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SERVICE HYDROGRAPHIQUE  
ET OcéANOGRAPHIQUE  
DE LA MARINE

DIRECTION DES MISSIONS  
INSTITUTIONNELLES ET DES  
RELATIONS INTERNATIONALES

Dossier suivi par  
IPETA Eric Langlois  
*Head of the external relations division*  
Tel : +33 1 53 66 97 81  
Fax : +33 1 41 74 94 23  
Mél : [eric.langlois@shom.fr](mailto:eric.langlois@shom.fr)

**FRENCH NATIONAL REPORT  
TO THE 14<sup>TH</sup> MEETING OF THE MESO AMERICAN AND CARIBBEAN  
SEA HYDROGRAPHIC COMMISSION MEETING**

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**1. Hydrographic Service: General**

An important milestones of the past months has been the approval by SHOM Board of its new targets and performance contract for the 2013-2016 period, which outlines its main orientations and objectives in the forecoming years. This work culminated in the Minister of Defence's visit to SHOM on the 14<sup>th</sup> of June.



Fig.1: Signing ceremony of SHOM's targets and performance contract for 2013-2016 (Brest - June 14<sup>th</sup> 2013).

*From left to right: SHOM's general director Ingénieur Général Bruno Frachon, Minister of Defence Jean-Yves Le Drian and Naval Chief of Staff Admiral Bernard Rogel, chairman of SHOM Board.*

SHOM's next commitments rely on France's National Maritime Strategy and its Defence Policy, which is declined in different themes, in the scope of an national integrated policy:

- Environment protection
- Risk assessment and coastline management

- Knowledge, research and innovation
- Sustainable development of maritime and littoral economy
- Involvement in International and European policies
- Defence support

It is worth noting that in the meantime, a new prioritized 4-years survey plan for all the waters under French jurisdiction has been approved.

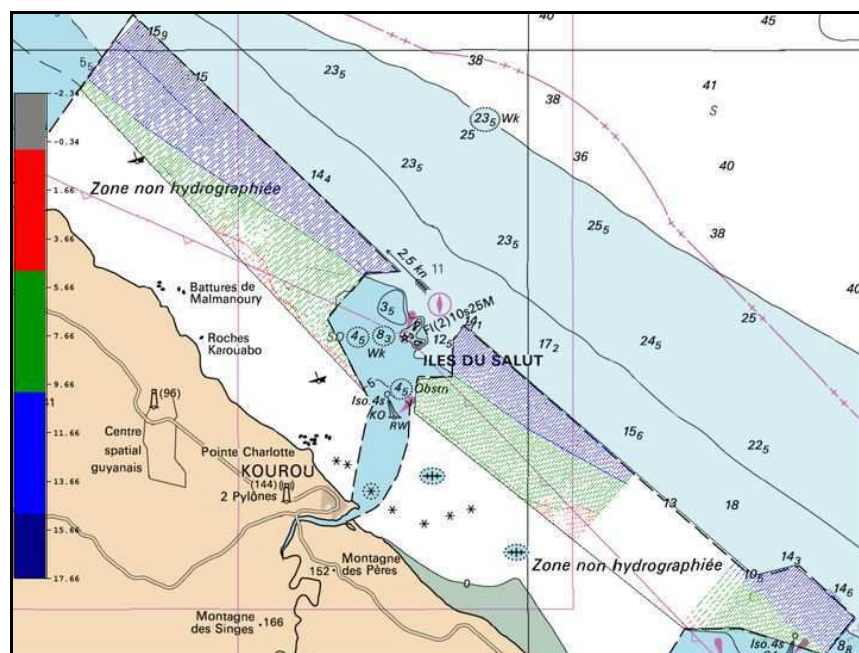


Fig.2a (left)/b (right): National Hydrographic Plan for the 2013-2016

## 2. Surveys

### 2.1. Coverage of new surveys

As announced at the last MACHC conference, a hydrographic vessel (BH2 Borda) has been deployed in the region from August to November to achieve several survey work within French Guyana waters dedicated to improve the hydrographic knowledge within those overseas waters. One of them was to provide a safer access channel to *les îles du Salut*. This campaign was also the opportunity to achieve some stereopreparation work was also achieved along Maroni River in order to position satellite imagery, with the full on-site support of the Maritime Authority of Suriname.



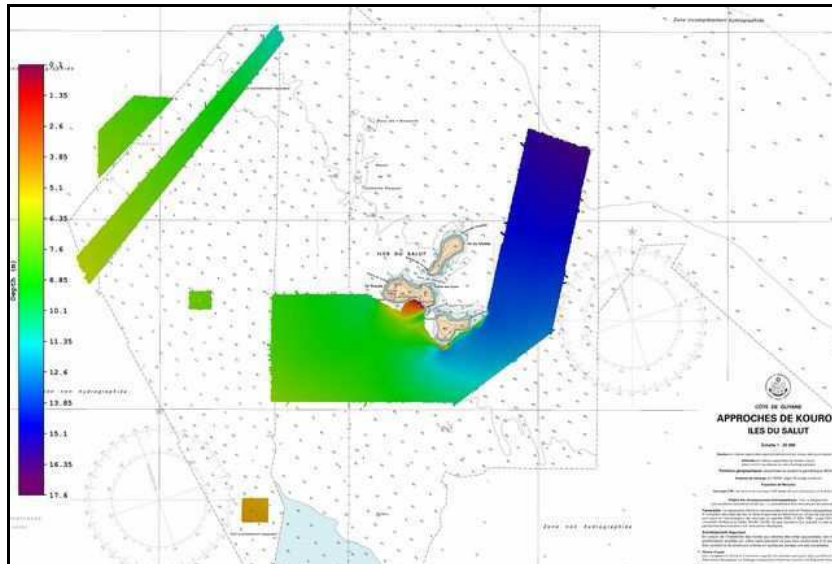


Fig.3a and 3b: Some of Guyane 2013 Campaign survey works

- (a) Cayenne - Reconnaissance de Sinnamary
- (b) Access and anchorages to les îles du Salut.



Fig.4: Guyane 2013 Campaign - Stereopreparation work around Maroni River,

Eventhough Clipperton is registered by the IOC as a French GLOSS station (n°165), it cannot be equipped by a permanent tide gauge because of the configuration of the island itself. Therefore, sea level measurement campaigns are regularly achieved by SHOM to build sea level series as long as possible.

In August 2011, French Navy ship *Arago* moored a SHOM pressure gauge (OT660) to carry out dipping, GPS and levelling measurements. After being recovered last May, more than one year of data were extracted from it. Data post-processing is still ongoing at that time.

## 2.2. 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 for French Antilles, French Guyana and Clipperton Island waters (fig. 5) and the 2013-2016 survey plan combined with existing surveys for those three areas (fig.6): the survey programme for the area is composed of:

- **French Antilles:**

Survey works to define main harbour access channels and anchorage areas for St. Martin and St. Barthélémy. Additionnal survey work over *Martinique* and *Guadeloupe*, more precisely in the *Malendure* cove.

- **French Guyana:**

Pursue of survey works in coastal waters in order to define fishing areas to support the action of the State at sea.

- **Clipperton Island**  
Opportunity survey works.

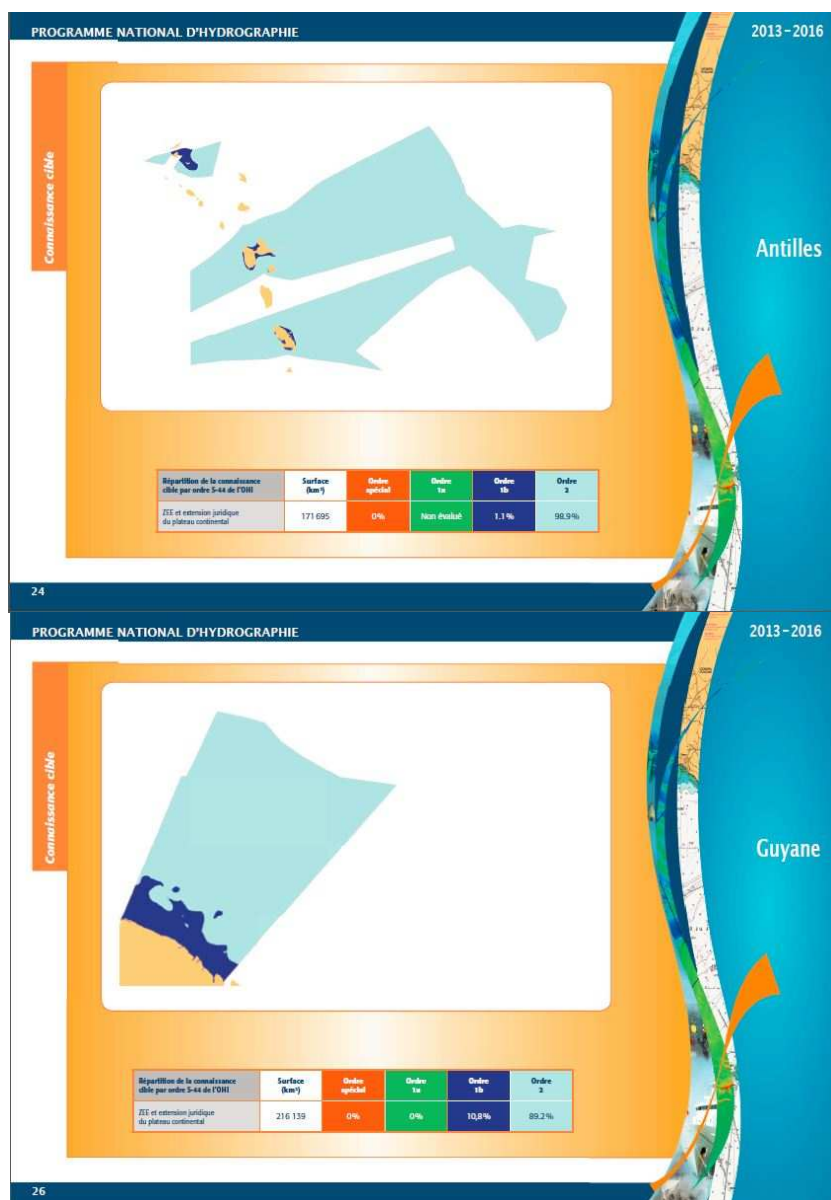


Fig.6: (top to bottom) Long term objectives for French Antilles and French Guyana waters (source: 2013-2016 NHP)

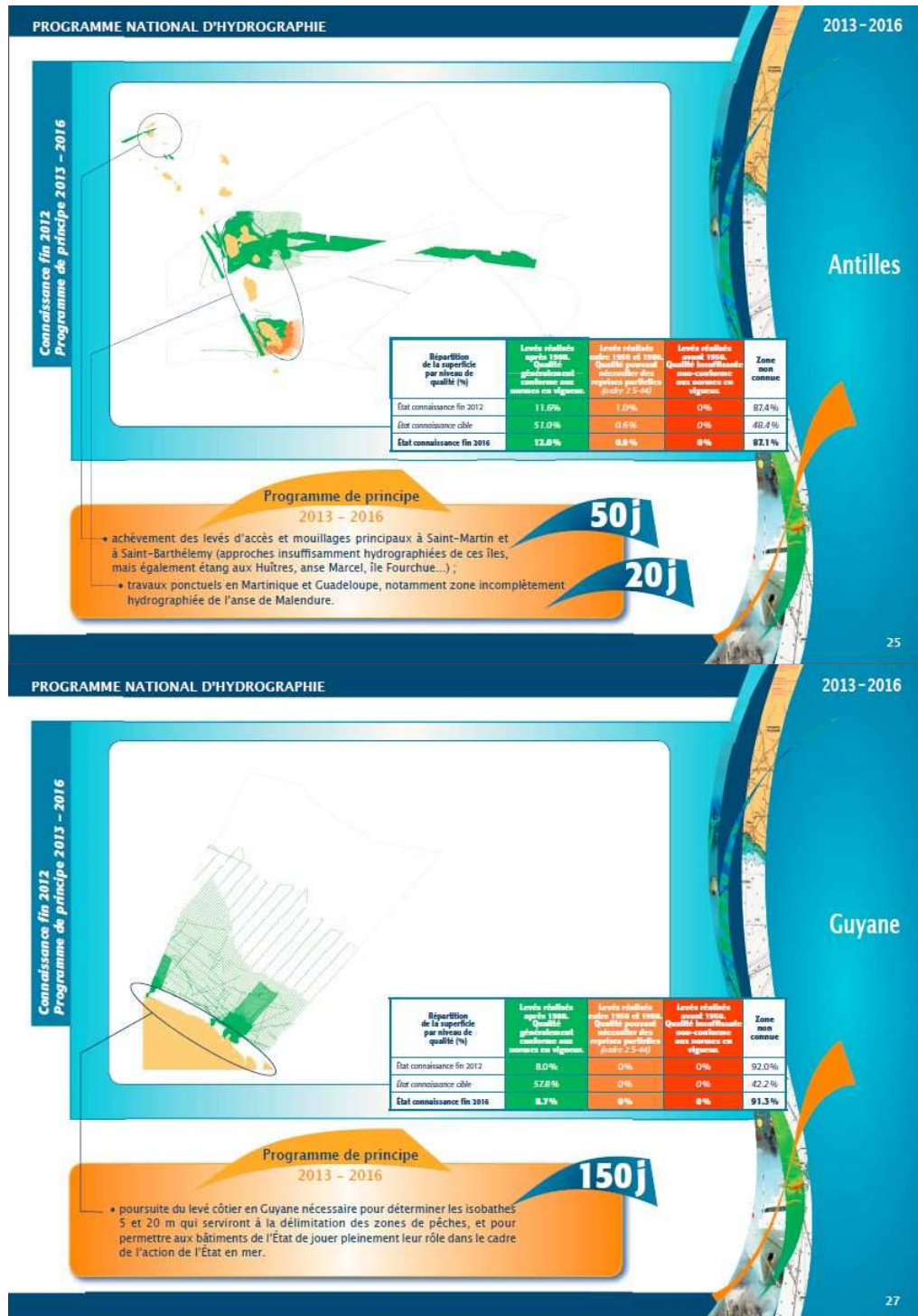


Fig.7: (top to bottom) Existing surveys and survey planning for the 2013-2016 period related to French Antilles and French Guyana waters (source: 2013-2016 NHP)

### 2.3. New technologies and /or equipment

NTR.

### 2.4. New ships

NTR.

### 2.5. Problems encountered

NTR.

## 3. New charts & updates

### 3.1. ENCs

SHOM's collection of ENC's has now reached the number of 397 (some ENC's already produced have been merged to better follow the existing paper chart scheme). The approximate rate of production is of 40 ENC's per year. The full collection should eventually reach a figure around 900 ENC's, 670 of them dedicated to cover French National Waters.

In line with the WEND recommendations and guidelines, France produces its small scale ENC cells as closely as possible to INT chart schemes.

The status of ENC production is detailed in the chartlet below:

Usage Band	Produced Cells	Planned Cells	%
1	0	0	N/A
2	3	3	100%
3	4	4	100%
4	9	11	82%
5	9	34	38%
6	4		
<b>Total</b>	29	52	56%

Produced since the last MACHC conference:

New ENC	Scale 1:	Title	Comment
FR374840	1 300 000	De Paramaribo aux Iles du Salut	New edition: French cell cut to clip with the new cell SR302014.
FR277510	1 570 000	Ile Clipperton	

Following is an extract of the online PRIMAR catalogue <http://www.primar.org> with the SHOM ENC coverage of the MACHC area:

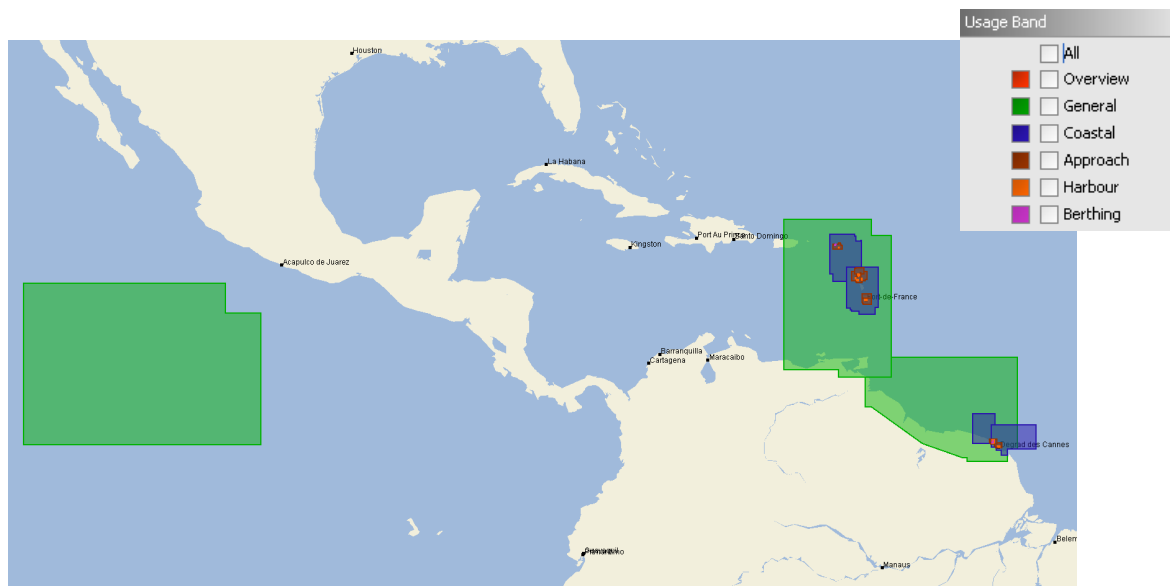


Fig.8: ENC coverage within Region B area.

### 3.2. ENC Distribution method

All French ENC's 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.

### 3.3. RNCs

NTR.

### 3.4. INT charts

See next section for details.

Here the overall planification for INT chart production:

Scale	Produced INT charts	Planned INT charts	%
Small (<1/1 000 000)	5	5	100
Medium	0	0	/
Large (>1/100 000)	0	0	/
<b>Total</b>	5	5	100

### 3.5. National paper charts

Here are the charts produced since the last conference:

National	INT	Scale 1 :	Title
7751	/	1 570 000	Île Clipperton - Zone Economique Exclusive
7381	/	100 000	De Kourou à Cayenne

The following charts are planned in 2014/2015:

National	INT	Scale 1:	Title
7378	/	15 000	Accès au Dégrad des Cannes

### 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 MACHC conference, the following publications have been issued:

Type	Nr	Title
RSX	93	Radiocommunications pour la surveillance du trafic et du pilotage – New edition 2012
RSX	92.3	Radiocommunications maritimes - Volume 3 : Amériques et Antarctique - New edition 2012

IN: Sailing Directions; RSX: Radio Signals; LL: List of Lights; DIV: Miscellaneous

### 4.2. Updated publications

NTR.

### 4.3. Means of delivery

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 (<https://www.shom.fr/boutique/>).

On the other hand, SHOM launched in July 2013 a new MSI report service: this new website (<http://infonaut.data.shom.fr/>), accessible to all mariners, allows them to report directly any discrepancies between the field and SHOM's product.

### 4.4. Problems encountered

NTR.

## 5. MSI Existing infrastructure for transmission

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

NTR.

### 5.2. Problems encountered

NTR.

## 6. C-55 Latest update

The last C-55 update for the region is dated May 2010. A new Region H update has been sent to the IHB on August 26<sup>th</sup> 2013. The C-55 charting and surveying status values regarding Region H areas under SHOM responsibility are summed up in the following tables:

Survey Status		Depth < 200m			Depth > 200m		
		A	B	C	A	B	C
A	France Clipperton Island	42	0	58	1	0	99
B	France French Antilles	99	0	1	31	2	67
	France Guyane	15	66	19	4	95	1

Charting Status		Small (<1 M)			Medium (1M < / < 100 000)			Large (> 100 000)			Metric	WGS84
		A	B	C	A	B	C	A	B	C		
A	France Clipperton Island	100	0	100	0	0	NA	0	0	50	100	100
B	France French Antilles	100	0	NA	100	0	100	100	0	85,71	100	100
	France Guyane	100	0	100	100	0	66,67	100	0	50	100	100

*Fig. 9: C-55 update values for survey status (top table) and charting status (down table)*

However, as it is clearly evidenced by its coordinates (10° 18' 00" N; 109° 13' 01" W), Clipperton Island should be included in the Region B appendix. As a matter of fact, it is already considered to be so by the Region B ICCWG).



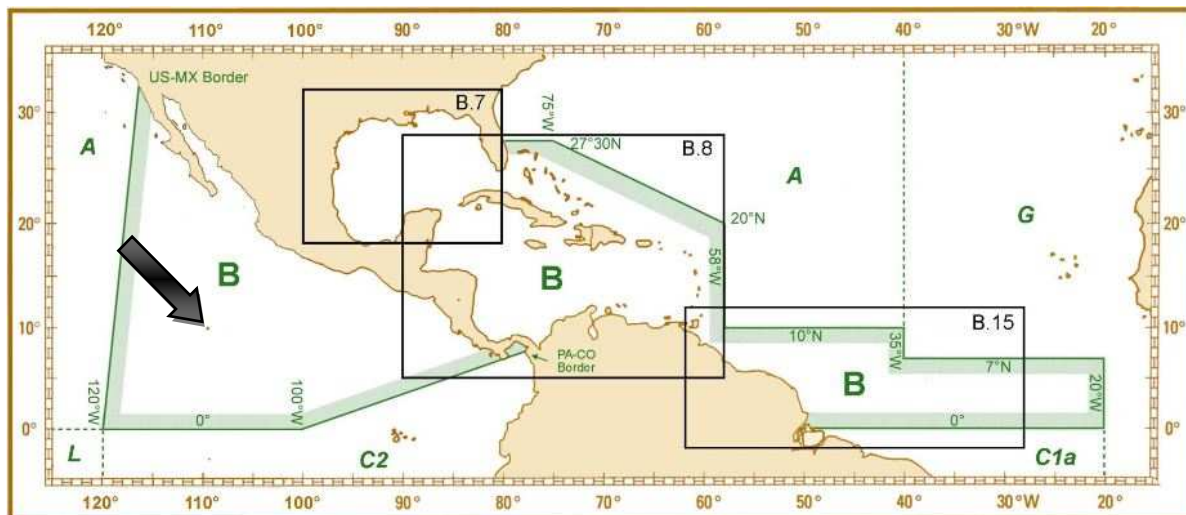


Fig. 10: Location of Clipperton Island as illustrated in the S-11 publication – Region B

## 7. Capacity Building Offer of and/or demand for Capacity Building

### 7.1. Training received, needed, offered

Initial training capabilities provided by SHOM, described hereunder, are also presented in its annual report available on [www.shom.fr](http://www.shom.fr).






Training courses provided by SHOM's school				SHOM courses in conjunction with ENSIETA	
BS HYDRO	C SYSRES-HOM	CSUP HYDRO	TSEF/TMD		
					
<b>Average number of students</b>	• 8 OM • 2 foreign military officers	• 3 OM HYDRO • 1 OM METOC	• 4 OM HYDRO	• 1 to 5 trainees	• 2 IETA and 12 civilian students • 4 foreign military officers
<b>Duration</b>	19 months	8 months	3 months	12 months	4 years
<b>Admission</b>	application	application	application	based on diplomas or competitive exam	competitive exam
<b>Curriculum</b>	• maritime training • specific hydrography course (including EXA internship) • practical internship in GHO	• theoretical and practical training • practical internships at SHOM in GHO - technical project	• advanced technical training	• general training • technical speciality training • technical study	• national service • core curriculum • marine env. branch • option hydrography

Fig.11: Courses and training provided at SHOM hydrographic school.

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

SHOM is participating in the deployment of instruments for the benefit of the future Caribbean Tsunami Warning Centre through the INTERREG IV programme. It is financed by the European FEDER budget and SHOM is associated with the *Institut Physique du Globe de Paris* (IPGP), Martinique's general council, *Météo-France* and the Seismic Research Centre of the University of West Indies (SRC/UWI) (see paragraph 9.3).

Observations network improved in 2011-2012 in region of Antilles: To receive tide gauges measurements in real time, satellite beacons have been installed in 2012 on the existing SHOM tide

gauges at *Fort-de-France (Martinique)*, *Pointe-à-Pitre (Guadeloupe)* and *Île Royale (French Guyana)*. The regional council of Martinique has installed, in June 2013, a new tide gauge on the east coast of Martinique at *Le Robert*.

Besides, SHOM supported the *Xplore* initiative from Mr. Stephen WILKINS to conduct a hydrographic survey in the area of the Antarctic Peninsula. The survey data have finally been handed over to Mr. Robert Ward, HCA Chairman, on the occasion of World Hydrography Day celebration. It is already been disseminated to relevant hydrographic offices in order to update the charts (and the corresponding ENC)s covering the survey area.

Concerning SHOM's cooperation with other countries within the area, an administrative agreement is currently being under discussion with the Maritime Authority of Suriname. In the meantime, SHOM could count on the MAS support in many occasions during the BH2 Borda campaign. That deployment has been a great opportunity to share technical experience and good practices directly on the field.



Fig.12: SHOM and MAS on-field exchanges during BH2 Borda Campaign

On the other hand, SHOM is currently discussing with SEMANAH of the République of Haïti regarding the setup of a bilateral arrangement emphasized on training.

### **7.3. Definition of bids to IHOCBC**

NTR.

## **8. Oceanographic activities**

### **8.1. GEBCO/IBC's activities**

NTR.

### **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 <http://refmar.shom.fr/home/> in overseas areas under French jurisdiction:



Fig. 13: SHOM REFMAR tide gauges network.

Within the REFMAR network, 9 French permanent tide gauges are located in the region:

- Guadeloupe : Pointe-à-Pitre (SHOM/Météo-France/DM Guadeloupe), Deshaies (IPGP) and La Désirade Island (IPGP)
- Martinique : Fort-de-France (SHOM/Météo-France/marine nationale), Le prêcheur (CG Martinique), Le Robert (CG Martinique).
- French Guyana : Îles du Salut (SHOM/DM Guyane), Îlet La mere (DM Guyane) and Degrad des cannes (DM Guyane).

Sea level data are available on REFMAR webportal (<http://refmar.shom.fr>).

More information about SHOM's involvement can be found through the following link:

[http://refmar.shom.fr/fr/sea\\_level\\_news\\_2012/t2/coordonner-l-alerte-aux-tsunamis-dans-les-petites-antilles-source-deal-guadeloupe](http://refmar.shom.fr/fr/sea_level_news_2012/t2/coordonner-l-alerte-aux-tsunamis-dans-les-petites-antilles-source-deal-guadeloupe)

### 8.3. New equipment

On the *Îles du Salut* (French Guyana), SHOM installed in 2013 real time transmissions to contribute to the Caribbean Tsunami warning System. At the same time a permanent GNSS antenna has been installed near the tide gauge by IGN.

### 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 contributes to the launching of the national tsunami warning centre for the Caribbean. The importance of the development of real-time tide gauges on French coast and operated by SHOM, IPGP, CG Martinique, is recognised as a key component for the development of a regional tsunami warning system.

France may have Navy ships in the MACHC region ready to provide support in case of an emergency. France also provides technical support and has a rapid response capacity for environmental data in case of a disaster.

The point of contact at SHOM in case of a disaster is ICETA Jean-Christophe ROSADA. His division can be reached 24/7 by fax +33 298 221 665 or email [coord.navarea2@shom.fr](mailto:coord.navarea2@shom.fr)

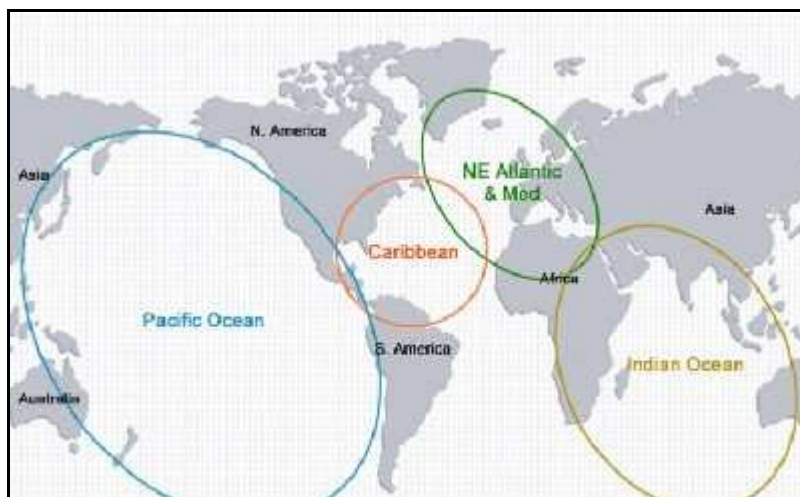


Fig.14: Cooperation areas on tsunami warning system (source IOC ; UNESCO).

- **Coastal flooding :**

NTR.

- **Oil spills:**

NTR.

#### **9.4. Environmental protection**

NTR.

#### **9.5. Astronomical observations**

NTR.

#### **9.6. Magnetic/Gravity surveys**

NTR.

#### **9.7. MSDI Progress**

Since 2007 SHOM has undertaken the construction of a spatial data infrastructure through the INFRAGEOS-H® project which has since then been dealing with the evolution of the hydrographic databases, and paved the way to metadata management and view web services.

Late 2011, a second SDI step has been launched with the ENTREPOT® project. Its objectives are to identify and distribute non-navigational products and their metadata through a portal based on web services. This platform also intends to provide specific services like dynamic cartography or vertical reference information.

At this stage, the SDI construction has reached the following results:

- Hydrographic databases migration to the new systems is nearly achieved as tides, submarine cables, wrecks, bathymetry and administrative limits are currently managed in SHOM SDI. The migration of the last two layers (landmarks and beacons) will take place in September.
- Most products have their metadata written and available on the French geocatalogue ([www.geocatalogue.fr](http://www.geocatalogue.fr)), and the metadata working group created in 2012 is spreading good practices at SHOM.
- Last January, SHOM opened a maritime and coastal geographic information portal which offers a large set of view and download services at <http://data.shom.fr>. All the services are compliant European directive INSPIRE.

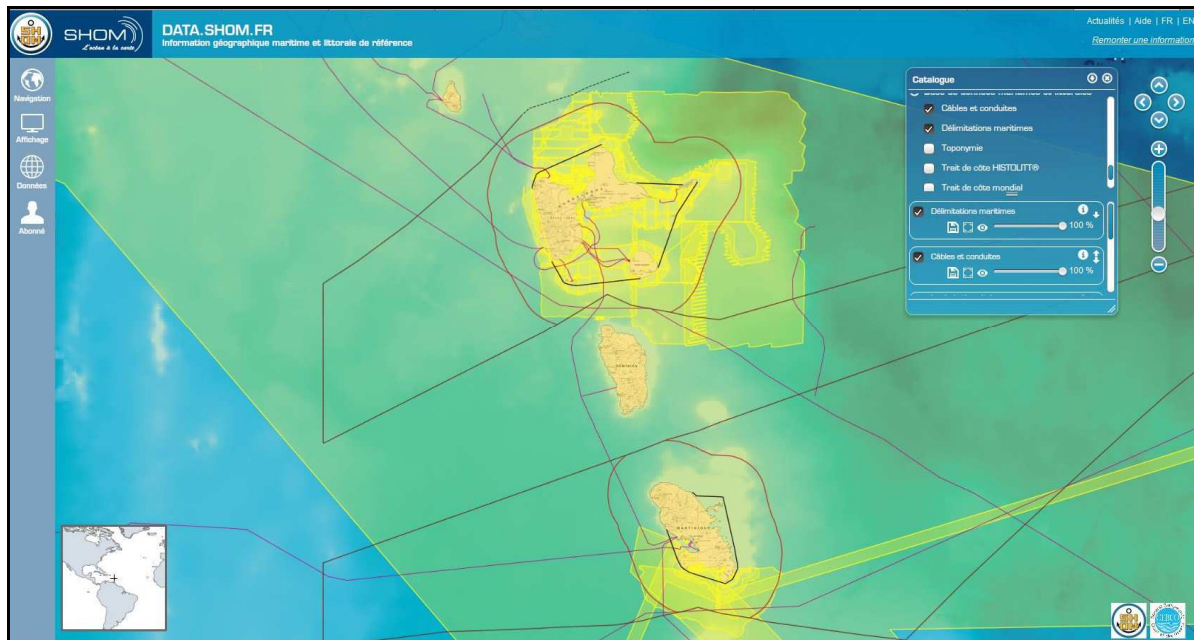


Fig.15: SHOM's data display over French Antilles (source: data.shom.fr)

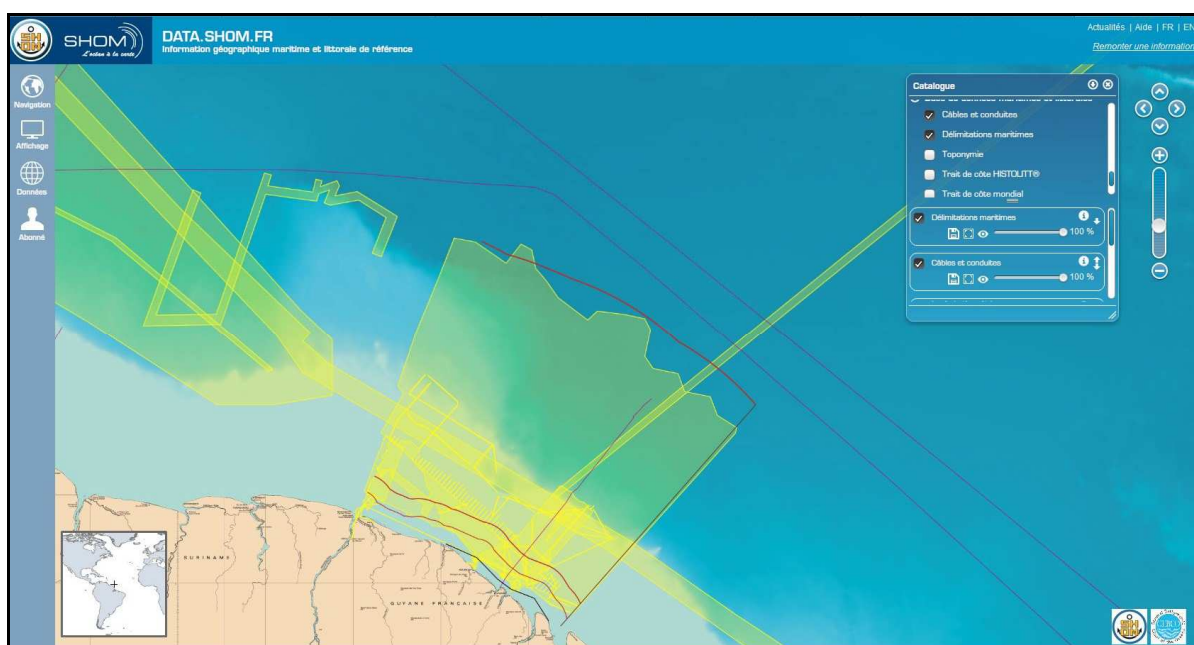


Fig.16: SHOM's data display over French Guyana (source: data.shom.fr)

Two additional services have recently been added to this portal:

- a nautical information feedback service ([infonaut.data.shom.fr](http://infonaut.data.shom.fr)) which allows all users to send back to SHOM any information concerning depth, wrecks, coastlines, buoys, ....
- a dynamic cartographic environment ([cartodyn.data.shom.fr](http://cartodyn.data.shom.fr)) which allows all users to create their own maps taking benefit from data.shom.fr tools and data.

A detailed description of the portal functions and contents is available on SHOM website (<http://www.shom.fr/les-services-en-ligne/portail-datashomfr/>). 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 either full member or observer in 9 hydrographic commissions amongst the 15 organized by the IHO members States.

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

Name	Chair / Vice chair	Member	Observations
CBSC		✓	Capacity Building Sub-Committee
CSPCWG		✓	Chart Standardisation and Paper Chart Working Group
DIPWG		✓	Digital Information Portrayal Working Group, former CSMWH
DPSWG		✓	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		✓	Hydrographic Commission on Antarctica
HDWG	✓	✓	Hydrographic Dictionary Working Group
HSSC		✓	Hydrographic Services and Standards Committee, formerly known as the Committee on Hydrographic Requirements for Information Systems (CHRIS)
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
NSHC		✓	North Sea Hydrographic Commission
RSAHC		✓	ROPME Hydrographic Commission
SAIHC		✓	Southern Africa and Islands Hydrographic Commission
SNPWG		✓	Standardisation of Nautical Publications Working Group
SWPHC		✓	South-West Pacific Hydrographic Commission
TSMAD		✓	Transfer Standard Maintenance and Application Development
TWLWG	✓	✓	Tidal and Water Level Working Group
WEND		✓	World-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

Following up the discussions of the last MACHC conference which were mainly focused on the development of hydrography as support of the Blue Economy, the forthcoming release of the new capacity building strategy should help concretizing this concept, especially by contributing to include hydrographic aspects into major maritime projects.