



# **PORTUGAL NATIONAL REPORT**

14<sup>th</sup> Meeting of the

Eastern Atlantic Hydrographic Commission

Cadiz, Spain

18<sup>th</sup> – 20<sup>th</sup> October 2016

INSTITUTO HIDROGRÁFICO  
(IHPT)

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## **INTRODUCTION**

This report describes the main technical activities and developments at Instituto Hidrográfico (IHPT), the Portuguese Hydrographic Office, during the period from October 2014 to October 2016. It was elaborated in order to be presented at the 14th Conference of the Eastern Atlantic Hydrographic Commission (EAthC), and covers the following areas: Hydrography, Cartography, Information Technologies and GIS, Marine Safety and Technical Assistance and Training.

### **1- HYDROGRAPHIC OFFICE**

The IHPT is a part of the Portuguese Navy and has the fundamental task of ensuring activities related to science and techniques of the sea, with a view to their military application, and to contribute to the country's development in science and protection of the marine environment.

The IHPT is a State Laboratory and the Portuguese Hydrographic Office. The major activities of Instituto Hidrográfico are in the areas of hydrographic surveying, cartography, safety of navigation, oceanography, geology and chemistry of the marine environment.

Among those activities the training provided by the Hydrography and Oceanography School stands out, with FIG/IHO/ICA category A and B courses. It is an IHPT sector dedicated to the training of the Navy officers as well as civilian technicians, from Portugal and Portuguese-speaking African countries, as from other friendly nations.

The most relevant information is presented in Annex A.

### **2- SURVEYS**

During the period of this report, most of the hydrographic surveys have been focused on the Portuguese coast. During that period twenty-seven hydrographic surveys were realized in harbours and their approaches (see Figure 1), such as: Caminha (cooperation with the Spanish HO), Viana do Castelo, Póvoa de Varzim, Vila do Conde, Figueira da Foz, Lisbon harbour (Passo da Barra Sul, Bugio, Cachopo Sul, Cala das Barcas, Vila Franca de Xira, Alhandra, Ponte 25 de Abril a Cacilhas and Base Naval de Lisboa - BNL), Sines, Portimão, Vilamoura, Faro and Vila Real de Santo António. Four surveys in the Azores Archipelago (Vila do Porto, Horta, Madalena e S. Roque do Pico – see Figure 2).

With the intention of publish the nautical cartography, IHPT finished the hydrographic survey, with about 210 Km, of the River Douro waterway (see Figure 3).



Figure 1 - Hydrographic surveys realized in Continental Portugal.

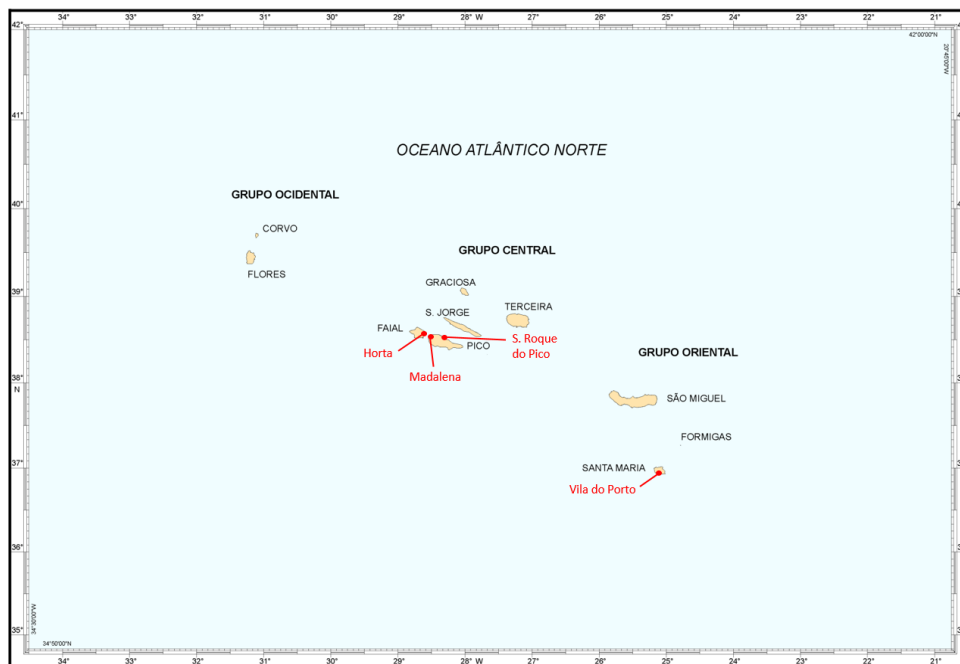


Figure 2 - Hydrographic surveys accomplished in Azores Archipelago.

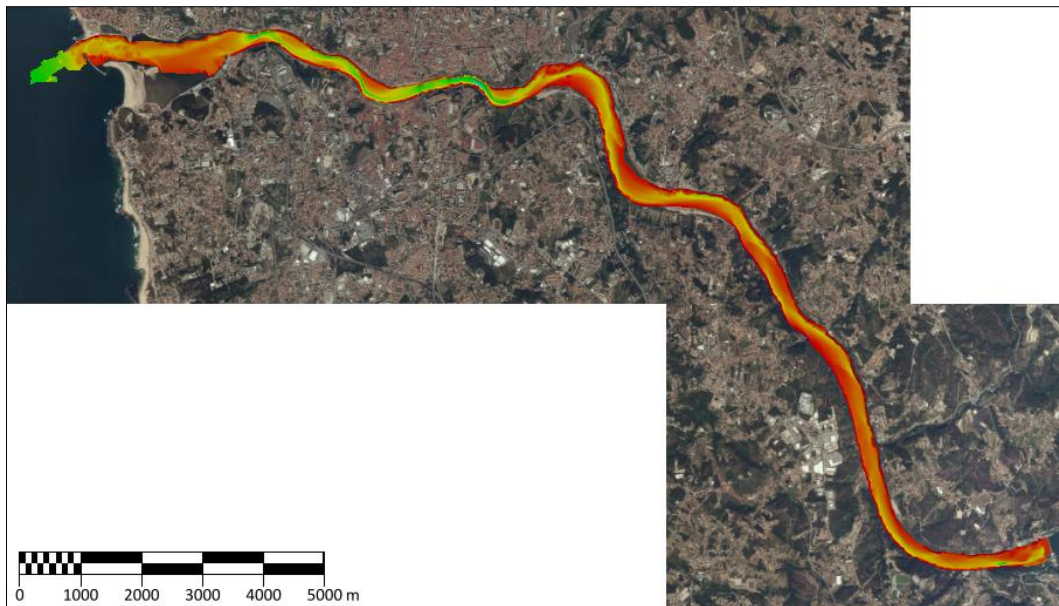


Figure 3 - Survey coverage at River Douro.

Both oceanic hydrographic ships “D. Carlos I” and “Almirante Gago Coutinho”, from the Portuguese Navy, were employed on surveys for the project related to the proposal of extension of the Portuguese continental shelf (see Figure 4) and on other projects associated with environmental studies, geophysics and dynamic characterization and coastal protection. In those surveys, hydrographic and topographic integrated methods were used and, in some cases, were included seismic geological methods and sediment and water chemical analysis.

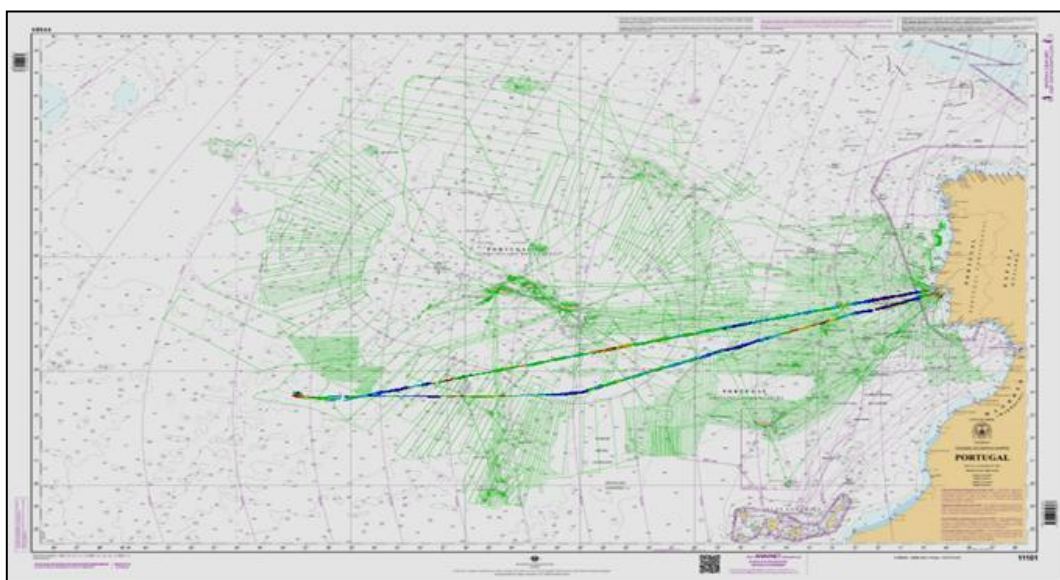


Figure 4 – Hydrographic surveys for the proposal of extension of the Portuguese continental shelf.

In the context of the cooperation with other countries, it should be mentioned the collaboration with the Republic of Cape Verde, Democratic Republic of São Tomé and Príncipe and, with Spain, Instituto Hidrográfico de la Marina (IHM).

In Cape Verde were realized five surveys (see Figure 5): Porto da Praia, in Santiago Island; Porto Grande, in S. Vicente Island; Porto Novo, in Sto. Antão Island; Vale Cavaleiros, in Fogo Island; and Porto da Furna, in Brava Island.

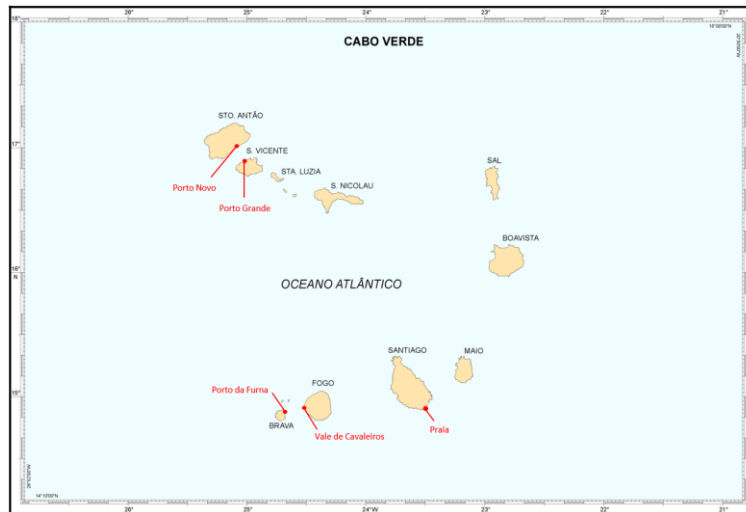


Figure 5 - Hydrographic surveys realized in Cape Verde.

In the Democratic Republic of São Tomé and Príncipe was accomplished one survey (see Figure 6) in the São Tomé Harbour and Baía de Ana Chaves.

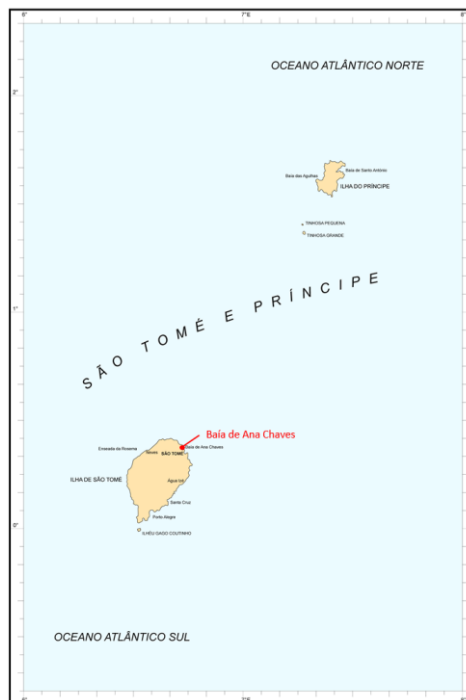


Figure 6 - Hydrographic surveys fulfilled in São Tomé and Príncipe.

With Spain, IHPT has done one survey at Caminha (Minho river mouth – see Figure 7) to collect new bathymetric data and to determine the difference between the two chart datum used by each hydrographic office.

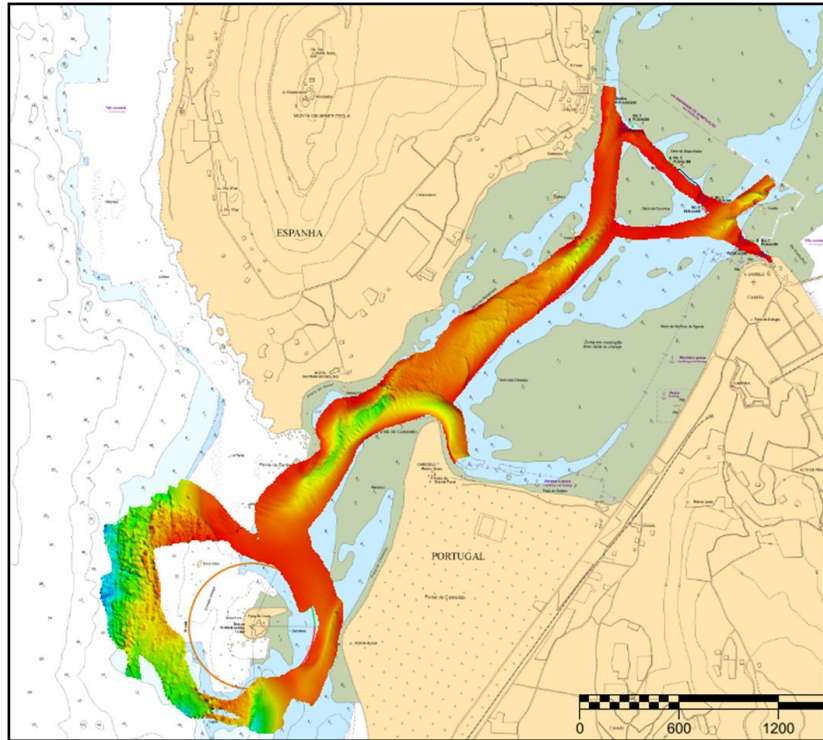


Figure 7 - Hydrographic surveys accomplished in Minho river mouth.

### 3- **CHARTS**

IHPT continued the implementation of CARIS Hydrographic Production Database as the unique cartographic production system.

In addition to the Nautical Charts and the Electronic Navigational Charts, some charts for special purposes are also produced, for instance: charts for fishermen, charts for pleasure crafts, sedimentological charts and special charts for training purposes. All those charts are in accordance with IHO specifications and were very well accepted by the users.

All IHPT new charts and new editions are bilingual (Portuguese and English) and follow INT specifications, whether or not they belong to INT series.

Presently IHPT provides 100% of the national Nautical Charts using a Print-on-Demand system. PoD-charts are continuously updated according to the published “Notices to Mariners”.

IHPT started, last year, a challenging project related with the hydrographic survey and the production of Nautical Charts and Electronic Navigation Charts of all Portuguese

section of the River Douro (see Figure 8). This section of the river has five locks (see Figure 9) and very intense tourism and recreation navigation.

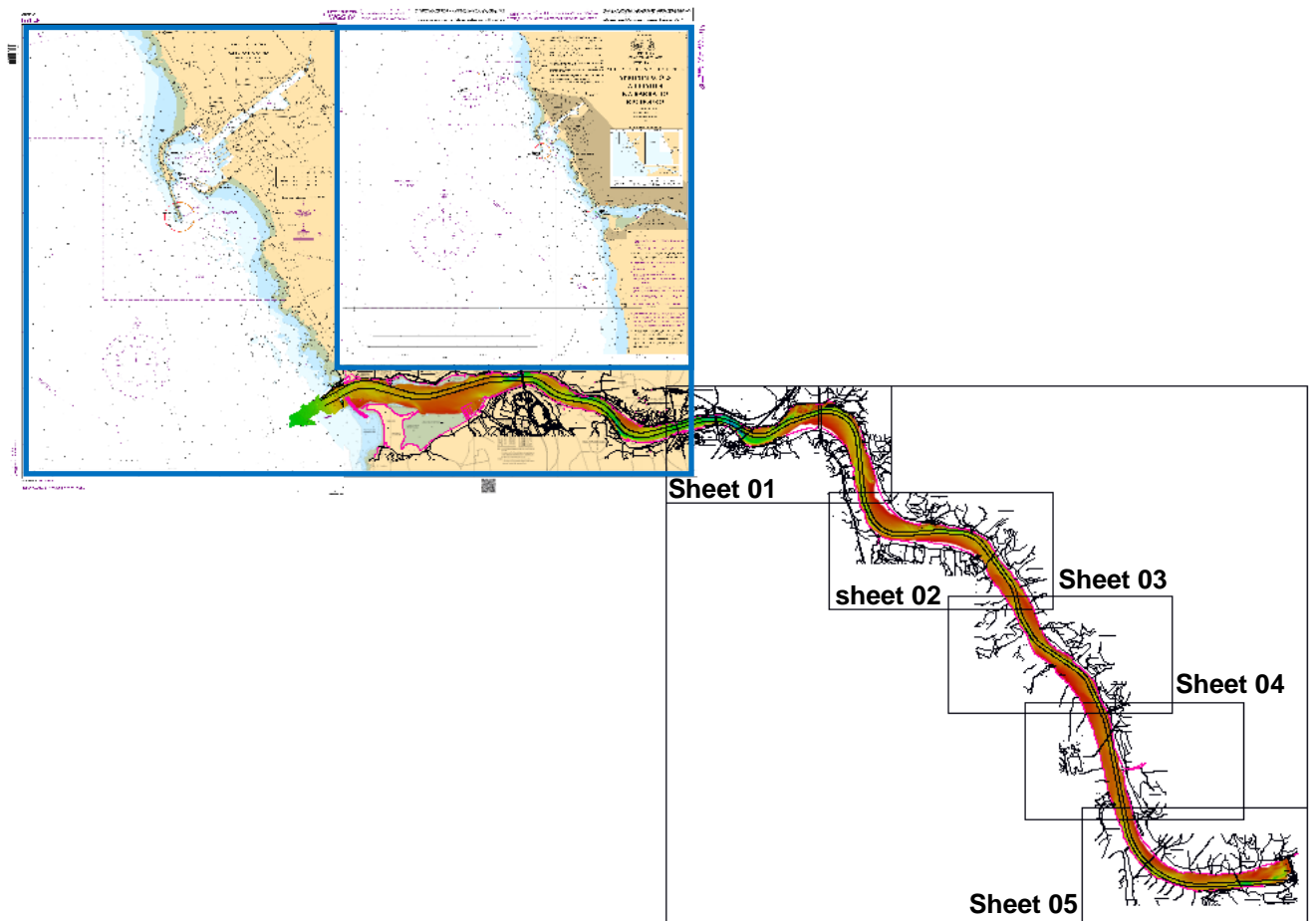


Figure 8 – Draft cartographic schema of the estuary of River Douro.

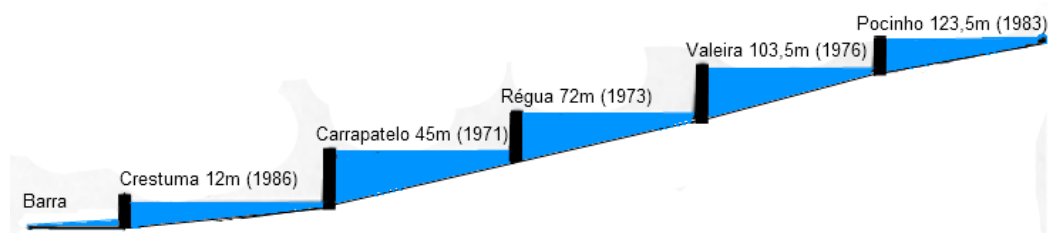


Figure 9 - Schema of locks of the River Douro, with their height (MSL) and year of construction.



**a. Paper Chart**

Since the last EAthC meeting, IHPT published one new chart (in blue) and eight (8) new editions (in red), depicted in the Figures 10 to 13, within the areas of the Commission.

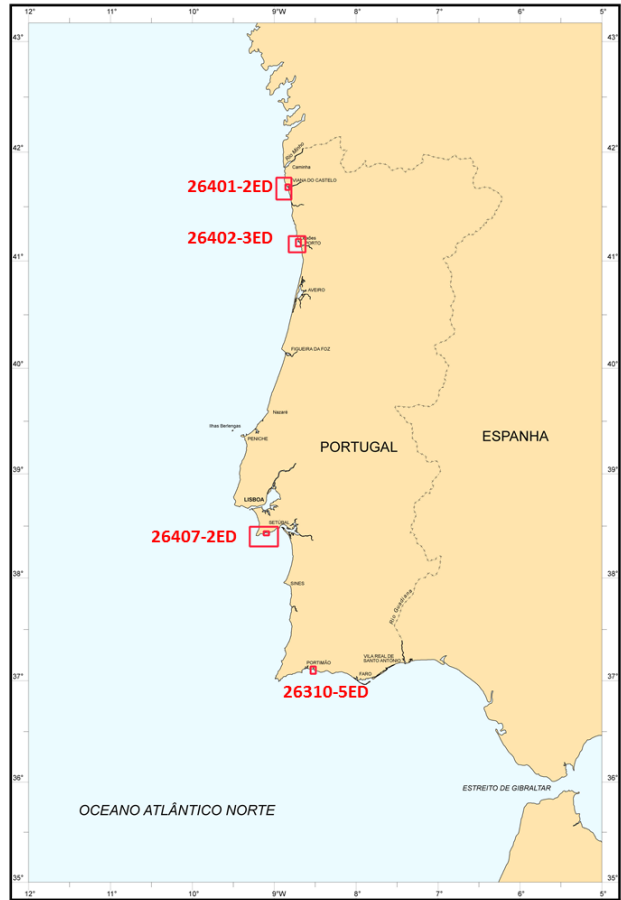


Figure 10 - New editions in Continental Portugal.

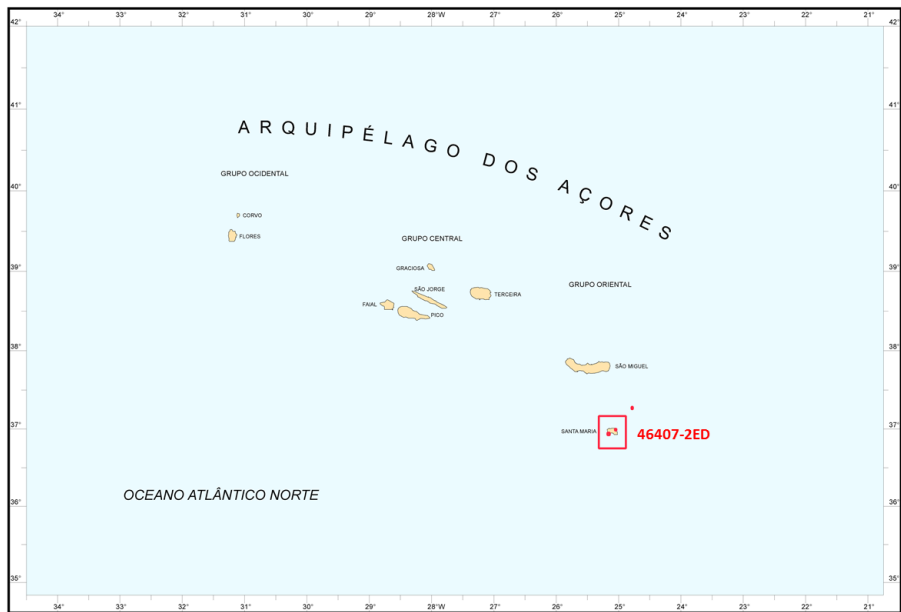


Figure 11 - New editions in Azores Archipelago.

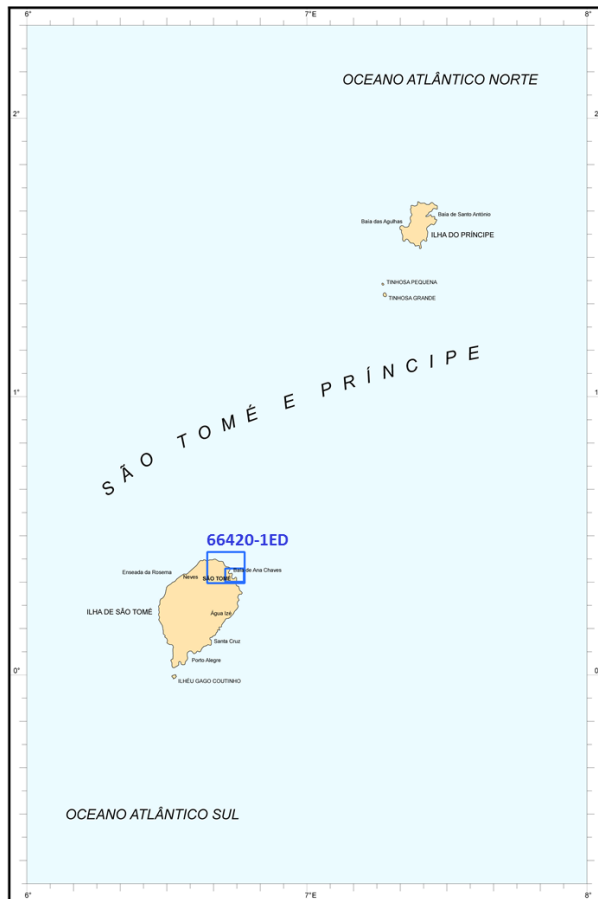


Figure 12 - New chart in São Tomé e Príncipe.

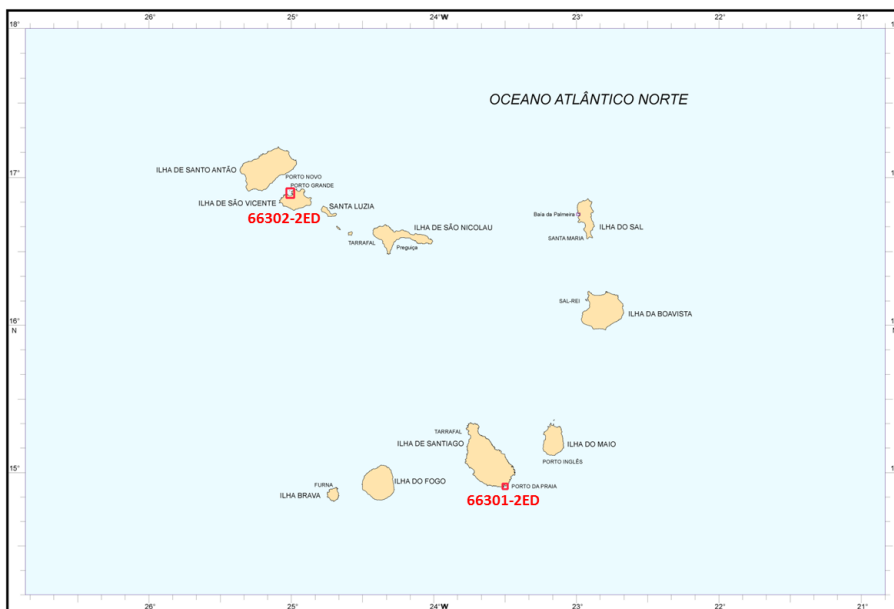


Figure 13 - New editions in Cape Verde.

**b. Electronic Navigational Chart**

IHPT ENC cells format is S-57/Edition 3.1. Each ENC is broadly equivalent to a paper chart, both in terms of its coverage area and its content. IHPT is a member and participates actively in the works of the International Centre for Electronic Navigational Charts (IC-ENC), including their Technical Experts Working Groups. Presently, seventy four (74) Portuguese ENC cells are available for distribution through IC-ENC, since 2010, covering all the oceanic and coastal waters of Portugal, as well as the main harbours and their approaches. Those ENC cells can be classified according to the following navigational purposes:

NP1 Overview	NP2 General	NP3 Coastal	NP4 Approaches	NP5 Harbour
1	3	11	18	41

Furthermore, Portugal has completed thirteen (13) ENC cells of the folio in the area of Cape Verde, classified according to the following navigational purposes:

NP2 General	NP5 Harbour
1	12

Since the last meeting, were produced two (2) new ENC cells (in blue), and twenty one (21) new editions (in red), depicted in the following figures:

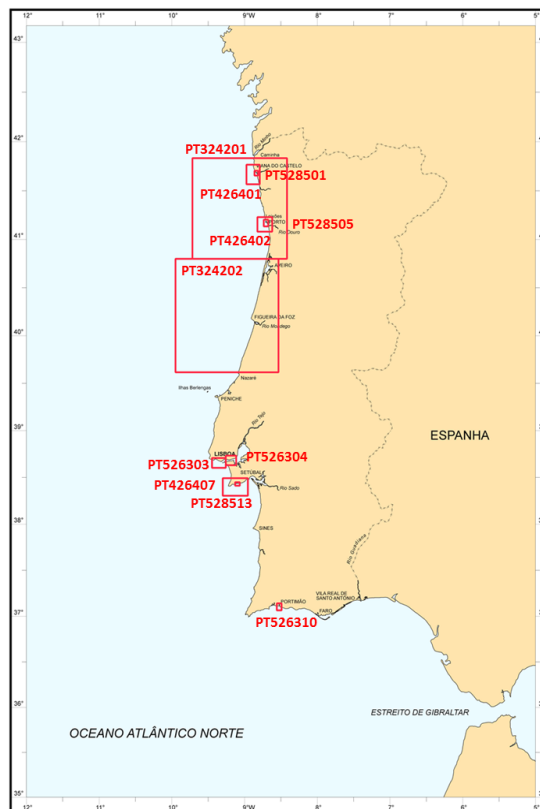


Figure 14 - New ENC editions in Continental Portugal.



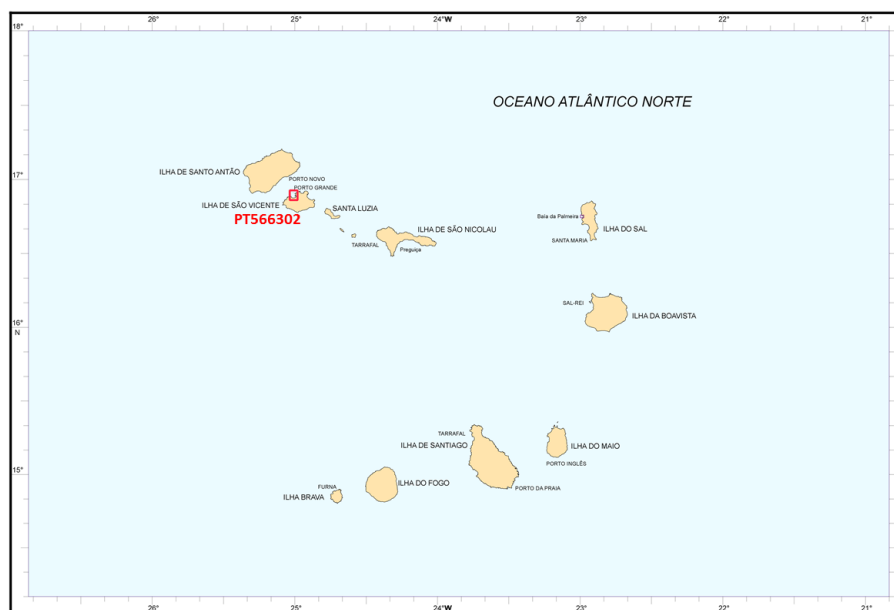


Figure 17 - New ENC editions in Cape Verde.

A list of the ENC cells produced by IHPT during the report's period is presented in Annex B.

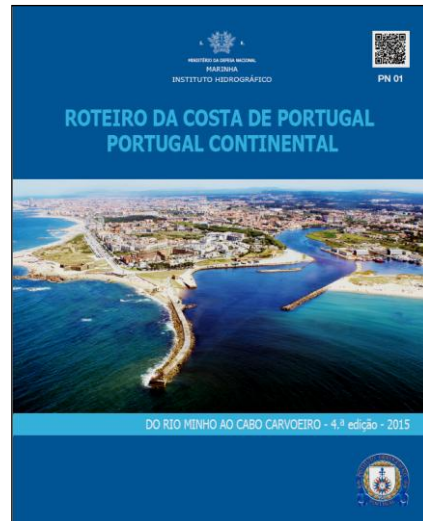
#### 4- **NEW PUBLICATIONS AND UPDATES**

Since November 2014, IHPT published the following nautical publications:

- Annual Group of Notices to Mariners (2015).
- Annual Group of Notices to Mariners (2016).
- Sailing Directions – From Rio Minho to Cabo Carvoeiro 4<sup>th</sup> edition (2015).
- INT 1 Symbols, Abbreviation and Terms used on Charts 3<sup>th</sup> edition (2015).
- Nautical Charts and Publications Catalogue 12<sup>th</sup> edition (2014).
- Maritime Buoyage System Table – 2<sup>nd</sup> edition (2015).

Annually, the IHPT publishes the Tide Tables for the main harbours of Continental Portugal and the Azores and Madeira Archipelagos. During the last years some of the tidal constituents continued to be recalculated using more recent tidal observations.

IHPT also publishes, annually, the Tide Tables for the African Portuguese Speaking Countries which, in the EAthC region, includes the main harbours of Cape Verde, Guinea Bissau and São Tomé and Príncipe.



Figures 18 and 19 - Tide table for the African Portuguese Speaking Countries (left) and Sailing Directions – from Rio Minho to Cabo Carvoeiro.

## 5- **MARITIME SAFETY INFORMATION**

Until October 2012, IHPT, as the national coordinator for the Maritime Safety Information, provided a 24h service of Navigational Warnings, in cooperation with the NAVAREA II coordinator. Since that date, this service is provided by the Portuguese Navy Communications Center (COMAR), remaining IHPT the National Coordinator.

NAVTEX broadcast is made both in English and Portuguese and it is transmitted from the Maritime Communications Center (Lisbon), S. Miguel (Azores Archipelago) and Porto Santo (Madeira Archipelago) stations.

The GMDSS coverage is not completed yet, due to some delays on the establishment of the Digital Selective Call capability. Efforts are being made to cover all the Portuguese maritime territory.

Monthly IHPT publishes a Group of Notices to Mariners (NtM), containing all the permanent, temporary and preliminary warnings in force for the corresponding period. This information, covering all navigation charts and publications of Portugal, Angola, Cape Verde, Guinea Bissau and São Tomé and Príncipe, is also available on the web site <http://www.hidrografico.pt>.

IHPT built a friendly on-line application – ANAVNET, supported by robust and secure databases, capable of providing either entire NtM publications, or single NtM affecting individual documents, allowing in any case their consult and print, including entire correction pages of nautical publications and blocks to apply on nautical charts.

ANAVNET allows the consult of Navigational Warnings broadcasted by any of the Portuguese NAVTEX stations, both in Portuguese and English languages, as well as the Local Navigational Warning, promulgated by Maritime and Harbour Authorities.

Regarding the Broadcast Stations (BS) from the national differential GPS network (DGPS), the Continental Portugal component consists of two DGPS BS, with redundancy and integrity monitoring, located at Capes Carvoeiro and Sagres. There are also two BS in the Portuguese Archipelagos: one in the Azores Archipelago (Horta station) and another one in Madeira Archipelago (Porto Santo station).

Portugal has also three AIS coastal stations in Continental Portugal and in Azores and Madeira Archipelagos.

## **6- CAPACITY BUILDING**

IHPT continues to compute and publish annually the Tide Tables for the Portuguese Speaking African Countries, including, within the EAthC area, Cape Verde, Guinea Bissau and São Tomé and Príncipe.

## **7- OCEANOGRAPHIC ACTIVITIES**

IHPT has regular and robust activity in respect to physical, geological and chemical oceanography, participating in national and European Union research projects in those fields. IHPT is running, presently, a comprehensive network of seventeen (17) tide gauges, seven (7) wave and multi-parametric buoys, three (3) coastal weather stations and five HF radar systems (to measure superficial currents and waves in the Portuguese EEZ (see Figure 20).

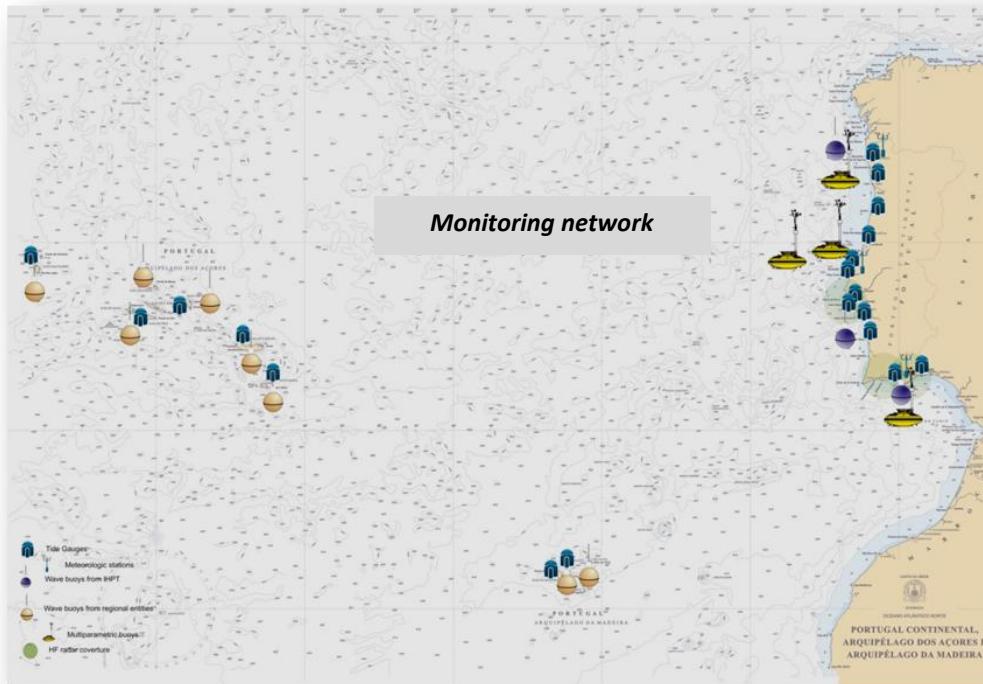


Figure 20 - System of Monitoring and Operational Forecast of the Portuguese EEZ.

## 8- **OTHER ACTIVITIES**

During this report's period, IHPT had the following relevant activities:

### a. **Information technologies and GIS**

IHPT has a portal at Internet and a sub-portal at Portuguese Navy Intranet presenting information about its organization, main activities, products offered and specific geo-spatial on-line data.

The operational forecast system for sea state "Qual é a tua Onda?" continues to be maintained, depicting sea state forecasts and other generic information to the public. This information system is available to the general public, on the IHPT web portal, organized into usability sectors, such as the surf community, recreational navigation and fisheries.

Notices to Mariners and Navigational Warnings issued by the IHPT are also available at IHPT Internet portal ANAVNET, as well as general information on the Portuguese Nautical Charts and Nautical Publications.

IHPT also supports IC-ENC by providing a world ENC availability catalogue (independent of maker or distributor) to support the mariners.



## **b. Courses in Hydrography**

IHPT School of Hydrography and Oceanography provides Specialization Courses in Hydrography (FIG/IHO/ICA Category A and B). During the period of this report attended the courses the following students:

- 2014/2015, Cat. B, three militaries of the Portuguese Navy.
- 2015/2016, Cat. A, four militaries of the Portuguese Navy and six civilians (one from Brazil).
- 2016/2017, Cat. B, four militaries of the Portuguese Navy and five officers of the Directorate of Hydrography and Navigation of the Angolan Navy (see Figure 21).



Figure 21 - IHPT School of Hydrography and Oceanography.

## **c. Cooperation with other countries**

### Angola

IHPT is in contact with Hydrographic and Maritime Signalization Institute of Angola (IHSMA), Angola's HO, related to the future collaboration between IHPT and IHSMA. A proposal was presented to execute the hydrographic and topographic surveys of the most important Angolan harbours and to produce the respective Nautical Charts and ENC. The formation in hydrography is also under consideration.

## Cape Verde

In 2015, under a cooperation agreement between Portugal and the Republic of Cape Verde, a hydrographic survey team executed hydrographic and topographic surveys. With the collected data, a new edition of Nautical Chart 66302 (see Figure 22) was published in June 2016. We are sure it will contribute to the safety of navigation in the area.

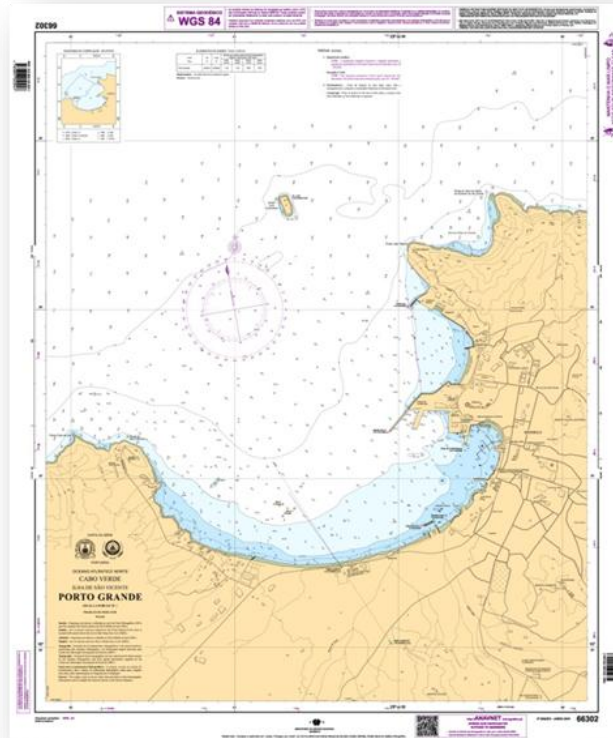


Figure 22 - Nautical Chart 66302.

In the beginning of 2016, under the same cooperation agreement, a hydrographic survey team executed hydrographic and topographic surveys in five ports (see Figure 5).

In the last trimester of 2016, IHPT has the intention to promote the execution of coastal surveys.

## São Tomé and Príncipe

In November 2015, two new Electronic Navigational Charts were published: PT466420 “Approaches to São Tomé and Fernão Dias Harbours” and PT568520 “Ana Chaves Bay”. This were produced based on the new Nautical Chart PT66420 (see Figure 23), that replaced the older one published in 1958, with new information acquired in 2014, under the cooperation between Portugal and the Democratic Republic of São Tomé and Príncipe. We expect it can contribute to the safety of navigation in the area and to the economic development of that country.

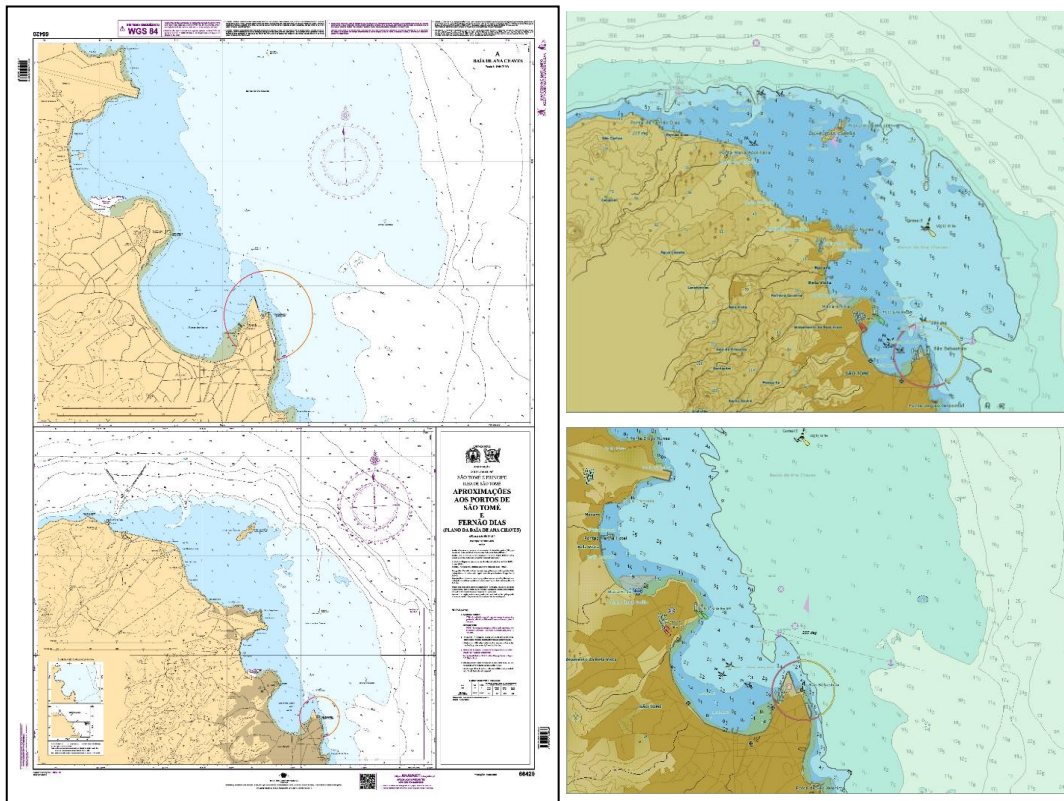


Figure 23 - Nautical Chart PT 66420 and ENC PT 466420 and PT 568520.

In the last trimester of 2016, IHPT has the intention to promote the execution of coastal surveys.

### Spain

Following the intensive cooperation with IHM, in June 2016, a collaborative survey was carried out, involving survey teams of IHPT and IHM, at the Minho River's mouth. During the survey, was determined the difference between the Chart Datum from Portugal and that region of Spain (see Figure 7).

#### d. Projects

##### Satellite Derived Bathymetry

Since 2015, Portuguese Hydrographic Institute has been performing some studies in Satellite Derived Bathymetry (SDB), from multispectral satellite images for shallow-waters, using Landsat 8 and Sentinel-2A images. The goal of assess bathymetry through SDB methodologies is not to directly produce nautical charts, but rather to evaluate the amount of changes since the last survey. SDB methodology has also proved to be a cost-effective tool to support nautical chart production workflow, being a very helpful tool in terms of field reconnaissance and hydrographic surveys planning, assess to bathymetric information for remote areas with cartographic interest and assess to the adequacy of bathymetric information represented on a nautical chart, allowing an evaluation of the need to update the nautical charts (e.g., due to sea bottom alterations related with sedimentary dynamics or dredging actions).

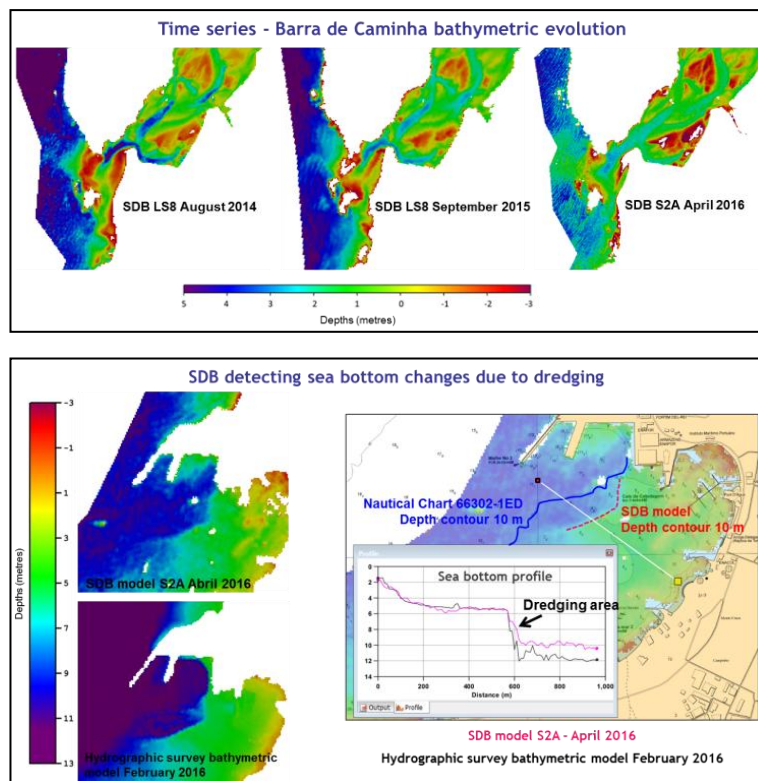


Figure 24 - Bathymetric evolution and sea bottom changes due to dredging.

# ANNEX A

## HYDROGRAPHIC OFFICE GENERAL INFORMATION PORTUGAL (PORTUGUESE REPUBLIC)

<b>INSTITUTO HIDROGRAFICO</b> <b>Rua das Trinas – 49</b> <b>1249-093 LISBOA</b>	
<b>Department of which the Hydrographic Office is part</b> <i>Ministère dont dépend le Service Hydrographique Ministerio del que depende el Servicio Hidrográfico</i>	Ministry of National Defence – Navy.
<b>Principal functions of the H.O. -</b> <i>Attributions principales du S.H.</i> <i>Principales funciones del S.H.</i>	Hydrographic Surveys, Analogue and Digital Nautical Charts, Sailing Directions, Lights and Radio Signals Lists, Notices to Mariners (monthly), Immediate Navigational Warnings, Tide Tables, Tidal Currents, Magnetic Compass Certification and Adjustment. Aids to Navigation Plans. DGPS, AIS projects. Oceanography. Provision of geophysical and environmental information for scientific and defence issues
<b>National day - Fête nationale – Fiesta nacional</b>	10 June
<b>Telephone :</b> <b>Fax :</b> <b>E-mails :</b> <b>WEB site:</b>	+ 351 21 094 3000 + 351 21 094 3299 <a href="mailto:dirgeral@hidrografico.pt">dirgeral@hidrografico.pt</a> <a href="mailto:dirtecnica@hidrografico.pt">dirtecnica@hidrografico.pt</a> <a href="mailto:hidrografia@hidrografico.pt">hidrografia@hidrografico.pt</a> <a href="http://www.hidrografico.pt">http://www.hidrografico.pt</a>
<b>Date of establishment and Relevant National Legislation –</b> <i>Date de fondation et législation nationale concernée – Fecha de establecimiento y Leyes nacionales dereferencia</i>	22 September 1960 <ul style="list-style-type: none"> <li>• Territorial Sea: Law n° 34/2006</li> <li>• Baseline: Laws n° 2130/66 and 495/85</li> <li>• EEZ: Laws n° 34/2006, n° 119/78 and n° 52/85</li> </ul>
<b>Name and rank of the Director or Head -</b> <i>Nom et grade du directeur –</i> <i>Apellidos y graduación del Director</i>	Rear-admiral António Manuel de Carvalho Coelho Cândido, Director General
<b>Tonnage – Tonelaje</b>	2011 = 1,334,011
<b>Total Budget - Budget total – Presupuesto Total</b>	9 million Euros
<b>Staff employed - Effectifs – Plantilla</b>	For details, consult the WEB site: <a href="http://www.hidrografico.pt">http://www.hidrografico.pt</a>
<b>N° of charts published - Nombres de cartes publiées –</b> <i>N° de cartas publicadas</i>	219 (91 from Portuguese waters)
<b>N° of INT charts published – Nombres de cartes INT publiées - N° de cartas INT publicadas.</b> <b>N° of ENC cells published – Nombres de cellules ENC publiées - N° de células ENC publicadas.</b>	42 (35 from Portuguese waters)  91 (74 from Portuguese waters)
<b>Type of publications produced (e.g. Tide Tables, Sailing Directions, List of Lights etc.) – Type de publications produites (par ex: Tables des marées, Instructions nautiques, Livres des Feux, etc. - Tipo de publicaciones producidas (por ej: Tablas de mareas, Derroteros, Libros de Faros etc.)</b>	<ul style="list-style-type: none"> <li>- Catalogue of Charts and Nautical Publications;</li> <li>- Catalogue of Nautical Charts of Portugal;</li> <li>- INT1 “Symbols, Abbreviations and Terms used in Charts”;</li> <li>- Tide Tables – Volume I – Portugal;</li> <li>- Tide Tables – Volume II – African Portuguese Speaking Countries;</li> <li>- List of Radio Aids and Services;</li> <li>- List of Lights, buoys, beacons and fog signals – Volume I – Portugal;</li> <li>- List of Lights buoys, beacons and fog signals – Volume II – Angola, Moçambique, São Tomé and Guiné Bissau;</li> <li>- List of Lights buoys, beacons and fog signals – Volume III – Cape Verde Archipelago</li> <li>- Sailing Directions – Continental Portugal – Volumes I to III;</li> <li>- Sailing Directions – Azores Archipelago – Volumes I to II;</li> </ul>

	<ul style="list-style-type: none"> <li>- Sailing Directions – Madeira Archipelago;</li> <li>- Sailing Directions - Angola and São Tomé e Príncipe Ports Pilot;</li> <li>- Sailing Directions - Cabo Verde – Volumes I to V;</li> <li>- Sailing Directions (Pleasure Craft) – Continental Portugal (Portuguese/English).</li> </ul>		
<b>Surveying vessels/ Aircraft – Bâtiments hydrographiques/aéronefs – Buques hidrográficos/ Aeronaves</b> <b>D. CARLOS I</b> <b>ALMIRANTE GAGO COUTINHO</b> <b>ANDRÓMEDA</b> <b>AURIGA</b> <b>ATLANTA</b> <b>FISÁLIA</b>	<b>Displacement</b>	<b>Date Launched</b>	<b>Crew</b>
	2285	1989	34
	2285	1985	34
	245	1985	13
	245	1987	13
	38.7	1981	3
	38.7	1981	3
<b>Other information of interest – Autres informations utiles - Otra información de interés.</b>	IHPT School of Hydrography and Oceanography provides Hydrography and Oceanography FIG/IHO/ICA category A and B courses.		

## ANNEX B

### Nautical and Electronic Navigational Charts Published by Portugal

Since the last meeting, INT charts published, covering areas of the Commission, are listed in the following table:

<b>NAUTICAL CHARTS</b>					
Number		Title	Scale 1:	Issue	
National	INT			National	INT
27M01	-	Planos de Portos Militares	Various	04 Sep 2014	-
26402	1871	Aproximações a Leixões e à Barra do Rio Douro	30 000	03 Oct 2014	-
		A - Porto de Leixões e Barra do Rio Douro	10 000		
26310	1884	Barra e Porto de Portimão	7 500	05 Oct 2014	-
26401	1870	Aproximações a Viana do Castelo	30 000	02 Feb 2015	-
		A - Porto de Viana do Castelo	7 500		
66420	-	Aproximações aos Portos de São Tomé e Fernão Dias	25 000	01 May 2015	-
		A - Baía de Ana Chaves	10 000		
46407	-	Ilha de Santa Maria	75 000	02 Sep 2015	-
		A - Porto de Vila do Porto	7 500		
		B – Baía de São Lourenço	7 500		
		Ilhéus das Formigas	7 500		
26407	-	Sesimbra	40 000	02 Jan 2016	-
		A – Porto de Sesimbra	7 500		
66302	-	Porto Grande (Ilha de São Vicente)	10 000	02 Jun 2016	-
66301	-	Porto da Praia (Ilha de Santiago)	7 500	02 Aug 2016	-

Since the last meeting, ENC cells published, covering areas of the Commission, are listed in the following table:

<b>ELECTRONIC NAVIGATIONAL CHARTS</b>					
<b>Number</b>	<b>NC</b>	<b>UB</b>	<b>Title</b>	<b>Edition</b>	<b>Date</b>
PT324201	24201	3	Vila Praia de Âncora ao Furadouro	5	OCT14
PT324201	24201	3	Vila Praia de Âncora ao Furadouro	6	FEB15
PT324202	24202	3	Aveiro ao Penedo da Saudade	6	OCT14
PT426401	26401	4	Aproximações a Viana do castelo	3	OCT15
PT426402	26402	4	Aproximações a Leixões e Barra do Rio Douro	5	JUN15
PT426407	26407	4	Sesimbra	3	JUL16
PT446407	46407	4	Ilha de Santa Maria	2	FEB16
PT446420	46420	4	Aproximações aos Portos de São Tomé e Fernão Dias	1	NOV16
PT526303	26303	5	Baía de Cascais e Barras do Rio Tejo (Porto de Lisboa)	8	DEC14
PT526304	26304	5	Porto de Lisboa (Ribeira do Jamor ao Terreiro do Trigo)	6	DEC14
PT526310	26310	5	Barra e Porto de Portimão	5	SEP15
PT528501	26401	5	Barra e Porto de Viana do Castelo	3	OCT15
PT528505	26402	5	Porto de Leixões e Barra do Rio douro	6	JUN15
PT528513	26407	5	Porto de Sesimbra	4	JUL16
PT548509	47501	5	Porto das Velas	2	MAY16
PT548514	46405	5	Porto de Angra do Heroísmo	3	MAR15
PT548515	46405	5	Porto da Praia da Vitória	5	MAR12
PT548522	46407	5	Ilhéus das Formigas	2	FEB16
PT548523	46407	5	Baía de S.Lourenço	2	FEB16
PT548524	46407	5	Porto de Vila do Porto	2	FEB15
PT548524	46407	5	Porto de Vila do Porto	3	APR16
PT566302	66302	5	Porto Grande – Ilha de São Vicente	2	SEP16
PT568520	46420	5	Baía de Ana Chaves	1	NOV15



# ANNEX C

## UPDATES TO C55

### Status of Hydrographic Surveys

		<b>A</b>	<b>B</b>	<b>C</b>
<b>Portugal (Continental Portugal)</b>	depths < 200 m	100	0	0
	depths > 200 m	99	0	1
<b>Portugal (Madeira Archipleago)</b>	depths < 200 m	65	0	35
	depths > 200 m	66	1	33
<b>Portugal (Azores Archipelago)</b>	depths < 200 m	60	40	0
	depths > 200 m	56	1	43

### Status of Nautical Charting

		<b>A</b>	<b>B</b>	<b>C</b>
<b>Portugal (Continental Portugal)</b>	Offshore passage / Small	100	0	100
	Coastal passage / Medium	100	0	100
	Approaches Ports / Large	100	0	100
<b>Portugal (Madeira Archipleago)</b>	Offshore passage / Small	100	0	100
	Coastal passage / Medium	100	0	100
	Approaches Ports / Large	100	0	100
<b>Portugal (Azores Archipelago)</b>	Offshore passage / Small	100	0	100
	Coastal passage / Medium	100	0	100
	Approaches Ports / Large	100	0	100

The other items have no changes.

# ANNEX D

## Portuguese Tide Gauge Network

