

**19TH MEETING OF THE NORTH INDIAN OCEAN HYDROGRAPHIC
COMMISSION (NIOHC19)
Muscat, Oman, 25 - 28 March 2019**

NATIONAL REPORT FROM SEYCHELLES TO THE NIOHC19

Reference: IHO Resolution 2/1997 as amended

Executive summary

1. Hydrographic Office / Service:

- a) **Name of the Institution:** Seychelles National Hydrography Committee
- b) **Description:** The Seychelles National Hydrography Committee was established in September 2017. The committee is headed by the Principal Secretary – Department of Civil Aviation, Ports and Marine. Members of the Committee comprise representatives from Seychelles People’s Defence Forces (SPDF), Seychelles Maritime Safety Administration (SMSA), Petro Seychelles, Seychelles Ports Authority (SPA), Survey Section of the Ministry of Habitat, Infrastructure and Land Transport (MHILT), the Seychelles Meteorological Service (SMS) and the Seychelles Fishing Authority (SFA), etc. The committee is fully dedicated towards improving the hydrography status of Seychelles, in keeping with the IHO mandates.
- c) **Submitted by:** Colonel Michael Rosette
Member, National Hydrography Committee
Republic of Seychelles

2. Surveys:

- a) Coverage of new surveys: - Nil
- b) New technologies and /or equipment - Nil
 - i. Policy issues regarding the collection and use of crowd-sourced bathymetry
 - ii. Status of data collection – Nil
- c) New ships – Nil
- d) Problems encountered – No ship/in-date equipment available to undertake hydrography survey and to update charts and publications.

3. New charts & updates:

- a) ENCs – Nil
- b) ENC Distribution method – Nil
- c) RNCs – Nil

- d) INT charts – Nil
- e) National paper charts – Nil
- f) Other charts, e.g. for pleasure craft – Nil
- g) Problems encountered - No ship/in-date equipment available to undertake hydrography survey and to update charts and publications.

4. **New publications & updates:**

- a) New Publications – Nil
- b) Updated publications – Nil
- c) Means of delivery, e.g. paper, digital – Nil
- d) Problems encountered - No ship/in-date equipment available to undertake hydrography survey and to update charts and publications.

5. **MSI**

- a) Existing infrastructure for transmission
The NAVTEX Station is located within the National Information Sharing and Coordination Centre (NISCC)
- b) New infrastructure in accordance with GMDSS Master Plan
The NISCC is a new infrastructure also to house the Radio Coast Station in accordance with the GMDSS Master Plan
- c) Problems encountered
Necessary funds to purchase and install required equipment

Detailed information about MSI to update IHO Publication C-55 (*Status of Hydrographic Surveying and Charting Worldwide*) is submitted in Annex B. The national self-assessment of MSI is submitted in Annex C.

6. **C-55**

The table with the latest information to update IHO Publication C-55 (*Status of Hydrographic Surveying and Charting Worldwide*) is provided in Annex B.

7. **Capacity Building Offer of and/or demand for Capacity Building**

- a) **Training received, needed, offered**
 - (i) **Training received**- No training in Hydrography field was received in the year 2018-19.

(ii) **Training Offered** - one slot for Basic Hydrography Course has been offered to SPDF by the Indian Navy in 2019.

(iii) **Training Needed**

(aa) Hydrographic Surveying Category 'A' and Category 'B' Courses.

(ab) Nautical Cartography (Paper Chart and ENC).

(ac) Hydrographic equipment maintenance.

(ad) On job training for hydrographic surveys and chart production.

(ae) Creation of a Marine Spatial Data Infrastructure (MSDI)

(af) The Centre for Geographic Information Services (GIS) has will be embarking on a project aiming to create our National Spatial Data Infrastructure (NSDI). Given that this is new to us, two members of staff from the Centre for GIS have been nominated for short term training on NSDI. Seychelles equally need to create the MSDI.

(ag) National Oil Spill Contingency Planning and Oil Spill Sensitivity Atlas

b) **Status of national, bilateral, multilateral or regional development projects with a hydrographic component.** (In progress, planned, under evaluation or study) Under the ambit of an MoU for cooperation in the field of Hydrography signed between Govt of Seychelles and Govt of India, the GoI has offered to undertake hydrography survey for Seychelles towards end of 2019. Presently, survey areas are being prioritised by the GoS.

c) **Description of requests to be considered by the IHO/CBSC** – Grant of following survey equipment towards capacity building of the Seychelles hydrography capability:-

(i) **Immediate Requirement.** Mobile hydrographic survey equipment's such as single beam and multi-beam echo sounder, GPS, PC with data logger as well the appropriate software to process the data, tide gauge as a short term requirement for small scale survey.

(ii) **Long Term Requirement.** - A small boat equipped with sophisticated equipment like mounted echo sounders (single beam and multi beam), GPS, PC with data logger software to process data and motion sensor, radar, side scan sonar, level station and total station, Sound Velocity Profiler (SVP) and Acoustic Doppler Current Profiler (ADCP).

8. Oceanographic activities

a) **General** – N/A

b) **GEBCO/IBC's activities** – N/A

- c) **Tide Gauge Network** Seychelles has one Tide Gauge located at Pte-Larue which was installed in August 2006. The system consists of measuring sensors: Encoder, Radar, Pressure sensor. Also included is a satellite transmitting antenna, GPS clock, solar panels, and batteries. Data recorded are being sent via satellite mode of transmission (to <http://www.ioc-sealevelmonitoring.org/station.php?code=laru2>) where it is being processed with QC.

(i) **Station metadata**

(aa)	Code	Laru2
(ab)	Country	Seychelles
(ac)	Location	Pt.LaRue
(ad)	Status	Operational
(ae)	Local Contact	Seychelles National Meteorological Services
(af)	Other Contact	University of Hawaii Sea Level Center (USA)
(ag)	GLOSS ID	339 [goto handbook]
(ah)	QC data	UHSLC 111 (1977-1992)
(ai)	UHSLC 121	(1993-2017)
(aj)	PSMSL 1846	(1993-2016)
(ak)	Latitude	-4.5
(al)	Longitude	55.5
(am)	Connection	GTS message

Another similar model also installed on Denis Island in May 2009. The station is part of the Tsunami Early warning System (IOC) but also has an AWS included. Measuring sensors: Pressure and radar. Station remains operational but some parts replacement are required to enable data collection

(ii) **Station metadata**

(aa)	Code	Denis
(ab)	Country	Seychelles
(ac)	Location	Denis Island
(ad)	Status	Down
(ae)	Other Contact	University of Hawaii Sea Level Center (USA)
(af)	QC data	n/a
(ag)	Latitude	-3.8
(ah)	Longitude	55.6667
(ai)	Connection	GTS message

d) **New equipment**

(i) **Wave Rider Buoy**

- (aa) Model: (DWR MKIII); sponsored under one project RIMES/INCOIS
- (ab) Deployed; 16/03/2016 in vicinity of Fregate Island
- (ac) Coordinates: Lat = -4.39, Lon = 55.52
- (ad) Mooring sea depth: 36meters
- (ae) Parameters measured: wave height, Wave period, wave direction, sea surface temp

(af) Modes of data transmission: Satellite (insat), HF radio frequency

(ii) **Directional Wave Buoy**

- (aa) Model (Triaxys) ; sponsored under the MESA project(2017) for IOC member states
- (ab) Deployed : 26/05/2018
- (ac) Location: 7 KM from Beombre coastal zone (PUC desalination plant)
- (ad) Coordinates: Lat = -4.34, Lon = 55.21
- (ae) Mooring Depth: 45.5 meters
- (af) Parameters measured: Wave height, wave period, wave direction, Sea temperature
- (ag) Modes of data transmissions: GSM /UHF /Satellite

e) **Miscellaneous.**

(i) **Seychelles Ocean Temperature Network (SOTN).** The establishment of the Seychelles Ocean Temperature monitoring Network (SOTN) was with the aim of firstly, developing capacity and collaborating with relevant research institutes involved in ocean temperature monitoring. The second aim was to improve knowledge of climate-driven changes in marine ecosystems and services. The primary rationale and justification for the project stemmed from threats posed to Seychelles coral reefs by temperature-induced bleaching, mortality and perceived threats to coastal fisheries. In order to achieve the objectives set, temperature loggers were deployed at depths of 5m, 15m and 18m respectively at 31 sites around Mahe Plateau and the outer islands. The data is managed jointly by SFA, ICS and MCSS. Currently, there is a database of ~10yrs worth of data (since 2007). The data is being downloaded annually around the Mahe Plateau and the stations maintained by SFA. The data is being kept in a repository at SFA. The SOTN generates large amounts of ocean temperature data which is currently being efficiently and securely managed, with quality control being a paramount consideration. The idea is to have the datasets made available to the public domain via the SOTN website.

(ii) **R/V *Dr Fridtjof Nansen* survey – EAF-Nansen Programme.** A research survey was carried out on the Mascarene Bank (Saya de Malha and Nazareth Banks) from the 4th of May to the 3rd of June 2018. The main aim of this survey was to enhance knowledge on the marine ecosystem and morphological structure of the Saya de Malha Bank with emphasis on:-

- (aa) Geomorphology, benthic habitats and benthos (Multibeam mapping in subareas and along pre-determined transects, habitat and benthos studies emphasizing sandy subareas and subareas with macroalgae, seagrass, and coral).
- (ab) Fish and crustacean resources (density mapping with acoustic and optical technologies, emphasizing commercial and toxic species).

(ac) Physical and chemical oceanography, including current measurements (onboard measurements).

(iii) Four scientists from Seychelles had the opportunity to participate in the research cruise. A post survey meeting was held in Mauritius in September 2018, jointly with the Mauritius-Seychelles Joint Management Area Commission. The main purpose of the post-survey meetings was to finalize the survey reports, discuss follow-up activities, including processing of the samples and data collected during the survey, review possible research projects, including deliverables to EAF-Nansen Programme and regional authorities and discuss needs for capacity development.

(iv) **North Arabian Sea Circulation – Autonomous Research (NASCar): Seychelles Local Ocean Modeling and Observation (SLOMO).** The overarching goal of this project is to develop predictive capabilities for physical oceanography for the Seychelles region in support of locally relevant marine applications while providing context for larger scale NASCar efforts. A key project objective is to establish local capacity for ocean observations in the Seychelles region that will lead to long-term data collection efforts. In collaboration with local partnerships, an observational program has been set up to provide a foundational data set for regional and local scale modeling efforts. The work will also include development of a preliminary 3D numerical model for the region. The numerical simulations will assist with the identification of the physical oceanographic controls on mass and momentum transport on scales that are relevant to local ecology and fisheries. The simulations will also be an invaluable tool in determining biological connectivity amongst the Seychelles' multiple islands through the use of modeled drifters. In 2018, the project team visited Seychelles in January and in June to carry out recovery, maintenance and redeployments of moored instrumentations. They also carried out transect surveys. The team also carried out follow-up meetings with the Seychelles National Meteorological Service, the Seychelles Fishing Authority, and local students. They also met with researchers from the University of Seychelles (UniSey) Blue Economy Research Institute.

f) **Problems encountered**

- (i) High cost for spares parts replacement
- (ii) Maintenance and servicing cost is too high based on resource availability.

9. **Other activities**

- a) Participation in IHO Working Groups – N/A
- b) Meteorological data collection. The main methods in capturing meteorological data are usage of AWSs, manned stations (e.g. rainfall stations), tide gauges. Data used for aviation purposes (products from overseas) are received through satellite connections and also via internet.
- c) Geospatial studies – N/A
- d) Disaster prevention – Nil

- e) Environmental protection – Nil
- f) Astronomical observations – N/A
- g) Magnetic/Gravity surveys. Nil
- h) MSDI Progress – N/A
- i) International – N/A

10. Conclusions

Seychelles is a maritime nation with vital interests in the seas around it. The two most important pillars of Seychelles' economy are Tourism and Fisheries. Together, both these sectors contribute majorly towards Seychelles' GDP. Seychelles has an Exclusive Economic Zone of about 1.5 million square kilometres, which provides ample opportunities to utilise its Blue Economy. Further, the only means of undertaking bulk trade is through surrounding waters. Hence, the importance of updated charts and maritime safety information cannot be overemphasized and Seychelles as a maritime nation understands and recognizes the same.

- a) ***Areas of significant achievement*** – In pursuance of MoU for cooperation in the field of Hydrography signed between Govt of Seychelles and Govt of India, first ever Hydrography Joint Committee Meeting was held in Seychelles in Jun 2018. Various issues of concern in the field of Hydrography were discussed. Some of notables ones being:-
 - (i) Regular Survey by Indian for Seychelles.
 - (ii) Capacity building through training courses in India and handing over of certain survey equipment.
- b) ***Areas of particular concern*** – Seychelles has very limited capacity to undertake hydrography surveys and keep its charts and publications updated. Therefore, we rely heavily on other member nations of the IHO to undertake survey. Further, Seychelles continues to supply information to the UKHO for updating of charts. Therefore, there is an urgent to undertake thorough capacity building of the Seychelles hydrography capability to produce its own charts by training, equipment procurement and recruitment.
- c) ***Any other matters of interest to the NIOHC*** - Nil

Input to the IHO Publication P-5 (Yearbook)**Country: Seychelles****Organization: Seychelles Maritime Safety Administration**

Contact information/ Informations de contact / Información de contacto	
-National Hydrographer or equivalent -Directeur du service hydrographique ou équivalent -Director del Servicio Hidrográfico o equivalente	Post: Director General, Seychelles Maritime Safety Administration Name: Capt J Valmont Postal address: Po Box 912, 2 nd Floor, Trinity House, Victoria, Seychelles Tel: +248 4224866, +248 2722956 Fax: +248 4224829 Email: www.seymaritimesafety.com
-Head of the Hydrographic Office (if different from the person indicated above) -Directeur du Service Hydrographique (si différent de la personne indiquée ci-dessus) -Director del Servicio Hidrográfico (si diferente de la persona indicada anteriormente)	Name: Lieutenant Samuel King Postal address: C/o Seychelles Coast Guard Ile Perseverance, Victoria, Mahe
-Other point(s) of contact -Autre(s) point(s) de contact -Otros punto(s) de contacto	Ms Valentina Barra Director, Seychelles National Hydrography Committee
-Web site -site web -sitio web	vbarra@gov.sc
Country information / Informations sur le pays/ Información sobre el país	
-Declared National Tonnage -Tonnage national déclaré -Tonelaje Nacional Declarado	Tonnage: 196442 Date: December 2018
-National day -Fête nationale -Fiesta nacional	29 June
-Date of establishment and Relevant National Legislation -Date de mise en place et législation nationale pertinente -Fecha de constitución y legislación nacional	-

pertinente	
-Date first joined IHO -Date d'adhésion à l'OHI -Fecha de adhesión a la OHI	December 2017
-Date ratification Convention -Date de ratification de la Convention -Fecha de ratificación de la Convención	29th Decemeber 2017
-Remarks on membership -Remarques sur l'adhésion -Comentarios sobre la adhesión	-
Agency information/ Information sur l'agence/ Información sobre la agencia	
-Top level parent organisation -Organisme mère -Organización asociada de nivel superior	Seychelles National Hydrography Committee Seychelles Maritime Safety Administration
-Principal functions of the organisation or the department -Attribution principales de l'organisme ou du département -Principales funciones de la Organización o departamento	Regulatory Body under the Ministry of Tourism Civil Aviation Ports and Marine mandated to carry statutory function as Flag, Coastal and Port State duties.
-Annual operating budget -Budget annuel -presupuesto anual	SR 15, 132.51M
-Total number of staff employed -Effectifs totaux -Número total de personal empleado	15
-Number of INT charts published -Nombres de cartes INT publiées -Número de cartas INT publicadas	Nil
-Total number of paper charts published-Nombre total de cartes papier	Nil

publiées-Número total de cartas de papel publicadas				
-Number of ENC cells published -Nombres de cellules ENC publiées -Número de células ENC publicadas	Nil			
-Number of Other charts -Nombre d'Autres cartes -Número de Otras cartas	Nil			
-Type of publications produced -Type d'ouvrages produits -Tipo de publicaciones producidas	Nil			
-Detail of surveying vessels/ aircraft -Détail des bâtiments hydrographiques / aéronefs -Detalle de los buques hidrográficos / aeronaves	-Name -Nom -Nombre	-Displacement -Déplacement -Desplazamiento	-Date Launched -Date de mise en service -Fecha de botado	-Number of crew -Nombre de l'équipage -Tripulación
	NA			
-Other information of interest -Autres informations utiles -Otra información de interés	Nil			

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

NIL INPUTS/UPDATES

National MSI Self-Assessment

Country: Seychelles

Organization: Seychelles Maritime safety Administration (SMSA)

1. Maritime area

NAVAREA VIII

2. Operational Points of Contact for the National Coordinator

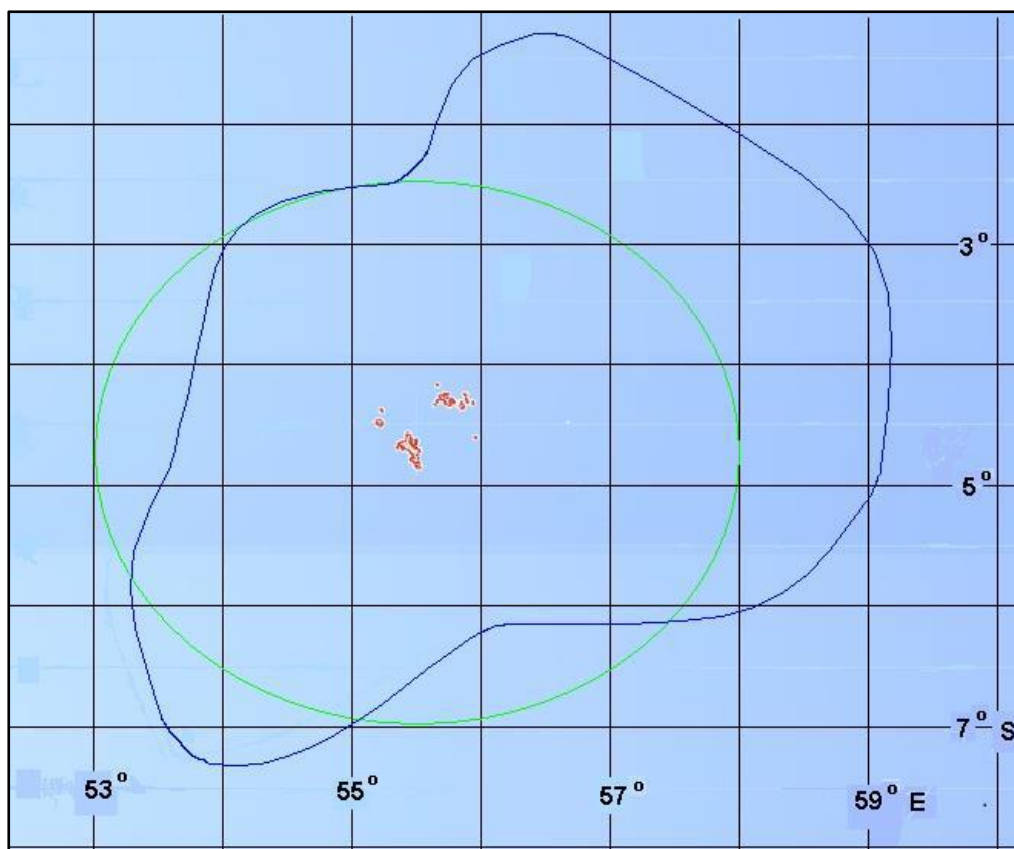
INSTITUTION	TELEPHONE	FACSIMILE	EMAIL
SMSA	+ 248 2722956	+248 4224829	dg@smsa.sc

3. GMDSS Master Plan

NIL INPUT/UPDATE

4. NAVTEX Coverage:

NAVTEX Station is operational and with stated mail address for contact: seychellesnavtex@smsa.sc



SKETCH OF NAVTEX COVERAGE

5. Operational Issues:

New in fracture still in development phase with budgetary constraint to purchase and install equipment

6. Contingency Planning

Contingency Plan under review and will require assistance to finalize

7. Capacity Building

Only one staff benefitted with MSI training in South Africa in 2018

8. Other Activities

In view of Administration budgetary constraints if such conferences, workshops or trainings are not fully sponsored our participation are very restricted.

9. National Maritime Website

The Administration official website is : www.seymaritimesafety.com is also under review

10. Recommendations

Nil

11. Summary

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