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FRENCH NATIONAL REPORT TO THE 19TH MEETING OF THE MEDITERRANEAN AND BLACK SEAS HYDROGRAPHIC COMMISSION

1. Hydrographic Service: General

Following up its targets and performance contract for the 2013-2016 period, SHOM is pursuing the achievement of its different commitments based on the National Maritime Strategy and Defence Policy. Survey works are being conducted according to the prioritized 4-years survey plan for all the waters under French jurisdiction.

2. Surveys

2.1. Coverage of new surveys

Since the last Conference, SHOM has conducted the following survey works:

- MEDITGIB Campaign in the Strait of Gibraltar and its vicinities by BH2 La Pérouse (fig.1);
- Various surveys in the Northwest of the Mediterranean Sea (fig.2);
- In Corsica, the survey of the East Coast by BH2 *La Pérouse* and of the harbour of Calvi using the deployable hydrographic equipment (fig.3&4);
- Some wreck searches near Saint-Tropez and Toulon.



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SERVICE HYDROGRAPHIQUE ET OCEANOGRAPHIQUE DE LA MARINE

DIRECTION DES MISSIONS INSTITUTIONNELLES ET DES RELATIONS INTERNATIONALES

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Fig.1: MEDITGIB Campaign achieved in 2014 by BH2 La Pérouse.



Fig.2: Surveys conducted in the Northwest part of the Mediterranean Sea by BH2 La Pérouse.



Fig.3: Surveys conducted in the northwest side of Corsican coasts by BH2 La Pérouse.



Fig.4: Surveys conducted in Calvi harbour (Corsica) by BH2 La Pérouse.

2.2. LIDAR Surveys

LIDAR surveys are achieved within the framework of Litto3D® program. This national programme, based on a partnership between SHOM and the French National Geographic Institute (IGN), aims to provide a very high resolution Sea-Land digital terrain model (DTM) of metropolitan and overseas French coasts.

This year, The very high resolution Sea-Land digital terrain model for the western part of the French Mediterranean coasts has been produced, so that Litto3D® products are now available for the whole French Mediterranean coasts, except Corsica.

All Litto3D® products are downloadable under Open Licence from SHOM's data portal (data.shom.fr).



Fig.5: Litto3D product for French Mediterranean coasts.

2.3. French Survey programme for the region

SHOM's survey planning for the area is detailed in the two figures hereafter, presenting the long-term objectives regarding the compliance with S-44 and the 2013-2016 survey plan combined with existing surveys: the survey programme for the Mediterranean area is composed of:

- coastal surveys in Corsica (main harbours approaches, anchor areas),
- survey work near Toulon (Southern side of île du Levant).

As requested by MBSHC during its 18th Conference (action 12), information regarding the status of hydrographic surveys within areas under French responsibilities has been transmitted to Spain in shape format (fig. 6-7).



<u>Fig.6:</u> C-55 survey status for depth inferior to 200m. (Green: post 1980 survey, Orange: 1950-1980 survey, Red: anterior 1950 survey)



<u>Fig.7:</u> C-55 survey status for depth above 200m. (Green: post 1980 survey, Orange: 1950-1980 survey, Red: anterior 1950 survey)

2.4. New technologies and /or equipment

The renewal of multibeam echosounders intiated in 2011 has been pursued over the last two years. Both BH2 *La Pérouse* and *Borda*'s 'shallow-coastal waters' echosounders (EM1002) have been replaced by a system (EM720) with higher performance and better compliance with ocean depths.



<u>Fig.8a (haut) et 8b (bas):</u> comparaison entre les performances du sondeur EM1002 (5a) et celles du EM710 (5b) à partir des profils réalisés sur l'épave du Katingo à Brest (BH2 La Pérouse).

2.5. New ships NTR.

2.6. Problems encountered NTR.

3. New charts & updates 3.1. ENCs

On the 1st of June 2015, SHOM had produced some 435 ENCs, of which 140 cells in the Mediterranean region. In line with the WEND principles, France produces its small scale ENC cells as closely as possible to INT chart schemes. The French production plan is also compliant with IMO regulations on ECDIS mandatory carriage requirements.

The SHOM ENC coverage of the MBSHC area is depicted in the chartlets hereafter.



Fig.9: SHOM's actual ENC Coverage over Western Mediterranean coasts.



Fig.10: SHOM's actual ENC Coverage over Eastern Mediterranean coasts.

The cells produced since the last Conference are as follows:

Number	New chart (NC) or new edition (NE)	Compilation Scale 1:	Title
FR67200C	NC	4000	Port Saint-Laurent-du-Var
FR67200B	NC	4000	Baie des Anges
FR67205B	NC	4000	Cannes Marina
FR66838C	NC	4000	Santa-Lucia - Saint-Raphaël
FR67205C	NC	7500	Cannes
FR673900	NE	7500	Port de Marseille

FR673910	NE	7500	Abords Sud de Marseille
FR573920	NE	22000	Golfe de Marseille
FR468220	NE	45000	Cap Corse - de la pointe d'Agnello à la pointe de Grisgione
FR469690	NE	45000	Du Cap Corse à Punta di l'Acciolu
FR469700	NE	45000	De l'Ile Rousse à Capo Cavallo
FR469420	NE	45000	Punta d'Orchina au Cap Muro - Approches d'Ajaccio
FR66616A	NC	4000	Bormes les Mimosas
FR67205F	NC	4000	Port Gallice et port du Crouton
FR67205E	NC	4000	Port de Golfe Juan
FR66838B	NC	4000	Saint Raphaël Vieux Port
FR67267B	NC	7500	Saint Maxime
FR467670	NC (Rescheme)	45000	De Fos-sur-Mer à Marseille
FR474060	NC (Rescheme)	45000	De Marseille à Toulon
FR474070	NC (Rescheme)	45000	De Toulon à Cavalaire-sur-Mer
FR66616B	NC	4000	Cavalaire-sur-Mer
FR67205D	NC	4000	Port de Pierre Canto
FR67282B	NC	4000	Port de Miramar
FR67393A	NC	4000	Port de Cassis
FR67282A	NC	4000	Port d'Hyeres
FR468230	NC	45000	De Bastia au port de Capoloro
FR468550	NC	45000	Du phare d'Alistro à Solenzara
FR67392A	NC	4000	Port de Carry Le Rouet
FR66612A	NC	4000	Port de La Ciotat
FR67392B	NC	4000	Port de Sausset les Pins
FR66838A	NC	4000	Port-Fréjus
FR56984B	NC	12000	Marine de Sant'Ambroggio
FR470240	NE	45000	Bouches de Bonifacio

It is worth mentioning that a new scheme of the usage band 4 has been established based on the paper chart limits, going from 8 to 5 UB4 cells.

The following cells are planned in 2015-2016:

Number	Compilation	Title
	Scale 1:	
FR67003A	12000	Cap d'Agde
FR568390	22000	Etang de Thau
FR66839A	12000	Canal de Pisse-Saume
FR66839B	4000	Port de Marseillan
FR66839C	4000	Port de Mèze

FR66839D	4000	Port de Balaruc-les-
FR66839E	4000	Port de Bouzigues
FR56850B	8000	Baie de Centuri
FR56850C	8000	Baies de Macinaggio et de Tamarone
FR57003B	8000	Saint-Cyprien
FR570040	12000	Golfe d'Aigues-Mortes
FR57004A	12000	Palavas-les-Flots
FR57004B	12000	Carnon-Plage
FR57004C	12000	Saintes-Marie-de-la-Mer
FR57096A	8000	Baie de Figari
FR57162A	8000	Mouillage de Porto Pollo
FR57162B	8000	Mouillage de Campomoro
FR573160	22000	Golfe de Sagone
FR57415B	12000	Abords de Ra's Selaata

The status of ENC production in the area is:

Usage Band	Produced Cells	Planned Cells	%
1	0	0	/
2	1	1	100,0
3	4	5	$80,0^{1}$
4	22	22	100,0
5	32	92	76.9
6	31	82	/0,8
Total	90	109	82,5

3.2. ENC Distribution method

All French ENCs (S-63 encrypted format) are distributed to End User Service Providers by PRIMAR RENC. FR is providing its support to the IC-ENC-PRIMAR Cooperation Committee working groups to develop a RENC-to-RENC cooperation concept.

Since 2014, SHOM provides georeferenced marine charts in GeoTiff and S-57 format when produced. These numerical marine charts are now available through SHOM's online store http://diffusion.shom.fr under various licences² according to the purpose of use. These data can be opened with GIS or cartographic software for commercial or private purposes.

Purchasing a S-57 license³ allows, unlimited download of updated versions for 12 months from the date of purchase.

¹ ENC cell for FR7256 (INT 3608 - Gaza to Hefa) produced by UK as GB302634. ² Internal reuse, commercial reuse, documentary use or end user

³ One license available for up to 5 workstations. For more information, contact bp@shom.fr



Fig.11: S-57 data purchase on SHOM's online store diffusion.shom.fr.

3.3. RNCs NTR. 3.4. INT charts

See next section for details.

French charts now include a QR Code to direct access to NTM applicable to that chart. Moreover, all up to date French charts are now available by 'Print On Demand' to French forces users only.

The overall planning of SHOM for INT charts production in the region is as follows:

Scale	Produced INT charts	Planned INT charts	%
Small (<1/1 000 000)	1	1	100
Medium	5	5	100
Large (>1/100 000)	13	18	72
Total	19	24	79

3.5. National paper charts

Hereafter the charts produced since the last Conference (September 2013):

National	INT	New chart (NC) or new edition (NE)	Scale 1 :	Title
5617		NE	10 000	Port d'Alger
7292	305	NE	1 000 000	De la Corse à la Sicile (Sicilia) et au Cap Bon (Ras at Tib)
4238		NE	25 000	Sfax
7256	3608	NE	250 000	De Soûr à Al Arish
7348	3670	NE	30 000	Approches de Beyrouth (Beiroût)

The following charts are planned in 2015-2016:

National	INT	New chart (NC) or new edition (NE)	Scale 1:	Title
7514	3671	NE	25 000	Ports du Liban
6942		NE	50 000	Abords d'Ajaccio
7050		NE	50 000	De Calvi à Cargèse
6911		NE	15 000	Golfe de Porto-Vecchio
6970		NE	50 000	De Punta di l'Acciolu à Capo Cavallo
6969		NE	50 000	Golfe de Saint-Florent
6823		NE	50 000	Abords Sud de Bastia
6855		NE	50 000	Du Phare d'Alistro à Solenzara
			15 000	Abords et Port de Bastia
7436	3345	NC	10 000	Port d'Ajaccio
			7 500	Port de Propriano

3.6. Other charts, e.g. for pleasure craft NTR.

3.7. Problems encountered NTR.

4. New publications & updates

4.1. New Publications

Since the last conference, the following publications have been issued:

Туре	Nr	Title
LL	LB	The West Mediterranean (Northern Part) [2015]
RSX	91	Maritime Radionavigation (2015)
RSX	92.1	Maritime Radiocommunications – Vol. 1: Europe, Africa and Asia (2014)
RSX	92.4	Maritime Radiocommunications – Vol. 4: GMDSS (2014)
RSX	99	Radio Signals for boating, fishing and coastal navigation (2015)
DIV	155	Tide Table 2015 - Vol. 1 – French ports
DIV	155A	Tide Table 2015 - Vol. 2 – Overseas ports
DIV	165	Tide Table 2016 - Vol. 1 – French ports
DIV	165A	Tide Table 2016 - Vol. 2 – Overseas ports

4.2. Updated publications NTR.

4.3. Means of delivery

At the beginning of 2015, 75 % of nautical publications were available in digital format on SHOM's online store (diffusion.shom.fr).

4.4. Problems encountered

NTR.

5. MSI Existing infrastructure for transmission

SHOM continues to increase the production of its digital nautical publications. From now, publications are still available in paper form but most of them are now available, by subscription, in digital format (weekly updated pdf files) on SHOM's online store which opened in June 2013 (diffusion.shom.fr/).

Besides, since January 1st 2014, SHOM's notices to mariners (GAN) are exclusively available under digital formats, either downloadable on shom.fr or by annual subscription (CD-rom).

5.1. New infrastructure in accordance with GMDSS Master Plan NTR.

5.2. Problems encountered NTR.

6. C-55 update

The C-55 database for French areas of responsibilities is updated by SHOM on a yearly basis. The latest overall C-55 update has been transmitted to the IHB on June 24th 2014.

	Survov status	Depth < 200m Depth > 200						
	Survey status	А	В	С	А	В	С	
	France Méditerranée	97	2	1	95	5	0	
F	Liban	7	15	78	22	0	78	
	Monaco (Principauté de)	100	0	0	100	0	0	

	Charting status		Small (<1 M) Medium (1M < / < 100 000) Large (> 100 000)						Motrio	WC SO4		
			В	С	А	В	С	А	В	С	weinc	VVG584
	France - Méditerranée	100	0	100	100	0	100	80	0	83,6	100	100
F	Liban	100	0	NA	100	0	100	100	0	85,7	100	66
	Monaco (Principauté de) ⁴	100	0	100	100	0	100	100	0	100	100	100

Fig. 12: C-55 update values for survey status (top table) and charting status (down table)

7. Capacity Building offer of and/or demand for Capacity Building

7.1. Training received, needed, offered

⁴ Data provided by France according to FR-MC Technical Agreement signed on September 19th 2005.

For the record, initial training capabilities provided by SHOM can be consulted through its training catalogue available on <u>www.shom.fr</u>.

7.2. Status of national, bilateral, multilateral or regional development projects with hydrographic component

For the countries benefiting from SHOM support to meet the hydrographic services requirements spelled out by the SOLAS convention, France fosters a mechanism of gradual transfer of responsibilities through State-to-State administrative arrangements. This mechanism relies on training at SHOM facilities and the formalisation of the respective responsibilities for maritime safety information, hydrographic and charting activities.

Lebanon: Following up the IHO technical visit (of which France participated as member of the visiting team) and the creation of the Lebanese Navy Hydrographic Service (LNHS) in February 2014, an MSI course (3 days) has been conducted by 2 SHOM experts in Beyrouth to the personnel of LNHS in April 2015, in the frame of the bilateral cooperation between French and Lebanese Navies.

7.3. Definition of bids to IHOCBC NTR.

8. Oceanographic activities

8.1. GEBCO/IBC's activities

8.2. Tide gauge network

SHOM is the French national coordinator and reference authority in the field relating to the observation of the sea level and the management and issue of the resulting data.

These missions are carried out under the REFMAR program. Real time and processed tide gauge measurements are now accessible on web <u>http://refmar.shom.fr/home/</u> in overseas areas under French jurisdiction.



Fig.13: SHOM global tidal network, REFMAR (source shom.fr).

In February 2016, SHOM will organise, in partnership with UNESCO's Intergovernmental Oceanographic Commission (IOC) the 2016 edition of the *REFMAR Days* at UNESCO headquarter in Paris. This event is a 5 days meeting focused on the status of sea level observation and its multiple applications.

8.3. New equipment NTR.

8.4. Problems encountered NTR.

9. Other activities

9.1. Meteorological data collection NTR.

9.2. Geospatial studies NTR.

9.3. Disaster prevention

• Tsunami :

SHOM is maintaining a large real time tide gauge network RONIM, an important tool for coastal operational oceanography, risk assessment, studies on the evolution of the mean sea level, etc. Having tide gauges in Europe and in the French overseas territories, SHOM is contributing to Tsunami warning in Pacific Ocean, Indian Ocean, Caribbean Sea and Mediterranean Sea.

France may also have Navy ships deployed in the MBSHC region, ready to provide support in case of an emergency. France also provides technical support and has a rapid response survey capacity in case of a disaster.

The point of contact at SHOM in case of a disaster is the head of the maritime safety information division. This division can be reached 24/7 by fax +33 298 221 665 or email coord.navarea2@shom.fr.



Fig.14: Cooperation areas on tsunami warning system (source COI; UNESCO).

• Coastal flooding :

SHOM is associated with *Météo-France* in the provision of an alert system against coastal flooding named *Vigilance Vagues Submersion*. This allows for a better anticipation of this destructive phenomenon and protection of the populations living in the littoral area of Metropolitan France.

SHOM provides the tidal predictions, expertise and models in coastal hydrodynamics and real time tide gauge observations as well as information relative to extreme sea levels and bathymetry. *Météo-France*'s marine forecasters examine and compile the data and produce a

map depicting the level of coastal flooding threat together with the risk of tall waves for each French metropolitan department:



Fig.15: An example of coastal flooding alert over Mediterranean costs (yellow level). Costs subject to alert are underlined according to the alert level (source www.meteo.fr).

• Oil spills:

SHOM is an active member of the inter-agency drifting committee which is activated by the maritime prefecture every time there is an oil spill. The POLMAR safety plan for the sea was signed on 23rd November 2004 and aims at enabling France to face in a reactive manor a potential wide spread of marine pollution, by ensuring the efficient coordination of national operations and support from public services.

9.4. Environmental protection NTR.

9.5. Astronomical observations NTR.

9.6. Magnetic/Gravity surveys NTR.

9.7. MSDI Progress

Since the launch of SHOM's maritime and coastal geographic information portal <u>data.shom.fr</u>, further developments have been implemented with new online services data layers on a regular basis. Hereafter are listed the some of the latest ones:

- <u>http://zerohydro.data.shom.fr</u>: online service to edit the vertical datum of your bathymetric dataset,
- An advanced tidal prediction online service to generate tidal predictions at any point, even from external harmonic constants and to perform harmonic analysis of your own observation dataset.
- New seabed, tidal and 3D-currents layers available,
- Vertical reference surface layers generated from geoid/spheroid separation model,
- Raster layer of SHOM's nautical charts completed for large scale;

Those evolutions can all be followed via SHOM's Twitter account (@shom-fr),

Moreover, *ocean modelling forecasts* are available both in visualization and download under Open-Data Licence. Time and Space exploration (5 days timeframe), editable color patterns, profile extraction and overlaying with other data sources are some of the interactive tools that comes along with those exclusive data.



Fig.16: Oceanographic forecasts on SHOM's data portal (data.shom.fr)

A detailed description of the portal functions and contents is available on SHOM website (<u>http://www.shom.fr/les-services-en-ligne/portail-datashomfr/</u>). Data available on that portal are organised according to the following topics listed below: *tides, tidal currents, bathymetry, cartography, maritime and littoral databases.*

9.8. International

Because of its overseas territories and primary charting responsibilities, France, represented by SHOM, is a member or associate member in 9 regional hydrographic commissions.

Name	Chair / Vice chair	Member	Observations
CBSC		~	Capacity Building Sub-Committee
NCWG		~	Nautical Cartography Working Group (former CPSCWG)
ENCWG		\checkmark	ENC Working Group (former TSMADWG/DIPWG)
DPSWG		\checkmark	Data Protection Scheme Working Group
DQWG		~	Data Quality Working Group -Last meeting in 1996
EAtHC		~	Eastern Atlantic Hydrographic Commission
FC		~	Vice-chairman of Finance Committee
GEBCO		~	Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of Oceans (GEBCO
HCA		\checkmark	Hydrographic Commission on Antarctica

The detail of SHOM's involvement in other IHO activities is listed in the table hereafter:

HDWG	\checkmark	\checkmark	Hydrographic Dictionary Working Group
HSSC		~	Hydrographic Services and Standards Committee, formerly known as the Committee on Hydrographic Requirements for Information Systems (CHRIS)
IENWG	\checkmark	 ✓ 	IHO-European Union Working group
IRCC		~	Inter Regional Coordination Committee
MACHC		~	MESO American & Caribbean Sea Hydrographic Commission
MBSHC		~	Mediterranean and Black Seas Hydrographic Commission
MSDIWG		 ✓ 	Marine Spatial Data Infrastructure Working Group
NIOHC		~	North Indian Ocean Hydrographic Commission
NIPWG		 ✓ 	Nautical Information Provision Working Group (former SNPWG)
NSHC		 ✓ 	North Sea Hydrographic Commission
RSAHC		~	ROPME Hydrographic Commission
S-100WG		 ✓ 	S-100 Working Group (former TSMADWG/DIPWG)
SAIHC		~	Southern Africa and Islands Hydrographic Commission
SWPHC		 ✓ 	South-West Pacific Hydrographic Commission
TWCWG	✓	~	Tidal, Water Level and Currents Working Group (former TWLWG/SCWG)
WEND		\checkmark	Wold-Wide Electronic Navigational Chart Database
WWNWS	~	~	World-wide Navigational Warning Service Sub-Committee, formerly known as the Promulgation of Radio Navigational Warnings Sub- Committee (PRNW)

10. Conclusions

One of the outcomes of the 13th Conference of Capacity Building Sub-Committee is to encourage Regional Hydrographic Commissions to consider larger CB projects opportunities, and to think about perspectives on that matter. France is fully supportive to that approach and wishes such discussion to take place at the forthcoming MBSHC Conference.