015).

6.4.2.2 Direct value added

Using these cost structures combined with the rest of information gathered during the evaluation (catch, prices, effort data) allows the estimate of value added and the EBITDA generated by the various fleet segments in 2014 and 2015 (see Table 6-8). The purse seiners present a level of daily turnover that is very low compared to the average of the segment as reported by the Data Collection Framework (DCF): in 2014, the Spanish purse seiners fishing in the Mauritian zone were obtaining a daily turnover close to EUR 9 200, while the average reported by the DCF is close to EUR 50 000. For the French purse seiners, the average daily turnover in 2014 is just over EUR 2 200, compared with an average of almost EUR 33 000 reported by the DCF. This difference is mainly due to the fact that the Mauritian fishing zone is not the major fishing area of the sub-region: most of the vessels entering the zone do not catch a fish. Some of them may search fish concentrations without success. Some vessels may also steam through the fishing zone to reach Port Louis, for repairs and maintenance. These two factors concur in recording a disproportionate number of days spent in the area compared to the catch obtained by these vessels, leading to the evaluation of a ratio of catch per day of presence in the Mauritian fishing zone which is far lower than the catch per day at sea ratio that can be estimated from DCF databases.

With such low levels of turnover, the value added associated with the activity of purse seiners in the Mauritian fishing zone is negative, which means that it would be totally uneconomical to fish in the Mauritian zone if it was considered isolated. As the value added is negative for these segments, the EBITDA is also negative. Due to very low catch level, crew share should be negative for the French vessels.

These negative values are not consistent with the overall profile of these segments, which have been profitable over the years, but they may represent what is currently happening in the Mauritian fishing zone. It is the result of the way added value and EBITDA have to be estimated when following the methodological note: costs are not calculated as a percentage of the turnover, but are derived from other measurable variables such as days at sea. Large tuna purse seiners are fishing vessels that present a highly variable pattern: they may chase fish schools for several days without reporting any catch or they may catch two schools in a row the same day, compensating for the rest of the week. According to the data transmitted by DG MARE, most purse seiners that entered the Mauritian fishing zone spent only four to five days in the area (with the exception of the Sapmer vessels when they were operated from Port Louis in 2014): some of them have reported no catch in the area, which is not surprising if the northern part of the Mauritian zone is at the edge of the large concentrations of tuna

[134] IOTC, 2015. 17th working group on tropical tunas. Nominal Catches per Fleet, Year, Gear, IOTC Area and species. IOTC-2015-WPTT17-DATA04. IOTC website.

schools. A negative value added is therefore an indication that the Mauritian EEZ is utilised by fishing vessels to search opportunistically for large schools while also in transit to Port Louis for specific needs (mainly repairs).

French longliners present a profile that is more consistent with their average cost structure. Due to a low level of catch in 2014, their EBITDA is negative. Vessel owners mentioned that in 2014 the authorisations were delivered too late for the fishery to be profitable. In 2015, the value added and the EBITDA generated by French longliners are both positive.

Overall, the value added and EBITDA generated by EU fishing vessels is negative for both 2014 and 2015. It is estimated that the EU fishing industry lost close to EUR 1.3 million of value added in 2014 and will lose close to EUR 1.0 million of value added in 2015. As noted before, this results from the strict application of the method developed to evaluate the economic value generated by FPAs. Vessel owners do not use this approach, as they tend to understand how a fishing trip is profitable, and not to isolate the parts of the fishing trip that are not productive (steaming time, searching time) from the actual catching time.

Table 6-8 Direct valued added and Earnings before interest, tax, depreciation and amortisation

	2014				2015			
	Spanish Purse Seiners	French Purse Seiners	French Longliners	Total	Spanish Purse Seiners	French Purse Seiners	French Longliners	Total
Share of catch in the Mauritian fishing zone compared to total catch of the fleet segment	0.17%	0.31%	1.7%		0.12%	0.31%	5.7%	
Vessels with fishing authorisations	14	13	17	44	17	13	16	46
Active vessels in the Mauritian fishing zone	5	12	5	22	6	9	6	21
Days at sea spent in the Mauritian fishing zone	32	101	59	193	37	64	257	358
Catch (t)	225	261	24	510	160	259	82	501
of which catch above the reference tonnage (t)	*0*	*0*	*0*	*0*	*54*	*10*	*0*	*64*
Turnover (T)	**295**	**275**	**126**	**696**	**166**	**270**	**413**	**850**
Variable intermediate consumptions (VIC)								
Fuel	267	724	22	1 012	308	455	95	859
Other variable costs	429	131	32	591	499	82	138	719
Core intermediate consumptions (CIC)								
Maintenance and repairs	57	286	6	350	65	183	28	275
Other fixed costs	8	34	0	42	7	24	4	34
Total intermediate consumptions (TIC = VIC + CIC)	**761**	**1 174**	**60**	**1 995**	**879**	**744**	**264**	**1 888**
Value added (VA = T - TIC)	**-466**	**-899**	**66**	**-1 299**	**-713**	**-474**	**149**	**-1 038**
Access rights	**48**	**45**	**30**	**123**	**65**	**49**	**29**	**143**
of which annual fee	*48*	*45*	*30*	*123*	*63*	*48*	*29*	*141*
of which cost per extra tonne	*0*	*0*	*0*	*0*	*2*	*0*	*0*	*2*
Port dues	6	6	3	14	3	5	8	17
Access rights and dues (ARD)	**54**	**50**	**33**	**136**	**68**	**54**	**38**	**160**
Crew costs (CC)	46	0*	40	85	33	0*	98	131
Earnings before interest, tax, depreciation and amortisation (EBITDA = VA - CC - ARD)	**-565**	**-949**	**-6**	**-1 521**	**-814**	**-528**	**13**	**-1 329**

*For both years, calculation of crew costs based on the share system would give negative values. For consistency, these negative values have been replaced by 0.

Source: Consultant calculation. All monetary figures are in thousand EUR. Due to rounding, some totals might differ by +/-1 from the values presented in the table.

The same conclusions may be derived from the different ratios highlighted in the methodological note: ratios are not informative due to the negative value added.

- With a negative value added, the ratio VA / turnover is negative for purse seiners, and

- The only ratio that may be helpful in this case is the ratio between access rights paid by vessel owners and the turnover associated with the catch performed in the Mauritian fishing zone. When considering all vessels combined (seiners and longliners), this ratio is quite high with a value of 18 % in 2014 and 17 % in 2015. This is quite high compared to the level of 5 % that some vessel owners' associations would like to be applied as a maximum to calculate access rights. This high level is mainly due to the difference between the uptake of fishing authorisations and their actual use. At the segment level, the lowest value estimated is 7 % (French longliners in 2015).
- The ratio between access rights paid by the vessel owners and the value added generated is only meaningfull when positive (only for the longliners). In 2014, 46 % of the value added generated by the longliners was absorbed by the access rights.

Table 6-9 Major ratios comparing value added and access rights

	2014				2015			
Ratio	**Spanish purse seiners**	**French purse seiners**	**French longliners**	**Total**	**Spanish purse seiners**	**French purse seiners**	**French longliners**	**Total**
Ratio VA / turnover	-158 %	-327 %	52 %	-187 %	-429 %	-175 %	36 %	-122 %
Ratio access rights / turnover	16 %	16 %	24 %	18 %	39 %	18 %	7 %	17 %
Ratio access rights / VA	-10 %	-5 %	46 %	-9 %	-9 %	-10 %	20 %	-14 %

Source: Consultant calculation. All monetary figures are in thousand EUR.

6.4.2.3 Indirect value added

The indirect value added generated by the FPA was calculated by estimating three components:

- The value added associated with the sale of fuel;
- The value added associated with ancillary activities (e.g. repair and maintenance); and
- The value added associated with fish processing.

Sale of fuel

The valued added associated with the sale of fuel was estimated from the fuel procurement made in the region. For purse seiners, most of the fuel is purchased in Seychelles, although some French vessels refuelled in Mauritius in 2014. A change in operational pattern for some French purse seiners in 2015 has lowered the importance of Mauritius as fuel provider. Vessels from La Réunion are all sourcing their fuel on the island.

By multiplying the fuel costs by a ratio linking the value added with the turnover of the fuel distributors (ratio of 3 % based on the financial information published by OW Bunker in 2013, one of the leading marine fuel distributor[135]), it was possible to estimate that the indirect value added related to the sale of fuel was close to EUR 26 000 (2015) to EUR 30 000 (2014) annually. This low ratio is consistent with the general information on the oil sector, placing the supply as the low value added part of the supply chain. In the oil industry, most of the value added is generated by the first stages of the supply chain (extraction and refining stages).

[135] OW Bunker, 2013. Annual Report 2013. 88 pp.

Table 6-10 Indirect value added associated with the sale of fuel (figures are in thousand EUR)

		2014				2015			
		Spanish purse seiners	French purse seiners	French longliners	Total	Spanish purse seiners	French purse seiners	French longliners	Total
Fuel costs		267	724	22	1 012	308	455	95	859
Supply percentage sourced	Mauritius	0	30	0		0	5	0	
	Other ACP countries	100	70	0		100	95	0	
	EU member states	0	0	100		0	0	100	
Turnover of the upstream industry related to the sale of fuel	Mauritius	0	217	0	217	0	23	0	23
	Other ACP countries	267	507	0	773	308	433	0	741
	EU Member States	0	0	22	22	0	0	95	95
Ratio VA / turnover for the upstream industry related to the sale of fuel	Mauritius			3 %				3 %	
	Other ACP countries			3 %				3 %	
	EU Member States			3 %				3 %	
Value added of the upstream industry related to the sale of fuel	Mauritius	0	7	0	7	0	1	0	1
	Other ACP countries	8	15	0	23	9	13	0	22
	EU Member States	0	0	1	1	0	0	3	3
	Total	8	22	1	30	9	14	3	26

Source: Consultant calculation. All monetary figures are in thousand EUR.

The valued added associated with the ancillary sector was estimated from the costs associated with the vessels maintenance. It is estimated that the Spanish vessels are having most of their maintenance and repairs done in other ACP countries (Seychelles mainly), with 25 % of their maintenance performed by EU based companies sending specialists where the vessels are maintained (notably for precise maintenance of the onboard electronics, hydraulics and propulsion). One of the two French vessel companies had its operational base situated in Mauritius until the end of 2014. With their relocation to Victoria, they are no longer having their regular maintenance in Mauritius. Only specific works that need a large shipyard are commissioned in Mauritius. As the Spanish vessels, some of the maintenance is performed by EU companies sending specialists in the Seychelles or in Mauritius (accouting for 25 % of the maintenance costs). The French longliners have most of their maintenance done in La Réunion; only important refits are commissioned in Mauritius. Some owners of longliners are avoiding the Mauritius shipyards completely.

The ratio of value added divided by turnover of the ancillary sector was estimated to be 15 % ([136]), which seems to be a conservative estimate (see Table 6-10). The indirect value added related to the ancillary industry is thus estimated to be close to EUR 52 000 in 2014 and EUR 41 000 in 2015 (Table 6-11).

[136] MRAG, Oceanic Développement, IFM, Lamans, Poseidon, IEEP, 2011. Regional social and economic impacts of change in fisheries-dependent communities. Contrat FISH / 2006 / 06. Studies in the Field of the Common Fisheries Policy and Maritime Affairs. Lot 4: Impact Assessment Studies related to the CFP. Regional social and economic impacts of change in fisheries-dependent communities. 47pp + annexes.

Table 6-11 Indirect value added associated with ancillary activities (thousand EUR)

		2014				2015			
		Spanish purse seiners	French purse seiners	French longliners	Total	Spanish purse seiners	French purse seiners	French longliners	Total
Repair and maintenance		57	286	6	350	65	183	28	275
Share of the repair costs spent	Mauritius	10 %	35 %	20 %		10 %	10 %	20 %	
	Other ACP countries	65 %	40 %	0 %		65 %	65 %	0 %	
	EU Member States	25 %	25 %	80 %		25 %	25 %	80 %	
Turnover of the ancillary industry	Mauritius	6	100	1	107	7	18	6	30
	Other ACP countries	37	114	0	152	42	119	0	161
	EU Member States	14	71	5	91	16	46	22	84
Ratio VA / turnover for the ancillary industry	Mauritius	15 %				15 %			
	Other ACP countries	15 %				15 %			
	EU Member States	15 %				15 %			
Value added of the ancillary industry	Mauritius	1	15	0	16	1	3	1	5
	Other ACP countries	6	17	0	23	6	18	0	24
	EU Member States	2	11	1	14	2	7	3	13
	Total	9	43	1	52	10	27	4	41

Source: Consultant's calculation. Due to rounding, some totals might differ by +/-1 from the values presented in the table.

Fish processing

Regarding fish processing, purse seiners are assumed to land most of their catch in Seychelles, with onward shipment to Mauritius and Europe. As noted before, it is estimated that half of the catch made in the Mauritian fishing zone is actually shipped back to Mauritius to be processed by the Mauritian processing industry, while 13% of the catch is shipped to the EU to be processed by the EU canning industry (mainly in Spain). All catch achieved by vessels from La Réunion is landed and processed in the EU (La Réunion).

The ratio linking value added generated by the fish processing industry to the purchase of raw material was derived from the latest DCF report on the fish-processing industry ([137]). Based on all these assumptions, it is estimated that the annual indirect value added related to the fish-processing industry was about EUR 130 000 (in 2014) and EUR 194 000 (in 2015) (see Table 6-12).

Due to the landing of fresh fish to La Réunion, EU gets the largest share of indirect value added linked to processing.

Table 6-12 Indirect value added associated with fish processing activities (thousand EUR)

		2014				2015			
		Spanish purse seiners	French purse seiners	French longliners	Total	Spanish purse seiners	French purse seiners	French longliners	Total
Value of landings (Turnover		295	275	126	696	166	270	413	850
Share of landings	Mauritius	50 %	50 %	0 %		50 %	50 %	0 %	
	Other ACP countries	33 %	33 %	0 %		33 %	33 %	0 %	
	EU Member States	13 %	13 %	100 %		13 %	13 %	100 %	
Intermediate consumption (CI) of raw material by the processing industry	Mauritius	148	138	0	285	83	135	0	218
	Other ACP countries	96	89	0	185	54	88	0	142
	EU Member States	37	34	126	197	21	34	413	467
VA / intermediate consumption (CI) ratio for the processing industry	Mauritius	15 %				15 %			
	Other ACP countries	15 %				15 %			
	EU Member States	30 %				30 %			
Value added related to the fish processing industry	Mauritius	22	21	0	43	12	20	0	33
	Other ACP countries	14	13	0	28	8	13	0	21
	EU Member States	11	10	38	59	6	10	124	140
	Total	48	44	38	130	27	44	124	194

Source: Consultant calculation. Due to rounding, some totals might differ by +/-1 from the values presented in the table.

[137] Scientific, Technical and Economic Committee for Fisheries (STECF), 2014. The Economic Performance Report on the EU Fish Processing (STECF-14-21). Publications Office of the European Union, Luxembourg, EUR 27029 EN, JRC 93340, 355pp.

6.4.3 Discussion of the economic and financial impacts of the FPA

The value added generated is shared amongst workers (crew), the different countries (EU, Mauritius and ACP countries) (Table 6-13).

Mauritius receives from vessel owners the payment for access as well as port dues when vessels from Port Louis. Mauritius also benefits from refuelling and ancillary activities, which may slightly decrease in the future with the relocation of the operational base of a French purse seine company to Victoria (Seychelles). Finally, Mauritius received some value added generated by the processing industry. As mentioned previously, no Mauritian seamen were recruited by EU vessels operating in the Mauritian fishing zone. It is estimated that Mauritius received overall value added of EUR 191 000 in 2014 and EUR 181 000 in 2015 (Table 6-13).

Other ACP countries (mainly Seychelles) are also beneficiaries of a share of the value added generated by the FPA, through wages, port taxes, fuel provision, repairs and fish processing. It is estimated that they capture around EUR 104 000 of value added in 2014 and EUR 98 000 in 2015.

Overall, the negative value added associated with purse seiner operations is voiding all value added generated by other sectors. This means that if the Mauritian FPA were considered on its own, the EU would lose more than a million euros in value added each year (see Table 6-13). However, it should be noted again that this may be due to the way value added is estimated for these vessels. Further tests of the methodology should be conducted to evaluate if potential adjustments have to be made to accommodate cases where tonnage is underutilised while vessels are recording activity in the FPA fishing zone (as in the Mauritian example).

It should also be noted that most of the value added generated by the activity of the La Réunion longliners benefit the EU, as these vessels have almost all their operations based in La Réunion, except for some specific repairs, which may require them to travel to Mauritius.

Table 6-13 Distribution of the value added generated by the protocole (in EUR)

	2014				2015			
	Mauritius	**ACP countries**	**EU**	**Total**	**Mauritius**	**ACP countries**	**EU**	**Total**
Payment for access	123			123	143			143
Wages	0	21	64	85	0	21	64	85
Port taxes + EBITDA	3	8	-1 518	-1 507	0	9	-1 321	-1 312
Direct Value Added	***126***	***30***	***-1 454***	***-1 299***	***143***	***30***	***-1 256***	***-1 083***
Upstream indirect added value	23	46	14	83	5	46	15	67
Downstream indirect added value	43	28	59	130	33	21	140	194
Indirect Value Added	***65***	***74***	***73***	***213***	***38***	***68***	***156***	***261***
Total	**191**	**104**	**-1 381**	**-1 086**	**181**	**98**	**-1 101**	**-822**

Source: Consultant calculation.

The main ratios used to evaluate the FPA efficiency are:

- the average cost for access per tonne caught;
- ratios comparing the value added to the tonnage caught; and
- ratios comparing the payments made by the EU and the vessel owners.

When taking into account the total payment for access, each tonne caught was associated with a total payment of between EUR 941 (2014) and EUR 999 (2015), which far exceeds the cost of access for full utilisation of the reference tonnage (EUR 100 per tonne). The EU budget supports most of the cost (74 % in 2014, 72 % in 2015),

while the payment made by vessel owners is between seven and eight times higher than the reference access fee of EUR 35 per tonne.

This is however the logical consequence of a stark underutilisation of the reference tonnage, with catch representing only 9 % of the available tonnage for both years.

Table 6-14 Average cost for access per tonne caught in 2014 and 2015. All values are in Euros.

	2014	2015
EU payment for access	357 500	357 500
Vessel payment for access fees	122 539	140 700
Payment for extra tonnage	0	2 240
Total payment – EU and vessel owners	480 039	500 440
Total payment per tonne	941	999
Total payment per tonne – EU share	701	714
Total payment per tonne – vessel owners' share	240	285
Share of the total payment supported by vessel owners	26 %	29 %

Source: Consultant calculation.

With a negative value added generated by the protocol, most of the ratios calculated in Table 6-15 do not aid understanding of the economic value generated by the FPA. Ratios calculated for Mauritius and other ACP countries indicate that these countries benefit from the FPA both directly (crew) and indirectly (fuel, ancillary and processing). As this is the first time this methodology has been applied to the Mauritian context, there are no other evaluations to compare these ratios with. The only other case currently published is the recent evaluation of the FPA with Gabon, which gave similar results in terms of value added per tonne caught.

Table 6-15 Ratios linked to the value added

		2014				2015			
	Value added	/ catch (EUR/t)	/ access payment (EUR/EUR)	/ fleet payments (EUR/EUR)	/ total payments (EUR/EUR)	/ catch (EUR/t)	/ access payment (EUR/EUR)	/ fleet payments (EUR/EUR)	/ total payments (EUR/EUR)
EU and third countries	Direct	-2 546	-1.97	-9.78	-1.64	-2 163	-1,64	-7,58	-1,35
	Indirect	417	-	-	-	522	-	-	-
	Total	-2 129	-1.65	-8.18	-1.37	-1 641	-1,25	-5,75	-1,02
EU	Direct	-2 850	-2.20	-11.87	-1.86	-2 509	-1,90	-8,79	-1,56
	Indirect	155	-	-	-	311	-	-	-
	Total	-2 716	-2.10	-10.43	-1.75	-2 198	-1,67	-7,70	-1,37
Third countries	Direct	304	-	-	-	345	-	-	-
	Indirect	273	-	-	-	211	-	-	-
	Total	577	-	-	-	556	-	-	-

Source: Consultant calculation.

6.5 Compliance with the obligations specified in the FPA, Protocol and Annex

6.5.1 Access by European Union fishing vessels

The Mauritian authorities issued authorisations to fish in its EEZ to all the EU vessels licensed by the EU to fish in the IO in accordance with the procedure set out in the FPA and its Protocol. No vessels were refused authorisation.

6.5.2 Compliance of EU vessels with requirement of the FPA

The following summarises the compliance by EU vessels with the requirements of the FPA Protocol:

Article 7: EU vessels must have a valid authorisation to fish granted by Mauritius;

Article 10: EU vessels must comply with the laws of Mauritius; there have been no reported cases of EU vessels not complying with these provisions.

Article 12: Electronic exchanges; the EU vessels have complied with the requirements to use VMS. For AIS, the requirement to carry equipment was initially from June 2014 but this has been delayed due to the changes in government in Mauritius. The EU purse seiners are ready to comply with this requirement as soon as it comes into force and the EU longliners have requested a six-month phasing-in period. This was agreed in the first and second JCM ([138]).

Annexes: conditions for the exercise of fishing activities by EU vessels in Mauritian waters:

Chapter II tuna fishing authorisation:

- Application for a fishing authorisation: in the first three months of implementation, 27 EU purse seiners and 15 longliners were delivered licences by the Mauritian authorities. It was noted that the 'validity of seaworthiness' certificate of some the vessels did not cover the whole period of validity of the fishing authorisations delivered ([139]).
- Payments by EU vessel owners: it was reported that payments for licences have been received as required.
- Document to be carried on board: it was reported that as far as was known, due to lack of port calls and thus inspections, EU vessels were compliant with these requirements.

Chapter IV catch reporting:

- Catch reporting: initially the EU vessels were not fully complying with deadlines set out for sending the logbooks and this was addressed at the second Joint Ministerial Committee (JCM).

Chapter V trans-shipment at sea:

- Trans-shipment at sea is prohibited: there were no reports of trans-shipment or suspected trans-shipment at sea by EU vessels.

Chapter VI control:

- Entry and exit reporting from Mauritian EEZ: there was no information that this had not been complied with, although there did appear to be some confusion in Albion FRC about the nationality of the French longliners under the EU agreement. This, however, was related to the Mauritian authorities not the EU vessels.
- Periodic catch reporting: initially the EU vessels were not fully complying with deadlines set out for reporting every three days and this was addressed at the second JCM.

Chapter IX signing-on of seamen:

- Employment of at least 10 Mauritian seamen during activities in the Mauritian waters: was not complied with. It is therefore required that in the case of non-embarkation, a lump-sum equivalent to the salary be paid, at the minimum rate of one month per seaman. Mauritius and the EU have agreed (at the second JCM) to share the payment between Spanish and French vessel owners, but to date no agreement on the amount due has been agreed. The lack of seamen is partially due to availability and partly due to the requirements (job description, salary etc.) not being clearly set out. The issue of lack

[138] Record of the first meeting of the Joint Committee for the FPA, Port Louis 5–7 May 2014 and the Record of the second meeting of the JCM, Brussels 9–10 March 2015.

[139] Record of the first meeting of the Joint Committee for the FPA, Port Louis 5–7 May 2014.

of available seamen is a shared concern in all coastal states of the western IO, and if this clause in the Protocols is to have significant rather than symbolic meaning, a regional approach to embarking coastal seamen is required. The Maritime Training Academy, under the Shipping Department, has been training around 200 crew per year and the government has now committed to train up to 900 crew and officers and to increase this to 2 000 per year. This is strongly supported by to the new Ministry. This may provide a larger pool of crew in the future. Efforts could be made to elaborate on what seamen are required, rank etc.

- Embarkation of observers: on EU vessels this did not occur due to lack of trained observers able to embark on the vessels. Mauritian observers have been trained under the IOC in La Réunion and by SWIOFP, and the island states of the western IO and Kenya have signed an agreement to share observers regionally. This programme and commitment could be developed further ([140]). However, Mauritius only started to deploy observers in 2014 and none has been boarded on EU vessels under the FPA arrangement.

6.6 Joint venture / Local arrangements

There are no joint venture arrangements involving European interests with respect to fishing vessels in Mauritius. However, the Mer des Mascareignes Limitée (MdM) processing factory is a joint (50/50) venture between Sapmer and Ireland Blyth Limited Groups). Ireland Blyth Limited is one of the largest business groups in Mauritius. It was incorporated in 1972 and became a public company in 1994. The Group is a 100 % Mauritian entity ([141]).

6.7 Employment analysis of the FPA

The level of employment of non-EU crew on board EU fishing vessels has been estimated following discussions with vessel owners and relevant associations (Table 6-16). These non-EU crew main originate from western African countries (Senegal, Ivory Coast) and from western Indian Ocean countries (Madagascar, Seychelles). It has been highlighted that despite efforts to recruit Mauritian seamen, no vessel has recorded the embarkment of Mauritian crew in 2014 and 2015. The lack of specific expertise was one of the main reasons raised during interviews, as Mauritian fishermen are mainly trained to operate on coastal vessels but not on large purse seiners.

Overall, EU fishing vessels authorised to fish within the Mauritian EEZ are employing approximately 1 400 crew. There are also equivalent to approximately 140 jobs onshore (Table 6-16).

[140] Pers. comm., Director of Fisheries.

[141] Available at: http://www.iblgroup.com/en/home

Table 6-16 Direct employment associated with the annual operations of the different segments in 2014 and 2015

	2014				2015			
	Spanish purse seiners	French purse seiners	French longliners	Total	Spanish purse seiners	French purse seiners	French longliners	Total
Number of vessels	17	13	17	47	18	13	16	47
EU crew	510	312	82	904	540	312	77	929
Other crew	255	156	55	466	270	156	52	478
of which Mauritian crew	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total crew	765	468	137	1 370	810	468	129	1 407
Onshore staff (management)	77	47	14	138	81	47	13	141
Direct employment	**842**	**515**	**151**	**1 508**	**891**	**515**	**142**	**1 548**

Source: Consultant calculation.

Employment of EU crew arising directly from the Protocol was estimated at 5.5 jobs in 2014 and 9.4 jobs in 2015. This was estimated using the share of catch achieved in the Mauritian fishing area compared to the catch obtained by these vessels in the Indian Ocean (see Table 6-17).

It is estimated that the activity of EU fishing vessels in the Mauritian fishing zone was generating in total 12.9 indirect jobs in 2014 and 14.7 jobs in 2015. Most of these jobs are associated with the processing sector: in 2014, 10.3 jobs were associated with the processing sector, in Mauritius (4.8 jobs), other ACP countries (mainly Seychelles, 3.7 jobs) and in the EU (1.8 jobs), partly in Spain but also in La Réunion where the French longliners land all their catch.

It should be noted that the method used to estimate the level of employment associated with the protocol does not take into account all the jobs generated by EU fishing vessels operating in Mauritius, but only those associated with the activity of the fishing vessels in the Mauritian fishing zone. In the absence of an FPA, vessel owners would still choose to land (or transship) an important part of their catch to be processed by the Mauritian seafood sector and they would still service their vessels in Mauritian shipyards.

Table 6-17 Employment generated by the protocol

	2014				2015			
	Spanish purse seiners	French purse seiners	French longliners	Total	Spanish purse seiners	French purse seiners	French longliners	Total
Share of catch in the Mauritian fishing zone compared to total catch of the fleet segment	0.17 %	0.31 %	1.7 %	-	0.12 %	0.31 %	5.7 %	-
Direct employment (jobs/year)								
EU crew	0.9	1.0	1.4	3.3	0.6	1.0	4.4	6.0
Mauritian crew	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other crew	0.4	0.5	0.9	1.8	0.3	0.5	2.9	3.7
Onshore staff (management)	0.1	0.1	0.2	0.4	0.1	0.1	0.7	0.9
Direct employment	**1.4**	**1.6**	**2.5**	**5.5**	**1.0**	**1.6**	**8.0**	**10.6**
Indirect employment (jobs/year)								
Indirect employment upstream EU	0.6	0.9	0.6	2.1	0.5	0.9	1.8	3.2
Indirect employment upstream Mauritius	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Indirect upstream employment other ACP countries	0.2	0.2	0.0	0.4	0.2	0.3	0.0	0.5
Indirect employment downstream EU	0.6	0.7	0.5	1.8	0.4	0.6	1.6	2.6
Indirect employment downstream Mauritius	2.2	2.6	0.0	4.8	1.6	2.6	0.4	4.6
Indirect employment downstream other ACP countries	1.7	2.0	0.0	3.7	1.2	1.9	0.7	3.8
Indirect employment	**5.3**	**6.5**	**1.1**	**12.9**	**3.9**	**6.3**	**4.5**	**14.7**
Total employment	**6.7**	**8.1**	**3.6**	**18.4**	**4.9**	**7.9**	**12.5**	**25.3**

Source: Consultant calculation.

In terms of job creation, EUR 1 million of total payments (total payments for access by EU and fishing vessels) would have generated only 37.7 jobs in 2014 and 50.6 jobs in 2015. Most of the jobs generated were situated in the EU (mostly on fishing vessels and in La Réunion), for two reasons:

- The purse seine catch levels are low. There is therefore a limited volume of catch provided to the processing industry situated in Mauritius, Seychelles and in nearby countries. Most of the employment associated with these vessels is linked to the crewing of the vessel and its management.
- The French longliner fleet generates almost no jobs outside La Réunion (which is an EU outermost region): crew and jobs associated with daily maintenance and fish processing are EU jobs.

Table 6-18 Employment ratios for the FPA between Mauritius and the EU

		2014		2015	
	Employment	/ catch (jobs / thousand tonnes)	/ total payments for access (jobs / million EUR)	/ catch (jobs / thousand tonnes)	/ total payments for access (jobs / million EUR)
EU and third countries	Direct	10.4	11.0	21.2	21.2
	Indirect	25.1	26.7	29.4	29.4
	Total	35.5	37.7	50.5	50.6
EU	Direct	6.9	7.3	13.8	13.8
	Indirect	7.4	7.9	11.6	11.6
	Total	14.3	15.2	25.4	25.4
Third countries	Direct	3.5	3.7	7.4	7.4
	Indirect	17.6	18.7	17.8	17.8
	Total	21.2	22.5	25.2	25.2

Source: Consultant calculation.

6.8 Supplies to the market

There are no specific provisions in the Protocol regarding supply to the Mauritian market by vessels fishing in the Mauritian zone.

However, it should be noted that it can be estimated that a large share of the catch made in the Mauritian zone is reaching the European market either fresh (French longliners landing their catch in La Réunion), frozen (from Spanish and French purse seiners) or processed (through canneries of the western Indian Ocean region).

6.9 Sectoral support

EU Sectoral Support paid to Mauritius under the FPA has a value of EUR 302 500 per year. For 2014 and 2015 combined EUR 488 205 has been allocated to three core areas:

- Ensure sustainable development and conservation of aquatic living resources – through the implementation of national management plans. This includes support to the NPOA for sharks, to the training and deployment of observers, the implementation of the electronic reporting system and the monitoring of the tuna fishing activities. It was reported that due to tender difficulties, the electronic reporting system has been delayed which has led to a shortfall on the intended utilisation however, this is now on track. Observers have been trained but not deployed to date, and the development of a NPOA for sharks is awaiting the contracting of a consultant to assist and the holding of a national workshop planned for January 2016.
- Safeguard the EEZ and territorial waters – through the deterrence of illegal fishing, surveillance and policing of the EEZ and territorial waters. This includes support to air and sea patrols, the prosecution of infringements and participation in the IOC regional action plan of surveillance. This activity was reported to have achieved 156 hours or flying time, two sea patrols and no illegal fishing vessels identified for all by the end of February 2015.
- Contribute towards the sustainability of marine resources and ecosystems through the participatory approach – through capacity building and development and implementation of fisheries management plans (FMPs) for the lagoon and off-lagoon areas. Activities are intended to include the training of officers and skippers, support for stakeholder participation in workshops, implementation of FMPs and

incentives for fishers to reduce the pressure on the lagoon resources. EUR 268 205 has been allocated for 2014 and 2015 and to date it was reported that approximately EUR 75 988 has been utilised.

It was reported that in 2014, 41 % of the budget allocation was utilised and EUR 185 705 was rolled over ([142]). Expenditure has been slow, mainly due to delays in procurement and the need to set up work plans, tenders etc. This is not uncommon in FPA Protocol Sector Support and the situation has also been compounded by the changes in the Ministry structure and organisation.

Industry and civil society have reported that although they were initially consulted with respect to the Sector Support at a meeting held in April 2014, they were not given feedback on what has been implemented. It appears that, following the negotiations with the EU and the lack of an option for the Sector Support to fully realise the expectations of the civil society, including for funds to be available for direct management by non-state actors, feedback was not received by all parties. This is an area where more awareness of the Sector Support may be beneficial in the future. It is noted that the records of the Joint Committee Meetings should in the future be made publically available and may be a useful tool for creating transparency.

The Mauritian Government noted that the key challenge to implementation has been the procurement in respect to the electronic reporting system. However, these issues have almost been resolved and once these services have been procured they will have spent more than the 70 % required for further allocation to take place.

[142] Record of the second meeting of the JCM, Brussels 9–10 March 2015.

7 Ex post evaluation of the current protocol to the FPA against the evaluation criteria

Based on the information and analysis in the preceding chapters, and their annexes, this chapter provides an evidence-based ex post evaluation of the current Protocol against the evaluation criteria of effectiveness, efficiency, sustainability, economy, relevance and coherence.

7.1 Effectiveness

This section examines the extent to which the specific objectives of the Mauritius FPA were achieved.

7.1.1 FPA contribution towards resource conservation and environmental sustainability

The FPA aims to contribute towards resource conservation and environmental sustainability through rational and sustainable exploitation of living marine resources of Mauritius and to provide a sustainable and equitable framework for access by EU vessels to the fishing grounds within the Mauritian EEZ. The intention is that it works towards the goal of a rational and sustainable exploitation of the surplus marine resources of the EEZ and therefore prevents overfishing.

The tuna species targeted by the EU purse seine fleets are skipjack, yellowfin and bigeye tuna. Skipjack and yellowfin tuna are the most abundant species in EU purse seine catches, comprising 47 % and 45 % of total catch in 2014 respectively ([143]). We therefore can conclude that EU fleets are mainly catching fish classified as 'sustainable'.

The EU has been involved in the Mauritian tuna fishery since 1989, making it a long-standing partner in the islands with which it now has correspondingly stronger ties and connections (see Section 1.3.1). The EU is also a key regional player in tuna fisheries, holding agreements with the Comoros, Madagascar and Seychelles, all countries with important EEZs within the migration path of tuna within the Indian Ocean. This places the EU in a strong position to make an impact on the sustainability and responsibility of national and regional fishing. To these ends, the EU has a clear interest in developing regional approaches and standards. The EU is already playing a significant role in promoting ongoing best practice, introducing and piloting new tools and working collaboratively with the countries of the region. In the case of Mauritius, this co-operation has been facilitated through the ongoing FPA co-operation and the Sector Support (see Section 6.9). The cooperation between the EU and Mauritius with respect to issues of sustainability has improved over the period of the current Protocol. An example is the cooperation and discussions in the 2015 IOTC meetings for the presentation of Resolutions on FADs and bycatch (see Section 4.6). These Resolutions were also developed and tabled in cooperation with the industry in Mauritius including EU and local processing interests. Another example is the development of cooperation for research with IRD in La Réunion (see Section 2.3). Although this cooperation is in its infancy, it is showing promise that should be developed further as the Albion FRC currently has limited research capacity and is keen to improve this.

The FPA provides a binding legal framework for control of fishing by EU vessels in the waters of Mauritius that supports the framework of the IOTC and the national framework of Mauritius. EU vessels can fish in Mauritian waters only if licensed to do so by the EU and authorised by the Mauritius Government. Provisions of the Protocol include rules relating to catch recording and communicating; landing and trans-shipment of catch; the use of VMS and provisions for fisheries inspections and rules for enforcement. The Protocol itself is supportive of the Mauritian fisheries laws (which are currently being updated to include more international management measures and best practice, see Section 4.1) and it contributes to sustainable fisheries and responsible fishing in Mauritian waters. Evaluation presented in Section 6.5 demonstrates a high level of compliance to this framework by the EU vessels.

A significant contribution is also made through the Protocol's provisions on sectoral support, governed by agreed annual and multi-annual sector programmes. A part of the programme focuses on ensuring sustainable

[143] Chassot *et al.* 2015. Statistics of the European purse seine fishing fleet and associated flags targeting tropical tunas in the Indian Ocean (1981-2014). IOTC-2015-WPTT17–12. pp31.

development and conservation of aquatic living resources, safeguarding the EEZ and territorial waters, and contributing towards the sustainability of marine resources and ecosystems through the participatory approach. Although there have been some delays in implementing the three elements of the programme (see Section 6.9), it can be said that overall it is now progressing well and it is making a valued contribution to the long-term future of the Mauritius fisheries sector. The element needing special attention in the future is that of strengthening the participatory approach and institutionalising this into the formal processes of management planning. The new legislation offers an opportunity to strengthen this, as does the incorporation of participatory processes into management planning (two FMPs that include participatory processes are currently ready for implementation).

The MCS elements of the multi-annual programme are complemented by the Regional Surveillance Plan, a major regional MCS programme based at the IOC and supported by the SmartFish programme and EU funding (Section 1.3.1) and the participation by Mauritius in the FISH-i Africa Task Force – a regional task force cooperating to combat IUU fishing in the western IO and yielding impressive results. Section 5.4.2 elaborates on compliance to management measures and it is noted that no infractions were recorded by the EU fleet.

There is also good regional co-operation between EU and Mauritius scientists at meetings of the IOTC and its Science Committee, which depends on cooperation for gathering information needed to promote fishery sustainability.

Mauritius and the EU are bound by the conservation and management measures (CMMs) agreed by the IOTC and which they both endeavour to implement.

7.1.2 FPA contribution to the activities of the EU long-distance catching sector

The FPA aims to ensure the sustainable management and continued activities of the EU long-distance fleet and the employment linked to the fleet operating within Mauritian waters.

All the EU purse seiners targeting tuna, and licensed by the EU to fish in western IO, held authorisations to fish in the Mauritian EEZ in 2014 and 2015 (see Section 6.3.1). This is a high proportion of the active vessels, demonstrating the importance afforded to this access right. This is advantageous for the fleet, because its vessels move around the IO in a clockwise direction to follow the seasonal distribution and abundance of tuna (Figure 3.5) as they cross through the EEZs of Mauritius, Comoros, Madagascar, Seychelles and Mozambique. To do this, they rely critically upon access rights provided by the FPAs. In which EEZ they actually fish in at any particular point in time or in which EEZ they take the catch is dependent on the distribution and availability of the tuna stocks. What is important for the EU fleet is having an unbroken access to follow the tuna in its migration route and to fish in whichever location is best at a given time to maximise catches.

Port Louis in Mauritius is not the operational port for any of the EU vessels; this is Victoria in Seychelles for the EU purse seine vessels. Port Louis is a two-day sail from Seychelles and therefore although the French-registered Sapmer vessels used to use Port Louis as an operational port, due to the processing factory for super deep-freezing at -40 °C located there, they now transport catches by reefer vessels to Port Louis for processing (see Section 5.5). It is, however, an important shipyard for the region, where purse seiners tend to go for major repairs.

The FPA is contributing to the annual creation of EUR 181 000 of value added for Mauritius in 2015 (EUR 191 000 in 2014). Due to a low level of catch per day compared to their normal fishing pattern, there has been a negative value added of at least EUR 1 million every year for EU purse seiners. It should be noted that the activity of these vessels generates a high level of value added when considered at the regional level (see Section 6.4.2).

In 2014, 27 and in 2015, 30 out of maximum availability of 41 purse seine vessels (73 %) took up fishing opportunities offered. In 21014, 17 and in 2015, 16 surface longliners took up opportunities under the Protocol.

It should be noted that the total catch within the Mauritian fishing zone by the European fleet in 2014 was 510 t and in 2015 (to October) 489 t. This represents 9 % of the total reference tonnage for the Protocol (purse seiners and longliners) which is below the average utilisation in other FPAs. The main explanation for this low utilisation

lies in the environmental conditions making the tuna unavailable for the exploitation by purse seiners in recent years, with large schools of tuna migrating outside the Mauritian fishing zone.

It is estimated that the FPA is contributing to the creation of six (2014) to nine (2015) direct jobs 13 (2014) to 14 (2015) and indirect jobs in total (EU, Mauritius and other countries). The FPA contributes to the supply of EU markets in terms of canned tuna, but also in terms of raw material for EU canneries. The development of loin and pouch products is also destined to meet specific demands of the food services and canneries.

The fees paid by the EU fleet vessel generated an advance payment of EUR 3 710 for tuna purse seiners, and between EUR 1 750 and EUR 3 150 for longliners (depending on their gross tonnage). Third country vessels working under private agreement have to pay a larger fee: USD 7 500 for a period of 90 days for tuna purse seiners and between EUR 9 000 and 12 000 for a period of 90 days for the longliners (depending on the length). From this perspective, the level of fees payable by Union ship owners for their fishing activities is less than would be applicable if they took private licences. This suggests that the FPA provides favourable access conditions to the resources for the EU vessels while avoiding any discriminatory treatment towards EU vessels and promoting a level playing field among the different fleets.

Vessel owners indicated that they prefer to operate within the framework of an FPA, which provides stable conditions within a legal framework and would complete the network of active FPAs of the region (Seychelles, Comoros and Madagascar notably).

Two Sapmer vessels with French beneficial ownership are flagged to Mauritius and as Mauritian-flagged vessels they pay USD 30 000 per annum and USD 4 600 for VMS and logbook fees. This cost is significantly more than that for the EU purse seiner owners. The flagging of the Sapmer vessels under Mauritian flag may be for a variety of reasons including the location of the Sapmer processing factory and the wish by Mauritius to develop its own registered fleet to demonstrate a long-term fishing interest in the tuna stocks.

Most of the tuna caught in the Mauritian fishing zone is not landed in Mauritius but in Seychelles (purse seiners) and La Réunion (French longliners). Most of the French longliner catch is destined for the EU, where it is sold fresh. It can be estimated than at least half of the purse seiner catch finds its way back to Mauritius by reefers and containers to be absorbed by the Mauritian seafood-processing sector. As EU is the primary export market for tuna products, the catch of EU purse seiners is supplying the EU market.

7.1.3 FPA contribution to development of a sustainable fisheries sector in Mauritius

The FPA aims to support the development of a sustainable fisheries sector in Mauritius in line with the ambitions of the government. The new Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Islands aims to encompass all aspects of the ocean economy to grow it as a leading economic pillar but maintaining due regard to sustainability of aquatic resources and social development (see Section 4.2). The government has demonstrated its commitment to sustainability and is making efforts to improve this in the future while also making the sector an important economic earner.

As noted in Section 1.2.5, unemployment is a major challenge for the government, and appropriate training and capacity building is a government priority. In this regard, the EU Sector Support's assistance to capacity building (see Section 6.9) that works in parallel to other training programmes under e.g. SmartFish, SWIOFC and SWIOFish (see Section 1.3) is an important contribution to furthering this vision. Capacity building in developing management plans and the shark NPOA are developing the important skills required, especially in Albion FRC, which has suffered from a reduction in capacity following the withdrawal of Japanese support (see Section 2.3). Indirect capacity building through the partnership approach of the FPAs is, and will continue to be, increasingly important. Examples of this are cooperation at IOTC scientific committee meetings and within other regional cooperation mechanisms. Full budgets for the Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Islands were not available due to the re-structuring, but it is evident from the reduced research activity that the support provided by the sectoral support is an important contributor to the overall budget available for development and implementation of fisheries management and research. Through the second element of the sector support, inter-agency cooperation is being strengthened with the police (including coastguard), port authority and other agencies (see Section 4.3.1).

The Protocol aims to embark up to 10 seamen on the EU fleet while operating in Mauritian waters. As discussed in Section 6.5.2, this has to date not been successful due to lack of available qualified crew, lack of a structured (possibly regional) plan to implement the embarkation programme and logistical challenges. The protocol in Mauritius is estimated to generate less than 5 jobs every year (4.9 in 2014 and 4.6 in 2015), mainly in the seafood processing sector. Overall direct employment in seafood processing is estimated at around 6 000, in fishing activities 6 000 and indirectly in the seafood sector 10 000, as the bulk of the fish for processing is caught by EU vessels. This important employment sector is greatly enhanced by the activity of the EU fleet in the western IO as a whole and their access to the fishing grounds as a whole rather than specifically the Mauritian fishing zone.

7.2 Efficiency

This section examines the extent to which the desired effects are achieved at reasonable cost.

7.2.1 The extent to which the cost of the fishing possibilities negotiated under the FPA is advantageous for the EU

The effective compensation to Mauritius for a tonne of tuna caught under the FPA was EUR 941 in 2014 and EUR 999 in 2015 after taking into account all payments for access (EU and vessel owners). The EU supports most of this payment, with EUR 701 per tonne in 2014 and EUR 714 per tonne in 2015. Had the vessels completely caught the reference tonnage, the cost per tonne would have been much lower at EUR 100 per tonne, of which EUR 35 per tonne would be paid by vessel owners. With an average price of tuna paid to purse seiners close to EUR 1 000 per tonne in 2015, the cost of access paid by vessel owners represents almost 30 % of the fishing income, which exceeds the 5 % level vessel owners consider to be a maximum for access cost. However, in the case of the tuna fishery in the western IO, it is a high priority for the EU to maintain a network of FPAs across the tuna migration, to negotiate a harmonised technical conditions for access for the EU fleet into the EEZs of these FPAs and to ensure provision of tuna to the processing factories in the region, including Mauritius and in Europe. In view of these considerations and the need for strengthened cooperation between distant water fleets and the coastal States of the region to work towards improved compliance and ultimately sustainability of the tuna fishery, the cost of the fishing possibility negotiated is viewed as advantageous to the EU.

7.2.2 The extent to which the actions agreed in the initial programming have been achieved at reasonable cost

EU Sectoral Support paid to Mauritius under the FPA has a maximum value of EUR 302 500 per year. In 2014, 41 % of the budget allocation was utilised and the remainder was rolled over to the next year (see Section 6.9). Although expenditure was slow, the delays were justified and mainly associated with procurement issues and confounded by restructuring of the new Ministry.

Progress with the sustainable development and conservation of aquatic living resources through the implementation of national fisheries management plans is assessed to be progressing slowly but adequately, and in some cases this is in conjunction with the FAO EAF Nansen programme, developing a sound base for implementation and skills transfer to other FMPs. Support to the development of an NPOA for sharks is also under way and a very important addition to the NPOA IUU fishing that Mauritius already has, especially within the context of the IOTC. The contract for the implementation of the electronic reporting system is due to be awarded to a service provider very soon, and this will be an excellent contribution to the ability of Mauritius to monitor and cross-check the activity and catches in its zones in a more real-time context. Training for this may be required. If so, this should be implemented as soon as possible.

The element of sector support that safeguards the EEZ and territorial waters is implemented with local partners and within the context of regional initiatives, some supported by the EU and other cooperating partners. Regional cooperation to overcome illegal and criminal activities in the fisheries sector is vital, and every effort should be made for Mauritius to participate in a sustainable and ongoing manner in these cooperative actions. Success in taking action against infringers is important for deterrence and the sustainability of the stocks (see Section 4.3.2).

Progress with improving sustainability of marine resources and ecosystems through the participatory approach has been acceptable. Some challenges have occurred in the issuance of incentives for fishers to reduce the pressure on the lagoon resources – by returning nets and encouraging them to participate in the aquaculture sector by offering equipment to start up small businesses. This is assessed to be a more risky approach than others in the annual plan, but it is given a high priority by the Ministry, which is committed to seeing this fully implemented before the end of 2016.

The main improvement that may be useful for the sector support is that a permanent mechanism be set up for the industry and civil society to engage in a dialogue with the Ministry. In this way, they can be updated on progress in implementing the annual and multi-annual programmes. Greater awareness in local press may also improve the perception of how income from the FPA is used.

7.2.3 The extent to which the cost of the fishing possibilities negotiated under the FPA is advantageous for EU ship owners

With the current catch level, the real cost of the fishing opportunities may be considered as high, but vessel owners mentioned that it was a necessary burden to be able to catch tuna schools in years when their migration pattern enters more deeply into the Mauritian fishing zone.

7.2.4 The extent to which the cost of the fishing possibilities negotiated under the SFPA is advantageous for the third country

The FPA is also generating some value added for the Mauritian economy. It is estimated that Mauritius benefited from an additional EUR 191 000 in value added in 2014 and EUR 181 000 in 2015, mainly captured through the fleet payments for access, but also by the provision of goods and services for the EU fishing vessels (upstream indirect value added) and by the processing of some of the tuna caught in the Mauritian fishing zone. It is estimated that the value added retained by Mauritius represents between EUR 374 (in 2014) and EUR 369 (in 2015) per tonne caught.

7.3 Economy

This section assesses the extent to which resources are available in due time, in appropriate quantity and quality at the best price.

7.3.1 The extent to which the EU contribution for sectoral support is commensurate to the needs and absorption capacity of Mauritius

The sector support, although with its own multi-annual programme, sits within the work programme of the ministry and is well utilised and appropriate to the sector policy and targets (see Section 4.2). The cooperation with other regional initiatives, especially to achieve the protection of the EEZ, is deemed to have been cost effective and efficient for Mauritius and in line with regional policy such as the SADC Protocol on Fisheries.

EU Sectoral Support paid to Mauritius under the FPA has a value of EUR 302 500 per year. For 2014 and 2015 combined EUR 488 205 has been allocated to supporting the Mauritian fishery sector policy in particular through sustainable development and conservation of aquatic living resources, the deterrence of illegal fishing, surveillance and policing of the EEZ and territorial waters and promoting participatory approaches to management.

In 2014, 41 % of the budget allocation was utilised and the remainder rolled over due to delays in implementation. The Mauritian Government noted that the key challenge to implementation has been the procurement in respect to the electronic reporting system. However, these issues have almost been resolved and the planned activities for 2016 are anticipated to go ahead. A challenge has also been the changes within the new ministry responsible for fisheries, however these challenges are reducing as the ministry matures and develops its operational and administrative systems. The partnership with the EU (see Section 6.1), especially in the delivery of sector support is appreciated and valued by the Mauritian fishery authorities.

7.3.2 The extent to which payments have been made in due time

The contributions have been paid as required by the Protocol and to the designated bank accounts. The procedures to deal with delays in expenditure and thus the need for disbursement were dealt with jointly at the JCM and the system implemented has been complied with.

7.4 Relevance

This section evaluates the extent to which current needs and problems match the objectives of the FPA.

7.4.1 The extent to which the original objectives of SFPA still correspond to the needs of ship owners and Mauritius

Vessel owners highlighted the relevance of the FPA – it is part of the existing network of FPAs currently active in the region, and provides more clarity and medium-term stability and legal security than would a private arrangement. Although catch levels in 2014 and 2015 were low, vessel owners stressed the fact that this FPA complements the Seychelles and other western IO FPAs, allowing purse seiners to track tuna schools on both sides of the fishing zones limit. They also emphasised that there is an important inter-annual variability in the geographical distribution of the tuna school, and environmental conditions which are not possible to anticipate before the actual fishing season. Therefore, it is important for the industry to maintain the FPAs to benefit from the years when tuna schools migrate further south within the Mauritian fishing zone (notably around the Agaléga Islands).

Vessel owners operating longliners from La Réunion stressed the fact that the FPA allows them to increase their fishing area eastwards. This was not possible before the FPA came into force as private agreements were never obtained from the Mauritian authorities.

Spanish longliner associations did not answer our question. It is therefore not possible to indicate why these vessels have not applied for any authorisation since the beginning of the FPA in January 2014, although it can be assumed that tits principle fishing areas lie outside the Mauritian waters.

The Protocol is highly relevant to Mauritius. It provides a framework for the income generation from surplus stocks whilst ensuring better compliance with management measures than those under private agreements with foreign vessels. The partnership with the EU will be increasingly important to Mauritius to assist them in ensuring that all management measures are implemented, not only in the EU fleet but in all fleets fishing in their EEZ and utilising their port for trans-shipments. The EU partnership is also laying sound foundations and building the sector's governance to be able to implement the FAO Port State Measures Agreement and to participate actively in forwarding the regional dialogue on harmonised access conditions.

Overall, the compensation provided for fisheries access to Mauritius has been at an acceptable level, in comparison to other arrangements.

The Protocol provides for sectoral support that has contributed to the development of fisheries and to resource management in a way that has been acknowledged as coherent and is also beneficial to the government. This is especially important with respect to the incentives for fisheries to reduce pressure on the lagoon fishery and the electronic catch reporting system that is soon to be implemented.

Mauritius is encouraging development of the fisheries sector through value addition; this goal has been met by the contribution of EU-caught fish entering the factories, even if it has not been caught in the Mauritian EEZ. Mauritius has ambitions to develop its port facilities, possibly developing new ports in some of the outer islands that are closer to the tuna migration path. This may provide new opportunities and cost-effective options for the EU industry, while supporting the development of the sector.

The Mauritian semi-industrial and artisanal fishers have benefited and will benefit from the sector support in a range of ways. The perceived competition between artisanal and industrial fishers, a view supported by local fisher groups and some, but not all NGOs, requires further analysis based on catch information. This requires improved monitoring and analysis of catches by species to ascertain whether the purse seine catches, generally in the north of the Mauritian EEZ, and the longliner catches, generally in the southern part of the EEZ, are having

negative impacts on the catches of artisanal fishers. The electronic catch reporting system will assist in this, and further training to the scientific staff at Albion FRC may be required to ensure the best and most timely use of this information. The artisanal catch sampling programme should be fully resourced, to enable FRC staff to adequately sample landing sites to obtain catch-by-species estimates for the full year. This information should be shared with all interested stakeholders and full transparency in the collection and analysis process, including amongst members of civil society and NGO groups, would be highly beneficial to allow all to access the situation based on best available information.

7.4.2 The extent to which the FPA is relevant to the policy objectives of IOTC and to the EU's regional network of FPAs

International fisheries instruments, including the IOTC management measures, contain a number of requirements to manage fishing capacity and effort and to control catches and minimise bycatch (see Section 3.2.1 and Annex D).

The industry requires a continuous network of FPAs to have access to the fishing grounds of the tuna resources of the western IO. It also requires a clear framework to operate within, preferably harmonised across the region. Finally, it requires that all international requirements, in this case those of IOTC, are complied with to ensure access to markets where consumer demands can be anticipated.

The key EU interest group is the purse seine fleet, which requires access to productive areas of western IO waters in order to effectively and efficiently catch fish. Catches are not constant during the year, and the fleet's movements are mainly determined by patterns of fish migration. The FPA network in the IO enables EU vessel owners to maximise the use of the EU fleet capacity in the Mauritian EEZ and the western IO, in general; to create employment and added value both in the EU and in Mauritius and the region; to provide fish produce to the EU processing industry; and contribute to overall EU market supplies, all of which are furthered through the development of a network of FPA agreements within the IO (Section 3.3).

The Protocol, in conjunction with other FPAs in the IO region, satisfies the EU fleet's need for access to IO EEZs through which yellowfin and skipjack stocks migrate. Although the number of vessels that made use of the Protocol's fishing opportunities fell short of the fishing opportunities on offer, they comprised a significant proportion of the EU fleet active in the western IO (all the French and Spanish purse seiners, most of the French longliners) and the catch by purse seiners was not high, the importance of the right to fish was confirmed by representatives of the fleet.

The Protocol can be described as relevant to the needs of EU consumers as it contributes to the security of canned tuna and whole frozen product supplies to the EU market for processing and retail trades. The controversial debate, which is being addressed in the framework of IOTC, on the use of FADs and their association with the bycatch of juvenile tunas and non-targeted species, in particular billfish, sharks (silky shark and oceanic whitetip) triggerfish, dolphin fish, barracuda and wahoo, is partially tackled by Resolution 15/08 on FADs that limits the number of instrumented FADs active and followed by purse seiners to 550 per vessel. However, this first step is unlikely to mark the end of the discussion on the use of FADs within the western IO.

7.5 Coherence

This section evaluates the extent to which the intervention logic is non-contradictory / the intervention does not contradict other interventions with similar objectives.

7.5.1 Coherence of the FPA with the Common Fisheries Policy and with the regional fisheries policy

The Common Fisheries Policy (CFP) recognises the important role that RFMOs must play in the management of regional stocks, and the need for the EU to participate in this process. This means that if the Protocol is to be coherent with the CFP, it must also be coherent with IOTC management measures.

The EU and Mauritius are Members of the IOTC, and the Protocol is coherent with the CFP and IOTC resolutions and management measures. For example, the Protocol contains provisions for use of VMS that are being

followed, and all vessels must be duly authorised and registered as per the requirements of the CFP and IOTC. The introduction of an electronic catch data system is included in the sector support and this is coherent with an IOTC pilot project. In other aspects, there is coherence of the Protocol, and in cases stronger provisions, than in the IOTC CMM, such as the banning of trans-shipment at sea. Because of the strong emphasis in the CFP on responsible fisheries and working within RFMOs, the Protocol is thus also coherent with the CFP in this respect.

In terms of regional policy – the SADC Protocol on Fisheries and the SADC Statement of Commitment on IUU fishing are two key policies – there is coherence in terms of the Mauritius Protocol and the policies of the SADC on issues such as VMS, observers, local employment and the promotion of RFMOs (IOTC). The application of these, in some cases such as the sharing of information has improved in recent years through, for example the FISH-i Africa Task Force and work on minimum terms and conditions of access undertaken in the region in partnership with the EU IOC SmartFish Programme and SWIOFC. The regional interest in promoting more harmonised approaches is coherent to the SADC Protocol – for example, with respect to the use of observers and local crew – will increase the coherence of the application of these regional approaches.

The Mauritius FPA is coherent with the IOC's Regional Surveillance Plan supported by EU funding (see Section 4.3.2), with the decisions of the IOTC, and with the CFP.

Section 7.1 comments on the extent to which the Protocol is contributing to responsible fishing, which is a key principle of the CFP. The EU regulations and the Protocol are coherent in terms of prohibiting fishing on marine mammals and on shark-finning. The FPA also refers to, and is consistent with, the FAO's Code of Conduct for Responsible Fisheries.

7.5.2 Coherence of the FPA with the other EU policies and cross-cutting issues

There is a good level of coherence between the FPA and regional programmes, such as the SmartFish project where assistance has been given on developing sector policy, capacity building on fisheries personnel and training in MCS.

In terms of trade, an interim EPA for the Eastern and Southern Africa (ESA) countries including the states of Comoros, Madagascar, Mauritius and Seychelles came into force in May 2012, with a chapter on fisheries. The fisheries chapter starts by acknowledging the mutual (EU and ESA States) interest in the fishery resources of the region and particularly in value addition to them. The EPA and the Protocol are generally coherent on issues of sustainability, trade, VMS, observers, the need to participate in and conform to measures of IOTC and other regional agreements.

In terms of exports to the EU of fish caught under the FPA, Mauritius has integrated the EU standards into its own Fisheries and Marine Resources (Export of Fish and Fish Products) Regulations 2009 and Amendment Regulation 2012 (GN 209 of 2012), making the two fully coherent. In terms of IUU fish, all third countries importing marine fishery products into the EU are required to implement the EU IUU Catch Certificate Scheme (CCS) of Council Regulation EC 1005/2008 and subsequent legislation. Mauritius is implementing a CCS that is coherent with the monitoring and reporting requirements of the Protocol.

7.5.3 Coherence of the FPA with the fisheries and development policy of Mauritius

The vision for fisheries is 'to be an economic pillar with due regard to sustainability of aquatic resources and social development for the benefit of all stakeholders'. Mauritius does not have a fisheries policy as such, and is elaborating its oceans approach to transform Mauritius into an ocean state by promoting the ocean economy as one of the main development pillars. The main areas in this approach include: to sustain economic diversification, job creation and wealth; to have a unified regulatory body to license, supervise, monitor and regulate the activities of ocean-related economic operators; to seek technical cooperation and financial assistance from international organisations and donor countries to ensure that the new industry starts off on a sound foundation; to implement a new Fisheries and Marine Resources Bill incorporating international norms and practices for modernising the fisheries sector, putting the fishermen community at the centre of development (see Section 4.2).

Mauritius promotes sustainable and responsible fisheries development, an objective that is in line with the objectives of the FPA. The government is taking steps towards developing the sector by working closely with the Investment Board (see Section 4.3.1) and other partners and promoting its one-stop-shop to facilitate increased local and international participation and investment levels in the sector and hence greater competitiveness.

The FPA Protocol is coherent with the fisheries and development policies as it facilitates a relatively straightforward framework for fishing vessels to gain an access right to the waters of Mauritius. Payments for this are coordinated and increase the income for fishing rights to Mauritius.

Mauritius is currently updating its legislative framework to accommodate new obligations and international best practice (Section 4.1). The EU's relations with Mauritius under the FPA have encouraged the continual scrutiny and updating of this framework. The current draft Fisheries Bill is reported to be crafted in coherence with the Protocol, for example including VMS and the banning of trans-shipment at sea.

The Protocol, in theory, is coherent with the employment policy of Mauritius but for reasons discussed in Section 6.5.2 this is not being fully implemented due to the lack of human capacity for and coherence in application in Mauritius and logistical issues. The stronger emphasis on training by the Minister of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Islands is likely to make these elements more pertinent in the future. The employment of ACP nationals downstream (see Section 6.7) in the value chain is an important contributor to Mauritius employment and coherent to its policy objectives.

With respect to putting the fishermen community at the centre of development, some issues of perceived non-coherence arise. For example, civil society spokespeople have noted a rise in the prices for local consumption due to the high international demand for tuna. However, others interviewed reported that this was not the case and that the local population of Mauritius generally preferred to eat the demersal and reef fish species. This potential non-coherence and the perceived competition between artisanal and industrial fishers by some civil society and NGO groups, as discussed in Section 7.4.1, would benefit from further dialogue and open debate that can be facilitated under the third element of the Sector Support on participation in processes.

The policy of Mauritius to seek technical cooperation and financial assistance from international organisations and donor countries to ensure that the new ministry starts off on a sound foundation is coherent and supported by the spirt of and the measures in the Protocol. The Protocol lays a framework for practical application of agreed measures that are in line with international best practice, and beneficial for Mauritius to adopt in other areas of access negotiation with other parties, including full transparency. At the same time, it provides a partnership for the EU to both fund (through Sector Support) and support Mauritius in the monitoring of the EU and other fleets within its waters, through cross checking of logbooks, VMS data etc.

A recent example of the benefits of the partnership facilitated by the Protocol is the result of the discussion at the Second Meeting of the Parties to the Southern Indian Ocean Fisheries Agreement (SIOFA), held in Mauritius on 17– 20 March, 2015. Mauritius, the EU and Australia put forward proposals for hosting the Secretariat for the SIOFA, following direction from the Meeting of the Parties. Mauritius and the EU proposed alternative arrangements, namely that the Secretariat of the SIOFA be based in La Réunion, with the annual Meeting of the Parties being held every two years in Mauritius. The Meeting of the Parties agreed to this proposal, which was developed in the spirit of partnership between the EU and Mauritius ([144]).

[144] Available at: http://www.savethehighseas.org/publicdocs/Final-Report-SIOFA-Second-Meeting_Updated-2Apr15.pdf

7.6 Added value

This section evaluates the extent to which the intervention brings EU added value.

7.6.1 Value addition for Mauritius

The additional value resulting from the EU intervention under the FPA, compared to what Mauritius could achieve if they negotiated separate fishing authorisations with vessel owners is principally the sectoral support (as discussed in Section 7.3.1) and the benefits this has brought to the development of the national fisheries sector and the strengthening of MCS operations to help fight against illegal fishing. The sectoral support has supported the development and implementation of national management plans, including the NPOA for sharks, the training and deployment of observers, the implementation of the electronic reporting system and the monitoring of the tuna fishing activities. It has assisted Mauritius to safeguard their EEZ and territorial waters through the deterrence of illegal fishing, surveillance and policing of the EEZ and territorial waters. This includes support to air and sea patrols, the prosecution of infringements and participation in the IOC regional action plan of surveillance. And contributed towards the sustainability of marine resources and ecosystems through capacity building and development and implementation of FMPs for the lagoon and off-lagoon areas for the non-tuna fisheries. In addition Mauritius has benefited from a partnership with the EC that has been beneficial in their regional cooperation's at IOTC, IOC and SWIOFA.

7.6.2 Value addition for the EU fleet

Union vessel owners prefer SFPA/Protocol over private agreements. The existence of a FPA reinforce the legal framework surrounding the exploitation of resources in the Mauritian fishing zone with the direct involvement of the EU in discussions about fisheries management. It also offers legal certainty compared to private agreements that are renewed every year: terms and conditions are negotiated for the duration of the protocol when fees and conditions associated with private licences may evolve more rapidly.

7.6.3 Consequences of not renegotiating an FPA Protocol

If an FPA Protocol is not renegotiated the likely consequences are that EU vessel owners would take private fishing authorisations to access the resources in Mauritian waters. The main direct loss for the government of Mauritius would be the loss of the sectoral support (see Section 6.6) this would reduce their ability to strengthen their fisheries management and their MCS capacity to fight against IUU fishing. The standardisation of FPAs and Protocols within the western IO provides a generalised basis for regional cooperation and a bench mark for MCs standards that would not be established if the FPA/Protocol is not renegotiated.

From a governance perspective for Mauritius, the FPA and Protocol offer a 'template' for setting the bar in other fisheries agreements that Mauritius has with other parties. The FPAs are designed to support the core CFP principles, such as sustainability, access to surplus resources only, ending wasteful fishing practices; reliable scientific data, transparency, better governance and non-discrimination. If the FPA or Protocol are not renegotiated this benchmark will not exist and this may have a negative impact on the management of fisheries in Mauritian waters, which will have regional impacts.

It may be assumed that the Mauritian seafood sector would not be affected by the absence of a FPA: its dependence on catch performed in the Mauritian fishing zone is very limited and it is doubtful that Mauritian seafood processors would not be able to source their raw material in neighbouring countries (mainly Seychelles) as they are currently doing it. Conversely, the absence of a FPA would not be detrimental to the European fishing vessels to the point that vessels would stop fishing: it would reduce the areas that are more easily accessible due to the necessity to request private licences, but as the Mauritian fishing zone is only of minor importance for purse seiners and longliners, it is not expected that the EU fishing sector would lose jobs in the absence of a FPA.

7.7 Acceptability

This section evaluates the extent to which stakeholders accept the policy in general and the particular instrument proposed or employed.

7.7.1 Acceptability of the Protocol to the EU shipowners

The EU shipowners are satisfied with the conditions set up by the protocol and support its renewal (with possible adaptations). Vessel owners indicated that they prefer to operate within the framework of an FPA, which provides stable conditions within a legal framework and would complete the network of active FPAs of the region (Seychelles, Comoros and Madagascar notably).

7.7.2 Acceptability of the Protocol to civil society in Mauritius

Civil society within Mauritius interviewed during the evaluation proposed that in the future Sector Support could focus on sustainability issues related mainly to tuna. Examples include:

- a tuna conference;
- developing argument to have quotas or other enforceable limitation systems within the IOTC framework that would include small-scale fishers, retailers, processors, NGOs and government in discussions;
- exploring the EEZ for other species to diversify the sector;
- support for a regional observer programme;
- improving MCS, especially to understand the patterns of illegal trans-shipments at sea;
- improving the reporting and traceability of bycatch species so that they could be marketed on an equal footing to the target catch and improving benefits from non-target species;
- support to the development of a domestic fleet and exploration of what this mean in terms of real fleet development in the western IO; and
- development of a mechanism for non-government players to be able to present projects, even though they cannot manage the funds directly.

The main interest of non-government groups and individuals interviewed was the need to develop a mechanism that would facilitate structured dialogue between government and partners on the fisheries sector in Mauritius and with the EU on their engagement, as and when appropriate.

Regarding the FPA, an interview with the founder and president of Kalipso, the Mauritian civil society platform, noted in March 2013 ([145]) that local fishers and civil society had mobilised against this agreement based on the low valuation of tuna species caught by foreign fleets compared with the price of tuna on the local market. He noted that fishers' unions and civil society interests had demanded greater transparency in the negotiation process and, for example, access to the minutes of the Joint Committee meetings, the multi-annual sector programme, and the annual evaluations. He noted that a proposal to establish a Mauritian 'consultative committee on fisheries and maritime issues' had been tabled, during interviews in 2015, with various stakeholders and it appeared that this Committee has not been mobilised, possibly due to the changes within the Ministry. The need for such a mechanism was noted by various stakeholders including processors and the ex-chair of a fishermen's group. In particular, the need for dialogue with the government on these issues rather than just information sharing was stressed.

Mauritian Exports Association (MEXA) is a private association of export companies, including fisheries sector exporters. Representatives of MEXA stated that they require access to the resources, a clear set-up for operational procedures to ensure a level playing field and compliance to international regulations such as the Resolutions of the IOTC. They also noted their interest to be able to present projects for sector support in addition

[145] An interview was arranged to meet with the founder of Kalipso but unfortunately he was unable to attend and it was not possible to re-schedule.

to government and that local private sector organisations and NGOs should be involved in the development of the sector support programme. They were also keen to ensure that the sector support was related to ensuring compliance to regulations and focused on the tuna resources.

Industry and civil society have reported that although they were initially consulted with respect to the sector support at a meeting held in April 2014, they were not given feedback on what has been implemented. It appears that, following the negotiations with the EU and the lack of an option for the sector support to fully realise the expectations of the civil society, including for funds to be available for direct management by non-state actors, feedback was not received by all parties. This is an area where more awareness of the sector support may be beneficial in the future. It is noted that the records of the Joint Committee Meetings should in the future be made publically available and may be a useful tool for creating transparency.

8 Ex ante evaluation of a future Protocol to the FPA based on analysis of impacts

8.1 Views of the key EU stakeholders

8.1.1 European Commission

Through recent public communications and reports, the European Commission, Council and Parliament have expressed their respective views that the Sustainable Fisheries Partnership Agreements should be maintained under the external dimension of the reformed CFP. These FPAs should contribute to sustainable fisheries practices, be beneficial and fair to both parties. They should contribute to the development of the fisheries sector in the partner State. The SFPAs should also contribute to the supply of fish and fish products to the EU and to the partner States.

It is recognised that the Mauritius FPA is important for the EU fleets, as it complements the network of SFPAs currently active in the western IO, allowing fleets to follow tuna stocks as they migrate between EEZs and the high seas.

8.1.2 EU private sector

Spanish and French producer organisations were contacted as part of the stakeholder consultation. All spoke of the importance of the Mauritius fishing zone, and important factors to take into consideration, namely:

- The western IO piracy problem, which has affected fishing areas. Being able to access to the Mauritian fishing zone is essential when piracy or insecure conditions along the African coast push the purse seiner fleet toward the east. Although the situation has improved, operators felt this element should not be dismissed when considering the importance of the area for EU fishing vessels.
- The current migration route of tuna stocks passes close to the northern limit of the Mauritian fishing zone. Depending on the environmental conditions, the migration route could be further south, which would increase the possibility of tuna schools present in the fishing zone.

The vessel operators expressed various views on the Mauritian FPA Protocol. All considered it an important agreement that should be renewed. Some purse seine operators mentioned that the low levels of catch observed in 2014 and 2015 were not the norm, and that this should not hinder EU renewal of the FPA as tuna stocks present high levels of variability in terms of location of the large schools targeted by purse seiners. Some operators mentioned that they were not paying for a specific tonnage but for the ability to access the zone, which is an element that should also be considered when evaluating the FPA.

Requirements at the vessel level

One operator considered that the FPA was too young to be evaluated regarding the natural variability of the stocks targeted. A longline operator mentioned that the limit of 100 GT used to differentiate small longliners from large longliners was not adequately set from a La Réunion perspective, as the tonnage associated with the larger longliners is too important for vessels of 24 m that fall into the category. A change of the limit to 150 GT would help La Réunion fishermen to increase their uptake of the available licences.

Some operators also mentioned the necessity to include supply vessels in the protocol, at a reasonable cost. One operator mentioned that excluding them from this protocol (or from other protocols) would be detrimental as it would just make those supply vessels become less visible, but not forbidden.

It was felt by the owners of under 15 m longliners that a grace period longer than a year should have been defined for the vessels that are not required to install AIS by EU regulations, at least until the end of the current protocol.

Mauritian crew

The operators complained about the obligation of recruiting Mauritian crew while operating in the Mauritian fishing zone. With the relocation of the operational base of Sapmer from Port Louis to Victoria, very few EU vessels call in Port Louis. Purse seiners are mainly catching tuna in the northern part of the fishing zone (close

to the Agaléga Islands) and landing in Victoria, while the French longliners are deploying their lines in the western part of the Mauritian fishing zone, just outside the French fishing zone, and returning to La Réunion to land their products. Vessel owners have therefore to recruit seamen all year round, which seems to be challenging due to the apparent lack of specific training in Mauritius (where seamen are trained to work on coastal fishing vessels, not on high seas purse seiners), but also the lack of candidates willing to work on EU vessels for the entire fishing season. Moreover, the rules set in case of non-embarkment are not clear from the operators' perspective:

Overall, operators considered that these provisions should be standardised at the regional level. One operator mentioned the necessity to have a discussion amongst the different coastal states for them to harmonise the approach they would like to see implemented at the regional level

Observers

The vessel operators also noted that Mauritius did not request to board any observers during the period under review. A regional approach of mutually recognised observers was noted as a useful approach that may facilitate the improved embarkation of regional on-board observers.

A share of the sectoral support is currently dedicated to training Mauritian observers to fulfil IOTC requirements, but it was reported by one operator that sectoral support should also be targeted at training observers that would be deployed specifically to ensure the compliance towards the provisions set by the FPA. This would also need a coordinated approach at the regional level.

Capacity of the Mauritian fleet

Some concerns were raised about the current influx of foreign-owned vessels registering in Mauritius, as it may have an effect on the long-term balance of capacity in the area and the ability for EU vessels to benefit from a surplus.

8.2 Expectations of the key Mauritian stakeholders

8.2.1 National government

The views of the Mauritian government (see Section 5.6) include the wish to strengthen the partnership with the EU and the EC in particular in ensuring the sustainable utilisation of the fishery resources in the longer term for the WIO.

They have noted the need for improved compliance on all fleets, the cross-checking of information, in particular in the VMS and logbook information, as a means to improve compliance and data collection for scientific purposes, the electronic catch log being developed under sector support is anticipated to assist with this and to be a blue print for other fleets. The use of on board observers through a regional programme offers new opportunities for improving MCS, Mauritius indicated an interest to develop this in cooperation with other coastal states, regional programmes such as SmartFish, regional research and training facilitates and in cooperation with scientists in Europe. The full implementation of the provisions in the proposed draft fisheries Act and regulations including the Regulation on VMS, AIS and MCS are anticipated to be fully supported in a new Protocol. The recent accession to the FAO PSMA and its implementation to complement the IOTC PSM Resolution, will offer opportunities for the EU within the framework of the IOTC and nationally to support the capacity building for PSM implementation through the sector support in a future agreement.

The government has made commitments to increase employment in the maritime sector and this could be enhanced through a future Protocol, for example in the re-working of the approach to embarking crew on vessels, within a regional strategy; to enhancing the capacity at Albion FRC through developing partnerships with European research providers; and, support to the Maritime Training Academy to bridging skills gaps for a future strengthened fishery sector.

Government wishes to benefit more from the sector and be a more active player, this was supported by all local groups interviewed and the wish to partner with industry and the EU was expressed strongly by the government.

8.2.2 National industry

As mentioned previously, representatives of MEXA stated that they require access to the resources, a clear set-up for operational procedures to ensure a level playing field and compliance to international regulations such as the Resolutions of the IOTC. They expressed an interest in the opportunity to present projects for Sector Support in addition to government, and suggested that local private sector representatives and NGOs should be involved in the development of the sector support programme. They were also keen to ensure that the Sector Support was related to ensuring compliance to regulations and focused on the tuna resources.

8.2.3 National civil society

As mentioned in Section 4, historically, the Mauritian civil society platform Kalipso has been mobilised against the agreement due to increasing tuna prices on local markets. The principal claims are focusing on the lack of transparency surrounding the FPA (catch data, licence data), the need to include catch limits for shark species and the need for a coherence between the fees paid for access to Mauritian waters and the tuna prices. Kalipso and local fisher groups have also noted that the stocks targeted by the EU fleet are overlapping with the artisanal fishers and that they are in competition for these species; however, this claim has been disputed by other Mauritian based NGOs. It was noted by some civil society representatives that it would be useful for this issue to be discussed within a mechanism for dialogue between civil society groups, the government and the EU. This may be a useful consideration for sector support in a new Protocol.

8.3 Expectations of other key stakeholders

8.3.1 IOTC

The IOTC welcomes the close working relationship between Mauritius and the EU in the form of their FPA and Protocol. It regards both Members as making constructive and positive contributions to the governance of fisheries targeting tuna and tuna-like species in the Indian Ocean.

8.3.2 Other stakeholders (e.g. NGOs)

Although the international NGOs expressed some concerns in general regarding FPAs, they have not expressed any particular opinion with respect to a future Protocol with Mauritius. The main aspects that were raised are:

- the lack of transparency during FPA negotiation and surrounding the Joint Committee meetings, as well as for all data produced by vessel activities (effort, catch, licences);
- the lack of clear demonstration that the FPA is achieving its sustainability objectives; and
- the equity in benefit sharing.

8.4 Ex ante evaluation

The results of the ex ante evaluation are presented in Table 8-1 below.

Table 8-1: Ex ante evaluation of the renewal of the EU/Mauritius FPA Protocol

Ex ante evaluation criteria	Main points for consideration

Needs to be met (short term and long term)
– this involves a situational analysis and a good understanding of the motivations and interests of the key actors
	Short term
	EU needs to:
	• achieve continuity in maintaining fishing opportunities for the European fleet in the western Indian Ocean region; and
	• maintain the supply of fish and fish products to the EU market.
	Mauritius needs to:
	• maintain the revenue stream provided by the EU financial contribution for access under the terms of the Protocol and the authorisation fees from vessel owners; and
	• benefit under the terms of the Protocol, from sectoral support by helping the nation to foster its capabilities to manage the fisheries sector.
	Long term
	EU needs to:
	• secure and/or maintain fishing opportunities for the EU fleet;
	• ensure reliable supplies of fish and fish products for the EU market; and
	• contribute to the sustainable management of fish stocks in the western IO though the FPA with Mauritius, and the other FPAs involving the EU, and as members of the IOTC.
	Mauritius needs to:
	• to contribute to the sustainable management of fish stocks in the western IO as a member of the IOTC and in particular within their EEZ and to do this in partnership with the EU as a long-term partner and member of the IOTC;
	• to maximise the benefits perceived by Manutius from its fisheries resources while protecting the ecosystem by:
	  ○ maximising revenue from fisheries access fees;
	  ○ developing domestic capacity for growth of the fishery and ocean sectors;
	  ○ developing partnership to develop the ocean economy into an important economic and social pillar of society; and
	  ○ further development of its ability to regulate fishing activities taking place in its fishing zone.
	• build the human and institutional capacity within Mauritius to enable it to function as an efficient and responsible fishing nation.

Ex ante evaluation criteria	Main points for consideration
Added value of EU involvement – this is the value from an EU intervention in excess of the value that would have resulted from a national-level intervention by public authorities and/or the private sector without the EU	The EU is deeply involved in the region through membership of the IOTC, which involves both Mauritius and the EU in the quest for a sustainable regional management of IO tuna resources. The FPA complements these regional efforts at a local level. The EU has invested heavily in regional projects: • The FPA Protocol has a strong focus on MCS and, at a national level, it complements and is coherent with the IOC/EU partnership. This involves the Regional Plan for Fisheries Surveillance (PRSP), which focuses on strengthening MCS in the region. • The FPA has as an objective the promotion of 'responsible fishing in the waters of Mauritius' (Protocol Article 3). This necessarily involves management across the whole of the range of tuna resources, and it addresses the responsibilities in the Mauritius fishing zone of both the FPA Parties in the context of their regional obligations. The Implementation of a Regional Strategy for the ESA-IO (IRFS) Project (known as SmartFish), is supporting implementation of an ESA-IO regional strategy for sustainable management of the fishery sector. A major component of such a strategy would be the management of highly migratory species ranging across IO jurisdictions and high seas. Thus, the FPA can complement the evolving regional approach to fisheries management by focusing on the Mauritian national dimension of what needs to be part of an integrated regional strategy. • The FPA helps set a standard for fisheries agreements with Mauritius. This would not be the case in its absence. • The EU provides funding and acts as a supportive interlocutor for the development of the Mauritian fisheries sectors. The FPA makes this possible. • EU vessels are unlikely to abandon fishing in the western Indian Ocean in the absence of a new Protocol. Even so, the FPA and its Protocol provide a useful legal framework for the EU to better exercise flag state responsibility. • Small longliners from La Réunion do not have the same negotiation power than the EU. In the absence of an FPA, it is expected that they would not be able to access to those waters, restricting their ability to fish close to their home port. In view of the extensive involvement of the EU in the western IO region, particularly in the fisheries sector, the FPA provides a vehicle for a coordinated approach that would not be as easily achieved at the level of Member States. Through the FPA, it is possible to standardise and harmonise Member State involvement in the fishery to the best economic effect for both the EU and Mauritius. It also provides a useful channel for sector support, providing an efficient means of avoiding duplication of effort and leading to greater effectiveness.

Ex ante evaluation criteria	Main points for consideration
Objectives to be achieved – this relates to the desired change from an identified baseline situation	• Management of the Mauritian fisheries sector has been evolving over time. The baseline for a new Protocol is implementation of the new fisheries legislation soon to be enacted in Mauritius and the resolutions of the IOTC. In the industrial fisheries, the EU fleet dominates the purse seine sector, although the Mauritian fleet is developing with seven purse seine vessels now on their registry. Asian fleets are dominant in the longline fishery. In coming years, the challenge facing Mauritius will be to develop its institutions, build the capacity of their staff, and ensure the efficient and effective running of all aspects of its fisheries management system to achieve the long-term sustainability of its and the regions fisheries. With respect to tuna and tuna like species, regional cooperation in this endeavor is essential. The EU has a major interest in the success of Mauritius. • Only one of Indian Ocean stocks of tropical tuna targeted by the EU fleet is currently assessed as being overfished or having overfishing (yellowfin tuna; Section 2.4), and some bycatch species are thought to be endangered or near-threatened (Table 2.2). Caution can be exercised using the institutions of the IOTC to maintain the status of tuna stocks, to limit bycatch (including in relation to FADs) and in so doing contribute to resource conservation and environmental sustainability. At this juncture, with an expanding fleet in the western IO (especially of coastal national fleets) and the negative trend of the yellowfin, cooperation between distant water fishing flag states and coastal states will be vital if the resolutions of the IOTC are to be fully implemented.
The policy options available, including the risks associated with them – Is it relevant to have a new protocol / FPA with the third country? – What alternative instruments could be considered and why is the proposed one chosen? – What risks are involved in the implementation of the intervention and what countermeasures could be proposed?	• An option would be to terminate the FPA for which notice would need to be given by 27 July 2016 (FPA Article 14.1) ([146]). If the FPA were terminated by either party, EU purse seiners would be likely to continue to fish but with private licences at rates applying to foreign fishing in 2015 and without the regulatory safeguards in place in the framework provided by the FPA. Without the FPA, it is likely that there would be associated impacts on governance, sustainability, transparency and the regulation of fishing activity. Also, Mauritius would have fewer resources to improve its fisheries sector and to provide the services of an efficient base for the EU fleet. Mauritius would lose important support for its exercise of responsible fisheries management. The EU would lose partnership with an important tuna fishery, removing a significant link in the regional FPA network. • The alternative is to continue with the FPA and negotiate a new Protocol. This would build on and reinforce the progress made in recent decades in Mauritius and the western Indian Ocean region. The FPA would underpin the supply of tuna to the EU from a sustainable fishery source and it would contribute to responsible fisheries management more generally in Mauritius and the western Indian Ocean. This would bolster the drive towards the sustainability of western Indian Ocean resources, reinforce the ability of the Mauritian administration to manage its fishing sector and the activity of foreign vessels fishing in its area, and support the Mauritian economy mainly through the supply of tuna to the Mauritian processing sector. • It is appropriate to continue with the FPA and negotiate a new Protocol. In the longer term, an integrated regional approach could be developed that would cover the whole range of the species involved and could harmonise specific provisions of the FPAs, notably on the matter of embarkment of local crew and on the recognition of regional fishing observers.

[146] Requires six months' notice prior to the end of the first period, which ends on 27 January 2017.

Lessons learned

– What are the lessons of the ex post evaluation (if any) or of past experience / other FPAs in the region?

– How can these be applied to improve possible EU intervention?

- Although fishing opportunities were not fully utilized in respect to the reference tonnage to date, this sheds light on the migratory nature of the fishery and the difficulties in relation to the system of setting a reference tonnage, vessel reference tonnage and price per tonne within the system of calculating the cost of access. It may be beneficial for consideration under the SFPA framework to view access right as a set fee. If reference tonnage is to continue to be used within the calculation of access fee it would not be beneficial to set this at a lower level as this may have unintended consequences if the distribution of tuna school is more prominent in the Mauritian fishing zone in the future.
- In the current Protocol if the full number of vessels identified in the Protocol had taken up fishing authorizations, with the allocated vessel reference tonnages, a total of 7 516 t of fish could have been caught, this is above the 5 500 t reference tonnage for the Agreement and demonstrates that these indicators and the figures located need careful consideration in a new Protocol (see Section 6.3.2).

Table 8-2 Relationship between vessel and total reference tonnage under the EU/Mauritius FPA

Mauritius	No. of vessels in each segment	Vessel reference tonnage	Total vessel reference tonnage for each segment
PS	41	106	4 346
LL>100	23	90	2 070
LL<100	22	50	1 100
Total reference tonnage of fleet			**7 516**
Reference tonnage is given as			**5 500**
Aggregate of VRT as a % of the reference tonnage			**137 %**

- The trend to increase the proportional payment by the vessel owners in comparison to the EC is evident in newly negotiated SFPAs. The payment made by the vessel owner (currently 35 %) of the cost is likely to increase in a future Protocol and this payment, as experienced by the current Protocol is only paid if all vessels take up the authorization to fish. Therefore as this percentage increases, the risk to Mauritius of a secure income decreases if vessels do not take up authorization. In addition if the number of vessels identified in the Protocol is not a true reflection of those wishing to take up authorizations the allocation to Mauritius will decrease. These figures will require careful consideration by both parties.
- Compliance with the requirements of the Protocol have largely been respected, but the difficulties regarding the employment of Mauritian crew on EU vessels and the deployment of observers needs to be addressed and resolved. A regional approach with other countries currently involved in an FPA with the EU could be the way forward to implement coherent rules at the regional level: coherent rules to embark coastal states crew and a necessary consensus allowing a regional observer programme to be initiated. A part of the sectoral support could also be devoted to fund partly the specific training seamen should follow before joining EU vessels.

Ex ante evaluation criteria	Main points for consideration
Consequences for the EU budget/human resources – Cost implications of the proposed options? (direct financial outlays from the EU budget, administrative costs for the Commission, human resources needed and costs for third parties)	• If the option to terminate the FPA were to be selected, it would save the EU EUR 660 000 per year, plus the administrative and travel costs involved in its management. However, the cost of lost opportunity for greater partnership and cooperation with Mauritius at a dynamic time in the Indian Ocean may incur more costs in the future due to unsustainable stocks, lack of access to surplus and reduced opportunities for the EU processing sector due to diminished relations. • The option of renewing the Protocol would not necessarily require additional financial or administrative support from the EU beyond what is currently required for the functioning of the current Protocol. It would, however, be possible to negotiate a future protocol that may increase the vessel owners' payments for access. This would also have the effect of forcing the industry to take on a larger share of the responsibility for paying for fishing opportunities from which they would benefit if their uptake of the reference tonnage were more important.

9 Conclusions and recommendations

9.1 Conclusions

The EU's FPA with Mauritius is expected to contribute to several shared objectives considered to be of mutual benefit to both parties: supporting the management and expansion of responsible fisheries; a better use of EU fleet's capacity; employment creation and value addition along the fisheries supply chain in both the EU and Mauritius; provision of product to the EU processing industry; and supplying EU markets with finished products. The ex post evaluation presented in this report finds that both parties have been highly compliant with the direct provisions of the FPA and Protocol. Where compliance has fallen short, there have been rational and acceptable explanations.

EU fishing fleets have a long history of activity in the Indian Ocean. Today, they rely on a network of FPAs to gain access to all the critical EEZs in the migration path of tuna stocks – Mauritius, Comoros, Mozambique, Madagascar and Seychelles EEZs - although Mozambique's Agreement is not currently active. In 2014, 27 and in 2015, 30 out of maximum availability of 41 purse seine vessel took up fishing opportunities offered in Mauritian waters, and 17 in 2014 and 16 in 2015 surface longliners took up opportunities under the Protocol. The combined catches (purse seiners and longliners) represented just 9 % of the total reference tonnage for the Protocol, which is below the average utilisation in other FPAs. This may be due to comparatively low abundance of tunas in Mauritian waters compared to other areas of the IO.

The effective compensation to Mauritius for a tonne of tuna caught under the FPA was EUR 941 per tonne in 2014 and EUR 999 per tonne in 2015 when taking into account all payment for access (EU and vessel owners). Had the vessels completely caught the reference tonnage, the cost per tonne would have been much lower at EUR 155 per tonne of which EUR 35 per tonne is paid by vessel owners. With an average price of tuna paid to purse seiners close to EUR 1 000 per tonne in 2015, the cost of access paid by vessel owners represents almost 30 % of the fishing income, which is higher than the 5 % level vessel owners consider to be a maximum for access cost.

The FPA arrangement is assessed to provide the greatest benefits to Mauritius in comparison to other access arrangements. In evaluating the FPA and the Protocol against the criteria of effectiveness, efficiency, economy, relevance, and coherence the results have generally been positive when viewed against the dynamic environment in which this framework operates, which is constantly open to change. The evaluation also demonstrates that there is good co-operation between the EU and Mauritius, both under the FPA and in the wider regional context of the Indian Ocean – with benefits being gained by both partners. The Protocol provides assistance to the Mauritian fishing sector through sectoral support. This makes a long-term contribution to fisheries management, for example through support to the artisanal sector and implementation of an electronic catch reporting system.

The Protocol requires a minimum number of Mauritian seamen to be employed on EU vessels; however, this has to date not been successful due to lack of available qualified crew, lack of a structured (possibly regional) plan to implement the embarkation programme and logistical challenges. However, direct employment in seafood processing is estimated at around 6 000, in fishing activities 6 000 and indirectly in the seafood sector 10 000, as the bulk of the fish for processing is caught by EU vessels. This important employment sector is greatly enhanced by the activity of the EU fleet in the western IO and their access to the fishing grounds as a whole, rather than specifically the waters of Mauritius.

The Protocol was evaluated to be coherent with the CFP and IOTC resolutions and management measures and generally with the terms of regional policy such as the SADC Protocol on Fisheries. The FPA was evaluated as working coherently with other EU-supported initiatives in the region. There is a good level of coherence between the FPA and the regional programmes such as the SmartFish project, where assistance has been given on developing sector policy, capacity building on fisheries personnel and training in MCS.

It is considered appropriate to continue with the FPA and negotiate a new Protocol. In the longer term an integrated regional approach could be developed to harmonise specific provisions of the FPAs, to make

movement by the vessels between EEZs easier and to ensure coherent implementation of compliance measures, particularly those mandated by the IOTC across the western IO region.

In terms of needs to be met in future FPAs, in the short term, the EU needs to achieve continuity in maintaining fishing opportunities for the European fleet in the western Indian Ocean region and to maintain the supply of fish and fish products to the EU market. Mauritius needs to maintain the revenue stream provided by the EU financial contribution and to benefit under the terms of the Protocol from sectoral support. In the long term, the needs of both parties are similar to the short term, but in addition both parties are fully committed to the sustainable management of the fishery resources of the IO and to implementing the resolutions of the IOTC in a coherent and harmonised manner. Mauritius also needs to ensure that it continues to develop the infrastructure and facilities to maintain its position as an important hub for the tuna fisheries in the western IO, and to build human and institutional capacity within Mauritius to enable it to function as an efficient and responsible fishing nation and to grow the benefits from the ocean economy in general.

The FPA provides a vehicle for a coordinated approach that would not be as easily achieved at the level of Member States, demonstrating added value of EU engagement that should continue. Through the FPA, it is possible to standardise and harmonise Member State involvement in fisheries to the best economic effect for both the EU and Mauritius. The challenge facing Mauritius will be to develop its institutions in the coming years, build the capacity of its staff, and ensure the efficient and effective running of all aspects of its fisheries management system to achieve the long-term sustainability of its fisheries. With respect to tuna and tuna-like species, regional cooperation in this endeavour is essential especially in light of the trend in the yellowfin stocks in recent IOTC assessments and the expansion of the fleet, from the distant water nations and also the coastal States. The EU has a major interest in the success of Mauritius.

9.2 Recommendations

9.2.1 General recommendations

With the conclusions in mind, the evaluation recommends that:

- A new Protocol should be negotiated between the EU and Mauritius to facilitate continuation of their mutually beneficial partnership on fisheries.
- Any future Protocol and its implementation should focus on issues that are important for the tuna fishery but also firmly align sectoral support with the Government's development and sectoral policy through the multiannual plan - including the policies to strengthen fishery support infrastructure, grow the local fishing industry and strengthen private sector engagement. Special attention should be given to including participatory mechanisms for dialogue and the focus should be on support that impacts on the sustainability of the tuna stocks.
- Sectoral support should continue in line with the core areas identified by Mauritius: ensuring sustainable development and conservation of aquatic living resources, safeguarding of the EEZ and territorial waters, and contribution towards the sustainability of marine resources and ecosystems through the participatory approach.
- Open communication channels between the EU and the Mauritius authorities should continue to be maintained in both directions and the existing sound basis that is in place should be further built on. This will help to ensure that both parties are able share information about changes in their operating environment in a timely manner and facilitate mutual support and co-operation especially in international processes.

9.2.2 Technical recommendations

- Access rates should relate to the economic importance of the right to fish within the Mauritian fishing zone, as part of the regional strategy for fishing rather than just the reference tonnage.

- A regional approach with other countries currently involved in an FPA with the EU should be explored further with coastal States to support the implementation of coherent terms and conditions at the regional level. These could include an agreed approach to the cost of access, coherent approaches to embarking coastal states crew and observers, possibly through a regional programme and coherent approaches to VMS, AIS and electronic reporting.

Annexes

Annex A: Currency exchange rates used in this report

EUR exchange rate (1 =)	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
USD	1.255	1.347	1.579	1.405	1.221	1.439	1.258	1.301	1.365	1.109
MUR	38.587	42.226	41.989	43.822	37.807	39.571	37.454	38.907	41.140	37.716

USD exchange rate (1 =)	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
EUR	0.797	0.742	0.633	0.711	0.819	0.695	0.795	0.786	0.733	0.901
MUR	30.748	31.339	26.594	31.197	30.975	27.500	29.781	29.912	30.150	33.996

Rates at year mid-point (30 June).
Source: Oanda, 2015 ([147]).

[147] www.oanda.com

Annex B: List of acronyms/abbreviations

ACP	African, Caribbean and Pacific Group of States
AFRITAC South	International Monetary Fund Regional Technical Assistance Centre in Southern Africa
AIS	Automatic Identification System
BIOT	British Indian Ocean Territory
CBD	Convention on Biological Diversity
CC	Crew costs
CFP	Common Fisheries Policy
CIC	Core intermediate consumption
CMM	Conservation and management measure
CMS	Convention on Migratory Species
COMESA	Common Market for Eastern and Southern Africa
CPCs	Contracting and Cooperating Non-contracting Parties
CPFD	Catch per fisherman-day
CPUE	Catch per unit effort
DCF	Data Collection Framework
DG MARE	EU Directorate General for Fisheries and Maritime Affairs
DG Santé	EU Directorate General Santé
EAF	Ecosystem approach to fisheries
EBITDA	Earnings before interest, tax, depreciation and amortisation
EEZ	Exclusive Economic Zone
ENSO	El Niño Southern Oscillation
ESA	Eastern and Southern Africa
EU	European Union
EUR	Euro
F	Fishing mortality
FAD	Fish aggregating device
FAO	UN Food and Agriculture Organisation
FMC	Fisheries Monitoring Centre
FMP	Fisheries management plan
FPA	Fisheries Partnership Agreement
FRC	Albion Fisheries Research Centre
GDP	Gross domestic product
GEF	Global Environment Facility
HACCP	Hazard Analysis Critical Control Point
IEO	Instituto Español de Oceanografía

iEPA	Interim Economic Partnership Agreement
IIAG	Ibrahim Index of African Governance
IMF	International Monetary Fund
IO	Indian Ocean
IOC	Indian Ocean Commission
IORA	Indian Ocean Rim Association
IOTC	Indian Ocean Tuna Commission
IRD	Institut de Recherche pour le Développement
IUCN	International Union for the Conservation of Nature
IUU	Illegal, unreported and unregulated (fishing)
JMC	Joint Ministerial Committee
kJ	kilojoule
km	kilometer
LL	Longline
m	meters
MASE	Programme for Promoting Regional Maritime Security
MAU	Mauritius rupee
MCS	Monitoring, control and surveillance
MDG	Millennium Development Goal
MdM	Mer des Mascareignes Limitée
MEXA	Mauritian Exports Association
MOI	Mauritius Oceanography Institute
MPA	Marine protected area
MSY	Maximum sustainable yield
NGO	Non-governmental organisation
NODC	National Oceanographic Data Centre
NPOA	National Plan of Action
PS	Purse seine
RFMO	Regional Fisheries Management Organisation
RISM	Regional Integration Support Mechanism
RMCE	Regional Multi-disciplinary Centre of Excellence
SADC	South African Development Community
SIDS	Small Island Developing States
SIOFA	South Indian Ocean Fisheries Agreement
SmartFish	Programme for the Implementation of a Regional Fisheries Strategy for the Eastern and Southern Africa-Indian Ocean region

spp.	species
SSB	Spawning stock biomass
STECF	Scientific, Technical and Economic Committee for Fisheries
SWIOFC	South West Indian Ocean Fisheries Commission
SWIOFish	South West Indian Ocean Fisheries Governance and Shared Growth Program
t	Metric tonnes
T	Turnover
TdM	Thon des Mascareignes
TIC	Total intermediate consumption
TRACES	Trade Control and Expert System
TX	Taxes
UK	United Kingdom
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
USA	United States of America
USD	United States dollar
VA	Value added
VIC	Variable intermediate consumption
VMS	Vessel monitoring system
WIOTO	Western Indian Ocean Tuna Organisation
WPEB	IOTC Working Party on Ecosystems and Bycatch

Annex C: Summary of international fisheries management agreements

International instruments

The 1982 **United Nations Convention on the Law of the Sea** ([148]) (UNCLOS) sets the framework within which states must manage their fisheries. It includes rules relating to the EEZ, the high seas and to highly migratory species. Within the EEZ, the coastal state has 'sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living...' (UNCLOS, Art. 56).

The UNCLOS establishes rights and duties for coastal states in both the conservation and utilisation of marine fisheries resources. UNCLOS permits the coastal state to determine the total allowable catch for each species within its EEZ (Art.61 (1)) on the basis of the best scientific evidence available to it (Art.61 (2)). Available scientific information and other data relevant to the conservation of fish stocks should be contributed and exchanged between states through competent international organisations (Art.61 (5)).

A coastal state must promote the optimum utilisation of its fisheries resources within its EEZ without prejudice to conservation (Art. 62). It must determine its capacity to harvest its total allowable catch and grant access to other states to that part of its TAC that it is not able to harvest (Art. 62 (2)). The coastal state has the right to determine the conditions under which foreign vessels are allowed access to the surplus of the TAC and has full regulatory powers (Art. 62 (4)) within its EEZ.

In the exercise of its sovereign rights over the living resources of its EEZ, a coastal state may 'take such measures, including boarding, inspection, arrest and judicial proceedings, as may be necessary to ensure compliance with the laws and regulations adopted by it in conformity with this Convention' (Art. 73 (1)).

Where the same stocks occur within the EEZ of more than one state (trans-boundary stocks) or within the EEZ and 'in an area beyond and adjacent to the zone' (straddling stocks), the coastal states and those states fishing these stocks have a duty to agree on measures for the conservation and management of such stocks (Art.63 (1), (2)).

There are particular provisions relating to highly migratory species. The coastal state and other states that harvest highly migratory species listed in Annex 1 of the Convention 'shall co-operate... with a view to ensuring conservation and promoting the objective of optimum utilisation ... both within and beyond the EEZ' (UNCLOS 1982, Art.64). Annex 1 includes the species in the Indian Ocean of interest to the European fleet. Further rules relating to straddling stocks and highly migratory species were agreed at UN Conference on Straddling Stocks and Highly Migratory Species and will be further discussed below.

UNCLOS lays down a duty on states to cooperate in the management and conservation of high seas fishery resources (Art 117 – 120). The *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 (UN 1995)*, generally referred to as the UN Fish Stocks Agreement, seeks to strengthen these provisions.

The **UN Fish Stocks Agreement** ([149]) provides for the establishment of regional or sub-regional management organisations (Part III). States with a 'real interest in the fisheries concerned may become members of such organisations' (Art. 8(3)) and only states that agree to apply the management measures can have access (8(4) to the fisheries. They need not be members of the organisation.

The Agreement sets out comprehensive areas in which such a management organisation will have competence covering scientific research, stock assessment, monitoring, control, surveillance and enforcement (Art. 10).

148 United Nations, 1982, United Nations Convention on the Law of the Sea (UNCLOS).

149 United Nations, 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. Available at:

Compliance with the Agreement builds on flag state jurisdiction contained in UNCLOS Art. 90-98. A state may authorise a vessel flying its flag to fish on the high seas only where it is able to exercise effectively its responsibilities of enforcement under the Agreement (Art. 18(2)). However, provision is made for the flag state to permit access by inspectors from other states (Art. 18(3)(g)(i)) and the use of on-board observers from other states ((Art. 18(3)(g)(ii)).

Article 21 provides for inspectors from a member state of a regional organisation established under the Agreement to board and inspect any vessel of another state party to the Agreement. The flag state must take action against a vessel reported to have committed a serious violation, detailed in Article 21 (11). Failure to do so gives the inspecting state the right to take action and the procedures for doing so are detailed in Article 22.

A significant addition to the set of legal instruments is the 2009 **Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing**. The Agreement has not yet entered into force but the IOTC, recognising its usefulness for the region, anticipated its enforcement by adopting a binding Resolution 10/11 ([150]), which is almost identical to the FAO Agreement. Port state compliance and enforcement measures are a relatively cost-effective element of an MCS system. The Agreement establishes a duty on port states to designate ports for use by foreign-flagged fishing vessels and vessels supporting or servicing fishing vessels; to require specific information from vessels in advance of entry into port; to inspect foreign-flagged fishing and support vessels; to deny port entry or port use and services to IUU vessels and, in co-operation with flag states, other coastal states and RFMOs, to take other enforcement measures. The effective enforcement of port state measures depends on the establishment of and well-trained and motivated fisheries port inspectorate and good communication and cooperation between national agencies and with regional and global fisheries bodies ([151]).

The **Southern Indian Ocean Fisheries Agreement** ([152]), which entered into force on 21 June 2012, and to which the EU, Comoros and Seychelles are all party, would be of interest if there is a decision to target species other than tuna and tuna-like species. The Agreement covers the Indian Ocean areas beyond national jurisdiction for species other than tuna and tuna-like species.

Voluntary instrument

The Code of Conduct for Responsible Fisheries (1995) is a global voluntary instrument that provides principles and standards for the conservation, management and development of fisheries. Although voluntary, parts of it have been give binding effect though other international legal instruments such as UNCLOS. The Articles of the Code cover all the major thematic areas of fisheries, including fisheries management, fishing operations, aquaculture development, integration of fisheries into coastal area management, post-harvest practices, trade, and fisheries research. It also contains general principles, provisions relating to its implementation, monitoring, updating, and special requirements of developing countries.

Agreements that form an integral part of the Code of Conduct include the 1993 FAO Compliance Agreement and various international plans of action (IPOAs), which were all in force in 1999: in particular, the 2001 IPOA to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing; the IPOA for Reducing Incidental Catch of Seabirds in Longline Fisheries; the IPOA for the Conservation and Management of Sharks; and the IPOA for the Management of Fishing Capacity.

150 IOTC, 2011. Resolution 10/11, On Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing. Available at:

151 FAO, 2009. Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing. Found at:

152 FAO, 2006. Southern Indian Ocean Fisheries Agreement. Available at:

Annex D: IOTC conservation and management measures applicable to vessels under the FPA

Resolution no. (as of 2015)	Short name of Resolution	Information required to ensure compliance (as per IOTC compliance reporting system)
1. Implementation obligation		
Rules of Procedure	*Concerning the functions of the compliance committee*	• *Compliance questionnaire*
2. Management standards		
15/04	*Relating to control of fishing activities*	• *Documents listed in resolution found on board* • *Marking of vessels, gears and FADs* • *Logbook on board* • *Official authorisation to fish outside National Jurisdictions*
15/01	*Official fishing logbooks*	• *Official fishing logbooks*
12/12	*To prohibit the use of large-scale drift nets on the high seas in the IOTC area*	• *Ban on large-scale driftnets*
12/13	*Time area closure for longliners in February 2012*	• *Legal and administrative measures to implement the area closure*
15/08	*FAD management plans and FAD design*	• *FAD management plan*
3. Reporting on Vessels		
10/08	*Concerning a record of active vessels fishing for tunas and swordfish in the IOTC area*	• *List of active vessels*
15/11	*On the implementation of a limitation of fishing capacity of contracting parties and cooperating non-contracting parties*	• *Fleet Development Plan (FDP)* *Reference Capacity* • *List of vessels for tropical tuna during 2006* • *List of vessels for SWO and ALB during 2007*
15/04	*Concerning the establishment of an IOTC record of vessels authorised to operate In the IOTC area*	• *List of authorised vessels 24 metres in length overall or more* • *List of authorized vessels (less than 24 metres, operating in waters outside EEZ of the flag state)*
13/07	*Concerning a record of licensed foreign vessels fishing for tunas and swordfish in the IOTC area*	• *List of foreign vessels licensed in EEZ* • *List of foreign vessels denied a licence* • *Access agreement information* • *Official coastal State fishing licence*
4. Vessel Monitoring System		
15/03	*On establishing a vessel monitoring system programme*	• *Adoption VMS for all vessels greater than 15 metres in length overall* • *VMS report on the progress and implementation*
5. Mandatory statistical requirement		
15/02	*Mandatory statistical requirements for IOTC members and cooperating non-contracting parties (CPCs)*	*Nominal catch* • *Coastal fisheries* • *Surface fisheries* *Catch & effort* • *Coastal fisheries* • *Surface fisheries* *Size frequency* • *Coastal fisheries* • *Surface fisheries* *Fish aggregating devices (FADs)* • *Supply vessels* • *Days at sea by supply vessels* • *FADs set by type*
6. Implementation of mitigation measures and bycatch of non-IOTC species		

05/05	*Concerning the conservation of sharks caught in association with fisheries managed by IOTC*	• *Submission of data regarding sharks (nominal catch, catch & effort, size frequency)*
12/09	*On the conservation of thresher sharks (*Alopiidae*)*	• *Prohibition on thresher sharks of all the species of the family* Alopiidae
13/06	*On the conservation of ocean whitetip sharks*	• *Prohibition on ocean whitetip sharks*
12/04	*On marine turtles*	• *Sea turtles report* • *Carry line cutters and de-hookers on board* • *Carry dip nest (purse seiners)*
12/06	*On reducing the incidental bycatch of seabirds in longline fisheries*	• *Seabirds report* • *Implementation of mitigation measures south of 25° S*
7. Illegal, unreported and unregulated (IUU) vessels		
11/03	*List of vessels presumed to have carried out illegal, unreported and unregulated fishing*	• *IUU listing*
07/01	*To promote compliance with IOTC conservation and management measures*	• *Compliance by nationals*
8. Trans-shipments		
14/06	*On establishing a programme for trans-shipment by large-scale fishing vessels*	• *At sea trans-shipments – CPC report* • *Trans-shipments in port report* • *List of authorised carrier vessels* • *Reports on results of investigations on possible infractions* • *ROP fee*
9. Observers		
11/04	*On a regional observer scheme*	• *Regional observer scheme (Number of vessels monitored and coverage by gear type)* • *5 % mandatory, at sea (> 24 metres)* • *5 % phasing in, at sea (< 24 metres)* • *5 % phasing in artisanal landings* • *Observer reports*
10. Statistical document programme		
01/06	*Concerning the IOTC bigeye tuna statistical document programme*	• *1st semester report* • *2nd semester report* • *Annual report* • *Information on authorised institutions and personnel*
11. Port inspection		
05/03	*Relating to the establishment of an IOTC programme of inspection in port*	• *Port inspection programme*
10/11	*On port state measures to prevent, deter and eliminate illegal, unreported and unregulated fishing*	• *List of designated ports* • *Designated competent authority* • *Prior notification periods* • *Inspection report* • *At least 5 % inspection of LAN or TRX inspection report* • *Denial of entry in port*
12. Markets		
10/10	*Concerning market-related measures*	• *Report on import, landing and trans-shipment of tuna and tuna-like fish products in ports*

Source: IOTC, 2015 ([153]) ([154]).

153 Available at:

154 Available at:

Annex E: People consulted

The consultants are grateful to all stakeholders who shared their time, thoughts, information and data with the consulting team that completed this specific contract.

EU institutions and organisations

Organisation		Department position
European Commission	**DG MARE**	B3 – Bilateral agreement and Fisheries control in International Waters: Deputy Head of Unit, Desk officer for Mauritius, Scientific and International Officer B2 - Fishing Authorization and catch Data Officer
	DEVCO	D1. Development Coordination Southern Africa and Indian Ocean
	European Delegation to Mauritius	Attaché Pêche
Spain – Fisheries administration - Ministerio de agricultura, alimentación y medio ambiente (MAGRAMA), Secretaría general de pesca, D. G. de recursos pesqueros y acuicultura		Deputy director External agreement Unit
France – Fisheries administration - Direction des Pêches Maritimes et de l'Aquaculture (DPMA)		European and International Affairs Unit
Spain - ANABAC		Director
Spain – OPAGAC		Director
Spain - ARVI (ANAPA ARPOAN)		General Secretary
France – ORTHONGEL		Director
France – Comite Régional des Pêches et des ELveages Marins de la Réunion		General Secretary
France – ARIPA (La Réunion)		General Delegate
France - CFTO (purse seiner company)		Head of Fleet
France - Sapmer (purse seiner company)		Chief Operating Officer Logistics and Processing Activities (Mauritius)
		Operational Manager (Mauritius)
		Logistic Manager (Seychelles)
France - Reunipeche – ENEZ (longliners company)		Fleet manager
Greenpeace	Greenpeace France	Fisheries Policy advisor
	Greenpeace European Unit	Fisheries Policy advisor
WWF	WWF France	Fisheries Policy advisor
	WWF European Policy Office	Fisheries Policy advisor
	WWF UK	Marine Policy Specialist – International Fisheries

Organisation		Department position
	WWF Coastal East Africa Initiative	Head of Marine Programme
	WWF Madagascar & Western Indian Ocean Programme Office	Fisheries Programme Officer

Mauritian institutions and organisations

Organisation	Department position	First name	Second name
Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Islands	Permanent Secretary	A.K.	Utchanah
	Director of Fisheries	V.S.	Soondron
	Assistant Director of Fisheries	Devanand	Norungee
	Divisional Scientific Officer / MCS, VMS, PSC	Subash	Baulijeewon
	Senior Scientific Officer / Port State Control Unit	D.	Rumjeet
	Technical Officer / PSC	Clivy	Lim Shung
	Senior Fisheries Protection Officer	V.	Muthoorah
	Senior Fisheries Protection Officer		Koublall
	Divisional Scientific Officer / Fisheries Planning and Licensing	Meera	Koonjul
	Senior Scientific Officer / Licensing	Hans	Bhudoye
	Senior Technical Officer / Licensing	Noel	Wan Sai Cheong
	Technical Officer / Licensing	Doorvanand	Kawol
	Divisional Scientific Officer / Marine Resources / Albion Fisheries Research Centre	Louis	Mootoosamy
	Technical Officer/ Tuna Resources / Albion Fisheries Research Centre / Pelagic Fisheries	Manisha	Curpen Mahadoo
	Technical Officer / Marine Resources / Albion Fisheries Research Centre /	Veemlaa	Chelumbrun
	Albion Fisheries Research Centre, Marine Resources / Pelagic Fisheries	Trishna	Sooklall
	Technical Officer / Albion Fisheries Research Centre / Demersal Fisheries	Lurna	Caussy
	Technical Officer / Coastal Fisheries Resources / Albion Fisheries Research Centre	H	Baccus
	Technical Officer / Coastal Fisheries Resources / Albion Fisheries Research Centre	S.	Seeburun
Competent Authority Seafood	Senior Veterinary Officer	V.B.	Groodoyal
	Technical Consultant	Jim	Daly
Ireland Blyth Limited (IBL) Seafood and Marine Sector	Relationships Manager	Veronique	Garrioch

Organisation	Department position	First name	Second name
Princes Tuna	-	Joe	Parkes
BelLa Amigo	Purchasing Manager	Perovmal	Narana Pillay
Mauritius Freeport Development	Chief Executive Officer	Dominique	De Froberville
Mauritius Export Association	Seafood Consultant	Laurent	Pinault
	Director	Lilowtee	Rajmun
Fisheries Agency, Council of Agriculture Executive Yuan Taiwan, R.O.C.	Fisheries Representative in Mauritius	Jack, Chi-Hsing	Huang
Indian Ocean Commission – SmartFish	Coordinator Regional Trade Strategy	Chris	Short
	Fisheries Social-Economist	Yann	Yvergniaux
	Project Manager	Clotilde	Bodiguel
South West Indian Ocean Fisheries Governance and Shared Growth (Swestern IOFish)	Programme Coordinator	Daroomalingum	Maure
Private sector	Consultant	Soobashchand	Sweenarain

Annex F: Fisheries and Marine Resources Act 2007

The Fisheries and Marine Resources Act 2007 (Act No. 27 of 2007) has 76 Sections divided into 10 Parts, as follows:

- Part I includes definitions of terms used in the act.
- Part II concerns the management of fisheries including the setting up of Consultative Committees by the relevant Minister. Under section 5, all fishermen are required to register with the Permanent Secretary. Section 8 establishes a Marine Protected Area Fund. Section 9 empowers the Minister to issue regulations to prescribe measures for the protection, conservation and management of fisheries and marine resources.
- Part III specifies that fish farming requires authorisation and registration from the Permanent Secretary unless the Minister provides exemptions by way of regulations.
- Part IV refers to the restrictions placed on fishing activities, including a prohibition on underwater fishing without the written permission of the Secretary (Sect. 17) and prescribes closed periods concerning fishing (Sect. 18).
- Part V concerns restrictions placed on the export and import of fish and fish products and on importation and manufacture of implements.
- Part VI, is divided into Sub-Part A pertaining to the licensing of nets and implements, and Sub-Part B, concerning the licensing of boats and vessels.
- Part VII relates to obligations regarding boats and vessels, including the provision that all fishing boats must be registered with the Permanent Secretary. Information concerning the fishing vessels and boats, such as the name of the vessel and the date of build will be maintained in a register (sect. 50).
- Part VIII contains detailed provisions regarding the enforcement of the act's obligations, including the powers to search and seize, arrest and detain.
- Part IX states the penalties imposed for breaches of the act's obligations.
- Part X is a miscellaneous chapter. Section 74 empowers the relevant Minster to issue regulations for the purpose of implementing this act.

Annex G: Summary of project proposals for capacity building of Officers of the Component Authority

Project 1

Veterinary and technical officers from Mauritius currently undertake audits of facilities approved for the production and export of fish and fish products from Mauritius to EU markets. It is therefore proposed that two veterinary and technical officers from the Competent Authority for seafood of Mauritius accompany officers of the Competent Authority for food safety in France for two weeks, during their work of inspection and auditing of approved fish and shellfish establishments, fishing and freezer vessels, cold stores and aquaculture facilities before products are placed on the market. This is to enable the officers from Mauritius gain working knowledge of the procedures used in France to verify the application of EU food law through inspection and audit. The knowledge gained would in turn enable more effective regulation of the sector in Mauritius and would also benefit both competent authorities through exchange of best practices.

Approximate cost: EUR 10 000 (includes economy return flights, 14 days per diem for two officers)

Project 2

Currently, when Mauritian officers detect major non-compliances and make reference to relevant articles in the EU food law, the charges when challenged in court have no legal standing under Mauritian law. It is therefore proposed that a European Commission official or approved consultant be engaged to draft a referential document under Mauritian Food law listing all relevant instruments of the EU Food law, to ensure that all actions undertaken by Mauritian authority officers are legally binding. The expert should preferably be fluent in English, have experience in third countries of drafting 'referential' documents under their national laws that ensure equivalence with EU food law as well be able to work to strict deadlines and explain complex legal issues. The expert will be in Mauritius for two–three weeks (full time) working from the Competent Authority offices in Mer Rouge and the Ministries' head offices in Port Louis.

Approximate cost: EUR 11 300 (includes resource person fees and per diems)

Project 3

There is currently no veterinary officer specifically trained in aquatic animal diseases, diagnosis and treatment in Mauritius. It is therefore proposed that a veterinary officer, with an honours degree in medicine, attend Stirling University (Scotland) during the 2016/17 academic year with the aim of obtaining a post-graduate diploma in aquatic pathobiology. An optional research project may be undertaken which, upon completion, would lead to obtaining a Master of Science degree in aquatic veterinary studies. The fully trained veterinary officer would then be able to share knowledge and skills gained with fellow Mauritian officers and stakeholders in the aquatic and ornamental fish sector. This in turn will reduce the risk of aquatic animal diseases affecting the livelihoods, trade and human health in Mauritius through better implementation of the draft National Animal Health strategy (currently submitted to FAO for approval).

Approximate cost: EUR 38 500 (includes tuition, 12 months' accommodation and upkeep allowance)

Annex H: MCS gap analysis for Mauritius

MCS gap analysis for the institutional, human and infrastructure of Mauritius.

Capacity component	Artisanal fishery	Semi-industrial fishery	Industrial fishery	Comments
Institutional capacity				
Licence /access control system in place and operational	yes	yes	yes	
Logbook or other catch document system in place and functioning	partially	yes	yes	Reporting in artisanal fisheries voluntary through associations
NPOA IUU developed and implemented	yes	yes	yes	Developed and incorporated
PSM in operational procedures in place and implemented	x	yes	yes	Developed, but need updating to comply with IOTC PSMR
Market / transport /export monitoring systems in place and operational	x	yes	yes	
Adequate SOPs in place for operational work	x	yes	yes	SOPs exist but need revision to include regional agreements as well as international standards
Cross-checking system in place and functioning to verify catch and landing data	no	yes	yes	
MCS risk assessment undertaken and incorporated into MCS planning	no	no	no	
MCS intelligence information used to investigate crime and utilised in MCS planning	no	no	no	
Co-management system for MCS in place and operational	yes	yes	yes	The Ministry of Agro Industry and Food Security, Ministry of Health and Quality of Life, Custom and Excise Department and Immigration all contribute the services of their employees to the monitoring control and surveillance of fisheries in Mauritius
Capacity to strategically plan MCS operations in place	yes	yes	partially	
Awareness activities in place on the negative impacts of IUU fishing	partially	no	no	
Adequate exchange of MCS information domestically	yes	yes	yes	Very good co-operations with Ministry of Agro Industry and Food Security, Ministry of Health and Quality of Life, Custom and Excise Department and Immigration
MCS interagency cooperation operational	yes	yes	yes	Fisheries Management Division and the Fisheries Protection Service, National Coast Guard, Mauritius Port Authority and the Ministry of Information and Communication Technology
Regional MCS cooperation in place and functioning	Yes	Yes	partially	Good, but can be improved, especially outside IOC. Information exchange needs to improve
Ability to implement regional MCS obligations	x	partially	partially	To some degree but requires strengthening for IOTC resolutions
Regional sharing of patrol platforms in place	x	x	partially	Sharing maritime patrol planes
Capable and able to interact in international debate on MCS and IUU fishing	yes	yes	yes	
Human capacity				
Adequately trained MCS inspectors	yes	yes	partially	Capacity among MCS personnel seems to be good although more training is needed – particularly within strategic MCS planning and risk assessment
Adequate trained MCS observers	yes	yes	yes	Limited in-house training conducted. Unsure if an observer programme is in place
Adequate trained MCS managers	yes	yes	partially	
Adequately trained MCS VMS/satellite operators	x	yes	yes	There are plans to upgrade the VMS Centre at Albion, where there have been technical difficulties in VMS start-up
Adequate trained fishers/industry to participate in co-management	yes	yes	yes	

Capacity component	Artisanal fishery	Semi-industrial fishery	Industrial fishery	Comments
Adequate aware fisheries managers of MCS issues	yes	yes	partially	
Adequate work descriptions available	yes	yes	yes	Job descriptions exist but can benefit from more details
Code of conduct in place	no	no	no	Not developed
Equipment				
Access to adequate patrol vessels	yes	no	no	No adequate patrol vessel for high seas use
Access to adequate patrol planes	x	yes	yes	Three capable maritime patrol planes available
Access to adequate helicopters	x	no	no	Could be useful for arrests
Access to adequate vehicles (motorbikes, bikes or 4x4s)	yes	x	x	
VMS system installed and working	x	yes	yes	
Access to adequate satellite imagery	no	no	no	
Adequate inspection kits available	yes	yes	yes	
Adequate equipment available for observers	x	yes	yes	
Adequate uniforms for MCS staff	yes	yes	yes	
ID cards for MCS staff	yes	yes	yes	
Adequate computers for MCS activities	yes	yes	yes	
Adequate internet access	yes	yes	yes	

Source: Comprehensive review of the capacity to implement effective MCS at a national and regional level including RFMO agreed actions, in the ESA-IO region, to determine areas to be updated and harmonised and to identify barriers to implementation of effective MCS, NFDS, 2012.

Annex I: Common violations within the western IO tuna fishery and the response in Mauritian legislation

Common violations identified by FISH-i Africa within the western IO include the following list with the legal basis for Mauritius to respond indicated:

Fishing without authorisation:

No person can operate a foreign-flagged or Mauritian fishing boat or vessel in the waters under Mauritius sovereignty or jurisdiction, except under a licence. Likewise, any Mauritian boat or vessel is required to be licensed to fish on the high seas. Any person who contravenes this requirement is liable on conviction to a fine, payable in the currency of the licence fee, not exceeding 100 times the licence fee for a period of 30 days or USD one million, whichever is higher when using a foreign-flagged boat or vessel, or a fine not exceeding MUR three million (EUR 72 000) when using a Mauritian boat or vessel. In addition, the Court may order the forfeiture of any vehicle, boat, vessel, gear, article or structure used in the commission of the offence and of any fish caught as a result of the offence.

Illegal trans-shipment at sea or in port

Foreign-flagged fishing boats or vessels are prohibited to trans-ship fish or fish products in Mauritian waters. They can only do so in a designated port or at an offshore terminal in Mauritius and upon obtaining a written clearance from the Permanent Secretary. Mauritian vessels or boats may trans-ship fish or fish products in the Mauritian waters if authorised to do so in writing by the Permanent Secretary. Any person who fails to comply with trans-shipment requirements commits an offence and is liable on conviction to a fine not exceeding MUR three million (EUR 72 000).

Provision of false, inaccurate or incomplete information

Under the fisheries law, any person who knowingly fails to supply any information required under the act or provides false, incorrect or misleading information commits an offence and is liable on conviction to a fine not exceeding MUR 500,000 (EUR 12 000).

Making or use of fraudulent documentation

The Fisheries and Marine Resources Act 2007 is silent on this issue. One will have to examine the Mauritian criminal law to determine under which provisions legal action can be initiated against any person who makes or uses fraudulent documentation.

Trading in illegal fish

The Fisheries and Marine Resources Act 2007 prohibits:

(a) the landing, possession or sell in Mauritius or in the waters under national jurisdiction of any fish caught in contravention of any international conservation and management measures (CMM) to which Mauritius is bound; and

(b) any person in Mauritius or within waters under national jurisdiction, to land, import, export, transport or trade any fish caught, possessed, transported or sold in contravention to the law of one or more states with which Mauritius has entered into an agreement 'on a reciprocal or multilateral basis' for the management of fisheries.

These provisions were modelled on the Lacey-Act type provision. The act recognises that bringing or trading in fish (in Mauritius or in the waters under national jurisdiction) illegally taken either in breach of a CMM (on the high seas) or of the law of another country with which Mauritius has entered into a fisheries management agreement is an offence and by the same token confers extra-territorial jurisdiction in Court in Mauritius. This means that a Mauritian court is competent to hear and rule on any case involving any fish caught in breach of a CMM. However, for any fish caught in breach of the law of another country, they can only do so if that country has concluded a bilateral agreement (on fisheries management) with Mauritius or is a party to a multilateral agreement (on fisheries management) to which Mauritius is also a party. This condition restricts the ability of the

Mauritian courts to exercise extra-territorial powers. An unfortunate consequence of the inclusion of this condition is that bringing or trading in fish (in Mauritius or within Mauritian waters) caught in breach of the laws of a third country with which Mauritius has not concluded any agreement on fisheries management is not an offence under the act. Any person who contravenes the provisions of the Fisheries and Marine Resources Act 2007 described in this section commits an offence and is liable to a fine not exceeding MUR 3 million (EUR 72 000).

Corruption of licensing officers, inspectors or observers

The fisheries law is silent on this issue. Any public official who accepts, solicits or obtains a bribe from another person and any person who gives or agrees to give or offers a bribe to a public official commits an offence under the Prevention of Corruption Act of 2002 and is liable on conviction to penal servitude to a term not exceeding 10 years.

Annex J: Comparison between institutional activities in Mauritius

Comparison between activities for the fisheries division, the Mauritius Oceanography Institute, the University of Mauritius and the Private Sector

		Fisheries Division			MOI	UoM	Others
Activities		**Service 1**	**Service 2**	**Service 3**			
1	Monitoring and service provision	Fisheries Policy, Planning and Management (Port-Louis) (Headquarters)	Marine Ecosystem, Conservation & Aquaculture Research (Albion Fisheries and Research Centre)	Fisheries Research, Management, Development & Training (Fisheries Training and Extension Centre (Pointe-aux-Sables) / Albion Fisheries and Research Centre)			
	Coral reef		x				Shoals Rodrigues & South East Marine Protected Area
	Fisheries – Catch and effort			x			Fishing Research and Training Unit (Rodrigues)
	Import/export permitting	X					
	Fisheries development			x			
	Microbiology		x				
	Supply of fingerlings		x				
	Policy/Management plans	x					
	Environmental Impact assessments		x				
	Training		x	x	x	x	
	Coastal water quality/ temperature		x				South East Marine Protected Area
2	Research						
	Conservation and MPA's		x				South East Marine Protected Area, Mauritius Marine Conservation Society, Reef Conservation Mauritius, Ecosud*

	Fisheries Division			MOI	UoM	Others
Activities	**Service 1**	**Service 2**	**Service 3**			
Oceanography				X	X	
Fisheries (stock assessment)			X		X	
Fisheries (biology)			X		X	
Fisheries development	X		X			
Primary and secondary productivity				X		
Birds and mammals						Non-governmental organization's
Recreational fisheries		X				
Economics and socio economics (all aspects – fisheries, tourism, aquaculture)						Consultancies / University of Mauritius
Genetics				X		
GIS/Mapping				X		
Fisheries Management plans	Planned for banks fishery	Planned for the Blue Bay Marine Park & Balaclava Marine Park				
Aquaculture feasibility studies with detailed business plans						Mauritius Research Council – seaweed, private sector
Aquaculture development		X		X	X	Fishermen Investment Trust
Biotechnology						Private sector

Source: extracted from the SmartFish Programme Report SF/2011/22 – note the Fisheries Division is now slightly changed in names, however this summary still provides a summary of the division of activities. * Mauritius Marine Conservation Society, Reef Conservation Mauritius and Ecosud are involved in communication, mostly in sensitisation.