

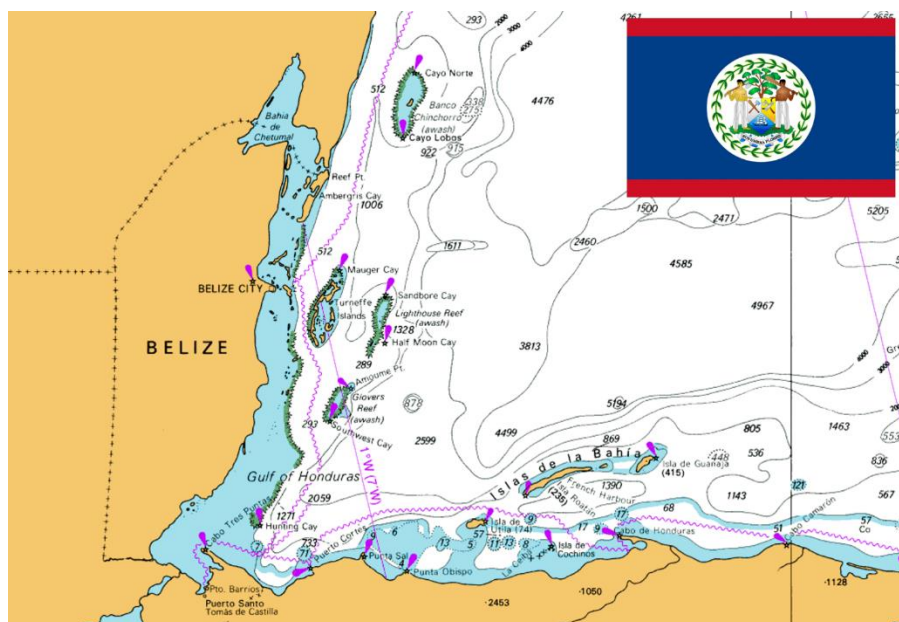
IHO Capacity Building Programme

TECHNICAL VISIT REPORT

The State of Hydrography and Nautical Charting

in

Belize



Date: 05-09 June 2023



IHO

International
Hydrographic
Organization

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Belize Representatives



Belize Port Authority



Belize Coastguard



Port of Belize



Coastal Zone Management Authority & Institute



Ministry of Blue Economy & Civil Aviation



Department of the Environment



**Ministry of Natural Resources
(Physical Planning)**



Port of Big Creek



**National Emergency Management
Organization
(NEMO)**

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ABBREVIATIONS

ACS	Association of American States
AtoN	Aids to Navigation
BPA	Belize Port Authority
BSOP	Blue Sustainable Ocean Plan
CARICOM	Caribbean Community
CBSC	IHO Capacity Building Sub-Committee
DGPS	Differential Global Positioning System
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
LORAN	Long Range Navigation System
MACHC	Meso-America and Caribbean Hydrographic Commission
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
OAS	Organization of American States
PCA	Primary Charting Authority
RENC	Regional ENC Coordinating Centre
RHC	Regional Hydrographic Commission
RNC	Raster Navigational Chart

SOLAS	[United Nations] Convention for the Safety of Life at Sea
TTW	Territorial Waters
TV	Technical Visit
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
WWNWS	Worldwide Navigation Warning Service

EXECUTIVE SUMMARY

This visit to Belize 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.

Ministry Public Utilities, Energy & Logistics has a mission “*to contribute to the improvement of the quality of lives by providing the legislative, regulatory, and policy framework that will ensure energy and public utility access, security, reliability, and affordability while promoting innovation, investments, development via the effective use of technology in areas of logistics, governance, and digitalization with premier service delivery provided by our well-trained, effective and properly staffed units focused on high-quality, on-time delivery and service excellence*”.

They supervise Belize Port Authority (BPA) which is a statutory body established in 1980.

There is currently no National Hydrographic Service or equivalent organization. There is ad-hoc co-ordination of activities between organisations that have an interest in the marine space, but it was recommended that this is formalized with the formation of a dedicated committee which reports to the steering committee for Belize Sustainable Ocean Plan (BSOP) to address safety of navigation issues as all parties recognise the importance of meeting their international obligations following the findings of their IMSAS Audit in 2022.

Belize has no hydrographic or marine cartographic capabilities at present and rely on the UKHO to meet most of their SOLAS Chapter V Safety of Navigation obligations. There is no formal agreement in place that covers this undertaking.

Significant investment in equipment and training of personnel will be required before Belize could develop a fully capable Hydrographic Service. The main priority identified must be to meet IHO Capacity Building Strategy Phase 2, Conduct of Hydrographic Surveys as the next step in Belize’s development.

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

1. TECHNICAL VISITS

The 2023 Technical Visit was completed at the request of Belize Ports Authority and was funded by the IHO with funds allocated in the 2023 IHO CB Work Programme.

The allocated IHO funding was used to cover the expenses of two UKHO representatives. The UKHO funded their third representative.

Previous visit:

UKHO have previously conducted a Technical Visit as part of the Commonwealth Marine Economies Programme in 2016, which as a result of meetings and the findings subsequently provided assistance in the provision of seabed mapping and capacity building activities. The report generated several action Items for Belize. It has not been possible to confirm how many were completed; they are listed in ANNEX L with any known details of resolution.

2. GENERAL AWARENESS IN THE COASTAL STATE

Belize are members of IMO (1990) and UNCLOS (1982), they are not members of IALA. They are signatories to the SOLAS Convention (1991) and aware of their SOLAS responsibilities.

Every stakeholder acknowledged that the lack of modern hydrographic data within Belize's waters was having a potentially significant impact on the development of the economy and development of sustainable management practices. Anecdotal evidence ranged from the increased insurance rates incurred by shipping companies operating in their waters; limitations on operations by the Coastguard in certain areas for maritime security patrols; combined with a lack of understanding of natural habitats and reports of numerous small vessel groundings.

An IMSAS Audit was carried out in 2022 and BPA have received the report and recommendations. The Visit Team did not see a copy, but BPA indicated they would be willing to share the relevant paragraphs with UKHO in due course.

3. IHO/RHC MEMBERSHIP

Belize is not currently a member of IHO. During the meeting with the Maritime Authority 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. They however were unsure of how membership fees were calculated and requested clarification.

ACTION 01/2023: Provide details on how memberships costs are calculated to Ports Commissioner, Belize Ports Authority.

Belize have attended Meso-America and Caribbean Hydrographic Commission (MACHC) meetings as an Observer. Future in-person attendance at MACHC meetings is encouraged to help improve local hydrographic awareness.

4. INTERNATIONAL OBLIGATIONS OF BELIZE AND BPA

BPA are aware that they along with other parts of government have many international obligations and are very keen and willing to meet them. The International Maritime Organisation Conventions Act of 2020, clearly identifies the IMO Conventions to which they have acceded. BPA will need assistance with re-establishing 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 2 and potentially 3 in due course.

At present, BPA are reliant on the support provided by their PCA and externally funded programmes of activity.

5. HYDROGRAPHIC SURVEY & NAUTICAL CARTOGRAPHY CAPABILITY

Hydrographic Survey capability: There is no indication of any current capacity to undertake hydrographic surveys within Belize's Government organisations, and no individuals were identified who have any formal qualifications in hydrographic surveying. Two members of BPA have previously attended a short module on hydrography conducted by Mexico. No modern survey equipment was identified. Therefore, in terms of government organisations, there is currently no seabed mapping capacity.

One commercial contractor was identified to have some surveying capacity using single beam echo-sounders and is used by a number of government departments. Big Creek Ports have

their own surveyor who conducts surveys within the port limits with a single beam echosounder for monitoring purposes.

Hydrographic surveys have previously been commissioned by UKHO as part of the Commonwealth Marine Economies Programme. Surveys have also been conducted by the United States Fleet Survey Team and Norwegian Cruise Lines at Harvest Caye where there is a cruise terminal. The cruise terminal data has not been shared with the UKHO.

Cartographic capability: No marine cartographic capability was identified but there is GIS cartographic expertise within a number of other government Ministries and Departments. Belize 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 a formal Arrangement in place between Belize and UKHO which outlines the roles and responsibilities of both parties.

6. MSI RESPONSIBILITY

There is a functioning MSI organization in Belize. The requirements are well understood within BPA but the need to share relevant information by other agencies to assist in assessment and promulgation of information requires further development. There is a mechanism to disseminate relevant data to local mariners which are forwarded to the NAVAREA Coordinator for immediate broadcast or to the PCA for chart correction.

REPORT OF TECHNICAL VISIT TO BELIZE

5-8 JUNE 2023



Figure 1: Belize Location with Western Caribbean

Reference(s):

- A. IHO Publication M-2 *The Need of National Hydrographic Services* - Version 3.0.7 Jun 18.
- B. IHO CB Procedure 9: *Guidelines to Conduct Technical Visits* .
- C. CME Technical Visit Report for Belize (2016).
- D. Belize National Report, 23rd MACHC meeting – St Louis, United States of America Dec 2022.
- E. MACHC Countries/Territories Capacity Building Phase Stage' within the MACHC CB Plan 2023-2025.

1. Background

The MACHC Capacity Building Strategy was reviewed in 2022 and a requirement for a Technical Assessment Visit to Belize 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 delayed execution until June 2023.

2. Composition of the Team

Ms	Lee Truscott	UKHO	<i>Geographic Technical Lead for the region</i>	Assistant
Mr	Ian Davies	UKHO	<i>Head of Hydrographic Programmes</i>	Team Leader
Ms	Kathryn Buttle	UKHO	<i>Hydrographic Programmes Manager</i>	Assistant

UKHO arranged travel, accommodation and entry requirements with the BPA and the British High Commission. The BHC provided invaluable support with the facilitation of the visit, The UKHO and BPA then coordinated to develop the schedule of meetings, see ANNEX D.

Part A - Overall Assessment of the Situation in Region

3. Efficacy of the Technical Visit.

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

In 2016, an UKHO Technical Visit (TV) was conducted by the representatives of the UK Hydrographic Office (UKHO). The TV raised a number of recommendations to assist BPA in developing its capabilities.

This aim of this TV was to revisit those recommendations outlined in the Report from the visit conducted in 2016 and to establish to what extent they have been addressed, focusing on MSI and development of seabed mapping capabilities. The visit also aimed to identify where assistance can be provided to help Belize in its hydrographic capability development.

The visit reiterated the need for BPA and other 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 coordinator and their PCA. The BPA coordinator is aware of the requirements and is keen to receive continued help and advice, to develop key skills and capabilities to be able to develop further.

4. Cooperative Arrangements and Potential.

a. Regional Organisations and Collaboration.

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

Caribbean Community (CARICOM) - The Caribbean Community is a grouping of twenty countries: fifteen Member States and five Associate Members. CARICOM's stated outcomes are based on four main pillars: economic integration; foreign policy coordination; human and social development; and security. These pillars underpin the following objectives:

- to improve standards of living and work;
- the full employment of labour and other factors of production;
- accelerated, coordinated and sustained economic development and convergence;
- expansion of trade and economic relations with other States;
- enhanced levels of international competitiveness;
- organization for increased production and productivity;
- achievement of a greater measure of economic leverage;
- effectiveness of Member States in dealing with Third States, groups of States and entities of any description; and
- the enhanced coordination of Member States' foreign and foreign economic policies and enhanced functional cooperation.

Association of Caribbean States (ACS) – the ACS's primary purpose is to be an organization for "consultation, cooperation and concerted action" for its member countries. Its framework provides a forum for political dialogue that allows Members the opportunity to identify areas of common interest and concern that may be addressed at the regional level, and the solutions for which can be found through cooperation. The ACS Membership has identified 5 areas of concern for the attention:

- The preservation and conservation of the Caribbean Sea.
- Sustainable Tourism. The importance of the tourism industry to the economic development of all the Members of the ACS transcends questions of physical size or language.
- Trade and Economic External Relations. The ACS provides a framework for the dialogue and activity necessary to further advance economic integration and intra-regional trade and investment.
- Natural Disasters. The continued vulnerability of all countries and territories of the Greater Caribbean to the physical and economic consequences of natural disasters.
- Transport. The proper functioning of efficient and viable intraregional air and maritime routes.

Organization of American States (OAS) - The Organization with 35 member states was established to promote their solidarity, to strengthen their collaboration, and to defend their sovereignty, their territorial integrity, and their independence. 3 of its main purposes are to:

- To seek the solution of political, juridical, and economic problems that may arise among them;
- To promote, by cooperative action, their economic, social, and cultural development;
- To eradicate extreme poverty, which constitutes an obstacle to the full democratic development of the peoples of the hemisphere.

Directors and Heads of Maritime Administrations (DIHMAR) - the coordinating body for Maritime Administrations in the Caribbean region. Its aim is to update Directors and Heads of Maritime Administrations on the latest regulations, trainings and other developments in the international and regional maritime sector. Annual meetings are designed to provide Caribbean maritime administrators with the latest information on current and future developments at IMO and to facilitate the exchange of information between Caribbean administrations and educators.

b. Defence and Security Arrangements

The Belize Coastguard, 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. Due to operational commitments planned discussions with the Coastguard did not take place during this visit.

Part B – Belize Assessment

Belize is located on the east coast of Central America in the Caribbean Sea and bordered by Mexico and Guatemala. Its mainland is approximately 290 km long and 110 km wide, with a land area of approximately 22,800 km² (approximately 1/10th the size of UK) and a total coastline length (including coastal islands) of approximately 386km. The current population is around 350,000 people. Tourism is the principal contributor to the economy, followed by exports of oil, marine products, sugar and fruits.

1. RHC Involvement

Belize is not currently an IHO member. They are listed as an Observer for the MACHC, but and have attended the most recent Regional Conferences providing a National Report. The last known attendance was in 2022 (St Louis, United States of America). To date, there hasn't been any routine liaison with the IHO and only irregular contact with the UKHO, who act as the PCA.

2. Preliminary Liaison

Following the MACHC Capacity Building recommendation and approval for a Technical Assessment Visit to Belize, the initial liaison started in 2023 between UKHO and Michael Jenkins, Operations and Safety Manager, Belize Port Authority, as he was a known contact and data supplier.

The visit was then coordinated between the UKHO, the British High Commission, and the Belize Port Authority, with Michael Jenkins, being the main local contact and coordinator.

3. 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. The current Belize P-5 entry is out of date and needs to be updated with the new contact details included in ANNEX G.

The Belize Port Authority are responsible for IHO liaison.

ACTION 02/2023: IHO Secretariat to update Belize P-5 Yearbook entry with details included at Annex G.

4. DESCRIPTION OF MARITIME ACTIVITIES

a. National Maritime Affairs.

Belize have been members of IMO since 1990 and signed the UNCLOS convention in 1982 (ratified 1993).

Belize Ports Authority (BPA) are responsible for the administration of the Belize Ports Authority Act and Harbours and Merchant Shipping Act. They also have a role or contribute to other legislation relating to maritime affairs, this includes:

- maritime search and rescue matters including the coordination of the SAR operations of the Belize Coast guard and Defence Force, 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 Belize at both national and international fora on maritime matters.

The last IMSAS Audit for Belize was conducted in 2022 and has not been sighted.

ACTION 03/2023: BPA to share with their PCA (UKHO) any comments related to nautical charts and publications from the IMSAS Audit.

b. Trade and Maritime Traffic

Belize is the least populated country in the Central American region. Its economy is mainly dependent on agricultural exports, with sugar and bananas the main exports. The tourism industry is developing rapidly with an increase in marine eco-tourism and cruise vessel visits. Other important export goods include industrial minerals, oil and petroleum. All these commodities are exported to the US, UK, Mexico and also European Union, which are the Caribbean nation's major trading partners.

The country has two main ports that handle its maritime trade, the Port of Belize City and Port of Big Creek. Apart from these, there are several other small port facilities in Belize that deal with minor cargo and internal trade and cruise vessels (Harvest Caye and Port Coral (under development)). The ownership and governance of ports in Belize is different to the rest of the region with ports privately owned and operated under license granted by Minister Responsible for ports. The ports are monitored by the Belize Port Authority in its role as regulator ensuring that port security laws are upheld, and they also carry out annual inspections at the port facilities.

Global changes in the shipping industry as a of horizontal integration and consolidation and the entrance of shipping lines into port ownership and operations are being felt in Belize. This has had four main impacts on Belize's maritime Industry:

- i. Redeployment of larger Ships to Belize Ports.
- ii. Increased pressure on existing port infrastructure.
- iii. Emergence of small groups of owners operating ports and vessels.
- iv. Increased impact on natural habitat and tourism.

Belize is currently developing a National Ports Policy (2021) which will see the development of three port complexes at strategic locations along the coast with services provided easily able to be scaled up to meet future demands:

- i. **Northern Port Complex** based around Belize City with a mixed-use cargo terminal, cruise terminal and associated logistics park and services.
- ii. **Central Port Complex** located in Dangriga around Commerce Bight operating a mixed-use cargo terminal, passenger terminal for small cruise ships along with intra-regional ferries and yacht tourism.
- iii. **Southern Port Complex** shall encompass the port of Big Creek and Harvest Caye Cruise Port supporting mixed use cargo. Logistics and services.

This new policy clearly recognises the need for Hydrographic services to facilitate safety of navigation for vessels in its waters and has prioritised the need for Aids to Navigation along with strong Maritime Safety Information in addition to regular surveys being conducted to update nautical products.

Covid has had a significant impact on trade volumes and no up to date information is currently available on volumes of traffic in the major ports.

i. Port of Belize

Belize Port is situated on the west Caribbean coast in Belize city. It is the main seaport of Belize. The city of Belize is an important commercial centre which is why the port of Belize handles about 95 to 98% of the nation’s imports and exports. The Belize port at its peak has handled 45,000 TEU along with some liquid and dry cargo.

There are plans to develop the port further as the current port faces difficulty in conducting its operations due to congestion and access. The dock is quite narrow-mouthed and also the pier is not easily accessible as it is small with sharp turns restricting vehicular and crane access. The navigation channel, the turning basin and the wharf are restricted in depth which means that only smaller vessels can access this port while reducing the port’s capacity to handle heavy bulk cargo. The wharf is also not wide enough and is incapable of accommodating more than one ship at a time.

ii. Port of Big Creek

Situated in southern Belize, Port of Big Creek is owned and operated by Banana Enterprises Limited. It is the country’s second-largest port with around 150 port calls per year and is the most important one for the banana industry. In recent years the Port has expanded and has a 4km long fully buoyed channel entrance and turning basin dredged to a depth of 11 meters, along with 518 metres of berthing over 3 berths.

The port offers numerous facilities which cover about 30 acres of the port area and has storage facilities for crude oil. liquid natural gas along with storage warehouses. There are plans to develop the port further with new wharfage to support the increased export of sugar and increasing container traffic.

iii. Port of Commercial Bight

The Commercial Bight port is in the town of Dangriga in the Stann Creek district. It is a deep-water port, but it is not currently operational despite the national port policy document indicating this is a core part of future port development in Belize.

iv. Through Routes

There is a singular shipping route running outside of the fringing reef in Belize’s waters, from Guatemala to the Gulf of Mexico. A number of minor routes enter Belize’s inner waters running to the main ports. Belize’s waters lie to the Southwest of the main shipping route between the Gulf of Mexico to Panama.

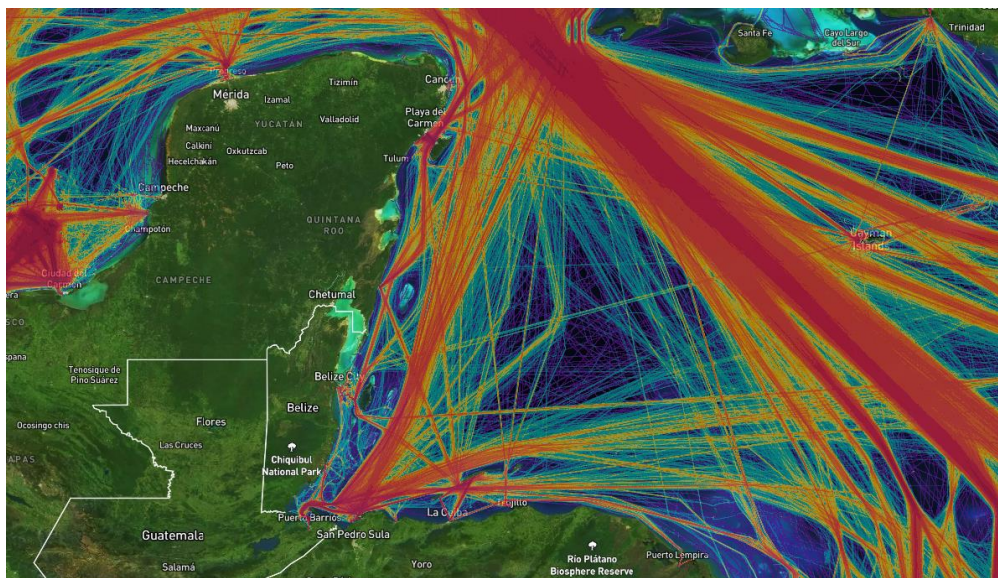


Figure 2: Main Shipping Rots and Density in Western Caribbean (Marine Traffic).

v. Feeder, Coasting and Local Trade

Local traffic consists of mainly very small craft and ferries running along the coast.

vi. Offshore Supply and Support

Currently there is no offshore oil and gas industry in Belize. Petroleum and gas deposits in Belize were discovered by Belize Natural Energy Ltd. in 2005. Following campaigning initiated as a result of the Deepwater Horizon accident, in December 2015, the Government of Belize announced plans via press release to permanently ban offshore oil exploration along the Belize Barrier Reef System. In October 2017, Belize made history by introducing legislation to enshrine an indefinite moratorium on offshore oil in its marine territory, including territorial seas and Exclusive Economic Zone which was ratified the same year.

This action continues to safeguard Belize's invaluable marine environments including the second longest barrier reef in the world, which runs along Belize's coast.

vii. Tourism Cruise Liners

Cruise tourism commenced in Belize in 1991 reaching a peak of 615,000 passengers in 2019, numbers have yet to recover since Covid. Initial development of the industry saw vessels anchor off Belize City and tendered ashore. In 2017, Harvest Caye opened 70km to the South of Belize City. Owned and developed by Miami-based Norwegian Cruise Line Holdings, it has a dedicated berth capable of berthing the largest cruise vessels. A second cruise terminal, Port Coral, is currently being developed off Belize City with berthing for up to 4 vessels on Stake Bank Island. Onshore work is ongoing, but development of the jetties had paused during the visit due to engineering challenges.

viii. Tourism Small Craft

Small craft tourism is limited and is mainly sport fishing, diving or water taxis going to/from the off lying islands.

ix. Fisheries

Home to incredible biodiversity and the largest barrier reef in the Western Hemisphere, Belize is a global leader in marine conservation with 21% of its sea areas committed to 9 Marine Protected Areas (MPA). Belize has significant commercial and recreational fisheries that are vitally important to the nation's economy and coastal communities. Despite its annual export value of £16M (2021) Fishery contributes approximately 1% of the GDP of Belize.

Fishing is a key activity for coastal communities in Belize, providing seafood for domestic consumption, generation of revenue for the tourism industry, and exports for specific stocks, specifically queen conch and spiny lobster. Currently, the fisheries sector directly employs more than 3,000 fisherfolks (primarily involved in artisanal fishing) and over 17,000 individuals in supporting industries.

c. Responsibility for Safety of Navigation

Belize has undergone significant updates to marine related legislation in 2020 including updates to:

- i. International Maritime Organizations Act (Cap 24.04 – 2020).
- ii. Harbours and Merchant Shipping Act (Cap 234 – 2020).
- iii. Belize Port Authority Act (Cap 233 – 2020).
- iv. Abandoned Wreck Act (Cap 235 – 2020).
- v. Wrecks and Salvage Act (Cap 237 -2020).
- vi. Coastal Zone Management Act (Cap 320 – 2020).
- vii. Coastguard Act (Cap 131 – 2020).

The Belize Port Authority Act of 2020 clearly identifies responsibilities for safety of navigation, Aids to Navigation and other navigational services. The revised acts also support responsibilities around:

- Maritime Security;
- Maintenance of channels and port approaches;
- Removal of wrecks and
- Promulgation of Notices to Mariners – Local Notices are published by Port Owners.

d. Coastguard Responsibilities

The Coastguard Act identifies the Coastguard as a military service organization, being the naval force for the defence of Belize and protection of its sovereignty and territorial integrity and rights in relation to the maritime areas of Belize.

It can undertake enforcement of Belize's maritime laws, maritime security, maritime safety and marine resource protection in relation to the maritime areas of Belize, and in particular the enforcement, or assistance in the enforcement of the provisions of any law relating to–

- i. customs and revenue collection;
- ii. border management and immigration;
- iii. quarantine;
- iv. ports and harbours;
- v. fisheries protection;
- vi. marine resources & environmental protection;
- vii. safety of navigation including inland waterways and aids to navigation;
- viii. Maritime Search and Rescue.
- ix. enforcement of maritime conventions including SOLAS, MARPOL, UNCLOS and ISM.

e. Coastal Zone Management and Environmental Protection

The Coastal Zone Management Act of 2020 empowered the Coastal Zone Management Authority with responsibility for advising government on all development and utilization of resources in the coastal zone along with development of sustainable management policies. It also mandates that the authority should work with other agencies on any activities that may have an impact on the coastal zone.

Belize Port Authority and The Coastal Zone Management Authority work closely together on a range of issues and are engaged regularly on issues relating to safety of navigation.

5. OUTLINE C 55 ANALYSIS

a. Status of surveys within the National Maritime Zone

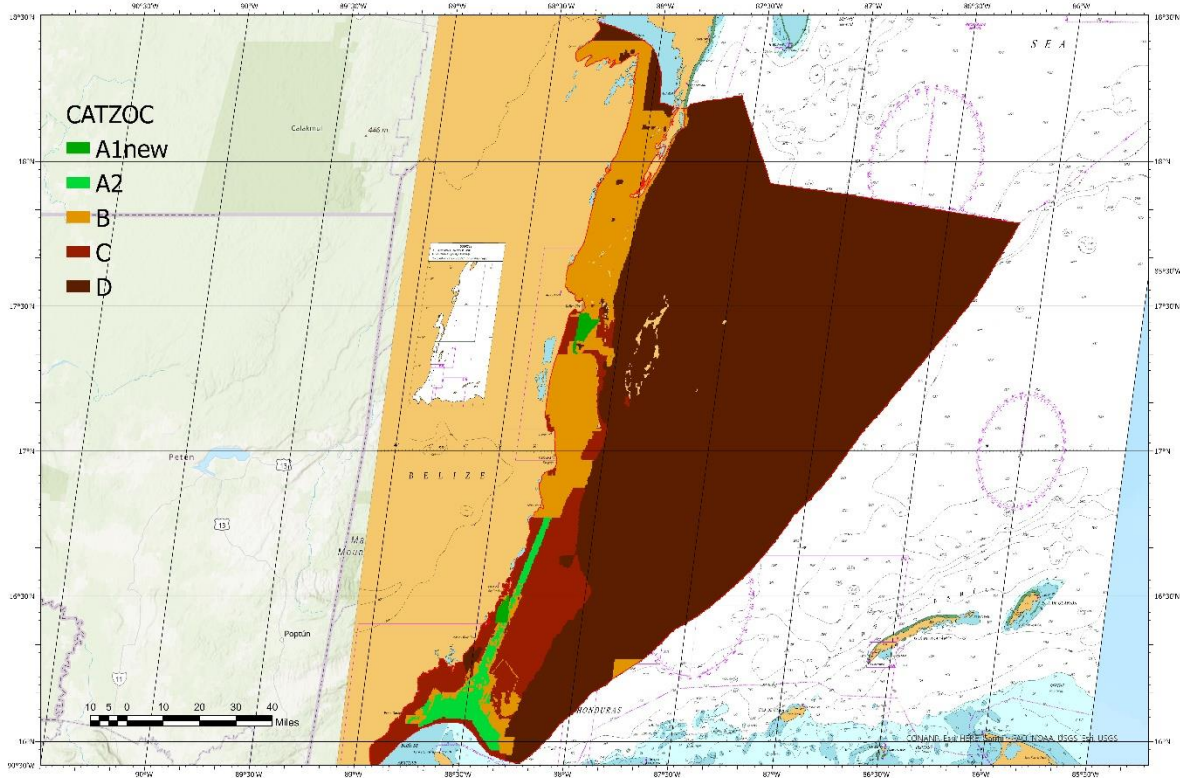


Figure 3: UKHO CATZOC Analysis of Belize

Survey Dates:

- A1 2018
- A2 1998-99
- B 2018-19 (ALB) North of Belize City
- B 2001 – 2000
- C 1974-1989
- D/U Miscellaneous Passage Soundings

See Annex J - Hydrographic Survey - Zone of Confidence Definitions

The majority of the modern survey data held within Belize’s EEZ is predominantly from surveys conducted through support from the Commonwealth Marine Economies Programme. Other data comes from older surveys and from miscellaneous passage soundings dating back decades.

The most recent high resolution multibeam surveys are concentrated around the ports of Belize City, Commerce Bight and Big Creek:

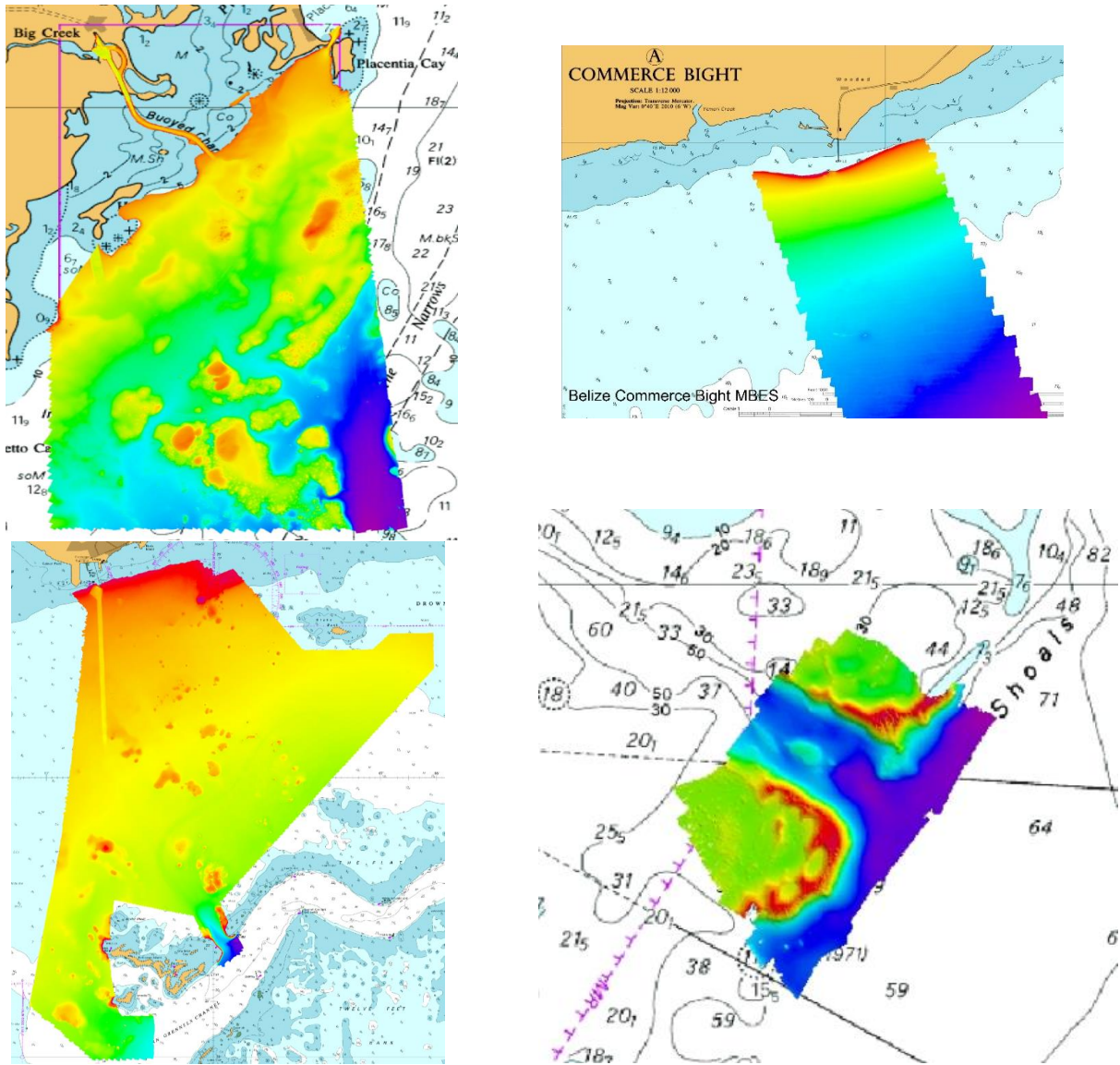


Figure 4: Commonwealth Marine Economies Programme Multibeam Surveys of major ports in Belize

A further survey was conducting in 2018/19 using Airborne LiDAR Bathymetry (ALB) covering the waters North of Belize City.

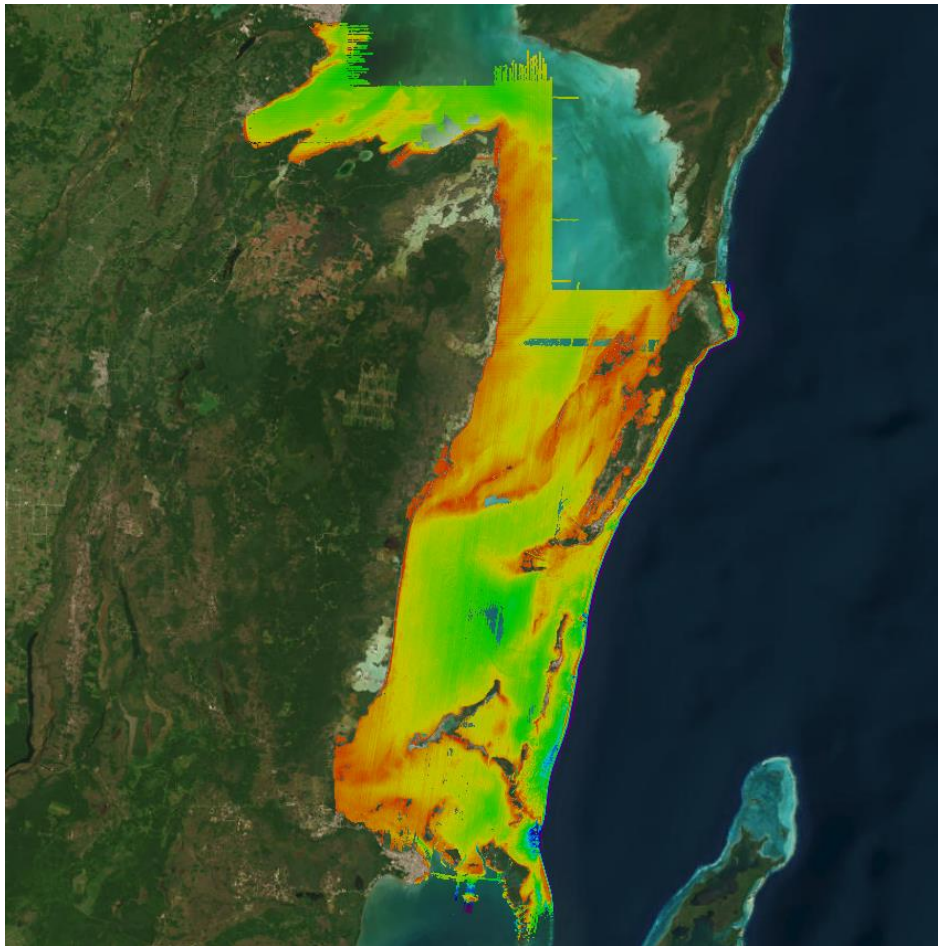


Figure 5: Commonwealth Marine Economies Programme Airborne Lidar Bathymetry Surveys of Belize

Satellite Derived Bathymetry was also collected in 2021 to assist in planning future data collection activities in Belize's shallow waters.

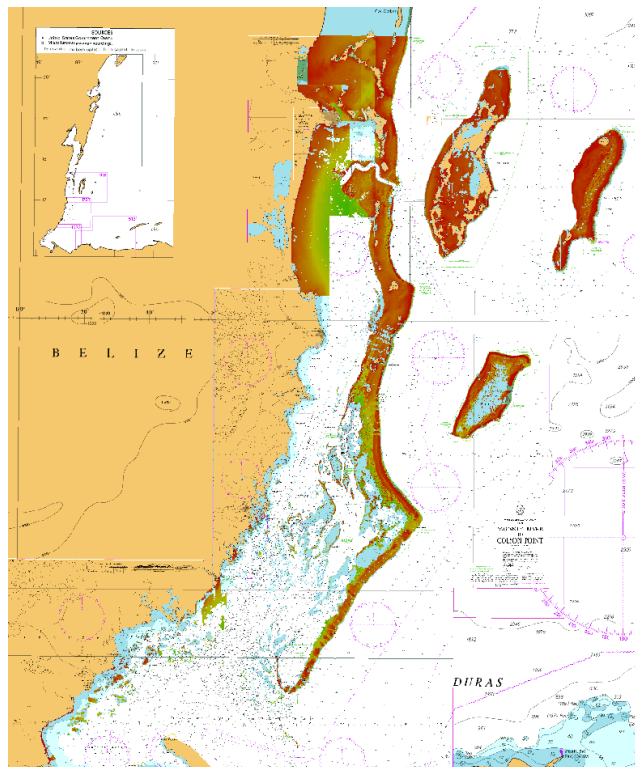


Figure 6: Commonwealth Marine Economies Programme Satellite Derived Bathymetry Surveys of Belize

UKHO have undertaken a risk analysis using its own Risk Model within the Belize's EEZ and identified a higher risk due to the combination of age and quality of existing data, depth of water, seabed mobility and the characteristics of vessels operating in Belize's Waters and offshore atolls. This does not include the additional risks incurred due to inadequate or non-existent aids to navigation. This information has been shared with BPA to assist in the prioritisation and planning of future surveys.

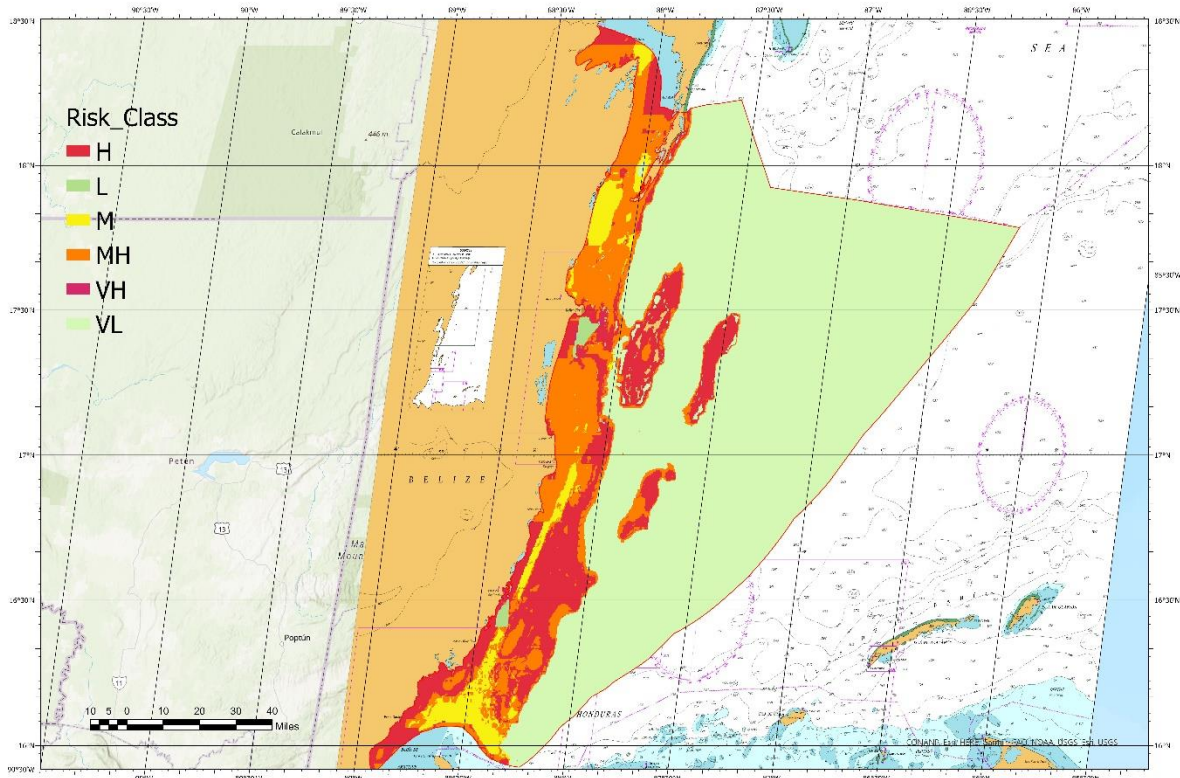


Figure 7: UKHO Risk Analysis of Belize

Surveys are known to have been conducted by private companies e.g. Harvest Caye Cruise Terminal and if possible, these should be obtained and forwarded to their PCA (UKHO) for possible inclusion on navigational products.

b. Collection and Circulation of Nautical Information

At present BPA acts as a national coordination point for nautical data. Ports issue Local Notices to Mariners and pass these to BPA who also issue Notices to Mariners but these are not forwarded to the NavArea Co-Ordinator or PCA (UKHO) on a regular basis.

UKHO does receive 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>].

During the TV, the team constantly stressed at meetings how other government departments can assist in the notification and/or changes in the coastal zone that may have an impact on Safety of Navigation.

ACTION 04/2023: BPA to establish a network of contacts through government and local organisations who can be used to provide information to support MSI Requirements.

It is recommended that BPA 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.

ACTION 05/2023: BPA to request copies of hydrographic surveys and forward to their PCA (UKHO) for updating navigational products and services.

c. Survey Capability

There is currently no capacity to undertake hydrographic surveys within Belize Government organisations as no individuals were identified who have any education or training in hydrographic surveying. No hydrographic survey equipment was identified. Local commercial companies are commissioned on a project-by-project basis for specific projects.

d. Independent Chart Production Capability

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

6. PROPOSALS FOR COORDINATION AND CAPABILITY BUILDING

a. National Hydrographic Committee

There is no current National Hydrographic Committee but there are plans to form a working group which will be a part of the Steering Committee for the Blue Sustainable Ocean Plan (BSOP).

It is recommended that this working group considers formulating a *National Hydrographic Plan* with the aim of meeting IHO CB Phase 2 *Creation of a surveying capability*. The Plan should cover the organisational responsibilities; development of a dedicated group along with the logistics required (e.g. offices, basic and specialist equipment) to enable adequate and dependable long term funding arrangements from with Belize Government or external sources, including Development Banks. The plan should include training requirements and possible providers.

ACTION 06/2023: BPA should develop the required sub-committee to cover the safety of navigation aspects as required by the BSOP.

Full use should also be made of support from the PCA (UKHO) to develop the necessary Terms of Reference and Plans.

b. Phase 1 Hydrographic Capability: MSI Organization and GMDSS.

a. MSI (Navigational Warnings)

Local Notices to Mariners are published by Ports and Coastal Warnings by the BPA. It is recommended BPA concentrate on continuing to improve MSI data collection/reporting and its promulgation, utilising the NAVAREA IV coordinator and support from their PCA (UKHO). Details of the relevant contacts have been supplied.

ACTION 07/2023: BPA to contact NAVAREA IV coordinator (NavSafety@nga.mil) and their PCA (UKHO) with any updated contact details for relevant ADMIRALTY List of Radio Signals (ALRS) publications.

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 BPA. 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.

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

Table 1: Status of GMDSS in local waters

c. Phase 2 Hydrographic Capability: Survey

The Belize Government Ministries and Departments with responsibilities in the maritime sector appear well connected and communicate regularly. They have a strong understanding of the potential financial return on investment in a hydrographic capability and have recently signed u to a Marine Economy Plan developed through UK Government Support.

x. Provision of Survey Data

There is a continuing requirement on the Belize 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 BPA for onward transmission to the PCA (UKHO).

xi. Survey Capability

Due to the scale of the deficit of modern data, combined with the environmental significance of Belize’s waters and the cross sectoral demand for better mapping, the BPA 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 BPA. Data should be processed and quality controlled 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”.

In order to develop this capacity BPA should consider training of personnel, equipment purchase and the development of a prioritised survey plan of Belize’s waters across government.

ACTION 08/2023: BPA to work with their 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.

d. 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 Belize Port Authority. 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*. IHO CB training should be considered to meet requirements.

e. Summary of the Assessment of the National Hydrographic Capability

IHO Member	RHC	NHC	Phase 1 Capacity	Phase 2 Capacity	Phase 3 Capacity	Notes
No	Observer	No	Yes	No	No	

Table 2: Assessment of National Hydrographic Capability.

7. PROPOSALS FOR ASSISTANCE

a. Training

The assessed priority at this should be to concentrate on developing the necessary requirements to meet CB Phase 2. Formal Hydrographic training is required to develop expertise and capacity to develop good working practices. BPA are strongly encouraged to identify personnel to undertake Cat B course in hydrography and ask support from UKO (PCA) in identifying potential sources of funding to support this.

BPA should consider its membership of the IHO. Once BPA IHO membership has been accepted more IHO Capacity Building opportunities are available in a number of areas.

ACTION 09/2023: MACHHC CB Coordinator/UKHO(PCA) to assist BPA in identifying funding opportunities for hydrographic training.

b. Equipment

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

c. Funding

Any National Hydrographic Strategy should highlight funding requirements not only for the ongoing training of personnel and equipment purchase/maintenance but also identify opportunities for cross government funding along with opportunities to apply to other funding sources (e.g. World Bank) for specific projects. Guidance and applications for IHO Capacity Building courses and training should be made through the MACHC CB Coordinator.

8. CONCLUSIONS

Since 2016, BPA have made some real progress in developing their Maritime Safety Information and should look now to build hydrographic survey capability to build upon the support provided through UK Government funded programmes.

BPA will require considerable advice and support over the coming years. MACHC Chair and IHO Secretariat are encouraged to make contact at the earliest opportunity to maintain momentum generated by this visit. Attendance at future MACHC RHC Conferences and

Seminars will allow BPA to develop contacts in the region and hopefully these may be able to assist in their development.

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

ACTION 10/2023: BPA to maintain lines of communication with their PCA (UKHO) and formalise the relationship via an Arrangement for Cooperation.

ACTION 11/2023: MACHC Chair and CB Coordinator to consider another visit 3 years after this report to monitor progress.

DATE	31 October 2023
RHC Technical Visit Team Leader	Mr Ian Davies
SIGNATURE	
RHC Technical Visit Co-team Leader	Mr Lee Truscott
SIGNATURE	
RHC Technical Visit Co-team Leader	Ms Kathryn Buttle
SIGNATURE	

9. ANNEX LIST:

- A. Terms of Reference of the RHC Technical Visit Team.
- B. Last Technical Visit Report
- C. Questionnaire
- D. Preliminary Agenda
- E. Summary of Events
- F. List of Primary Contacts
- G. P-5 IHO Yearbook Template update
- H. Belize Report to MACHC 23 (2022)
- I. Hydrographic Surveys – Zone of Confidence Definitions
- J. PCA Chart and ENC Coverage
- K. Coastal State Trade and Maritime Traffic
- L. Action Items

Distribution: Chair MACHC RHC
Information: IHO Secretariat
MACHC CB Coordinator
BPA
UKHO
IALA
British High Commission

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, are to carry out a visit to the Belize 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 High Commission, are to plan the Team visit having obtained access to material available from the IHO Secretariat and the information supplied by Belize Port Authority.

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

Not Available

Annex C – Preliminary Information Questionnaire

Technical Visit to: Belize

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: Belize

QUESTIONNAIRE

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

[Names and emails of the Technical Team]

Head of Delegation: *Ian Davies, International Hydrographic Portfolio Manager, UKHO*

Email: ian.davies@ukho.gov.uk

Telephone: *+44 1823 483670*

Mobile: *+44 7966 148183*

Assistant of Delegation: *Lee Truscott, Geographic Technical Lead, UKHO*

Email: Lee.truscott@ukho.gov.uk

Telephone: *+44 1823 483955*

Assistant of Delegation: *Kathryn Buttle, PCA Programme Manager, UKHO*

Email: Kathryn.buttle@ukho.gov.uk

Telephone: [+44 1823 483153](tel:+441823483153)

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: [Operations and Safety Manager](#)
- Name: [Mr. Michael A. Jenkins](#)
- Organization: [Belize Port Authority](#)
- Geographical Address: [17°29'12"N, 88°14'16"W](#)
- Postal Address: [4 miles George Price Highway Belize City](#)
- Email: bzportauth@btl.net or mjenkins@portauthority.bz
- Other contact information (Email, fax, etc.): [emergency # 966](#)

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)? [Belize Port Authority](#)
- Nautical paper charts? [UKHO](#)
- Electronic Navigational Charts (ENC)? [UKHO](#)
- Tide Tables? [UKHO](#)
- Tides / water level measurement? [Belize Port Authority, Hydrological Department Met Service](#)
- Hydrographic Surveys? [Belize Port Authority, Coastal Zone Management and UKHO](#)
- Topography Mapping / Cadastral [Coastal Zone Management, Lands Department](#)
- Topographic Surveys [Coastal Zone Management, Forestry Department](#)
- Inland Waterways [Belize Port Authority, Coastal Zone Management Department of Environment](#)

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

[In country capacity building with all agencies with personnel with survey experience.](#)

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

- hydrographic surveying [Belize Port Authority, Belize National Coast Guard](#)
- nautical charting [Belize Port Authority](#)
- geospatial data management [Belize Port Authority, Coastal Zone Management, Lands Department](#)
- tides /water level measurement [Belize Port Authority, Coastal Zone Management, metrological Department](#)
- topographic surveying and mapping [Lands Department, Forestry department, Coastal Zone Management](#)
- digital elevation modeling [Coastal Zone Management , Lands Department](#)

- aerial and/or satellite image processing and mapping [Belize Port Authority, Coastal Zone Management, Lands Department](#)

4. For each category available in your country, what is the general level of skill of the staff, including qualifications and training history? Three (3) from [Belize Port Authority](#), one (1) from [Belize National Coast Guard](#) and one (1) from [Coastal Zone Management](#) has advance training in Hydrographic surveys.

What do you suggest improving the situation? [Hydrographic surveys and Geospatial modelling is all new to Belize and training for all maritime departmental stakeholders is requested](#)

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

- promulgation of Maritime Safety Information (MSI)? [Yes National Communication Centre](#)
- hydrographic surveying? [Yes BPA has access to hydrographic equipment for surveys](#)
- nautical cartography? [No Nautical charting capability](#)
- tidal observations? [Yes Belize metrological Service provide this data](#)

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.

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? The [Belize Port Authority](#) at every occasion presence the importance of Hydrographic surveys for the continues development (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? [Through the new Government Ministry of the Blue economy emphasis has been placed in hydrographic data, equipment and spatial planning.](#)

What do you suggest improving the situation?

7. International Cooperation

Are there any bilateral or regional arrangements in place to assist in the provision of national hydrographic services? [Yes with the UKHO](#)

What do you suggest improving the situation? [Regionally more efforts can be done to collaborate and provide survey data at most cost effective.](#)

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)? Coastal Zone Management, Lands Department, Department of Environment and the Belize Port Authority

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

- maritime transport? [Belize Port Authority](#)
- inland waterborne transport? [Belize Port Authority](#)
- mapping? [Lands Department, Coastal Zone Management, Belize Port Authority](#)
- national development and infrastructure? [Ministry of Works, Coastal Zone management, Belize Port Authority for port development and infrastructure.](#)
- prevention of marine disasters (storms, coastal floods, etc.)? [Belize Port Authority, Coastal Zone Management Metrological Department](#)
- representation at the International Maritime Organization (IMO)? [Belize Port Authority, IMMARBE](#)
- representation at the Intergovernmental Oceanographic Commission (IOC)? [Belize Port Authority](#)
- representation at the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) [Belize Port Authority](#)

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)? Ministry of Blue Economy, Forest Department, Marine Conservation Agencies, Port Developers.

[No Response](#)

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? [The importance of hydrographic surveys is now being accepted as critical for any decision making as it pertains to maritime development and spatial planning.](#)

What do you suggest improving the situation? [Providing tangible evidence showing the benefits of having in country survey equipment and to show the financial gain by providing updated hydrographic information.](#)

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

[No Response](#)

What do you suggest improving the situation?

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 Belize Port Authority with direct support from the Coastal Zone Management Authority.](#)

Annex D - Preliminary Agenda

There was no formal agenda. The team were unsure who they were due to meet and the level of discussion likely. Based on the overall objectives of the visit each member covered their area of expertise and as meetings progressed any opportunities were taken to expand on information gathering.

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 Belize 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

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

To discuss role of UKHO as PCA for Belize

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

Annex E - Summary of Events for the Visit to Belize

Day	Time	Meeting
04 th June	AM	UKHO Team arrive in Belize, Prepare for TAV Meetings
05 th June	09:00	Preparatory Meeting with Belize Port Authority
	13:30	Meeting with BHC Nicole Davison
	16:00	Meeting with Port of Belize
06 th June	AM	Meeting with Ministry of Blue Economy and CZMAI
07 th June		Meeting with Department of Environment
		Meeting with National Emergency Management Organisation (NEMO)
08 th June	10:30	Meeting with Big Creek Port Authority
	13:30	Meeting with Harvest Caye Belize (Cancelled due to lack of vessel for transfer)
	PM	Department of Lands and Surveys
09 th June	AM	Wash Up Meeting with Belize Port Authority
	PM	UKHO Team Depart Belize for UK

Contact details are provided at ANNEX F

Annex F - List of Primary Contacts

Name	Role	Ministry/Department	Phone	Email
Ms Nicole Davison	British High Commissioner	British High Commission North Ring Road/Melhado Parade (Entrance via North Ring Road) PO Box 91 Belmopan Belize	+501 822 2146	nicole.davison@fcdo.gov.uk
Ms Maxine Monsanto	Climate Change Officer	British High Commission North Ring Road/Melhado Parade (Entrance via North Ring Road) PO Box 91 Belmopan Belize	+501 822 2146	Maxine.monsanto@fcdo.gov.uk
Ms. Darlin Tatiana Gaitan	Ports Commissioner	Belize Port Authority Belize City Headquarters: Mile 4, George Price Highway, Belize City, Belize	+501-222-5665	dgaitan@portauthority.bz
Mr Michael Jenkins	Operations and Safety Manager	Belize Port Authority Belize City Headquarters: Mile 4, George Price Highway, Belize City, Belize	+501-222-5665	mjenkins@portauthority.bz

Ms Andria A Grinage	Senior Blue Economy Officer Blue Economy Unit	Ministry of Blue Economy & Civil Aviation 1 st Floor Coastal Zone Multi-complex Building Belize City	+501-223-6171 +501-669-1655	GrinageAA@blueeconomy.gov.bz
Mr Samir Rosado	MSP Process Lead	Coastal Zone Multi-Complex Building, Third Floor Princess Margaret Drive P.O. Box 1884 Belize City, Belize	+501 223-5739 +501 223-0719	msplead@coastalzonebelize.org
Mr Ted Peralta	Chief Executive Officer	Port of Belize Caesar Ridge Road Belize City Belize	+501 223-2439	tperalta@portofbelize.com
Mr Andrew Wade	Communication Officer	NEMO NEMO Department Melhado Parade Belmopan	+501 822-2054	coordnem@nemo.org.bz
Ms Cleopatra Cuevas	Manager	Big Creek Group 3 Port Road Big Creek Independence Village Stann Creek Belize	+501 523-2003	cleopatra.cuevas@bigcreekgroup.com

Mr Bryan Umpleby	Island Director	Harvest Caye Belize Belize Island Holdings Ltd. Independence Malacate Area, Stann Creek, Belize C.A.	+501-521-2510 M. +501-613-1814	bumpleby@harvestcaye.com>
Dr. Colin A. Young	Executive Director	Caribbean Community Climate Change Center (%C's) 2nd Floor, Lawrence Nicholas Building, Ring Road, P.O. Box 563 Belmopan, Belize, Central America	+501 822-1094	cyoung@caribbeanclimate.bz
Mr Anthony Mai	Chief Environmental Officer	Department of Environment 2nd Floor, Green Complex Building, 7552 Hummingbird Highway, Belmopan City, Belize	+501 822-2548 +501 822-2819	envirodept@environment.gov.bz
Mr Daniel Mendez	National Emergency Coordinator	NEMO Headquarters, City of Belmopan, Belize, Central America	+501 822-2054	nemohqbmp@nemo.org.bz
Mr Talbert Brackett	Lands Commissioner	Department of Lands and Survey Land Department Building, Royal Palm II, Belmopan, Belize	+501 828-5078	commissioner@natrualresources.gov.bz

Annex G - P-5 IHO Yearbook Entry Update

Belize / Belize

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

Declared National Tonnage -Tonnage national déclaré -Tonelaje Nacional Declarado	2,916,634 (IMMARBE Annual Report Dec 2022.)
National day -Fête nationale -Fiesta nacional	21 st September (Independence Day)
Remarks on membership -Remarques sur l'adhésion -Comentarios sobre la adhesión	Associate Member

BELIZE PORT AUTHORITY

Contact information / Informations de contact / Información de contacto

National Hydrographer or equivalent -Hydrographe national ou équivalent -Hidrógrafo Nacional o equivalente	Ports Commissioner Ms. Darlin Tatiana Gaitan Tel: + 501 223 0714, + 501 223 0716 Fax: + 501 223 0710, + 501 223 0433 E-mail: dgaitan@portauthority.bz Agency address: Caesar Ridge Road, BELIZE CITY, P.O. Box 633, Belize
Other point(s) of contact -Autre(s) point(s) de contact -Otros punto(s) de contacto	Operations and Safety Manager Mr Michael Jenkins Tel: +501-222-5666 E-mail: mjenkins@portauthority.bz

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

Date of establishment -Date de mise en place -Fecha de constitución	1980
Relevant National Legislation -Législation nationale pertinente -Legislación nacional pertinente	Belize Port Authority Act (2020) Harbours and Merchant Shipping Act (2020)
Top level parent organization -Organisme mère -Organización asociada de nivel superior	Belize Port Authority
Principal functions of the organization or the department -Attribution principales de l'organisme ou du département -Principales funciones de la Organización o el departamento	To supervise the installation and maintenance of all ATONs. To report to the IHO all relevant information affecting maritime safety. To requisition and supervise all hydrographic surveys in Belize and to relay that information to the UKHO for chart publication. To designate ports, harbours and anchorages.

Annual operating budget -Budget annuel -presupuesto anual	Not Identified
Total number of staff employed -Effectifs totaux -Número total de personal empleado	Not Confirmed

Annex H – Belize Report to MACHC (2022)



MACHC 23 Meso American- Caribbean Sea Hydrographic Commission

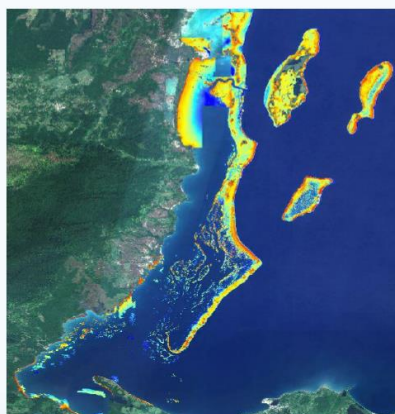
National Report Belize C.A.

Presented by: Mr. Michael Jenkins, Operations and Safety Manager
Belize Port Authority



Through the Commonwealth Marine Economies Program.

- Enabling Safe and Sustainable Marine Economies across Commonwealth Small Island developing States
UKHO delivered SDB data to Belize on the 29th April 2022.



International Hydrographic Organization
Organisation Hydrographique Internationale

2



Achievements accomplished during the past year; establishing a Steering Committee to develop a Marine Spatial Plan comprising of the following stakeholders

1. Ministry of Blue Economy and Civil Aviation
2. Ministry of Sustainable Development, Climate Change and Disaster Risk Management
3. Ministry of Tourism and Diaspora Relations
4. Ministry of Finance, Economic Development and Investment
5. Ministry of Natural Resources, Petroleum and Mining,
6. Coastal Zone Management Authority and Institute
7. Blue Bonds/Finance Permanence Unit, Office of the Prime Minister
8. The Nature Conservancy
9. Belize Network of Non-Governmental Organizations (BNN)
10. Belize Port Authority
11. Energy Unit, Ministry of Public Utilities, Energy and Logistics
12. University of Belize (UB)
13. Belize National Coast Guard
14. Belize Fisheries Department
15. Belize Forest Department
16. Department of Environment
 20. Chairs of 4 TWGs: (1.) Finance and Investment; (2.) Fisheries (inclusive of Aquaculture); (3.) Marine and Coastal Ecosystems; (4.) Tourism

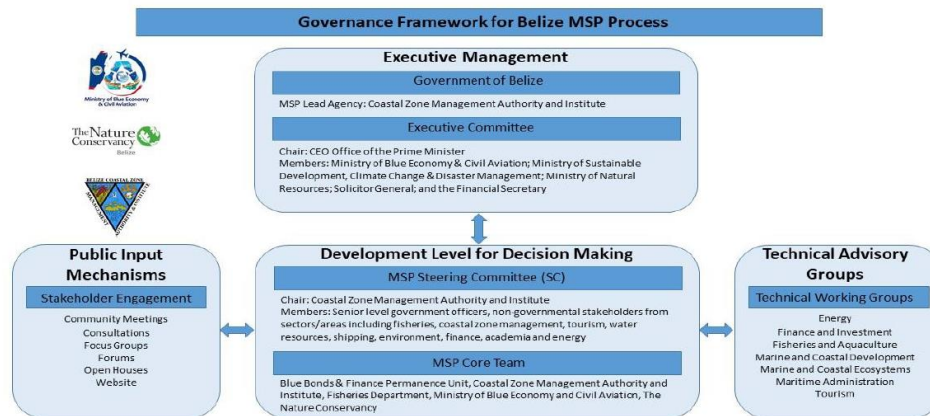


International Hydrographic Organization
Organisation Hydrographique Internationale

3



Governance of the MSP Process



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Organisation Hydrographique Internationale

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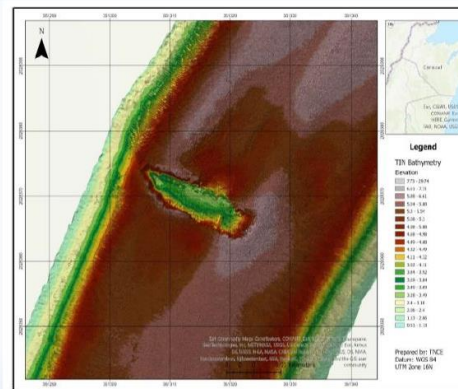
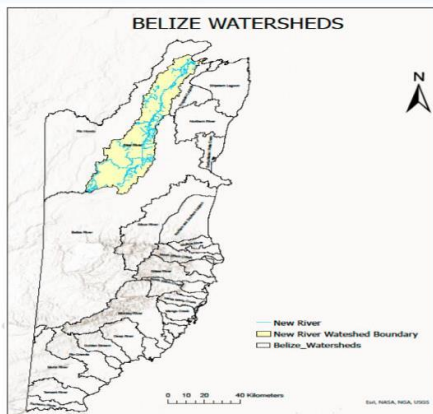
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Achievements made in year 2022

1. New surveys conducted in the internal waters of the New River



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As can be seen in Figure 2-30, it can be visibly identified that the Western river wall within this portion of the river extends past the expected center in a sloped formation; and within this sloped feature there is a notable rectangular formation that is settled within the western portion of the river wall at a depth of 4.4-meters (14.4-ft).

Its elevation is only 0.2-meters above its surroundings and is about 6-meters in length and 3-meters in width. It is located in the North-East proximity of Orange Walk Town as can be seen in Figure 2-31.

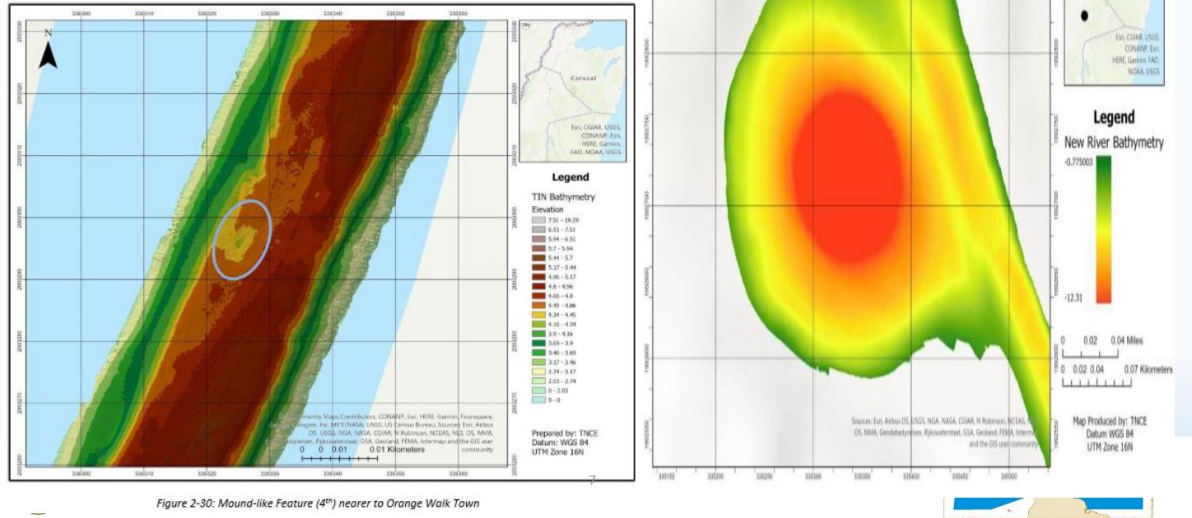


Figure 2-30: Mound-like Feature (4m) nearer to Orange Walk Town

Belize through the UKHO was able to share data with GEBCO Seabed 2030 and continues to support this initiative to collect and share survey information

Survey sheets that has been approved for submission to GEBCO

- HI1563 Commonwealth Marine Economy (CME) Belize United Kingdom
Hydrographic Office 2018 HI1563 Belize Buzzard Shoals 0-40m 2m SDTP
- HI1563 Commonwealth Marine Economy (CME) Belize United Kingdom
Hydrographic Office 2018 HI1563 Belize Buzzard Shoals 38-80m 4m SDTP
- HI1563 Commonwealth Marine Economy (CME) Belize United Kingdom
Hydrographic Office 2018 HI1563 Belize Commerce Bight 2m SDTP
- HI1563 Commonwealth Marine Economy (CME) Belize United Kingdom
Hydrographic Office 2018 HI1563 Belize Big Creek 2m SDTP
- HI1563 Commonwealth Marine Economy (CME) Belize United Kingdom
Hydrographic Office 2018 HI1563 Belize City 2m SDTP
- HI1553 Commonwealth Marine Economy (CME) Belize United Kingdom
Hydrographic Office 2019 HI1553 Belize Lidar 2m SDTP

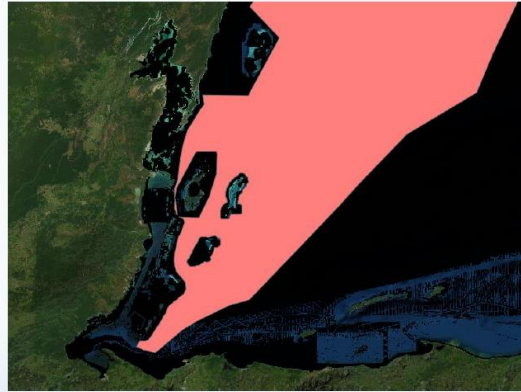


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Challenges in conducting and receiving hydrographic survey data:

- Belize seeks to acquire survey information that extends into our EEZ so as to extend our enforcement and to help assess and quantify the natural resources that lies beneath the sea.
- It has been confirmed that survey data exist in the industry sector and also data as restricted information. It is hopeful that existing data can be Identified, declassified and shared.



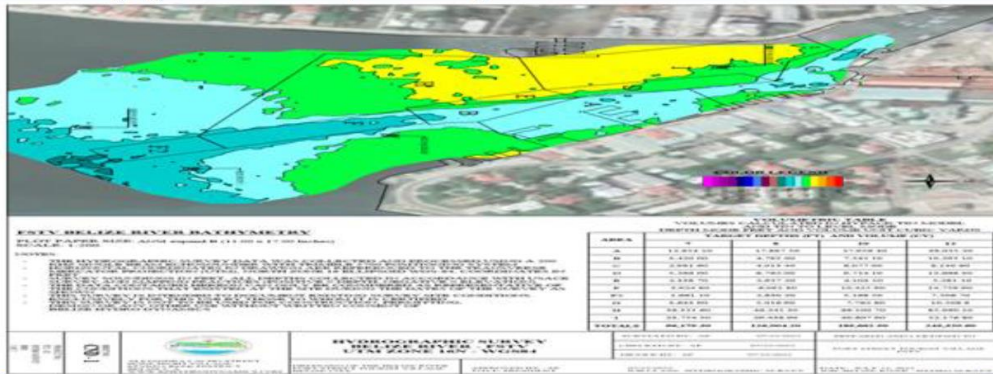
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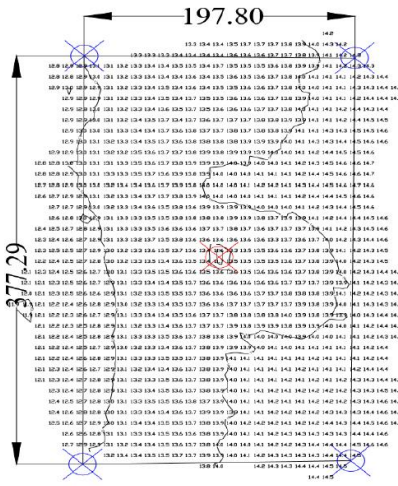
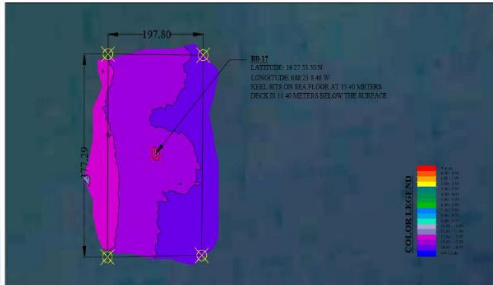
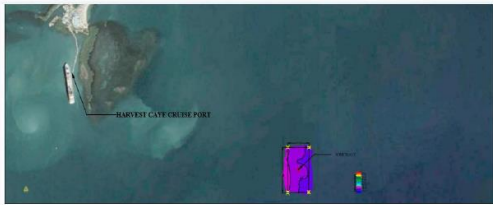


Challenges

- The cruise ship passenger terminal on a yearly basis sees increased siltation that requires extensive dredging for the safe passage of tender vessels servicing the cruise ships. This is a yearly challenge to find the resources to meet the demands of the cruise ship arrival during high season of November to April each year. Increasing the time period to conduct maintenance dredging is the Authority's challenge.



In 2022 a vessel casualty involving a push tug and a steel barge resulting in the steel barge submerging and now resting on the sea floor is being classified as a risk to navigation. The Belize Port Authority is requiring the owners to remove vessel from the position it rest due to the proximity to the Big Creek Access Channel and anchorage area.



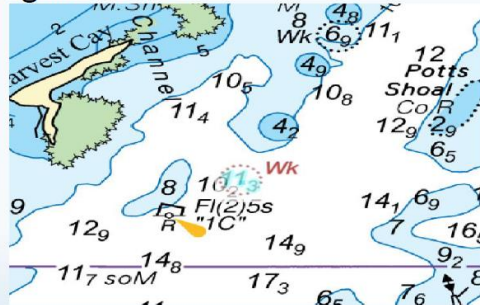
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Challenges

- Owners not having the rite equipment to salvage the submerged barge is requesting for approval to have barge remain in the sunken position but with the increase in vessel size and calls to that port facility it is foreseen barge posing a serious risk to navigation even with proper demarcation identifying its location.
- Chart correction showing wreck



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Continued Challenges faced by the Belize Port Authority



1. The Authority is unable to conduct our own independent surveys due to lack of survey equipment.(support needed to acquire a Multi beam system with the training associated with it)
2. Communication coverage for our priority Area 1.(additional repeater system needed)
3. Acquiring a buoy tender for efficiency and safety in carrying out ATON maintenance. (vessel platform)



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Future Initiative: Mooring buoy installation has started with a pilot project in southern Belize where five mooring buoy with 60 ton holding capacity available.

15 additional mooring buoys will be installed in 2023

Placencia Harbor Mooring 1 and 2

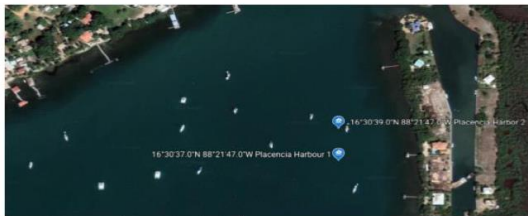


Figure 12: Placencia Harbor Moorings 1 and 2

Table 4: Placencia Harbor Mooring 1 Site Description

Description	Details
G.P.S coordinates	N 16° 30' 37.0" W 88° 21' 47.0"
Water depth	30 feet
Swing radius to nearest shallow	345 feet
Line scope	30 feet
Distance to another mooring buoy	200 feet
Substrate type	Mud/Silt
Max load Capacity	60 tons
Harbouring conditions	The area can provide protection from wind direction: North / Northeast/ Northwest/ Southeast



Figure 10: Lark Caye Mooring 2



Figure 11: Lark Caye Mooring 2 (Different Angle)



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In partnership with the Ministry of the Blue the implementation of the MSP will see more resources placed on information gathering through hydrographic surveys and the placement of navigational markers in key areas for safety of navigation and protection of the environment .

Milestone Number	Milestone Summary Description	Time after signing the Agreement	% of Ocean in High Protection ¹	% of Ocean in Medium Protection ¹	Total % of Ocean in Biodiversity Protection ¹
1	Expand Biodiversity Protection Zones to 11.57% of the Ocean	6 months	Increased to 11.57%	Remains at the current 8.96%	20.53%
2	Designate Public Lands within the BBRKS as Mangrove Reserves	6 months			
3	Belize initiates MSP process	1 year			
4	Expand Biodiversity Protection Zones to 25% of the Ocean	3 years	Add 4.5% more in total across either Medium and/or High zones ¹		25% ¹
5	Implementation of ICZMP	4 years			
6	Complete Biodiversity Protection Zones, MSP signed in to law and Implemented	5 years	Add 5% more in total across either Medium and/or High zones ¹		30% ¹
7	At least 3 IUCN Green List Applications Submitted	6 years			
8	Approved Management Plans	8 years			

¹In all cases, is the lower of the % or the amount specified in the MSP



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To be completed Amendment to our legislation 2023



1. Repeal and replace the BPA Act
2. Marina Regulations
3. Draft Marine Pollution Bill (MARPOL)
4. Draft STCW Bill with IMMARBE our Flag State



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Challenges faced by the Belize Port Authority



1. The Authority still face challenges in receiving reliable information on status of our farthest lighthouse due to inconsistent communication. This pose a problem in disseminating MSI on a timely basis to both the local user and the international merchant marine. To date the Authority has issued five messages through our NAVAREA IV;
 - I. Message one and two was send on February 7, 2022 - Hunting Caye Light and
 - II. Glover's Reef South/West Caye Light unlit
 - III. Message three was send on May 8, 2022 - Glover's Reef Light Restored
 - IV. Message four was send on July 19, 2022 - Dangerous Wreck (Big Creek and Approaches)
 - V. Message five was send on October 8, 2022 - Hunting Caye Light unlit



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MACHC 23 Plenary



1. What is your greatest capacity building priority to recommend for IHO CB funding consideration (Phase 1)? (Select one)

- a) *High-level visit (political awareness and buy in into the importance of having hydrographic survey capabilities.*

2. What is your greatest capacity building priority (Phase 2 or Phase 3) for which to seek other partnership/funding opportunities *outside* of IHO CB?

The Belize Port Authority greatest capacity building priority is to receive training in Category A and Category B Hydrographic studies and to be able to acquire a multibeam hydrographic suite of equipment.



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The End

Thank You for your attention!



Annex I - Hydrographic Survey - Zone of Confidence Definitions

IHO Publication S-57 Supplement No.3 June 2014

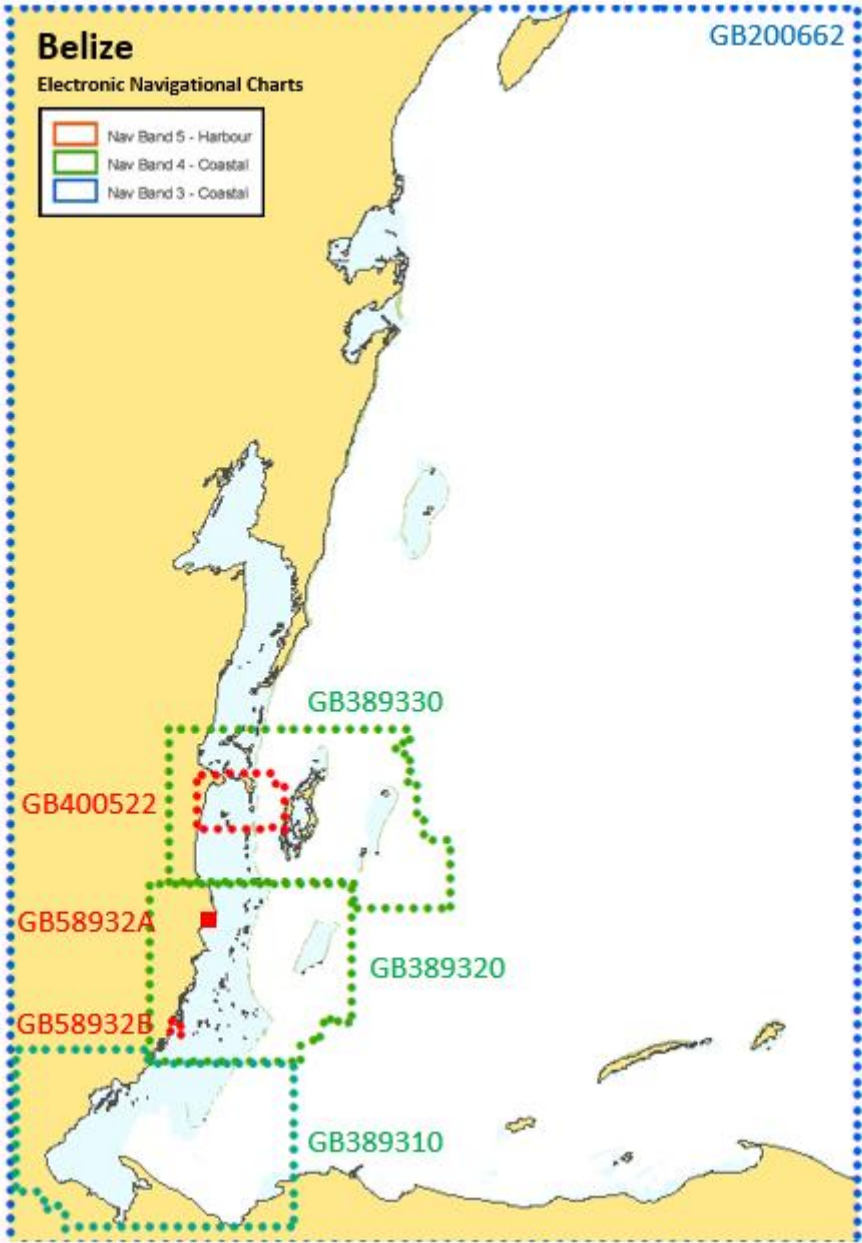
ZOC Table:

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 ⁶ 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]

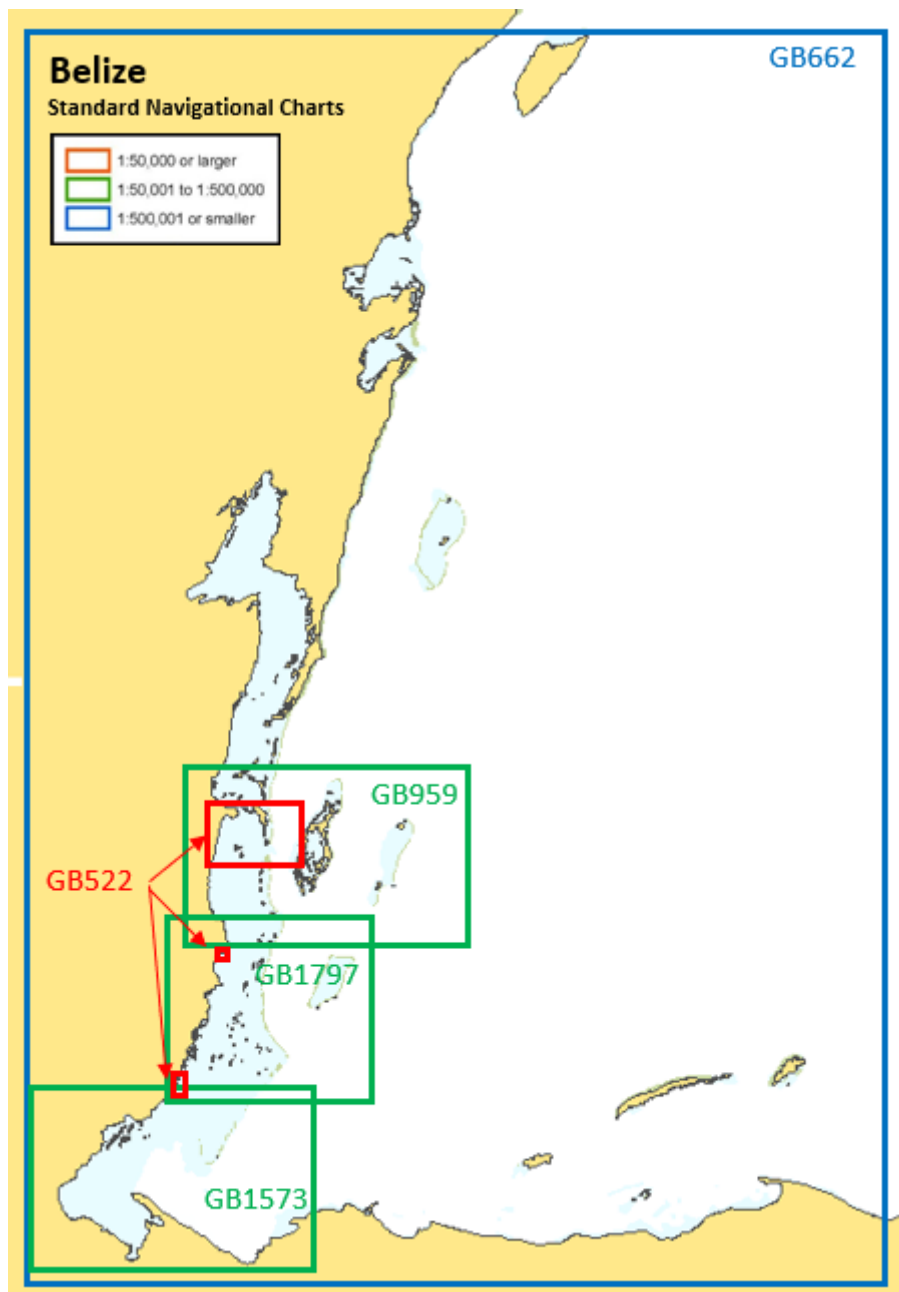
Annex J - PCA Chart and ENC Coverage

Electronic Navigational Chart Coverage



GB ENC No	Compilation Scale	Published	Edition No
GB200662	350,000	13/07/2022	6
GB389330	90,000	20/03/2020	7
GB389320	90,000	09/03/2022	11
GB389310	90,000	13/11/2023	8
GB400522	22,000	02/04/2020	8
GB58932A	12,000	13/11/2023	7
GB58932B	12,000	13/11/2023	10

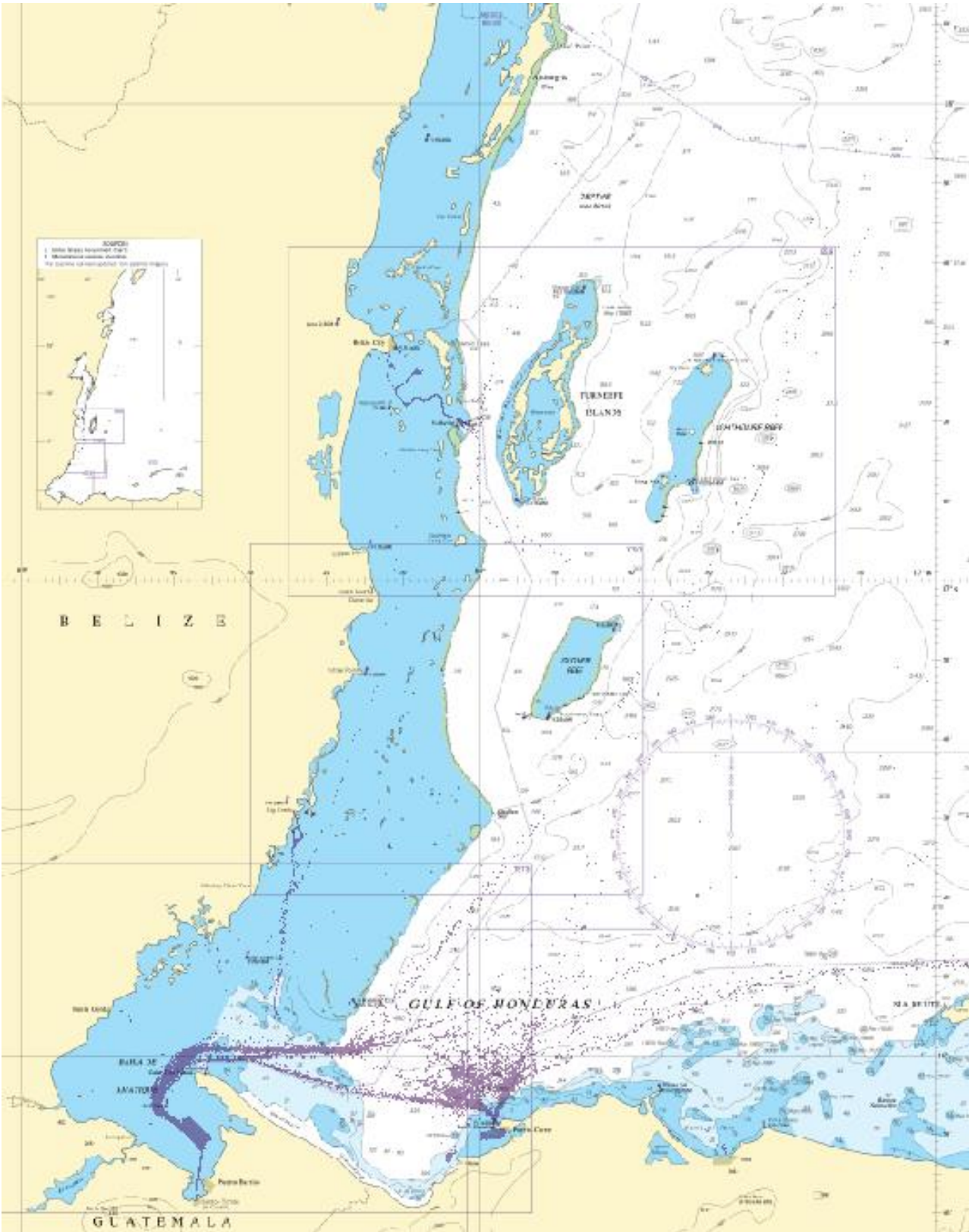
Standard Navigational Chart Coverage



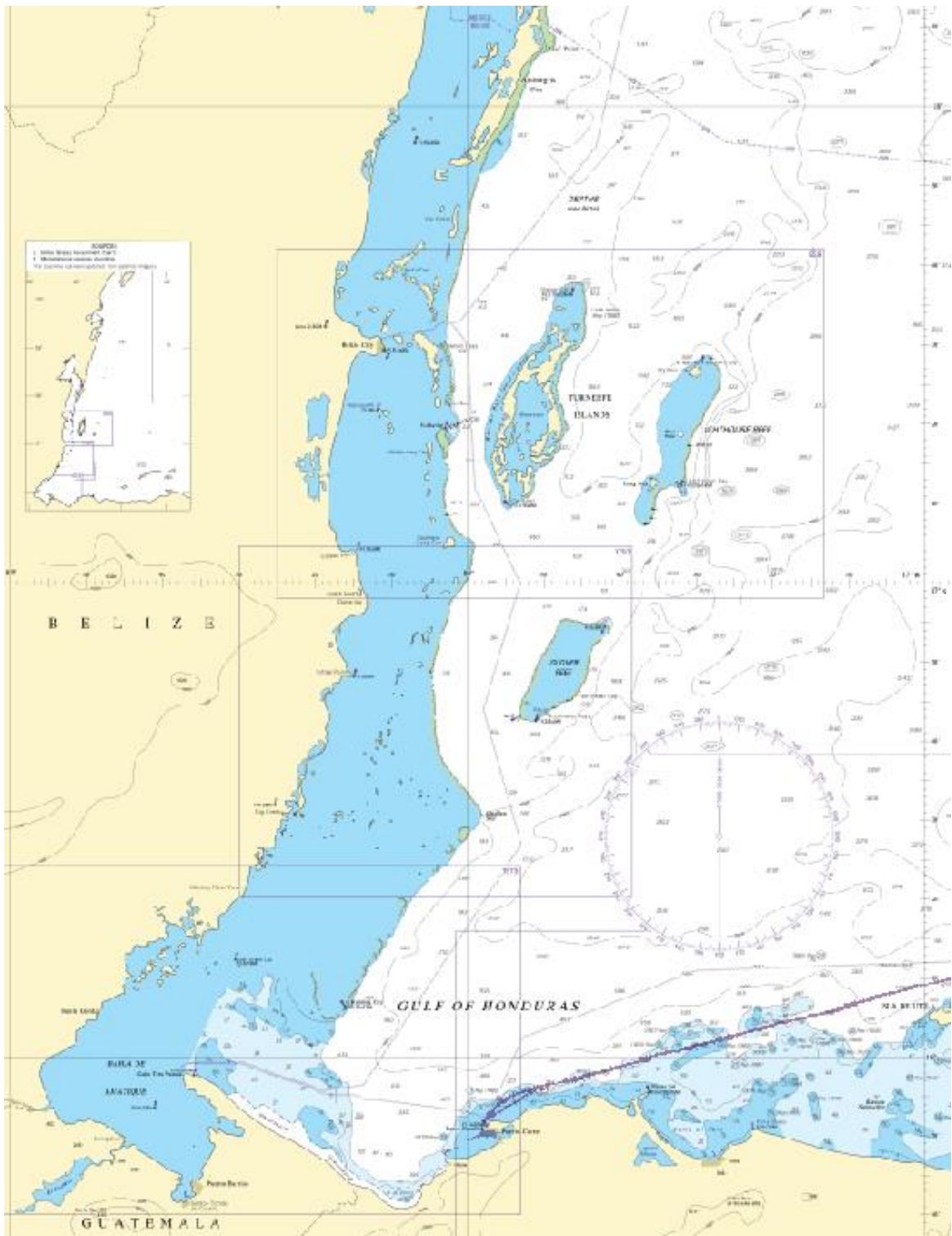
GB Chart No	INT No	Title	Scale	Published	Edition No	Published	WGS 84 Datum
662	4132	Isla de Guanaja to Isla Cozumel including the Gulf of Honduras	500,000	02/04/2009	1		Y
522		Belize City & Approaches	40,000	02/04/2020	4	13/10/1989	Y
1797		Monkey River to Colson Point	125,000	07/05/2020	6	13/10/1989	Y
		Commerce Blight	12,000				
		Big Creek & Approaches					
1573		Gulf of Honduras	125,000	07/05/2020	4	26/08/1988	Y

Annex K - Coastal State Trade and Marine Traffic

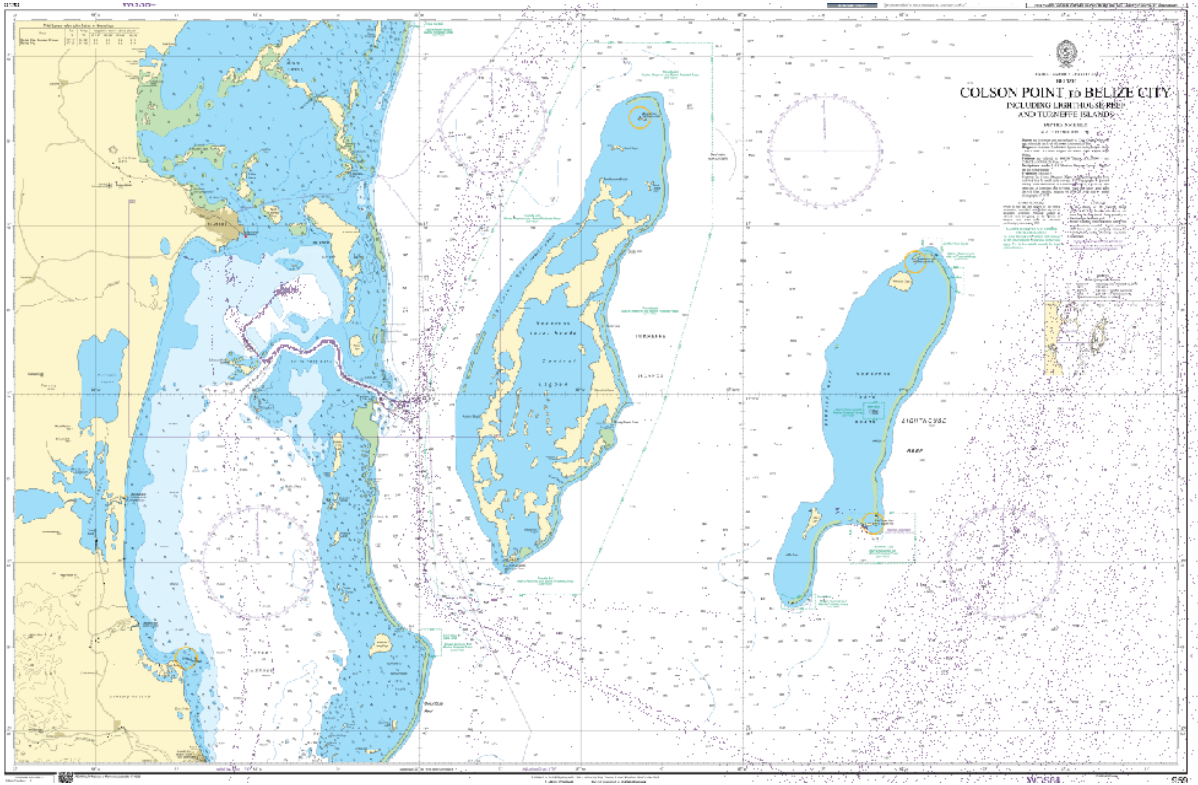
Annual – Regulated (2022)



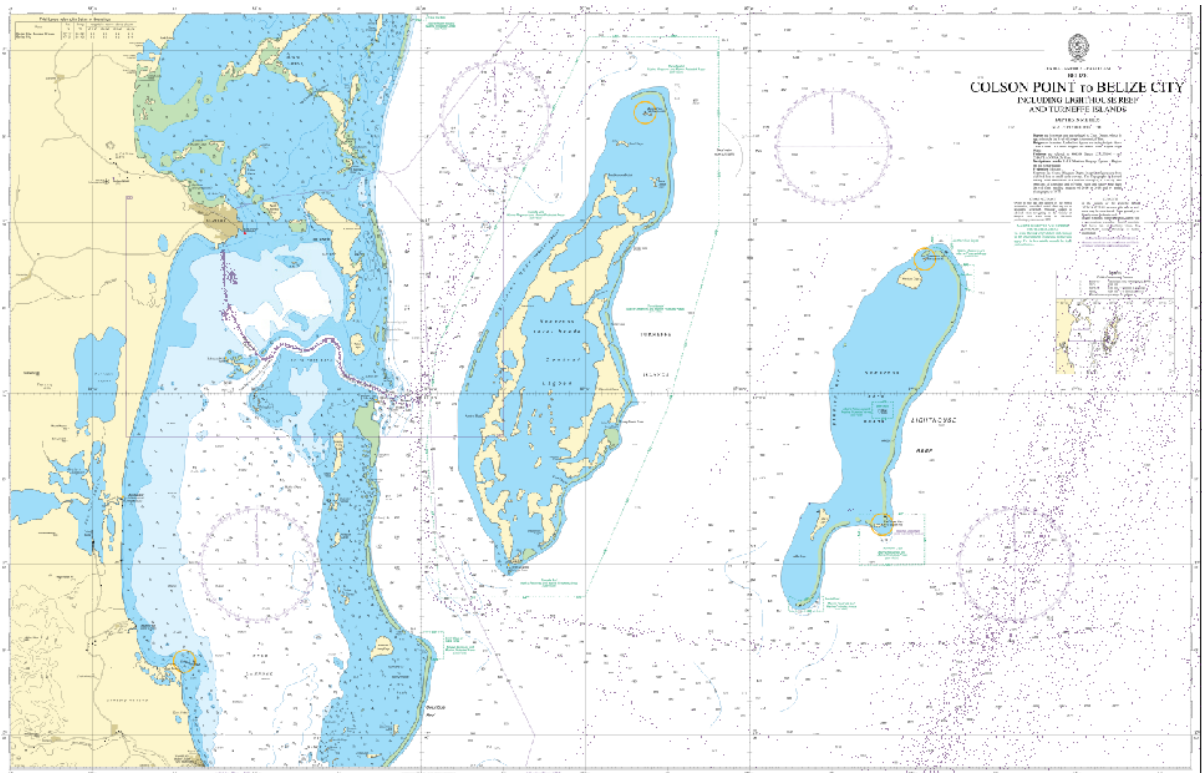
Annual – Unregulated (2022)



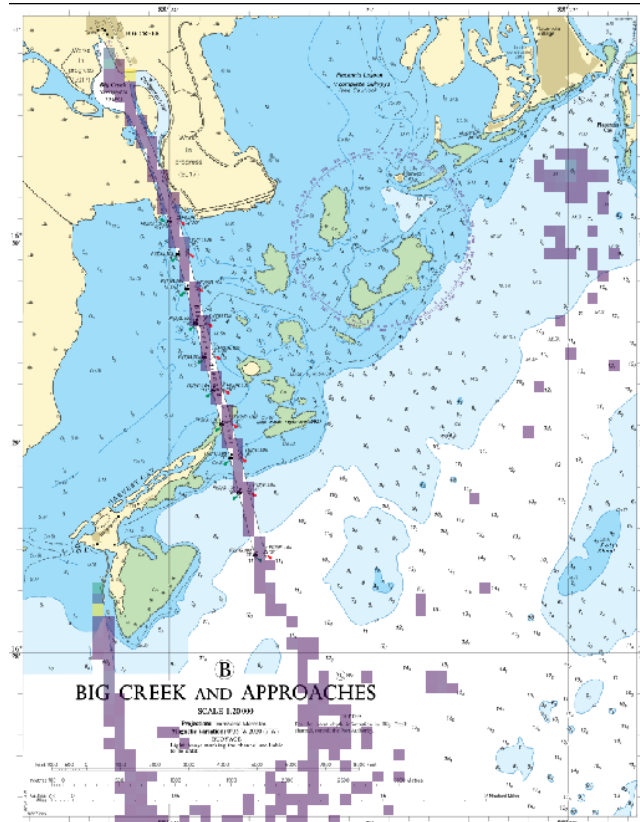
Belize City Regulated 2022



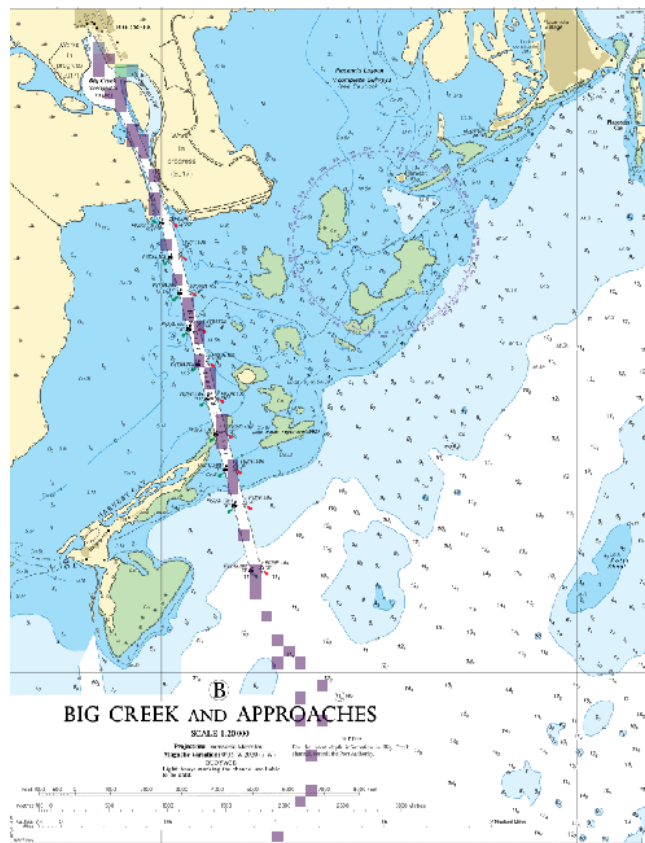
Belize City Unregulated 2022



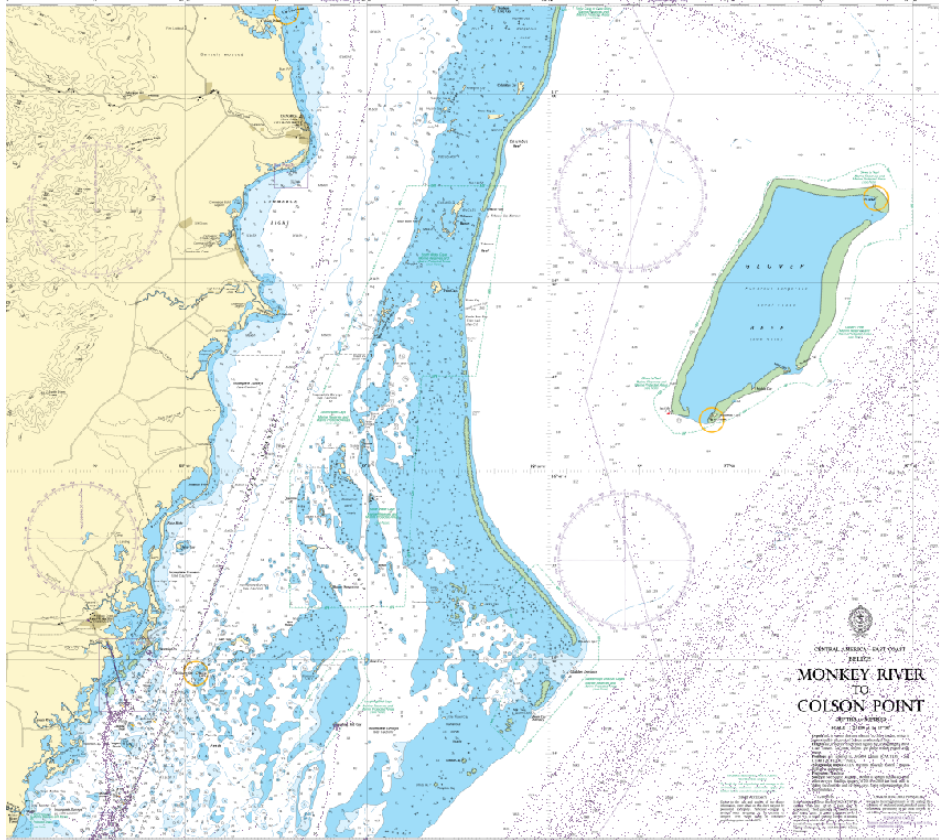
Big Creek Regulated (2022)



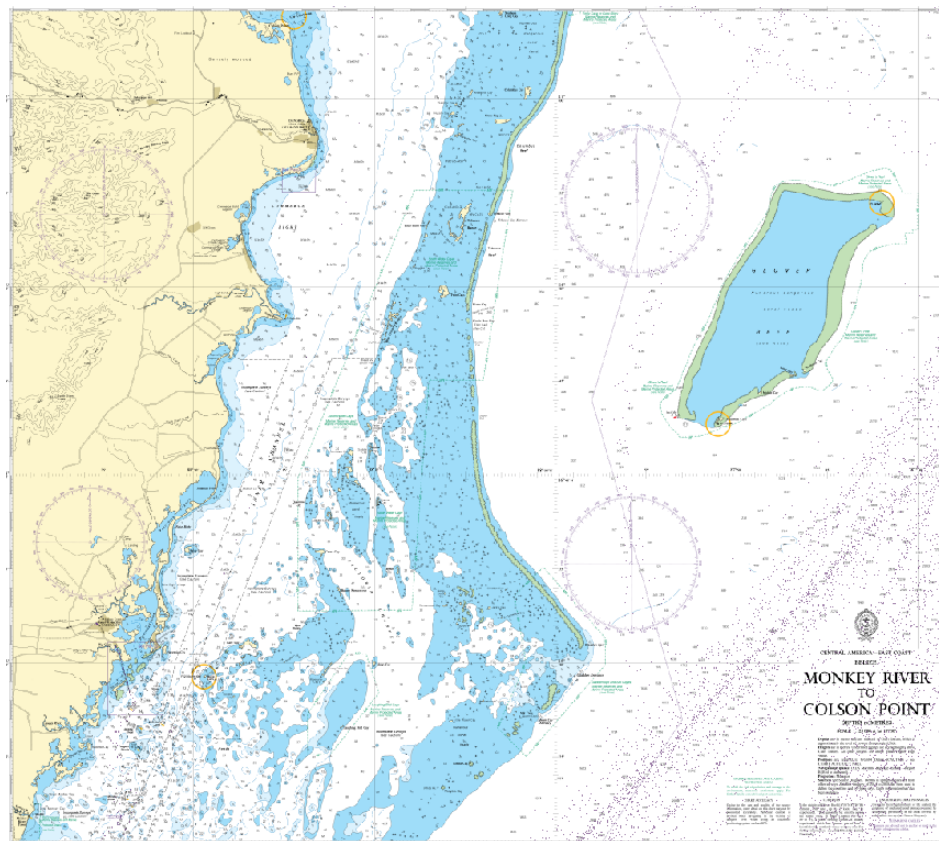
Big Creek Unregulated (2022)



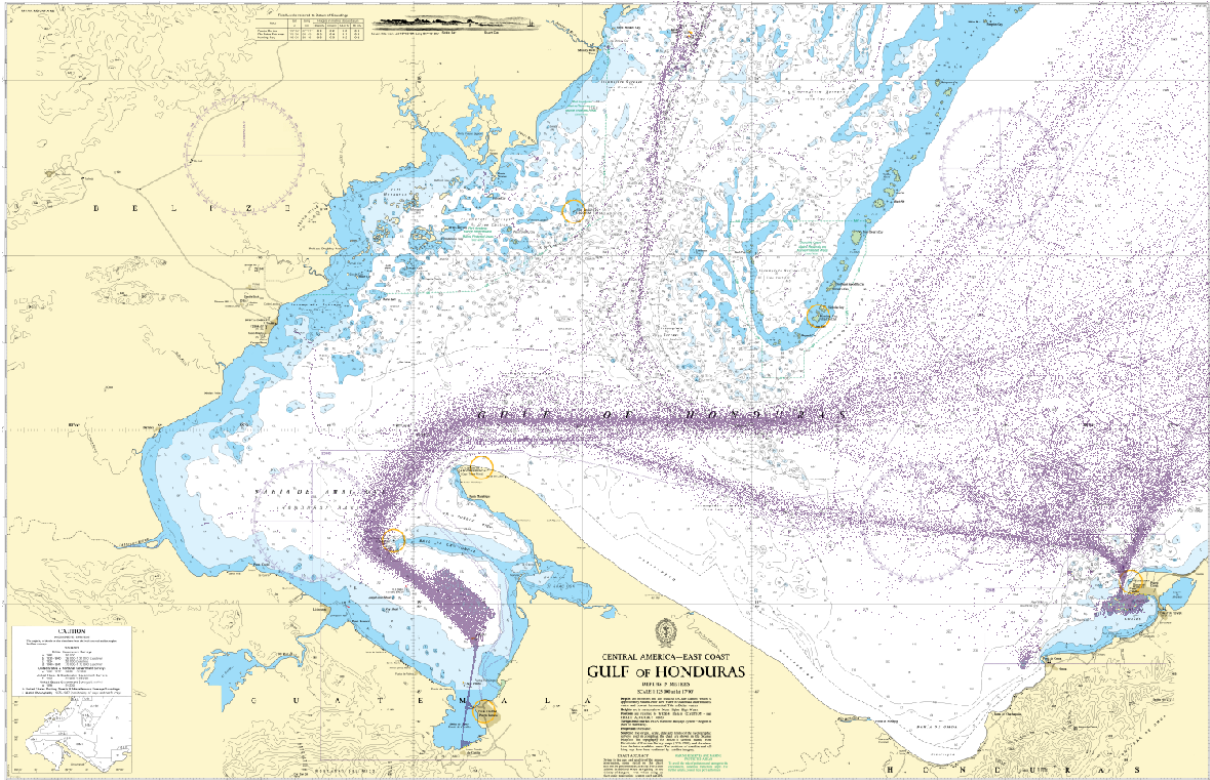
Central Waters Regulated (2022)



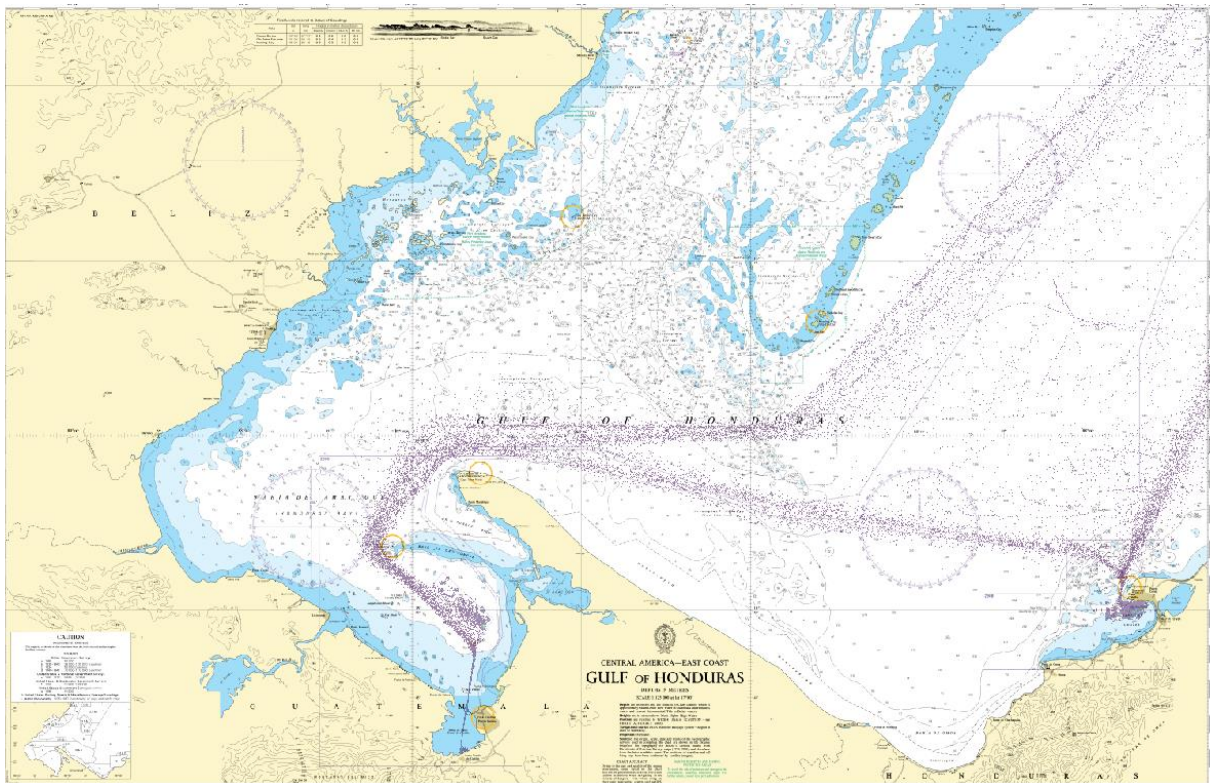
Central Waters Unregulated (2022)



Southern Areas Regulated (2022)



Southern Areas Unregulated (2022)



Annex L - Action Items

IHO Technical Visit Actions June 2023			
Number	Action	On whom	Completed
01/2023	Provide details on how memberships costs are calculated to Ports Commissioner, Belize Ports Authority.	UKHO and IHO	Jun 2023
02/2023	IHO Secretariat to update Belize P-5 Yearbook entry with details included at Annex G	IHO	
03/2023	BPA to share with their PCA (UKHO) any comments related to nautical charts and publications from the IMSAS Audit.	BPA	
04/2023	BPA to establish a network of contacts through government and local organisations who can be used to provide information to support MSI Requirements.	BPA	
05/2023	BPA to request copies of hydrographic surveys and forward to their PCA (UKHO) for updating navigational products and services.	BPA	
06/2023	BPA should develop the required sub-committee to cover the safety of navigation aspects as required by the BSOP.	BPA	
07/2023	BPA to contact NAVAREA IV coordinator (NavSafety@nga.mil) and their PCA (UKHO) with any updated contact details for relevant ADMIRALTY List of Radio Signals (ALRS) publications.	BPA	
08/2023	BPA to work with their 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.	BPA/PCA	
09/2023	MACHHC CB Coordinator/UKHO(PCA) to assist BPA in identifying funding opportunities for hydrographic training.	MACHC CBC/UKHO	
10/2023	BPA to maintain lines of communication with their PCA (UKHO) and formalise the relationship via an Arrangement for Cooperation.	BPA	
11/2023	MACHC Chair and CB Coordinator to consider another visit 3 years after this report to monitor progress.	MACHC Chair/CBC	