

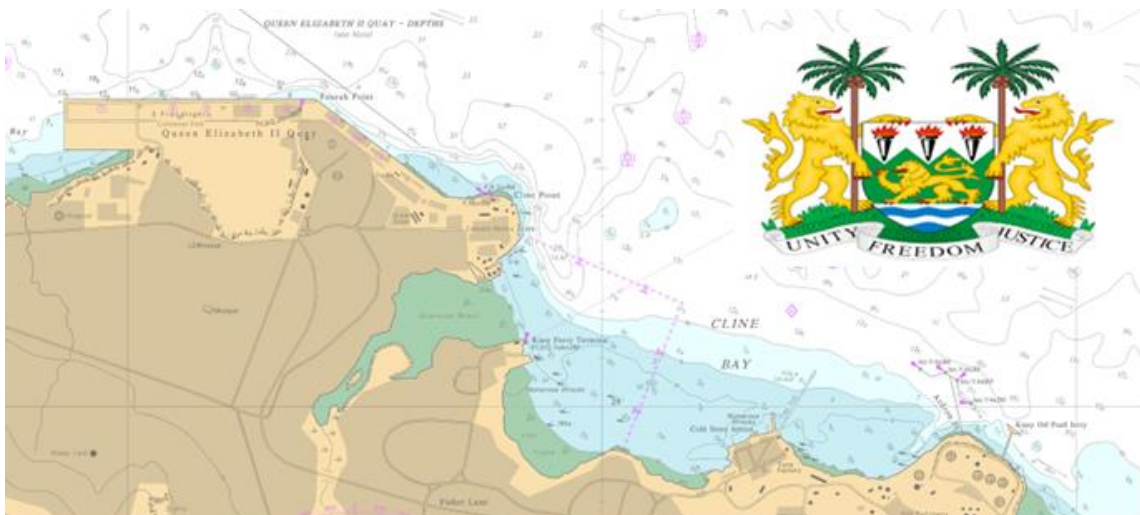
IHO Capacity Building Programme

TECHNICAL VISIT REPORT

The State of Hydrography and Nautical Charting

in the

Republic of Sierra Leone



Date: 13-16 February 2023



IHO

International
Hydrographic
Organization

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Sierra Leone Representatives



Office of National Security
(ONS)



Ministry of Transport and Aviation



Maritime Administration
(SLMA)



Ports Authority
(SLPA)



Ministry of Defence Republic Sierra Leone
Armed Forces
(Maritime Wing)



Ministry of Fisheries and Marine
Resources
(MFMR)



Ministry of Planning and Economic
Development



National Minerals Agency



Fourah Bay College

IHO supported by



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ABBREVIATIONS

AtoN	Aids to Navigation
CBSC	IHO Capacity Building Sub-Committee
DGPS	Differential Global Positioning System
EAtHC	East Atlantic Hydrographic Commission
ECDIS	Electronic Chart Display and Information System
EEZ	Exclusive Economic Zone
ENC	Electronic Navigational Chart
FIG	Fédération Internationale des Géomètres (International Federation of Surveyors)
GIS	Geographic Information System
GMDSS	Global Maritime Distress and Safety System
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GTL	Geographic Team Lead (UKHO)
HoPE	Head of Partnering and Engagement (UKHO)
HSSC	IHO Hydrographic Services and Standards Committee
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IBSC	International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers
ICA	International Cartographic Association
IHB	International Hydrographic Bureau
IHO	International Hydrographic Organization
IOC	Intergovernmental Oceanographic Commission
IMO	International Maritime Organization
IMSAS	IMO Member State Audit Scheme
INT	International
IRRC	IHO Inter-Regional Coordination Committee
JMC	Joint Maritime Committee
LORAN	Long Range Navigation System
MS	Member State
MSDI	Maritime Spatial Data Infrastructure
MSI	Maritime Safety Information
NC	Nautical Charts
NHS	National Hydrographic Service
NHC	National Hydrographic Committee
NHCC	National Hydrographic Coordination Committee
NtMs	Notice to Mariners
PCA	Primary Charting Authority
RENC	Regional ENC Coordinating Centre
RHC	Regional Hydrographic Commission
RNC	Raster Navigational Chart
RoSL	Republic of Sierra Leone
SLMA	Sierra Leone Maritime Authority
RSLAF	Republic of Sierra Leone Armed Forces
SLPA	Sierra Leone Ports Authority
SOLAS	[United Nations] Convention for the Safety of Life at Sea

TTW	Territorial Waters
UN	United Nations
UNCLOS	United Nations Convention on Law of the Sea
WMO	World Meteorological Organization
UKHO	United Kingdom Hydrographic Office
UNGGIM	United Nations Global Geospatial Information Management
WAAT	EAtHC West Africa Action Team
WWNWS	World Wide Navigation Warning Service

EXECUTIVE SUMMARY

This visit to The Republic of Sierra Leone (RoSL) focused mainly on determining the structure of the various Ministries, how they related to each other and their level of understanding of their responsibilities regarding SOLAS. In particular MSI and hydrographic data collection.

The Ministry of Transport has a mission “to develop policies and provide policy guidelines for delivery of safe, reliable, affordable and sustainable Maritime, Land transportation and aviation systems throughout Sierra Leone” and handles policy matters. They supervise the Sierra Leone Maritime Administration and the Sierra Leone Ports Authority, amongst other agencies.

There is currently no National Hydrographic Service or equivalent organisation. A Joint Maritime Committee (JMC) has been created and controls maritime activities (anti-smuggling/piracy policing and fishery protection) dependent on the threat and availability of resources. During the visit it was suggested that a sub-committee could be created to cover navigation issues as all parties recognise the significant issues regarding their obligations following their IMSAS Audit in 2018.

Sierra Leone has no hydrographic or marine cartographic capabilities at present and rely on the UK Hydrographic Office (UKHO) to help them meet most of their SOLAS Chapter V Safety of Navigation obligations. There is currently no formal agreement in place that covers this undertaking.

Significant training and general capacity building are required before RoSL can develop a fully capable Hydrographic Service. The priority must be to meet IHO Capacity Building Strategy Phase 0 (Governance) and Phase 1 (MSI), by providing staff training.

IMO and IALA are aware of the deficiencies based on the results of recent audits and technical needs assessments.

Recommendations and Action Items are included throughout this Report and at ANNEX M.

TECHNICAL VISITS

During 2020 the EAthC Capacity Building Strategy was reviewed and a requirement for a Technical Visit to RoSL identified. This was approved and funds allocated in the 2022 IHO CB Work Programme.

The UKHO offered to conduct the visit but the COVID pandemic delayed its execution until February 2023. A representative from IALA was invited to join the team for additional technical support. This assisted with their logistics for an *Assessment Mission to assess the adequateness and effectiveness of the system for delivering Aids to Navigation* carried out immediately after the IHO visit.

The allocated IHO funding was not used as the UK Foreign, Commonwealth and Development Office covered the expenses of two UKHO representatives. The UKHO funded their third representative and IALA also funded their own representative.

Previous visit:

EAthC West Africa Action Team (WAAT) carried out a Technical Visit in December 2002. The report (see ANNEX B) generated several Action Items for RoSL, IHB, RHC members, UKHO and Service Hydrographique et Océanographique de la Marine (SHOM). It has not been possible to confirm how many were completed; they are listed in ANNEX M with any known details of resolution.

GENERAL AWARENESS IN THE COASTAL STATE

RoSL are members of IMO (1973) and UNCLOS (1982), they are not members of IALA. They are signatories to the SOLAS Convention and aware of their SOLAS responsibilities.

Every stakeholder acknowledged that the lack of modern hydrographic data within RoSL was having a significant operational and economic impact. Anecdotal evidence ranged from the increased insurance rates incurred by shipping companies operating in their waters; limitations on the RSLAF Maritime Wing to access certain areas for territorial enforcement; limitations on export capacity; increased risk for coastal fishing communities combined with a lack of understanding of natural habitats and reports of numerous vessel groundings. These include a bulk carrier which ran aground whilst leaving Freetown and laden barges in the Sherbro River.

An IMSAS Audit was carried out in 2018 and SLMA have received the report and recommendations. The Visit Team did not see a copy, but SLMA are willing to share the relevant paragraphs with UKHO, as the Primary Charting Authority (PCA).

IHO/RHC MEMBERSHIP OF Republic of SIERRA LEONE

The RoSL is not currently a member of IHO. In September 2010 their membership application was accepted by two thirds of IHO Member States, but the deposition of their Instrument of Accession to the IHO Convention remains outstanding.

During the meeting with the JMC Steering Group the issue of IHO membership was raised and the benefits outlined including access to capacity building training. The response was very positive, they wish to pursue their membership application and take advantage of any capacity building training opportunities available.

SLMA attended an EAthC meeting as an Observer in 2018 (Lagos). Future in-person attendance at EAthC meetings is encouraged to help to raise local hydrographic awareness.

INTERNATIONAL OBLIGATION OF RoSL and SLMA

SLMA are aware of their international obligations and are very keen and willing to meet them. They will need considerable assistance with setting up a National Hydrographic Committee (or equivalent), designing a national hydrographic programme, setting priorities for data gathering, training and procuring the equipment to meet IHO CB Phases 0, 1 and 2.

At present, SLMA and SLPA are reliant on the support provided by their PCA (UKHO) and the NAVAREA II Coordinator (SHOM).

CERTIFIED PERSONNEL

From discussions it was determined that there are no certified personnel in the following fields:

- MSI specialists
- Hydrographic surveyors
- Marine cartographers
- Marine GIS experts (*QGIS is used in courses that are taught at Fourah Bay College, University of Sierra Leone, but it has not been possible to find a prospectus*)

HYDROGRAPHIC SURVEY & NAUTICAL CARTOGRAPHY CAPABILITY

Hydrographic Survey capability: No indication of any current capacity to undertake hydrographic surveys within RoSL Government organisations, and no individuals were identified who have any education or training in hydrographic surveying. No formal survey equipment was identified. Therefore, in terms of government organisations, there is currently no seabed mapping capability.

One commercial marine contractor was identified to have some surveying capacity and had conducted surveys for minerals exports via the Bankasoka and Sherbro Rivers to transshipment points. It was also understood that they conducted a survey to support the proposed Lungi Bridge, linking Freetown to the international airport, and a survey for the development of a fishing port. These surveys were reportedly undertaken with a single-beam fish-finder type sonar with bottom tracking capacity, combined with differential GPS and tidal predictions (using UKHO model), so the uncertainty of this data means it is unlikely to meet appropriate IHO S-44 survey orders. However, this contractor was well connected to a survey company in South Africa, who advised that the numerous vessels owned in Sierra Leone could be easily upgraded with a range of survey-grade sensors in their possession.

Hydrographic surveys have previously been commissioned by other companies as part of the expansion of both the Pepel Ore Terminal and the Queen Elizabeth II Quay. These were shared with the UKHO.

Cartographic capability: No marine cartographic capability was identified but there may be a GIS cartographic unit at Statistics Sierra Leone. RoSL relies on the support of its PCA, UKHO, to help meet elements of its SOLAS Chapter V obligations by producing and distributing navigational products of its waters. There is currently no formal Arrangement in place between RoSL and UKHO which outlines the roles and responsibilities of both parties.

MSI RESPONSIBILITY

There is no official MSI capability in RoSL. The need is generally understood but there is no mechanism to disseminate relevant data to the outside world. Local Notices to Mariners are generated and seem to be passed to vessels directly prior to arrival. They are not forwarded to the NAVAREA II Coordinator for immediate broadcast or to the PCA for chart correction.

REPORT OF TECHNICAL VISIT TO SIERRA LEONE

13-16 FEBRUARY 2023



Reference(s):

- A IHO Publication M-2 *The Need for National Hydrographic Services* (Version 3.0.7, June 2018) https://iho.int/uploads/user/pubs/misc/M-2_3.0.7_E_19082022.pdf
- B IHO CB Procedure 9: *Guidelines to Conduct Technical Visits*
9A <https://iho.int/uploads/user/Inter-Regional%20Coordination/CBSC/MISC/Templates%20Procedures/CB%20Procedures.pdf>
- C IHO EAHC West Africa Action Team (WAAT) Report December 2002
See ANNEX B

The 2002 WAAT Report raised a number of Action Items, this visit was to establish how many had been completed, the general state of hydrographic understanding and areas where IHO could assist with capacity building and training.

Background

The EAHC Capacity Building Strategy was reviewed in 2020 and a requirement for a Technical Assessment Visit to RoSL was submitted by the CB Coordinator to the Capacity Building Sub-Committee (CBSC). In 2022 funds were allocated in the IHO CB Work Programme (CBWP). The UKHO offered to conduct the visit but the COVID pandemic delayed execution until February 2023.

During this period SLMA were trying to arrange a visit via the UK Defence Advisor, British High Commission (BHC), Freetown.

1. Composition of the Team

Ms	<i>Cathy Tunks</i>	UKHO	<i>Geographic Technical Lead for the region</i>	Team Leader
Mr	<i>David Parker</i>	UKHO	<i>Head of Hydrographic Programmes</i>	Assistant
Mr	<i>Nathanael Knapp</i>	UKHO	<i>Head of Partnering and Engagement (East Atlantic and the Caribbean)</i>	Assistant
Ms	<i>Gerardine Delanoye</i>	IALA	<i>Capacity Building & Resources Manager</i>	IALA Lead

UKHO arranged travel, accommodation and entry requirements with the UK Defence Adviser. The BHC provided valuable support with the facilitation of the visit, including introducing the visiting delegation to SLMA and local maritime stakeholders ahead of the visit. The UKHO and SLMA then coordinated to develop the schedule of meetings, see ANNEX D.

Part A - Overall Assessment of the Situation in Region

2. Efficacy of the Technical Visit.

The terms of reference for this TV can be found at Annex A

The visit reiterated the need for ROSL government departments and agencies to work together to develop a better understanding of hydrographic issues; where they can share data amongst each other and the need to share data to the outside world via the NAVAREA II coordinator and their PCA. The SLMA local coordinator is now more aware of the requirements and is keen to receive continued help and advice, particularly when creating a Navigation Sub Committee of the JMC.

3. Cooperative Arrangements and Potential.

a. Regional Organisations and Collaboration.

ROSL is a member of, or, affiliated to the following regional organisations:

Economic Community of West African States (ECOWAS) - a regional political and economic union of fifteen countries located in West Africa. Its stated goal is to achieve "collective self-sufficiency" for its member states by creating a single large trade bloc by building a full economic and trading union. ECOWAS also serves as a peacekeeping force in the region, with member states occasionally sending joint military forces to intervene in the bloc's member countries at times of political instability and unrest.

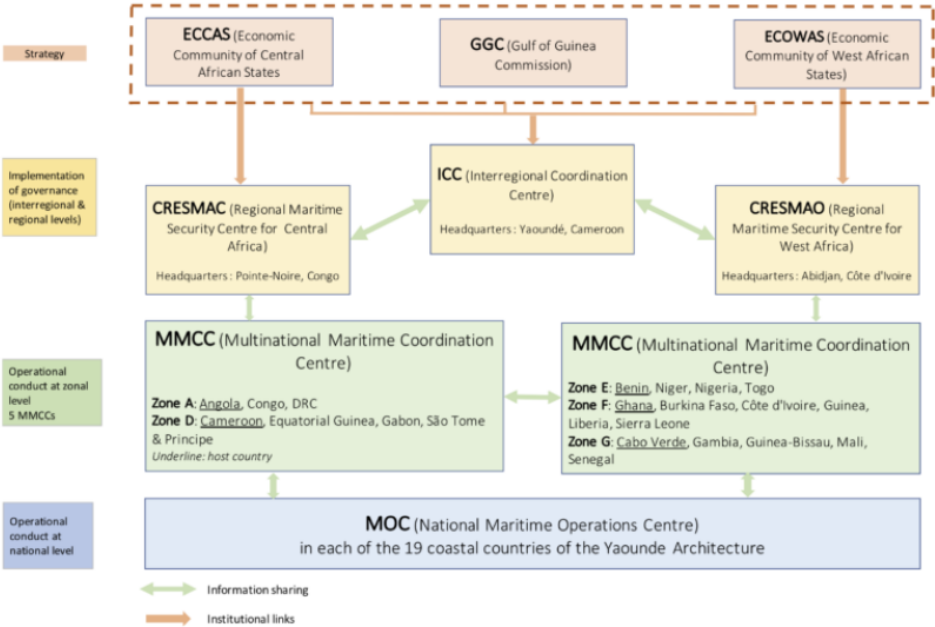
African Maritime Safety and Security Agency (MOWCA) – purpose is to ensure the sub-region has a cost-effective shipping service, high on safety and low on pollution.

Gulf of Guinea Commission (GGC) - shall constitute a framework of consultation among the countries of the Gulf of Guinea for cooperation and development, as well as for the prevention, management and resolution of conflicts that may arise from the delimitation of borders and the economic and commercial exploitation of natural resources within the territorial boundaries, particularly in the overlapping Exclusive Economic Zones (EEZ) of our States. It constitutes a permanent Institutional framework for cooperation amongst the countries bordering the Gulf of Guinea to defend their common interest and promote peace and socio-economic development based on the bases of dialogue, consensus, ties of friendship, solidarity and fraternity.

The Association of African Maritime Administration (AAMA) - the coordinating body for Maritime Administrations in Africa. Its aim is to promote the development of Africa’s maritime regulatory and maritime environment, encouraging harmonisation for greater competitiveness on a global basis, promote the sharing of best practices among Africa’s Maritime Administrations in order to enable the growth of the African maritime sector and enhancement of continental collaboration to build consensus on issues of common interests in the maritime sector.

The Gulf of Guinea Interregional Network (GoGIN) project - focused on supporting the fight against piracy in the most critical area. Within this framework, the project mainly deployed education and training activities. YARIS (Yaoundé Architecture Regional Information System) became operational. From then on, GoGIN has focused its activities on the deployment of the platform and its technical and operational appropriation by its users.

Maritime safety and security architecture in the Gulf of Guinea (Yaoundé Architecture)



<https://www.gogin.eu/en/yaounde-architecture/>

b. Local Organisations

RoSL Government has established an active JMC to provide coordination and management of Monitoring Control and Surveillance (MCS) for all maritime resources and activities. The Committee has the benefit of reducing costs and improving transparency and are currently concentrating on maritime security; counter narcotics, people smuggling anti-piracy policing and fishery protection. Actions are dependent on the threat and availability of resources.

The JMC includes the following institutions, amongst others:

- Office of National Security (Chair)
- Sierra Leone Maritime Administration*
- Ministry of Fisheries and Marine Resources*
- Department of Immigration
- Environmental Protection Agency
- Ministry of Defence, RSL Armed Forces (Maritime Wing)*
- Sierra Leone Ports Authority
- National Revenue Authority (NRA)
- Sierra Leone Marine Police (SLMP)*

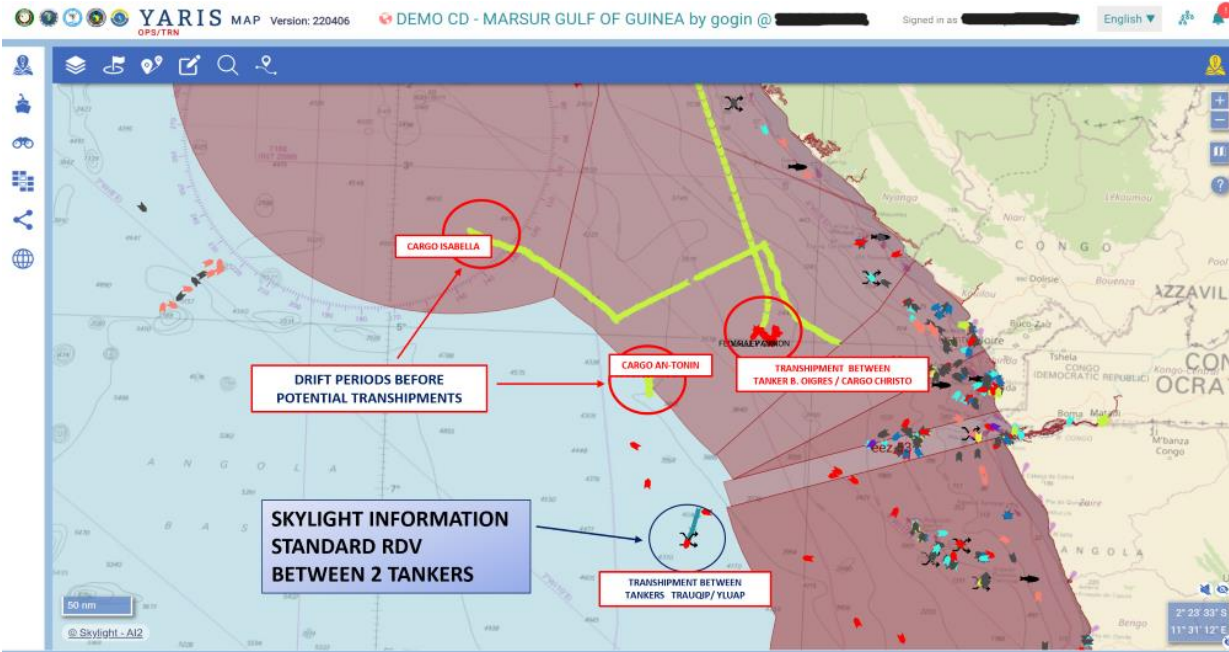
The JMC operates and manages the Joint Operations Centre (JOC) which is manned by staff from the agencies marked * above.

The JOC utilises the YARIS platform which provides extensive functionality for the implementation of maritime safety and security including:

- maritime surveillance through the automatic detection of suspicious situations or behaviors on the basis of alert criteria
- instantaneous or prospective analysis through the use of historical and statistical data on the situations found
- planning and coordination of naval operations both in the setting up of an operation to combat maritime crime and in the management of a maritime crisis. The continued responsibility of the authority in the conduct of operations is also ensured through the platform
- automatic and forgery-proof recording of the observed facts, allowing support for the legal aspects of an event.

The team noted that the platform is designed for the maritime environment but could not find any detailed map layers with hydrographic raster / ENC data. The specifications indicate it can integrate data from several types of sources: Automated Information Systems, Vessel Management Systems, radars, maps, satellite data, etc.

NOTE: The GoGIN+ project currently covers all costs related to YARIS (development, training, hosting, customer support, subscription to data sources). The transfer of YARIS to its future owners will be free of charge, but they will have to bear all the operating costs.



c. Defence and Security Arrangements

The RSLAF (Maritime Wing), in conjunction with other organisations, supports the following activities: Surveillance and Fisheries Protection, Naval Support to the infantry, Anti-Smuggling operations, Anti-Piracy Operations, Humanitarian Support Exercise and Search and Rescue (SAR) Operations.

Part B – Republic of Sierra Leone Assessment

Sierra Leone is a West African country bordered by Guinea to the north and east, Liberia to the south-east and the northern Atlantic Ocean to the south-west. Lying between latitude 8° 30' north and longitude 11° 30' west, it has a hot humid tropical climate and a rainy season.

It has a combined coastline stretching out over 510 km, and a continental shelf 100 km wide to the north, which shrinks down to 13 km southwards on the Liberian border and extends on a surface area of 30 000 km². Its coast is characterised by countless streams and estuaries navigable over a short distance and luxuriant flora of mangrove. The 200-nautical-miles EEZ covers an area of 157 000 km².

New discoveries of massive deposits of kimberlite diamond, iron ore, gold, bauxite, rutile and nickel have been made in RoSL. There is also strong evidence of rare earth elements such as Cerium and Neodymium; battery metals such as Lithium and Graphite; Base metals; Platinum Group Metals; ethically sourced Coltan, and a range of other internationally desirable commodities for low carbon and digital technologies. Many of these are bulk commodities and will increase marine traffic as they are sent worldwide for processing.

4. RHC Involvement

The Republic of Sierra Leone is not currently an IHO member. They are listed as an Observer for the EAtHC but have not attended the most recent Regional Conferences or provided a National Report. The last known attendance was in 2018 (Lagos, Nigeria). Prior to this Technical Assessment Visit, there hasn't been any routine liaison with the IHO or the UKHO, who act as the PCA.

5. Preliminary Liaison

Following the EAtHC Capacity Building recommendation and approval for a Technical Assessment Visit to Sierra Leone, the initial liaison started in 2021 between UKHO and Bertrand Kerguelen, General Manager, Bollere Freetown Terminal, as he was a known contact and data supplier.

Sierra Leone Maritime Administration were also liaising with Lieutenant Colonel R J Browne RLC, UK Defence Adviser, British High Commission (JMC Member) to ask for assistance with contacting UKHO following their IMO IMSAS Report.

The visit was then coordinated between the UKHO, the UK Defence Adviser, the Assistant UK Defence Advisor (Staff Sergeant Paul MacMillan), the British High Commission and the Sierra Leone Maritime Administration, with Ibrahim L H Wurie, Director Maritime Safety & Security Department, being the main local contact and coordinator.

6. Points of Contact

The IHO Yearbook (P-5) should include Coastal States details for the local first point of contact for hydrographic and MSI matters. At the time of the visit the Sierra Leone P-5 entry was out of date. The updated P-5 entry has since been provided by SLMA and updated contact details are included in ANNEX G.

The Sierra Leone Maritime Administration are responsible for IHO liaison.

ACTION 01/2023: IHO Secretariat and EAtHC Chair to contact SLMA and assist with the process related to the deposit of the Instrument of Accession.

ACTION 02/2023: SLMA, on behalf of RoSL, to deposit the Instrument of Accession with IHO to complete their Membership application.

ACTION 03/2023: IHO Secretariat to update Sierra Leone P-5 Yearbook entry with details included at Annex G.

ACTION 04/2023: EAthC Chair to add SLMA contacts to EAthC mailing list.

DESCRIPTION OF MARITIME ACTIVITIES

7. National Maritime Affairs.

Sierra Leone have been members of IMO since 1973 and signed the UNCLOS convention in 1982 (ratified 1994).

SLMA are responsible for the administration of the Registration of Shipping Act and any other legislation relating to maritime affairs, this includes

- the safety of navigation in the territorial sea
- maritime search and rescue matters including the coordination of the SAR operations of the Armed Forces of SL, the ports Authority and Fisheries and Marine Resources
- regulation of shipping in inland waterways including the safety of navigation
- the investigation any incidents of maritime casualty and taking any action appropriate
- prevention of maritime source pollution, protection of the marine environment and response to marine environment incidents, with other bodies
- ratification or accession and implementation of international maritime conventions
- advice to the Government on maritime affairs
- represent SL at both national and international fora on maritime matters

[The Sierra Leone Maritime Administration Act, 2000]

SLMA is also responsible for the implementation and enforcement of RoSL flag state, port state and coastal state responsibilities.

The IMSAS Audit for RoSL was conducted in 2018.

ACTION 05/2023: SLMA to share with the PCA (UKHO) any comments related to nautical charts and publications from the IMSAS Audit.

SLPA in accordance with the Port Act No. 56 of 1964 (as amended in 1991) is mandated to manage and control all ports related activities in Sierra Leone and to operate the port of Freetown and oversee activities at the Ports of Nitti and Pepel.

8. Trade and Maritime Traffic

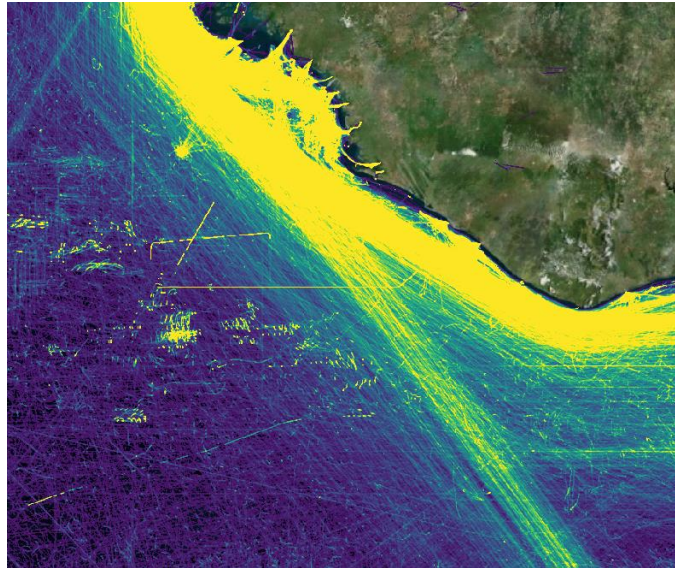
Sierra Leone has one medium sized international port, Freetown, which is located in the largest natural harbour on the African continent. It is comprised of two parts: the older section, known as Freetown Port, Government Wharf or simply "the harbour" and the more modern Queen Elizabeth II Quay (known locally as the Deep Water Quay). Together they handle Bulk Cargo, Container Shipping and General Cargo.

Plans are underway to extend the bulk and break-bulk terminal to create a new berth which will facilitate the arrival of vessels of up to 225 metres in length with a 13-metre draft.

There are three smaller ports which are for ore exports only, Pepel, Nitti 1 and Nitti 2.

a. Through Routes

There are two Through Routes in Sierra Leonean waters, the West Africa coastal route and a deep-sea route from the Cape of Good Hope. The two routes converge to the west of Sherbro Island, Sierra Leone.



b. Trans-shipment

Sierra Leone is rich in deposits of iron ore, bauxite and rutile. Currently these are mined inland and moved to river quays from where barges transport the ore to deeper water locations.

Approaches to Freetown

Pepel



Iron ore
Bauxite (from March 2023)

Marampa (Bankasoka River)



Marampa Blue high-iron content ore

Sherbro River: Often involves initial loading in the vicinity of Buoy 8 (7° 39'·893 N 12° 35'·819 W) and then further loading when the ship is moved to between Buoy 4 (7° 43'·617 N 12° 48'·002 W) and Buoy 5 (7° 41'·200 N 12° 44'·455 W) due to draught constraints.

Nitti - 1

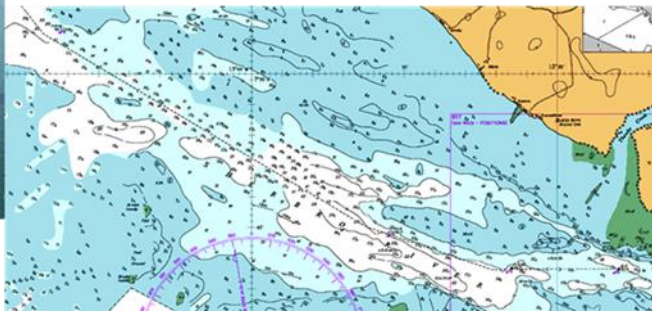
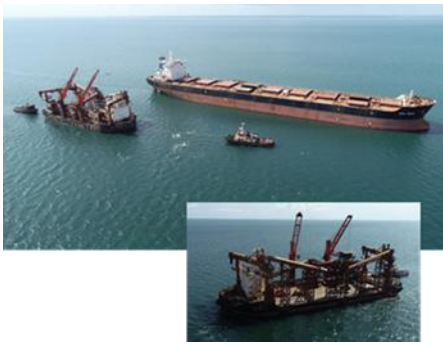


Rutile

Nitti - 2



Premium washed bauxite



c. Bulk Trades

All bulk trades, apart from ore exports, are handled through the Queen Elizabeth II Quay, known locally by the residents as Deep-Water Quay.

Exports (2020)

(166 exporter in the world)

Titanium Ore	\$158M
Rough Wood	\$109M
Aluminium Ore	\$49.5M
Cocoa Beans	\$47.3M
Diamonds <i>(added for completeness)</i>	\$66.4M

To

China	\$142M
Belgium	\$110M
Netherlands	\$47M
Romania	\$38.2M
United States	\$30.4M

Imports (2020)

(170 importer in the world)

Rice	\$134M
Packaged Medicaments	\$69.7M
Cars	\$37.6M
Cement	\$24.4M
Poultry Meat	\$23.3M

From

China	\$371M
India	\$125M
Turkey	\$75.6M
United States	\$69.1M
Netherlands	\$68.2M

Container Terminal – Queen Elizabeth II Quay, Freetown

Extended in 2015 to provide new 270m berth with dredged depth of 13m alongside. (2017 – 89 100 TEU, 2019 – 78 413 TEU)

Cement import terminal, Freetown

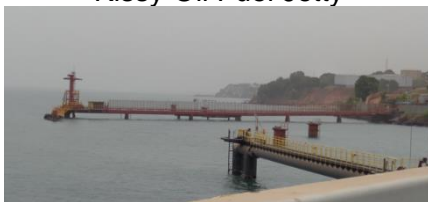
0.7 Meta Theft Auto (MTA) capacity

Oil refinery, Kissy, Freetown

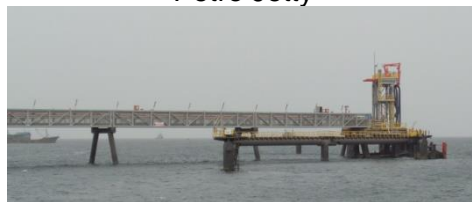
Served by two jetties, KOJ (Kissy Oil Fuel Jetty) and PetroJetty (both visited).



Kissy Oil Fuel Jetty



Petro Jetty



There is also a Palm Oil Refinery in the Wellington district of Freetown.

d. Feeder, Coasting and Local Trade

Local traffic consists of mainly very small craft.

Ferries:

International:

None

Local:

North West Province:

Kabba Ferry, Mawono (River crossing)

Passenger and vehicle - may be replaced by a bridge (outside chart coverage)

Freetown:

Kissy to Tagrin

Government Wharf to Tagrin

Passenger and vehicle
Passenger and vehicle



Sea Coach (Water Taxi)

Airport transfer, mining crew transfers, fishing charters



Sea Bird (Water Taxi)

Airport transfer,

Southern province:
Matru (River crossing)

Passenger and vehicle (outside chart coverage)

e. Offshore Supply and Support

Currently there is no offshore oil and gas industry in Sierra Leone. Several high-profile companies have explored limited offshore blocks in the past and discoveries were made, none were considered worth pursuing commercially at the time. Recently a new licensing round has been announced offering 63,600 square km in a “hugely prospective” area. 2D and 3D seismic data has indicated potential economic reserves.

f. Tourism Cruise Liners

Currently very few cruise liners call at Freetown. The Sierra Leone Tourist Board hope to encourage more cruise ship visits in the future. Smaller cruise ships have been known to anchor off Tokeh (8° 18.546'N 13° 11.629'W) and offer small boat transfers ashore for day trips.

g. Tourism Small Craft

Small craft tourism is very limited. Often the Water Taxis can be hired for tourist purposes. The Bonthe Holiday Village is aimed at game fishermen in search of tarpon.

h. Fisheries

Over 200 fish species have been identified within Sierra Leone’s EEZ. In May 2011, stock estimates on Sierra Leone’s continental shelf were (in thousands of tonnes):

Demersals - 40,625, Pelagics - 56,900, Shrimp – 3, Cephalopods - 1

These estimates did not include coastal fish stocks due to the limitations of the research vessel used at the time. It is estimated that around 228,000 tons of fish are taken from the country’s waters every year.

Fishery contributes approximately 12% of the GDP of Sierra Leone and provides much of the animal protein consumed domestically. Fishing also provides employment in Sierra Leone and there are strong investment opportunities in several segments of the fishing industry including fishery, aquaculture, fish processing, fishery infrastructure and FishTech solutions. This area is expected to grow at a rate of 2.9%. and is estimated to reach USD \$138.7 Billion by 2027. Tuna catches within the EEZ are underexploited and represent huge potential.

Artisanal sector catches account for 80% of overall fishery production. Catch rates indicate that, should current trends be maintained, fishery sustainability, incomes and biodiversity will be severely jeopardised. Illegal, unreported, and unregulated fishing is an issue as it is difficult to maintain full surveillance and implement existing fishing laws. A series of new Fisheries policies and regulations have been introduced which include limiting fishing grounds, vessel monitoring systems on all licensed fishing vessels and heavy fines and sanctions for violations.

*(see also Fisheries management in data deficient industrial fisheries of Sierra Leone: Input controls and ecological risk assessment
<https://www.fao.org/fishery/static/tenure-user-rights/root/volume3/C39.pdf>)*

During discussions with Ministry of Fisheries and Marine Resources (MFMR) it was discovered that several Marine Protected Areas, and inshore fishing areas (marked by buoys) have been declared but are not currently charted.



The construction of a fishing harbour complex (Black Johnson) with facilities under a public private partnership are being explored, including Transshipment terminals, fishing vessel repair (dry-docking) and bunkering facilities for fuel and fish processing facilities. A bathymetric survey has been conducted in the area. The survey and any construction drawings should be submitted to UKHO for possible inclusion in navigational products.

ACTION 06/2023: MFMR to forward the bathymetric survey and construction drawings for Black Johnson Fishing Harbour to their PCA (UKHO) for possible inclusion on navigational products.

i. Other information

- MV Karadeniz Powership Doğan Bey is currently supplementing the Sierra Leone power grid and is moored in Kroo Bay, Freetown.



- There is currently an area of disputed water with Guinea, and this has led to several incidents involving fishing vessels. The exact location was not provided and discussions to resolve the issue have been ongoing for many years.

9. Responsibility for Safety of Navigation

The SL Merchant Shipping Act 2003 provides details about the organisations within RoSL that are responsible for the various safety of navigation tasks. Most of these responsibilities lie with the SLMA, who have overall responsibility. Some responsibilities are also devolved to the SLPA and private ports, as detailed below:

- **Maintenance of channels:** The SLPA and private ports carry out the maintenance of the navigational channels. The SLMA has the over-arching responsibility for regulating, supervising and assuring that the relevant tasks are completed to the required standards. There was no indication that any maintenance or assurance tasks are being conducted or if the relevant roles exist within SLMA or SLPA.
- **Removal of wrecks:** The SLMA is mandated to handle the removal of wrecks. The Minister of Transport is responsible for appointing the Receiver of Wrecks, which would usually be the SLMA.
- **Promulgation of Notices to Mariners (NMs):** The SLMA are responsible for the promulgation of NMs and Navigational Warnings. The SLPA discharges some of this responsibility on behalf of SLMA by producing Notices to Mariners for declared ports. These are distributed to local users but are not distributed to wider international shipping or the PCA. The SLMA are not currently producing NMs for areas outside of the declared ports. Navigational Warnings are not known to be issued or shared with the NAVAREA II Coordinator.
- **Provision and maintenance of Aids to Navigation (AtoN):**
 - Within a declared port, the SLPA (or private port) is responsible for the provision and maintenance of AtoNs.
 - Outside of a declared port, this responsibility lies with the SLMA.
 - The SLMA has overall accountability for the provision and maintenance of all AtoNs within RoSL. This includes assurance of private aids to navigation to ensure that they are maintained and in proper working order and making the public aware when there are any deficiencies.
 - IALA have noted that most AtoNs and lights are not operational and are either damaged or missing.



The Cape Sierra Lighthouse has fallen into disrepair and is no longer operational. Its importance for both navigation and national pride was mentioned many times. Returning it to full operation could potentially be seen as a catalyst for improving navigational safety throughout the country.

In 2020, the United Nations Development Programme (UNDP) released funds for the refurbishment of the Lighthouse at Aberdeen but requested for its withdrawal by the end of 2020, so this funding opportunity was lost.

The UNDP then provided SLMA with a Search and Rescue vessel in April 2023: <https://a-zsl.com/undp-capacitates-sima-with-new-search-and-rescue-boat>

10. Defence Force Responsibilities

The RSLAF (Maritime Wing) indicated that out of date charts present significant operational difficulties. This has resulted in issues with taking vessels to the Sherbro/Bonthe region. There are significant draught constraints, and the area is very weather dependent. They would like to develop forward operating bases and hydrographic surveying capability to assist with their various obligations. They have limited resources but have training facilities that could be utilised for the benefit of other organisations.

SAR is the responsibility of SLMA and is executed by the JMC and other stakeholders. The main SAR bases are in the locations below:

- 1) Bonthe - Southern Province
- 2) Shenge - Southern Province
- 3) Tombo - Western Rural Province
- 4) Freetown - Western Urban Area
- 5) Bailor - Northern Province

11. Coastal Zone Management and Environmental Protection

Several Marine Protected Areas have been declared by the Ministry of Fisheries & Marine Resources (MFMR). They are advised to pass the details to UKHO for possible inclusion in navigational charts and publications to increase awareness.

ACTION 07/2023: MFMR to forward the limits and details of marine protected areas to the PCA (UKHO) for possible inclusion in the relevant navigational products.

The University of Sierra Leone are engaged in coastal zone mapping projects and monitoring sea level rise using a network of automated hydrologic and meteorologic monitoring stations (referred to as Tide Gauges) located throughout the country. These are operated by the Sierra Leone Meteorological Agency. The data collected could improve the current UKHO harmonic constants and thus improve tidal windows for ship movements and hydrographic survey results.

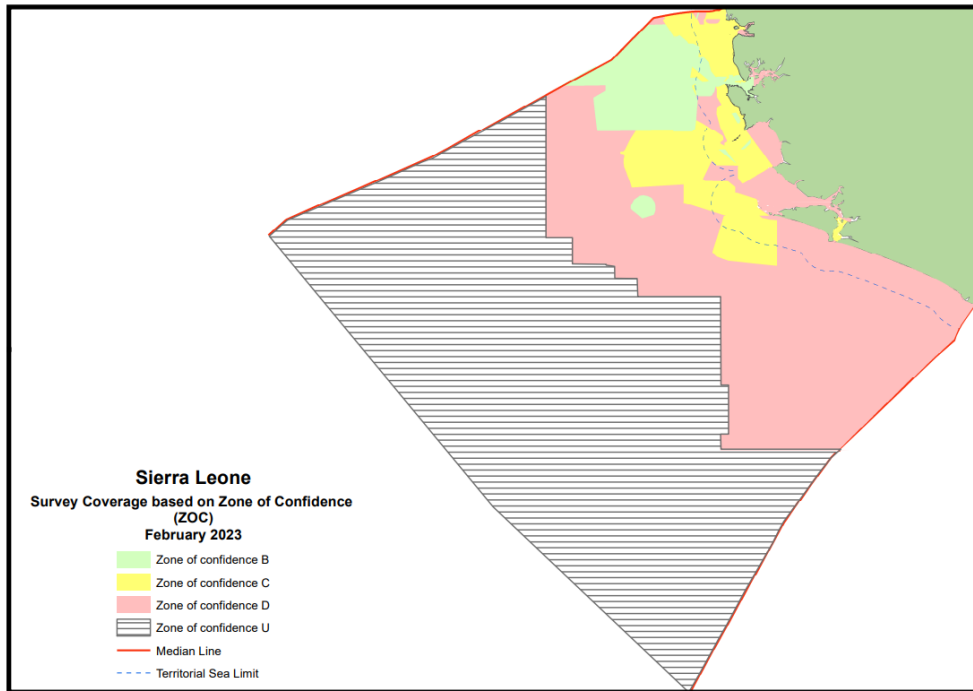
ACTION 08/2023: SLMA / Met Agency to provide any modern tidal data collected to the PCA (UKHO) to improve the current harmonic constants used in Tidal publications.

The Meteorological Agency also operate CIDMEWS-SL which has been designed and developed by Integrated Geo-information and Environmental Management Services (INTEGEMS) under the United Nations Development Programme (UNDP) sponsored "Support to Communications and Dialogue on Early Warning, Forecasting Products and Climate Information Project". The Project's main objective is to establish a functional network of meteorological and hydrological monitoring stations to help understand better the weather and climatic changes over time and provide timely information to avert any weather and climate change related disasters.

<https://slmet.gov.sl/cidmews-mapping-application>

OUTLINE C 55 ANALYSIS

12. Status of surveys within the National Maritime Zone

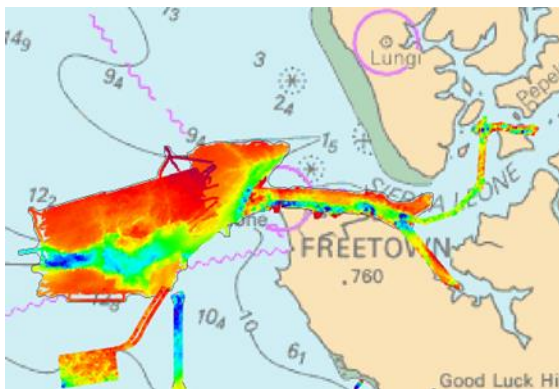


Survey Dates:

- B 2001 – 2000 (see below for larger scale coverage of Freetown)
- C 1942 – 1922 (Leadline)
- D 1933 – 1825 (Leadline)
- U Miscellaneous passage soundings

See Annex J - Hydrographic Survey - Zone of Confidence Definitions

The majority of the survey data held within the RoSL EEZ is Zone of Confidence U (unsurveyed or from miscellaneous passage soundings dating back decades). The UK Royal Navy has carried out several surveys, mainly in the outer approaches to Freetown, but these were mostly using single beam or leadline.



The most recent multibeam surveys are concentrated in the territorial sea around the inner approaches to Freetown from 2006 to the present day.

UKHO have undertaken an initial risk analysis within the Sierra Leone EEZ and identified a much higher than average national risk due to the combination of age and quality of existing data, depth of water, seabed mobility and the characteristics of vessels operating. This does not include the additional risks incurred due to inadequate or non-existent aids to navigation. Surveys are known to have been conducted by private companies, SLMA and the National Minerals Agency and these should be forwarded to the PCA (UKHO) for possible inclusion on navigational charts and products.

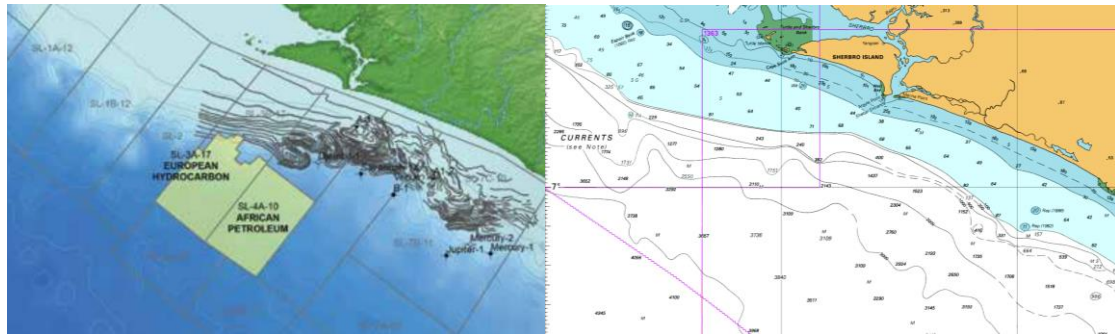
ACTION 09/2023: SLMA and National Minerals Agency to request copies of hydrographic surveys and forward to the PCA (UKHO) for updating navigational charts and products.

The Petroleum Directorate of Sierra Leone (PDSL) has a Digital Atlas which is a geospatial database product comprising materials from their archives supplemented by Getech's regional information, including seabed bathymetry.

<https://getech.com/wp-content/uploads/2018/05/Getech-Sierra-Leone-Digital-Atlas-Flyer.pdf>

<https://pd.gov.sl/home>

ACTION 10/23: SLMA to investigate the possibility of PDSL providing the PCA (UKHO) with access to the Digital Atlas for any Bathymetric data that could be used for charting purposes.



13. Collection and Circulation of Nautical Information

At present there is no single organisation in RoSL that acts as a national coordination point for nautical data.

SLPA issue Local Notices to Mariners but these are not forwarded to the PCA (UKHO) on a regular basis, with the last copies held at UKHO dated 2021. UKHO receives a limited amount of information from mariners who highlight issues with products via the Hydrographic Note system [<https://www.admiralty.co.uk/maritime-safety-information/hydrographic-notes>]. Some data has also been received from contractors or terminal operators who need the existing chart coverage updated for their requirements.

It is recommended that SLMA and SLPA contact all local stakeholders who are likely to have collected data with a navigational/hydrographic component, to understand what data already exists and work for that data to be shared, including with the PCA (UKHO). Additional metadata will be required to help understand, assess, use and assign ownership of the data. This should become an ongoing task and a single point of contact designated to forward this to the PCA (UKHO).

Owners of this data should recognise they hold a degree of liability if dangers to navigation are evident within the data, but the data has not been appropriately shared with authorities and mariners.

14. Survey Capability

There was no indication of any current capacity to undertake hydrographic surveys within RoSL Government organisations, and no individuals were identified who have any education or training in hydrographic surveying. No formal hydrographic survey equipment was identified. Commercial companies are commissioned on a project-by-project basis for specific projects.

15. Independent Chart Production Capability

There is no local capability to produce nautical charts locally. Chart coverage is fully reliant on a mixture of national and INT charts produced by the PCA (UKHO). The chart coverage should be continually reviewed as any modern survey information is gathered.

PROPOSALS FOR COORDINATION AND CAPABILITY BUILDING

16. National Hydrographic Committee

RoSL does not have a National Hydrographic Committee and there are no government organisations with a deep hydrographic background. Therefore, it is recommended that the RoSL creates a National Hydrographic Committee, which could be a sub-committee of the existing JMC to concentrate on navigation / hydrographic matters. It is further recommended that this Committee considers engaging a Maritime Safety Adviser to work with the Committee to formulate a *National Hydrographic Strategy and Master Plan*. This will have the aim of meeting IHO CB Phase 1 (*Collection and circulation of nautical information*) and Phase 2 (*Creation of a surveying capability*). The Strategy and Plan should cover the organisational responsibilities; development of a dedicated group along with the logistics required (eg offices, basic and specialist equipment) to enable adequate and dependable long term funding arrangements from RoSL Government or external sources, including the World Bank. The plan should include training requirements and possible providers.

Recommendation: RoSL should consider creating a sub-committee to cover the safety of navigation.

Full use should also be made of support from the PCA (UKHO).

17. Phase 1 Hydrographic Capability: MSI Organisation and GMDSS.

a. MSI (Navigational Warnings)

No evidence was found of local navigational warnings. Local Notices to Mariners are published by SLPA. No other nautical publications appear to exist. It is recommended SLMA / SLPA concentrate on improving MSI data gathering and promulgation, utilising the NAVAREA II coordinator (SHOM) and support from their PCA (UKHO). Details of the relevant contacts have been supplied.

ACTION 11/2023: SLMA to review relevant pages of the ADMIRALTY List of Radio Signals (ALRS) publication and contact NAVAREA II coordinator (coord.navarea2@shom.fr) and the PCA (UKHO) with any updated contact details and changes.

ACTION 12/2023: SLPA to forward all current and future Local Notices to Mariners to the PCA (UKHO) for possible charting action, and the SLMA for local assurance.

b. Information on Ports and Harbours.

Throughout the Technical Assessment Visit, the Team reiterated the need to collect and disseminate important navigational data to mitigate potential legal actions and to reduce the insurance premiums for shipping using RoSL waters and ports. Secondary outcomes will be the reduction of costs and possibly time alongside. The early sharing of plans and coordinates of new developments to the PCA (UKHO) will also enable the navigational charts and products to be updated in a timely manner.

c. GMDSS Status.

Table 1: Status of GMDSS in local waters.

Master Plan	A1 Area	A2 Area	A3 Area	NAVTEX	SafetyNET	Notes
No	Yes (VHF) SLPA	No (MF)	No	Yes via NAVAREA II	No	

NAVTEX – after the visit SLMA have been provided with contact details for the NAVAREA II Coordinator (SHOM), copies of various documents related to MSI and a request to contact SHOM with a RoSL point(s) of contact. They were also requested to

supply similar details to the PCA (UKHO) to ensure ADMIRALTY List of Radio Signals (ALRS) publications are correct.

18. Phase 2 Hydrographic Capability: Survey

The RoSL Government maritime sector are well connected and communicating regularly. They have a strong understanding of the potential financial return on investment in a hydrographic capability. The resources and expertise in human and physical geography at Fourah Bay College (University of Sierra Leone) should be utilised by RoSL Government to undertake a cost-benefit analysis in relation to investment in hydrography. Numerous national examples are available via the IHO to use as a basis for such a study. This would then support either national investment or applications for international development banks.

a. Provision of Survey Data

There is a continuing requirement on the RoSL Government organisations to ensure that any hydrographic survey data collected is passed to the PCA (UKHO). They should also consider adding a clause to any license agreements with exploration companies indicating bathymetric data should be provided to RoSL for onward transmission to the PCA (UKHO).

b. Survey Capability

Due to the scale of the deficit of modern data, combined with the evidence of a highly dynamic seabed in many areas, and the cross sectoral demand for better mapping, the RoSL should work to build a domestic capacity to undertake hydrographic surveys. All stakeholders engaged agreed that the most suitable organisation for this capacity to reside with would be within the Maritime Administration.

Data should be processed and validated locally before supply to the PCA (UKHO), as well as made available on a cross-government basis, under the overarching principle of “collect once, use many times”. There is also an opportunity for the anglophone countries within the EAthC to support each other with training and equipment.

Although systems which are able to undertake surveys with fully bathymetric coverage (such as multibeam sonar systems) would perhaps be the desired target, it may be more pragmatic to start with a simpler single-beam based sonar system, to cover smaller local areas.

Recommendation: SLMA to work with the PCA (UKHO) to develop a survey area prioritisation based on both GIS risk analysis and stakeholder input. Order 1A surveys should be considered for the highest priority areas and initially it might be advisable to employ a large commercial contractor to survey these areas for a quick gain.

Recommendation: SLMA to consider development of a Seabed Mapping Cost Benefit Analysis.

19. Phase 3 Hydrographic Capability: Chart Production

There is no current capability for local chart production. Potential capability is likely to be many years away and would need the development of a dedicated team, possibly under the control of the RSLAF Maritime Wing. An extensive training programme and purchase of the necessary equipment would need to be costed and added to the relevant budgets. It is recommended that this is included in the *National Hydrographic Master Plan*. RoSL would need to join the IHO to access Phase 3 Hydrographic Capability (Chart Production) IHO CB training and support.

20. Summary of the Assessment of the National Hydrographic Capability

Table 2: Assessment of National Hydrographic Capability.

IHO Member	Regional Hydrographic Commission (RHC)	National Hydrographic Committee (NHC)	Phase 1 Capacity	Phase 2 Capacity	Phase 3 Capacity	Notes
No	EAtHC Observer (2018)	No	No	No	No	

PROPOSALS FOR ASSISTANCE

21. Training

The priority should be to concentrate on developing the necessary requirements to meet CB Phase 1. Formal MSI training is required to heighten awareness and to develop good working practices. SLMA and/or SLPA are strongly encouraged to nominate an appropriate participant for the next IHO funded MSI Course. It is recommended that this course should be held in English, somewhere in West Africa. This will also provide a good networking opportunity for the English-speaking countries to share regional hydrographic knowledge and learnings.

Once RoSL completes its IHO membership, more IHO Capacity Building opportunities will become available.

Recommendation: EAtHC CB Coordinator to consider holding an English language MSI course in West Africa.

22. Equipment

Once a detailed National Hydrographic Strategy has been developed and appropriate funding identified, either from RoSL Government or external sources, the PCA (UKHO) could support the specification of equipment, survey platforms and conduct appropriate training.

23. Funding

The National Hydrographic Strategy should highlight areas where funding is required. RoSL Government funding should be requested and applications made to other worldwide sources (e.g. World Bank) for specific projects. Guidance and applications for IHO Capacity Building courses and training should be made through the EAtHC CB Coordinator.

Follow-Up Recommendations and Actions

24. Recommendations

Recommendation: RoSL should consider creating a sub-committee to cover the safety of navigation.

Recommendation: SLMA to work with PCA to develop a survey area prioritisation based on both GIS risk analysis and stakeholder input. Order 1A surveys should be considered for the highest priority areas and initially it might be advisable to employ a large commercial contractor to survey these areas for a quick gain.

Recommendation: SLMA to consider development of a Seabed Mapping Cost Benefit Analysis.

Recommendation: EAtHC CB Coordinator to consider holding an English language MSI course in West Africa.

25. Action items

All Actions items identified in this Report are collated in ANNEX M.

CONCLUSIONS














26. Cooperative Opportunities.

SLMA will require considerable advice and support over the coming years. EAtHC Chair and IHO Secretariat are encouraged to make contact at the earliest opportunity to maintain momentum generated by this visit. Attendance at future EAtHC RHC Conferences and Seminars will allow the relevant maritime authorities in RoSL to develop contacts in the region and hopefully these may be able to assist in their development.

SLMA and the PCA (UKHO) should also maintain their communication and formalise the relationship via an Arrangement for Cooperation, which outlines the roles and responsibilities of both organisations. This will help SLMA demonstrate compliance towards SOLAS Chapter V in future IMO IMSAS audits.

ACTION 13/2023: SLMA and the PCA (UKHO) to maintain lines of communication and formalise the relationship and roles via an Arrangement for Cooperation.

The following documents were presented to SLMA during the visit and can be downloaded from the IHO website:

-  IHO 2022 10-Sierra Leone WAAT Report.docx
-  IHO Annex A - Disaster Response-Template of Situation in Ports.pdf
-  IHO Annex B - Disaster Response-Template for the Establishment of Support.pdf
-  IHO C55 Sierra Leone as published.docx
-  IHO C-55_PCA_Sierra Leone-20210824.xlsx
-  IHO Capacity Building Strategy.pdf
-  IHO East Atlantic Hydrographic Commission EAtHC_STATUTES.pdf
-  IHO Introduction to MSI.pdf
-  IHO M2 The Need for National Hydrographic Services.pdf
-  IHO Measuring and Charting the Oceans 2021.pdf
-  IHO P5 Year book entry.docx
-  IHO Process to join the IHO and templates.pdf
-  MSI NAVAREA II.docx


27. Urgent Actions


ACTION 14/2023: EAtHC CB Coordinator to consider including an English language IHO MSI Course to be hosted in West Africa, in the East Atlantic CB workplan.


28. Follow up Opportunities

ACTION 15/2023: EAtHC Chair and CB Coordinator to consider another visit two years after this report to monitor progress.

VISITING DELEGATION

DATE	30 June 2023
DELEGATE NAME	Miss Cathy Tunks
ORGANISATION	UK Hydrographic Office, representing the International Hydrographic Organisation
SIGNATURE	

DATE	12 October 2023
DELEGATE NAME	Mr David Parker
ORGANISATION	UK Hydrographic Office, representing the International Hydrographic Organisation
SIGNATURE	

DATE	10 November 2023
DELEGATE NAME	Mr Nathanael Knapp
ORGANISATION	UK Hydrographic Office
SIGNATURE	

Annex List:

- A. Terms of Reference of the RHC Technical Visit Team.
- B. Last Technical Visit Report – December 2002
- C. Questionnaire
- D. Preliminary Agenda
- E. Summary of Events
- F. List of Primary Contacts
- G. P-5 IHO Yearbook Template update
- H. NHS Organization Template
- I. Republic of Sierra Leone Report to EAtHC 17 (2022)
- J. Hydrographic Surveys – Zone of Confidence Definitions
- K. PCA Chart and ENC Coverage
- L. Coastal State Trade and Maritime Traffic
- M. Action Items

Distribution: Chair EAtHC RHC
Information: IHO Secretariat
EAtHC CB Coordinator
SLMA
UKHO
IALA

Annex A - Terms of Reference of the RHC Technical Visit Team

1. The Technical Visit Team, comprising members of the staff of the UK Hydrographic Office and a technical representative from IALA, led by Cathy Tunks, are to carry out a visit to the Republic of Sierra Leone (RoSL) to discuss issues of mutual interest in the fields of Maritime Safety Information (MSI) and hydrography.

Preparation

2. The members of the Team, under the guidance of the leader and with the assistance of the staffs of the British Embassy, Freetown are to plan the Team visit having obtained access to material available from the IHO Secretariat and the information supplied by Sierra Leone Maritime Administration (SLMA).

Work Objectives

3. The Team is to:
 - a. Obtain access to decision making levels of government and liaise with senior officials, emphasizing the importance of marine safety information and hydrography to the coastal State and, hence, the need to include hydrographic and associated charting activities within National Plans.
 - b. Assess the National capacities to plan and execute the collection and rendering of hydrographic data to enable the production of charts and publications both locally and through the supply of data to Hydrographic Offices with international chart folios.
 - c. Consider and advise on measures which can be taken to improve the capacity of nations to carry out the above.
 - d. Emphasize the basic importance of a national system for the collection of data, such as engineering drawings and local Notices to Mariners, which have an effect on the interests of mariners.
 - e. Advise on the assistance to be gained from close liaison with the IHO Secretariat, IMO and funding agencies to enable viable and sustainable capability to be maintained.

Report

4. A Report on the activities and recommendations of the Team is to be submitted to the Chair of the RHC.

Annex B - Last Technical Visit Report – December 2002

ANNEX J TO EA_tHC WEST AFRICA ACTION TEAM REPORT DECEMBER 2002

COUNTRY REPORT: SIERRA LEONE

INTRODUCTION.

1. International. Sierra Leone is not a member of IHO, nor associate member of the EA_tHC, and has not participated as observer to meetings of this regional hydrographic commission. Sierra Leone is a member of MOWCA and of PMAWCA (via Sierra Leone Ports Authority, which is subordinate to the Minister of Transport).
2. Sierra Leone is not a member of IALA, or signatory to the SAR convention, but has acceded to SOLAS and to UNCLOS.
3. Preliminary Liaison. The visit of the WAAT was prepared by the British Defence Advisor (Lt Col Poraj-Wilczynski) in close liaison with the Harbour Master, Captain Sawyerr, at Sierra Leone Ports Authority in Freetown.
4. Points of Contact. Up-dates to the IHO Yearbook:
 - a. Sierra Leone is still in the process of setting up a hydrographic service. The new Sierra Leone Maritime Administration (SLMA), created in June 2000, has overall responsibility for maritime safety matters. Executive Director: Mr Philip LUKULEY, PO Box 313, Maritime House, Government Wharf Ferry Terminal, Freetown, Sierra Leone. +232 22 221 211
 - b. Sierra Leone Ports Authority (SLPA) is responsible for the management and operation of all ports in Sierra Leone – PMB 386, Cline Town, Freetown. Relevant contacts are: Captain P E M KEMOKAI, General Manager, +232 22 250 989
Captain R R SAWYERR, Harbour Master, + 232 22 220 537

DESCRIPTION OF MARITIME ACTIVITIES.

5. National Maritime Affairs. Sierra Leone has suffered greatly from the effects of prolonged civil war. The recent return to peace is providing the first opportunity for more than 10 years to rebuild commercial and administrative structures with significant assistance from international donors. Freetown, the capital city, major port and key entry and exit point for Sierra Leone, is in the process of repairing war damage, improving port facilities and restoring aids to navigation. The mineral export ports of Pepel and Niti are both dormant at the moment and not open to safe navigation. In coastal waters there is a variety of fishing and transport activity which is affected by the threat of pirates who have been operating with increasing boldness, particularly to the north of Freetown. Further offshore there is industrial fishing activity, and a number of exploration blocks have been sold for international oil companies to search for economic reserves of oil and gas. It was noted that maritime boundaries with neighbouring states have yet to be formally agreed under the terms of UNCLOS.
6. Trade and Maritime Traffic. Imports and exports through Freetown have expanded rapidly in the last 3 years. Imports support national redevelopment programmes and include general cargo, containers, cement and cars. Exports are dominated by agricultural products, especially cocoa. Sierra Leone relies entirely on imported oil products and Kissy Jetty in Freetown is the only oil terminal in the country – ships up to 40,000 tons are berthed here once a week on average.
7. Through Routes and Transshipment. Neither of these activities are particularly significant at

the moment. Port traffic is mainly serving the domestic needs of the nation.

8. Feeder, Coasting and Local Trade. Coastal and local trade is limited and concerns freight and passenger traffic within Sierra Leone and a little further beyond, with Guinea and Gambia in particular. An important passenger service runs across the harbour between Freetown and Tagrin Point, connecting the city with Lungi international airport.
9. Tourism - Cruise Liners. No cruise liners visit Sierra Leone, although there is great potential for attracting tourists to the local beaches and other locations in the country.
10. Tourism - Small Craft. There are no facilities for small leisure craft.
11. Fisheries. National fishermen conduct artisanal fishing from many locations along the coast. There are a small number of national industrial fishing vessels and many more foreign flagged vessels have licenses to fish in Sierra Leone waters. 30% of the catches are landed in Sierra Leone; the remainder are transferred to factory ships at sea. The Ministry of Fisheries and Marine Resources mentioned the problem of piracy for unprotected fishing vessels, as well as the problem of policing the offshore areas where catches of some species (particularly tuna) were difficult to monitor.
12. Responsibility for Safety of Navigation. The SLMA has responsibility for safety of navigation in all of Sierra Leone's waters. This includes responsibility for all lights, floating navigational marks and acting as the receiver of wrecks. The SLPA provides for safe navigation within the confines of the port limits, by maintaining adequate depths at berths and ensuring dangers to navigation are promulgated to mariners.
13. Defence Force Responsibilities. The Navy is not directly involved in hydrographic matters, but could make a contribution by reporting information gathered during routine patrols of the coastal waters. Although severely limited by fuel restrictions, the Navy is responsible for conducting counter-piracy patrols, counter-trafficking, fishery patrols and assisting with SAR operations. A recent SAR incident was reported in which the Navy had been successfully involved with saving 150 lives from a stricken vessel.
14. Coastal Zone Management and Environmental Protection. The WAAT was unable to discuss what, if any, national planning there was in regards to managing the coastal zone and protecting the marine environment, particularly from the threat of pollution. There is a limited amount of equipment in Freetown to contain oil spills at Kissy terminal.
15. Joint Maritime Capability (JMC). This group includes the Armed Forces of Sierra Leone, Customs, SLPA and SLMA. It has been set up to coordinate activity by all national agencies that are working to improve maritime safety and security, and particularly to counter the problem of criminal activity at sea.

CAPACITY ANALYSIS.

16. Status of surveys within the National Maritime Zone. Charts of Sierra Leone's waters are published by UKHO. Most of the source data was collected during surveys in the 19th century, with some coastal surveys being conducted in the early part of the 20th century. No systematic surveys have been carried out in the offshore zone. Modern survey data is very sparse, however HMS BEAGLE carried out a survey of Freetown harbour in 2001 and the results are expected to be reflected in new editions of the charts affected in early 2003.
17. Freetown was last dredged over 10 years ago and several of the berths are now suffering the effects of siltation, which in turn is limiting the shipping capacity of the port. It was evident that there were other changes to the charted bathymetry, including the southwards migration of

the shoal areas of Middle Ground Bank on the northern side of Freetown Harbour. Many uncharted wrecks can be seen in the bays around Freetown, and it was said that many others exist elsewhere. During the period of civil war there was no maintenance of the aids to navigation in the country. All buoys in the approaches to Freetown went missing and have yet to be replaced, including the important fairway buoy at the entrance to the port. Likewise the lighthouses were neglected and Cape Sierra Light is still defective, although a temporary light does function.

18. This means that Sierra Leone has many survey requirements, but the most pressing priority is to ensure that Freetown is adequately surveyed, with aids to navigation replaced or restored, in order to make the port safe to enter and capable of taking the ships needed to support the economic recovery of the country. Fortunately, these priority requirements are in the process of being addressed with the assistance of funding from the World Bank.
19. Collection and Circulation of Nautical Information. The SPLA Harbour Master collects local information affecting navigational safety and this is circulated by local notices to mariners, by the pilots or by VHF radio to ships arriving. This organization does not extend beyond the port limits, and there is no national system that covers the whole maritime area. The SLMA is already addressing the problem (with the help of a consultancy study) of how best to disseminate MSI.
20. SAR and GMDSS. The SLMA, with assistance from the IMO, has plans to set up a Rescue Co-ordination Centre in Freetown – possibly in the same building as the SLMA office. Practical experience has shown there are problems communicating with ships at sea (who do not always monitor the correct maritime safety frequencies) and problems of communication between naval units and helicopters (that are not necessarily fitted with appropriate maritime frequencies). Regarding GMDSS, Sierra Leone does not broadcast MSI on NAVTEXT or SafetyNET; hence ships in waters off Sierra Leone only receive information if and when they enter port.
21. Survey Capability. There is no qualified hydrographic surveyor and no specialised surveying equipment between all the authorities responsible for maritime safety. SLPA have just received a new tug boat (13m) which is an ideal survey platform within the harbour, and another new vessel (26m) is being purchased in the near future. The need, therefore, is for trained surveyors and some additional specialist equipment in order to build up a surveying capability. This will take time to achieve and in the short term commercial contract surveys will be needed to support activities such as restoring the buoyage, surveying the wrecks and dredging the berths in Freetown.
22. Independent Chart Production Capability. There is no capacity for producing nautical charts.

PROPOSALS FOR CO-ORDINATION AND CAPABILITY BUILDING.

23. National Hydrographic Strategy. The importance of hydrography and the need to coordinate national effort in this area was well understood, particularly by the Secretary to the President, the SLMA, the Navy and SLPA, as well as the World Bank Coordinator for the Transport Sector Projects. It was felt that a National Hydrographic Committee was not necessarily needed given that hydrography was already being given proper consideration in National Development Plans. It is clear that funding has been set aside for a number of key projects that will make significant improvements to safety of navigation in Freetown. The WAAT was able to assist with identifying the need for training and equipping a hydrographic unit at SPLA which will hopefully develop into a national capability over time so that Sierra Leone can undertake hydrographic projects beyond the port limits. It was also suggested that hydrography could be a topic for discussion between all the key stakeholders within the forum of the JMC. The WAAT provided terms of reference for a maritime safety committee which might prove useful in this regard.

24. MSI Organisation and GMDSS. Within GMDSS several technical means are used for passing MSI to mariners. For ocean-going ships, the navigational warnings should be made available on INMARSAT (SafetyNET) via the NAVAREA II coordinator: although it was noted that no input has been received from Sierra Leone. For ships sailing off Sierra Leone or approaching harbour, NAVTEX should be the optimum solution; but this infrastructure does not exist at the moment. However, since the concerned ships are part of international shipping, they will have INMARSAT facilities onboard, hence the same information could be passed on SafetyNET via the NAVAREA II co-ordinator. This requires the MSI to be made available to the NAVAREA coordinator by telephone/fax/e-mail. This solution was discussed with both SLPA and SLMA. It was proposed that Sierra Leone should designate the focal point for information collection and assessment that is permanently manned (SPLA to begin with and possibly the SLMA jointly manned 'Ops Room' in the future), and then establish a link with the NAVAREA II coordinator to discuss the manner in which information is to be passed.
25. UKHO will continue to issue new edition charts and Notice to Mariner corrections (NtMs) on receipt of information from Sierra Leone. The WAAT visit provided the opportunity to strengthen the link between UKHO and local authorities in Sierra Leone and emphasised the need to keep UKHO informed of any changes affecting charts and nautical publications (List of Lights, Sailing Directions, etc). These publications will continue to be published and maintained by UKHO.
26. Hydrographic Capability. At present there are no trained personnel and no specialized hydrographic equipment within the country. However, SPLA does have a modern workboat that could easily be used to embark portable surveying equipment when needed.
27. Regional Activity. Regional activity could be easily prepared under the auspices of IHO (EAtHC), where technical matters, training, and implementation of GMDSS are discussed and promoted. For hydrographic surveys, such a regional cooperation does not seem a priority at the moment since the most important work needs to be carried out in harbours or inshore shallow water areas. For MSI, a regional solution for a shared NAVTEX station with neighbouring countries is necessary (the range of HF makes it possible to cover the waters of several countries with one station). At the IMO Florence Conference (2000) on SAR and GMDSS, Sierra Leone was placed in the regional sub-grouping with Liberia (coordinator), Guinea, Cote d'Ivoire and Ghana. Further progress on these topics should be taken forward in close liaison with these countries and the IMO.

PROPOSALS FOR ASSISTANCE.

28. Training. The WAAT proposed that two suitable candidates are identified for training on a Category B hydrographic course at the first opportunity, hopefully as soon as early 2003. It would be most important to ensure that these individuals were assured employment as hydrographic surveyors on their return to Sierra Leone. Posts would have to be created, probably at SPLA, within the organisation of the Harbour Master – although this would be subject to discussion between the interested parties.
29. Equipment. A range of portable equipment will be needed to provide a basic hydrographic capability that will enable accurate positioning and recording of depths onboard the new harbour vessel as well as post-processing and plotting of data ashore. A detailed list of equipment was provided by the WAAT shortly after the visit. The list included separate costs for sidescan sonar that could be purchased at a later date if an improved capability was desired. Purchase of the equipment should be timed to coincide with the end of the overseas training period.
30. Funding. Training costs for two persons were estimated to be \$32,000 (tuition) and \$30,000 (living expenses). Equipment costs were estimated to be \$53,000 (basic package) and an

additional \$120,000 (for side scan sonar package – not essential at this stage). The World Bank TSP Coordinator (Dr Mustapha) has been provided with these details and intimated that funds to cover the proposals for training and basic equipment could probably be identified from within the current budget allocated to maritime projects.

FOLLOW UP ACTIONS.

31. Formation of a NHC and Development of a National Hydrographic Strategy.

- a. The formation of a National Hydrographic Committee (NHC) or National Maritime Safety Committee (NMSC) has been proposed and has received general agreement, notably by the Secretary to the President. Coordination of hydrographic matters might also take place within the JMC group.

Action: Sierra Leone

- b. A National Hydrographic Strategy should be formulated within the context of the NHC or NMSC. The first priority should be to improve safety of navigation for ships using Freetown with the aid of consultancy services and commercial companies. At the same time a plan should be adopted to introduce a national hydrographic capability based on the training and equipment packages mentioned above. Further advice can be found in IHO publication M2 (provided by the WAAT) or sought from the IHB and RHC members.

Action: Sierra Leone, IHB and RHC members

32. Provision of Hydrographic Services in accordance with SOLAS. UK can continue to issue nautical publications, charts and up-dates, on behalf of Sierra Leone. Sierra Leone should implement an organisation for the collection and dissemination of nautical information, to ensure that MSI is provided to mariners by the best means available (using SafetyNET when appropriate). Initial survey work by commercial companies to improve navigational safety in Freetown can be followed by the build up of a national capacity to carry out hydrographic work. The improved provision of MSI and a growing capacity to conduct surveys according to local priorities will greatly support the safety of navigation in Sierra Leonean waters.

Action: Sierra Leone & UKHO

33. Encouragement of effective and timely collection and promulgation of Hydrographic Information.

- a. It is urgent to report existing known dangers to navigation – particularly the positions of wrecks when they occur. The results of recent and forthcoming surveys of wrecks and any other hydrographic works in Freetown should be forwarded to UKHO for appropriate charting action.

Action: Sierra Leone & UKHO

- b. An organization for the collection and dissemination of Maritime Safety Information needs to be instituted as soon as possible, with a link being established with the NAVAREA II co-ordinator at EPSHOM, Brest, for the distribution of urgent MSI on INMARSAT SafetyNET. All maritime agencies should be involved in providing information, and the focal point needs to have a permanent on-watch facility.

Action: Sierra Leone & EPSHOM

- c. Recent surveys by HMS BEAGLE will provide modern hydrographic data in the approaches to Freetown. New Editions of the British Admiralty chart will be published in early 2003.

Action: UKHO

34. Encouragement of Development of Hydrographic Capability.

- a. Select and commission two suitable candidates for training on a Category B hydrographic course as soon as possible. Plan for their future employment in a new national hydrographic unit. Further advice on training courses can be provided by the

IHB and RHC members.

Action: Sierra Leone, IHB & RHC members

- b. Identify a package of portable equipment to provide a basic hydrographic capability for use by surveyors on return from their training period. Further advice can be provided from the IBH and RHC members.

Action: Sierra Leone, IHB & RHC members

Annex C – Preliminary Information Questionnaire

Technical Visit to: Sierra Leone

INTRODUCTION

The purpose of an IHO assessment visit is to consider the status of hydrographic services in the country and advise on how the situation can best be improved so the State can meet its international obligations for hydrography and at the same time contribute to safety of life at sea and protection of the marine environment as well as providing long-term improvements in national infrastructure and economic wealth.

The International Convention on the Safety of Life at Sea (SOLAS) places an obligation under international treaty law for all signatory nations, which includes Sierra Leone, to ensure that appropriate hydrographic services are provided. This means that the government of Sierra Leone is responsible for ensuring that:

- Maritime Safety Information (MSI) is promulgated,
- Hydrographic Surveys are carried out.
- Nautical Charts and other Nautical Publications are prepared and available,
- Nautical Charts and other Nautical Publications are kept up to date,

The United Nations Convention on the Law of the Sea (UNCLOS) and various Resolutions of the UN General Assembly also recognize the importance of hydrography and commit Member States of the UN to recognize their responsibilities for hydrography.

For further information, consult IHO Publication M-2 - *The need for national hydrographic services*, freely available from the Download section of the IHO website (www.iho.int).

Technical Visit to: Sierra Leone

QUESTIONNAIRE

To assist in making the technical assessment visit successful, please return the following information to:

Head of Delegation: *Mr Nathanael Knapp – UK Hydrographic Office / Head of Partnering and Engagement, East Atlantic and the Caribbean*

Email: nathanael.knapp@ukho.gov.uk

Telephone: +44 1823 483553

Mobile: 07435 545769

Assistant of Delegation: *Ms Cathy Tunks – UK Hydrographic Office / Geographical and Technical Lead*

Email: cathy.tunks@ukho.gov.uk

Telephone: +44 1823 483956

Assistant of Delegation: *Ms Lucy Fieldhouse – UK Hydrographic Office / International Capacity Building Manager*

Email: lucy.fieldhouse@ukho.gov.uk

Telephone: +44 1823 483335

If an answer is not known please insert "NK"

If the question is not applicable, please insert "NA"

1. Details of the Respondent

- Title or rank: [\[Director, Maritime Safety & Security\]](#)
- Name: [\[Ibrahim Wurie\]](#)
- Organization: [\[Sierra Leone Maritime Administration\]](#)
- Geographical Address: Latitude [\[08° 29.26'\]](#), Longitude: [\[013° 14.10'\]](#)
- Postal Address: [\[Maritime House, Government Wharf, Freetown\]](#)
- Email: [\[wu1078@yahoo.co.uk\]](#)
- Other contact information [\[+23276312315\]](#)

2. Existing Capability

Are the following hydrographic services provided for your country at present (YES/NO/NK)?

If YES, indicate which organization (or third country) is responsible for the service. If the service is provided through a third country, indicate if the responsibilities are defined in a formal agreement and provide the relevant references if possible.

- Maritime Safety Information (MSI)? **NO**
- Nautical paper charts? **NO**
- Electronic Navigational Charts (ENC)? **NO**
- Tide Tables? **Yes – UKHO**
- Tides/water level measurement? **NO**
- Hydrographic Surveys? **NO**
- Topography Mapping / Cadastral - **NK**
- Topographic Surveys - **NK**
- Inland Waterways **NO**

What do you suggest improving the situation (will then be discussed during the visit)?

3. Which (if any) departments in your country have personnel with competencies in:

- hydrographic surveying - **NO**
- nautical charting - **NO**
- geospatial data management - **NK**
- tides /water level measurement – **Republic of SL Armed Forces – Maritime Wing, SL Ports Authority, SL Maritime Administration**
- topographic surveying and mapping – **SL Geological Surveys, University of SL Geography Dept.**
- digital elevation modeling - **NK**
- aerial and/or satellite image processing and mapping - **NO**

4. For each category available in your country, what is the general level of skill of the staff, including qualifications and training history?

– **Geologists, Cartographers, Navigators and Marine Engineers**

What do you suggest improving the situation?

– Provision for capacity building through specialized training programmes and courses

5. Is there any equipment/platform (such as ship or aircraft) available in your country for:

- promulgation of Maritime Safety Information (MSI)? – [Joint Maritime Committee Operations Centre](#)
- hydrographic surveying? **NO**
- nautical cartography? **NO**
- tidal observations? [Republic of SL Armed Forces – Maritime Wing, SL Ports Authority, SL Maritime Administration](#)

What do you suggest improving the situation?

If applicable and possible, provide details of equipment and software, for example. ships or vessels, echo-sounders; DGPS stations; tide gauges; data acquisition, processing and management software; cartographic / topographic workstations; GIS tools; etc. – [All of the foregoing in addition to addressing the human element to support operations](#)

6. Existing Programmes

Is there any awareness at the national level of the status of hydrographic surveys and nautical charting as assessed in IHO Publication C-55? **No**
(http://www.iho.int/iho_pubs/CB/C-55/index.html)

Are there any national plans in place for developing hydrography and/or management of the coastal zone? [Yes there are plans as, it is part of Sierra Leone’s Coastal State obligations to ensure the needful is done regarding hydrography and coastal zone management.](#)

What do you suggest improving the situation? [The Sierra Leone Maritime Administration in collaboration with other national stakeholders; to allocate resources or source funding from development partners for the implementation of the State’s obligations consistent with the dictates of the III Code, of the International Maritime Organization.](#)

7. International Cooperation

Are there any bilateral or regional arrangements in place to assist in the provision of national hydrographic services? [No, only that the UKHO over the years provide support to the Government of Sierra Leone in the form of producing and updating nautical charts and publications](#)

What do you suggest improving the situation? [The State formalizing existing agreements if any, or establishing a formal agreement with the UKHO through the UK Government, for the provision of national hydrographic services.](#)

8. Institutional Framework

Who are the mapping and research agencies that you think should be involved in the establishment or improvement of hydrographic capacity in your country (provide addresses, points of contact, phone, fax, e-mail)?

- 1) [Sierra Leone Maritime Administration \(SLMA\)](#)
[Maritime House, Government Wharf, Freetown, Sierra Leone](#)
[Ibrahim Wurie – Director maritime Safety & Security](#)

wu1078@yahoo.co.uk;

Tele Nr. +23276312315

2) Sierra Leone Ports Authority (SLPA)

Queen Elizabeth II Quay, Cline Town, Freetown, Sierra Leone

Capt. Alpha Y. Bangura

Harbour Master – SLPA

alpha_yayah@yahoo.com

Tele Nr. +23279066491

3) Cdr. Abdul K Dumbuya

Republic of SL, Armed Forces – Marine Wing, Murray Town, Freetown, Sierra Leone

Head of Operations

Joint Maritime Committee

akdumbs905@gmail.com;

9. In your country, what are the organizational and administrative structures that look after:

- maritime transport? – **Ministry of Transport & Aviation (MoTA) and the SLMA**
- inland waterborne transport? **Ministry of Transport & Aviation (MoTA) and the SLMA**
- mapping? **UKHO**
- national development and infrastructure? **Ministry of Planning & Economic Development, Ministry of Works**
- prevention of marine disasters (storms, coastal floods, etc.)? **SLMA, Office of Disaster Management, Office of National Security (ONS)**
- representation at the International Maritime Organization (IMO)? - **SLMA**
- representation at the Intergovernmental Oceanographic Commission (IOC)? **Institute of Marine Biology and Oceanography, Fourah Bay College, University of Sierra Leone**
- representation at the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) - **SLMA**

10. In your country, what are the ministries and other national authorities / administrations / institutions potentially concerned with the provision and use of hydrographic services (provide designation, address, phone, fax, e-mail)?

1) **Ministry of Defense – C/o Cdr. Abdul K Dumbuya - details in Rubric 8;**

2) **Ministry of Transport & Aviation – Transport and Infrastructure Department Unit,
7th Floor Youyi Building, Brookfields, Freetown,
Director Hindolo M. Shiaka - +23279000777, kingslandsl@yahoo.com;**

3) **Director of Fisheries & Marine Resources
7th Floor Youyi Building, Brookfields, Freetown,
Josephus Mamie - +23278162969;**

4) **Sierra Leone Maritime Administration – Ibrahim Wurie
Director of Maritime Safety & Security
Other details – same as first written**

5) **Sierra Leone Ports Authority (SLPA)
Queen Elizabeth II Quay, Cline Town, Freetown, Sierra Leone
Capt. Alpha Y. Bangura
Harbour Master – SLPA**

Other details – same as first written

- 11) What do you think is the level of awareness and priority in government and at the higher levels of the administration regarding the importance and value of hydrography to the country?

Government of Sierra Leone (GoSL) is fully aware of its obligations to provide hydrographic services; consistent with the dictates of the IMO's III Code on Coastal State responsibilities; only that the provision of such services is capital intensive and the Government is currently not having sufficient resources to delivery such projects. GoSL rates the importance and value as very high for the foregoing reasons in addition to the socio-economic impact affecting freight rates due to the lack of hydrographic services.

What do you suggest improving the situation?

International development partners to provide support both in capacity building in the form of training and logistics, to GoSL through the relevant Ministries, Departments and Agencies (MDAs) for the implementation of a project that will provide for hydrographic services on a nationwide scope.

- 12) Please describe the nature of any interagency cooperation with regard to hydrography, as you understand it.

GoSL adopting a whole-of-government approach by pooling logistical and human resources of (MDAs); to support the provision and management of hydrographic services on a nationwide scope to include Sierra Leone's inland waterways. Leveraging the comparative strengths of MDAs within to complement possible interventions from international development partners.

What do you suggest improving the situation?

Information sharing and effective collaboration might just yield the desired result with intervention from international development partners.

- 13) In your opinion, who should be, or is, designated by the government as responsible for the proper provision of hydrographic service in your country (position, address, phone, fax, e-mail)?

The Sierra Leone Maritime Administration is the delegated authority for the provision of hydrographic services. See contact below:

Mr. Sama Ansu Gamanga
Ag. Executive Director
Sierra Leone Maritime Administration
Maritime House
Government Wharf

Freetown

Tele Nr. +23276363942

Email: eesgamanga@gmail.com

Annex D - Preliminary Agenda

Based on the objectives of the visit, each member covered their area of expertise and as meetings progressed any opportunities were taken to expand on information gathering.

Cathy

To outline the purpose of a IHO Technical Assessment Visit (TAV)

A IHO Technical Assessment Visit (TAV) considers how a Nation State meets its international SOLAS obligations in respect of hydrography and hydrographic services. It will also seek to identify opportunities for the Republic of Sierra Leone to further develop in this sphere to support its national infrastructure and economic wealth.

- Any high-level coordinating bodies and their awareness of hydrography
- The existence of a National Hydrographic Committee
- The provision of MSI (Navigational Warnings, local warnings and Notices to Mariners)
- The status of the existing survey data within the territorial sea and EEZ
- The collection and circulation of nautical information with respect to charting responsibility
- Local hydrographic survey capability
- Opportunities to provide assistance with training, equipment and funding

To outline the Aims & Objectives

- To provide an overview of regional IHO activity including Capacity Building initiatives.
- To provide an understanding of the wider benefits of hydrography
- To hold discussions on hydrographic matters with potential stakeholders
- To identify opportunities for collaboration between stakeholders
- To understand future ambitions and next steps

David

To discuss the importance of hydrographic surveys and surveying

- the need for a full Risk Assessment
- determine any local hydrographic survey capability
- discover any modern survey data held within the various Ministries

Gerardine

To define IALA

- purpose
- aims
- objectives of visit

Nathanael

To introduce UKHO as PCA for Sierra Leone

- what PCA means
- charting including ENCs
- Publications
- Arrangement for Cooperation

Annex E - Summary of Events for the Visit to Republic of Sierra Leone

Day	Time	Meeting
Tuesday 31 January	14:00	VTC UKHO – IALA pre meet to discuss how to conduct the visit and potential issues. <i>Cathy Tunks (CT), Nathanael Knapp (NK), Gerardine Delanoye (GD)</i>
Friday 2 February	15:00	UKHO Team final meeting before departure to RoSL <i>Cathy Tunks, David Parker (DP), Nathanael Knapp</i>
Sunday 12 February	20:00	RHC Technical Visit Team planning meeting at Country Lodge Hotel <i>Cathy Tunks (Geographical Technical Lead – UKHO)</i> <i>David Parker (Hydrographic Surveyor – UKHO)</i> <i>Nathanael Knapp (Head of Partnering & Engagement - UKHO)</i> <i>Gerardine Delanoye (Capacity Building & Resources Manager, IALA)</i> (CT provided each member with a matrix for data gathering requirements) <i>Ibrahim Wurie (SLMA Director Maritime Safety and Security Department)</i>
Monday 13 February	09:00	Ministry of Transport and Aviation – <i>Brookfields</i> <i>Deputy Minister - Rex Bhonapha</i> <i>Courtesy Call, introduction to IHO and purpose of visit</i>
	11:00	Joint Maritime Committee Steering Group – <i>Tower Hill</i> <i>National Security Coordinator - Abdulai Caulker</i> <i>Courtesy Call, introduction to IHO and purpose of visit</i>
	13:00	Lunch
	15:00	Sierra Leone Maritime Administration – <i>Government Wharf</i> <i>SLMA Executive Director - Paul Massaquoi</i> <i>SLMA Deputy Executive Director – Sama Ansu Gamanga</i>
Tuesday 14 February	09:00	Sierra Leone Ports Authority – <i>Cline Town</i> <i>General Manager - Dr Abdulai Fofana</i> <i>Harbour Master - Captain Alpha Yahah Bangura</i>
	11:00	Ministry of Fisheries and Marine Resources – <i>Brookfields</i> <i>Minister - Hon. Emma Kowa</i> <i>Deputy Minister – Hon. Ibrahim Turay</i> <i>The Permanent Secretary - Elizabeth H. Ellie</i> <i>Courtesy Call , introduction to IHO and purpose of visit</i>
	12:00	Sierra Leone Navy (Maritime Wing) – <i>Murray Town</i> <i>Commander of the Sierra Leone Navy - Commodore Philip Juana</i> Joint Maritime Committee’s Joint Operations Centre <i>Sierra Leone Navy - Commander Abdul Karim Dumbuya</i>
	13:30	Lunch
		Sierra Leone Maritime Administration – <i>Government Wharf</i> <i>Ibrahim Wurie (SLMA Director Maritime Safety and Security Department)</i>

Wednesday 15 February	09:30	Geography Department and Institute of Marine Biology and Oceanography (IMBO) Fourah Bay College (FBC), <i>Mount Aureol</i>
	11:00	All Petroleum Product (APP) Facility and Oryx Energies' Petrojetty Facility, Kissy
	13:30	Lunch
	19:00	SLMA hosted dinner
Thursday 16 February	09:30	Geological Dept. Minerals Agency – <i>New England</i> <i>Director of Mines - Peter Kapr Bangura</i> <i>Marine Draft Survey Manager - Lamin Kamara</i>
	10:00	Min. of Planning and Economic Development – <i>Tower Hill</i> <i>Deputy Minister - Jonathan Titus-Williams</i> <i>Courtesy Call, introduction to IHO and purpose of visit</i> <i>Peter Sam-Kpakra Development Secretary</i> <i>Bai M. Thuray Deputy Development Secretary I</i> <i>Tamba Juana Deputy Development Secretary II</i>
	11:00	UKHO Charting and bilateral meetings with SLMA <i>Ibrahim Wurie (SLMA Director Maritime Safety and Security Department)</i>
	13:30	Lunch
		UKHO Charting and bilateral meetings with SLMA <i>Ibrahim Wurie (SLMA Director Maritime Safety and Security Department)</i>
	15:00	UKHO team departed



IHO delegation pays courtesy call on transport minister

IHO delegation pays courtesy call on RSLAF - Maritime Wing



Annex F - List of Primary Contacts

Office of the President Office of National Security	National Security Coordinator	Abdulai Caulker	Nscoord @ons.gov.sl Scaulker2018@gmail.com abdulaicaulker@yahoo.com	ONS Headquarters, Tower Hill, Freetown
Ministry of Fisheries & Marine Resources	Minister	Hon. Emma Kowa (Mrs)	Emma_kowa@yahoo.com	7 th Floor (West Wing), Youyi Building, Brookfields, Freetown
Ministry of Fisheries & Marine Resources	Deputy Minister	Ibrahim Turay	Turay.ib1264@yahoo.com	7 th Floor (West Wing), Youyi Building, Brookfields, Freetown
Ministry of Planning and Economic Development	Deputy Minister	Jonathan Titus-Williams (Rev. Dr)	jtwilliams@gmail.com	NAO Building, OAU Drive, Tower Hill, Freetown
Ministry of Transport and Aviation	Deputy Minister	Rex Bhonapha	rexbhonapha@gmail.com	
National Minerals Agency	Director of Mines	Peter Kapr Bangura	pbangura@nma.gov.sl www.nma.gov.sl	NMA Head Office New England Ville Freetown
National Minerals Agency	Marine Draft Survey Manager	Lamin Kamara	lkamara@nma.gov.sl	NMA Head Office, New England Ville, Freetown
Sierra Leone Maritime Administration	Executive Director	Paul S. Massaquoi	mstpaul@live.co.uk	Maritime House, Government Wharf, P.O. Box 313, Freetown
Sierra Leone Maritime Administration	Director Maritime Safety & Security Department	Ibrahim L H Wurie	wu1078@yahoo.co.uk	Maritime House, Government Wharf, P.O. Box 313, Freetown
Sierra Leone Maritime Administration	Chairman, Board of Directors	Alhaji Umaru B. Dumbuya	Ubdumbuya077@gmail.com	Maritime House, Government Wharf, P.O. Box 313, Freetown

Sierra Leone Ports Authority	Harbour Master	Captain Alpha Yayah Bangura	Alpha_yayah@yahoo.com	Queen Elizabeth II Quay, Cline Town, Freetown
Sierra Leone Navy	Commander of the Sierra Leone Navy	Commodore Philip Juana	philipjuana729@yahoo.com	Military Forces HQ, Murray Town Barracks, Freetown
Sierra Leone Navy	Sierra Leone Navy / JMC	Commander Abdul Karim Dumbuya	akdumbs905@gmail.com	Military Forces HQ, Murray Town Barracks, Freetown
Fourah Bay College, University of Sierra Leone	Dean of Pure and Applied Sciences Faculty	Dr Reynold Johnson	Treynold12001@yahoo.com	Fourah Bay College, University of Sierra Leone, Mount Aureol
Fourah Bay College, University of Sierra Leone	Assistant to Deputy Vice-Chancellor	Jinnah Samuel Momoh	Jinnah.momoh@usl.edu.sl Jinnahmomoh586@gmail.com	Fourah Bay College, University of Sierra Leone, Mount Aureol

Annex G - P-5 IHO Yearbook Entry Update

Sierra Leone / *Sierra Leone*

Country information / Informations sur le pays / Información sobre el país

Declared National Tonnage -Tonnage national déclaré -Tonelaje Nacional Declarado	2,500,000GT (Approx.)
National day -Fête nationale -Fiesta nacional	27 April
Remarks on membership -Remarques sur l'adhésion -Comentarios sobre la adhesión	Membership pending (application approved in September 2010)

SIERRA LEONE MARITIME ADMINISTRATION

Contact information / Informations de contact / Información de contacto

National Hydrographer or equivalent -Hydrographe national ou équivalent -Hidrógrafo Nacional o equivalente	Executive Director Mr. Paul Sobba Massaquoi Tel: +232 74009009 E-mail: mspaul@live.co.uk Agency address: Maritime House, Government Wharf , P.O. Box 313 FREETOWN, Sierra Leone
Other point(s) of contact -Autre(s) point(s) de contact -Otros punto(s) de contacto	Ibrahim Wurie Director of Maritime Safety and Security Sierra Leone Maritime Administration, Tel: +232 7631 2315 E-mail: wu1078@yahoo.com / ibrahim.wurie@maritime.gov.sl

Agency information / Information sur l'agence / Información sobre la agencia

Date of establishment -Date de mise en place -Fecha de constitución	22nd June, 2000
Relevant National Legislation -Législation nationale pertinente -Legislación nacional pertinente	Sierra Leone Maritime Act - 2000. Merchant Shipping Act – 2003 as amended
Top level parent organization -Organisme mère -Organización asociada de nivel superior	Sierra Leone Maritime Administration
Principal functions of the organization or the department -Attribution principales de l'organisme ou du département -Principales funciones de la Organización o el departamento	Maritime Safety and Security Marine Environment Protection
Annual operating budget -Budget annuel -presupuesto anual	2.2 million USD

Total number of staff employed -Effectifs totaux -Número total de personal empleado	200
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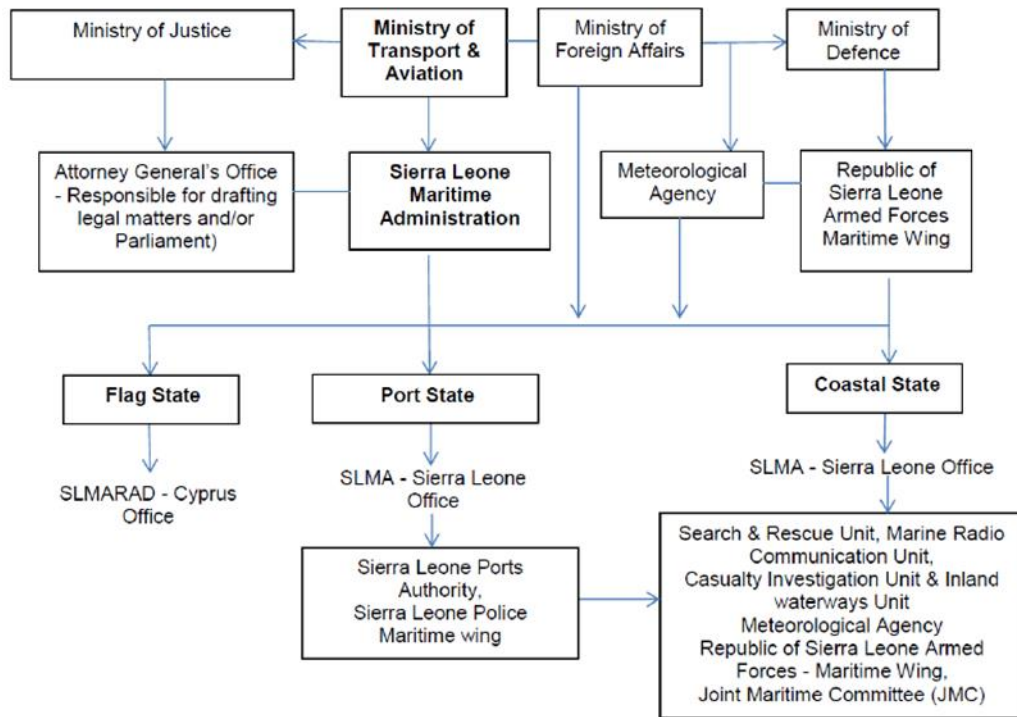
SIERRA LEONE PORTS AUTHORITY

Contact information / Informations de contact / Información de contacto

Other point(s) of contact -Autre(s) point(s) de contact -Otros punto(s) de contacto	<p>General Manager, Mr. Yankuba Askia BIO</p> <p>Agency address: Queen Elizabeth II Quay, Cline Town PMB 386, FREETOWN, Sierra Leone Tel: +232 76343733</p> <p>Harbour Master, Captain Alpha Y. BANGURA Tel: +232 79066491</p>
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Annex H - NHS Organization

STRUCTURE OF THE MARITIME ADMINISTRATION



Annex I – Republic of Sierra Leone Report to EAHC 17 (2022)

None presented and no delegates in attendance.

Annex J - Hydrographic Survey - Zone of Confidence Definitions

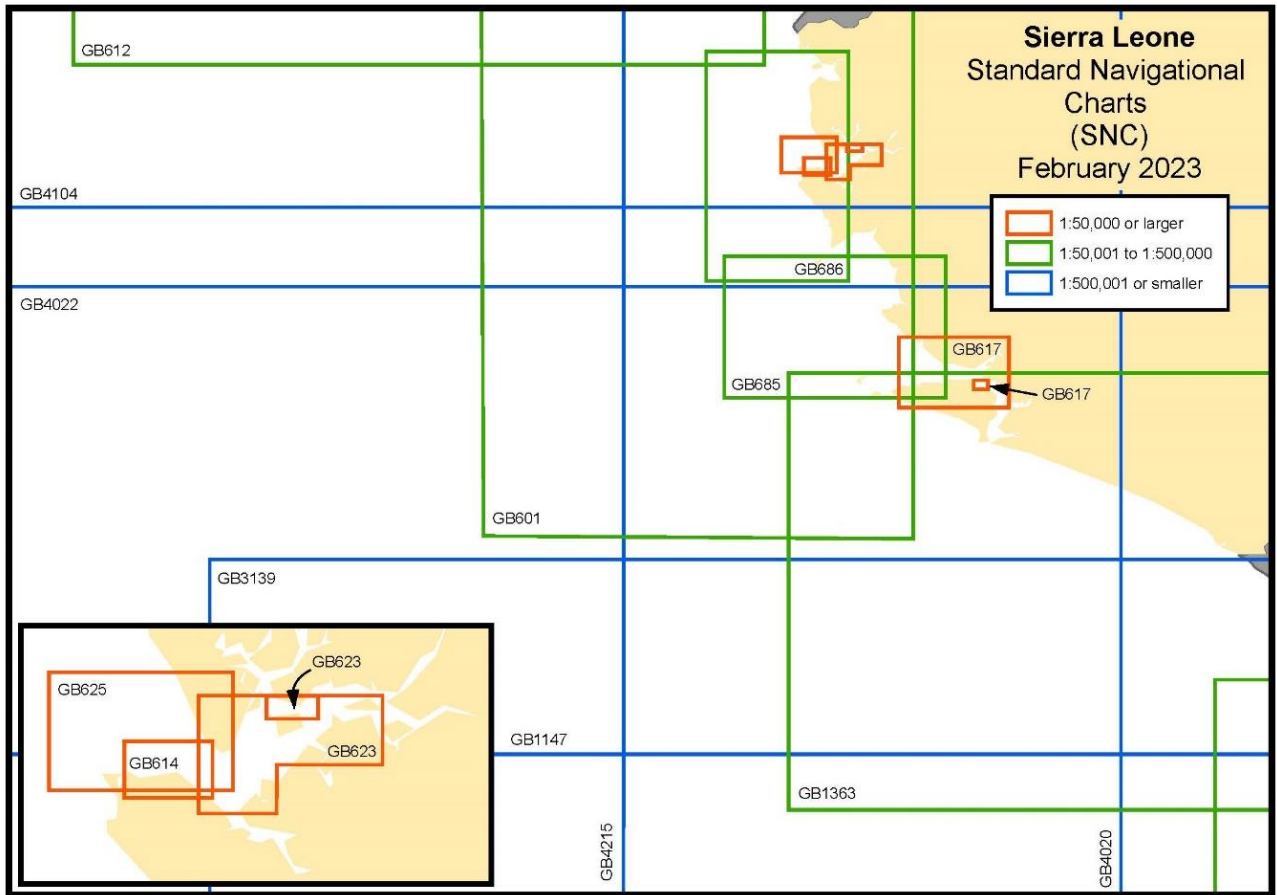
IHO Publication S-57 Supplement No.3 June 2014

ZOC Table:

1	2	3		4	5
ZOC ¹	Position Accuracy ²	Depth Accuracy ³		Seafloor Coverage	Typical Survey Characteristics ⁵
A1	± 5 m + 5% depth	=0.50 + 1%d		Full area search undertaken. Significant seafloor features detected ⁴ and depths measured.	Controlled, systematic survey ⁴ high position and depth accuracy achieved using DGPS or a minimum three high quality lines of position (LOP) and a multibeam, channel or mechanical sweep system.
		Depth (m)	Accuracy (m)		
		10	± 0.6		
		30	± 0.8		
		100	± 1.5		
		1000	± 10.5		
A2	± 20 m	= 1.00 + 2%d		Full area search undertaken. Significant seafloor features detected ⁴ and depths measured.	Controlled, systematic survey ⁶ achieving position and depth accuracy less than ZOC A1 and using a modern survey echosounder ⁷ and a sonar or mechanical sweep system.
		Depth (m)	Accuracy (m)		
		10	± 1.2		
		30	± 1.6		
		100	± 3.0		
		1000	± 21.0		
B	± 50 m	= 1.00 + 2%d		Full area search not achieved; uncharted features, hazardous to surface navigation are not expected but may exist.	Controlled, systematic survey achieving similar depth but lesser position accuracies than ZOCA2, using a modern survey echosounder ⁷ , but no sonar or mechanical sweep system.
		Depth (m)	Accuracy (m)		
		10	± 1.2		
		30	± 1.6		
		100	± 3.0		
		1000	± 21.0		
C	± 500 m	= 2.00 + 5%d		Full area search not achieved, depth anomalies may be expected.	Low accuracy survey or data collected on an opportunity basis such as soundings on passage.
		Depth (m)	Accuracy (m)		
		10	± 2.5		
		30	± 3.5		
		100	± 7.0		
		1000	± 52.0		
D	worse than ZOC C	Worse Than ZOC C		Full area search not achieved, large depth anomalies may be expected.	Poor quality data or data that cannot be quality assessed due to lack of information.
U	Unassessed - The quality of the bathymetric data has yet to be assessed				

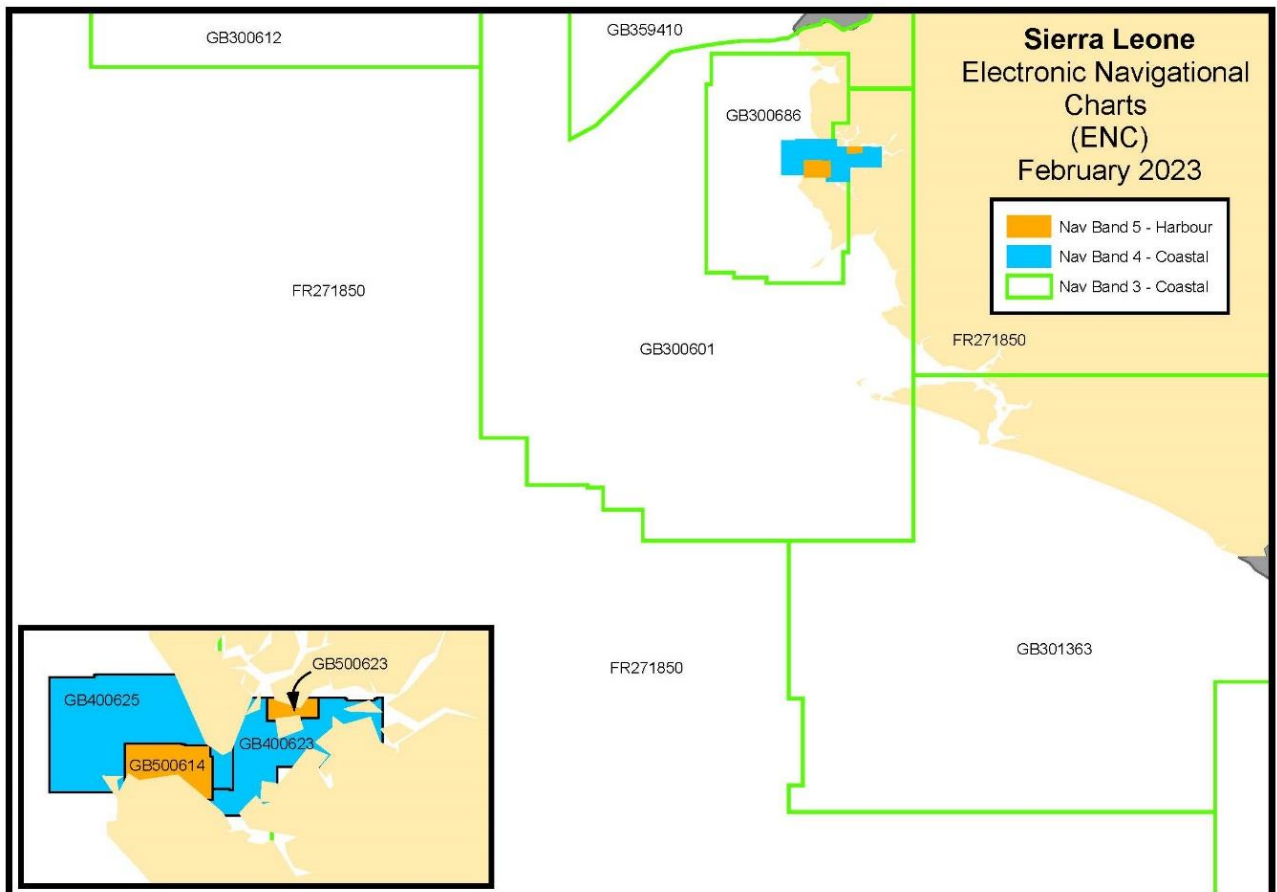
[https://iho.int/uploads/user/pubs/standards/s-57/S-57_e3.1_Supp3_Jun14_EN.pdf]

Annex K - PCA Chart and ENC Coverage



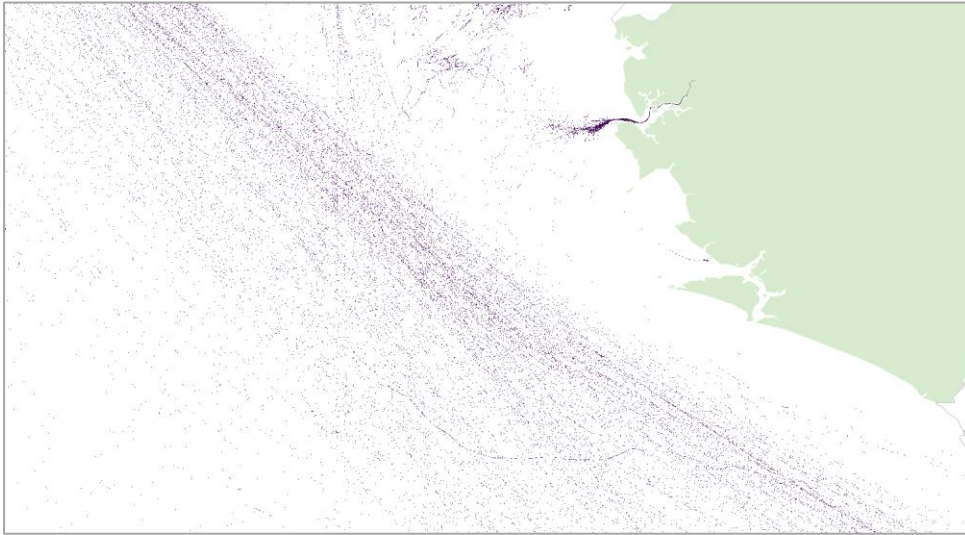
GB Chart No	INT No	Title	Scale	Published	Edition No	Published	WGS 84 Datum	Remarks
614		Freetown Harbour	12,000	02/12/1977	3	20/02/2003	Y	
623		Pepel	12,500	27/10/1978	4	18/08/2011	Y	
617		Yangisei Anchorage	25,000	16/08/1974			N	
625	2862	Entrance to Sierra Leone River	25,000	29/02/1980	4	11/04/2013	Y	
623		Tagrin Point to Pepel	25,000	27/10/1978	4	18/08/2011	Y	
617		Sherbro River	50,000	16/08/1974			N	
686		Yelibuya Sound to Banana Islands	100,000	27/11/1981	2	04/09/2003	Y	
685		Banana Islands to Turtle Islands	100,000	07/01/1977	3	23/01/2003	Y	
612	-	Port Kamsar to	300,000	06/12/1991			N	

GB Chart No	INT No	Title	Scale	Published	Edition No	Published	WGS 84 Datum	Remarks
		Conakry						
601		Conakry to Cape Saint Ann	300,000	01/09/1995	2	12/07/2012	Y	
1363		Cape Saint Ann to Monrovia	300,000	28/06/1991			Y	
3139	2086	Monrovia to Sassandra	1,000,000	08/04/1994			Y	Adoption of FR7186
1147	1085	Cabo Roxo to Monrovia	1,000,000	28/04/1995			Y	Adoption of FR7185
4104	104	Lisboa to Freetown	3,500,000	17/02/1978	8	24/06/2021	Y	Adoption of FR6624
4215	215	Recife to Dakar	3,500,000	14/12/1976	6	25/06/2020	Y	Adoption of BR19400
4022	22	South America to Africa	10,000,000	17/12/1982	6	16/04/2020	Y	Adoption of BR19002
4020	20	South Atlantic Ocean Western Part	10,000,000	17/12/1982	6	16/04/2020	Y	Adoption of BR19001

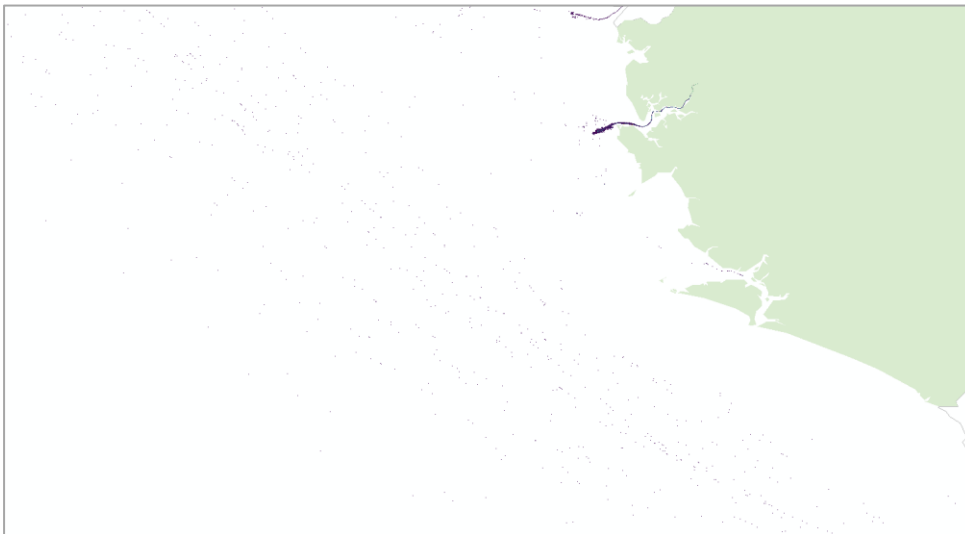


Annex L - Coastal State Trade and Marine Traffic

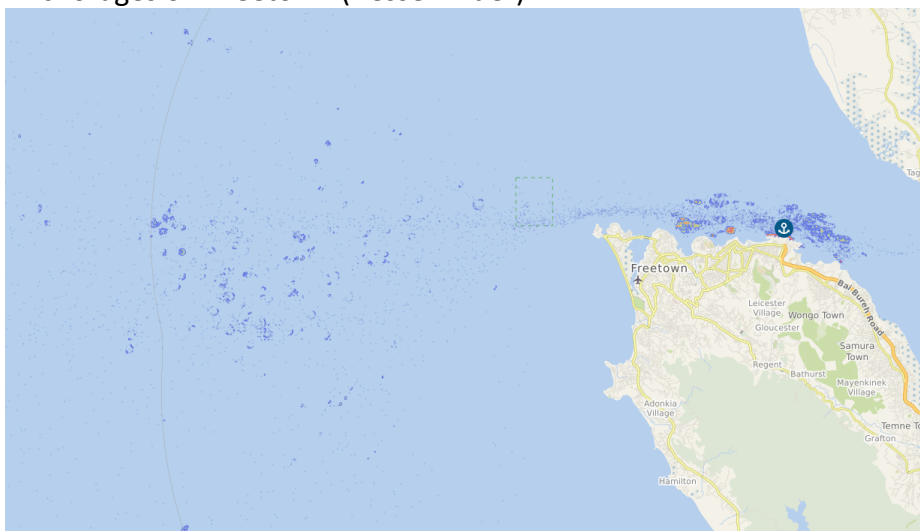
Annual – Regulated (2022)



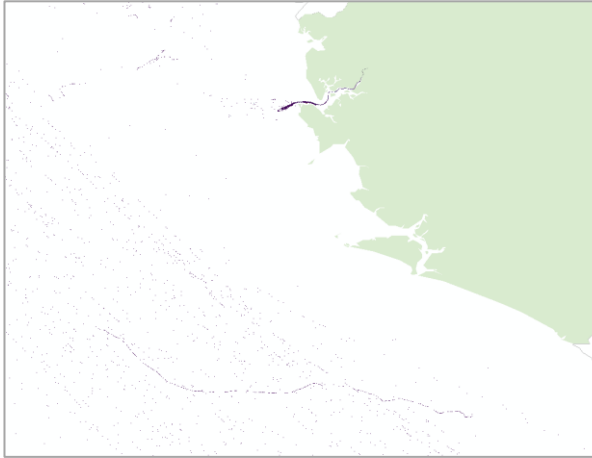
Annual – Unregulated (2022)



Anchorage off Freetown (VesselFinder)



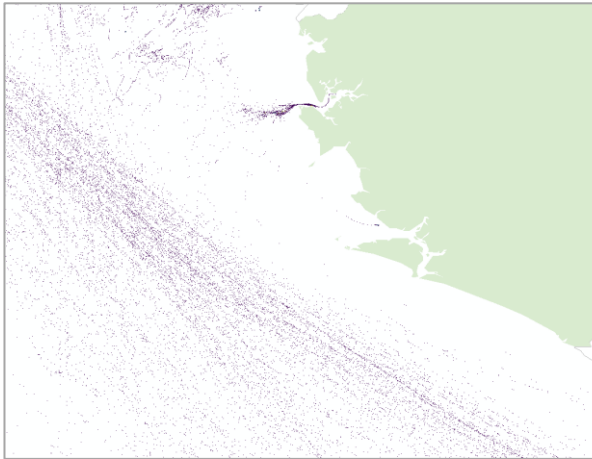
Annual – Regulated Tanker (2022)



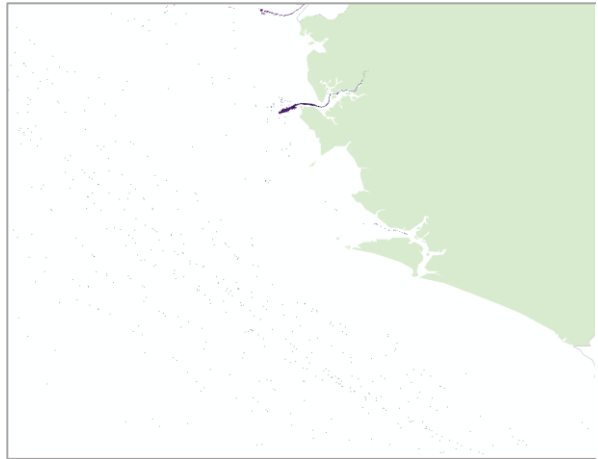
Annual – Non-ECDIS tanker (2022)



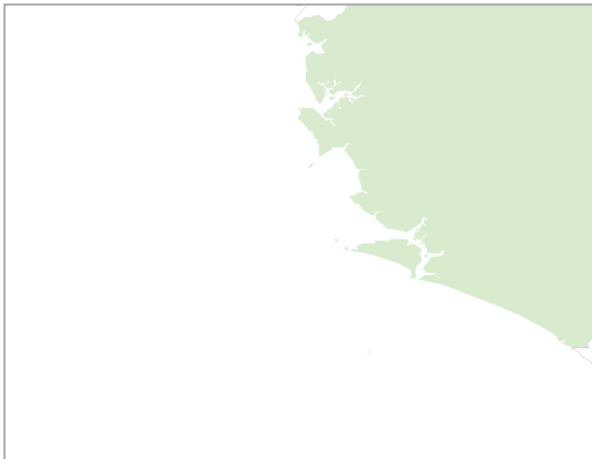
Annual – Regulated Cargo (2022)



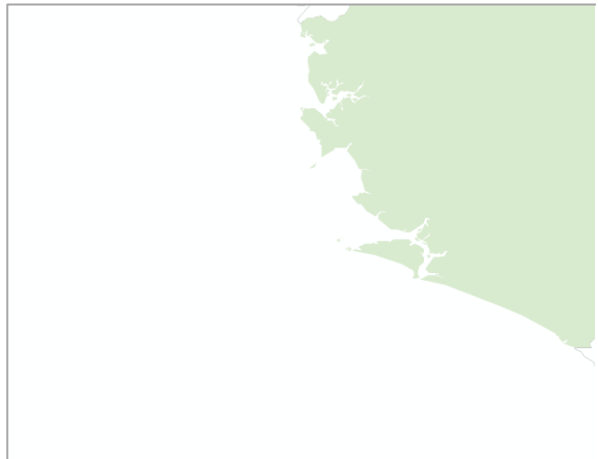
Annual – Non-ECDIS cargo (2022)



Annual – Regulated Passenger (2022)



Annual – Non-ECDIS passenger (2022)



Annex M - Action Items

Number	Action	Action Owner	Completed
01/2002	Formation of a National Hydrographic Committee (NHC) or National Maritime Safety Committee (NMSC)	Sierra Leone	
02/2002	Development of a National Hydrographic Strategy Action	Sierra Leone, IHB and RHC members	
03/2002	Provision of Hydrographic Services in accordance with SOLAS	Sierra Leone & UKHO	Sierra Leone: UKHO: NMs and publications updated as information received. New editions of charts issued for larger datasets
04/2002	Effective and timely collection and promulgation of Hydrographic Information	Sierra Leone & UKHO	Sierra Leone: UKHO: NMs and publications updated as information received.
05/2002	Organization for the collection and dissemination of Maritime Safety Information Action	Sierra Leone & EPSHOM	
06/2002	Recent surveys by HMS BEAGLE will provide modern hydrographic data in the approaches to Freetown. New Editions of the British Admiralty chart will be published in early 2003	UKHO	New Editions published as follows: GB625 08/05/2003 GB614 20/02/2003 GB686 04/09/2003
07/2002	Select and commission two suitable candidates for training on a Category B hydrographic course	Sierra Leone, IHB & RHC members	
08/2002	Identify a package of portable equipment to provide a basic hydrographic capability	Action: Sierra Leone, IHB & RHC members	
01/2023	To contact SLMA and assist with the process related to the deposit the Instrument of Accession	IHO Secretariat and EAHC Chair	
02/2023	To deposit the Instrument of Accession with IHO to complete their Membership application.	SLMA, on behalf of RoSL	
03/2023	Update Sierra Leone P-5 Yearbook entry with details included at Annex G.	IHO Secretariat	Completed on 20 October 2023
04/2023	To add SLMA contacts to EAHC mailing list.	EAHC Chair	Completed on 20 October 2023
05/2023	To share with their PCA (UKHO) any comments related to nautical charts and publications from the IMSAS Audit.	SLMA	Completed on 20 October 2023
06/2023	To forward the bathymetric survey and construction drawings for Black Johnson Fishing Harbour to their PCA (UKHO) for possible inclusion on navigational products	MFMR	
07/2023	To forward the limits and details of marine protected areas to their PCA (UKHO) for possible inclusion in the relevant navigational products	MFMR	

08/2023	Provide any modern tidal data collected to the PCA (UKHO) to improve the current harmonic constants used in Tidal publications.	SLMA / Met Office	
09/2023	To request copies of hydrographic surveys and forward to the PCA (UKHO) for updating of navigational products and services.	SLMA	
10/2023	To investigate the possibility of PDSL providing the PCA (UKHO) with access to the Digital Atlas for any Bathymetric data that could be used for charting purposes.	SLMA	
11/2023	Review relevant pages of the ADMIRALTY List of Radio Signals (ALRS) publication and contact NAVAREA II coordinator (coord.navarea2@shom.fr) and the PCA (UKHO) with any updated contact details and changes.	SLMA	
12/2023	Forward all current and future Local Notices to Mariners to the PCA (UKHO) for possible charting action, and the SLMA for local assurance.	SLPA	
13/2023	SLMA and the PCA (UKHO) to maintain lines of communication and formalise the relationship and roles via an Arrangement for Cooperation.	SLMA / UKHO	
14/2023	To consider including an English language IHO MSI Course to be hosted in West Africa, in the East Atlantic CB workplan	EAtHC CB Coordinator	
15/2023	To consider another visit two years after this report to monitor progress.	EAtHC Chair and CB Coordinator	