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Annual National Report

Republic of Mauritius

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Abstract	

Mauritius had been fishing on the SIOFA Sub Area 8, on the Saya de Malha Bank. Fishing has been carried out by industrial and semi-industrial vessels. In 2022 and 2023, no industrial vessels operated in the SIOFA Area. This report summarises the fishing activities for the past three years

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1. Mauritian Fisheries on the Southern Indian Ocean Fisheries Agreement (SIOFA) Area.

Mauritius carries out different fishing activities in the SIOFA Agreement Area, namely on the Saya de Malha Bank (SIOFA Sub Area 8). The different fisheries targeting demersal species carried out on the Saya de Malha Bank with line gear are:

a) the Industrial Shallow Water Banks Fishery;
b) the Semi-Industrial Shallow Water Banks Fishery; and
c) the Semi-Industrial Deepwater snapper/grouper fishery.

All the fisheries differ with respect to fishing methods, species targeted, catch and vessel/boat size (LOA).

2. Description of the fisheries
Fleet composition

In 2021, the Mauritian fishing fleet comprised a total of four vessels: one industrial shallow water vessel, one semi-industrial deepwater vessel and two semi-industrial deepwater vessels.

In 2022, the Mauritian fleet was composed of three fishing semi-industrial vessels. All three operated in the semi-industrial deepwater fishery and two of them <u>also</u> operated in the semi-industrial shallow water fishery. No fishing vessels from the 'Industrial shallow water fishery' operated on the Saya de Malha Bank (SIOFA Sub Area 8).

In 2023, the Mauritian fleet did not change. The fleet comprised a total of three vessels operating on the Saya de Malha Bank (SIOFA Sub Area 8). All three operated in the Semi-Industrial Deepwater snapper/grouper fishery, and two of them <u>also</u> operated in the Semi-Industrial Shallow Water Banks Fishery.

Details are put in Table 1.

Table 1 – Number of active vessels by fishery *(Source: Ministry of Blue Economy, Marine Resources, Fisheries and Shipping)*

Type of vessel	Year				
	2019	**2020**	**2021**	**2022**	**2023**
Industrial shallow water vessels	2	1	1	Nil	Nil
Semi-industrial shallow water vessels	**(1)** (it also operated in the Semi-industrial deepwater fishery)	**(1)** (it also operated in the Semi-industrial deepwater fishery)	1	**(2)** (also operated in the Semi-industrial deepwater fishery)	**(2)** (also operated in the Semi-industrial deepwater fishery)
Semi-industrial deepwater vessels	7	5	2	3	3
Total	**9**	**6**	**4**	**3**	**3**

2.1   The Industrial Shallow Water Banks Fishery

The Industrial Shallow Water Banks Fishery is practised using handlines in a "mothership-dory" system. A "mothership" vessel (around 45 to 50 m in length) takes between 45 to 60 days for a fishing trip, and may perform three to four trips annually. The mother vessel carries 15 to 20 glass fiber dories (pirogues), which are launched at sea when the vessel reaches the fishing grounds. Fishing is done at a depth of about 20-50m within a range of 6 km from the mother vessel. The dories return to the mother vessel either at mid-day or evening with the day's catch. The catch is gutted and gilled at sea on the way back to the mother vessel. Upon arrival, the catch for the day is weighed, rinsed with sea water, blast frozen at -20° C and the next day, stored in bags or in bulk in the fish hold on board the vessel. About 80-90% of the banks' fishery catch consists of white fish (emperors): the main species being *Lethrinus mahsena,* and other lethrinids. The rest mainly comprises serranids (Annex 1).

It is to be noted that in 2020 and 2021, only one fishing vessel from the Industrial Shallow Water Banks Fishery fished on Saya de Malha – SIOFA Sub Area 8. In 2022 and 2023, no vessel was involved in SIOFA Agreement Area from this fishery.

A **Banks Fisheries Management Plan** has been put in place and has as main objectives:
- to ensure that fishery resources harvested by the banks operators are exploited within biologically acceptable levels, as well as social and economic objectives.
- to provide a foundation for management of the fishery to continue moving towards a more integrated management framework of shared responsibilities between the Ministry of Blue Economy, Marine Resources Fisheries and Shipping, and other stakeholders of the sector.

A Baseline Report was prepared by a national expert, Mr. M. Munbodh. Two Ecological Risk Assessment (ERA) workshops were held in 2012 to develop the Management Plan. The Management Plan was finalised in December 2012 and validated in January 2013. The plan is being implemented in a phased manner.

2.2   The Semi-Industrial Shallow Water Fish Fishery

In this fishery, the fishing boats are of length ranging between 12m and 24m. Fishing is practised using handlines. The boats carry ice and fishing gears, and once on the fishing grounds, fishing is carried out from the deck. When the fish is caught, it is placed in a slurry containing ice and sea water. At the end of the fishing day, all the fishes are put in the fish hold. Fish in the fish hold is kept on layers of ice in racks in the ratio of 1 kg of fish to 2 kgs of ice. The fishing boats fish for about ten days and the catch is unloaded chilled for retail distribution in the island.

The main targeted species of this fishery are the white fish lethrinids, mainly *Lethrinus mahsena* and other species, namely 'red fish' (*Plectropomus spp*, *Variola spp*), *Aprion virescens* (Annex 1). Only one fishing boat from this fishery operated on the Saya de Malha SIOFA Sub Area 8 in 2020 and 2021, while two (2) fishing boats operated in 2022 and 2023.

2.3   The Semi-Industrial Deepwater snapper and grouper fishery

Deepwater snappers/groupers are present at depth of 150-300m on the slopes of the banks. The deepwater snapper and grouper fishery is mainly practised on the drop-offs (slopes) of the fishing banks by fishing boats of length range from 12m to 24 m. The main species caught are: Snappers (*Etelis* spp., *Pristipomoides* spp.), Frenchman seabream (*Polysteganus baissaci*) and comet grouper (*Epinephelus morrhua*). Fishing is carried out from the deck of the fishing boats using hydraulic reels mounted with nylon lines and hooks. Bait is mainly frozen tuna and cuttlefish.

Five (5) fishing boats from this fishery operated on the Saya de Malha SIOFA Sub Area 8 in 2020, two (2) in 2021 and three (3) in 2022 and 2023.

3. Catch, effort and Catch per Unit Effort (CPUE)

The catch, effort and CPUE details (for the last 4 years) are in Table 3, for the Industrial Shallow Water Banks Fishery. Table 4 and Table 5 show the catch for the Semi-Industrial Shallow Water Banks fish fishery and the Semi-Industrial Deepwater Snapper and Grouper Fishery. Data was compiled as per logbook data received from fishing vessels/boats. Given that handline gear is highly selective, the volume of discards is minimal and the information on discards is not recorded in logbooks.

Effort

Mauritian fisheries are essentially line fisheries, where the lines are operated by hand (industrial and semi-industrial shallow water vessels) or by a hydraulic reel (semi-industrial deepwater vessels).

In 2021, the total effort of the Mauritian fleet was 1,461 fishermen days from 6 fishing trips: 720 fishermen days from industrial shallow water vessels, 504 fishermen days from semi-industrial shallow water vessels, and 237 fishermen days from semi-industrial deepwater vessels.

In 2022, the total effort of the Mauritian fleet was 1,551 fishermen days, from 12 fishing trips: No fishing effort from the industrial shallow water fishery vessels, 573 fishermen days from the semi-industrial shallow water fishery and 978 fishermen days from the semi-industrial deepwater snapper and grouper fishery.

In 2023, the total effort of the Mauritian fleet amounted to 2 338 fishermendays, from the semi-industrial shallow water fishery (1 803 fishermendays) and the semi-industrial deepwater fishery (535 fishermendays).

All Mauritian fisheries are conducted around the Saya de Malha bank- SIOFA Sub Area 8.

Table 2 – Effort in fishermen days from the different fisheries that were conducted on the Saya de Malha bank- SIOFA Sub Area 8 from 2019-2023.

Source: Ministry of Blue Economy, Marine Resources, Fisheries and Shipping

Fishery	Fisherman - days				
	2019	2020	2021	2022	2023
Industrial shallow water banks fishery	6 093	666	720	No fishing	No fishing
Semi-industrial shallow water fishery	1 510	1 176	504	573	1 803
Semi-industrial deepwater fishery	1 237	572	237	978	535
TOTAL	**8 810**	**2 414**	**1 461**	**1 551**	**2 338**

For the Industrial fishery it is to be noted that there was a significant change in fishermen days due to a decline in the number of vessels operating in this fishery.

Table 3: Catch and effort data 2020-2023
from the Industrial Shallow Water Banks Fishery for the Saya de Malha Bank

	SAYA DE MALHA – SIOFA Sub Area 8		
Year	Catch (tonnes)	Fishermen days	CPUE (kg/fishing day)
2020	55.694	666	83.62
2021	36.4	720	50.6
2022	Nil	-	-
2023	Nil	-	-

Source: Ministry of Blue Economy, Marine Resources, Fisheries and Shipping

Table 4: Catch and effort data from 2020 to 2023 the Semi-Industrial Shallow Water Banks Fishery for the Saya de Malha Bank

	SAYA DE MALHA – SIOFA Sub Area 8		
Year	Catch (tonnes)	Fishermen days	CPUE (kg/fishing day)
2020	66.4	1 176	56.5
2021	46.7	504	92.6
2022	43.4	573	75.8
2023	147.9	1 803	82.0

Source: Ministry of Blue Economy, Marine Resources, Fisheries and Shipping

Table 5: Catch and effort data from 2020 to 2023 the Deepwater Snapper/Grouper Fishery for the Saya de Malha Bank

	SAYA DE MALHA – SIOFA Sub Area 8		
Year	Catch (tonnes)	Fishermen days	CPUE (kg/fishing day)
2020	46.4	572	81.1
2021	22.9	237	96.7
2022	59.4	978	60.7
2023	37.3	535	69.7

Source: Ministry of Blue Economy, Marine Resources, Fisheries and Shipping

The retained catches by species from each fishery are given in tables 6, 7 and 8, accordingly. Data was compiled from logbooks received from respective fishing vessels/boats. Discards are not recorded in the logbooks.

Table 6: Catch by species – Industrial Shallow Water Banks Fishery

	White Fish (Mainly *Lethrinus mahsena*)	Red Fish (*Variola* spp and *Plectropomus* spp)	*Aprion virescens*	Snappers (Lutjanidae)	Tuna	Total
2020	50.90	4.40	0.35	0.00	0.04	**55.69**
2021	32.58	2.25	1.58	0.00	0.00	**36.41**
2022	Nil	Nil	Nil	Nil	Nil	**Nil**
2023	Nil	Nil	Nil	Nil	Nil	**Nil**

Source: Ministry of Blue Economy, Marine Resources, Fisheries and Shipping

Table 7: Catch by species – Semi-Industrial Shallow Water Banks Fishery

	White Fish (Mainly *Lethrinus mahsena*)	Red Fish (*Variola* spp and *Plectropomus* spp)	*Aprion virescens*	Snappers (Lutjanidae)	Total
2020	53.74	8.17	3.86	0.67	**66.43**
2021	43.78	1.25	1.63	0.00	**46.66**
2022	38.81	3.16	1.46	0.00	**43.43**
2023	142.55	3.43	1.88	0.00	**147.86**

Source: Ministry of Blue Economy, Marine Resources, Fisheries and Shipping

Table 8: Catch by species – Semi-Industrial Snappers and Groupers Fishery

	Semi-Industrial Snappers and Groupers Fishery Saya de Malha – SIOFA Sub Area 8 Retained Catch (T)							
	Snappers (Lutjanidae)	*Polysteganus baissaci*	*Epinephelus morrhua*	*Aprion virescens*	White Fish (Mainly *Lethrinus mahsena*)	Red Fish (*Variola* spp and *Plectropomus* spp)	Others	**Total**
2020	26.91	13.36	2.92	1.74	0.79	0.03	0.67	**46.41**
2021	9.17	10.22	2.54	0.52	0.00	0.00	0.45	**22.90**
2022	45.61	9.02	4.60	0.15	0.00	0.00	0.00	**59.38**
2023	31.38	3.45	1.59	0.88	0.00	0.00	0.00	**37.30**

Source: Ministry of Blue Economy, Marine Resources, Fisheries and Shipping

It is to be noted that *Variola* spp. and *Plectropomus* spp catches are recorded as 'red fish' in the logbooks. The same applies to 'white fish' which includes mainly *Lethrinus mahsena,* but may also include some *L. nebulosus*, *L. rubrioperculatus*)

With regard to incidental species and bycatch, it is pointed out that no such species (seabirds, mammals, sharks and VMEs) were obtained in the fisheries.

4.   Fisheries data collection

Statistical data collection

Data from the different fisheries are collected through a logbook system. Upon arrival of the fishing vessels at the fish landing port at Port-Louis, logbooks are verified and collected by the Fisheries Protection Officers of the Port State Control Unit. The logbooks are then sent to the Marine Resources Division of Albion Fisheries Research Centre for data verification, processing, analysis

and data entry. The logbooks for each vessel provide daily information on catch and effort at specific fishing locations, amongst others. The catch per fisherman day (CPFD) is calculated by dividing the catch in kg by the number of fishermen days and the fishermen days are calculated by multiplying the number of fishermen by the number of fishing days. Table 9 shows a summary of data collected in logbooks.

Length and weight data are collected during sampling exercises during landing of catch at the port. During the year under report, no surveys and research activities was undertaken.

Table 9: Summary of data collected in logbooks

	Fishery: The same logbook templates are used for all the fisheries		
Year	Time scale	Spatial scale	Species details (taxonomic resolution)
2020	Day	Daily positions in Latitude and longitude of Industrial vessels (Mother vessels) and Semi-Industrial vessels	Genus (e.g White fish = Lethrinids; Red fish = *Plectropomus* spp and *Variola* spp) Species: for *Aprion virescens*, *Polysteganus baissaci* and *Epinephelus morrhua*)
2021	Day	Daily positions in Latitude and longitude of Industrial vessels (Mother vessels) and Semi-Industrial vessels	Genus (e.g White fish = Lethrinids; Red fish = *Plectropomus* spp and *Variola* spp) Species: for *Aprion virescens*, *Polysteganus baissaci* and *Epinephelus morrhua*)
2022	Day	Daily positions in Latitude and longitude Semi-industrial vessels	Genus (e.g White fish = Lethrinids; Red fish = *Plectropomus* spp and *Variola* spp) Species: for *Aprion virescens*, *Polysteganus baissaci* and *Epinephelus morrhua*)
2023	Day	Daily positions in Latitude and longitude Semi-industrial vessels	Genus (e.g White fish = Lethrinids; Red fish = *Plectropomus* spp and *Variola* spp) Species: for *Aprion virescens*, *Polysteganus baissaci* and *Epinephelus morrhua*)

5.   Vulnerable Marine Ecosystems (VME) Threshold

Mauritian fishing vessels are not involved in fishing with gears that interfere with VMEs.

6.   Biological sampling

Industrial Shallow Water Banks Fishery

No vessels operated in this fishery in 2023.

Semi-industrial Shallow Water Banks Fishery

Sampling is done during unloading of the semi-industrial chilled fish boats. Chilled fish from the fishing boats is unloaded in small quantities in plastic crates. At random the crates are taken for sampling and length/weight data are measured. The fish is measured on a measuring board and then the weight is recorded from a scale balance. The main targeted species for collection of length and weight is *Lethrinus mahsena.*

Semi-Industrial Deepwater snapper and grouper fishery

Random sampling is carried out upon calling of vessels at the port. The fish can be chilled or frozen (as a boat can have both frozen and chilled fish on the same trip). If the catch is chilled the same sampling procedure as for the semi-industrial chilled fish fishery (Semi-industrial Shallow Water Banks Fishery) is applied. When the fish is frozen, then only the length frequency sampling is done as the frozen fish is gilled and gutted. The targeted species for sampling are *Polysteganus baissaci, Etelis* spp. and *Pristipomoides* spp.

Table 10: Summary of total number of specimens sampled

	Number of specimens sampled by year			
Species (FAO code)	**2020**	**2021**	**2022**	**2023**
Lethrinus mahsena (LTQ)	-	375	155	251
Etelis carbunculus	-	90	105	162

In 2020, no sampling programme was undertaken due to prevalence of COVID-19 in Mauritius.

7.   Description of data verification mechanism

Verification mechanisms:

- Fishing positions of licensed fishing vessels are verified through Vessel Monitoring System (VMS).
- Logbook system. Logbook data include date of departure and arrival, species/group of species caught, positions, depth, no. of fishermen involved, number of fishing days.
- Port State Control Unit enforces port state measures and associated regulations.
- Port sampling is done regularly on a random basis for fish data collection and associated inspection onboard the fishing vessel.

8.   Summary of Observer Programmes and Port Sampling Programmes

Port sampling is carried out upon arrival of fishing vessels for the collection of length and weight data.

No Observer programme was undertaken during in 2023.

ANNEX 1

Annex 1: Demersal species caught from Saya de Malha Bank		
Fishery	**Genus and species names**	**Common Name**
The Industrial Shallow Water Banks Fishery	Mainly *Lethrinus mahsena,* but also includes some *Lethrinus nebulosus, Lethrinus rubrioperculatus,*	White fish/Emperors
	Plectropomus spp and *Variola* spp	Red fish/Groupers
	Aprion virescens	Green jobfish
The Semi-Industrial Shallow Water Bank Fishery	Mainly *Lethrinus mahsena,* but also includes some *Lethrinus nebulosus, Lethrinus rubrioperculatus,*	White fish/Emperors
	Plectropomus spp and *Variola* spp	Red Fish/Groupers
	Aprion virescens (Lutjanidae)	Green jobfish
The Semi-Industrial Deepwater snapper/grouper Fishery	*Pristipomoides* spp. *Etelis* spp.	Snappers
	Polysteganus baissaci	Frenchman seabream
	Epinephelus morrhua	Comet grouper
	Some *Aprion virescens*	Green jobfish