

# UNITED KINGDOM NATIONAL REPORT

to the

### SOUTH-WEST PACIFIC HYDROGRAPHIC COMMISSION (SWPHC) 20<sup>TH</sup> MEETING

20 - 24 FEBRUARY 2023



This report supplements the UK Generic National Report, posted on the UKHO website

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#### 1. UK HYDROGRAPHIC OFFICE (UKHO)

#### **UK Delivery of Hydrographic Services**

**1.1** The UK delivery of hydrographic services is described in the UK Generic National Report. It is worth highlighting the close liaison which exists between UK Hydrographic Office (UKHO) and the UK's maritime administration Maritime & Coastguard Agency (MCA) in providing a coordinated approach to hydrographic and maritime safety representation both nationally and internationally.



#### **UKHO Governance and Targets**

1.2 This is described in the <u>UK Generic National Report</u> to the IHO.

#### **UKHO** Organisation

**1.3** Details of the UKHO's organisation are provided in the UK Generic National Report (Section 1) together with general contact details. Specific contact details relevant to the SWPHC region are included at the end of this Report.

#### **Production Systems**

**1.4** This is described in the UK Generic National Report.

#### **Cooperation and Partnerships**

**1.5** The UK is committed to bilateral arrangements, developed in co-operation with other national government hydrographic authorities and data providers, covering a range of topics, including the use and re-use of data protected by copyright and intellectual property rights of those authorities. Our bilateral arrangements also promote other forms of co-operation between the participants, helping to enhance international maritime safety and protection of the environment.

#### 2. REGIONAL ACTIVITY

#### **UK Overseas Territories Programme**

- 2.1 The UKHO continues to run the Overseas Territories Seabed Mapping Programme (OTSMP), which is reviewing the status of hydrography within the UK Overseas Territories (OTs). The OTSMP 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 UK OTs. The UKHO is continuing to plan and deliver a range of Programme activity in several UK OTs through 2023, to improve their compliance with the Hydrographic elements of SOLAS.
- **2.2** The UK fulfils the Primary charting responsibilities of the following UK OT within the SWPHC region:
  - Pitcairn Islands (Pitcairn, Henderson, Ducie and Oeno Islands)
- 2.3 The OTSMP has UK government funding to assess and redress the deficit of bathymetric data and lack of sound hydrographic governance in the UK's OTs. The programme is now in its seventh year and in August 2022 supported the Government of Montserrat in the conduct of coastal surveys to provide improved knowledge of their waters.
- **2.4** Work has also continued on developing Hydrographic Action Plans with each nation to identify future requirements for development supporting the building of strong governance and future survey planning.

#### Commonwealth Marine Economies Programme

**2.5** The Commonwealth Marine Economies Programme has now concluded and will hopefully be replaced with a new programme in the near future. In the interim, UKHO are assessing how to provide support to nations in the region working collaboratively with partners to align requirements with funding and delivery options.

#### **Surveys and Capacity Building**

- 2.6 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 considered when prioritising the work of the Civil Hydrography Programme (CHP).
- **2.7** Any requests for survey assistance from nations within the SWPHC region will be considered. The UKHO has a dedicated team of specialists that manage the portfolio of survey and hydrographic development programmes. In addition to survey advice, the team are configured to provide support and advice in the development of hydrographic governance and identifying funding opportunities.

#### 3. CHARTS

**3.1** UKHO's guiding principle is the provision of trusted, official navigation solutions that support the

safety of life at sea. It is clear that the future of navigation is digital, as shown by the rapidly shrinking demand for paper products. Digital solutions offer significant advantages including the ability for digital charts be updated in near real-time, greatly enhancing safe navigation and ease of use. To this end, in July 2022 the UKHO announced its strategic decision to withdraw from paper chart production and implement a fully digital chart solution.



UKHO will withdraw elements of our chart portfolio over the coming years, on a case-by-case basis. However, the elements of our paper chart portfolio necessary to support safe navigation for our customers will be maintained as we move to a fully digital future. To this end, UKHO undertakes to replace its paper chart coverage with an official, endorsed, and compliant digital alternative that will meet the needs of the mariner and allow us to move seamlessly towards the future benefits of the S-100 world within the timescales proposed by the International Maritime Organisation (IMO).

The UKHO's Generic National Report provides information on UK's portfolio of chart products and services. The following paragraphs provide information specifically relevant to the SWPHC region.

#### **Paper Charts**

- **3.2** Information on UK's chart portfolio is provided on the ADMIRALTY website. The following charts have been published since the last SWPHC meeting as New Charts or full New Editions:
  - 14 New Editions of charts previously adopted from the Australian (AUS) series, including prefixed charts produced by AHO (PNG & SLB).
  - 5 New Editions of charts previously adopted from the New Zealand (NZ) series, including prefixed charts produced by LINZ (CK, NU, TO, TK & WS).
  - 108 charts previously adopted from the Australian (AUS) series have been withdrawn from the ADMIRALTY Paper Chart portfolio.

In addition, the table below lists the 16 charts that have been published, in addition to those mentioned above.

GB Chart Number	Title	Published
4655 (INT655)	South Pacific Ocean – Mururoa to Ducie Island	3 <sup>rd</sup> March 2022
47   4 (INT7   4)	Indian Ocean – Cocos (Keeling) Islands to Ile Saint-Paul	2 <sup>nd</sup> June 2022
4654 (INT654)	South Pacific Ocean – Tahiti to Iles Marquises	9 <sup>th</sup> June 2022

GB Chart Number	Title	Published
4656 (INT656)	South Pacific Ocean – Iles Tuamotu to Iles Australes	9 <sup>th</sup> June 2022
4708 (INT708)	Australia – West Coast	16 <sup>th</sup> July 2022
4007	A Planning Chart for the South Pacific Ocean	18 <sup>th</sup> August 2022
4008	A Planning Chart for the North Pacific Ocean	18 <sup>th</sup> August 2022
4016	A Planning Chart for the Eastern Atlantic Ocean to the Western Pacific Ocean	I 8 <sup>th</sup> August 2022
4002	A Planning Chart for the Pacific Ocean	25 <sup>th</sup> August 2022
4005	A Planning Chart for the Indian Ocean	25 <sup>th</sup> August 2022
4709 (INT709)	Australia – South Coast	29 <sup>th</sup> September 2022
4000	The World	27 <sup>th</sup> October 2022
4602 (INT602)	Tasman and Coral Seas Australia to Northern New Zealand and Fiji	I <sup>st</sup> December 2022
4622 (INT622)	Admiralty Islands to Solomon Islands	I <sup>st</sup> December 2022
4603 (INT603)	Australia – North Coast and Adjacent Waters	29 <sup>th</sup> December 2022
4604 (INT604)	South Pacific Ocean – Coral and Solomon Seas and Adjacent Seas	29 <sup>th</sup> December 2022

Charts scheduled for publication in the next 6 months.

GB Chart Number	Title	Planned
	Nil	

The following charts have been independently withdrawn from the ADMIRALTY Paper Chart Series since the last SWPHC meeting.

GB Chart Number	Title	Withdrawn
998	Ile Makemo to Ile Tahiti	22 <sup>nd</sup> September 2022
3664	Plans in Archipel des Tuamotu	22 <sup>nd</sup> September 2022
4725 (INT725)	Australia – West Coast – North West Cape to Cape Leeuwin	24 <sup>th</sup> November 2022
4726 (INT726)	Western Australia – Cape Leeuwin to Esperance	24 <sup>th</sup> November 2022
4727 (INT727)	Australia – South Coast – Esperance to Whidbey Isles	24 <sup>th</sup> November 2022
NZ9558	South Pacific Ocean, Cook Islands, Rarotonga	22 <sup>nd</sup> December 2022

#### **Digital Charts**

**3.3** As noted in Section 3.1, UK's Generic National Report provides information on UK's portfolio of chart products and services. The following paragraphs provide information specifically relevant to the SWPHC region.



#### **ENCs**

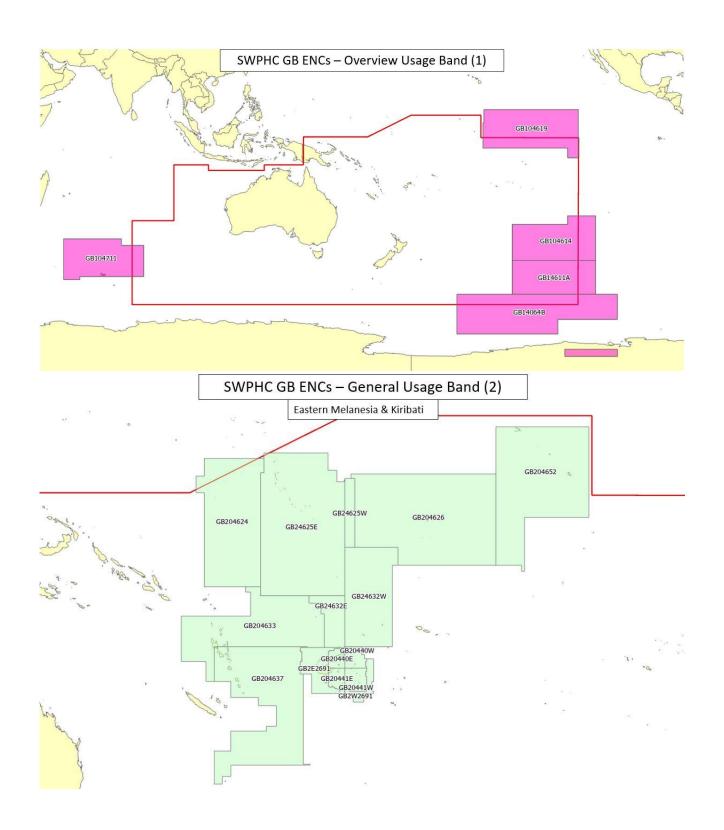
**3.4** Within the SWPHC region, the UKHO has released a total of 100 ENC cells. The breakdown by usage band is shown in the table below:

ENC totals by usage band as produced by UKHO

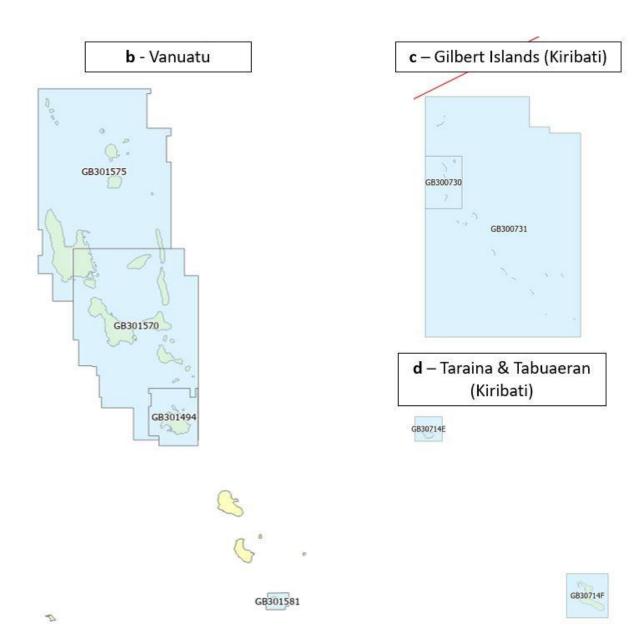
SWPHC Region Released Cells			
ENC Usage Band Number of GB ENC			
Usage Band 1	5		
Usage Band 2	15		
Usage Band 3	20		
Usage Band 4	34		
Usage Band 5	24		
Usage Band 6	2		
Total Number of ENCs	100		

The tables below show revisions to GB ENC coverage for the SWPHC Region during 2022/23. The subsequent diagrams illustrate the current coverage of GB ENCs within the SWPHC Region.

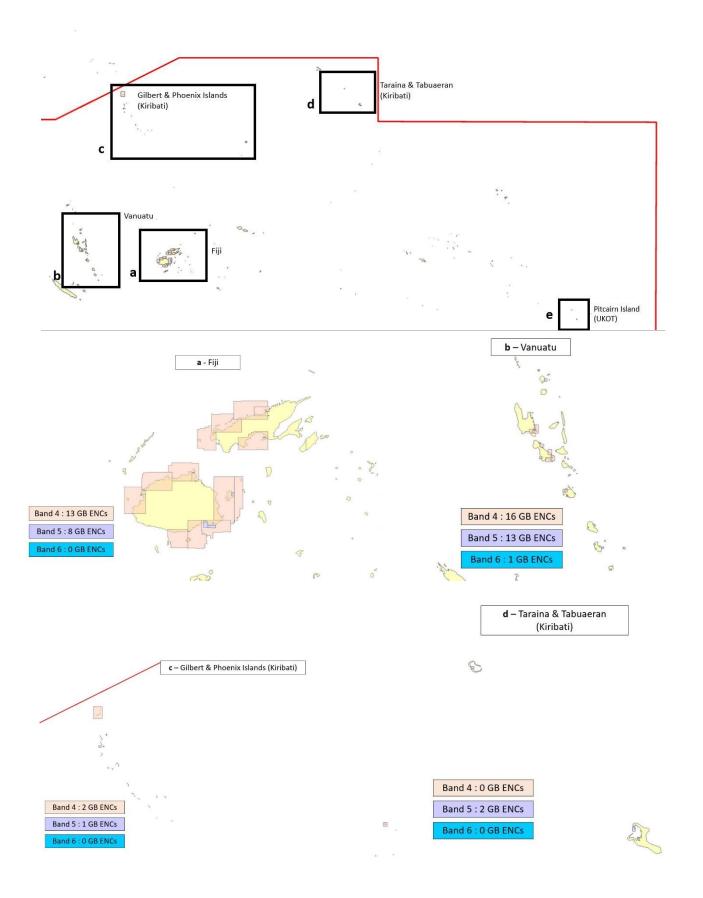
New Cells Feb 2022 - Feb 2023	Week No.
GB400991 – Pitcairn Island	9_22
GB40991C – Oeno Island	20_22
GB40991D – Ducie Island	52_22
GB300991 – Henderson Island	52_22



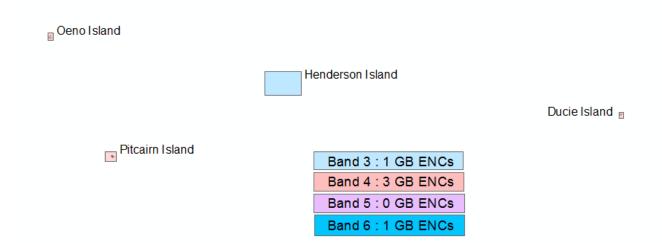
## SWPHC GB ENCs - Coastal Usage Band (3) Taraina & Tabuaeran (Kiribati) Gilbert Islands (Kiribati) С Vanuatu a - Fiji GB300749 GB30752B GB30752A GB300748 GB300750 GB30751A GB30751B GB300747 0 GB300744 GB300746 0 GB300745 0 0



### SWPHC GB ENCs – Approach, Harbour, & Berthing Usage Band (4,5,6)



#### e - Pitcairn Islands (UKOT)



#### **ENC Distribution**

**3.5** The UKHO, along with other European hydrographic offices, was a founder member of the IC-ENC RENC. IC-ENC (International Centre for ENCs) concentrates its efforts on the validation and consistency of ENC data and leaves the marketing of ENCs to the shipping industry to its value-added resellers and chart agents. Additional details can be found on the IC-ENC website (<a href="https://www.ic-enc.org">www.ic-enc.org</a>).

The UKHO also acts as a VAR, providing a global range of ENCs under the AVCS brand as part of its successful ADMIRALTY range of navigational products. Additional details can be found on the ADMIRALTY website (www.admiralty.co.uk).

#### S-100

**3.6** The UKHO is at the forefront of developing S-100 based products and services; we are doing this by working in collaboration and actively engaging with other Hydrographic Offices and our industry partners. We are sharing our knowledge and experiences with others as we go on this journey. Regarding S-100 based products and services, the UKHO is focusing on the detailed development of S-101 (Electronic Navigational Chart (ENC), S-102 (Bathymetric Surface), S-104 (Water Level Information for Surface Navigation) and S-111 (Surface Currents). UKHO anticipates roll-out of initial commercial services from 2024 onwards.

#### **Gridded ENC Rescheme**

**3.7** The UKHO has chosen the parameters of a gridded ENC scheme for S-57 and S-101 which is applicable to all GB ENCs across the globe at all scale bands. The UKHO has engaged with many FGHOs and RHCs to explain the chosen scheme and is keen to share the parameters, our experience and offer any guidance to HOs who would wish to align their ENC scheme with the UK grid.

The GB ENC rescheme is the foundation of UKHO's future strategy to deliver an interactive portfolio of S-100 products and services to the mariner. The GB ENC rescheme is also part of a wider Data Improvement Programme of work which specifically aims to improve the usability of GB ENCs, resolve user pain-points, and enhance safety for the mariner.

#### 4. PUBLICATIONS

#### **Paper Publications**

**4.1** The Admiralty Paper Publications in the SWPHC region are as follows:

#### **ADMIRALTY Sailing Directions:**

NP 13 Australia Pilot Vol 2

NP 14 Australia Pilot Vol 2

NP 15 Australia Pilot Vol 3

NP 34 Indonesia Pilot 2

NP 39 South Indian Ocean Pilot

NP44 Malacca Straight and W Coast of

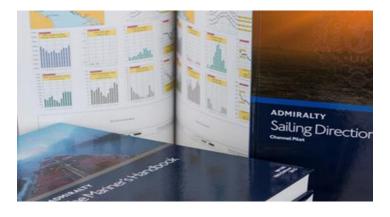
Sumatra Pilot

NP5 I New Zealand Pilot

NP60 Pacific Islands Pilot Vol 1

NP6 | Pacific Islands Pilot Vol 2

NP62 Pacific Islands Pilot Vol 3



#### **ADMIRALTY Tide Tables:**

NP204 Tide Table 4 - South Pacific Ocean

#### **ADMIRALTY Lists of Lights:**

NP 83 Lights List K - Western Pacific Oceans, S of the Equator NP 88 Lights List Q - Eastern Indian Ocean, S of the Equator

#### **ADMIRALTY Lists of Radio Signals**

NP 281 (2) (Vol 1 Part 2) Maritime Radio Stations - The Americas, Far East, and Oceania NP 282 (2) (Vol 2 Part 2) Radio Aids to Navigation, Differential GPS (DGPS) Legal Time, Radio Time signals and Electronic Position Fixing Systems

NP283 (2) (Vol 3 Part 2) Maritime Safety Information Services – The Americas, Far East, and Oceania NP 286 (4) (Vol 6 Part 4) Pilot Services, Vessel Traffic Services & Port Operations – Indian Sub-Continent, South East Asia & Australasia

### New Editions published since last SWPHC FEB 2021:

#### **ADMIRALTY Sailing Directions:**

NP 5 I New Zealand Pilot - Published 02/09/202 I

NP 34 Indonesia Pilot 2 – Published 27/01/2022

NP 15 Australia Pilot Vol 3 - Published 10/3/22

NP44 Malacca Straight and W Coast of Sumatra Pilot – Published 2/6/22

#### **ADMIRALTY Sailing Directions:**

Admiralty Sailing Directions are maintained internally on a continuous revision cycle with new editions published as required.

ADMIRALTY Tide Tables, ADMIRALTY Lists of Lights and ADMIRALTY Lists of Radio Signals are published annually.

Full details of the ADMIRALTY publication range and their status can be found on the ADMIRALTY website (https://www.admiralty.co.uk/).

#### **Digital Publications**

**4.2** The UKHO produces a range of ADMIRALTY Digital Publications which are digital versions of ADMIRALTY paper Nautical Publications to support the IMO mandate of ECDIS. These publications provide mariners with additional functionality, are subscription-based, and automate the task of updating through Notice to Mariners.

- ADMIRALTY e-Nautical Publications (AENP): e-Book versions of ADMIRALTY Sailing Directions and reference publications.
- ADMIRALTY Digital List of Lights (ADLL): Digital versions of ADMIRALTY lights publications.
- ADMIRALTY TotalTide (ATT): Digital versions of ADMIRALTY tidal publications.



- ADMIRALTY Digital Radio Signals (ADRS): Digital versions of ADMIRALTY radio signal publications.
- **4.3** The **ADMIRALTY Digital Catalogue** (ADC) can be downloaded free from the ADMIRALTY website (<u>www.admiralty.co.uk</u>). It includes details of all paper and digital charts and publications and is updated weekly. It is a useful tool to check chart coverage within the region, and to show the latest edition dates of both charts and publications.

#### 5. MARITIME SAFETY INFORMATION

- **5.1** UKHO, on behalf of the United Kingdom, acts as NAVAREA I Coordinator for the World-Wide Navigational Warning Service (WWNWS) of the Global Maritime Distress and Safety System (GMDSS). Close links are maintained with National Coordinators and other NAVAREA Coordinators to ensure relevant information is exchanged and broadcast, as necessary. Any information received at UKHO which may require distribution is immediately passed to the respective NAVAREA Coordinator on a 24-hour basis.
- **5.2** The UK fulfils its requirements under SOLAS Ch.5 and IMO resolution A706(17) to broadcast navigation warnings in line with the Joint IMO/IHO/World Meteorological Organization (WMO) Manual on Maritime Safety Information.
- **5.3** The UK contributes at international forums that consider MSI matters, including IHO WorldWide Navigational Warning Service Sub-Committee and numerous IMO Committees and Sub-Committees. UK currently provides the Chair and Secretary of the IMO International NAVTEX Co-ordinating Panel.
- **5.5 Notices to Mariners**. The current ADMIRALTY weekly Notices to Mariners are now supplemented by daily updates; these are available on the UKHO website. Assistance with promulgating Notices to Mariners and other paper and electronic chart correcting material should also be encouraged through co-operation with other hydrographic offices in the region if required.

#### 6. C-55 LATEST UPDATE

- **6.1** As described in the UK Generic National Report, UKHO is committed to providing regular updates to the C-55 entries for UK Home Waters and its Overseas Territories. The latest status is correctly depicted within C-55.
- **6.2** The UK provides assistance to update C-55 entries to other countries, including Fiji, Kiribati, Nauru, Tuvalu, and Vanuatu, where UKHO provides primary charting, recognising that local input remains critical to the maintenance of C-55 as an up-to-date and authoritative reference document.
- **6.3** Table of navigationally significant areas within UKHO's jurisdiction (Pitcairn Dependencies) and PCAs Fiji, Kiribati, Nauru, Tuvalu, and Vanuatu. Geographical locations as referenced per largest scale chart.

Ref. IHO Strategic Plan, Goal 1, Target 1.2, SPI 1.2.2.

Navigationally significant	Location	Chart
area		
Southwest Channel	Maskelyne Islands, Vanuatu	1577
Malo Passage	Malo, Espiritu Santo, Vanuatu	1638
Recommended Inshore Track	Viti Levu, Fiji	387, 389 & 750
Recommended Inshore Track (Sau Sau Passage, Mali Pass, Monkey Face Passage & Yadua Passage	Vanua Levu, Fiji	749 & 750
Daveta Yawa-Levu	Makogai, Fiji	468
Natubari (South Entrance)	Levuka, Fiji	1244
Levu Passage	Suva, Fiji	1660
Navula Passage	Viti Levu, Fiji	1670
Approach to Betio	Kiribati	729
Recommended tracks	Funafuti Atol, Tuvalu	2983

#### 7. CAPACITY BUILDING

- **7.1** The UK fully supports the IHO Capacity Building Sub-Committee (CBSC) strategy, particularly its emphasis on getting Phase I and appropriate Phase 2 capacity in place to enable coastal states to meet their obligations under SOLAS Chapter V Regulations 4 and 9. The UK will continue to contribute resources to both CBSC initiatives and to providing bilateral assistance.
- **7.2** The UKHO has a post dedicated to International Capacity Building. Its key aims are to ensure that capacity building is carefully considered in the UKHO activity and that the UKHO's capacity building activities are fully coordinated. It acts as the initial point of contact for the UKHO involvement in IHO capacity building activities, including UK involvement in regional hydrographic commission initiatives and IHO CBSC activities.

#### Training provided by the UKHO International Training Team

7.3 The International Training Team drives forward the continuous skills and knowledge development of our global network through world-class training. Details of all UKHO awarded training opportunities currently offered are provided on the UKHO website or by contacting international training aukho, gov.uk.

The UKHO recognises the importance of continued training and, to enable continued activity, has developed a Learning Management System (LMS). The LMS acts as the learning portal for training, offering all delegates ease of access to online seminars and interactive learning material.

Further details are described in the UKHO's Generic National Report.

The UKHO International Training Team are pleased to announce that, following the postponement due to the COVID-19 pandemic, the 13th and 14th Nippon Funded Courses commenced Aug 22 and was completed in Dec 22. Attendees from the region include Fiji and New Zealand.



Please visit <u>HERE</u> for a detailed list of all UKHO International Training Courses.

#### Royal Navy Training in Hydrography, Meteorology and Oceanography

- **7.4** The Royal Navy's Maritime Warfare School (MWS), through a dedicated HM Training Unit in Plymouth delivers courses which are nationally and internationally certified, with accreditation provided by the International Hydrographic Organization (IHO), the World Meteorological Organization (WMO), The University of Plymouth, the National Vocational Qualification (NVQ) Council, and the Institute of Marine Engineers, Scientists and Technicians (IMarEST).
- **7.5** Courses include the I4-week FIG/IHO Category B hydrographic course that is an element of RN Officers' combined HM training. After four years' experience, of which a minimum of two years on a platform conducting hydrographic surveys, the Cat B graduates wishing to become specialists in surveying return for the 22 weeks HM Advanced Survey Course (HMAS). This course diverged from the IHO Category A accreditation in 202 I as previous Cat B knowledge cannot be considered in attaining Category A status. The course was reviewed in 2020 to encompass modern survey and defence requirements retaining its University of Plymouth Post Graduate Diploma accreditation and meets UK defence requirements for military data gathering and exploiting collected information.
- **7.6** Both courses are open to attendance by overseas personnel (military and civilian) and applications are encouraged for these highly competitive courses.
- **7.7** There is scope to deliver customised training for overseas naval and civilian students in Hydrographic Survey Planning, Data Gathering and Data Processing as well as initial Data Management to meet the needs of developed and developing Hydrographic Offices. Such courses can, by mutual agreement, involve both training at the UKHO and at MWS HM in HMS DRAKE.
- **7.8** In 2022, two students from Fiji attended the HM Common Time course.

#### 8. HYDROGRAPHIC LEADERS PROGRAMME

- **8.1** In 2022, UKHO was pleased to secure funding from the UK Government which has allowed us to work with partners from the SWPHC to implement the pilot Hydrographic Leaders Programme.
- **8.2** Aims of the programme included supporting and developing the confidence and ability of participants to:
  - lead hydrography work in their region. This includes taking on formal leadership roles
  - represent their region and nations at international fora
  - Increase visibility of challenges in and contributions made by the region
- **8.3** Delivering the pilot programme involved 13 countries working together under the leadership of a Steering Group, chaired by New Zealand. The pilot programme has built a network of middle career leaders in the region and a pipeline of those who have the potential to take up more senior regional leadership roles.
- **8.4** The programme has included training provided by the UKHO in:
  - Hydrographic Governance, designed to improve knowledge and support the establishment of a peer network to support development of stronger governance.
  - Law of the Sea, designed to improve technical knowledge of UNCLOS and the practical skills associated with its proper application.
  - Behavioural skills relating to leadership and influencing.
- **8.5** UKHO acknowledges the support and contributions of the many people involved in delivery of this pilot programme. We are particularly grateful to the participants, the mentors who volunteered to

contribute to the programme, the various contributors to the programme, the programme convenor, and members of the Steering Group.

**8.6** We would like to offer sincere thanks and congratulations to the Chair of the SWPHC, Mr Adam Greenland, for his leadership and support to the programme.

#### 9. OCEANOGRAPHIC ACTIVITIES

- **9.1** UKHO's Ocean Environment Team maintains databases of oceanographic information collected by the Royal Navy or obtained during exchange with other nations. Data exchange is an important source of data and so UKHO is always keen to discuss new exchanges. UKHO has participated in the Argo project and in the UN's International Oceanographic Data Exchange (IODE), to work with the international oceanographic community. On behalf of the Royal Navy, UKHO has made periodic releases of data to international data centres including US NODC, for inclusion in the World Ocean Database and the British Oceanographic Data Centre (BODC).
- **9.2** The UK national repository for oceanographic data collected for scientific purposes is the British Oceanographic Data Centre (BODC) (<a href="https://www.bodc.ac.uk/">https://www.bodc.ac.uk/</a>) which includes data from UK-sponsored research cruises anywhere in the world. BODC is funded by the Natural Environment Research Council (NERC) and located in Liverpool, UK. The UK's main centre for scientific oceanography is the National Oceanography Centre (NOC) in Southampton (<a href="https://www.noc.soton.ac.uk/">https://www.noc.soton.ac.uk/</a>).
- **9.3** Global sea levels are monitored as part of the GLOSS project, by the Permanent Service for Mean Sea Level (PSMSL). This operation is based at the National Oceanographic Centre in Liverpool.
- **9.4** The UKHO participates in and Chairs the IHO Tides, Water Levels and Surface Currents Working Group (TWCWG). Part of the WG activities involve Member States activities and experiences with long-term [permanent] 'National' Tide Gauge Networks.
- **9.5** The UKHO is not directly tasked with owning and operating these at the UK national level this is the remit of the National Tidal and Sea Level Facility (NTSLF, <a href="www.ntslf.org">www.ntslf.org</a>) previously operated by the UK Environment Agency with a recent (summer 2021) contract to maintain and upgrade the National Tide gauge Network (NTGN) awarded to the commercial company OceanWise (<a href="https://www.oceanwise.eu/">https://www.oceanwise.eu/</a>).
- **9.6** However, under the auspices of the OTSMP, the UKHO has been working with external contractors to establish permanently installed tide gauges in Overseas Territories including, to-date, Bermuda, Caymans and the Turks and Caicos Islands. As well as being an essential part of the OTSMP work, they form an integral and important contribution to global sea level monitoring networks. These gauges now feed into the NOAA GOES (Geostationary Operation Environmental Satellites) Collection System and are linked into the IOC Sealevel Monitoring System. Such permanent installations are instrumental for the scientific study of long-term sea-level rise. In addition, they are now also integrated into regional tsunami warning systems and provide essential observations for use in coastal inundation (storm surge) modelling studies.
- **9.7** Building on this initial work, the UKHO has also recently awarded a five-year contract framework to Oceanwise to further expand the network with the installation of Marine Environmental Monitoring Stations (MEMS), which consist of a range of equipment including tide gauges, meteorological stations, Automatic Identification System (AIS), and Continuously Operating Reference Systems (CORS) for GNSS observations. The first installations under the new framework are scheduled for next year in Montserrat and Anguilla.



#### 10. SPATIAL DATA INFRASTRUCTURES

- **10.1** The UKHO is actively developing the concept of Marine Spatial Data Infrastructure in line with the United Nations Committee of Experts on Global Geospatial Information Management (UNGGIM) Integrated Geospatial Information Framework.
- **10.2** 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 unlocking the value of geospatial data within the UK and is currently establishing a UK Geospatial Strategy which is likely to form the foundation of a NSDI soon. The Commission is currently supporting several collaborative projects being undertaken by the UKHO which all have strong links to NSDI principles.
- Information (WG-MGI) and Open Geospatial Consortium (OGC) Marine Domain Working Group (DWG), contributing towards Federated MSDI development and methodologies. The UKHO has recently upgraded its membership of the OGC from Technical to Strategic, bringing additional marine and maritime focus to the development of emerging technology and standards. The UKHO is also a member of the IHO MSDI Working Group and Chairs the SWPHC MSDIWG, the SAIHC MSDIWG, and is represented on the BNSHC MSDIWG and MACHC MSDIWG. The UKHO has also provided briefings on MSDI to other RHCs which do not yet have MSDIWGs, including half-day training and awareness workshops with a particular focus on MSDI Governance.
- **10.4** The UKHO leads UK input into the UN-GGIM Americas Caribbean Geospatial Development Initiative (CARIGEO). We are actively working at creating the appropriate standards to support national and international MSDIs, a good example is our sponsorship of the OGC S-121 pilot study to develop a standard for the exchange of Maritime limits and boundaries, and our current co-sponsorship of the Federated Marine Spatial Data Infrastructure Pilot that consider \$100 within an MSDI.
- **10.5** The UKHO is currently developing an IGIF-MSDI Maturity Roadmap to combine elements from the IGIF and MSDI ecosystem(s) of resources, as a simplified "Quick Start" guide or "Menu of Options" for developing nations seeking to implement an IGIF-aligned MSDI using OGC standards. This output seeks to avoid duplication and complexity, serving as an optional stepping-stone until interested nations decide to fully engage with the full spectrum of IGIF and MSDI resources (currently around 800 pages across both communities, hosted by UN-GGIM and IHO, excluding commercial, academic, and national publications). The first version of this IGIF-MSDI Maturity Roadmap is being sponsored by UKHO within the OGC FMSDI project initiative, with contributions from the UN Statistics Division (UN-GGIM) and the Co-Chairs of the WG-MGI (United States NOAA & Republic of Singapore MPA, latter also Vice-Chair of IHO-MSDIWG).
- 10.6 The UKHO is a lead sponsor of the Marine Environment Data Information Network (MEDIN) which coordinates the delivery of INSPIRE obligations to Findable, Accessible, Inter-operable and Re-usable (FAIR) standards. The UKHO is actively engaged with projects 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 of future IHO S-100 standards.

**10.7** The UKHO has a Marine Data Portal that continues to grow and develop. 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 several free of charge datasets and services mainly covering UK territorial waters. The Portal also 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.

#### 11. AUTONOMOUS NAVIGATION

**11.1** The UKHO has been engaging with several industry experts and project initiatives surrounding Maritime Autonomous Surface Ships (MASS) to try and understand the navigation data needs as momentum gathers in this area.

UKHO has proactively sought out several organisations such as Thales, Atlas Electronik, TGP Polaris and Marine AI (the team behind the historic Mayflower Project) and discussed the issues with current products and services. To this end, we have provided data to stimulate discussions about what our industry partners see as gaps in the current offering and identify the new products going forward.

In our work with industry operators, UKHO has supplied data to facilitate discussions and allow operators to explore what the future navigation services might look like.

The establishment of the Maritime Autonomous Surface Ships (MASS) Navigation Project Team (MASS PT) was approved at HSSC I 3 following a proposal by the United Kingdom, Norway, and Singapore, to address Maritime Autonomous Surface Ships (MASS) requirements on navigation data and services, of which UK is Chair. The project team has conducted an extensive gap analysis of the S-I00 standards and has made several recommendations to address these gaps to the relevant Working Group and Project Team chairs to ensure S-I00 is fit for purpose for both manned and unmanned navigation.

#### 12. OTHER ACTIVITIES

#### UK Celebrations for World Hydrography Day (WHD)

**12.1** The UKHO celebrated World Hydrography Day 2022 by coming together at an internal exhibition to showcase the important work carried out by our teams in support of the global hydrographic community. The theme this year was Hydrography – contributing to the United Nations Ocean Decade" and a link to a short film can be found here.

#### **Broader UK Government Work**

- 12.2 UK Centre for Seabed Mapping (UK CSM). In support of a more integrated Marine Geospatial Sector for the UK, both nationally and internationally, the UKHO has created the UK CSM, with a core focus on bathymetry and its associated data. Through increased coverage, quality and access of seabed mapping data collected from public money or in collaboration with industry, the UK CSM aims to enable a more unified voice to promote seabed mapping, and the resultant data, as the foundation data set to ocean mapping. The UK CSM is also a UK government voluntary commitment to the UN Ocean Decade and a policy commitment within the National Strategy for Maritime Security.
- **12.3 Seabed 2030.** Following the signing of a data sharing Memorandum of Understanding between the UKHO and the SB2030 Project, and a successful data sharing trial with the Southern Ocean Regional Centre, the UKHO are delighted to announce that they have now started supplying bathymetric survey data for non-UK waters to the General Bathymetric Chart of the Oceans (GEBCO). Data have been shared with the Southern Ocean Regional Centre covering a total area of 46,482 km2, around South Georgia and Antarctica, contributing over 3.7 million new data points to the GEBCO grid. UKHO has also contributed data to GEBCO for 13 countries in the Caribbean region, covering a total area of 13,680 km2. This includes data for Anguilla, Antigua and Barbuda, Bermuda, British Virgin Islands, Cayman Islands, Dominica,

Grenada, Guyana, Jamaica, Montserrat, Saint Lucia, Saint Vincent and the Grenadines and Turks and Caicos Islands.

Where UKHO is Primary Charting Authority and have the appropriate permissions, the UKHO will continue to share (100m) gridded bathymetry data with SB2030 to help improve the GEBCO grid product. The UKHO will not be sharing full resolution raw survey data. The UKHO is also supportive of other global bathymetry initiatives, such as EMODNET, where we intend to contribute data using the same rules as SB2030.

We have also entered a technical cooperation agreement with Teledyne Caris and Seabed 2030 which will allow the Seabed 2030 Regional and Global Centres to use the ADMIRALTY GAM service. The ADMIRALTY GAM Service was developed by the UKHO and is a tool that cleans noise in single track bathymetry survey data. This tool will help to improve the speed and human effort associated with processing of bathymetry data. The Admiralty GAM service was recently released at Ocean Business 2021 and is now also available commercially.

UKHO will also continue to actively engage with associated working groups at the IHO and Regional Hydrographic Commissions.

- **12.4** The UK Member State, consisting of the UK, the OTs, and Crown Dependencies, was audited in late 2021 (delayed from late 2020 due to issues surrounding COVID-19) against the IMO Instrument Implementation Code's (IIIC) and Mandatory IMO Member State Audit Scheme (MIMSAS). The work of the UKHO was specifically mentioned as an example of best practice in this field. This has raised awareness of the importance of maritime compliance and the benefits to everyone. To complement the work of the UKHO's OT SMP, 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.
- **12.5 UK Ocean Priorities.** The UK is a global ocean leader, continuing to take action and push for increased ambition on climate, pollution, and biodiversity loss issues working with counterparts in the UK and overseas to help achieve these aims. The UK is continuing to push for strong action at key negotiations and conferences in 2022 including BBNJ, CBD, Our Ocean, UN Ocean, UNFCCC COP27 and UNEA.

#### **Background and Key 22 Information**

#### Conferences:

- **I1.6 UN Ocean Summit Lisbon Jun 22.** Lord Goldsmith led the UK delegation, joined by Minister Pow. FCDO SIDS Envoy Rebecca Fabrizi and RAdm Rhett Hatcher of the UK Hydrographic Office were among the 30-strong visiting group from the UK. The UK hosted, with Fiji, a side event on sustainable ocean finance. Lord Goldsmith announced £ I 54m for COAST, a new global programme to protect and restore habitats, support small-scale fisheries, and unlock aquaculture, and £ I 00m to support Marine Protected Areas (MPAs), both under the Blue Planet Fund. The UK also joined the High-Level Panel for a Sustainable Ocean Economy and, with the US and Canada, launched the IUU Fishing Action Alliance to tackle illegal, unregulated, and unreported fishing. RAdm Rhett Hatcher joined an International Hydrographic Organisation led panel session, which aimed to raise awareness about the role of hydrography / seabed mapping, and how it contributes to marine spatial planning for sustainable management of the marine environment and knowledge of the world's oceans.
- **11.7** One Ocean Summit France Feb 22. The UK was represented by Lord Goldsmith, with the Prime Minister delivering a video message of support. At the Summit, the UK announced it would be joining the High Ambition Coalition for Biodiversity Beyond National Jurisdiction along with EU Member States and 16 other countries. The UK is committed to agreeing an ambitious BBNJ Agreement as soon as possible in 22.

The UK is supportive of the Our Ocean Conferences, the 7th of which was held in Palau in Apr 22, in collaboration with the US. The UK has continued work on the commitments submitted to the conference in 2019 and has recently submitted further commitments for 2022. The UK will look to harness the momentum garnered in Glasgow, Brest, Palau and of the UN Ocean Summit in Lisbon and

work with partners to maintain momentum on ocean action into UNFCCC COP27 in Egypt and the CBD COP15 negotiations in Montreal

- **11.8** Convention on Biological Diversity Canada- 7 19 Dec 22. The UK is committed to playing a leading role in developing an ambitious post-20 global biodiversity framework to be adopted at COPI 5 of the Convention on Biological Diversity (CBD), including ambitious outcomes for the ocean through targets on marine protection, ecosystem restoration and nature-based solutions, pollution reduction, sustainable fisheries, and the reform and elimination of harmful subsidies. The UK is committed to championing international ocean action to drive ambitious outcomes for ocean from CBD COPI 5, including through our role as leader of the Global Ocean Alliance.
- **11.9 Blue Planet Fund.** The UK has launched a £500 million Blue Planet Fund that will support developing countries to protect the marine environment and reduce poverty. Financed from the UK overseas aid budget, the Blue Planet Fund will help eligible countries reduce poverty, protect, and sustainably manage their marine resources and address human-generated threats across four key themes: biodiversity, climate change, marine pollution, and sustainable seafood. The Blue Planet Fund will mainly operate in five priority regions, including West Africa.
- **11.10 International Partnership on Blue Carbon (IPBC).** Since 2018, the UK has been a member of the International Partnership for Blue Carbon (IPBC). The IPBC, coordinated by the Australian Government, works across society to build awareness, share knowledge, and accelerate action on the significant role of blue carbon ecosystems in climate change adaptation and mitigation. The UK announced its intention to join the Partnership at the Our Ocean Conference in 2018. Our membership of the IPBC enables the UK government to lead on a critical sector of the environment on the global stage. It creates multiple strategic benefits for, and synergies with, existing work across government, and complements our project delivery with a commitment to leading international policy. In 2022, the Partnership has 50 Partners, of which 17 are country government agencies. This includes representation from states including France, Norway, Portugal, and the Commonwealth Blue Charter.
- **I1.11 Blue Belt Programme.** In support of the UN Global Goals for Sustainable Development, the UK Government has committed £20 million to a four-year programme providing long term protection and sustainable management of over four million square kilometres of marine environment across the UK OTs. The Blue Belt Programme supports delivery of the UK Government's manifesto commitment to provide long term protection of:
  - improve scientific understanding of the marine environment;
  - develop and implement evidence based, tailored marine management strategies including surveillance and enforcement; and
  - ensure management is sustainable and long term.

The Programme is being delivered in partnership between the Centre for Environment, Fisheries and Aquaculture Science (Cefas) and the Marine Management Organisation (MMO) with the UK OTs on behalf of the Foreign, Commonwealth and Development Office and the Department for Environment, Food and Rural Affairs (DEFRA). Further information can be found in the Blue Belt Annual Report 2021 and Annual Update 2021/22.

- **I1.12 COP26.** The UKHO provided material for the DEFRA's nature theme day and Department for Transport's Clydebank Declaration on green corridors at COP26 in Glasgow, Nov 21. We also represented at the Glasgow University College Campus where we raised awareness of the challenges of marine data paucity and its impact on the environment
- **11.13 UNFCCC COP27.** The UK continued to champion ocean action at UNFCCC COP27, which recently concluded in Sharm El Sheikh on 19 November. We welcome the progress made for ocean under the Sharm El Sheikh Implementation Plan, maintaining the momentum for ocean action from previous COPs. The negotiated outcome builds on the ocean outcomes agreed under the Glasgow Climate Pact (paras 45-46) and includes references to the cryosphere (para 5), blue carbon ecosystems (para 15), and nature-based solutions (para 48).

Defra's SoS Thérèse Coffey, Lord Benyon and FCDO's Lord Goldsmith also participated in a number of ocean events at COP27 and the UK made the following announcements:

- Pledged an additional £12 million to the Ocean Risk and Resilience Action Alliance (ORRAA) to protect and restore vulnerable coastal communities and habitats.
- Endorsed the Mangrove Breakthrough led by the UNFCCC High Level Climate Champions and Global Mangrove Alliance.
- Continued to support the Global Ocean Decade Programme for Blue Carbon (GO-BC), which launched its new graduate scheme for blue carbon early career researchers.

#### The UKHO's International Activities

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

International Hydrographic Organization - HSSC		Chair/Vice Chair	Member
HSSC	Hydrographic Services and Standards Committee		Х
DQWG	Data Quality Working Group		Х
ENCWG	ENC Standards Maintenance Working Group	X	Х
NCWG	Nautical Cartography Working Group	Х	Х
NIPWG	Nautical Information Provision Working Group		X
S-100WG	S-100 Working Group		X
S-101PT	S-101ENC Project Team	X	Х
S-102 PT	S-102Bathymetric Surface Project Team		Х
S-121PT	S-2   Maritime Limits and Boundaries Project Team		X
S-124PT	S-124 Navigational Warnings Project Team		Х
S-130PT	S-130 Polygonal Project Team		X
S-131PT	S-131 Marine Harbour Infrastructure Project Team		X
TWCWG	Tides, Water Level & Currents Working Group	Х	Х
HSWG	Hydrographic Survey Working Group	Х	Х
MASS PT	Maritime Autonomous Surface Ships Navigation Project Team	Х	Х
ABLOS	Advisory Board on the Law of the Sea		Х
ı	nternational Hydrographic Organisation - IRCC	Chair/Vice Chair	Member
IRCC	Inter-Regional Coordination Committee		Х
CBSC	Capacity Building Sub-Committee	Х	X
CSBWG	Crowd-sourced Bathymetry Working Group		Х
MSDIWG	Marine Spatial Data Infrastructure Working Group		Х
WENDWG	Worldwide ENC Database Working Group		Х
WWNWS	Worldwide Navigational Warning Service		Х
GEBCO	General Bathymetric Chart of the Oceans		Х
HCA	Hydrographic Commission on Antarctica		Х
MACHC	Meso American and Caribbean Sea Hydrographic Commission	Х	Х
MBSHC	Mediterranean and Black Seas Hydrographic Commission		Х
NIOHC	North Indian Ocean Hydrographic Commission		Х
NSHC	North Sea Hydrographic Commission	X	Х
RSAHC	ROPME Sea Area Hydrographic Commission		Х
SAIHC	Southern African and Islands Hydrographic Commission	Х	X
SWPHC	South-West Pacific Hydrographic Commission		Х
EAtHC	Eastern Atlantic Hydrographic Commission		X
	International Maritime Organization	Chair/Vice Chair	Member
NAVTEX	NAVTXT Coordination panel	Х	Х
Internation	al 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	,	Х

International Hydrographic Organization - HSSC		Chair/Vice Chair	Member
CIRM	Comité International Radio-Maritime		X
BALTICO	Navarea I member states meeting		X
ISO	International Standards Organisation		X
OGC	Open Geospatial Consortium		X
UNGGIM WGMGI	UNGGIM Working Group on Marine Geospatial Information		×
CARIGEO	Caribbean Geospatial Development Initiative		X

#### 12. CONCLUSION

The UK is working across the South West Pacific to deepen ties and support efforts to build a cleaner, safer, and more resilient future. The close history, shared values, common interests, and long-standing friendships provide a critical link between the UK and Pacific countries. It is no surprise therefore that the UKHO remains committed to the South West Pacific Hydrographic Commission and we will continue our work in the coming years to forge closer partnerships.

Noting the increasing demand and the IHO direction to enable the maximum and widest use of Hydrographic maritime and marine information and data, the UKHO is continuing the journey into looking at how it can meet this demand as part of its efforts to develop its Marine Geospatial Information credentials. Allied to our commitment to technical development, over the past year we have increased our engagement within the region following a period of constraint and restriction during the global pandemic. The UKHO is supporting partners to continue to grow digital coverage. This underpins our ambition to move to a digital only environment; a move reflected by the significant drop in analogue sales and usage, and the continued development of the second generation of digital navigation products and services, through IHO S-100.

We continue our primary charting activity and efforts in developing regional hydrographic self-sufficiency through capacity building measures where we have actively supported a range of activity and the growing work of the hydrographic commission's secretariat. UKHO continues to support the hydrographic community through delivery of the Nippon funded IHO GEOMAC Category B course, which includes students from the South West Pacific region. We also note the support provided to the pilot Hydrographic Leaders Programme across 13 countries in the region and we look forward to discussing the evaluation of the pilot in due course.

UKHO is committed to building and maintaining dialogue with partners to maximise the value of the important hydrographic work of the region. In addition, we will continue our work with UK and other government bodies, as well as international organisations, to deliver coherent and impactful partnerships for the benefit of the region and the hydrographic community at large.

**Taunton February 2023** 

#### **UKHO POINTS OF CONTACT**

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# Input to the IHO Publication P-5 (Yearbook) United Kingdom of Great Britain and Northern Ireland

Country information / Inf	formations sur le pays/Información sobre el país
-Declared National Tonnage	40,631,143 ton
-Tonnage national déclaré	
-Tonelaje Nacional Declarado	
National day	Second Saturday in June (Trooping the Colour)
-Fête nationale	
-Fiesta nacional	
-Date first joined IHO	21/06/1921
-Date d'adhésion à l'OHI	
-Fecha de adhesión a la OHI	
-Date ratification Convention	03/05/1967
-Date de ratification de la Convention	
-Fecha de ratificación de	
la Convención	
	e to IHO (as designated by Member Government) INGDOM HYDROGRAPHIC OFFICE
Contact information/Informations	de contact / Información de contacto
-National Hydrographer or equivalent	Rear Admiral Rhett Hatcher - National Hydrographer & Director
-Directeur du	Data Acquisition and Defence
service hydrographique ou équivalent	Postal address:
-Director	Admiralty Way
del Servicio Hidrográfico o equivalente	TAUNTON
	Somerset, TA I 2DN
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	E-mail: IBTE@UKHO.gov.uk
Other point(s) of contact -Autre(s) point(s) de contact -Otros punto(s) de contacto	
	http://www.gov.uk
-site web	Intep.//www.gov.uk
-sitio web	
Agency information	L
Date of establishment	
Relevant National Legislation	TS Baseline 25.09.64
	I 2nm TS Limit
	200nm EFZ 22.12.76
Top level parent organization	Ministry of Defence
Principal functions of the organization	Publication of analogue and digital navigational charts and
or the department	supporting publications, transmission of maritime safety information, Notices to Mariners (weekly), provision of
	geodetic, oceanographic, and geophysical data and publications to meet defence requirements. Provision of tidal information and
Number of INIT shorts with intend	Ocean currents
Number of INT charts published	970
Total number of paper charts	3500 (Approx)
Number of ENC cells published	177 I GB cells

Number of Raster Charts	582
Number of Other Charts	52
Type of publications produced	Full suite of Admiralty Charts and Publications including some digital products. For details see UK Catalogue of Admiralty Charts and Publications (NPI3I) or the UKHO web site: http://www.gov.uk/UKHO

Other Organizations providing national Hydrographic Services Autre Organismes fournissant des services hydrographiques au niveau national.

### CAPTAIN HYDROGRAPHY & METEOROLOGY AND HYDROGRAPHER OF THE NAVY

Contact information / Informations de contact / Información de contacto				
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Other point(s) of contact -Autre(s) point(s) de contact -Otros punto(s) de contacto	Postal address: SURFLOT, Defiance Building HM Naval Base Devonport, PLYMOUTH, Devon, PL2 2BG, United Kingdom of Great Britain and Northern Ireland			
Agency information / Inform	nation sur l'agence / In	formación sobre la agencia		
Top level parent organization -Organisme mère -Organización asocieda de nivel superior Principal functions of the organization or the	Ministry of Defence - Fleet Commander  Commander of RN ships, units and personnel engaged in collection analysis and dissemination of all forms of geospatial information through			
department -Attribution principales de l'organisme ou du département - Principales funciones de la Organización o el departamento	the hydrographic, meteorological, and oceanographic disciplines			
Detail of surveying vessels/ Aircraft - Détail des bâtiments hydrographiques/aéronefs - Detalle de buques hidrográficos/Aeronaves	Displacement - Déplacement - Desplazamiento	Commissioning Date – Date de mise en service – Fecha de puesta en servicio	Crew – Equipage – Personal	
HMS SCOTT (H131) HMS PROTECTOR HMS ENTERPRISE (H88) (Decommissioning scheduled for summer	13500 5000 3470	1997 2011 2002	63 88 72	

2023)				
HMS MAGPIE (H 1 30)	37	2018	12	
Other information of interest -Autres informations utiles -Otra información de interés	all hydrographic, met The programme for Maritime & Coastgu sector Training in hydrograp		c support to the fleet. rs is managed by the d to the commercial v is provided for naval	
	www.mod.uk/DefenceInternet/AboutDefence/Whatwedo/Training and			
	Exercises/IDT/IDTRN			

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

Country: United Kingdom of Great Britain and Northern Ireland

Country: Pitcairn Dependencies

C-55 Summary for:				Comments on Charts:	
Country: Pitcairn Dependencies					
Country Iso Code:	PN			No coverage between 1:90 and 1:1,500,000	
Country				4 main islands covered by scales	
SubCode:				greater than 1:90,000 (Chart 991) Large Scale ENC Coverage of the main 4 islands.	
INT Region:	L				
Country/Depend:					
Last updated:	09/12/2022				
Provided by: UK					
	Passage	Coastal			
Chart coverage	(%)	(%)	Port (%)		
INT	100	0	0	Comments on Surveys:	
RNC	100	100	100	Coastal satellite derived bathymetry	
ENC	100	100	100	of all islands up to 30m	
Status of Paper C	harts				
Paper charts with depths in meters (%)		100			
Paper charts referenced to a satellite datum (%)		90			
Status of	Adequate	Resurvey	No survey		
surveys	(%)	(%)	(%)		
0-200m	0	0	100	-	
> 200m	0	0	100		
MSI	Y/N	Comments on MSI:			
Local warning	Unknown	Local authority responsibility - no requirement to promulgate internationally.			
Coastal warning	YES	Only via NAVAREA coordinator & SafetyNET. Available/offered, but not currently used.			
Nav warning	YES	Only via NAVAREA coordinator & SafetyNET.			
Port warning	YES				
GMDSS	Y/N	Comments on GMDSS:			
Master Plan	NO				
Area A I	NO				
Area A2	NO				
Area A3	NO				
NAVTEX	NO				
SafetyNet	NO				