



UK Hydrographic
Office

REPORT of UK ACTIVITES



43rd US / CANADA HYDROGRAPHIC COMMISSION

Québec, Canada
24th February 2020

This report is not a formal UK National Report;
Although similar in content,
it simply describes UK's activities of direct relevance to the USCHC Region.



1. UNITED KINGDOM HYDROGRAPHIC OFFICE (UKHO)



1.1 **UK Delivery of Hydrographic Services.** UKHO are the UK government's hydrographic and marine geospatial data experts.

We support the UK government's National Security Strategy (NSS), and discharge the government's obligation to provide hydrographic products and services needed for safe passage in UK waters. We do the latter on behalf of the Maritime and Coastguard Agency (MCA) under the International Maritime Organization (IMO) Safety of Life at Sea (SOLAS) Convention. As a trading fund, we fulfil this task at no additional expense to the taxpayer.

Together with other national hydrographic offices and the International Hydrographic Organization (IHO), we work to set and raise global standards of hydrography, cartography and navigation. Through additional specialist departments such as the Law of the Sea and Her Majesty's Nautical Almanac Office, we support other specialised areas of government.

1.2 **Cooperation and Partnerships.** The UK is committed to bilateral arrangements, developed in co-operation with other international government hydrographic authorities and other agencies, covering a range of topics, including the use of copyright data. These arrangements acknowledge appropriate Intellectual Property rights, and promote other forms of co-operation between the participants, helping to enhance international maritime safety and protection of the environment

1.3 **Commonwealth Marine Economies (CME) Programme.** In November 2015 the British Prime Minister announced a package of measures to help small island countries reduce poverty by preserving their marine environments and making best use of their maritime resources. The CME Programme aims to support the sustainable growth of Commonwealth Small Island Developing States (SIDS) within the Caribbean, Pacific and Indian Ocean regions. The Programme now been extended through 2021.

The Programme is being delivered on behalf of the UK Foreign and Commonwealth Office (FCO) by a partnership of world-leading UK government marine expertise; UKHO, the Centre

for Environment Aquaculture and Fisheries Science (CEFAS) and the National Oceanography Centre (NOC).

The main focus of the activity has been to capture, as fully as possible, the current hydrographic baseline status of the SIDS in scope, and to develop hydrographic action plans that can either be serviced by future years of the CME programme or by other funding/Capacity Building (CB) activities. In addition to this, we have carried out a number of data gathering activities in the Caribbean and are looking into the feasibility of further replicating this in the Caribbean, Pacific and Southern Atlantic throughout 2020 and 2021.

2. SURVEYS

- 2.1** Details of the management of civil hydrographic surveys in UK Home Waters are provided in the UK Generic National Report, and on the UKHO website. UK's National Hydrographic Committee [known as the Civil Hydrography Annual Seminar (CHAS)] meets on an annual basis and provides the necessary breadth of interests to ensure that all surveying requirements are taken into account when prioritising the work of the Civil Hydrography Programme (CHP). CHAS was expanded in 2007 to include a much wider range of organisations, which conduct hydrographic surveys, and has been successful in promoting co-operation between these organisations.
- 2.2** UKHO contributes to project management for hydrographic surveys undertaken on behalf of UKHO and UK Government interests across the globe, and has a post dedicated to the phased development of new international survey activity and capability. This post acts as the initial point of contact for UKHO involvement in direct overseas surveying schemes, including British Overseas Territories and Regional Hydrographic Commission initiatives. Further information can be obtained from hydrographicprogrammes@UKHO.gov.uk.



3 CHARTS

3.1 Paper Charts. Information on UK's global chart portfolio is provided on the UKHO website. Working with our many valued partners in the region, the following charts have been published since the last USCHC meeting as New Charts or full New Editions:

GB Chart Number	Title	Published
2710	Delaware Bay to Straits of Florida	March 2019
1063	San Pedro Channel, US West Coast	April 2019
1081	Los Angeles and Long Beach Harbors	April 2019
4813	North Pacific Ocean, Southern Part (INT 813)	April 2019
4814	North Pacific Ocean, Northern Part (INT 814)	April 2019
2605	Delaware River, Philadelphia to Trenton	April 2019
4753	Nova Scotia, Halifax Harbour, Black Point to Point Pleasant	May 2019
2818	Georgia to Florida, St Marys Entrance;	May 2019
47	Washington: Puget Sound, Point no Point to Alki Point	June 2019
48	Washington: Puget Sound, Alki Point to Point Defiance	June 2019
50	Washington: Puget Sound, Seattle Harbor	June 2019
51	Washington: Puget Sound, Point Defiance to Olympia	June 2019
588	California; San Fransisco Bay, Golden Gate to Alameda	June 2019
590	California; San Pablo Bay and Carquinez Strait	June 2019
591	California; San Fransisco Bay, Approaches	June 2019
897	California, San Diego Bay	June 2019
1368	Hawaii, Honolulu Harbor	June 2019
4779	Quebec; Saguenay Fjord to Cap Eternite	June 2019
4780	Quebec; Saguenay Fjord to Saint Fulgence	June 2019
4784	Quebec; St Lawrence River, Cap aux Oies to Sault au Cochon	June 2019
4966	British Colombia, Strait of Georgia to Burrard Inlet	June 2019
2486	Maine: Penobscot Bay and Approaches	July 2019
4777	St Lawrence, Points des Monts to Escoumins	July 2019
8306	Port Approach Guide, Approaches to Vancouver	July 2019
8307	Port Approach Guide, Frazer River and Deltaport	July 2019
4788	Quebec St Lawrence; Donnacona to Batiscan	July 2019
4789	Quebec St Lawrence; Batiscan to Lac Saint Pierre	July 2019
4786	Quebec St Lawrence; Port de Quebec	Aug 2019
2803	South Carolina, Outer Approaches to Charleston	Aug 2019
2805	South Carolina, Port Royal and Approaches	Aug 2019
2807	South Carolina, Savannah River and Approaches	Aug 2019
2808	Florida, Saint Johns Port to Jacksonville	Aug 2019
2810	East Coast, Brunswick and Approaches	Aug 2019
3692	Florida, Cape Canaveral	Aug 2019
2806	South Carolina, Inner approaches to Charleston Harbor	Aug 2019
2809	South Carolina, Charleston Harbor	Aug 2019

2818	Georgia, St Marys Entrance	Aug 2019
3686	North Carolina, Morehead City	Aug 2019
3687	North Carolina, Outer Approaches to Cape Fear	Aug 2019
3688	North Carolina, Cape Fear and Approaches to Wilmington	Aug 2019
4790	St Lawrence, Lac Saint Pierre to Port du Sorel Tracy	Aug 2019
4776	St Lawrence, Baie de Sept Iles	Sept 2019
2603	Delaware River to Little Tincum Island	Sept 2019
2604	Delaware Rive, Philadelphia and Camden	Sept 2019
2605	Delaware River, Philadelphia to Trenton	Sept 2019
2813	Hampton Roads and Newport News	Sept 2019
2814	Norfolk Harbor and Elizabeth River	Sept 2019
2829	Chesapeake Bay and Lynnhaven Roads	Sept 2019
2850	Chesapeake Bay and Approaches to Baltimore	Sept 2019
2919	Cheasapeake Bay Entrance	Sept 2019
2921	Chesapeake Bay, Point no Point to Love Point	Sept 2019
2922	Chesapeake Bay, Delaware Canal, Approaches to Baltimore	Sept 2019
3204	New York & New Jersey, Lower Approach	Sept 2019
2456	New York, Upper Bay	Sept 2019
3457	New York, Arthur Kill and Newark Bay	Sept 2019
3458	New York, Raritan Bay to Arthur Kill	Sept 2019
3459	New York, Lower bay	Sept 2019
2731	Rhode Island; New London and Fall River Harbor	Sept 2019
461	Bahamas, Ocean Cay	Oct 2019
4787	St Lawrence, Quebec to Donnacona	Oct 2019
4791	St Lawrence, Sorel-Tracey to Varennes	Oct 2019
4792	St Lawrence, Port de Montreal	Oct 2019
2807	South Carolina, Savannah River and Approaches	Nov 2019
1516	Boston Hasrbor	Dec 2019
1528	Boston Inner Harbor	Dec 2019
2488	Maine, Portland Harbor	Dec 2019
2922	Chesapeake Bay, Delaware Canal, Approaches to Baltimore	Jan 2020

Charts in the 8xxx series are Port Approach Guides

3.2 Raster Charts. UKHO continue to maintain global raster chart coverage.

3.3 ENC. Within the USCHC Region, UK currently has published 22 ENC cells.

The breakdown by usage band is shown in the table below, and in the diagrams that follow:

USCHC Region Released Cells	
ENC Usage Band	Number of GB ENCs
Overview	12
General	2
Coastal	2
Approach	2
Harbour	3 (Bermuda)
Berthing	1 (Bermuda)
Total number of released ENCs	22

USCHC GB Overview Usage Band

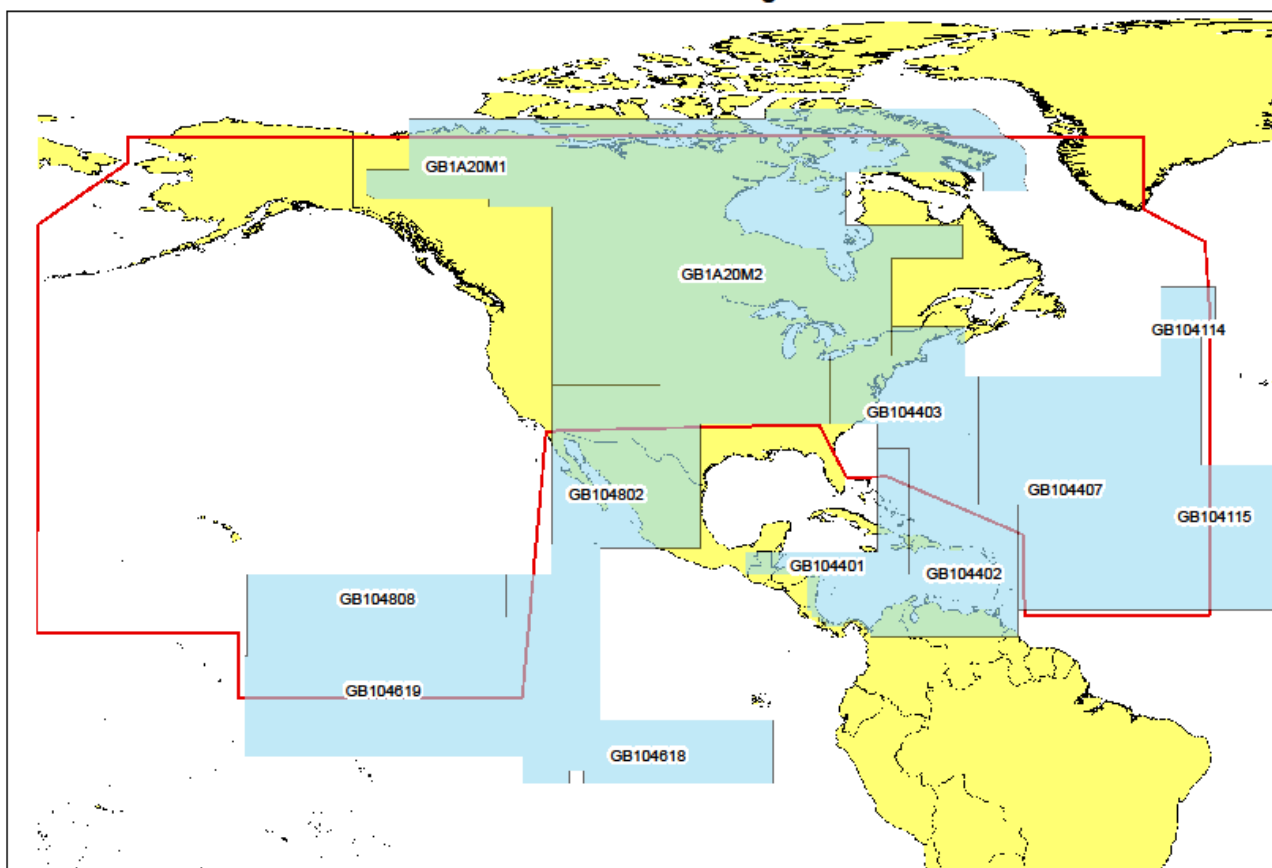
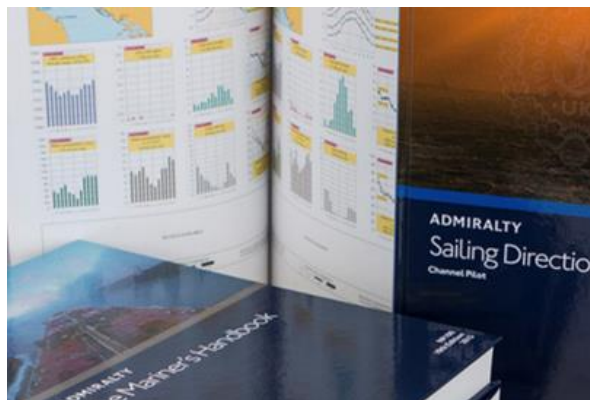


Figure 1

3.4 ENC Distribution. The UKHO, along with other European hydrographic offices, was a founder member of the International Centre for ENCs (IC-ENC) Regional ENC Co-Ordination Centre (RENC). The IC-ENC concentrates its efforts on the validation and consistency of ENC data and leaves the marketing of ENCs to the shipping industry and to its value-added resellers (VARs) and chart agents. Additional details can be found on the IC-ENC website (www.ic-enc.org).

The UKHO also acts as a VAR in its own right, particularly promoting a global range of ENCs under the AVCS brand alongside its successful Admiralty range of paper charts and publications. Additional details can be found on the UKHO's Admiralty website (www.admiralty.co.uk)

4. PUBLICATIONS



4.1 Paper Publications. The Admiralty Sailing Directions in the USCHC region are as follows:

NP4	South East Alaska Pilot
NP8	Pacific Coast of Central America and United States Pilot
NP12	Arctic Pilot, Vol 3
NP23	Bering Sea and Strait Pilot
NP25	British Columbia Pilot, Vol 1
NP26	British Columbia Pilot, Vol 2
NP50	Newfoundland and Labrador Pilot
NP59	Nova Scotia and Bay of Fundy Pilot
NP65	St. Lawrence Pilot
NP68	East Coast of the United States Pilot, Vol 1
NP69	East Coast of the United States Pilot, Vol 2
NP69A	East Coasts of Central America and Gulf of Mexico Pilot
NP70	West Indies Pilot Vol.1

These publications are all maintained on a continuous revision cycle and new editions are published every 3 years or as required.

4.2 Digital Publications. The UKHO continues to develop digital equivalents to its existing paper publications, to support the IMO mandation of ECDIS; these publications have advantages to the mariner of providing additional functionality and minimising the task of updating.



4.3 Catalogue. The Admiralty digital catalogue may be downloaded free from the UKHO's Admiralty website (www.admiralty.co.uk) it includes details of all paper and digital charts and publications and is updated weekly. It is a useful tool to check the ENC coverage within the region and to show the latest edition dates of both charts and publications.

5. MARITIME SAFETY INFORMATION



- 5.1 Responsibilities.** The UK's principal responsibility within the USCHC region is for its United Kingdom Overseas Territory of Bermuda.

UK maintains close liaison with both USA and Canada, the NAVAREA Co-ordinators for NAVAREA IV and XII, and for XVII and XVIII respectively. Any information received at UKHO which requires urgent promulgation is passed to the respective NAVAREA Co-ordinator on a 24 hour basis.

- 5.2 Notices to Mariners.** Admiralty Notices to Mariners are available on the UKHO website. UKHO has recently ceased to publish hard-copy weekly Bulletins.

6. CAPACITY BUILDING

- 6.1 IHO Capacity Building Sub-Committee.** UK fully supports the IHO Capacity Building Sub-Committee strategy (CBSC) and particularly its emphasis on facilitating Phase 1 and appropriate Phase 2 capacity in place to enable coastal states to meet their obligations under SOLAS Chapter V Regulations 4 and 9. UK will continue to contribute resources to both CBSC initiatives and to providing bilateral assistance.

- 6.2 Technical Support and Training.** UK has participated in numerous technical visits and workshops for varying programmes of work, in several RHC regions.

- 6.3 Capacity Building Coordinator.** UKHO has a post dedicated to capacity building. Its key aims are to ensure that capacity building is properly considered in UKHO activity and that UKHO's capacity building activities are fully coordinated. It acts as the initial point of contact for UKHO involvement in capacity building activities, including UK involvement in regional hydrographic commission initiatives and IHO Capacity Building Sub Committee activities. Further information can be obtained from Mrs Lucy Fieldhouse (lucy.fieldhouse@ukho.gov.uk). Ms Lucy Fieldhouse is also the Capacity Building Coordinator for the MACHC, NIOHC and SAIHC regions

- 6.4 Cartographic Training provided by UKHO.** A general description of training provided by UKHO is included in the UK Generic National Report. Further details of the training opportunities offered by the UKHO can be found on the UKHO website.



6.5 ENC Training and Assistance. The UKHO strongly supports the successful uptake of type approved ECDIS using Official ENC's, and is pro-active in offering assistance to other nations to produce, maintain and distribute ENC's. Details of courses, sponsorship, venues and options for bespoke training provided by the UKHO can be provided on request.

7. OTHER ACTIVITIES

7.1 United Kingdom Overseas Territories (UKOTs).

Within the USCHC region, UK undertakes Primary Charting of Bermuda. The UKHO is progressing a programme of work to update the status of hydrography within the United Kingdom Overseas Territories (UKOT), and continues to highlight the importance and utility, both locally and within UK government, of Hydrography and the wider blue economy within the context of the UKOTs. This has involved raising awareness of the importance of hydrography as well as seeking opportunities to collaborate with regional projects. The UKHO has been working with the UK Foreign and Commonwealth Office to conduct an audit of data collected under the Marine Scientific Research licensing programme; the intention is that where bathymetric data has been collected but not supplied to the UKHO, this will be requested and assessed for charting action.

During 2019, UKHO contractors conducted new LIDAR surveys of Bermuda, as part of the CME programme.

8. SPATIAL DATA INFRASTRUCTURES

8.1 Status of MSDI.

The UKHO has recently adopted the UNGGIM IGIF as a means of auditing its work so far in establishing an MSDI and prioritising future activities. The UKHO's aspiration is to have established itself as the de-facto owner of the UK's MSDI by 2022. This aspiration has led to a review of the UKHO's internal data platforms and Marine Data Portal.

8.2 Relationship with the NSDI.

The UK does not yet have a recognised NSDI. However, a UK Geospatial Commission was established in 2017 with partner bodies consisting of several national geospatial agencies, including the UKHO. This Commission is focused on establishing a UK Geospatial Strategy which is likely to form the foundation of a NSDI in the near future. The Commission is currently supporting several collaborative projects being undertaken by the UKHO which all have strong links to NSDI principles.

8.3 Involvement in regional or global MSDI efforts.

The UKHO is an active member of the UNGGIM and OGC groups which contribute towards Global MSDI activities and methodologies. The UKHO is also a member of the IHO MSDI Working group as well as most of the MSDI Working Groups within the Regional Hydrographic Commissions for which the UKHO has membership of.

We are actively working at creating a domain with the appropriate standards to support national and international MSDIs, a good example is our sponsorship of S-121 a pilot project to develop a standard for the exchange of Maritime limits and boundaries.

8.4 National implementation of the Shared Data Principles - including any national data policy and impact on marine data.

The UKHO is actively engaged with a project directed by the UK Geospatial Commission to improve the handling and publication of Government datasets. This work involves improving the discoverability of data as well as working towards a set of shared principles within UK Government. The UKHO also continues to produce Electronic Navigational Charts to the IHO S-57 standard which contains a defined structure for metadata and the modelling of maritime related features. Work is ongoing to transition to the future IHO S-100 standards.

8.5 MSDI national portal.

The UKHO has a Marine Data Portal which is in a state of continual development. As the organised gateway to our non-navigation data and services it gives people easy and timely access to marine location-based information from seabed to surface to help them with sustainable marine decision making. The Portal allows users access to a number of free of charge datasets and services mainly covering the UK territorial waters. The Portal provides access to premium data sets which can be purchased. The underlying Marine Data Portal technology has the capability to host other agencies', or even other nation's datasets.

8.6 Best practices and lessons learned.

The UKHO via the (UK) Geospatial Commission is leading on a limited-scope Governance project to inform, guide and direct effective joint working between the participating UK agencies. The project will draw upon suggested Best Practices as represented via the UNGGIM IGIF with a focus on technology-agnostic Governance between formal institutions, which may be extended across the Geospatial Commission in due course subject to circumstances.

The UKHO is currently investigating the possibility of providing MSDI Services to several of its Primary Charting Authorities as a small-scale proof of concept. Lessons learnt from this exercise may inform decisions about the UKHO's future larger scale MSDI activities.

As part of the UK Geospatial Commission collaborative projects, the UKHO and other partners have made more public geospatial data available through a government hosted website data.gov.uk and are now:

- Looking at ways of standardising data licensing agreements
- Improving the discoverability of national geospatial data
- Providing guidance to better link geospatial data sets
- Increasing the range of data which is ingested.

9. INNOVATION

9.1 Use of new technologies.

The UK Hydrographic Office has established a Data Science and Data Engineering team, which uses machine learning techniques to illustrate the art of the possible and has been working on a variety of prototype projects, from automated cleaning of Bathymetry data to using satellite imagery for automatic identification of coastline, as an aid to change detection and to find mangrove forests.

10. OTHER ACTIVITIES

Visit from HRH The Princess Royal - 25 April 2019

10.1 To officially open our new building and celebrate World Hydrography Day, we held a commemorative event attended by HRH The Princess Royal. During her visit, The Princess Royal delivered a speech to an audience of UKHO staff and over 100 guests who gathered from across the world to celebrate the landmark occasion. In her speech, she commended the UKHO for the vital role it plays in supporting maritime navigation, safety, security, and marine development around the UK and worldwide.

The Rt Hon Earl Howe, Deputy Leader of the House of Lords and Minister of State for Defence, was also in attendance. He addressed guests to speak of the UKHO's long and successful history of supplying navigation services to shipping companies around the world, as well as its continued contribution to defence and the long-term prosperity of the UK and its allies around the world.

Science, Technology, Engineering and Maths (STEM) activities

10.2 Throughout the year, our STEM Ambassadors have attended a number of events to promote our work as an organisation and encourage young people in the South West into STEM careers. Some of the outreach work in which we have been actively involved this year includes guest lecturing at a 'Science of the Sea' community event in Taunton to celebrate British Science Week, and participating in the regional Big Bang Near Me science fairs. Central to these events was the theme of hydrography, with educational activities including:

- An Augmented Reality bathymetry sandbox to explain the science behind mapping the seafloor
- An activity on ocean environment marine sounds
- A bathymetry pairing game, featuring images of wrecks taken from hydrographic surveys
- A bathymetric drone coding challenge activity

Broader UK Government Work

10.3 The UK Member State, consisting of the UK, the Overseas Territories and Crown Dependencies, will be audited in September 2020 against the IMO Instrument Implementation Code (commonly known as the Triple I Code). This has raised awareness of the importance of maritime compliance and the benefits to everyone. To compliment the work of the UKHO's OT Seabed Mapping Programme, the UK Maritime and Coastguard Agency have a UK Government aid funded programme to review maritime obligations compliance, search and rescue and oil pollution response.

10.4 The Commonwealth Litter Programme (CLiP), is led by the UK through the Centre for Environment Fisheries and Aquaculture Science (Cefas). Funded by Defra, the programme will support four developing countries across the Commonwealth to take action on plastics entering the oceans. The programme will contribute to the UK meeting its responsibilities under the Commonwealth Blue Charter, which calls for Commonwealth countries to drive

action and share expertise on issues affecting the world's oceans, including marine litter. CLiP will contribute to delivering the objectives under the UK and Vanuatu-led Commonwealth Clean Oceans Alliance (CCOA), which calls on other countries to pledge action on plastics. CCOA also promotes actions in line with the United Nations Sustainable Development Goal 14 (life below water) to conserve and sustainably use the oceans, as well as contributing to the UK Government's 25 Year Environment Plan. The programme will work in the South Pacific, Caribbean and Africa. In May 2019, work began in Belize.

The programme will encompass the following five pillars:

- Land based sources of litter
- Sea based sources of litter
- Removal of litter from the marine environment
- Science and Education
- Outreach

10.5 The UK's Joint Nature Conservation Committee continues its work in the Overseas Territories, providing technical assistance to support biodiversity and wider environmental management strategies and scientific advice. Their UK Government aid funded programme *Natural Capital in the Caribbean and South Atlantic Overseas Territories* uses economic assessments and analysis, spatial mapping and satellite data to provide an assessment of natural capital in a number of the UK's Caribbean and South Atlantic Overseas Territories.

10.6 In 2019, the UK Department for Transport published its *Maritime 2050 Navigating the Future strategy*. This recognises the critical role of the maritime sector for the growth and development of the UK, including its Overseas Territories, as a primary facilitator of global trade.

UKHO's International Activities

10.7 Due to UKHO's technical expertise, primary charting responsibilities and UK OTs the UK is represented at the following groups:

International Hydrographic Organisation - HSSC		Chair/Vice Chair	Member
DQWG	Data Quality Working Group		x
ENCWG	ENC Standards Maintenance Working Group	x	x
HSSC	Hydrographic Services and Standards Committee		x
NCWG	Nautical Cartography Working Group		x
NIPWG	Nautical Information Provision Working Group		x
S-100WG	S-100 Working Group		x
TWCWG	Tides, Water Level & Currents Working Group		x
International Hydrographic Organisation - IRCC		Chair/Vice Chair	Member
CBSC	Capacity Building Sub-Committee		x
CSBWG	Crowd-sourced Bathymetry Working Group		x
DRWG	Document Review Working Group of NAVTXT		x
HCA	Hydrographic Commission on Antarctica		x
IRCC	Inter-Regional Coordination Committee		x
MACHC	Meso American and Caribbean Sea Hydrographic Commission		x
MBSHC	Mediterranean and Black Seas Hydrographic Commission		x
MSDIWG	Marine Spatial Data Infrastructure Working Group		x
NIOHC	North Indian Ocean Hydrographic Commission		x

International Hydrographic Organisation - IRCC		Chair/Vice Chair	Member
NSHC	North Sea Hydrographic Commission		x
RSAHC	ROPME Sea Area Hydrographic Commission		x
SAIHC	Southern African and Islands Hydrographic Commission	x	x
SWPHC	South-West Pacific Hydrographic Commission		x
WENDWG	Worldwide ENC Database Working Group		x
WWNWS	Worldwide Navigational Warning Service		x
International Maritime Organisation		Chair/Vice Chair	Member
NAVTEX	NAVTEXT Coordination panel	x	x
International Association of Marine Aids to Navigation and Lighthouse Authorities		Chair/Vice Chair	Member
ENAV	E-navigation Committee		x
Other International Bodies		Chair/Vice Chair	Member
IAU	International Astronomical Union		x
CIRM	Comité International Radio-Maritime		x
BALTICO	Navarea1 member states meeting		x
ISO	International Standards Organisation		x
OGC	Open Geospatial Consortium		x

CONCLUSION.

The UKHO continues its commitment to carrying forward hydrographic activities through the work of the IHO's Regional Hydrographic Commissions, and notes that each commission has its own particular opportunities and challenges.

UK has a strong commitment to the Caribbean, North America and Arctic areas, through its Primary Charting responsibilities and through its continuing interest in developing regional hydrographic self-sufficiency through capacity building measures.

The UK, through the UKHO and the national maritime administration (MCA), continues to pursue opportunities to improve access to bathymetric data gathering in waters around United Kingdom Overseas Territories, particularly to support Caribbean Sea cruise-ship traffic.

The provision of adequate ENC coverage, in support of the IMO carriage requirement for ECDIS that have progressively come into force from 2012, presents a significant challenge globally; the USCHC already has comprehensive ENC coverage.

With a diverse range of shipping interests in the Region, from the Caribbean to the Arctic, improving the effective distribution of hydrographic publications and updates remains paramount.

Taunton, February 2020



ANNEX A: UKHO POINTS OF CONTACT

UKHO Website: www.gov.uk/ukho

The general UKHO address is:

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