REPORT OF SPAIN TO THE

XVI CONFERENCE OF THE

MEDITERRANEAN AND BLACK SEAS HYDROGRAPHIC COMMISSION

(MBSHC-16)

ODESSA (Ukraine), 22-24 September 2009

Instituto Hidrográfico de la Marina
Cádiz (España)

1. Hydrographic Office: General

There haven't been relevant modifications in the organization of our Hydrographic Service since the last meeting. Our organization, mission and different kinds of services offered, can be found at http://www.armada.mde.es/ihm.

It should be noted that the protocol of amendments to the IHO Convention was ratified By Spain.

2. Surveys

2.1 Coverage of new surveys

Since up to the 95% of the area under our responsibility in the Mediterranean Sea is properly surveyed, our hydrographic efforts have kept on resurveying the areas with oldest hydrographic data.

In the last two years, a total of 19 surveys have been carried out to update the Mediterranean Sea cartography and nautical publications. These surveys have been performed in the coastal areas of the Iberian Peninsula and the Balearic Islands.

All the surveys have been performed according to publication SP-44 (5^{th} edition) requirements, assigning the areas of interest to the proper hydrographic ships and equipment. In such a way, we have continued our plan of surveying all our main harbours and their approaching channels to accomplish a 100% of bottom coverage, using shallow water multi-beam echo sounders.

2.2 New technologies and/or equipment.

2.2.1 Hydrographic Fleet.

The two largest ships of our hydrographic fleet, "Malaspina" and "Tofiño", have experienced an important update. "Malaspina" has been fitted with a multi-beam echo sounder Kongsberg EM 302, and has experienced a deep renovation in her electronic equipment, navigation systems, engines and crew accommodation facilities. "Tofiño" has been updated in a similar way, fitting a multi-beam echo sounder Kongsberg EM 300, and, additionally, a Synthetic Aperture Sonar (SAS).

2.2.2 Photogrametry.

The implementation of a new program to carry out Photogrammetric Aerial Triangulation has been established.

We are currently working with three photogrammetric workstations capable of capturing three-dimensional data in a "Micro-Station" © environment with a versatile and efficient performance. Orientation (both internal and external) and Aero-triangulation procedures are fully automated, guaranteeing the generation of high precision photogrammetric models.

Aerial photographs are still analogical. They are scanned to be used in digital workstations. The used software supports both aerial and satellite photogrammetry, and they can process digital images using inertial systems or photogrammetric scanners to produce digital terrain models.

We are currently performing tests of several software tools for the automated generation of digital terrain models and ortho-photos

2.3 New ships

The same hydrographic vessels and boats reflected in the last report constitute the Hydrographic Fleet. Nevertheless, a project of a new class hydrographic vessel has been approved by the Navy Headquarters. The first new class vessel will be built as the needed economic resources come.

2.4 Problems encountered

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3. New charts & updates

3.1 ENCs

Since the last MBSHC Conference, 24 new editions and 583 updates were produced.

The following table summarizes the current production status:

Purpose	Scheduled	Produced
1	0	0
2	4	4
3	20	19
4	46	40
5	49	49
6	0	0
Overall	119	112

The current project will be finished by 2010.

Following that consecution, there is an extended project that will be endorsed.

The aim of the additional project is to get full coverage on navigational purpose 4 for the entire Spanish coast, and to cover with navigational purpose 5 other ports, apart from the principal ones already covered, as Marinas and small fishing ones. The overall amount of this project is the 278 cells.

- Cooperation.

Chart limits have been agreed with the neighbouring countries

3.2 ENC Distribution method

Spain is member of the RENC known as International Center for ENC (www.ic-enc.org/). All ENCs from Spain are distributed by ICE RENC. This RENC performs validations and consistency checks before distribution. There is a close relation of collaboration and research with that centre, aiming the optimisation of production and validation processes.

3.3 RNCs

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3.4 INT Charts

International Charts produced since the XV MBSHC Conference:

INT No	**National No**	**Title**	**Edition**
3152	445A	Bahía de Algeciras.	VII - Jun 2008
3252	4511	Bahía y puerto de Ceuta.	IV - Ago 2009
3168	4722	Puerto de Alicante.	V- Jun 2009

International Charts planned in 2009 second semester and 2010 first quarter.

INT No	**National No**	**Title**
3164	464A	Del puerto de Mazarrón al Cabo del Agua
3172	481A	Aproches al puerto de Valencia
3176	4821	Puerto de Castellón
3185	4891	Puerto de Barcelona

Status of the production of International charts assigned to Spain:

Scale	Assigned	Produced
Small 5.000.000-1.000.000	1	1
Medium 350.000-100.000	6	1
Large 80.000-10.000	18	18
OVERALL	25	20

The production of medium scale charts has not been implemented because the national scheme differs from the INT scheme.

3.5 National paper charts

National paper Charts produced since the XV MBSHC Conference:

National No	Title	Edition
4D	Del cabo de San Vicente al cabo de Palos y…	IV - Feb 2008
45A	De punta Carnero a cabo Sacratif y ...	V - Ago 2008
422	Del cabo Regana a la punta Salinas	III - Abr 2008
453	De punta Europa a la torre de las Bóvedas.	V - Feb 2008
454	De Estepona a punta de Calaburras.	IV - Abr 2009
489	Del puerto de Barcelona a Arenys de Mar.	V - Oct 2008
422A	Freu de Cabrera	II - Abr 2008
488A	De Vilanova I la Geltrú a Garraf.	III - May 2008
4221	Isla de Cabrera y adyacentes.	II - Abr 2008
4741	De la ensenada de Javea al puerto de Denia.	III - Jun 2008

3.6 Other charts (leisure craft charts)

Since the last MBSHC Conference, a new edition in the specific format for leisure craft charts has been produced:

D489	Del puerto de Barcelona a Arenys de Mar.	IV - Oct 2008

3.7 Problems encountered.

Important efforts have been devoted to study the implementation of a data management system to improve so the current nautical charts production as publications and other products apart from navigation.

4. New Publications & updates

4.1 New publications

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4.2 Updated publications

New editions

2007

- Publicación especial 14 (INT 1) Símbolos, abreviaturas y términos usados en las cartas náuticas (3ª Edición, Diciembre 2007) (“Symbols and abbreviations used on charts, III Edition”)

2008

- Derrotero Nº 1 (Ed. 2008) (“Sailing directions, Nº 1”)
- Suplemento Nº 1 al Derrotero Nº 2, Tomo II (Ed. 2008) (“Sailing directions, Nº 2, Vol. 2, Addenda 1”)
- Señalización Marítima. (Ed. 2008) (“Maritime Buoyage System”)
- Libro de Radioseñales. (Ed. 2008) (“List of Radio Signals”)

2009

- Catálogo de Cartas Náuticas y otras publicaciones”. (Feb 2009) (“Catalogue of Nautical Charts and other Publications”)
- Faros y Señales de Niebla, Parte I (Jun 2009) y Parte II (Sep 2009). (List of Lights and Fog Signals, Book I and Book II)

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

All our nautical publications are available in paper format. The weekly bulletin of Notice to Mariners is available also in the internet, in the IHM website.

Some works to implement the List of Lights in digital format have been carried out. The updates system implementation must still be developed.

As for the Sailing Directions for ECDIS there is an important amount of work ahead. The results reached by the IHO SNPWG (Standardization of Nautical Publications Working Group) will be taken in highly consideration.

4.4 Problems encountered

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5. MSI

National Report

5.1 Existing infrastructure for transmission

No changes happened during the two last years affecting our national infrastructure for MSI transmission.

The means available for Maritime Safety Information broadcasting are: NAVTEX Stations (under SASEMAR) in Valencia and Tarifa. MF and VHF Stations (under TELEFÓNICA) (See GMDSS Master Plan).

5.2 New infrastructure in accordance with GMDSS Master Plan

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5.3 Master Plan

MARITIME SAFETY INFORMATION

Navigational Information (S-53)

SERVICE	Yes	No	Partial	NOTES
LOCAL WARNINGS	X			
COASTAL WARNINGS	X			
NAVAREA WARNINGS	X			
INFORMATION ON PORTS AND HARBOURS	X			Agreements established 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

5.4 Problems encountered

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6. S-55

The S55 data base based in the IHO is updated in a regular basis.

Latest update (Tables)

Country: SPAIN Charting Region F

Date of validity of information: 14 JANUARY 2009

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**
Depths < 200m	96	4	0
Depths > 200m	40	10	50

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 ENCs 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	70

7. Capacity Building

7.1 Offer and/or demand for Capacity Building

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7.2 Training received, needed, offered

The School of Hydrography, located into the IHM buildings area, is responsible of the training of the Navy hydrographic members of all ranks.

The current offered courses are the following:

Course of Specialization in Hydrography for Officers (Category A)

This course is designed to provide the students with the necessary skills to perform a hydrographic survey in all its stages.

It is ten months long, divided into two stages: Nine months devoted to theoretical studies at the School of Hydrography. One month of field work, resulting in the completion of a fair sheet.

It has been acknowledged as Category "A" of Hydrographic Competence by the IHO/FIG Advisory Board since 1985, and renewed in 1995 and 2005.

Course of Specialization in Hydrography for Petty Officers (Category B)

This course is designed to provide the students with the necessary technical skills to manage hydrographic systems as well as maintenance and administrative support to hydrographic surveys.

It is ten month long, divided into two stages: Nine months devoted to theoretical studies at the School of Hydrography. One month of hydro survey camp, along with the students from the course of specialization for officers.

It is acknowledged as Category "B" of Hydrographic Competence by the IHO/FIG Advisory board since 1997.

These Courses are open to foreign students from countries included in the "Collaboration Program on Military Training" of the Spanish Ministry of Defence. So far, in the Mediterranean and Black Seas area, students from Morocco, Algeria and Tunisia have applied for these courses.

Foreign Students:

YEAR	COUNTRY	COURSE	STUDENTS	RANK
2006/2007	TUNISIA	(CAT. A)	1	LT JR
2007/2008	ALGERIA	(CAT. A)	1	LT JR

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

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's 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 Algeria, Malta, Suriname, Syria, Tunisia 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)

8. Oceanographic activities

8.1 General

The Oceanographic Division is carrying out the update of tide data for ports in the Eastern coast of the Iberian Peninsula and the Canary and Balearic islands, using temporary tide gauges.

In addition, Spanish Hydrographic Office is currently working in a program in order to have Digital Tide Tables and software for tidal currents analysis and prediction.

8.2 GEBCO/IBCs Activities

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8.3 Tide gauge network

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8.4 New Equipment

An acoustic current meter, Nortek AWAC 600 kHz, vessel-mounted to research currents in the access to Spanish main ports and relevant anchorages.

A synthetic aperture sonar (SAS) Shadows IXSEA for seabed imaging.

8.5 Problems encountered

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9. Other activities.

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10. Conclusions

This report has summarized the works developed by our HO during the last two years in which great efforts have been made trying to increase the coverage of ENCs in the area of this Hydrographic Regional Commission.

July 2009