



Artisanal Ray Fishery Assessment

January 2018 – May 2019

A product of the Green Islands Foundation, SeyCCAT funded, project: Assessment and Mitigation of Impact of the Artisanal Fishery on Species of Local Concern





Aetobatus ocellatus (Kuhl, 1823)



Aetomylaeus vesperilio (Bleeker, 1852)



Mobula alfredi (Kreffft, 1868)



Mobula kuhlii (Müller & Henle, 1841)



Mobula mobular (Bonnaterre, 1788)



Pastinachus sephen (Forsskål, 1775)



Pateobatis fai (Jordan & Seale, 1906)



Taeniurops meyeri (Muller & Henle, 1841)



Urogymnus asperrimus (Bloch & Schneider, 1801)

Citation:

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Introduction.

The Seychelles artisanal ray fishery has never been previously investigated. The Seychelles National Plan of Action for the Conservation and Management of sharks (NPOA) recognised this as a key elasmobranch fishery data shortfall and identified such a survey as the first activity under the Work Programme on Fishery Data Gathering and Management:

Activity. Undertake ray fishery assessment, identify species composition, relative abundance, seasonal occurrence and population demography.

Result. Ray fishery species composition, abundance, occurrence and demography identified through a minimum 12-month intensive survey of fishery catch.

The Green Islands Foundation (GIF) consequently incorporated such a survey into its project submission: “*Assessment and Mitigation of Impact of the Artisanal Fishery on Species of Local Concern*” to the Seychelles’ Conservation and Climate Adaptation Trust (SeyCCAT). The project proposal was accepted and funds provided to undertake *inter alia* an intensive 12-month survey of the artisanal ray fishery from June 2018 – May 2019. As part of its counterpart commitment GIF funded an additional 5 months of survey work from January to May 2018.

Methodology

Monitoring was undertaken at key landing sites and points of sale on the principal island of Mahé: Port Victoria, Bel Ombre, Victoria market, Roche Caiman, Cascade and Anse Royale. This method covered 50% or more of the total daily Artisanal catch and is thus highly representative providing a strong basis for assessment of the ray fishery. Monitoring was undertaken four days a week, Wednesday to Saturday thereby focusing on the days with highest catch return. Catch monitoring was led by the fishery consultant assisted by the project officer, both of whom were equipped with transport. Fishers/vendors at five sites were paid an allowance to communicate arrival of catch and also to record catch when the lead monitors could not attend. The assistants were equipped with measuring equipment, waterproof note books and digital cameras to enable confirmation of species identification.

The data gathering protocol was designed to be as quick and simple as pragmatically possible whilst gathering the required information. Data gathered consisted of: date, species, disc width and body length, and gender and maturity where possible. This model of monitoring had proven successful under a previous Artisanal fishery project on threatened species. Data was gathered from January 2018 to May 2019 inclusive.

Results

8 species of ray were recorded in the catch during the survey period. The details of which are summarised in the table below. The Round ribbontail ray (*Taeniurops meyeri*) whilst not recorded during the survey period has previously been recorded in the artisanal catch and so is listed at the bottom of the table.

Ray Species Recorded in the Artisanal Fishery				
Species name		Number recorded	IUCN Status	Notes
Scientific	Common			
<i>Aetobatus ocellatus</i>	Spotted eagle ray Lare sousouri	372	VU	
<i>Aetomylaeus vespertilio</i>	Ornate eagle ray Lare dore	4	EN	Fishers agreed minimum catch size of 100 cm DW under GIF/GEF Satoyama project
<i>Mobula alfredi</i>	Reef manta ray Dyab	5	VU	These 3 species have been listed in appendix 1 of the Convention on Migratory Species (CMS) since 2014. As a party to the CMS Seychelles should have given full protection to the species since 2014.
<i>Mobula kuhlii</i>	Shortfin devil ray Swarko	78	DD	
<i>Mobula mobular</i>	Giant devil ray Swarko	8	EN	
<i>Pastinachus sephen</i>	Cowtail stingray Lare lafwet	3	NT	
<i>Pateobatis fai</i>	Pink whipray Lare bannan	9	VU	Fishers agreed to release under GIF/GEF Satoyama project
<i>Urogymnus asperrimus</i>	Porcupine ray Lare boukle	1	VU	Fishers agreed to release under GIF/GEF Satoyama project
<i>Taeniurops meyeri</i>	Round ribbontail Lare brizan	0	VU	Fishers agreed to release under GIF/GEF Satoyama project

It is notable that of the nine species recorded in the artisanal fishery seven are classified as threatened (i.e. Endangered or Vulnerable) on the IUCN red data list and the remaining two are classified as Near Threatened and Data Deficient respectively. Several of these species were addressed under the 2017 GIF/GEF Satoyama project and fishers agreed protective measures with regard to the Ornate eagle ray, Pink whip ray, Porcupine ray and Round ribbon tail ray as noted in the table above. These measures were presented to the Ministry of Fisheries and Agriculture (MoFA) and the Seychelles Fisheries Authority (SFA) in December 2018 for promulgation into regulations under the 2014 Fisheries Act. To date no action has been taken by the authorities in that regard.

More detailed information for the Spotted eagle ray (*Aetobatus ocellatus*) - "Lare sousouri", the Shortfin devil ray (*Mobula kuhlii*) - "Swarko" and the Pink whipray (*Pateobatis fai*) - "Lare bannan" - are provided overleaf.

Spotted eagle ray (*Aetobatus ocellatus*) – “Lare sousouri”



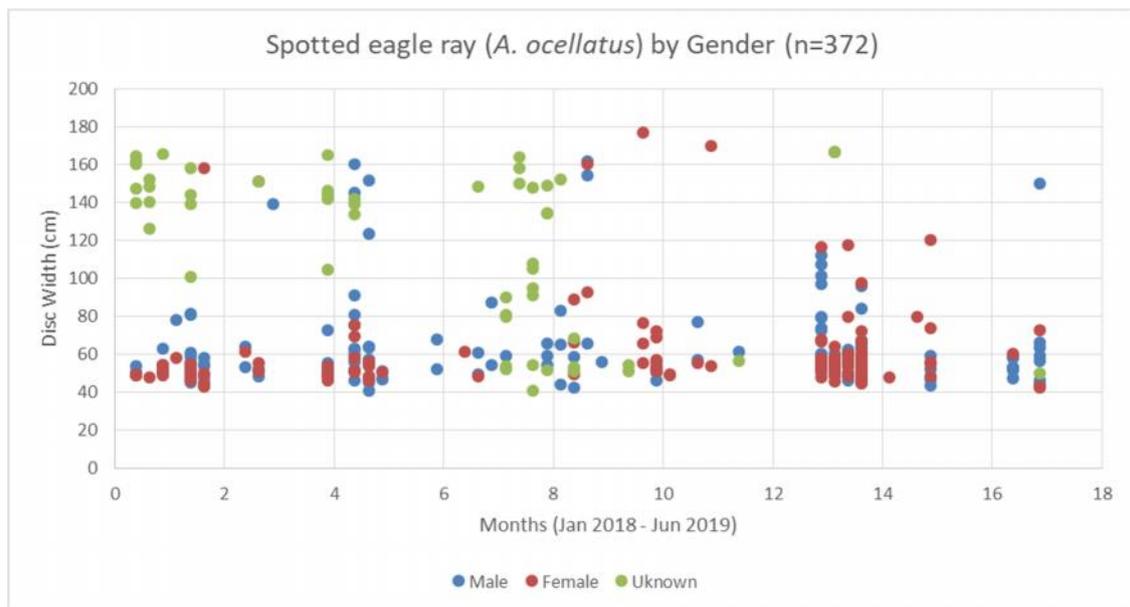
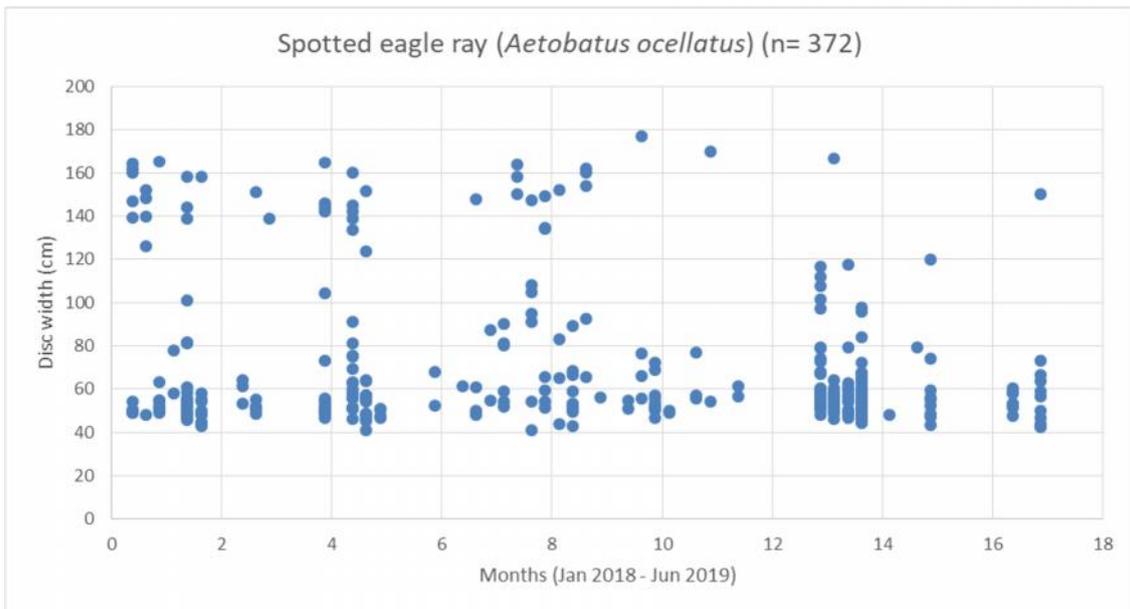
Males mature: 100-130cm DW

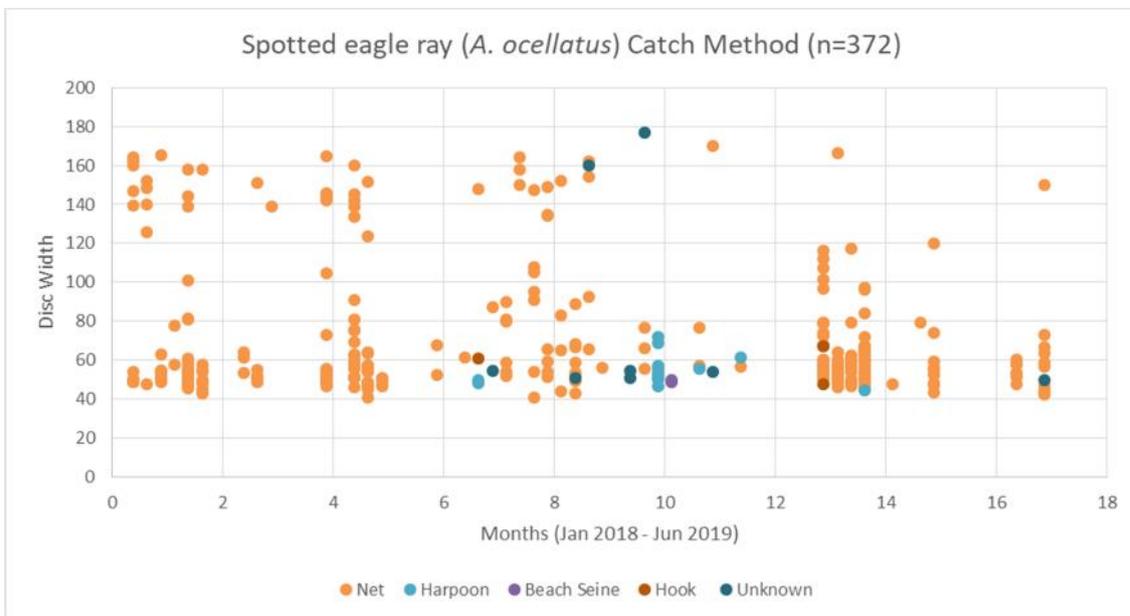
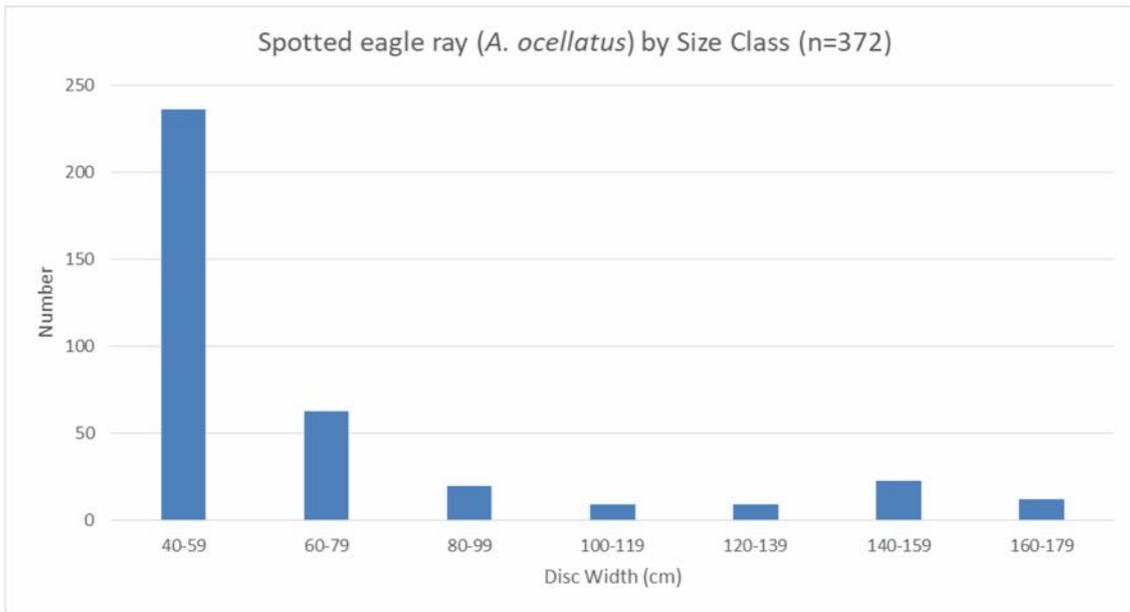
Females mature: 155-160cm DW

IUCN: Vulnerable

By far the most common species in the ray fishery, vast majority caught by gill nets.

Its threatened status (IUCN VU) suggests its fishery should be monitored for several years to determine status and potential management measures.





Shortfin devil ray (*Mobula kuhlii*) – “Swarko”



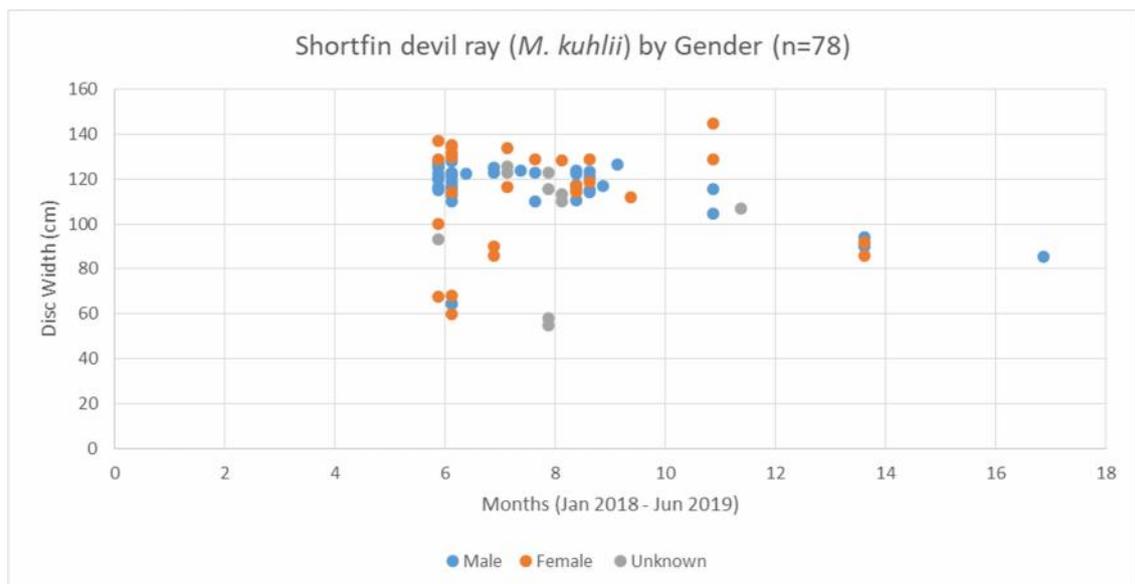
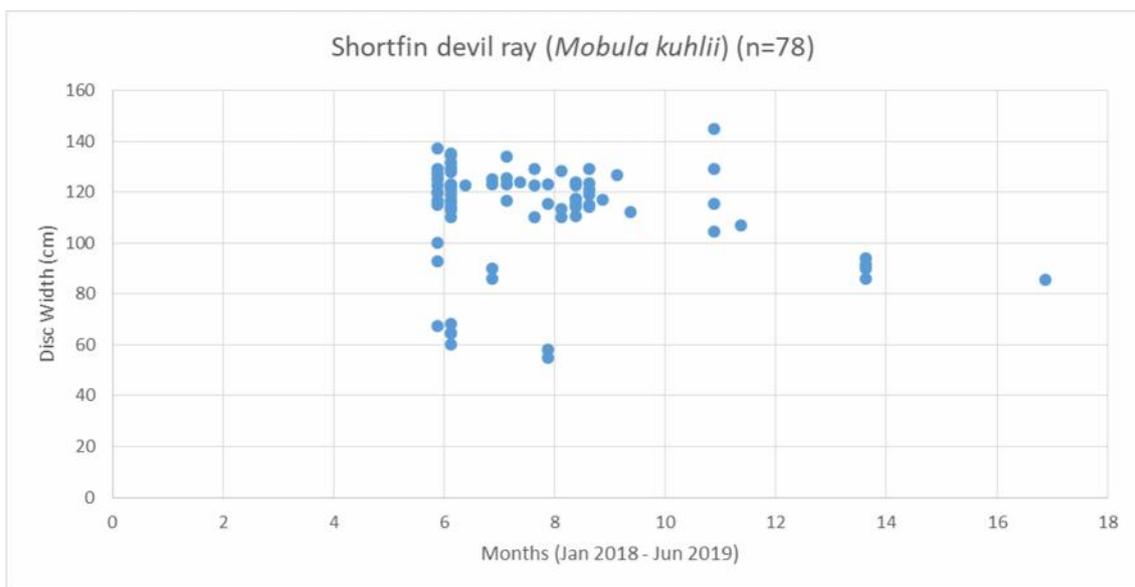
Males mature: ≈ 115 cm DW

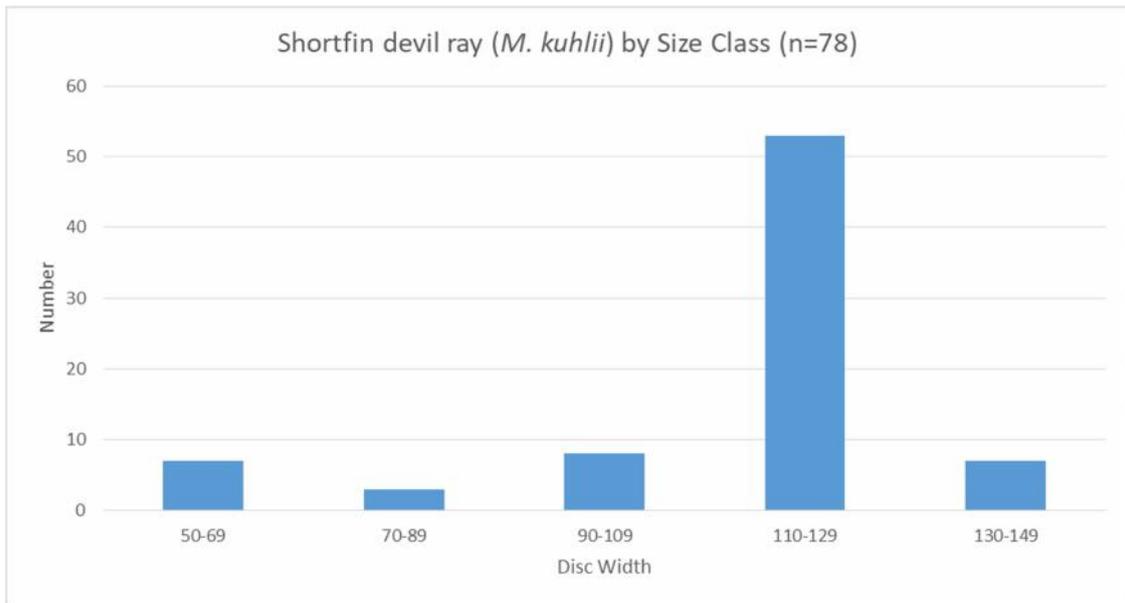
Females mature: ≈ 134 cm DW

IUCN: Data Deficient

Second most common species in the fishery.
Caught exclusively by gill nets.

CMS Appendix I species and should
therefore be protected by national law.





Pink whipray (*Pateobatis fai*) – “Lare bannan”

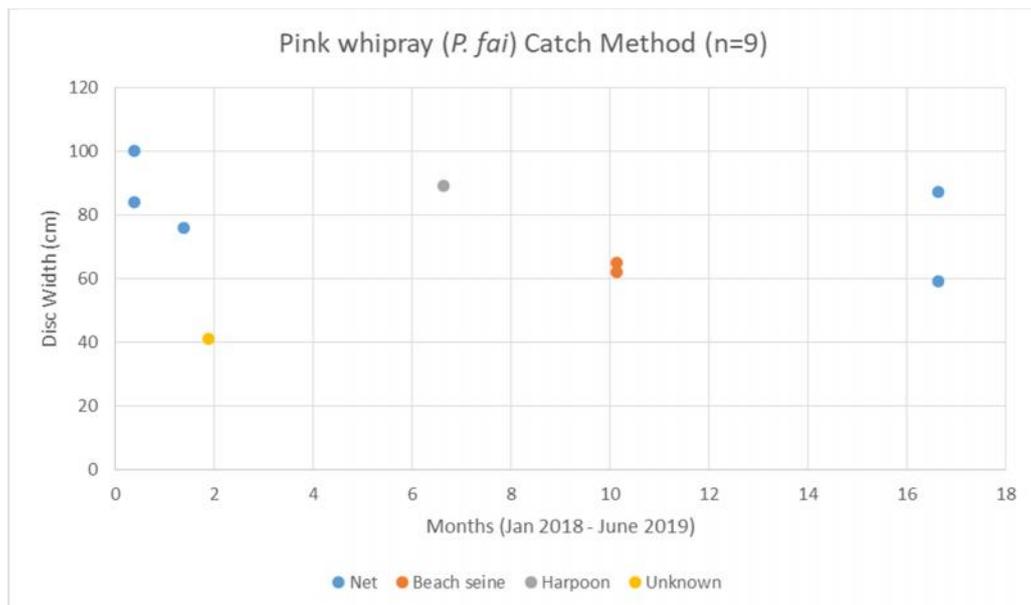
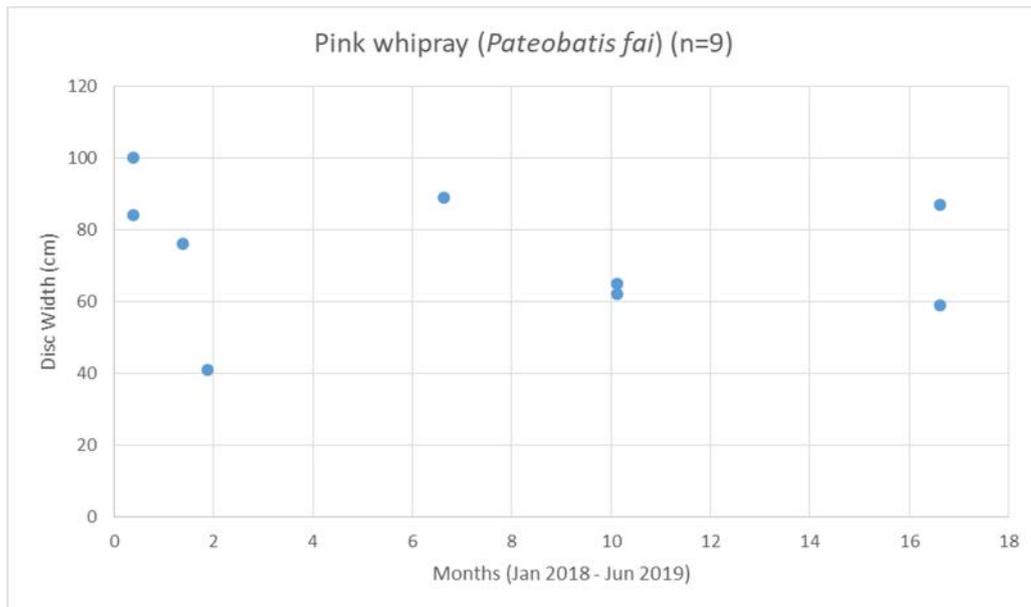


Males mature: ≈ 112cm Disc Width

Females mature: Unknown.

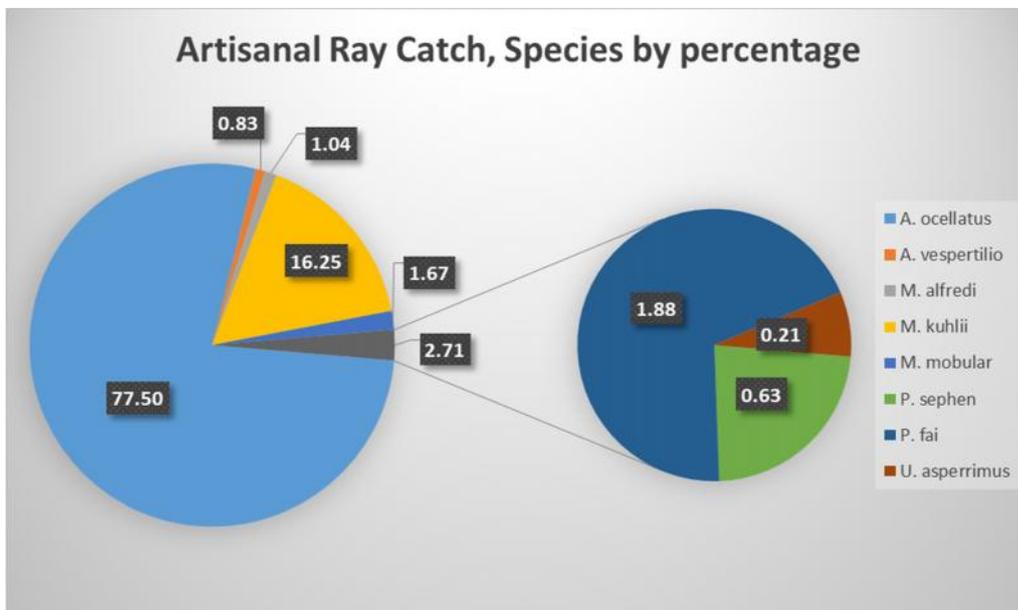
IUCN: Vulnerable

Caught with various gear. Fishers agreed to release this species under GIF/GEF Satoyama project, subject to regulations being promulgated.

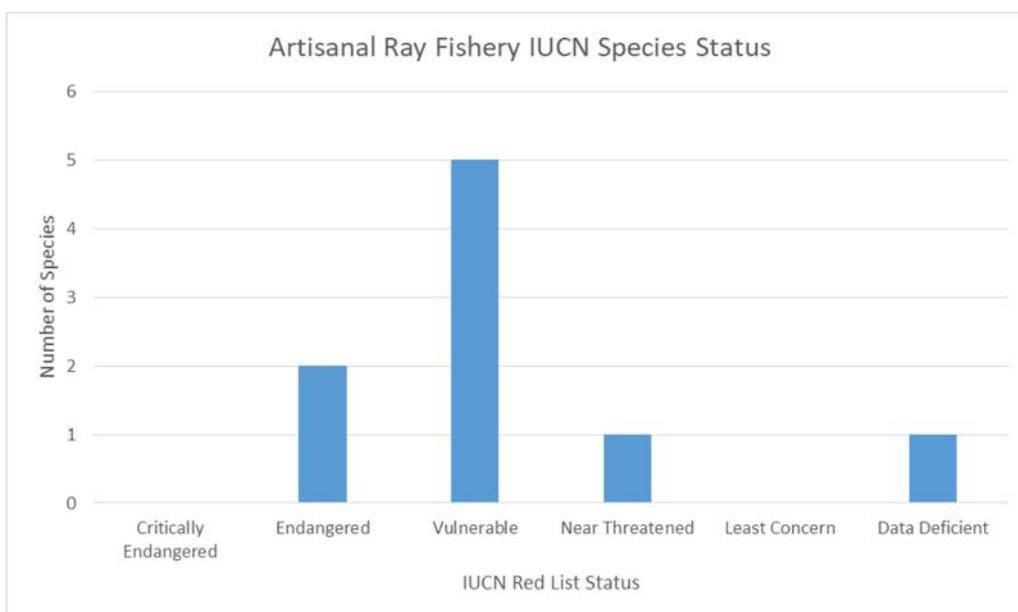


Discussion

480 rays from eight species were recorded in the artisanal catch from January 2018 until May 2019 inclusive. 450 of them, or 93.75% of the numerical total, consisted of just two species. The vast majority of all the specimens were caught in gillnets, a highly indiscriminate fishing gear, the use of which is subject to certain legal restrictions.



The IUCN red list status of the ray species caught in the artisanal fishery, including one species not recorded during the survey but previously recorded in catch, underlines the threatened nature of the species in this fishery.



The Mobulids: Reef manta ray (*M. alfredi*), Shortfin devil ray (*M. kuhlii*) and the Giant devil ray (*M. mobular*) were all listed in Appendix 1 of the Convention on Migratory Species (CMS) in 2014. The Manta ray (*M. birostris*) which though not recorded in the survey is known to occur in Seychelles waters, was listed in Appendix 1 in 2011. Seychelles acceded to the CMS in 2005.

Article II of the CMS set out its fundamental principles:

“1. The Parties acknowledge the importance of migratory species being conserved and of Range States agreeing to take action to this end whenever possible and appropriate, paying special attention to migratory species the conservation status of which is unfavourable, and taking individually or in co-operation appropriate and necessary steps to conserve such species and their habitat.

2. The Parties acknowledge the need to take action to avoid any migratory species becoming endangered.

3. In particular, the Parties:

a) should promote, co-operate in and support research relating to migratory species;

b) shall endeavour to provide immediate protection for migratory species included in Appendix I; and

c) shall endeavour to conclude Agreements covering the conservation and management of migratory species included in Appendix II.”

Appendix I lists species which are endangered and require immediate protection while, Appendix II lists species that are considered to have an unfavourable conservation status and which require or would benefit from the establishment of an international agreement.

Articles III paragraphs 4 and 5 pertain to Appendix I species:

“4. Parties that are Range States of a migratory species listed in Appendix I shall endeavour:

a) to conserve and, where feasible and appropriate, restore those habitats of the species which are of importance in removing the species from danger of extinction;

b) to prevent, remove, compensate for or minimize, as appropriate, the adverse effects of activities or obstacles that seriously impede or prevent the migration of the species; and

c) to the extent feasible and appropriate, to prevent, reduce or control factors that are endangering or are likely to further endanger the species, including strictly controlling the introduction of, or controlling or eliminating, already introduced exotic species.

5. Parties that are Range States of a migratory species listed in Appendix I shall prohibit the taking of animals belonging to such species. Exceptions may be made to this prohibition only if:

a) the taking is for scientific purposes;

b) the taking is for the purpose of enhancing the propagation or survival of the affected species;

c) the taking is to accommodate the needs of traditional subsistence users of such species; or

d) extraordinary circumstances so require; provided that such exceptions are precise as to content and limited in space and time. Such taking should not operate to the disadvantage of the species.”

It is clear therefore, that Seychelles is in default of its obligations under the CMS with regard to species of Mobulids for eight and four years respectively. It is necessary therefore that Seychelles move promptly to designate the four species of Mobulid as fully protected under the law. Precedent would suggest that this should be done under the Wild Animals and Birds Protection Act which falls under the auspices of the Ministry of Environment, Energy and Climate Change.

Recommendations

- 1) The Government of Seychelles should move promptly to expedite the promulgation of regulations to protect the four species of Mobulids in Seychelles waters, in line with its obligations under the Convention on Migratory Species.
- 2) The Ministry of Fisheries and Agriculture and Seychelles Fishing Authority should move promptly to promulgate regulations regarding the species of ray, that fishers have agreed measures to protect, in line with the specifications submitted in December 2018.
- 3) A representative monitoring of the artisanal ray fishery, on a species level, should be commenced in order to assess its sustainability and potential need for management measures.