



**REPORT OF SPAIN TO THE
X MEETING OF THE
EASTERN ATLANTIC
HYDROGRAPHIC COMMISSION
(EAtHC)**

Lomé (TOGO), 3-5 December 2008

0. EXECUTIVE SUMMARY

This report summarizes the efforts, works and goals accomplished by the staff of the “Instituto Hidrografico de la Marina” (IHM) –Spanish Hydrographic Office-- and personnel on board IHM Hydrographic vessels during the period of time October 2006 / October 2008 in the area covered by the Eastern Atlantic Hydrographic Commission.

1. HYDROGRAPHIC OFFICE

There haven't been relevant modifications in the organization of our Hydrographic Service since the last meeting.

2. SURVEYS

2.1 Coverage of new surveys

As shown on this National Report, 93% of our Area of Responsibility corresponding to the Iberian Peninsula is adequately surveyed. However, for the “Islas Canarias” (Canary Islands) area, only a 65% has been achieved. Therefore most of the hydrographic effort has been focused on this last area, as well as on resurveying the oldest surveys around the Iberian Peninsula.

In order to update our Atlantic Ocean bathymetry, during the last two years, IHM has planned and accomplished a total of fifteen surveys. This implies both the coastal areas near the coastline of the Iberian Peninsula and the Islas Canarias areas. In this period, six surveys were done in the Gulf of Cadiz and four in the Eastern Islas Canarias (Lanzarote, Graciosa and Fuerteventura Islands).

IHM kept going on with the plan of surveying all the main harbours and their approaching channels employing 100% bottom detection systems. This last implies surveys with both shallow water multibeam echo sounders and side scan sonar, when necessary. In this report period, two surveys were done in Santander and Gijon harbours.

IHM is also conducting surveys on the Spanish EEZ on a yearly one-month basis since 1995. These surveys are conducted by a team embarked on the Oceanographic Research Vessel (ORV) “Hespérides”. As a result, 30% coverage of the EEZ has been achieved so far. In this report period three EEZ surveys were done northwest off Galicia coasts.

At the end of this chapter, three figures show the coverage and quality of our bathymetric surveys.

2.2 New technologies and/or equipment.

In 2004 RV TOFIÑO was fitted with a SIMRAD EM-300 multibeam echo sounder for deep waters (up to 5000 m). Afterward, on September 2007 we began the installation of another multibeam echo sounder SIMRAD EM-302, on board our second large RV MALASPINA. The trials of the new equipment were conducted from January to July 2008. Currently this new multibeam echo sounder is fully commissioned and surveying in the Islas Canarias area.

During 2007 RV MALASPINA has been completely refurbished. The works involved not only the electronic equipment in general but the navigation system, the engine plant and the accommodation room as well.

The analogical echo sounders ATLAS DESO 20 and 25, after working properly during more than 15 years, have been superseded by the digital single beam echo sounders SIMRAD EA-400 and EA-600. The first one is used on board our hydrographic boats and the last one on board our medium and large survey ships. These changes included the installation of new motion sensors and sound velocity profilers suitable for operating with the new equipment.

All the technical software has been updated in accordance with their manufacturer directions. This includes software for data acquisition, data processing and data management.

2.3 New ships

We are currently operating four hydrographic research vessels, twins two by two, and two launches. The two larger vessels will be entirely operational next summer on completion of the overhaul of the engine plant of RV TOFIÑO.

In addition to the employment of our own hydrographic vessels, IHM carries out yearly one-month hydrographic surveys in the Spanish EEZ on board ORV HESPERIDES. This vessel is fitted both with shallow and deep waters multibeam echo sounders SIMRAD EM 1002S and EM 120.

The two launches are also fitted with multibeam echo sounders. Those echo sounders are suitable for shallow water surveys and they are employed to achieve full bottom coverage of main ports and their approaches.

The two remaining medium-size vessels, RV ANTARES and RV RIGEL, are the only ones not fitted with multibeam echo sounder. There are no consolidated plans for fitting them with multibeam but a study has been initiated in order to solve this need in the midterm.

Our flotilla of vessels and launches reasonably fits our hydrographic needs. However, there's a need to replace all them in a near future due to the fact that the youngest one of them is 33 years old. Therefore we have started to analyze the characteristics

and capabilities required by a future survey ship, and currently a new project to build one or two modern survey vessels is in progress.

2.4 Problems encountered

All our processed bathymetric data is stored in an Oracle data base which is the key element for our nautical chart production. This is due to the fact that our Charting Division feeds from that data base as the source for incorporating soundings into the nautical charts of our portfolio.

We have also created a new independent data base which keeps a much higher sounding data density provided by the original multibeam echo sounders surveys. This data base is different and separated from the one employed for charting production. We have experienced though that the enormous amount of data held by this new data base makes its management quite slow and operationally difficult. In consequence we are studying other ways of keeping high density soundings in a suitable format to make this new multibeam data base useful for special needs. So far, the Bathymetric Surface concept seems to be the way ahead.

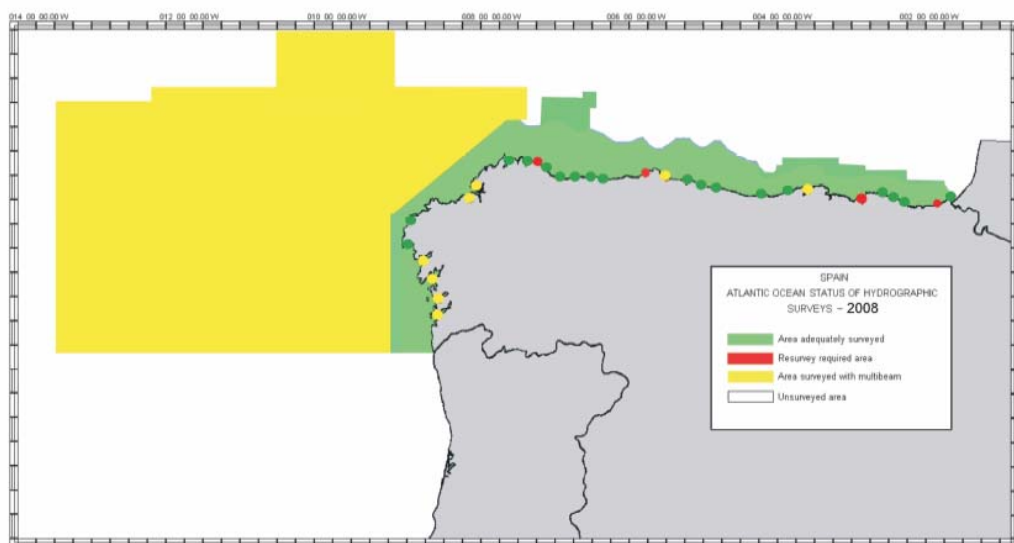


Fig. 1.- Spain. Northern Atlantic Coast. Hydrographic Survey Status Oct 2008

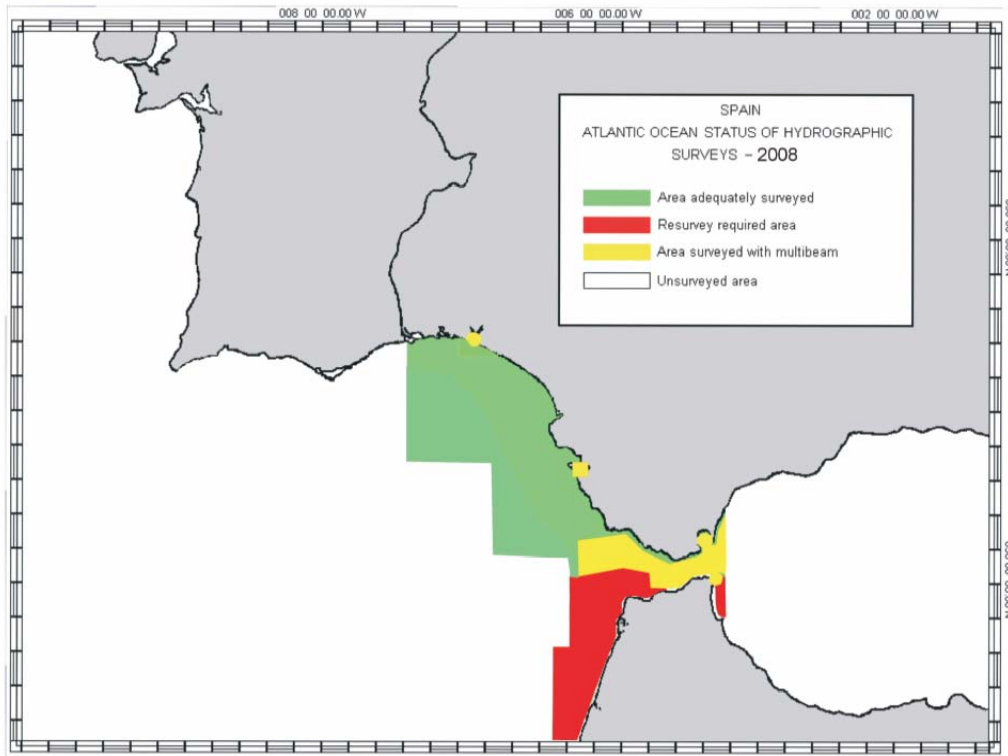


Fig. 2.- Spain. Southern Atlantic Coast. Hydrographic Survey Status Oct 2008

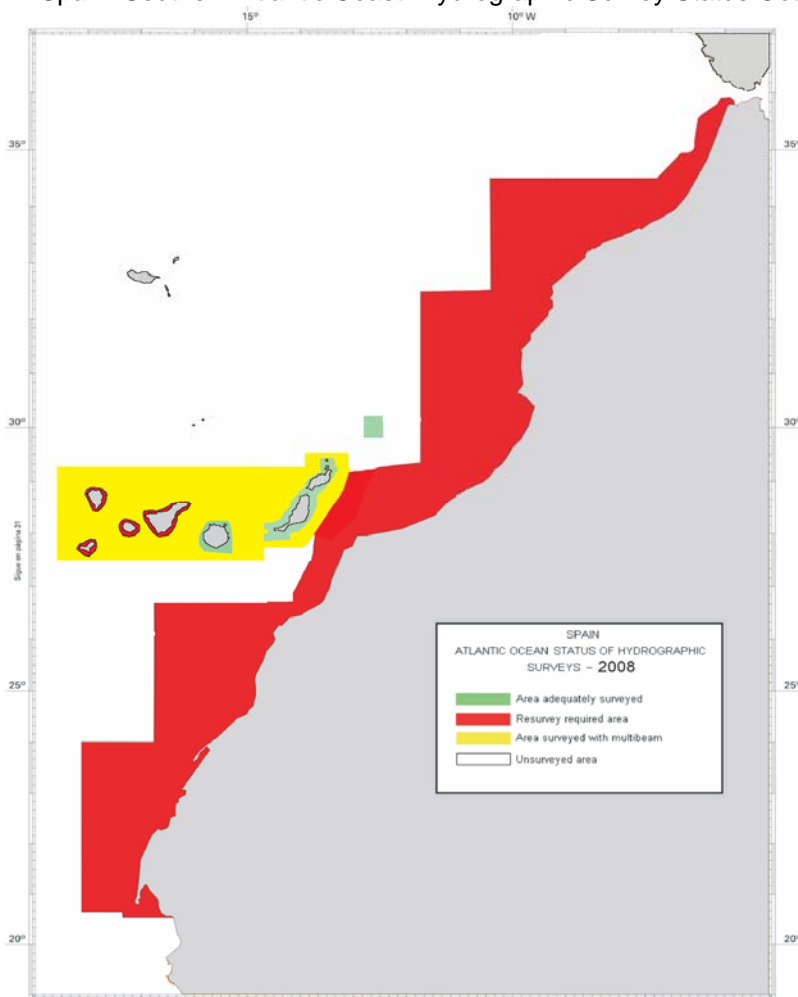


Fig. 3.- Africa West Coast & Islas Canarias. Hydrographic Survey Status Oct 2008

3. NEW CHARTS AND UPDATES

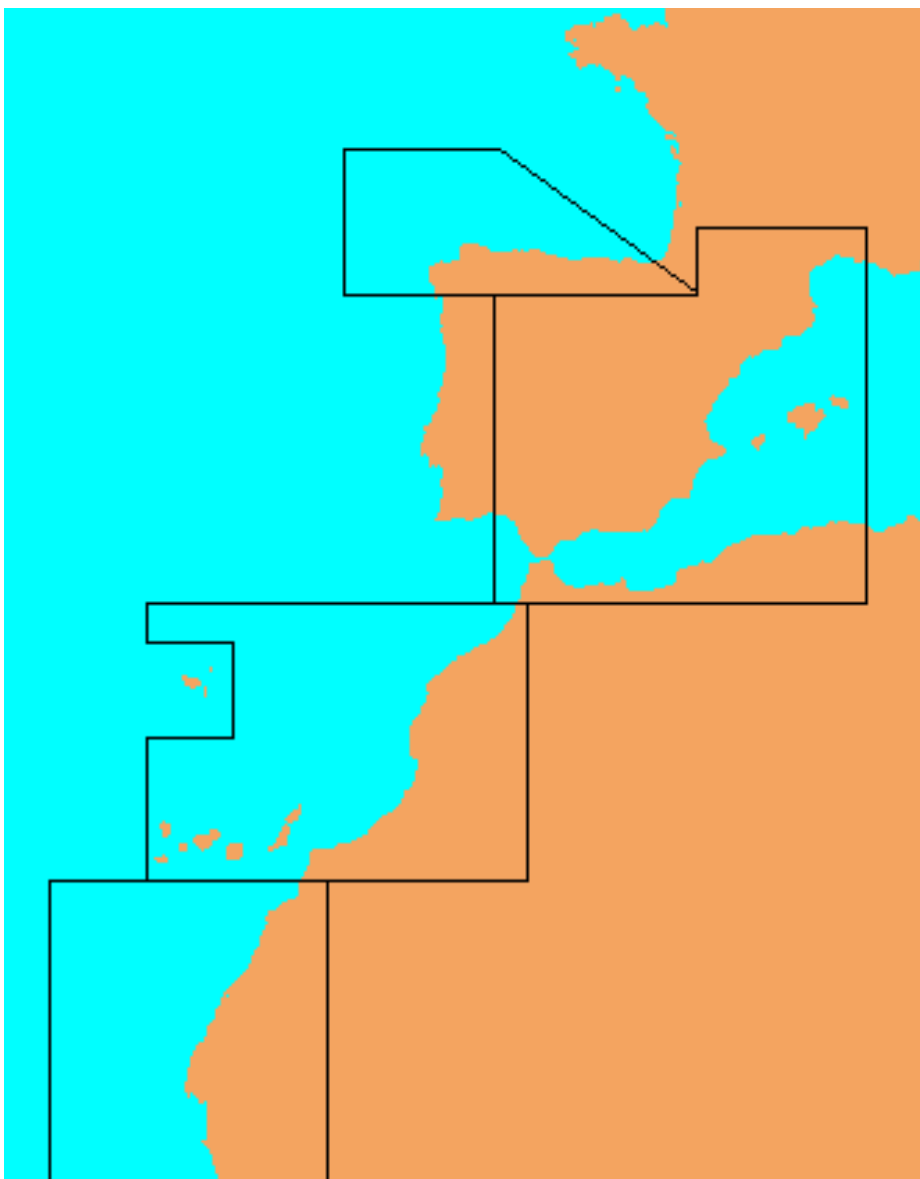
3.1 ENC's

- Production

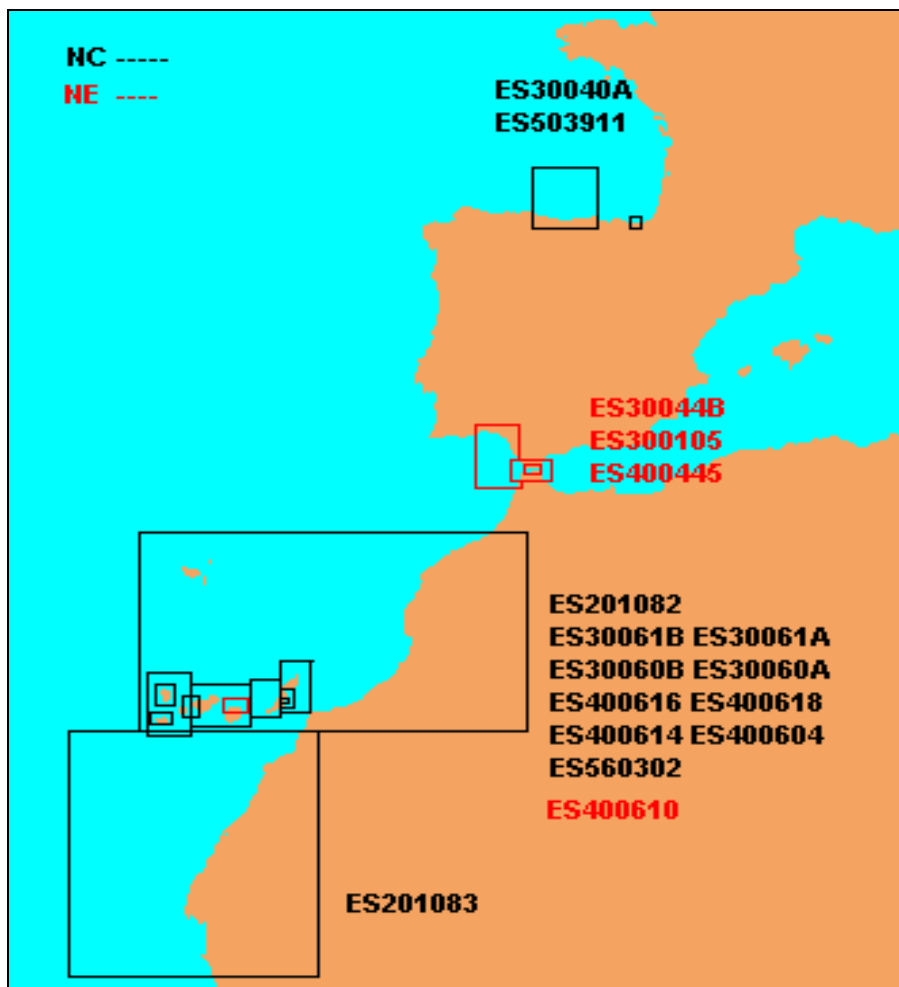
Up to date, Spain has produced 111 ENC's classified as follows according to their navigational purpose:

UB2	UB3	UB4	UB5
4	18	40	49

Graphic shows ENC completed coverage at small scale.



Since the last Conference and for the area of the Commission, 13 new ENC and 4 new editions have been produced, plus 425 updates. This shows the increase in the workload involved in the maintenance and update of the ENC catalogue.



Thus, the coverage of the area of responsibility for ENC production at small scale was completed, covering all main navigation routes, including High Speed Craft navigation routes and therefore allowing this kind of ships (HSC) operating in these areas to be fully compliant with IMO regulations regarding the mandatory use of ECDIS starting on January 2008.

-Cooperation.

IHM continues its ENC production, fulfilling IHO recommendations regarding the improvement of ENCs consistency, an issue considered very important and thus increasing the confidence that mariners should have on ENCs and ECDIS.

On this subject, we should note the excellent cooperation with Portugal and France, with the exchange of ENCs of adjacent areas for data consistency before submission to the RENC.

- Usage Band (UB) 2

We should note that we agreed with Portugal that the West limit of ENC ES200303 corresponding to INT 303 in the MEDINTCHART scheme, would be meridian 7° 15,00W, which would also be the East limit of the ENC PT221101 assigned to Portugal corresponding to INT 1081 in the area of this Commission. Consequently, it is suggested that the same limit (meridian 7° 15'00W) could be designated also as the limit between EAtHC and MBSHC UB1 charts.

3.2. ENC distribution method

Spain is integrated into the IC-ENC, which performs 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 production processes and subsequent validation.

3.3 RNCs

N/A.

3.4 INT Charts

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

Table 3.4_1

NUM (INT)	SCALE	TITLE
60 (INT 1939)	1/350.000	Cabo Yubi a cabo Bojador e islas orientales de Canarias.
61 (INT 1926)	1/350.000	De Gran Canaria a El Hierro
4A (INT 1080)	1/1.000.000	Golfo de Vizcaya. Brest a cabo Finisterre.

4042(INT1853)	1/10.000	Puerto de Gijón.
4411(INT1901)	1/25.000	Barra y puerto de Huelva
40A(INT 1806)	1/175.000	De Santoña a Gijón.
86 (INT 1940)	1/350.000	El Cabiño a río de Oro.
40B (INT 1807)	1/175.000	Cabo San Lorenzo a cabo Ortegal.
44 (INT 1812)	1/375.000	Cabo San Vicente a estrecho de Gibraltar

3.5 National paper charts

- Production

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

Table 3.5_1

NUM	SCALE	TITLE
617	1/60.000	Isla de La Gomera.
600A	1/25.000	Pasos entre las islas de Alegranza, Montaña Clara, La Graciosa y Lanzarote
61A	1/200.000	Gran Canaria, Tenerife y La Gomera
4452	1/10.000	Puertos de La Línea y Gibraltar.
60A	1/ 200.000	Lanzarote y Fuerteventura.
60B	1/200.000	Fuerteventura y Gran Canaria.
61B	1/200.000	La Palma, La Gomera y El Hierro
6A	1/525.000	Islas Canarias y costa occidental de África. Cabo Yubi a cabo Bojador

40	1/350.000	Cabo Ajo a cabo Ortegal.
412	1/60.000	Punta Frouxeira a Islas Sisargas.
618	1/60.000	Isla de El Hierro.
604	1/60.000	Gran Tarajal a Puerto del Rosario.
614	1/60.000	Punta Montaña Amarilla a punta El Guindaste
445	1/60.000	Estrecho de Gibraltar. Punta Camarinal a Punta Europa ...
44C	1/175.000	Costa Sur de España y Norte de Marruecos ...
982	1/1.000.000	Cabo Verde a río Tombali
414A	1/25.000	Seno de Corcubión.

NUM	SCALE	TITLE
407	1/50.000	De Navia a Burela
404A	1/25.000	Aproches de Gijón.
4451	1/10.000	Bahía de Algeciras. Zona Oeste.
415A	1/25.000	Ría de Muros y Noia
406	1/50.000	De Cudillero a Navia.
394A	1/25.000	Aproches de Bilbao
82A	1/160.000	Cabo Mohammedia (Fédala) a cabo Al Jadida (Mazagán).

440A	1/50.000	Río Guadiana a río de las Piedras
447	1/52.500	Asilah (Arcila) a El Aaraich (Larache).
446	1/52.500	Tánger a Asilah (Arcila).
4D	1/750.000	Cabo San Vicente a cabo Palos y de Casablanca a Orán.
4041	1/15.000	Lastres, El Puntal y Tazones, Candás y Luanco, San Esteban de Pravia
415	1/60.000	Punta Remedios a península O Grove
60A	1/ 200.000	Lanzarote y Fuerteventura.
3931	1/10.000	Bermeo y Mundaka
443A	1/25.000	Aproches de Cádiz. Zona Norte
87B	1/175.000	Cabo Barbas a Bahía del Galgo.
86A	1/175.000	El Cabiño a Morro del Ancla.
86B	1/175.000	Morro del Ancla a Río de Oro

- Reproductions and Adoptions

Since the last Conference, the following charts have been reproduced or adopted into our national series:

Table 3.5_2

NUM (INT)	SCALE	TITLE	PRODUCED BY
4B (INT 1081)	1/1.000.000	Cabo Finisterre a Casablanca.	Portugal
8 (INT 104)	1/3.500.000	De Lisboa a Freetown.	France
44A (INT 1818)	1/150.000	Cabo San Vicente a Estrecho de Gibraltar	Portugal

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:

Table 3.6_1

NUM	SCALE	TITLE
D210	1/100.000	Carta de puertos deportivos de Gran Canaria.

3.7 Problems encountered.

N/A.

4. NEW PUBLICATIONS AND UPDATES

4.1. New Publications

N/A.

4.2. Updated publications

SAILING DIRECTIONS Nr. 1. North coast of Spain, from Río Miño to Estaca de Bares. 2008 EDITION.

SAILING DIRECTIONS, SUP. Nr. 1 to Nr. 2 Volume II. Coast of Portugal and SW Spain, from Río Miño to Cabo Trafalgar. 2008 EDITION.

LIST OF LIGHTS AND FOG SIGNALS, Volume I. 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. 2008 EDITION.

LIST OF LIGHTS AND FOG SIGNALS, Volume II. Gibraltar Strait, Balearic Islands and Mediterranean coasts of Spain, Morocco and Algeria. 2008 EDITION.

RADIO SIGNALS. Coasts of Spain and Portugal, Balearic Islands, N Coast of Algeria and Morocco, Islas Canarias, Madeira, Azores and Cabo Verde Islands, and Africa West Coast up to Cabo Verde. 2008 EDITION.

MARITIME BUOYAGE. 2008 EDITION.

4.3. Means of delivery, e.g. paper, digital

Currently, all the distribution of the publications mentioned in paragraph 4.2 is done in paper copy. There is an ongoing project for the delivery in CD ROM format of the List of Lights and Fog Signals.

4.4. Problems encountered

N/A.

5. MSI

5.1. Existing infrastructure for transmission

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

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 FRANAUT (NAVAREA II Zone Co-ordinator); likewise, ETABHYDROC BREST reports 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.

SAR Organisation

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

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

5.2. New infrastructure in accordance with GMDSS Master Plan

N/A.

5.3. Problems encountered

N/A.

6. S-55 LATEST UPDATES

6.1. COUNTRY: SPAIN, CHARTING REGION: G

Date of validity of information: 07 NOV 2008

6.1.1 HYDROGRAPHIC 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
Depths < 200m	93	7	0
Depths > 200m	35	0	65

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	85
Approaches and Ports/Large	100	0	100

Regarding to ENC large scale coverage is important to notice that current percentage is over the current ENC project. In a future new project we expect to cover all national ports remaining.

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			Via NAVAREA II Co-ordinator
INFORMATION ON PORTS AND HARBOURS	X			Agreements in place with all Port Authorities

GMDSS IMPLEMENTATION (IMO Publication 970 - GMDSS Handbook)

SERVICE	Yes	No	Partial	Notes
Master Plan	X			
A1 Area	X			
A2 Area	X			
A3 Area	X			
NAVTEX	X			
SafetyNET	X			Only for NAVAREA warnings

6.2 COUNTRY: SPAIN, CANARY ISLANDS, CHARTING REGION: G

Date of validity of information: 07 NOV 2008

6.2.1 HYDROGRAPHIC 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
Depths < 200m	65	35	0
Depths > 200m	43	0	57

6.2.2 NAUTICAL CHARTING

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
Approaches and Ports/Large	100	0	100

Regarding to ENC large scale coverage is important to notice that current percentage is over the current ENC project. In a future new project we expect to cover all national ports remaining.

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 Co-ordinator
INFORMATION ON PORTS AND HARBOURS	X			Agreements in place with all Port Authorities

GMDSS IMPLEMENTATION (IMO Publication 970 - GMDSS Handbook)

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

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 2008-2009

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

Period 2007-2008

3 Spanish Navy Officers
 1 Officer from Bolivia
 1 Officer from Honduras

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

On 11-13 March 2008, the Third Maritime Safety Information (MSI) Training Course to benefit countries in the area of influence of the Mediterranean and Black Sea Hydrographic Commission (MBSHC) was organized on the behalf of the International Hydrographic Organization's (IHO) Capacity Building Committee (CBC) and the IHO World-Wide Navigational Warning Service (WWNWS) Commission for the Promulgation of Radio Navigational Warnings (CPRNW).

This MSI training course was intended to provide practical guidance for those who are concerned with drafting radio navigational warnings or with the issuance of MSI for the high seas. Representatives from Malta, Tunisia, Algeria, Syria, Suriname, and Spain attended. The instructors of this course were: Mr. Peter Doherty – (CPRNW Chairman and NAVAREA IV & XII Co-ordinator – USA), Mr. Keith Dominic (NGA, USA), Mr. Guy Beale (UKHO, UK) , Cdr. Juan A. Aguilar (IHM, Spain).

The experience obtained with the organization of this course can be very useful in order to prepare similar courses to be held within the region of our Commission, as for example, the course that is already scheduled for next year.

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

N/A.

7.4. Definition of bids to IHOCBC

N/A.

8. OCEANOGRAPHIC ACTIVITIES

8.1. General

The staff of the Oceanographic section is carrying out the update of tide data for ports on the SE coast of the Peninsula, Mediterranean Sea and Islas Canarias, using temporary tide gauges.

8.2. GEBCO/IBC's activities

N/A.

8.3. Tide gauge network

N/A.

8.4. New equipment

In October 2008 this IHM purchased the high-performance, high-resolution synthetic aperture processing sonar SHADOWS by IXSEA, for seabed physiographic works. This equipment is to be used in high-precision location and delimitation of dangers to navigation such as rock pinnacles, wrecks, underwater obstructions etc; in the physiographic surveys of the approaches to main ports of Spain and relevant anchorages.

Six more VALEPORT 740 tide-meters with tide data storage capabilities for over one year have been purchased, and they are being used to update the Spanish ports tide database.

One Nortek wave and current-meter and AWAC 0.6 MHz have been purchased, to research currents and waves in the access into main Spanish ports and relevant anchorages.

8.5. Problems encountered

N/A.

9. OTHER ACTIVITIES

9.1. Participation in IHO Working Groups

During these two years, IHM members have attended CPRNW-9 (Monaco) and CPRNW-10 (Brazil) meetings dealing with the Promulgation of Radio Navigational Warnings.

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

N/A.

10. CONCLUSIONS

Along the period of time covered by this report, the Spanish Hydrographic Office, being conscious of the necessity of updating hydrographic surveys in the Islas Canarias area, has started a process of dedicating most of its resources to this mission. The initial idea was to use both ships RV Malaspina and RV Tofiño for this task, but the refurbishment process of the last one has modified those plans and currently just RV Malaspina is accomplishing hydrographic surveys in the Islas Canarias area. As soon as RV Tofiño is available both ships will continue with this task which is currently our first priority in the EAtHC region.