



SPAIN

NATIONAL REPORT

**TO THE 11th MEETING
OF THE EASTERN ATLANTIC
HYDROGRAPHIC COMMISSION
(EAtHC)**

**ACCRA, GHANA
24 TO 26 NOVEMBER 2010**

1. Hydrographic Service

Instituto Hidrográfico de la Marina (España). There haven't been relevant modifications in the organization of our Hydrographic Service since the last meeting. This report cover the next period: November 2008 to October 2010.

2. SURVEYS

2.1. Coverage of new surveys

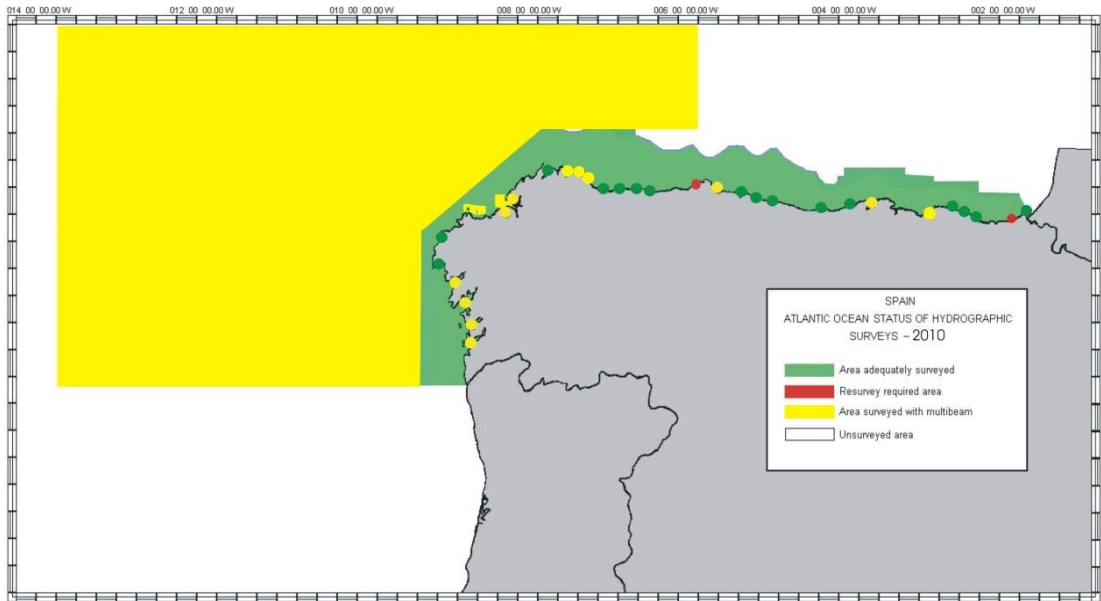
In order to update our bathymetry covering the Atlantic Ocean, this IHM has scheduled and carried out sixteen surveys in the last two years using our hydrographic vessels. These surveys covered the north and west coasts of the Iberian Peninsula as well as the Canary Islands: three of them were carried out in the Gulf of Cadiz, six in the northern coast of Spain and seven in the Canary Islands.

This IHM continued the plan to survey all main ports and their approach channels using hydrographic survey launches (HSL) 12 metres long, fitted with full bottom coverage detection systems, which means fitting onboard specialized multibeam echosounders for shallow waters. Four surveys were carried out at Bilbao, Burela, Las Palmas de Gran Canaria, Santa Cruz de Tenerife. Also, both HSLs have been providing support to other hydrographic vessels in Galicia (northwest the Iberian Peninsula) and the Bay of Cadiz (southwest of the Iberian Peninsula).

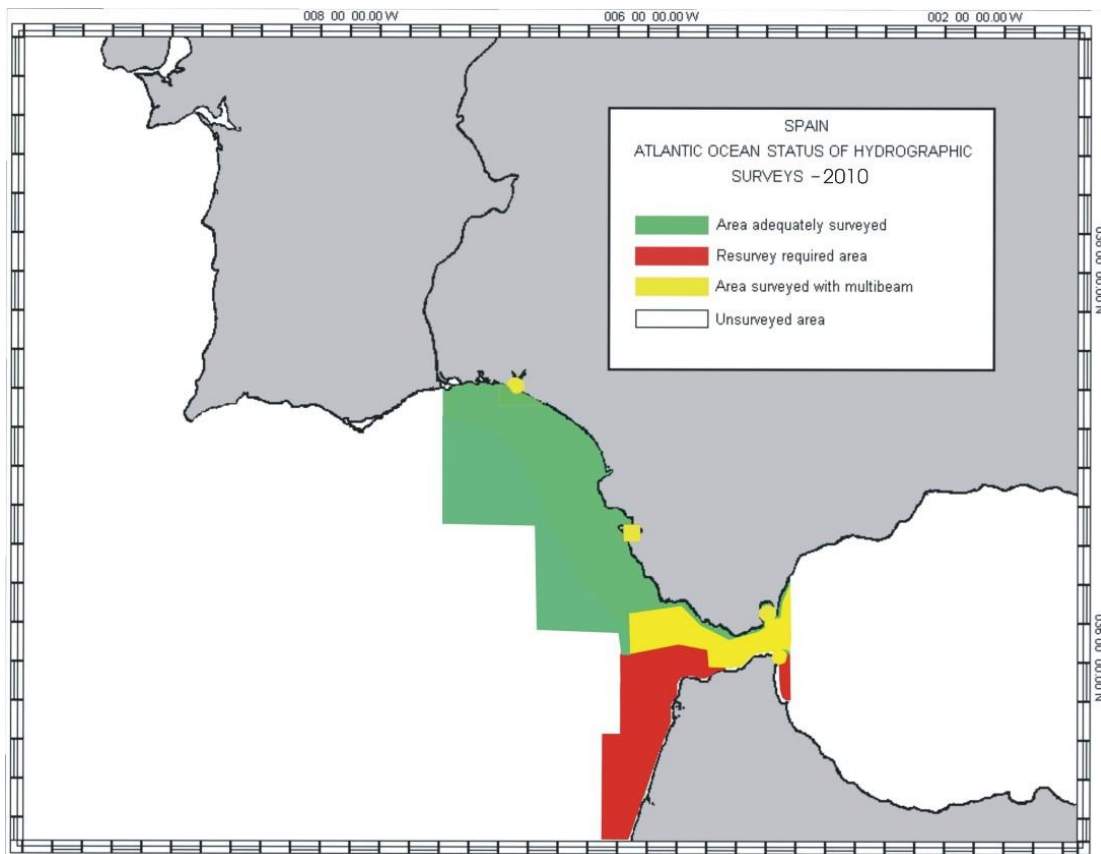
This IHM has also been surveying the Spanish EEZ once a year since 1995. These surveys are carried out by a hydrographic team onboard Oceanographic Research Vessel (ORV) "Hespérides". As a result, the current coverage of our EEZ is at 35%. During the time covered by this report there was one single survey in northern Spain.

This year there was a one-month long survey of the western area of the Canary Islands, so as to acquire bathymetric and geophysical data to assist in the extension of the Spanish continental shelf. Bathymetric data will be processed and stored to improve the quality of Spanish charts covering the area, even though minimum depth is about 4000 metres.

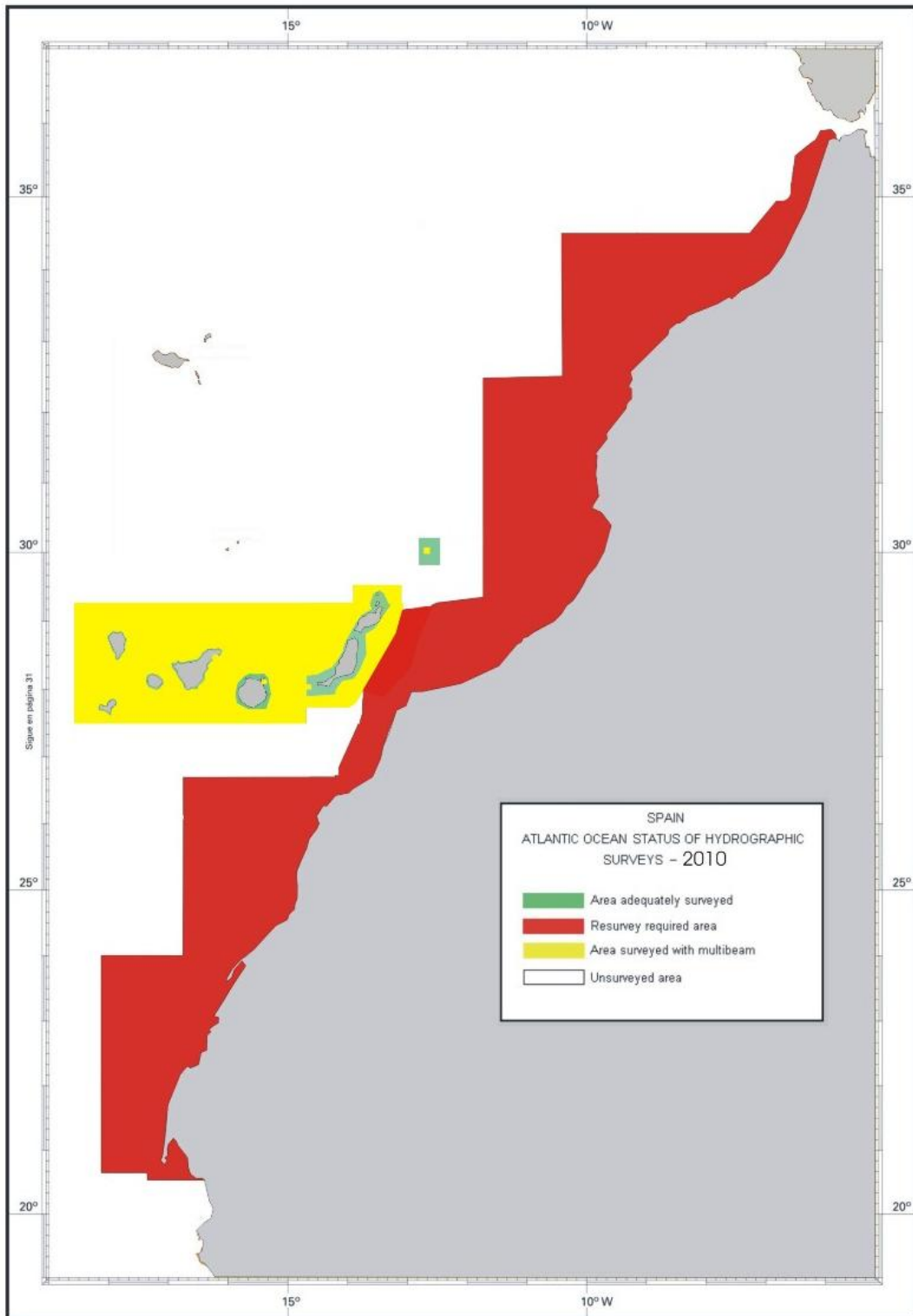
Please find below three graphics displaying the coverage and quality of bathymetric surveys.



Graphic 1.- Status of Hydrographic Surveys, Northern Iberian Peninsula Oct 2010.



Graphic 2.- Status of Hydrographic Surveys, Southwestern Iberian Peninsula Oct 2010.



Graphic 3.- Status of Hydrographic Surveys, Canary Islands and African coast Oct 2010.

Work Planning

Following the fourth and fifth editions of S-44, surveys have been planned considering the characteristics of the relevant navigational area. This

requirement means that we must choose the appropriate hydrographic vessel for each survey considering equipment, capability and endurance.

2.2. New technologies and / or equipment.

Spanish Hydrographic Vessel (HV) “Tofiño” was fitted with one SIMRAD EM-300 multibeam echosounder for deep waters (up to 5000 m) in 2004, and HV “Malaspina” was also fitted with a SIMRAD EM-302 multibeam echosounder in September 2007. Since those dates, the aforementioned vessels have improved the quality and reliability of scheduled annual surveys (three to four surveys per year). Early on, these surveys were carried out seaward from the 50 m depth contour line, but currently the 30 m depth contour line has been established as the starting line for multibeam echosounder surveying.

Technical software in use has been updated as developers improved them. This software covers the tasks of data acquisition, processing and management. Our new data acquisition software allows for the display of a ENC or orthophoto while surveying.

The possibility of using Side Scan Sonars (SSS) has been reduced recently, so this IHM initiated a program to overcome this limitation with the purchase of a long-range high-resolution synthetic aperture sonar (SAS). It was fitted onboard HV “Tofiño” to provide full coverage of port approach channels and mooring areas, which go beyond the capabilities of HSLs. This SAS is currently still undergoing tests, but they are expected to be completed by January 2011.

This IHM is entering into agreements and arrangements with government agencies with responsibilities over the sea environment and multibeam echosounding capabilities. These arrangements are aimed at the use of their vessels to capture bathymetry following IHO specifications, and to input such bathymetric data into the IHM database.

2.3. New ships

The Spanish hydrographic fleet lists two major hydrographic survey vessels, two medium-sized vessels and two launches (HSL). All of them carry multibeam echosounders except for the medium-sized vessels.

Those two medium size vessels will need to be replaced in the near future. There are currently two projects under development to build newer vessels; one of them is to replace the medium size survey vessels but it is being delayed due to the financial situation, and the other is to build a oceanographic / hydrographic vessel which is being developed and it is scheduled for delivery for 2016.

Also, as stated in para 2.1 above, ORV “Hespérides” is used for surveying the Spanish EEZ for one month a year.

2.4. Problems encountered

Even though the Spanish catalogue lists nautical charts covering the African coast, no systematic surveys have been carried out except for soundings in transit (by chance) when vessels sail between the Iberian Peninsula and the Canary Islands.

Once processed bathymetric data are stored in a database which takes into account the scale expected by the survey. This database is a key feature as the source of bathymetry for our nautical chart production.

We are trying to store in a suitable database the high amount of data generated by shallow water multibeam echosounders, but it is not an easy task. The high amount of data generated result in a database which is difficult to manage. The concept of bathymetric surface seems to be the best solution to this problem. This IHM is currently in the process of purchasing dedicated software to store and manage bathymetric surfaces.

3. NEW CHARTS & UPDATES

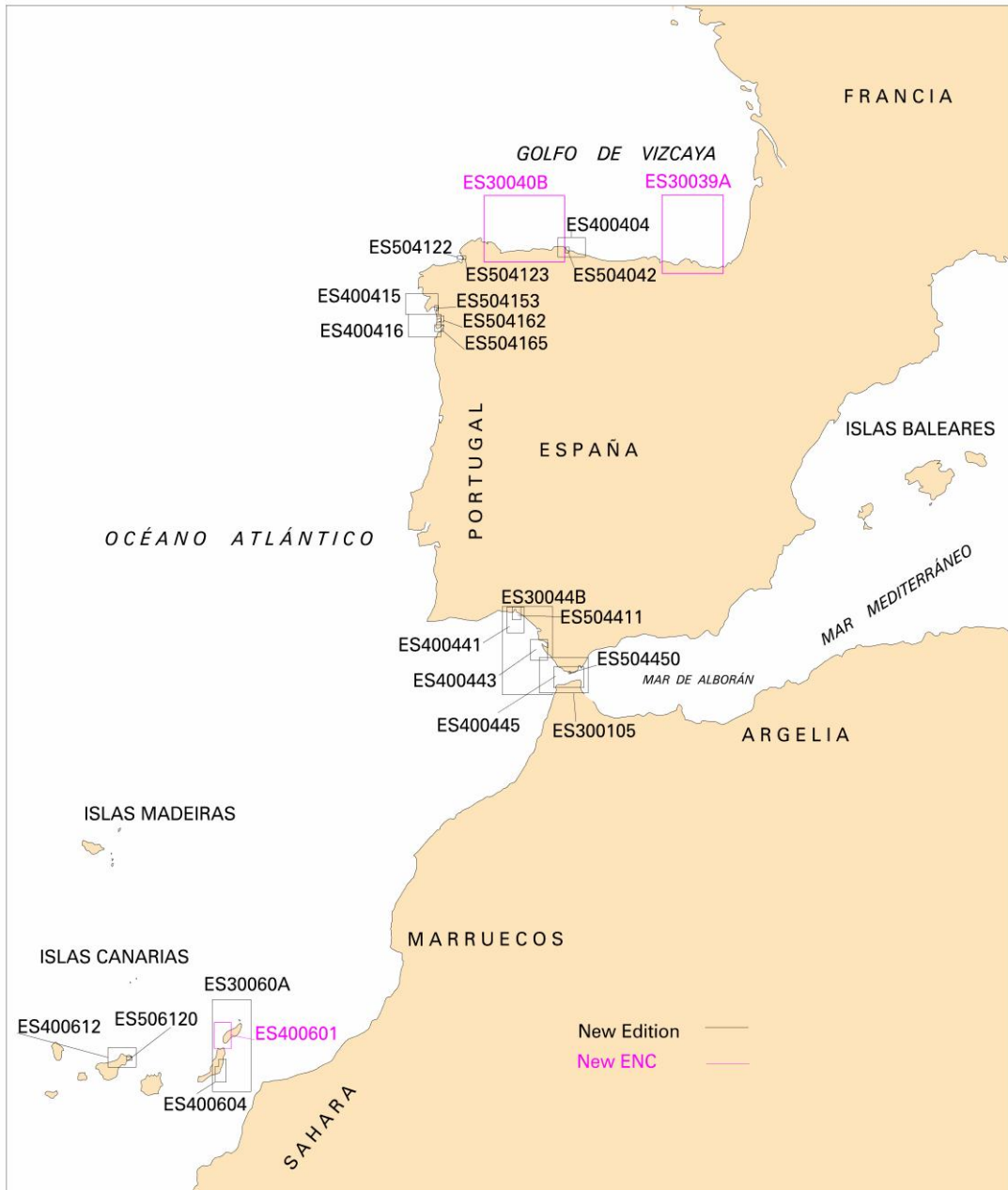
3.1. ENCs

3.1.1. Production

Up to date, Spain has produced 61 ENCs covering the area of this commission (out of an overall figure of 115 ENCs produced), which can be classified according to their navigational purpose as follows:

Purpose 2 General	Purpose 3 Coastal	Purpose 4 Approaches	Purpose 5 Harbour
4	11	19	27

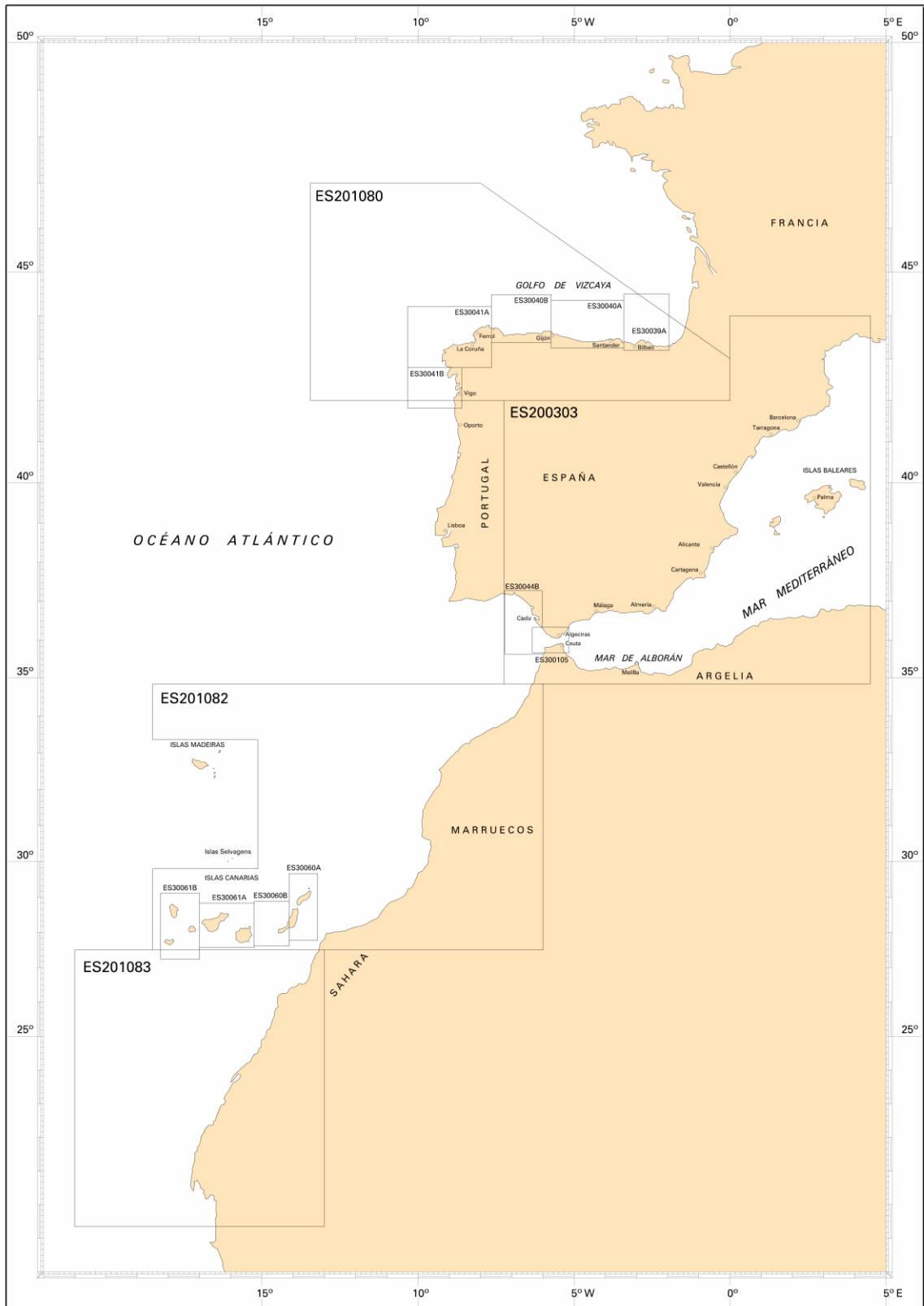
Since the last conference and within the area of this commission, 3 new ENCs, 20 new editions and 377 updates have been produced. This is proof of the increased work to maintain and update the ENC catalogue.



Graphic 4.- New ENC cells and editions since the last Conference.

So, full coverage by ENC at small and medium scale, purposes 2 & 3, of the area of responsibility has been completed.

ARRUMBAMIENTO Y COSTERAS



Graphic 5.- Full coverage at small and medium scale (purposes 2 & 3)

3.1.2. Cooperation.

IHM continues its ENC production, fulfilling IHO recommendations regarding the improvement of ENCs vertical and horizontal consistency so that the display in ECDIS systems is also improved

On the subject of information exchange to achieve the desired consistency, we should note the excellent cooperation with Portugal and France, under RENC supervision.

3.2. ENC Distribution Method

Spain is integrated into the IC-ENC, which performs ENC validations and consistency checks before distribution.

There is a close relation of collaboration and research with that centre, aimed at the improvement and optimisation of ENC production processes and subsequent validation.

3.3 RNCs

Nothing to report (NTR).

3.4 INT Charts

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

NÚM (INT)	SCALE	TITLE
6120 (INT 1929)	1/12.500	Puerto de Santa Cruz de Tenerife.
4122 (INT 1855)	1/10.000	Acceso a la ría de Ferrol.
4123 (INT1856)	1/10.000	Puerto de Ferrol.
81 (INT 1935)	1/350.000	De cabo Trafalgar a punta Europa y de Ceuta a Kenitra (Port Lyautey).
4165 (INT 1858)	1/10.000	Puerto de Vigo.
4042 (INT 1853)	1/10.000	Puerto de Gijon.
39A (INT 1805)	1/175.000	De Mimizan-Plage al cabo de Ajo.
4011 (INT 1852)	1/15.000	Puerto de Santander.
4511 (INT 3252)	1/10.000	Bahía y puerto de Ceuta.

Table 3.4.1

3.5 National paper charts

3.5.1. Production

Since the last Meeting, national paper charts published covering areas of the Commission are listed in the following table:

NÚM	SCALE	TITLE
4153	1/7.500	Puerto Villagarcía de Arousa.
4424	1/12.500	Río Guadalquivir. Del caño de la Lisa a la Atravesada del Rincón.
4425	1/12.500	Río Guadalquivir. Del Rincón al puente de San Bernardo.
4422	1/12.500	Río Guadalquivir. Del caño de Enriquez al caño de San Carlos.
4423	1/ 12.500	Río Guadalquivir. Del caño de San Carlos al caño de la Lisa.
612	1/60.000	Del puerto de Güimar a la punta el Guidaste.
413	1/60.000	De las islas Sisargas a cabo Villano.
83A	1/160.000	De cabo Beddouza (Cantin) a cabo Sim.
408	1/50.000	De Burela al cabo Ortegál.
85A	1/75.000	De cabo Yubi a El Cabiño.
605	1/60.000	De Arrecife (Lanzarote) a Puerto del Rosario (Fuerteventura).
601	1/60.000	Costa Occidental de la isla de Lanzarote y costa norte de la isla de Fuerteventura.
600	1/60.000	De Arrecife a la Isleta con las islas Añegranza, Montaña Clara y la Graciosa.
4152	1/10.000	Puertos de Santa Uxia de Ribeira, APobra do Camariñal, Vilanova de Arousa, Cambados y O Grove.
443A	1/25.000	Aproches del puerto de Cádiz – Zona Norte.

39A	1/175.00	De Mimizan-Plage al cabo del Ajo.
401	1/50.000	De cabo de Ajo a punta Calderon.
4451	1/10.000	Bahía de Algeciras.
4461	1/15.000	Puertos de Tanger, El Aaraich(Larache) y Asilah (Arcila).

Table 3.5.1.

3.5.2. Reproductions and Adoptions:

Since the last Meeting, nautical charts covering areas of the Commission reproduced or adopted into our national series are listed in the following table:

NÚM. (INT)	SCALE	TITLE	PRODUCER
43 (INT 1811)	1/350.000	Del cabo Carvoeiro a Vilamoura.	Portugal

Table 3.5.2.

3.6. Other Charts (leisure craft charts)

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

NÚM	SCALE	TITLE
D105	1/100.000	Estrecho de Gibraltar. Del cabo Roche a punta de la Chullera y del cabo Espartel al cabo Negro.

Table 3.6.1

3.7. Problems encountered.

NTR.

4. NEW PUBLICATIONS AND UPDATES

4.1. New Publications

NTR.

4.2. Updated Publications

- International Regulations for the Preventing Collisions at Sea COLREGs (1972), 2009 edition.

- List of lights and fog signals, part I, 2009 edition.

- List of lights and fog signals, part II, 2009 edition.

- List of lights and fog signals, part I, 2010 edition. Coasts of Spain and Portugal on the Atlantic Ocean, Africa West Coast from Cabo Espartel to Cabo Verde including Dakar, Islas Azores, Madeira, Selvagens, Canarias and Cabo Verde.

- List of lights and fog signals, part II, 2010 edition. Gibraltar Strait, Balearic Islands and Mediterranean coasts of Spain, Morocco and Algeria.

- Sailing Directions no 3 volume I, 2010 edition. Mediterranean Coasts, including: N & S Coasts of the Straits of Gibraltar, and Eastern Coast of Spain from Punta Europa to the French border.

- Supplement no 1 to Sailing Directions no 2 volume I, 2009 edition. Costa NW Coast of Spain, from Estaca de Bares to Río Miño

- Supplement no 1 to Sailing Directions no 4, 2009 edition. W Coast of Africa, from cabo Espartel to cabo Verde, including Dakar, Islas Açores, Madeira, Selvagens, Canarias and Cabo Verde.

4.3. Means of delivery.

Currently, all the distribution of the publications mentioned in paragraph 4.2 is done in hardcopy. There is an ongoing project for the delivery of the List of Lights and Fog Signals in digital format. The List of Lights and Fog Signals as well as Sailing Directions no 3 volume I have been distributed in CD-ROM format.

4.4. Problems encountered.

NTR.

5. MSI

5.1. Existing Infrastructures for transmission

The current situation of the dissemination of Maritime Safety Information can be summarized as follows:

5.1.1. Radio Navigational Warnings

Co-ordinator: SASEMAR (Spanish National Agency for Maritime Search and Rescue Operations, Ministry of Public Works) is the national Co-ordinator for coastal and local radio navigational warnings. The National Salvage Co-ordination Centre (CNCS) is located in Madrid.

Means: NAVTEX Stations.
MF and VHF Stations.

Spanish NAVTEX stations broadcasting in the NAVAREA II region are the following: La Coruña, Tarifa and Las Palmas. They broadcast in English and Spanish over 518 and 490 KHz frequencies respectively.

Any information considered by IHM as relevant for vessels in transit to the NAVAREA II Region and French coastal waters, is submitted via FAX to SHOM (NAVAREA II Zone Co-ordinator); likewise, SHOM and CECMED (Commander in Chief and District Commander Mediterranean French Naval) report any maritime safety information affecting Spanish coastal waters and NAVAREA III area of coverage. Thus, there is a fluid exchange of information between both Co-ordinators.

Likewise, if IHM has knowledge of any event affecting Maritime Safety in waters under jurisdiction of some other country within NAVAREA II region, both the relevant country and the NAVAREA II Co-ordinator are duly informed.

5.1.2. SAR Organisation

Co-ordinator: SASEMAR through its National Centre (CNCS) and its Area, Regional and Local Centres.

Means: NAVTEX stations and communication stations at SASEMAR Centres, as well as coastal MF and VHF stations.

5.2. New infrastructure in accordance with GMDSS Master Plan

NTR.

5.3. Problems encountered.

NTR.

6. S-55

6.1. SPAIN. CHARTING REGION G

Date of validity of information: 01 October 2010

6.1.1. HYDROGRAFIC SURVEYING

Survey coverage, where:

A = percentage which is adequately surveyed.

B = percentage which requires re-survey at larger scale or to modern standards.

C = percentage which has never been systematically surveyed.

	A	B	C
Dephts < 200 m	94	6	0
Dephts > 200 m	45	0	55

6.1.2. NAUTICAL CHARTING

Status of nautical charting within the limits of the EEZ

A = percentage covered by INT series, or a paper chart series meeting the standards in M-4.

B = percentage covered by Raster Navigational Charts (RNCs) meeting the standards in S-61.

C = percentage covered by ENC's meeting the standards in S-57.

Purpose/ scale	A	B	C
Offshore passage/ Small	100	0	100
Landfall and Coastal passage/ Medium	100	0	100
Approches and Ports/ Large	100	0	50

Regarding to ENC large scale coverage is important to notice that current percentage is over the new ENC project (cover all national main and secondary ports).

6.1.3. MARITIME SAFETY INFORMATION (MSI).

NAVIGATIONAL INFORMATION (S-53)

SERVICE	Yes	No	Partial	Notes
LOCAL WARNINGS	X			
COASTAL WARNINGS	X			
NAVAREA WARNINGS	X			Vía NAVAREA II Coordinator
PORT INFORMATION	X			Agreements with all Port Authorities

GMDSS IMPLEMENTATION (IMO Publication 970–GMDSS Manual)

SERVICE	Yes	No	Partial	Notes
Master Plan	X			
Area A1	X			
Area A2	X			
Area A3	X			
NAVTEX	X			
SafetyNET	X			For NAVAREA Warnings only.

6.2. SPAIN: CANARY ISLAND, CHARTING REGION G

Date of validity of information: 01 October 2010

6.2.1. HYDROGRAPHIC SURVEYING

A = percentage which is adequately surveyed.

B = percentage which requires re-survey at larger scale or to modern standards.

C = percentage which has never been systematically surveyed.

	A	B	C
Dephts < 200 m	95	5	0
Dephts > 200 m	44	0	56

6.2.2. NAUTICAL CHARTING

Status of nautical charting within the limits of the EEZ

A = percentage covered by INT series, or a paper chart series meeting the standards in M-4.

B = percentage covered by Raster Navigational Charts (RNCs) meeting the standards in S-61.

C = percentage covered by ENC's meeting the standards in S-57.

Purpose/ scale	A	B	C
Offshore passage/ Small	100	0	100
Landfall and Coastal passage/ Medium	100	0	100
Approches and Ports/ Large	100	0	50

Regarding to ENC large scale coverage is important to notice that current percentage is over the new ENC project (cover all national main and secondary ports).

6.2.3. MARITIME SAFETY INFORMATION (MSI).

NAVIGATIONAL INFORMATION (S-53)

SERVICE	Yes	No	Partial	Notes
LOCAL WARNINGS	X			
COASTAL WARNINGS	X			
NAVAREA WARNINGS	X			Via NAVAREA II Coordinator
PORT INFORMATION	X			Agreements with all Port Authorities

GMDSS IMPLEMENTATION (IMO Publication 970–GMDSS Manual)

SERVICE	Yes	No	Partial	Notes
Master Plan	X			
Area A1	X			
Area A2	X			
Area A3	X			
NAVTEX	X			
SafetyNET	X			Via NAVAREA II Coordinator

7. Capacity Building

7.1. Offer of and/or demand for Capacity Building

The Spanish Hydrographic Office offers both Level A and Level B IHO/FIG/ICA Hydrography Courses. These courses are 8 month long and are taught in Spanish.

A list with the attendees to these courses follows:

Level A Course:

Period 2010-2011

2 Officers Spanish Navy
 1 Officer from Argentina
 1 Officer from Honduras

Period 2009-2010

4 Officers Spanish Navy
 1 Officer from Dominican Republic
 1 Officer from Morocco
 1 Officer from Tunisia

Period 2008-2009

3 Officers Spanish Navy
 1 Officer from Argentina
 1 Officer from Uruguay

Level B Course:

Period 2010-2011

2 Chief petty officers Spanish Navy
1 Chief petty officers Dominican Republic Navy

Period 2009-2010

1 Chief petty officers Spanish Navy

Period 2008-2009

3 Chief petty officers Spanish Navy
1 Chief petty officers Dominican Republic Navy

Countries willing to have students attending these courses should contact the Spanish Ministry of Foreign Affairs through their respective Embassies in Spain.

7.2. Training received, needed, offered

NTR.

7.3. Status of national, bilateral, multilateral or regional development projects with hydrographic component. (In progress, planned, under evaluation or study)

NTR.

7.4. Definition of bids to IHOCBC

NTR.

8. Oceanographic activities

8.1. General

A database containing tidal data for all ports and harbours in the peninsula and islands is being produced.

Long-term evolution of tidal parameters is being studied, using data from the network of permanent tide gauges.

Software for current analysis and prediction based on data from current meters Doppler Nortek is being developed.

All information regarding bottom quality is being digitised and geo-referenced.

8.2. GEBCO/IBC's activities

NTR.

8.3. Tide gauge network

There is information online at the IHO website regarding the Spanish network of tide gauges at:

http://www.iho-ohi.net/mtg_docs/com_wg/IHOTC/IHOTC_Misc/TideGaugeInventory.pdf

8.4. New equipment

HV "Tofiño" was fitted with a Nortek hull current meter for shallow waters at 600 khz, plus a thermosalinograph.

8.5. Problems encountered

NTR.

9. Other activities

9.1. Participation in IHO Working Groups

9.2. Meteorological data collection

9.3. Geospatial studies

9.4. Disaster prevention

9.5. Environmental protection

9.6. Astronomical observations

9.7. Magnetic/Gravity surveys

9.8. MSDI Progress

Within SDI's, this IHM is a participant in the GT-IDEE (Working Group on Infrastructure of Spatial Data of Spain), tasked with the integration via internet of geographic data, metadata, services and information produced in

Spain, to help users locate, identify, select and access such resources via the IDEE geoportal (<http://www.idee.es>).

Also, the Spanish Central Archive of Cartography (Instituto Geográfico Nacional) has been provided with digital information, including the Spanish coastline at scale 1:50000.