

19th MEETING

**SOUTHERN AFRICAN AND ISLANDS HYDROGRAPHIC
COMMISSION (SAIHC - 19)**

MAURITIUS

NATIONAL REPORT
REPUBLIC OF MAURITIUS



29-31 AUGUST 2023

1. **Executive Summary**

1.1. **Name of the Institution** - Mauritius Hydrographic Service (MHS)

1.2. **Introduction**

MHS is a Governmental institution operating under the aegis of the Ministry of Housing and Land Use Planning (MHLUP) and is the nodal agency for hydrographic surveying and nautical charting for the Republic of Mauritius which includes the Islands of Mauritius, Rodrigues, Agalega, Tromelin, Cargados Carajos and the Chagos Archipelago, including Diego Garcia and any other island comprised in the State of Mauritius.

1.3. **Cooperation between Mauritius and India**

Under the existing Memorandum of Understanding (MoU) between the Republic of Mauritius and the Republic of India in the field of hydrography, Mauritius has obtained assistance from India *inter alia* for the conduct of deep-sea surveys, production of navigational charts, training of staff and provision of expertise for the setting up of hydrographic infrastructure in Mauritius.

1.4. **Staff of MHS**

MHS is currently headed by a Commander (Hydrographer) supported by two Petty Officer Survey Recorders deputed by the Government of India. One Principal Surveyor, one Senior Surveyor and one Surveyor from MHLUP also form part of MHS team. All the surveyors from the Ministry are IHO/FIG CAT "A" qualified and have completed their hydrographic course under various IHO capacity building programmes.

1.5. Submitted by:

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2. Surveys

2.1 MHS organised its national stakeholders meeting on 28 March 2023 to review the hydrographic survey requirements of Ministries and parastatal bodies. The meeting was attended by 12 stakeholders and a total of 78 hydrographic survey requirements were projected for the block year 2023-24.

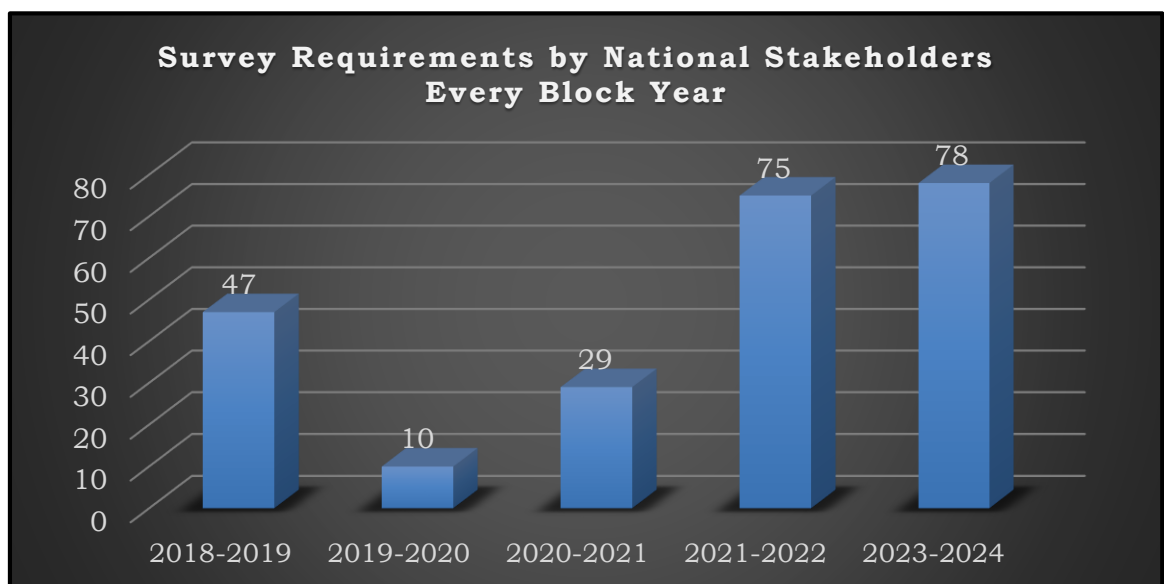


Figure 1: Survey Requirements by Stakeholders since 2018

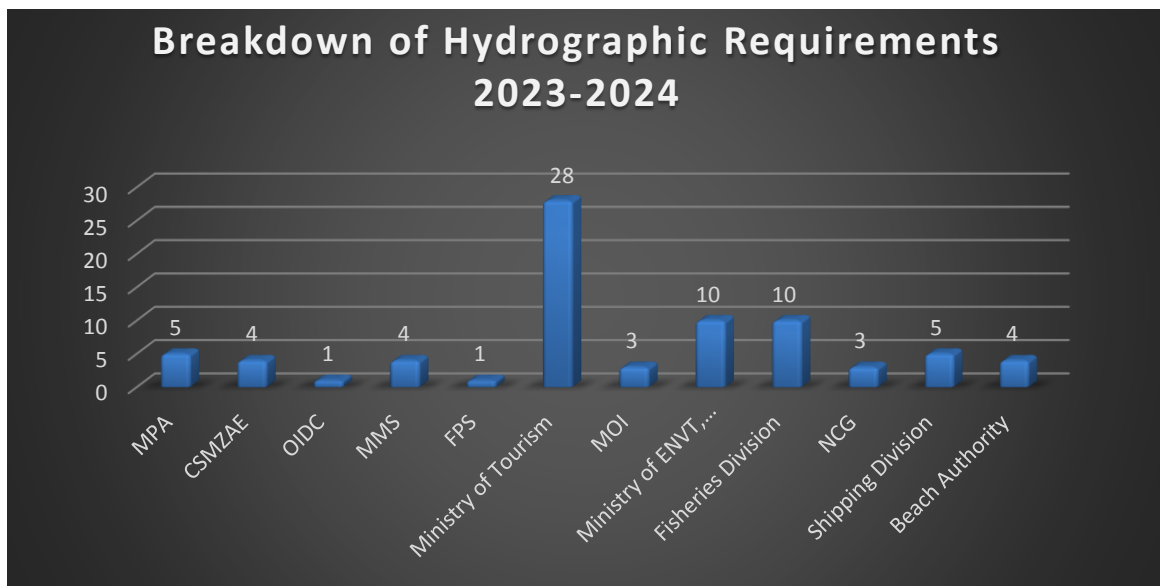


Figure 2: Breakdown of Hydrographic Survey Requirements 2023-2024

2.2 These surveys have been segregated as deep sea and shallow water surveys for an effective execution plan. The deep sea surveys are executed by hydrographic vessels deputed by the Government of India on an annual basis. The areas closer to the coast are surveyed using Inshore Survey Vessel 'Pathfinder' fitted with Multibeam Echosounder (SeaBat T 20-P) and the lagoon areas are surveyed using Crafts of Opportunity (CoO) received from various stakeholders requesting for surveys.

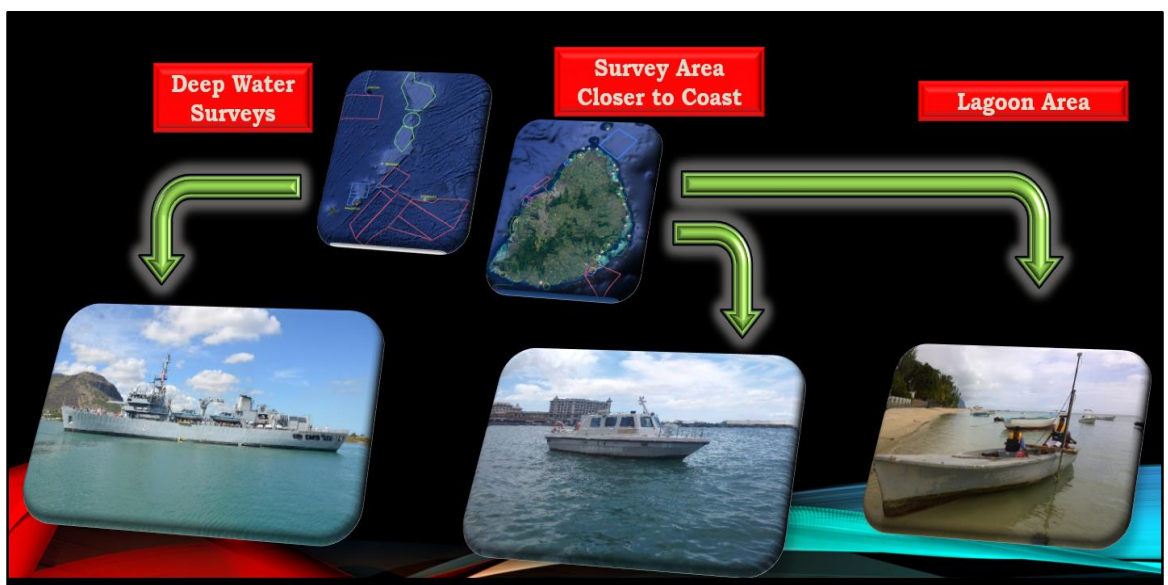


Figure 3: Execution Plan of Survey Tasks

2.3 **Coverage of New Surveys.** MHS endeavours to meet the survey requirements as projected by the stakeholders in a phased manner. Towards this end, MHS undertook the following surveys since the last report:-

(a) **Hydrographic Survey around Mauritius.**

At the request of various stakeholders, hydrographic surveys were carried out for several areas around Mauritius. The hydrographic survey data would be used by the Beach Authority for demarcation of swimming zones/ dangerous current zones/ installation of beach information panels/ demarcation of marine protected areas etc. The following locations have been surveyed since the last report:

- (i) *Bras d'Eau* Public Beach
- (ii) *Le Morne* Fish Landing Station
- (iii) Ship's Wreck, *Pointe Aux Cannoniers*
- (iv) *Ile Aux Aigrettes*
- (v) *Pointe Jerome* Embarkation Point



Figure 4: Survey Operations

(b) **Hydrographic Survey of Navigational Passes (Phase VIII) (June 22 – June 23)**. The surveys of navigational passes are undertaken to demarcate the safe passage for mariners to enter and exit the lagoons to access the deep sea. These surveys are carried out at the request of the Ministry of Blue Economy, Marine Resources, Fisheries and Shipping and the Ministry of Tourism. In this context, MHS executed the following surveys between June 2022 to June 2023:

- (i) *Passe Dupuit*
- (ii) *Passe Trou d’Eau Douce*
- (iii) *Passe Chaland*



Figure 5: Survey of Passes

(c) **Survey Undertaken by Indian Naval Ship Darshak (31 October 2022 to 15 December 2022)** Under the provisions of the MoU in the field of Hydrography between the Government of Mauritius and the Government of India, Indian Naval Survey Ship ‘Darshak’ was deployed to undertake Foreign Cooperation Survey in the Mauritian waters from 31 October to 15 December 2022. During the deployment, six major hydrographic surveys around Mauritius, Agalega and St. Brandon were undertaken to meet the national stakeholders’ requirements and for updating charts of the area.



Figure 6: INS Darshak entering Port Louis Harbour

2.4 **The basic infrastructure** available for undertaking Hydrographic surveys at Mauritius Hydrographic Service is listed below: -

Equipment

- (a) Inshore Survey Vessel “Pathfinder”
- (b) Seabat T-20P Multibeam Echosounder System interfaced to SBG Ekinox II Inertial Navigational System
- (c) Atlas Deso-30 Echo sounder with 210 KHz and 33 KHz Transducers
- (d) Teledyne Hydrotrac Portable Single Beam Echo Sounder
- (e) Hemisphere R-131 Satellite DGPS
- (f) TSS Dynamic Motion Sensor 25.
- (g) CTD 48M Sound Velocity Profiler
- (h) Infinity-EM Current Meter
- (i) Aquadopp Current Meter
- (j) Valeport TideMaster Automatic Tide Gauge

- (k) Valeport SWiFT SVP
- (l) Automatic Tide Gauge
- (m) Aquadopp Current Meter

Software

- (a) HYPACK 2019
- (b) CARIS Processing Suite for Single and Multi-beam Sounding
- (c) CARIS BDB
- (d) CARIS Paper Chart Composer
- (e) Global Mapper *ver 24.1*

2.5 **New Ships.** Nil

2.6 **Challenges.**

- (a) Limited technical support for maintenance of survey equipment from Local Representative of OEM.
- (b) Limited support towards upkeep and maintenance of Inshore Survey Vessel and its associated machineries.

2.7 **Achievements.** Data from the hydrographic survey of navigable passes is being used by the Ministry of Blue Economy, Marine Resources, Fisheries and Shipping for the placement of buoys to demarcate navigable channels around the Island of Mauritius for the safety of the marine community in a phased manner.

3. **New Charts & Updates**

3.1 **ENCs and Paper Charts.** A total of 14 Electronic Navigation Charts and 12 Navigational Paper Charts are being produced in collaboration with National Hydrographic Office (NHO), Dehradun, India for Mauritian

waters. NHO is the Principal Charting Authority for Mauritius and any ambiguity regarding ENC/ paper chart is addressed by this organisation. Since the last country report submitted for SAIHC-18 meeting, one new ENC and one Paper Chart have been released. The details of the new ENC and Paper Chart are enumerated below: -

ENC Number	-	IN62508A
Chart Number	-	2508
Chart Title	-	Agalega Jetty
Publication	-	March 2023
Scale	-	1: 5000

3.2 **ENC Distribution Model.** ENC's covering Mauritian waters are distributed worldwide through UKHO, M/s Jeppesen Marine, M/s Primar Norwegian Hydrographic Service and M/s IIC Technologies Limited.

3.3 **Charts.** As at date, 12 navigational charts covering Mauritian waters have been published and details thereof are tabulated below: -

<u>Sl No.</u>	<u>Chart No.</u>	<u>Name</u>
(a)	2514 (INT 7739)	Port Louis and Approaches to Port Louis.
(b)	2503 (INT 77391)	Approaches to Cargados Carajos Shoals
(c)	2504 (INT 77392)	Mathurin Harbour
(d)	2505 (INT 77393)	Approaches to Mathurin Harbour
(e)	2506 (INT 77394)	Grand Bay and Grand Riviere Noire Bay
(f)	2507 (INT 77395)	Grand Port
(g)	2512 (INT 77396)	Agalega Island
(h)	2529	Northern Islets of Mauritius
(i)	2527 (INT 77397)	Mauritius
(j)	2530	Approaches to Grand Port
(k)	2531	Rodrigues Island
(l)	2508	Agalega Jetty

Table 1: Navigational Charts of Mauritian Waters

3.4 The navigational charts as listed below are available from the following agencies:

- (a) Cartographic Section, Ministry of Housing and Land Use Planning, Mauritius
- (b) National Hydrographic Office, Dehradun, India
- (c) Naval Chart Depots at Mumbai and Vishakhapatnam, India
- (d) M/s IIC Technologies Limited
- (e) M/s Jeppesen India Private Limited
- (f) M/s Lift o Marine
- (g) M/s C & C Marine Combine
- (h) M/s EW Liner Charts & Publication

3.5 **Challenges and Achievements.** Nil

4. **New Publications & Updates**

4.1 **Catalogue.** The catalogue of Paper Charts and Electronic Navigational Charts, Mauritius has been updated as of May 2023. The catalogue is available on the website of the Ministry of Housing and Land Use Planning.

4.2 **Compendium of the Survey of Navigable Passes.** MHS has published the “Compendium of the Survey of Navigable Passes”, collating the availability of survey data of Navigable Passes surveyed by MHS since its inception. This compilation of the data bridges the gap between stakeholder projects and data availability. The information in the document is viewed as a vital contributor to the Mauritius Government Marine Spatial Data Infrastructure website “Ocean Observatory E-platform”. The compendium is also available on the website of the Ministry of Housing and Land Use Planning.

4.3 **Challenges and Achievements.** Nil

5. **MSI (Maritime Safety Information)**

5.1 **Existing Infrastructure for Transmission.**

Dissemination of Maritime Safety Information is carried out by the Mauritius Radio Services (MRS), a GMDSS coast station operated by Mauritius Telecom, on behalf of and under an agreement with the Shipping Division of the Ministry of Blue Economy, Marine Resources, Fisheries and Shipping. GMDSS covers sea areas A1, A2 and A3 within our SRR only. MRS operates 24/7 and is based at Cassis, Port-Louis. Mauritius is located in NAVAREA VIII which is coordinated by India.

5.2 **Dissemination of MSI.**

(a) **Navtex.** All MSI are transmitted on the International Navtex by default. The frequency is 518 KHz. There is no National Navtex (490 KHz) service in Mauritius. The Station Identification of the Navtex in Mauritius is 'C'. Messages are transmitted on a 10-minute slot every 4 hours starting at 0020, 0420, 0820, 1220, 1620 and 2020 hours GMT. The normal range of Navtex broadcast is 400 nautical miles.

(b) **VHF.** Based on the area of concern, some MSI messages are broadcast on VHF Radio Telephony on Channel 24, after an announcement is made on Channel 16. MRS has a VHF network that completely covers the Sea Area A1 of Mauritius. 6 VHF stations are remotely operated around the island from the control centre in Cassis. The maximum range is 30 nautical miles.

(c) **HF.** MSI may also be broadcasted on HF Radio Telephony (8800 khz). This is specifically done if the area of concern is around

the Mauritius fishing banks. Fishing vessels operating on Mauritius fishing banks are equipped with HF Radio Telephone equipment for communication with MRS. Weather information are sent daily to these fishing vessels on HF.

(d) **Inmarsat-C**. If the area of concern is relatively far from Mauritius, especially beyond the normal range of Navtex, some MSI may be broadcast on the E-broadcast system. This system is operated by AMSA (Australian Maritime Safety Authority) and MRS have access to this platform through an agreement made by the Shipping Division. It is an online tool through which messages may be broadcast to ships within Mauritius SRR. The E-broadcast is normally intended for Distress and Urgent situations and therefore not all MSI messages are broadcast on this system.

5.3 **Challenges and Achievements**. Nil

6. **C-55**

The updated C-55 table is at Annexure 'A' to this Report.

7. **Capacity Building**

7.1 **Training Received, Needed and Offered**

(a) **Training Received**. No training was received during the period covered by this report. However, the following officers have been selected for training programmes/ workshops in hydrography under the capacity building initiative of IHO.

<u>Sl</u>	<u>Name</u>	<u>Designation</u>	<u>Course/ Workshop</u>	<u>Duration</u>
(i)	Mr Hunish MATTAROOA	Surveyor	Category "A" Master of Science in Hydrography	06 August 2023 –

			at the University of Southern Mississippi, USA	02 August 2024
(ii)	Mr S SEEBORUTH	Surveyor	IHO-IOC-Nippon Foundation GEBCO Alumni Conference at Tokyo, Japan	29 July 2023-06 August 2023
(iii)	Mr Devendra MADHOW	Principal Surveyor	Alumni Workshop of IHO-ROK Cat "A"	12-14 September 2023
(iv)	Mr Hembul TECKMUN	Senior Surveyor	Programme at Busan, Republic of Korea	

Table 2: Capacity Building

(b) **Training Needed.** Additional training requirements are envisaged in following areas: -

- (i) Nautical Cartography (Paper Chart and ENC chart production)
- (ii) Electronic Survey Equipment Orientation Course (ESEOC) conducted at National Institute of Hydrography, Goa, India.
- (iii) CAT 'A' and CAT 'B' courses through IHO capacity building programme.
- (iv) S-100 and MSDI workshops/ courses.

8. **Oceanographic Activities**

The Mauritius Oceanography Institute (MOI) advises Government on the formulation and implementation of policies and programs in respect to oceanography and marine resources. MHS also works in close collaboration with MOI for providing assistance in the collection of certain oceanographic datasets like Sound Velocity Profiles, ocean current parameters, nature of seabed etc.

Mauritius Meteorological Service is responsible for the maintenance of tide gauges and production of tide tables in Mauritius. The following tide stations are in use:

Location	Tide Gauge	Installation	Sensors used to Measure Sea Level
Port Louis (Trou Fanfaron)	Sutron Satlink Logger/ Transmitter	March 2008	(i) Pressure sensor
Port Mathurin Port Area (Rodrigues)		March 2008	(ii) Encoder (in stilling well) (iii) Two tide switches (used as reference for calibration of other sensors)
Blue Bay		November 2008	(iv) Radar sensor

Table 3: Tide Stations in Mauritius (Source: Mauritius Meteorological Services)

9. **Spatial Data Infrastructure**

9.1 **Existing Infrastructure for MSI Dissemination**

The Department for Continental Shelf, Maritime Zones Administration and Exploration (CSMZAE), with the expertise of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Oceans & Atmosphere, Australia, has developed the Mauritius Ocean Observatory E-platform (E-platform) under the Indian Ocean Rim Association (IORA) project “Developing an Enhanced Ocean Observatory in support of Ocean Exploration and Development”. The main objective of the E-platform is to centralise data pertaining to the maritime zones of the Republic of Mauritius in order to facilitate data discovery and data sharing between researchers, partners and users involved in management, policy and planning.



Figure 7: Mauritius Ocean Observatory E-platform

9.2 Achievements

The Meta data of the hydrographic surveys have been successfully incorporated into the Ocean Observatory E-platform of the Government of Mauritius and is available to the stakeholders.

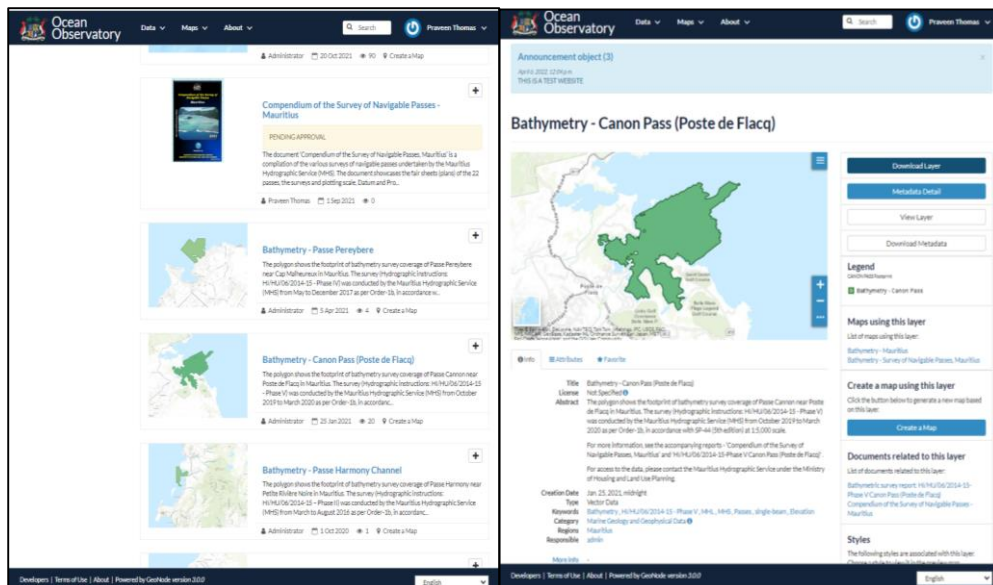


Figure 8: Hydrographic Data on the Ocean Observatory E-platform

10. **Other Activities**

10.1 The 13th Meeting of Indo-Mauritius Joint Committee on Hydrography was held in Mauritius from 12-14 July 2023. Issues related to charting scheme, future survey requirements, training, and capacity building were discussed during the meeting.

10.2 The World Hydrography Day under the theme “*Hydrography - Underpinning the Digital Twin of the Ocean*” was celebrated on 21 June 2023. An outreach programme for university students was conducted to raise awareness about hydrography.

Annexure 'A'
(Refers to Para 6)

Input to the IHO Publication C-55
(Status of Hydrographic Surveying and Charting Worldwide)
Country: Mauritius

C-55 Summary for:				<u>Comments on</u> <u>Charts:</u> Chart coverage updated based on new charting scheme and requirement of stakeholders especially for areas of Saya de Malha and Nazareth banks
Country:	Mauritius			
Country ISO Code:	MU			
Country Sub Code:	-			
INT Region:	H			
Country/Depend:	-			
Last updated:	August 2023			
Provided by:	Mauritius			
Chart coverage	Passage (%)	Coastal (%)	Ports and Approaches (%)	<u>Comments on</u> <u>Surveys:</u> <u>Adequate:</u> Surveys between 2005-2023
INT	100	80	90	
RNC	-	-	-	
ENC	100	80	90	
Status of Paper Charts				
Paper charts with depths in meters (%)			100	
Paper charts referenced to a satellite datum (%)			100	

Status of surveys	Adequate (%)	Resurvey (%)	No survey (%)	Resurvey: 1980-2005 (as per requirement) Never Systematically Surveyed: Surveys prior to 1980
0-200 m	35	35	30	
> 200m	08	45	47	

MSI	Y/N	Comments on MSI:
Local warning	Y	
Coastal warning	Y	
Nav warning	Y	
Port warning	Y	
GMDSS	Y/N	Comments on GMDSS:
Master Plan	Y	
Area A1	Y	
Area A2	Y	
Area A3	Y	
NAVTEX	Y (International Frequency)	
Safety Net	N	

Input to the IHO Publication P-5 (Yearbook)

Country : Mauritius
Unit : Mauritius Hydrographic Service
Parent Organization : Ministry of Housing and Land Use
 Planning
Head of Parent Organisation : Mr. M. S. Ferhat Joomun, Senior Chief
 Executive

Contact information	
Head of the Hydrographic Office	<p>Post: Officer-in-Charge Name: Cdr Ankush Sachdeva Postal address: Ministry of Housing and Land Use Planning Ebene Tower, Level 5 Republic of Mauritius Tel: + 230 4013802 Fax: + 230 4681773 Email: oic_hydrounit@govmu.org</p>
Other point(s) of contact	<p>Mr D. Madhow, Principal Surveyor + 230 4016808 dmadhow@govmu.org</p> <p>Mr H. Teckmun Senior Surveyor + 230 4013801 hydrounit@govmu.org</p>
Web site	<p>https://housing.govmu.org/Pages/Dept%20and%20Org/Divisions/Survey/Mauritius-Hydrographic-Service.aspx</p>

Country information	
Declared National Tonnage	Tonnage: 130600 T Date: December 2022
-National day	Independence Day 12 March Republic Day 12 March
Date of establishment and Relevant National Legislation	Hydrographic surveys and nautical charting are under the ambit of the Ministry of Housing and Land Use Planning. The legislative framework for hydrographic services will be formulated in due course.
Date first joined IHO	August 2005
Date ratification Convention	August 2005
Remarks on membership	Nil
Agency information/ Information sur l'agence	
Top level parent	Ministry of Housing and Land Use Planning

organisati on	
Principal functions of the organisati on or the departme nt	<ol style="list-style-type: none"> 1. Hydrographic surveys for compiling and updating nautical charts and products. 2. Project surveys in support of development activities, scientific research, coastal zone management, environmental protection, fisheries management and maritime security. 3. Compilation of Navigational warnings for promulgation through NAVAREA coordinator. 4. Procurement & Maintenance of hydrographic, oceanographic and marine cartographic equipment for the department. 5. Interact with International Hydrographic Organisation (IHO) and the Southern African & Islands Hydrographic Commission (SAIHC) on matters related to hydrography. 6. Provide training to surveyors, officers from Ministry of Housing and Land Use Planning & other stakeholders in the field of hydrography 7. Cooperate with other stakeholders and provide expertise on matters related to maritime domain.
Annual operating budget	Approximately 50,000 USD (excluding salaries)
Total number of staff employed	5
Number of INT charts published	8

Total number of paper charts published	12			
Number of ENC cells published	14			
Number of Other charts	Nil			
Type of publications produced	<ol style="list-style-type: none"> 1. Catalogue of Charts 2. Compendium of Survey of Navigable Passes 			
Detail of surveying vessels/ aircraft	Name	Displacement	Date Launched	Number of crew
	ISV Pathfinder	6.5 T	2012	05
Other information of interest	<p>Following the signature of a Memorandum of Understanding in the field of Hydrographic Cooperation with India, a full-fledged Hydrographic Unit was established at the Ministry of Housing and Land Use Planning in 2013. The unit has been rechristened as Mauritius Hydrographic Service since 2018.</p>			