

***Monitoring Control and Surveillance Protocol
for the
Fisheries Co-Management Plan for the Praslin
artisanal trap and line fishery***

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**GOS-UNDP-GEF PROGRAMME COORDINATION UNIT
BIODIVERSITY MAINSTREAMING PROJECT**



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Executive Summary

- A risk assessment and risk management approach was used to inform the development of the Monitoring, Control and Surveillance (MCS) Protocol for the Fisheries Co-Management Plan for the Praslin artisanal trap and line fishery.
- At 2 separate Risk Assessment workshops the Seychelles Fishing Authority (SFA) and the Praslin Fishers Co-management Coordinating Committee (PFCCC) independently analyzed, ranked and identified key risks in the fishery to be addressed by the MCS Protocol.
- 23 individual risks were identified and assessed. These risks related to the use of prohibited fishing gear; the take of regulated fish; unlicensed/unauthorized fishing; and the sale of fish by recreational fishers. Risks were ranked from Severe to Low.
- Thirteen of the 23 identified risks were classified as 'MODERATE/HIGH' or higher.
- Specific Surveillance and Enforcement resources have been directed at risks rated 'MODERATE/HIGH' and higher. Risk factors rated 'MODERATE' and less are included in general surveillance and enforcement activities.
- Fully costed Operational plans (specifically for the SFA and the PFCCC) are provided to implement the MCS Protocol. These cover surveillance/enforcement, monitoring/data collection, training and capacity building, and education and awareness related actions.
- Implementation costs are separated into 'set-up costs' and 'annual implementation costs'. Set-up costs are estimated at SR 1,649,000. Annual implementation costs are estimated at SR 545,000.
- Key risks to the successful implementation of the MCS Protocol have been identified:
 - Limited resources to deliver the surveillance/enforcement and operational plans;
 - Long-term effective operation of the PFCCC;
 - Limited engagement with La Digue fishers, and
 - Effective Communications Strategy.

Acknowledgements

We would like to acknowledge the Seychelles Governments commitment to sustainable development and management of the demersal fisheries on the Mahe Plateau. The GOS-UNDP-GEF Biodiversity Mainstreaming project and the Seychelles Fishing Authority are funding the development and initial implementation of the MCS strategy. In particular, we thank the members of the Praslin Fishers Co-management Coordinating Committee (PFCCC), the Praslin Fishers Association (PFA) and officers within the SFA who gave their valuable time in developing the MCS strategy.

Introduction

The Monitoring Control and Surveillance Protocol has been developed to facilitate the implementation of the Fisheries Co-Management Plan for the Praslin artisanal trap and line fishery (hereafter referred to as the Praslin Co-Management Plan). The Praslin Co-Management Plan was developed through a partnership between the Seychelles Fishing Authority, the Praslin Fishers Association (PFA) and the Praslin Fisheries Co-management Coordinating Committee (PFCCC).

The Praslin Co-Management Plan is based on a proposal to declare a Special Co-managed Area (referred to as the SMA) around the islands of Praslin and La Digue in which all resource users (fishers and other stakeholders) will be required to abide by the management rules contained in the plan. Fishers are concerned about decreasing catch rates in the Praslin fishery, the large quantities of fish sold by non-commercial fishers, fishing on spawning aggregations, and the catching of small fish. Fishers have proposed 13 management measures and 7 recommendations to address these and other concerns. These are detailed in the plan, which also provides proposals for further research and data collection. In developing the MCS Protocol, an additional 10 regulations from the *Fisheries Act 2014* relevant to the SMA were identified by stakeholders (SFA and PFCCC).

The SMA covers approximately 612 km²; extends from Aride Island, east to Les Soeurs, southeast to Marianne, southwest to Chimney Rocks, northwest to Trompeuse Rocks and north to Aride Island (Figure 1). La Digue was included in the co-managed area as fishers from each island fish in each other's coastal waters. The SMA *excludes* the four marine reserves of Curieuse, Ile Cocos Aride and Cousin islands.

There is clear intent in the Praslin Co-Management Plan that the implementation should all carried out with the cooperation and involvement of the fishers of Praslin. However, the limited engagement with the fishers on La Digue presents significant challenges for the successful implementation of the Plan. This is addressed under the Risks and Challenges section of the MCS Protocol.

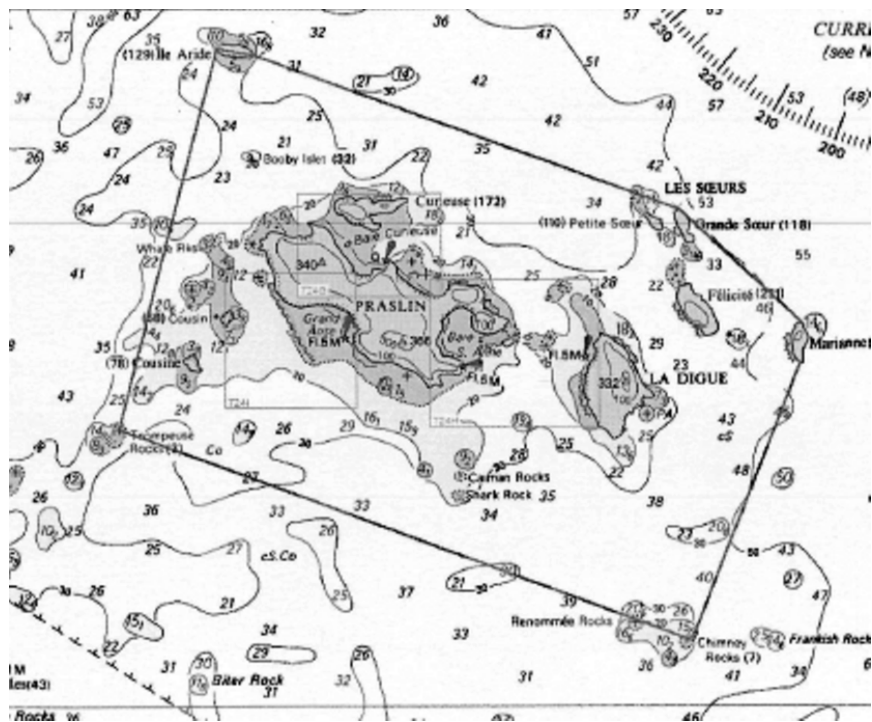


Figure 1: The Special Co-Management Area proposed under the Praslin Co-Management Plan.

Methodology

A risk assessment and risk management approach was used to inform the development of the Monitoring, Control and Surveillance Protocol for the Fisheries Co-Management Plan for the Praslin artisanal trap and line fishery. The methodology used is current best practice, follows ISO31000 guidelines and has been adopted by many national and international fisheries agencies and organizations (e.g. FAO, Indian Ocean Commission, Australian Fisheries Management Authority) (International Standard 2009; AFMA 2013). In an environment where there are finite surveillance, enforcement and monitoring resources, the formal risk assessment approach provides a transparent and accountable process for prioritising allocation of resources. The risk assessment process involves 5 steps; these steps include establishing the context of the risk environment; identifying the full spectrum of possible risks in the implementation of the fishery management plan; analyzing the risks; evaluating the risk assessment results; and treating the risks by identifying specific monitoring or surveillance/enforcement actions (Figure 2).

Consultation

The SFA and the PFCCC represent the key stakeholders in the development and implementation of the Praslin Co-management Plan. Both sectors were engaged separately in 2 workshops to conduct the risk assessment and prioritization process. At the first workshop attended by SFA the participants worked through steps 1-4 in the risk management process. Units represented by SFA attendees included, research, data management, monitoring and enforcement.

The workshop for the PFCCC included PFCCC members and limited SFA staff from research and enforcement units who participated as observers providing advice where required, but importantly not influencing the PFCCC analysis of the risks. The PFCCC worked through steps 1-5, identifying resources and options feasible to deliver monitoring and enforcement/surveillance activities.



Figure 2: The 5 step risk assessment process used to identify priority areas for monitoring and surveillance/enforcement (adapted from AFMA 2013). Key to the success of this approach is input from key stakeholders in the identification and analysis of the risks and regular monitoring and review of the MCS protocol.

Context of the risk assessment

The context of the risk assessment took into account a range of factors: notably the geographical extent of the fishery area and the local and regional context; multiple landing sites; multiple gears, species and vessel types; variable economic value of species in the fishery; variable economic status of the industry; level of investment and support from the community; constraints in resources that can be directed to surveillance and enforcement. The context of the fishery was discussed and agreed to by the stakeholders (PFCCC and SFA) engaged in the development of the MCS Protocol.

Identification of risks

In the context of the Praslin MCS Protocol, the risks relate to the non-compliance with the regulations in the Praslin Co-Management Plan and relevant provisions in the *Fisheries Act 2014* (see Table 5 for complete list of risks). Risks also relate to the lack of data and information needed to ensure the integrity of the management regulations and the sustainability of the stocks.

Analysis of the risks: likelihood and consequence

SFA and the PFCCC separately conducted the risk assessment. The analysis of the risks to prioritise them for monitoring and surveillance is a three-step process:

Step 1: involved the likelihood of the risk occurring. Each risk was assigned a numerical score from 1 – 5 based on a qualitative rating (Rare, Unlikely, Moderate, Unlikely, Almost certain) based on the probability that the activity will occur (Table 1). Factors considered in assessing likelihood included: incentives fishers or sectors have to be non-compliant, including the influence of their economic status; and the general sentiment amongst fishers in terms of their acceptance of fisheries management regulations.

Step 2: the likelihood scores were then hidden and participants considered the risks in terms of the consequence of them occurring. The risks were assigned a numerical score from 1 – 5 based on a qualitative rating of the ‘consequence’ of the activity (Insignificant, Minor, Moderate, Major, Severe) in terms of its impact on the integrity of the regulations, sustainability of the fish stocks and/or the credibility of the enforcement agencies (Table 2). Factors considered in assessing the consequence included: uncertainty in information about the risk impacts and the need to be precautionary; and the reputation of the SFA, PFA and PFCCC in ability to effectively manage the fishery.

Step 3: for each stakeholder group the risk rating for each risk was then determined by converting the Likelihood x Consequence scores to a score between 1 and 4.0 (Table 3).

The final risk ratings were then determined by taking the average of the SFA and PFCCC individual risk rating scores. Each group was given equal weighting towards the final risk rating for the individual risks. Converting the risk scores provided higher resolution in the final risk ratings (Table 4) as it numerically divided risks into 7 categories and resulted in reduced error and bias through the rounding of averaged scores. Risk levels were colour coded for ease of analysis by stakeholders.

Evaluation of risks

The PFCCC in consultation with SFA staff present at the final workshop (28/01/15) determined the risk levels (e.g. moderate/high and above) that would receive priority assessment in terms of monitoring and surveillance/enforcement resources.

Table 1: Likelihood scores used in the Rating of Risks. Definitions are based on the probability that the activity relating to the risk will occur.

Score	Risk rating	Rating description
5	Almost certain	95% probability exists that the activity will occur
4	Likely	70% probability exists that the activity will probably occur
3	Moderate	50% probability exists that the activity may occur
2	Unlikely	30% probability exists that the activity could occur
1	Rare	5% probability exists that the activity will occur under exceptional circumstances

Table 2: Consequence scores used in the Rating of Risks. Definitions are based on the expected impact the activity will have on the integrity of the regulations, sustainability of the fish stocks and/or the credibility of the enforcement agencies.

Score	Risk Rating	Rating Description
5	Severe	The consequences would threaten regulatory integrity and the survival of the fish stocks and subsequently any further commercial fishing venture. Loss of enforcement credibility.
4	Major	The consequences would probably threaten regulatory integrity and the survival of the fish stocks and subsequently any further commercial fishing venture. Loss of enforcement credibility.
3	Moderate	The consequences would probably not threaten regulatory integrity or the continued survival of the fish stocks. The enforcement program may be subject to significant review or operational change.
2	Minor	The consequences would present minimal threats to regulatory integrity or the continued survival of the fish stocks. However it may threaten the efficiency or effectiveness of a particular component of the regulatory regime causing minor review or operational modification.
1	Insignificant	The consequences would present minimal threats to regulatory integrity or the continued survival of the fish stocks and would be dealt with via routine operations, i.e. no specific targeted compliance activity.

Table 3: The risk-rating matrix (Likelihood x Consequence) used in the individual stakeholder group risk assessments.

		Consequence				
		Insignificant	Minor	Moderate	Major	Serious
Likelihood	Rare	Low	Low	Low	Moderate	Moderate
	Unlikely	Low	Low	Moderate	Moderate	High
	Moderate	Low	Moderate	Moderate	High	High
	Likely	Moderate	Moderate	High	High	Severe
	Almost certain	Moderate	High	High	Severe	Severe

Table 4: The risk-rating matrix that was used in the final risk ratings. The matrix numerically split risks into 7 categories by 0.5 rather than by 1, reducing bias and error associated with rounding averaged scores.

Rank range	Risk Level
0 - 1.0	LOW
1.1 - 1.5	LOW/MODERATE
1.6 - 2.0	MODERATE
2.1 - 2.5	MODERATE/HIGH
2.6 - 3.0	HIGH
3.1 - 3.5	HIGH/SEVERE
3.6 - 4.0	SEVERE

Results - Key MCS Risks

Context of the risk assessment

The Special Co-Management Area (SMA), defined under the Praslin Co-Management Plan lies within the Mahe Demersal Plateau, for which a separate Fisheries Co-Management Plan is under development. Consistency in provisions of the 2 plans is important to reduce the complexity of enforcement. The Praslin Co-Management Plan is the first area / fishery specific management plan for the Seychelles. It is expected that there will be a high risk of non-compliance with regulations in the first year of implementation due to limited awareness and acceptance of the need for a management plan.

The SMA covers approximately 612 km² and includes the immediate fishing grounds surrounding the islands of Praslin and La Digue (refer to Figure 1). There are multiple landing sites on Praslin and La Digue, which makes effective coverage of these sites for surveillance and monitoring activities challenging.

Of significant concern is the limited involvement of La Digue fishers and hire craft operators (charter vessel operators) in the development of the Plan and that there is no representation of either group on the PFCCC. This represents significant risk to compliance with the regulations. A number of fishers operating in particular in the trap fishery are considered 'part-time' fishers; therefore their effective engagement in the management of the fishery presents additional challenges. Fishers from Praslin and La Digue not only fish within the SMA but also other parts of the plateau, therefore the assigning of catch and effort data to the SMA will be challenging, and ensuring compliance with provisions in the Praslin Co-Management Plan.

Risk prioritisation

A total of 23 separate risks were identified and assessed. These risks related to the use of e.g. prohibited fishing gear; the take of regulated fish; unlicensed/unauthorized fishing; and the sale of fish by recreational fishers. Table 5 provides a summary of the final risk ratings for each risk factor identified by the stakeholders. The risk relating

to non-compliance with priority regulations in the *Fisheries Act 2014* are grouped separately from the regulations in the Praslin Co-Management Plan.

The PFCCC in consultation with the SFA determined that risks rated 'MODERATE/HIGH' and greater would receive targeted surveillance and enforcement. Risk factors rated 'MODERATE' and less would be included in general surveillance and enforcement activities. Thirteen of the 23 identified risks were classified as 'MODERATE/HIGH' or greater (Table 5).

Table 5: Summary of final risk ratings for the 23 risks identified to ensure the effective implementation of the Praslin Co-Management Plan.

<i>Fisheries Act 2014</i>	Risk Factor	Risk Rating
Lobster: no fishing by unlicensed fisher during open season	Unlicensed fishers take lobster during open season.	SEVERE
Lobster: no fishing during closed season	Lobster taken during closed season.	SEVERE
Lobster: minimum size limit 75mm carapace length and no berried females	Take of lobster less than 75mm carapace length and the take of berried females.	HIGH/SEVERE
Non-licensed and recreational fishers prohibited from selling or trading fish.	Sale of fish by non-licensed fishers.	HIGH
Spear guns prohibited.	Use of prohibited fishing gear: Spear guns.	MODERATE/HIGH
Use of nets to obstruct reef passes and channels prohibited.	Use of prohibited fishing gear: nets to obstruct reef passes and channels.	MODERATE/HIGH
Use of nets to target sharks prohibited.	Use of prohibited fishing gear: Use of nets to target sharks.	MODERATE/HIGH
Demersal trawl nets prohibited.	Use of prohibited fishing gear: Demersal trawl nets.	MODERATE
Poisons and explosives prohibited.	Use of prohibited fishing gear: Poisons and explosives.	MODERATE
Use of nets between 1600 and 0500 prohibited.	Use of prohibited fishing gear: Use of nets 1600 to 0500.	MODERATE
Minimum mesh size 40mm.	Use of traps with mesh size less than 40mm in the SMA.	MODERATE
<i>Praslin Fisheries Co-Management Plan</i>		
That the catching and retaining or possessing of Bourzwa less than 32cm fork length is not permitted within the Special Co-managed area. That the catching and retaining or possessing of Zob gris less than 32cm fork length is not permitted within the Special Co-managed Area.	Retaining Bourzwa and Zob gris less than MLS by licensed and non-licensed fishers.	HIGH

Minimum legal weight of 1kg for octopus caught, retained or in possession in the SMA.	Licensed or unlicensed fisher landing octopus less than minimum legal size (weight)	HIGH
No traps are left in the sea overnight on the 7 specified spawning sites during the peak spawning months of September to April inclusive. Traps are to be removed from the water by 1745 (5:45pm).	Risk of traps being set at night during Full Moon period (7 days) from September to April at 7 specified rabbitfish spawning sites.	MODERATE/HIGH
No nets to be used on any rabbitfish spawning areas at any time of the year.	Use of prohibited fishing gear: Use of nets to fish rabbitfish spawning areas.	MODERATE/HIGH
Non-licensed and Recreational fishers restricted to total catch limit of 20kg fish per fishing trip (list of species in Appendix 1 of the Plan).	Breaching total catch limit (weight) for specified species by non-licensed and recreational fishers.	MODERATE/HIGH
For unlicensed fishers and recreational fishers a bag limit of 2 octopus per day per person for any 24-hour period.	Unlicensed / recreational fisher breaching total catch limit of octopus in SMA.	MODERATE/HIGH
Maximum of 25 traps per registered fishing vessel.	Each licensed vessel (fisher) uses more than 25 traps.	MODERATE
Maximum of 2 traps per non-registered fishermen or vessel.	Each non-registered fisher uses more than 2 traps.	MODERATE
Licensed fishers are permitted to use a maximum of 6 traps per boat per day for the period 3 days before to 3 days after the full moon (7 days in total) on the 7 specified spawning sites during the peak spawning months of September to April inclusive. 7 sites are: 1. Pate Konsolasyon; 2. Fond Lilot; 3. Pate Polite; 4. Pate Ros (inside and outside); 5. Pate Desire; 6. Dividi (inside and outside); 7. Pate pti bonnom.	Breaching limits on number of traps during Full Moon period (7 days) from September to April at 7 specified rabbitfish spawning sites.	MODERATE
Declaration of the Special Co-Management Area (<i>Fisheries Act 2014</i>). <i>Note: excludes designated Marine Reserves.</i>	Lack of awareness of the boundaries of the SMA.	MODERATE
That the catching and retaining or possessing of rabbitfish less than 14cm fork length is not permitted within the Special Co-Managed Area.	Retaining rabbitfish (Kordonnyen) less than Minimum Size Limit by licensed and non-licensed fishers.	MODERATE

For charter vessels: Landed catch within the SMA limited to total of 20kg per person per trip; Crew are restricted to a catch limit of 20 kg per person per trip. Catch limit applies to the list of species specified in the Plan (list of species in Appendix 1 of the Praslin Co-Management Plan)	Charter vessels breaching catch limits for fish landed in the SMA.	LOW/MODERATE
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Surveillance Activities

Specific surveillance and enforcement or education strategies were identified to address each of the ‘MODERATE/HIGH’ and greater risks. A number of risks can be managed under one or several strategies. The results of this assessment have formed the Surveillance and Enforcement Plan outlined in Appendix 2. This plan is to guide surveillance patrols within the Special Co-Management Area. Regulations assessed as moderate/high and greater in terms of risk are assigned a ‘High status’ in terms of prioritizing compliance resources. Regulations assessed as moderate or less in terms of risk are assigned a ‘Medium status’ in terms of prioritizing compliance resources. For each type of surveillance activity, the target sector and priority regulations are identified. To effectively enforce some regulations, surveillance activities need to be directed to specific locations within the SMA at specific times; e.g. limits on the number of traps used to target any of specific rabbitfish spawning aggregation sites.

Monthly surveillance patrols to the Praslin/La Digue area of up to a week in duration are recommended for the first year of operation of the MCS Protocol. The risk of non-compliance with regulations is typically highest in the first year of operation of a fisheries management plan. Lack of awareness and limited support are significant contributors to non-compliance. This underscores the importance of an effective and comprehensive Communications Strategy (refer below).

For the first year of operation, SFA enforcement officers will lead surveillance patrols with approved PFCCC/PFA members on board for training, and education and awareness purposes. The future role of PFCCC/PFA members in surveillance and enforcement is dependent on whether they can be certified enforcement officers under the Fisheries Act or be formally recognised as Rangers with roles in education and awareness, and intelligence data gathering.

Monitoring Activities

The monitoring activities required to deliver the data needs for the MCS protocol and implement the Praslin Co-Management Plan are summarized in Appendix 3. Key elements of the monitoring activities proposed under the MCS Protocol are outlined below.

The risk assessment process was not applied to the individual risks associated with failing to deliver the information and data identified as important in the Praslin Co-Management Plan. This is because that data is considered fundamental to the

integrity of the Plan, and it was agreed that all of the associated activities would be supported and adequately resourced.

Fishery-dependent data and the CDCP

The Praslin Fisheries Co-Management Plan recommends that a Community-based Data Collection Program (CDCP) is developed to provide finer scale data on catch, effort (man * days/hours fished, number trap hours per day), catch composition and size structure of exploited populations to support stock assessments and sustainable management of those species. The PFCCC recommends that the species covered in the CDCP include sharks. The size structure of the catch, total catch and gear used provides a check of the compliance with the regulations relating to minimum size limits, bag limits, and limits on fishing gear (e.g. number of traps) key to the integrity of the management plan.

The CDCP will be the principle means of collecting fishery data from the Special Co-Management Area. This will complement the SFA annual catch and effort surveys (CAS) that are currently focused on landing sites around Mahe. The CDCP data will specifically capture that component of the fleet that fishes on the Mahe Plateau but lands product on Praslin and La Digue. It is important that the spatial information on location of catch is collected at a resolution that allows the identification of catch and effort within and outside the SMA. It is also important that catch and effort data is recorded by species, and by gear and vessel type. Consistency with SFA's current/on-going catch and effort surveys is critical, in order for all of the fishery data to be integrated into stock assessments.

Fishery independent data

For minimum legal sizes to be an effective fisheries management tool they need be based on length at maturity. Typically minimum legal sizes are set at the length at which 50% of the population reaches maturity (L_{m50}). For example, the length at maturity relationship for *Lutjanus sebae* (Bourzwa) in Western Australia (Indian Ocean) is being used to set biologically relevant minimum legal sizes in Western Australian fisheries (Fig. 1; S Newman pers. comm.). L_{m50} for this species is in the range of 40-45 cm FL, significantly greater than the msl for Bourzwa of 32 cmFL in the Praslin Co-Management Plan. The collection of data on length/weight and reproductive status for at least the key species in the fishery, is critical to the integrity of the management plan. Minimum legal size set with no biological basis will be ineffective in reducing fishing pressure on the spawning stock. This justifies the inclusion of the collection of biological data in the Monitoring component of the MCS plan.

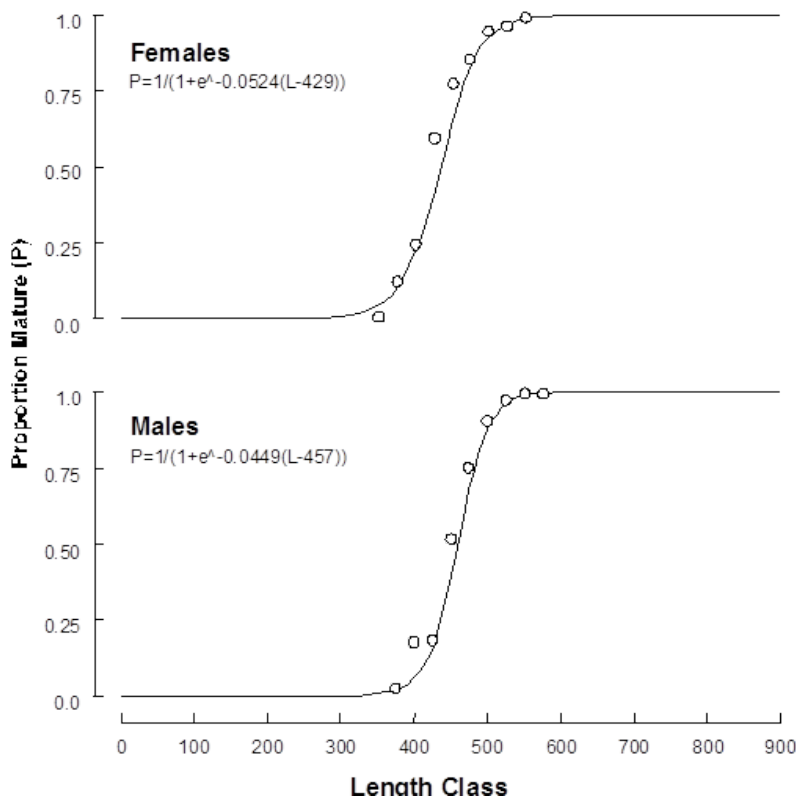


Figure 3. Length at maturity relationship for *Lutjanus sebae* (bourzwa) in Western Australia (Indian Ocean). (Source: S. Newman, Western Australian Fisheries).

Compliance data

To assess the effectiveness of the MCS Protocol, data and information is needed that enables the tracking of infringements, to measure compliance rates and provide intelligence for investigations. For efficiency and to be in alignment with best practice an electronic compliance database needs to be developed and an SFA staff member identified with responsibility for ensuring quality control in data entry, extracting data/summaries as required by gear type, by vessel type, by location, by offence, by fishery sector (e.g. commercial fisher, charter operator, recreational fisher). In particular it is critical that relevant expertise is utilised in the development of the initial database ensuring that all relevant information is incorporated in a logical manner. This will ensure that future analyses and summaries can be carried out on the relevant data and can be done very quickly. In addition to SFA enforcement officers it is intended under the Co-Management Plan that specific PFA/PFCCC members be trained in the collection of intelligence data that would support SFA enforcement and investigations activities.

SFA operational plan

An operational plan that covers surveillance/enforcement, monitoring/data collection, training and capacity building, and education and awareness related actions, has been developed based on inputs from the MCS risk assessment workshops and the recommendations and regulations contained in the Praslin Co-Management Plan (Appendix 4). The operational plan identifies the resources needed and projected cost of implementation (where possible). The identified tasks are

necessary to support the PFCCC for the first year of implementation of Praslin Co-Management Plan. Costs are specific where possible and in SR. It is recommended that the progress in delivery of the operational plan be reviewed by the SFA in consultation with the PFCCC on a regular basis.

PFCCC operational plan

An operational plan that covers surveillance/enforcement, monitoring/data collection, training and capacity building, and education and awareness related actions, has been developed based on inputs from the MCS risk assessment workshops and the recommendations and regulations contained in the Praslin Co-Management Plan (Appendix 5). The operational plan for the PFCCC identifies the resources needed and projected cost of implementation (where possible). The identified tasks are necessary to support the PFCCC for the first year of implementation of Praslin Co-Management Plan. Costs are specific where possible and in SR. It is recommended that the progress in delivery of the operational plan be reviewed by the SFA in consultation with the PFCCC on a regular basis.

MCS Implementation costs

Estimates of the financial resources needed to successfully implement the main elements of the MCS protocol are summarized in Appendix 6. Cost estimates are based on information provided by SFA. Resources needed to implement the recommended surveillance and enforcement program for the SMA are divided into set-up costs and annual implementation costs, and account for the majority of the total cost of implementing the MCS protocol. To establish the surveillance and enforcement program requires the purchase of a new 8-9m patrol vessel with an outboard motor; this accounts for the majority of the estimated SR 1,629,500 required to establish the program. A dedicated patrol vessel is critical to the successful delivery of the surveillance program; inadequate resources will result in poor enforcement and will undermine the integrity of the entire co-management plan. The annual cost of delivering the on-water and land-based surveillance is SR 533,000. This includes the patrol vessel operating costs, staff allowances and allowances for PFCCC involvement in co-managing and operating surveillance and enforcement patrols.

Challenges and risks for implementation

La Digue fishers – limited support

- Limited engagement with La Digue fishers in the development of the Praslin Co-Management Plan represents one of the highest risks. The SMA encompasses major fishing grounds of La Digue fishers and therefore acceptance of regulations under the Plan is likely to be very limited.

Surveillance and Enforcement

- Insufficient resources to effectively deliver the surveillance activities now and over the long-term
- PFCCC/PFA unable to deliver the surveillance activities due to lack of resources and commitment.

Praslin Fishery Co-management Coordination Committee

- Long-term financing of the activities of PFCCC and institutional support for the PFCCC and the PFA. On-going funding of the PFCCC and activities should be transparent, accountable and based on performance (i.e. meeting agreed deliverables stipulated under a Memorandum of Understanding (MoU) or Contract).
- Day-to-day operation of the PFCCC: critical that the PFCCC continues to operate in a transparent and accountable manner in accordance with its constitution. This is fundamental to enabling the PFCCC to maintain its' credibility as the Co-Management Committee for the region.

Management of rabbitfish spawning sites

- Clear marking of the key rabbitfish spawning sites specified in the management plan to which several regulations apply. The plan proposes that the center of each of these sites is marked with a buoy and a circle with a radius of 50 m from this point marks the boundary of the spawning site for management purposes.
- Difficulty in detecting fish traps that are set underwater and have no surface marker.

Education and Awareness Plan / Communications Strategy

- Lack of an effective Communications Strategy, and one that includes an Education and Awareness Program.
- Insufficient resources (people and SR) to implement strategy effectively over the long-term.

Recommendations

Surveillance and Enforcement

- A strategy is required to provide adequate resourcing of surveillance and enforcement activities for the long-term; this needs to be linked to the implementation strategy for the Mahe Plateau Demersal Fishery Co-Management Plan (under development).
- All surveillance activities should be used to further educate fishers on the regulations and the importance of compliance in ensuring the long-term sustainability of the fishery resource.

Consultation with La Digue fishers and hire craft operators

- It is strongly recommended that the PFCCC assisted by the SFA engages with Praslin / La Digue hire craft operators and La Digue fishers (e.g. La Digue Fishers Association) regarding regulations under the Praslin Co-Management Plan. This may result in some modifications so that it reflects the issues of both islands and the charter sector but this is a better outcome than there being very limited support for the existing plan.

Co-Management Agreement

- That a binding agreement is drawn up between the SFA and the PFCCC that outlines obligations of the two parties in delivering on the implementation of the MCS Protocol. The agreement to include obligations/responsibilities of both parties, and the resources and strategy for delivering the MCS protocol over the long-term. It is recommended that the Co-Management Agreement be reviewed annually.

Communications Strategy

- Effective Education and Awareness is critical to the successful implementation of the Fisheries Co-Management Plan and the Monitoring, Control and Surveillance protocol. This needs to be appropriately resourced and implemented.
- Recommend that a broader Communications Strategy is developed that would include education and awareness materials e.g.: information leaflets and notices at major landing places and ports (including ferries) in Praslin and La Digue outlining key fisheries regulations in Creole and French for fishers and the Seychellois community; specific leaflet outlining the regulations relating to the management of rabbitfish aggregation sites and a map showing the specific location of the spawning sites specified in the Plan, information leaflets and posters outlining key fisheries regulations in Creole, French and English for domestic and international tourists; and public information sessions on Praslin and La Digue outlining the purpose of the management plan and the regulations.
- Recommend that SFA outsource the development of the Communications Strategy to a communications/education specialist.
- Recommend that this is developed with an awareness that there will need to be a broader overarching Communications Strategy for the new *Fisheries Act 2014* and the *Mahe Plateau Demersal Fisheries Management Plan* (under development).

Long-term resourcing of MCS Protocol

- In the short-term SFA to allocate resources to surveillance and monitoring activities within existing budget/staff.
- For the long-term, SFA to investigate alternative strategies to support and finance the PFCCC and SFA surveillance activities. E.g. future UNDP/GEF partnerships, partnership with other government agencies e.g. SNPA, partnership with private business sector.
- SFA to work with other government agencies (e.g. SNPA) in surveillance activities.

Fishery-dependent data and the CDCP

- Recommend that when the PFCCC/PFA members conduct the catch and effort surveys, they be compensated for a portion of costs incurred; e.g. provided fuel vouchers on receipt of data by SFA. SFA needs to set a maximum that would be payable per person per year.
- PFCCC/PFA members when conducting activities relating to the CDCP should be professional, engage with fishers with high level of integrity and be clearly identified as CDCP survey members. Identification could include caps or t-shirts.
- Review of the CDCP: Recommend an annual review of the monitoring program to check protocols for conducting surveys, species identification, data collection, etc.

Praslin Fishery Co-management Coordination Committee

- Recommend that the PFCCC broaden its membership to include hire craft operators, recreational fishers and additional fishers from Praslin and La Digue, in particular. That other interested community members (including NGO's, charter businesses, hoteliers, etc.) are invited to sit as observers on meetings.
- Recommend that the SFA continue to develop a positive partnership with the PFCCC and provide institutional support to the PFCCC's day-to-day operations.
- Recommend that the SFA and PFCCC meet biannually (every 6 months) to review surveillance and monitoring activities, retrain existing or new members in compliance intelligence data gathering and surveillance/enforcement protocols (if relevant), review catch and effort monitoring/data collection.
- Recommend that the PFCCC with the assistance of the SFA investigate the opportunities to develop Community-Industry Positive Partnerships (CIPP); options may include: a partnership with a resort to deliver benefits to both the resort and the fishing industry e.g. local fishers preferred suppliers of fish product to resort, reduced fishing effort on reefs adjacent to resort in exchange for a resource access fee that would contribute to PFCCC surveillance/education and awareness budget.
- Monitoring lobster catches to reduce illegal take: The PFCCC proposed (at the MCS risk assessment meeting 28/1/2015) the use of a registered tag system to track the commercial catch of lobsters and reduce the risk of recreational and unlicensed commercial fishers catching and selling lobsters. PFCCC have proposed that lobster fisher notifies of landing lobster and receives tags (1 per lobster) from authorized community rep. allowing the sale of lobster. Alternatively licensed lobster fishers are assigned a number of tags and tags recorded in a logbook along with details of point of sale. In assessing the feasibility of this, need to consider: how numbered tags will be tracked to ensure not being obtained by recreational/unlicensed commercial fisher; that

the system is cost effective and effective at reducing risk of hotels/restaurants buying untagged lobster.

Recommend that SFA assess the merits of this proposal in consultation with the PFCCC and licensed lobster fishers. An alternative is that unlicensed and recreational fishers are required to cut or remove middle tail flap, i.e. cannot be in possession of a lobster unless the middle tail flat is cut or removed.

Amendments to the Praslin Co-Management Plan / Fisheries Act

- Sharks: Recommend amendment to the *Fisheries Act 2014* that introduces a maximum mesh size for pelagic nets that provides for the retention of small pelagic species (e.g. mackerels) but reduces the likelihood of entanglement of sharks. This is consistent with the intent of the current prohibition on the use of nets to target sharks.
- That the *Praslin Co-Management Plan* is revised to reflect the agreed changes to the management strategies listed in Appendix 1.
- That the SFA in consultation with the PFCCC, review the list of species in Appendix 1 of the Praslin Co-management Plan to which the bag limits apply (this was agreed by the SFA and PFCCC at the MCS workshop: Praslin 28/1/2015).
- That the revised *Fisheries Co-Management Plan for the Praslin artisanal trap and line fishery* is approved and gazetted as soon as practical.

Review process

- It is recommended that there is a biennial review of the MCS Protocol and the implementation plans.
- This is to ensure that the priority enforcement issues and monitoring/data and information requirements identified in the MCS Protocol are being delivered.
- The compliance rate data identified in this plan is essential to inform the review, this will identify where there are outstanding risks. The Risk Assessment Process outlined in figure 2 identifies the process for conducting the review to ensure the MCS protocol addresses the key risks and optimises the use of limited surveillance and monitoring resources.

References

International Standard (2009). ISO 31000 Risk Management – principles and guidelines. International Organisation for Standardisation, Switzerland.

AFMA (2013). National Compliance 2013-15 Risk Assessment Methodology: The Compliance Risk Management Process.

Appendices

Appendix 1: List of original and revised management measures (as of 28/02/2015) for the Fisheries Co-Management Plan for the Praslin artisanal trap and line fishery. * Management Measure revised at the Praslin ‘Mahe Plateau Demersal Fishery Co-Management Plan meeting’ on 14/3/15: Proposed by Chair of the PFCCC that the total catch limit for recreational fishers fishing from charter vessels be reduced from 50 kg to 20 kg per person per fishing trip.

#	Issue	Management measure	Revised Management Measure (by PFCCC and agreed by SFA)
1	SMA declaration	That the area described in management plan be declared a Special Co-Management Area.	No change.
2	Trap effort #	That each registered fishing vessel is restricted to operate a maximum of 40 traps.	That each registered fishing vessel is restricted to operate a maximum of 25 traps.
3	Trap effort	That non-registered fishermen/ or vessels are restricted to the use of one trap per fisherman or vessel.	That non-registered fishermen/ or vessels are restricted to the use of 2 traps per vessel.
4	Catch limit	That non-licensed and recreational fishers are restricted to a total catch limit of 20 kg of fish per person per fishing trip. Catch limit applies to the list of species specified in the Plan.	That non-licensed and recreational fishers are restricted to a total catch limit of 20 kg of fish per person per fishing trip. Catch limit applies to the list of species specified in the Plan.
5	Charter vessels *	That charter vessels are prohibited from fishing within the Special Co-Managed area and that landing within the area are restricted to a total of 50 kg of fish per person per fishing trip. Catch limit applies to the list of species specified in the Plan.	That recreational fishers fishing from charter vessels are restricted to a catch limit of 20kg per person per trip. Crew is restricted to a catch limit of 20 kg per person per trip. Catch limit applies to the list of species specified in the Plan.
6	Sale of fish	Non-licensed / recreational fishers shall be prohibited from selling or trading fish caught through recreational fishing activities.	No change.

7	Spawning sites	That licensed fishers are permitted to use no more than 6 traps per boat per day for 3 days before and 3 days after the full moon (7 day period) on the 7 listed spawning sites during the peak spawning months of September to April inclusive. 7 sites are: 1. Pate Konsolasyon; 2. Fond Lilot; 3. Pate Polite; 4. Pate Ros (inside and outside); 5. Pate Desire; 6. Dividi (inside and outside); 7. Pate pti bonnonm.	The list of spawning sites is expanded to include 16 sites around La Digue and Praslin (Spawning sites and locations (Lat. Long.) are listed in the Fisheries Co-Management Plan.
8	Spawning sites	That no traps are left in the sea overnight on the 7 listed spawning sites during the peak spawning months of September to April inclusive.	The list of spawning sites is expanded to include 16 sites around La Digue and Praslin (Spawning sites and locations (Lat. Long.) are listed in the Fisheries Co-Management Plan. The prohibition on traps being left in the sea overnight applies to the 7-day period spanning the full moon (3 days before to 3 days post full moon). Added: Traps are to be removed from the water by 1745 (5:45pm).
9	Spawning sites	No nets are permitted to be used on any rabbitfish spawning area at any time of the year.	No change
10	Size limits	That the catching and retaining or possessing of rabbitfish below a minimum size of 4 inches (10cm) total length is not permitted within the Special Co-managed Area.	That the catching and retaining or possessing of rabbitfish less than 14cm fork length is not permitted within the Special Co-managed Area.
11	Size limits	That the catching and retaining or possessing of Emperor red snapper (Bourzwa) below a minimum size of 8 inches (20cm) total length and green jobfish (Zob gri) below a minimum size of 12 inches (30.5cm) total length is not permitted within the Special Co-managed Area.	That the catching and retaining or possessing of Bourzwa less than 32cm fork length is not permitted within the Special Co-managed area. That the catching and retaining or possessing of Zob gri less than 32cm fork length is not permitted within the Special Co-managed Area.
12	Catch limit	That catching and retaining or possessing any octopus weighing less than 1kg is not permitted within the Special Co-managed Area.	No change.
13	Catch limit	That the catch or bag limit of 2 octopus per person in any 24 hour period apply to unlicensed or recreational fishers.	No change.

Appendix 2: Surveillance and Enforcement Plan.

This plan is to guide surveillance patrols within the Special Co-Management Area. Regulations assessed as moderate/high and greater in terms of risk are assigned a 'High status' in terms of prioritizing compliance resources. Regulations assessed as moderate or less in terms of risk are assigned a 'Medium status' in terms of prioritizing compliance resources. For each type of surveillance activity, the target sector and priority regulations are listed. Note: to effectively enforce some regulations, surveillance activities need to be directed to specific locations within the SMA at specific times; e.g. limits on the number of traps used to target any of the 7 specific rabbitfish spawning aggregation sites.

NOTE: All surveillance activities should be used to further educate fishers on the regulations and the importance of compliance in ensuring the long-term sustainability of the fishery resource.

Priority status	Surveillance action	Target sector and regulations	When/Where
HIGH	On-water evening/night patrols	<u>Lobster fishing</u> <ul style="list-style-type: none"> No fishing by unlicensed fishers No fishing during closed season No possession berried females Minimum legal size 75mm carapace length <u>Nets</u> <ul style="list-style-type: none"> No use of nets to target sharks No setting of nets on rabbitfish spawning areas 	Monthly routine surveillance patrols
HIGH	On-water evening/night patrols	<u>Traps</u> <ul style="list-style-type: none"> Maximum of 6 traps per boat per day for the 7 days spanning the Full Moon on the specified Rabbitfish spawning sites. No traps to be left in sea overnight on the specified Rabbitfish spawning sites during 7-day period spanning Full Moon (3 days prior to 3 days following Full Moon). Traps to be removed from water by 1745 (5:45pm). 	Monthly patrols targeting September to April: the week spanning Full Moon. Alternatively: random months within period September to April. Patrols to target specific sites: Listed in the Plan.
HIGH	On-water day patrols	<u>Lobster fishing</u> <ul style="list-style-type: none"> Compliance with all regulations <u>Spear guns</u>	Monthly routine surveillance patrols

		<ul style="list-style-type: none"> • Use of spear guns to take fish not permitted in the SMA <u>Undersized fish</u> <ul style="list-style-type: none"> • Catch and retaining or possession of Bourzwa less than 32 cm TL not permitted • Catch and retaining or possession of Zob gri less than 32 cm TL not permitted <u>Catch limits</u> <ul style="list-style-type: none"> • Non-licensed/recreational fisher, catch and retain or possess more than 20 kg of fish per person per fishing trip. Catch limit applies to species listed in Appendix 1 of the Co-Management Plan. 	
HIGH	Land-based day inspections e.g. main landing sites and ports	<u>Lobsters</u> <ul style="list-style-type: none"> • No possession berried females • Minimum legal size 75mm carapace length <u>Spear guns</u> <ul style="list-style-type: none"> • Use of spear guns to take fish not permitted in the SMA <u>Illegal sale of fish</u> <ul style="list-style-type: none"> • Sale of fish by unlicensed fishers <u>Undersized fish</u> <ul style="list-style-type: none"> • Catch and retaining or possession of Bourzwa less than 32 cm TL not permitted • Catch and retaining or possession of Zob gri less than 32 cm TL not permitted <u>Catch limits</u> <ul style="list-style-type: none"> • Non-licensed/recreational fisher, catch and retain or possess more than 20 kg of fish per person per fishing trip. Catch limit applies to the species list Appendix 1 of the Co-Management Plan. <u>Octopus</u> <ul style="list-style-type: none"> • Licensed or unlicensed fisher landing octopus less than 1 kg in weight. • Non-licensed/recreational fisher, catch and retain or possess more than 2 octopus per person in any 24-hour period. 	Monthly routine surveillance patrols and targeted land-based surveillance missions
MEDIUM	On-water	<u>Nets</u>	Monthly routine surveillance patrols

	evening/night patrols	<ul style="list-style-type: none"> No use of nets between 1600 and 0500 	
MEDIUM	On-water day patrols	<p><u>Undersized fish</u></p> <ul style="list-style-type: none"> Catch and retaining or possession of rabbitfish less than 14 cm total length (FL) not permitted <p><u>Traps</u></p> <ul style="list-style-type: none"> Minimum mesh size of 40cm Maximum of 25 active traps per licensed fisher/vessel Maximum of 2 traps per non-licensed fishermen or vessel Licensed fisher limited to a maximum of 6 traps per boat per day for the 7 days spanning the Full Moon (3 days prior to 3 days post full moon) on the specified spawning sites during the spawning months September to April inclusive. 	<p>Monthly routine surveillance patrols</p> <p>Monthly patrols targeting September to April: the week spanning Full Moon.</p> <p>Alternatively: random months within period September to April.</p> <p>Patrols to target specific sites listed in the Plan.</p>

Appendix 3: Monitoring and data collection required to support the implementation of the MCS Protocol.

PFCCC and SFA have a joint responsibility in delivering the Monitoring Plan. This includes traditional MCS monitoring of the fishing vessels, and catch and effort data. Collection of biological data relating to the future setting of minimum size limits for key species in the fishery is also included. This data is a high priority as it is important to the integrity of the Management Plan.

Priority status	Action	Monitoring and data collection activities	Responsibility	When
HIGH	Baseline survey of trap fishers.	PFCCC have proposed to survey trap fishers to assess how many traps are being used relative to the proposed limit of 20 traps and compile a register of active fishers and conduct awareness re the co-management regulations that apply to the SMA.	PFCCC. SFA to provide guidance in collection of data.	Immediate
HIGH	Develop and implement Community-based Data Collection Program to collect fishery dependent catch and effort data from the artisanal vessels, schooners and whalers.	<p><u>Develop the CDCP</u></p> <ul style="list-style-type: none"> Develop the sampling protocols and design surveys to collect catch and effort data by species, by fishery area (to provide data on where the majority of catch is taken), by gear type. Identify if actively targeting or fishing known spawning aggregations (any species). Record catch and effort on spawning aggregations if feasible. Determine frequency of sampling and locations (i.e. specific landing sites). <hr/> <ul style="list-style-type: none"> Data to be recorded on specifically designed data collection forms. <hr/> <p><u>Implement CDCP</u></p> <ul style="list-style-type: none"> Identify SFA staff member responsible for managing the CDCP. Train PFA and PFCCC or community members to conduct surveys and accurately record data and protocols for transferring data to SFA. 	<p>SFA to design sampling protocols to ensure consistency between SFA's annual catch and effort surveys on Mahe.</p> <hr/> <p>SFA to use data form designed by Nico Gutierrez (2014).</p> <hr/> <p>PFA and PFCCC to implement under the guidance and direction of the SFA.</p> <hr/> <p>SFA responsible for training.</p>	<p>April 2015</p> <hr/> <p>May 2015</p>

		<ul style="list-style-type: none"> SFA and PFCCC/PFA to work together to carry out surveys for 1st year of operation, this provides on ground training and support and will improve data quality. Data to be sent to SFA as soon as collected. SFA to manage database and provide reports as agreed with the PFCCC. Reports to be made available to the PFCCC and fishing industry, other government agencies as required. SFA to maintain regular contact with PFCCC/PFA members conducting surveys. 	<p>SFA monitoring staff and approved PFCCC /PFA members</p>	
		<p><u>CDCP Review</u></p> <ul style="list-style-type: none"> Annual review of the monitoring program to check: protocols for conducting surveys, species identification; data quality, etc. 	<p>SFA to lead review and collaborate with PFCCC.</p>	
HIGH	SFA fishery-dependent surveys	<p><u>SFA catch and effort surveys</u></p> <ul style="list-style-type: none"> SFA to conduct catch and effort surveys in Praslin and La Digue during first year that the CDCP is being run independently by the PFCCC/PFA. Purpose is to provide information that can be used to standardize CDCP data (if required) with SFA regular catch/effort survey data collected on Mahe. This is to improve the quality of input data for stock assessments 	SFA monitoring unit.	
HIGH	Develop an electronic Compliance data base	<p><u>Develop electronic database</u></p> <ul style="list-style-type: none"> Database needed to track infringements, measure compliance rates and provide intelligence for investigations. Setup database Identify SFA staff person to manage database, ensure quality control in data entry, extract 	SFA	Immediate

		<p>data/summaries as required by gear type, by vessel type, by location, by offence, by fishery sector (e.g. commercial fisher, charter operator, recreational fisher)</p> <p><u>Collect compliance data</u></p> <ul style="list-style-type: none"> • Develop process and forms for systematic and consistent collection of compliance data. • Train PFCCC/SFA members that have role in compliance/rangers in collection of intelligence data that would support SFA enforcement and investigations activities. • 	SFA and PFCCC.	
MEDIUM	Monitor any vessels fitted with VMS in relation to fishing activity in the SMA	<p><u>Vessels fitted with VMS:</u></p> <p>Monitor activity of any vessels (schooners and whalers) detected in Special Co-Management Area; provide to enforcement unit, information may be used to guide surveillance activities and identify fishers that need to be targeted in communications strategy.</p>	VMS unit SFA	On-going
MEDIUM	Collect data on size at maturity for key species.	<p><u>Fish size at maturity estimates</u></p> <ul style="list-style-type: none"> • Determine Lm50 for the most important species (refer to the Praslin Co-Management Plan). • Work with PFCCC to revise Minimum Legal Sizes in the Plan to ensure they are biologically based and therefore maximize effectiveness in building fish stocks. 	<p>SFA.</p> <p>PFCCC to assist by facilitating SFA's access to commercial catch (to supplement fishery-independent samples), as required.</p>	Complete by mid 2016.

Appendix 4: Operational Plan for the Seychelles Fishing Authority (SFA) in relation to the implementation of the Praslin Fisheries Co-Management Plan.

The plan identifies the resources needed and projected cost of implementation (where possible). Key tasks are outlined to guide the operation of the PFCCC for the first year of implementation of the Fisheries Co-management plan for the Praslin artisanal trap and line fishery. Costs are specific where possible and in SR. The operational plan covers surveillance/enforcement, monitoring/data collection,

training and capacity building, and education and awareness related actions. It is recommended that the progress in delivery of the operational plan is reviewed by the SFA in consultation with the PFCCC on a regular basis.

Action (#)	Issue	Detailed Activity	When	Resource needs	Cost (SR)
	SURVEILLANCE/ ENFORCEMENT				
1	Policy analysis: to establish Government position on whether members of the PFCCC can become authorized enforcement officers under the Fisheries Act. In accordance with Co-Management approach, PFCCC seeks to play a role in community enforcement of	<u>Policy Analysis</u> <u>Option 1:</u> SFA to determine whether PFCCC members can become authorized enforcement officers under the Fisheries Act 2014. <u>Option 2:</u> If option 1 not supported, SFA to determine if fishers on PFCCC can act as 'Community Rangers' with capacity to collect information systematically that can be used in further SFA lead surveillance and enforcement activities, and conduct educational and awareness activities as agreed with SFA and in accordance with the Communication Strategy (see below). <u>Option 3:</u> If Options 1 or 2 not supported fishers on PFCCC will be limited to education and awareness role.	Immediate.	<u>Policy analysis:</u> existing SFA policy officer.	15 person-days

	regulations applying to the SMA.				
2	On-water Surveillance Patrols: Purchase of vessel and equipment	<p>SFA to develop a surveillance schedule.</p> <p>SFA to negotiate purchase of vessel and budget to manage setup of vessel with UNDP.</p> <p>Patrol vessel set-up costs: (projected costs based on consultation with SFA)</p> <hr/> <p>Purchase dedicated patrol vessel 8-9m length and engine. Equip vessel with standard: safety gear, radio, searchlights, camera</p> <hr/> <p>Surveillance equipment:</p> <p>Purchase camera</p> <hr/> <p>Purchase miscellaneous field equipment: including binoculars, torches, measuring boards (check minimum size limits); certified</p>	<p>Immediate</p> <p>Immediate</p>	<p>SFA enforcement unit</p> <hr/> <p>Vessel and operating equipment</p> <hr/> <p>Camera</p> <hr/> <p>General Equipment</p>	<p>2 person-days</p> <hr/> <p>SR 1.5m</p> <hr/> <p>SR 40,000</p> <hr/> <p>SR 30,000</p>

	<p>scales (check weight-based bag limits);</p> <p>Total set-up costs for on-water surveillance.</p>				
	<p>Operational costs (per mission): Costs are per trip Mahe to Praslin.</p>				
	<p>Reposition patrol vessel from Mahe (base) to Praslin for regular surveillance patrols of the SMA. (Monthly or random as required if responding to intelligence information.).</p>		100L fuel @SR 22/L	SR 4,400	
			Oil	SR 600	
	<p>Monthly surveillance mission: duration 5-days per month (excludes transit times to and from Praslin).</p>		200L fuel/d	SR 22,000	
	<p>Patrol vessel total fuel costs per monthly surveillance mission (includes transit costs).</p>		Oil	SR 3,000	
			TOTAL	SR 30,000	
	<p>Crew costs per monthly surveillance mission. Crew requirements: 1 x skipper; 2 x SFA enforcement officers; 1 x PFCCC member. Total staff allowance is based on 3 SFA staff x 7 days to account for repositioning of vessel</p>		SR 500/p/d allowance SFA staff	SR 10,500	
			TOTAL	SR 1,570,000	

		<p>Daily allowance also applies to PFCCC rep: 5 days per mission @ SR 500/d).</p> <p>Accommodation: 3 SFA staff x 6 nights @ SR 500 per night.</p> <p>Total crew costs per surveillance mission.</p>		<p>SR 500/p/d allowance PFCCC rep.</p> <p>SR 500/p/n</p>	<p>SR 2,500</p> <p>SR 9,000</p>
		<p>Patrol vessel maintenance costs (annual): Engine servicing and vessel maintenance (projected costs based on consultation with SFA)</p>		TOTAL	SR 22,000
		<p>Total Annual operational costs of water-based surveillance based on 7-monthly missions per year @ SR 52,000 per mission plus vessel maintenance.</p>			SR 50,000
				TOTAL	SR 414,000
3	Land-based Surveillance Patrols	Staff costs per monthly surveillance patrol: 2 x SFA enforcement officers; 1 x PFCCC member. Daily allowance for SFA staff is based on 5 days.		SR 500/p/d allowance SFA staff	SR 7,500

		Daily allowance also applies to PFCCC member. Accommodation: 2 SFA staff x 6 nights @ SR 500 per night.		5 days @ SR 500/d.	SR 2,500
		Total enforcement officer costs per surveillance mission.		TOTAL	SR 6,000
		Vehicle costs per monthly surveillance mission: Patrol vehicle: option is for existing Isuzu truck to be based on Praslin under the management of SFA staff.		SR 200 fuel/d @ 5 days	SR 1,000
		Total Annual costs of land-based surveillance based on 7-monthly missions per year @ SR per mission		TOTAL	SR 17,000
4	Data and information management system	SFA to develop data and information management system to process and store intelligence information; and store compliance and infringement data. Recommend that data management system is electronic.	Immediate	Data management system: 1 x SFA staff (part-time) and SR 40,500 (USD3000) estimated set-up costs	SR 40,500

	MONITORING/ DATA COLLECTION				
1	Community-based Data Collection Program (CDCP)	Design CDCP in consultation with PFCCC. (refer to Appendix 3 for details). Design data collection sheets. Set-up separate database and data checking system. Manage data entry and reporting.	May-June	1 x SFA staff (SFA Fisheries Statistics Unit or Artisanal Fisheries Research section)	5-person days per month
2	Length at maturity data	Collect length at maturity data for key species (Bourzwa, Zob gris and Kordonnyen) to inform setting/reviewing minimum size limits.	Immediate		Existing SFA resources
	CAPACITY BUILDING/ TRAINING				
1	Training and capacity building (for select PFCCC and other fishers /community members where	Conduct surveillance and enforcement training program for PFCCC / PFA officers. This will also include training in the field on surveillance patrols.	Immediate post policy evaluation (see Surveillance/enforcement	<u>Training program:</u> 1 x SFA staff to run 2-day workshop.	SR 14,000

	required) how to collect Compliance intelligence information and conduct enforcement activities.		action 1)		
2	Training and capacity building for select PFCCC and other fishers /community members where required to deliver the Communications Strategy.	<p>Training program for PFCCC officers: training to cover technical fisheries management issues; techniques for positive community and industry engagement.</p> <p>Regular communication between SFA and PFCCC and other community members engaged with implementing Communications Strategy is critical.</p>	Immediate as part of the Communications Strategy	<u>Training program:</u> Consultant to run 1-day workshop	N/A as covered by Consultant that's developed the Communications Strategy.
3	Training for PFCCC/PFA members to implement the Community-based Data Collection Program (CDCP)	Training in the collection of catch and effort data.		<u>Training program:</u> 1 x SFA staff to run 1-day workshop.	SR 7,000
	EDUCATION and				

	AWARENESS				
	Communications Strategy.	SFA to engage an expert to develop a communications strategy for the SFA and the PFCCC: strategy to include education and awareness material to inform all stakeholders about the regulations and process for day-to-day management of the SMA.	Immediate	External consultant to develop strategy and deliver PFCCC training workshop.	20 person-days.

Appendix 5: Operational Plan for the Praslin Fishery Co-management Coordination Committee in relation to the implementation of the Praslin Fisheries Co-Management Plan.

The plan identifies the resources needed and projected cost of implementation (where possible). Key tasks are outlined to guide the operation of the PFCCC for the first year of implementation of the Fisheries Co-management plan for the Praslin artisanal trap and line fishery. Costs are specific where possible and in SR. The operational plan covers surveillance/enforcement, monitoring/data collection, training and capacity building, and education and awareness related actions. It is recommended that the progress in delivery of the operational plan is reviewed by the SFA in consultation with the PFCCC on a regular basis.

Action (#)	Issue	Detailed Activity	When	Resource needs	Cost (SR)
	SURVEILLANCE/ ENFORCEMENT				
1	On-water and land-based surveillance and enforcement.	Assist SFA enforcement officers on surveillance patrols (see Appendices 2 and 4).	Monthly missions as per SFA	1 x PFCCC (fisher)/PFA fisher per	Costs: refer to SFA operational

			operational plan.	surveillance mission.	plan.
2	On-water and land-based surveillance: use of spear guns in SMA.	Where use of spear guns is suspected: PFCCC / PFA to collect evidence identification and photos where possible. Recommend that data recorded on template provided by SFA to ensure data collection is comprehensive. Provide this information to SFA enforcement unit, as soon as practical. SFA to target any suspected illegal use of spear guns during routine patrols. PFCCC takes lead on day-to-day monitoring of any illegal use/activity.	Immediate.	No dedicated resources required.	N/A
3	Investigate the use of a registered tag system to track the commercial catch of lobsters and reduce the risk of illegal sale.	PFCCC proposed a tagging system at the MCS workshop (28/3/15). PFCCC to investigate the use of a registered tag system to track the commercial catch of lobsters and reduce the risk of recreational and unlicensed commercial fishers catching and selling lobsters. PFCCC have proposed that lobster fisher notifies of landing lobster and receives tags (1 per lobster) from authorized community rep. allowing the sale of lobster. Alternatively lobster fishers assigned number of tags, tags recorded in a logbook along with details of point of sale.	Completed by end 2015 (low priority).	PFCCC with assistance from SFA.	Costs to be determined based on feasibility of the program.

		In assessing the feasibility of this, need to consider: how numbered tags will be tracked to ensure not being obtained by recreational/unlicensed commercial fisher; cost effective and effective at reducing risk of hotels/restaurants buying untagged lobster.			
	MONITORING/ DATA COLLECTION				
1	Baseline survey of trap fishers.	PFCCC have proposed to survey trap fishers to assess how many traps are being used relative to the proposed limit of 20 traps and compile a register of active fishers and conduct awareness re the co-management regulations that apply to the SMA.	Immediate	PFCCC to take lead with assistance from SFA	
2	Community-based Data Collection Program (CDCP)	Carry out CDCP, with direction from SFA. (refer to Appendix 2 for details). Undergo training by SFA. Fishers to nominate a Coordinator for the CDCP who has responsibility for collating data sheets, day-to-day management of program and liaising with SFA. Collect data using data collection sheets, transfer to SFA. Field gear for monitoring program (certified	June onwards	PFCCC / PFA trained persons only.	SR 5,000

		scales, measuring boards, etc.)			
3	Incentive Scheme for fishers to collect data	SFA has proposed to run 2 BBQ's per year to facilitate building a positive collaborative relationship with the PFCCC/PFA and other fishers involved with the collection of fishery data under the CDCP.	On-going (2 x per year)	SR 5000/BBQ	SR 10,000
	CAPACITY BUILDING/ TRAINING				
1	Conduct surveillance and enforcement training program for PFCCC / PFA officers. This will also include training in the field on surveillance patrols.	Training and capacity building (for select PFCCC and other fishers /community members where required) how to collect Compliance intelligence information and conduct enforcement activities.	Select PFCCC/PFA members (budget for 5 persons).	Allowance for attendance: SR 500/p/d for 2-day workshop.	SR 5,000
2	Training and capacity building for select PFCCC and other fishers /community members where required to deliver the Communications Strategy.	Training program for PFCCC officers: training to cover technical fisheries management issues; techniques for positive community and industry engagement. Critical that PFCCC maintains regular communication with SFA and other community members engaged with implementing Communications Strategy.	PFCCC/PFA members (budget for 10 persons).	Allowance for attendance: SR 500/p/d for 1-day workshop.	SR 5,000
	Training for PFCCC/PFA	Training in the collection of catch and effort	Select	Allowance for	SR 2,500

	members to implement the Community-based Data Collection Program (CDCP).	data.	PFCCC/PFA members (budget for 5 persons).	attendance: SR 500/p/d for 1-day workshop.	
	EDUCATION and AWARENESS				
	Use of spear guns.	<p>Spear guns: PFCCC to identify and target for education the sectors of the community where there is a high risk of illegal use of spear guns e.g. tourist hotels/resorts.</p> <p>Request that SFA liaise with biosecurity and customs at the airport / ports of entry to enforce prohibition of spear guns in Seychelles.</p>	Immediate	PFCCC / PFA members	N/A
	Communications Strategy.	<p>Implement Communications Strategy developed by SFA consultant.</p> <p>Target main landing sites.</p>			

Appendix 6: Summary of the cost of implementation of the MCS Protocol. Estimates of the financial resources needed to successfully implement the main elements of the MCS protocol are summarized. Cost estimates are based on information provided SFA.

Appendix 6:

Category	Stage	Activity	Resource needs	Cost (person days)	Cost (SR)	
SURVEILLANCE/ ENFORCEMENT	Set up costs: vessel and equipment	Policy analysis to determine role of PFCCC officers in enforcement	SFA staff	15		
		SFA - develop annual surveillance schedule	SFA surveillance unit staff	2		
		Purchase patrol vessel	Vessel and operating equipment		1,500,000	
		Purchase surveillance equipment: camera	Camera		40,000	
		Purchase misc., field equipment	General equipment (binoculars, torches, measuring boards, certified scales)		30,000	
	Set up costs: Training workshops	Surveillance and enforcement training program	1 x SFA staff to run 2-day workshop.	2	14,000	
			Allowance for attendance by 5 PFCCC members @ SR 500/p/d.		5,000	
	Set up costs: Compliance database	Data and information management system	1 x SFA staff part-time to setup database and ongoing management; USD3,000 est. database development cost.		40,500	
		Total Set-up Costs			1,629,500	
	Operational costs - on water surveillance	Reposition vessel to Praslin for each monthly mission	Fuel and oil: 100 L fuel @SR 22/L		5,000	
			Vessel running costs per monthly surveillance mission	5 days per mission running costs: 200 L/d fuel and oil	25,000	
			Crew costs per monthly surveillance mission	1 x skipper and 2 x SFA enforcement officers for 7 days. Staff daily allowance SR500 p/d.	21 (days per mission)	10,500
				1 x PFCCC member for 5 days and daily allowance SR500.		2,500
				Accommodation: 3 SFA staff x 6 nights @ SR500/night.		9,000
			Total Cost per Mission			52,000
			Annual patrol vessel maintenance			50,000
	Total Annual Operational Cost	Based on 7 monthly missions per year @ SR52,000/mission plus vessel maintenance		414,000		
	Operational costs - Land-based surveillance	Staff costs per monthly surveillance mission.	2 x SFA enforcement officers for 5 days; Staff daily allowance SR500 p/d.	10 (days per mission)	7,500	
			1 x PFCCC member for 5 days and daily allowance SR500.		2,500	
			Accommodation: 3 SFA staff x 6 nights @ SR500/night.		6,000	
		Vehicle costs per monthly surveillance mission	5 days of fuel @ SR200/d		1,000	
Total Cost per Mission				17,000		
Total Annual Operational Cost		Based on 7 monthly missions per year @ SR17,000/mission plus vessel maintenance		119,000		
MONITORING/ DATA COLLECTION	SFA Catch and Effort Surveys	Current annual Catch Assessment Surveys (CAS)	Existing resources; spatial resolution of survey being modified to include catches around La Digue and Praslin.	nil		
	CDCP: Community-based Data Collection Program	Design and setup CDCP	1 x SFA staff: Design CDCP in consultation with PFCCC; design data collection sheets; set-up database and data checking system; manage data entry and reporting.	5 (days per month)		
		Field gear for CDCP	Purchase equipment: certified scales, measuring boards, etc.,		5,000	
		Training workshop for PFCCC to implement CDCP.	1 x SFA staff to run 1-day workshop	1	7,000	

	CDCP: (continued)	Training workshop for PFCCC to implement CDCP.	Allowance for attendance to 1-day training workshop: budget for 5 persons @ SR 500/p/d.		2,500
		Total Set-up Costs			14,500
		Incentive for fishers to collect data under the CDCP.	Annual allowance for 2 events per year on Praslin/La Digue where fishers are bought together to facilitate information sharing and building positive collaborative relations.		10,000
		Field gear for CDCP	Annual allowance for replacement of field gear.		2,000
		Total Annual Operational Cost			12,000
EDUCATION & AWARENESS	Communications Strategy	External Consultant to develop Communications Strategy including education and awareness material to inform stakeholders of regulations and day-to-day management.	External consultant to develop strategy, communication materials and run training program for PFCCC members.	20	Cost to be determined by SFA
		Training workshop for PFCCC to deliver communications strategy. Communications consultant to run workshop. Workshop to cover: fisheries management regulations, techniques for positive community and industry engagement.	Communications consultant to run 1-day workshop. Budget for 10 PFCCC/PFA industry members; allowance for attendance: SR 500/p/d.		5,000
		Total Set-up Costs			5,000
SUMMARY	TOTAL SET-UP COSTS			1,649,000	
	TOTAL ANNUAL OPERATIONAL COSTS			545,000	