

Paris, February, 24th 2015

N° XXX SHOM/DMI/REX/NP

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

**FRENCH NATIONAL REPORT
TO THE 13TH MEETING OF THE SOUTH WEST PACIFIC
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 France's 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 previous SWPHC conference in November 2013, SHOM conducted a certain number of surveys, mainly dedicated to improve and update hydrographic knowledge in the framework of the SHOM's long term commitment in its overseas territories, especially in French Polynesia and New Caledonia waters.

Collecting nautical information in its overseas territories is a fundamental task, scheduled in close relation with local governmental authorities in the frame of a prioritized survey plan. Those works are conducted in support of the local authorities, pilots, fishermen, mining operators and defence counterparts.

More precisely, the GOP, the SHOM survey unit in the Pacific Ocean conducted the following surveys depicted hereafter.

In New Caledonia:

Several surveys of ports, bays, natural harbours, recommended routes and passages have been performed, mainly inside the lagoon and its vicinities, as summarized by figure 1 and illustrated by figures 2 to 10:

- Survey: Recommended routes to Boulari Pass to Woodin channel, Belep and Pott, and the Chesterfield islands (Longue and Loop islands), Lifou's Easo berthing area, Poro harbor access.
- Stereopreparation field work: Île des Pins, Kouaoua, Canala.

Destinataire : BHI MONACO

Copies intérieures : DG – DMI/REX - Archives (DMIDSD/2.035)

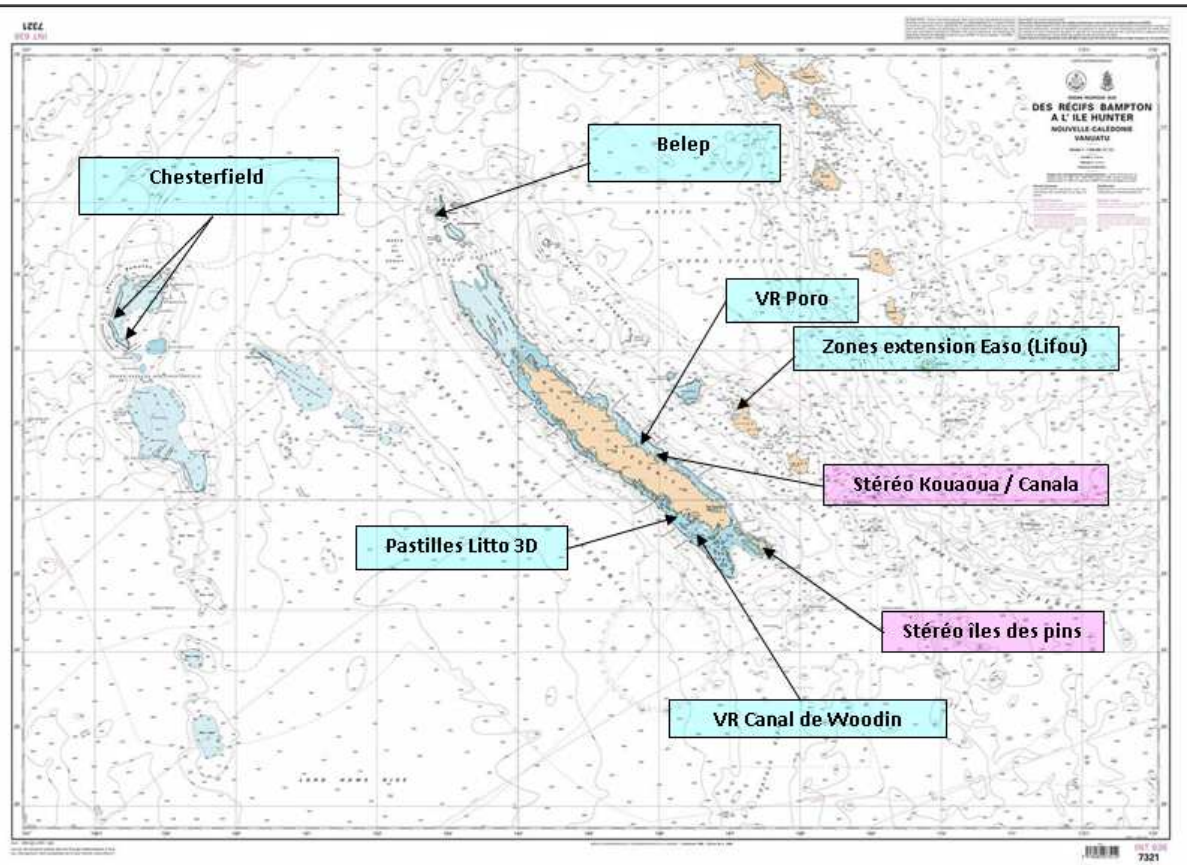


Fig.1: Survey achieved in New Caledonia and Loyalty Islands by BHNC since November 2013.

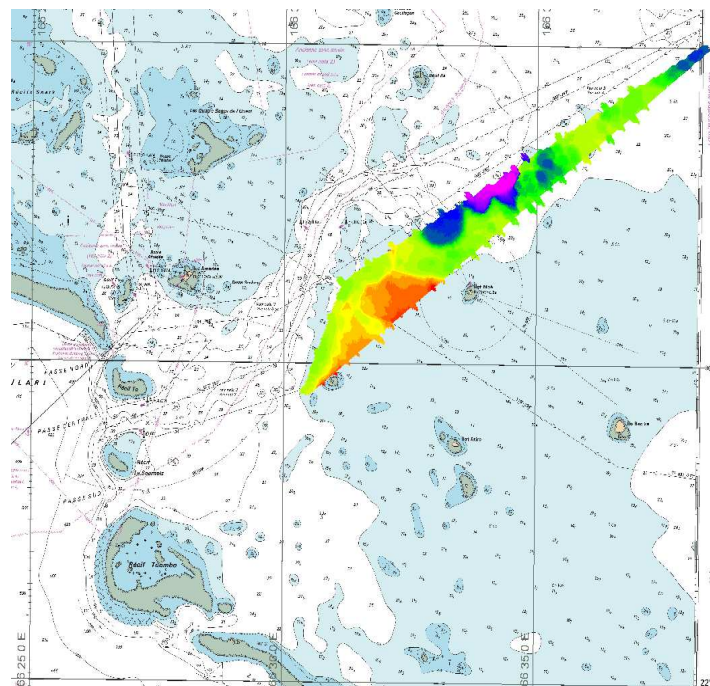


Fig.2: Complementary survey to recommended route between Boulari pass and Woodin channel

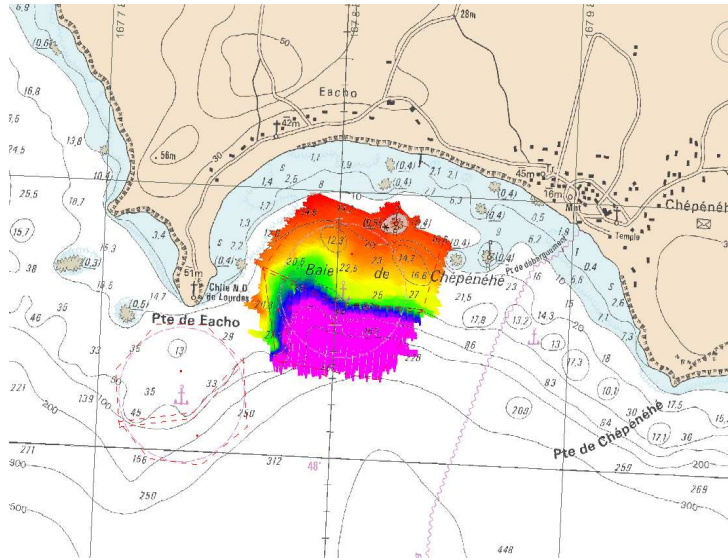


Fig.3: Lifou island – Easo berthing area survey

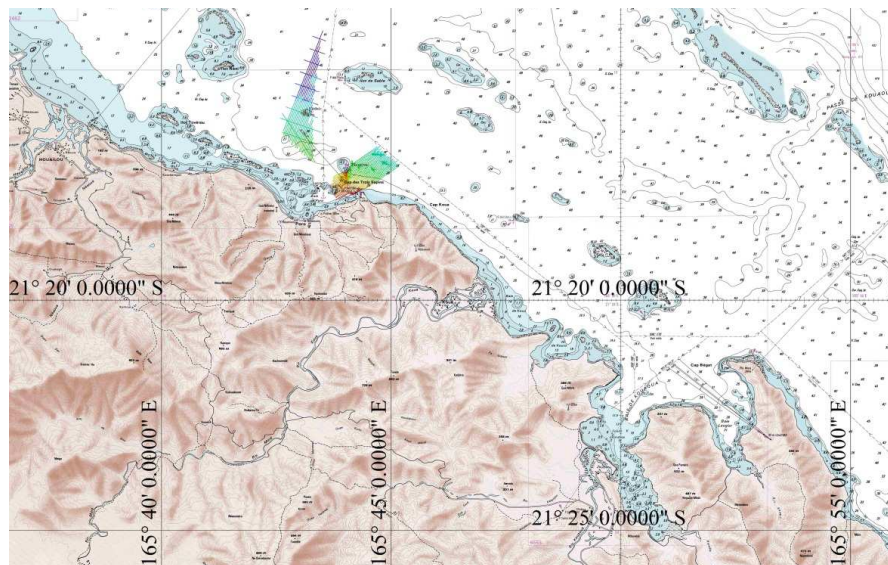


Fig.4: Complementary survey to Poro approaches.

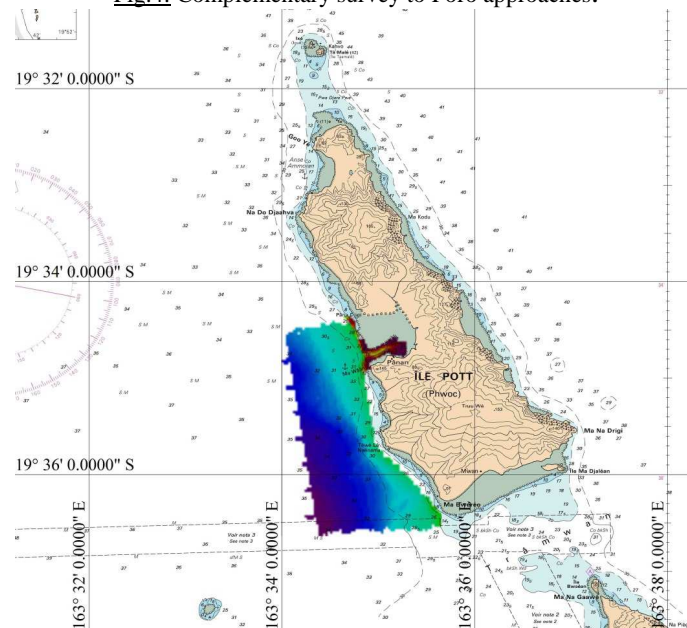


Fig.5: Survey of Belep island's recommended routes and access to Pott island.

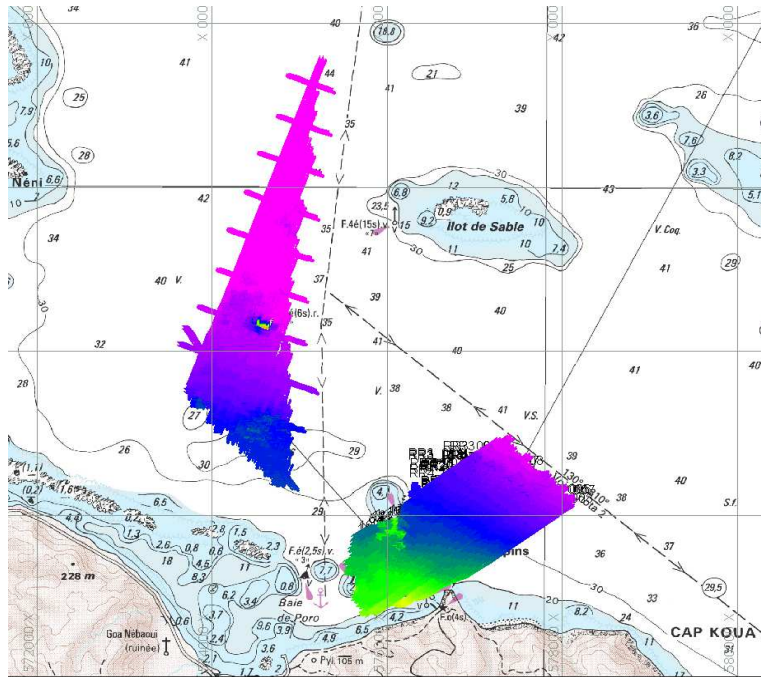


Fig.6: Survey of Poro harbour approaches

In Wallis and Futuna:

The recommended route and access to Mata Uru wharf have been surveyed, as represented on the figure below.

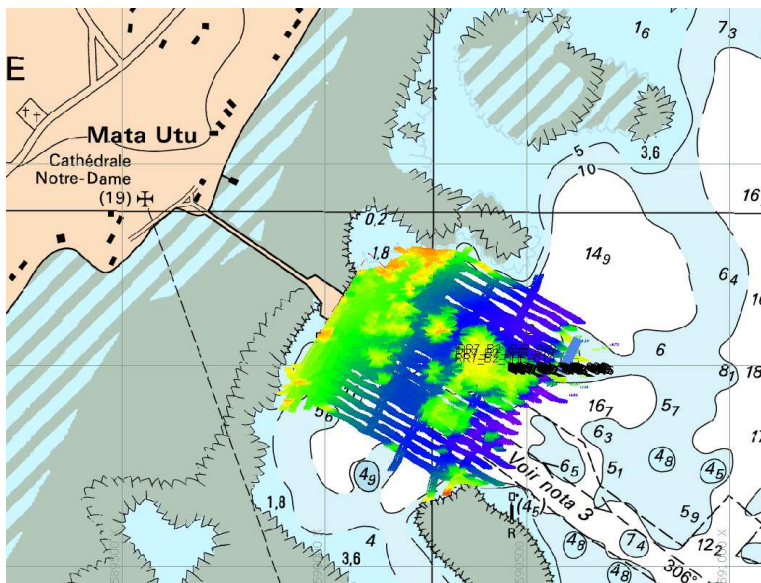


Fig.7: Survey of Mata Uru's recommended route

In French Polynesia:

Several surveys and stereopreparation field works have been conducted in 2014 among the French Polynesian islands: Raraka, Hao, Fakarava, Raiatea and Tahaa.

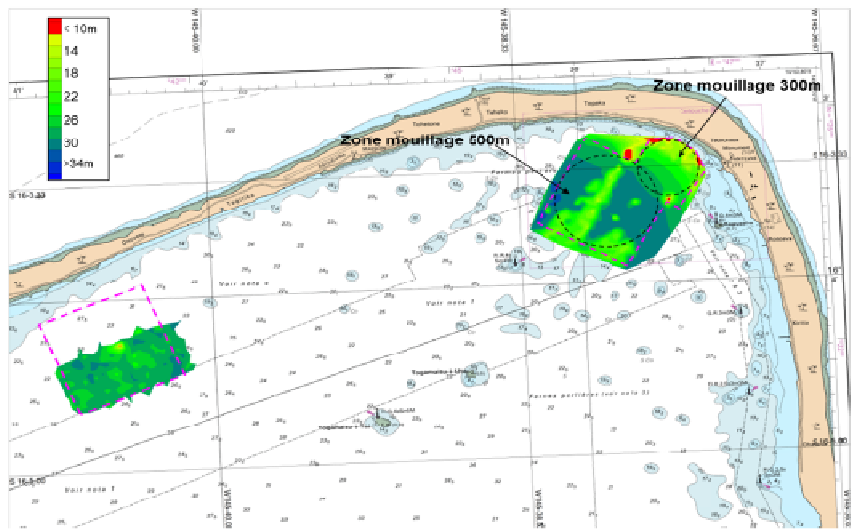


Fig.8: Survey of the anchorage areas of Fakarava.

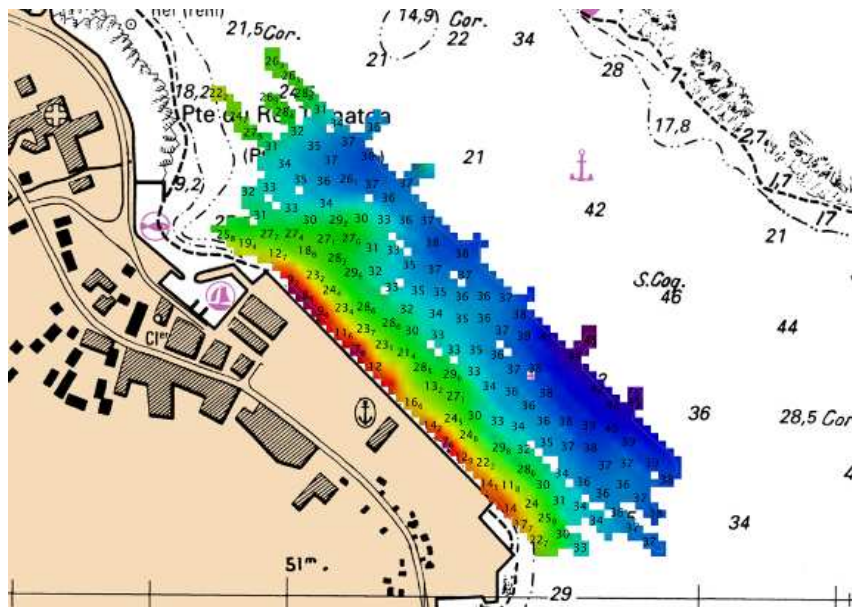


Fig.9: Survey of the harbour of Raiatea.

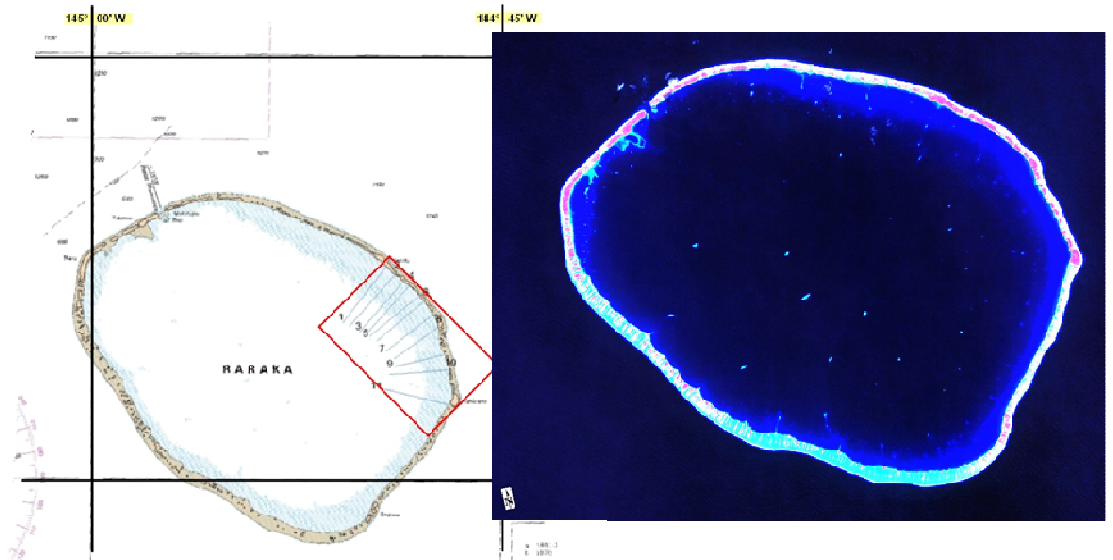


Fig.10: Spatio-preparation work over Raraka atoll – linear bathymetric transects in the lagoon.

2.2. LIDAR surveys

The French National Geographic Institute (IGN) and SHOM were tasked by the Prime Minister to join efforts to produce a seamless, precise topographic and bathymetric model, of the entire French coast. The Litto3D® project was then created to meet more than hundred requirements expressed by coastal managers concerned with the protection and exploitation of the littoral, and by users of geo-referenced data. It aims to provide a very high resolution Sea-Land digital terrain model (DTM) of metropolitan and overseas French coasts.

In the perspective, both SHOM Litto3D team and the French National Mapping Agency provide assistance to the Government of New Caledonia in the frame of the build of Lidar demonstrator product. A first call for tender was issued in 2014 but SHOM did not receive any acceptable offer (excessive cost for such a demo survey), and this demonstrator was delayed. A new call for tender may be issued in 2016 depending of funding availability (survey funded by the Government of New-Caledonia).

Besides, SHOM's survey unit based in New Caledonia was directly concerned by the survey patches achieved for quality control purposes within the New Caledonian lagoon, as spotted on the following figure:

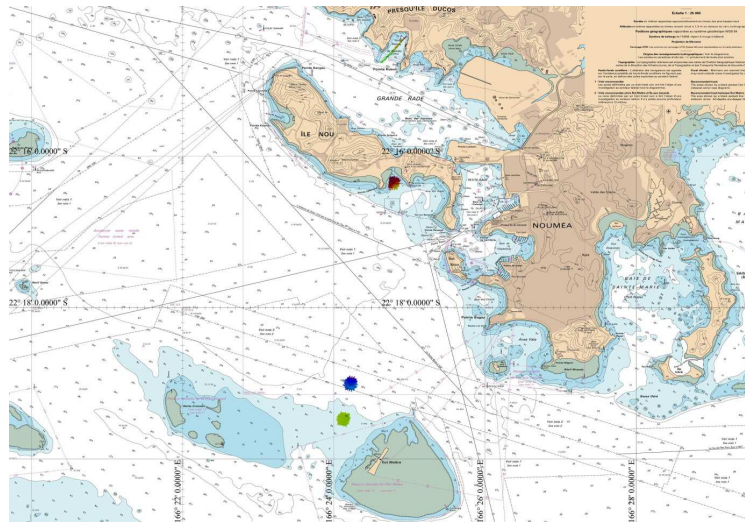


Fig. 11: Survey patches for Lidar quality control purposes.

Regarding French Polynesia, Lidar survey of Tahiti (western part), Moorea (eastern part) and Bora-Bora are already scheduled for 2015's first semester.

For more information please contact litto3d@shom.fr

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 for New Caledonia, French Polynesia and Wallis et Futuna waters (fig. 12) and the 2013-2016 survey plan combined with existing surveys for those three areas (fig.13).

A important deployment in the Pacific of SHOM's local survey unit using Ifremer's Oceanographic vessel *Atalante* will take place in 2015.

- **New Caledonia:**

Prioritized survey works defined by the hydrographic commission of New Caledonia, in the frame of the cooperation in hydrography between French State and the government of New Caledonia (convention related to competences transfer, signed on March 2012).

- **French Polynesia:**

Survey works in lagoon waters (using deployable equipment) and opportunity surveys.

- **Wallis et futuna:**

Survey works in lagoon waters (using deployable equipment) and opportunity surveys.

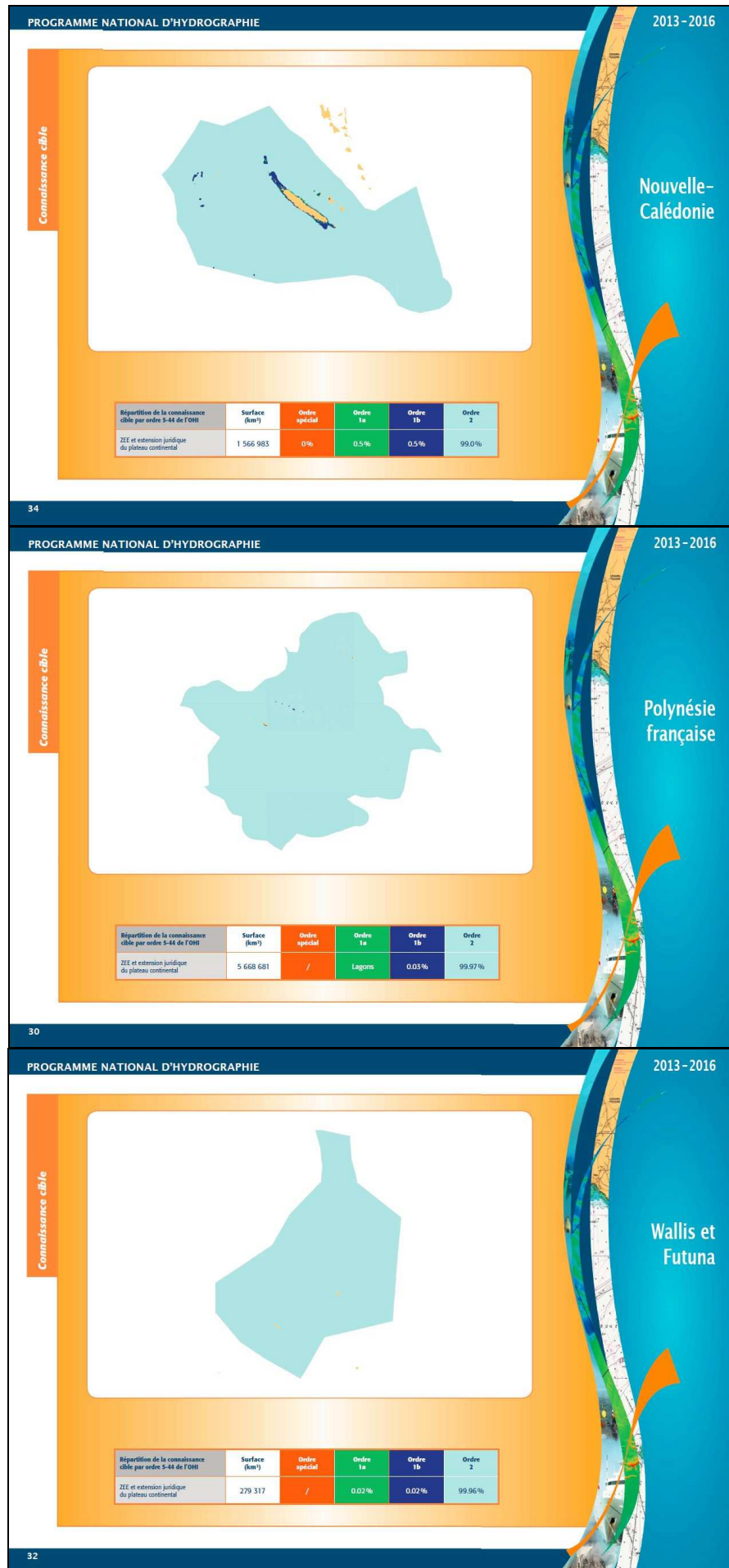


Fig.12: (top to bottom) Long term objectives for New Caledonia, French Polynesia and Wallis et Futuna waters (source: 2013-2016 NHP)

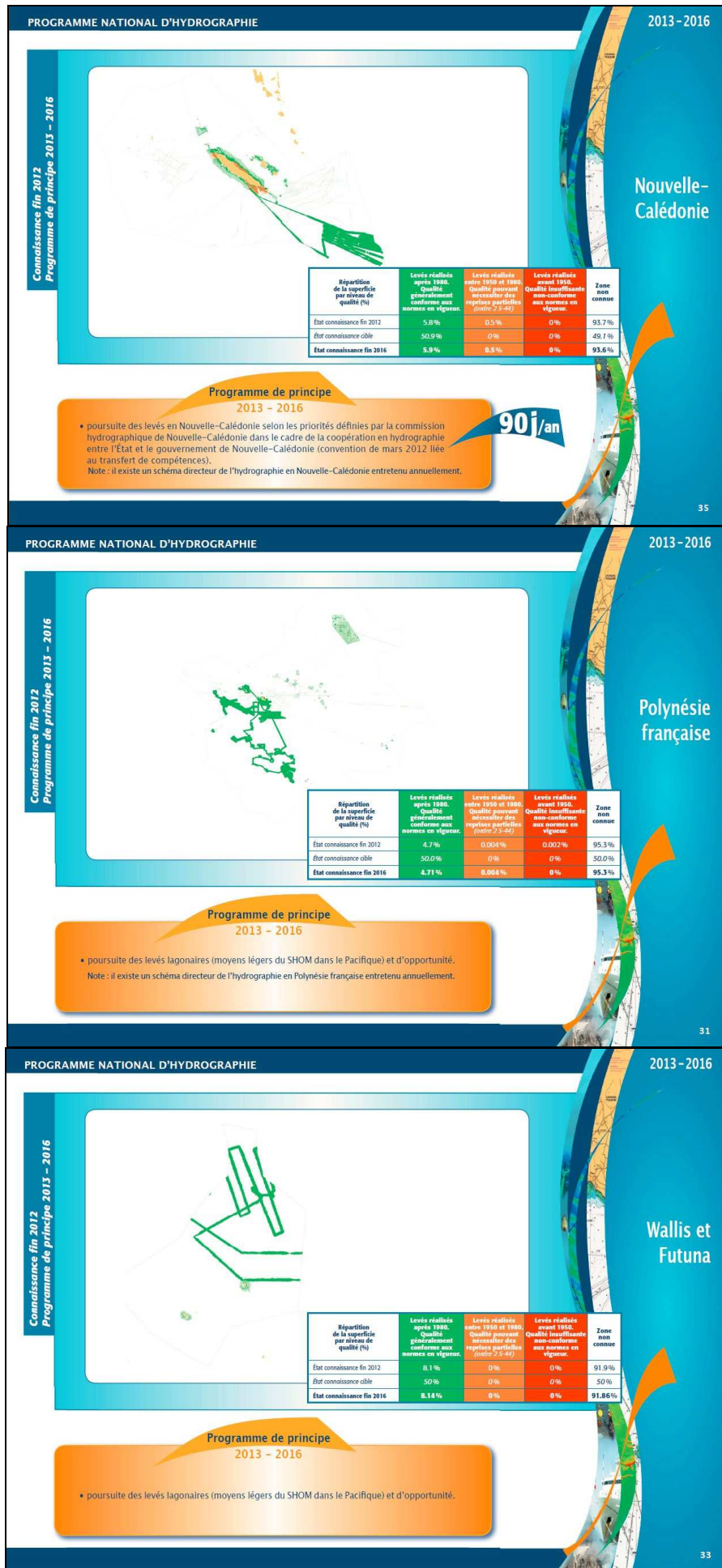


Fig.13: (top to bottom) Existing surveys and survey planning for the 2013-2016 period related to New Caledonia, French Polynesia and Wallis et Futuna waters (source: 2013-2016 NHP)

2.4. New technologies and /or equipment

In 2016, SHOM's survey means stationed in New Caledonia shall be equipped with shallow water multibeam echosounder system.

Regarding data processing, the process of using the same MSDI centric, processing and compiling tools and software already used by mainland survey units has already started.

2.5. New ships

NTR.

2.6. Problems encountered

As many other IHO member states, France is tasked with collecting nautical information and surveying areas that would otherwise remain uncharted. It happens from time to time that SHOM only learns by accident of surveys performed by private companies, or even other HOs, in its areas of charting responsibility, and has to insist to obtain communication of IHO-compliant data relevant to INT charts and nautical information.

In the interest of the maritime community, it is reminded that survey results should be communicated to the IHO recognised charting authority (in accordance with M-3 resolution 1/2006 and S-4 resolution A-402.1 and B-635.4).

3. New charts & updates

3.1. ENC's

On the 1th of January 2015, SHOM had produced some 427 ENC's at an approximate rate of 40 per year. The full collection should eventually reach a figure of the order of 900 ENC's.

At the end of 2014, more than half of the ENC's planned for New Caledonian waters have been produced. The full ENC coverage is planned to be effective in 2018.

Concerning French Polynesian waters, the most frequented routes used by passengers and fret vessels (not concerned by IMO Mandatory ECDIS carriage regulation) are covered by ENC's.

The SHOM ENC coverage of the SWPHC area is depicted in the chartlets below:



Fig.14: French ENC cells over New Caledonia and its vicinities.



Fig.15: French UB4-5-6 cells over New Caledonia and its vicinities.

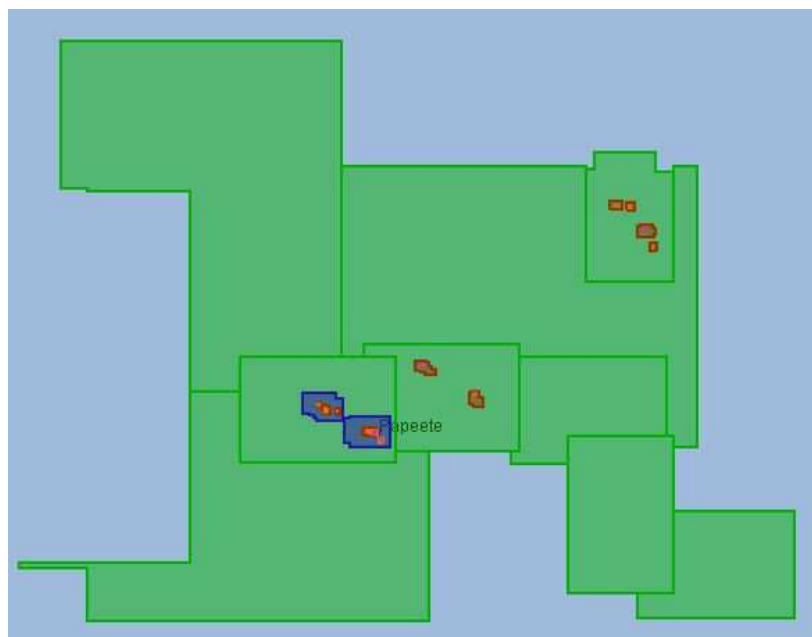


Fig.16: French ENC cells over French Polynesia.

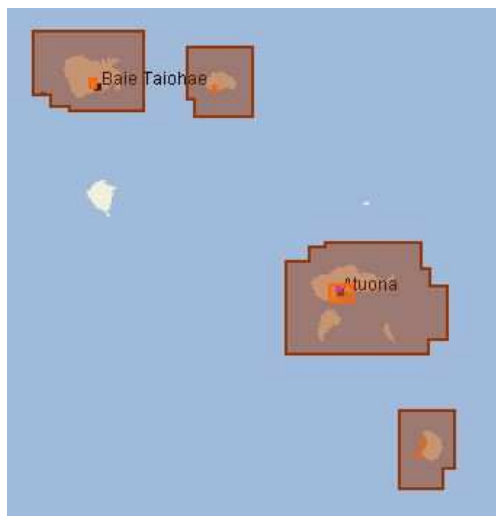


Fig.17: French UB4-5-6 cells over French Polynesia.

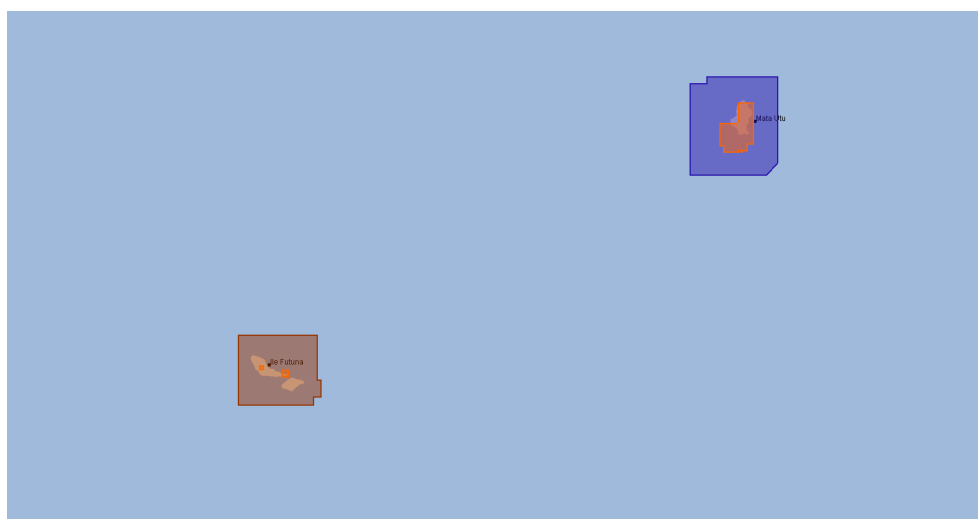


Fig.18: French ENC cells over Wallis and Futuna.

Here are the ENCs produced since the last conference:

Number	Scale 1:	Title	Comment
Nouvelle-Calédonie			
FR468200	22 000	Mouillages de l'île Lifou et Baie du Santal	<i>Technical edition</i>
FR576450	22 000	Canal de la Havannah et Canal Woodin	<i>New Edition</i>
FR57756A	12 000	Accès à Touho	
FR477560	45 000	De Touho à Ponérihouen	
FR473200	45 000	De Koumac à Poum	<i>Technical edition</i>
FR469850	45 000	De Paagoumène à Ouaco	<i>Technical edition</i>
FR473130	45 000	De la passe de Koné à Ouaco	<i>Technical edition</i>
FR473750	45 000	De la Passe de Poya à la Passe de Koné	<i>Technical edition</i>
FR470510	45 000	Du Cap Colnett à Touho - Abords de Hienghène	<i>Technical edition</i>
FR67322A	8 000	Passe de Muéo	<i>Technical edition</i>
FR67322B	8 000	Port de Muéo	<i>Technical edition</i>
FR573220	22 000	De la Passe de Poya à la Passe de Muéo	<i>Technical edition</i>
FR565540	12 000	Baie Chasseloup, anse Vouavouto	<i>Technical edition</i>
FR56985B	12 000	Mouillage de Karembé	<i>Technical edition</i>
FR56985A	12 000	Mouillage de Théoudié	<i>Technical edition</i>
FR57320B	12 000	Abords de Paagoumène	<i>Technical edition</i>
FR57320A	22 000	Mouillages de Poum	<i>Technical edition</i>
FR57051A	12 000	Baie de Hienghène	<i>Technical edition</i>
FR565530	12 000	Baie de Kouaoua	<i>Technical edition</i>
FR565890	12 000	Baie de Canala	<i>Technical edition</i>
FR57073A	12 000	Baie de Nakéty et anse de Lavaissière	<i>Technical edition</i>
FR57073B	12 000	Port de Thio	<i>Technical edition</i>
FR471680	45 000	De la Baie de Bourail à la Passe de la Poya	<i>Technical edition</i>

FR57073E	12 000	Baie de Port-Bouquet	<i>Technical edition</i>
FR57073D	12 000	Port-Combui et passages de Maméré	<i>Technical edition</i>
Wallis et Futuna			
FR568760	12 000	Iles Wallis - Accès à Mata Utu et Halalo	<i>Technical edition</i>
FR472340	45 000	Iles Futuna et Alofi	<i>Technical edition</i>
FR57234B	12 000	Chenal Vasia	<i>Technical edition</i>
FR57234A	8 000	Ava Leava (Anse de Sigave)	<i>Technical edition</i>

Due to the production system change (Caris HPD), all ENC cells in that region are subject to the issue of a *technical edition*. For the record, this action reflects a change in the production process but does not imply any changes of the information contained so far in those cells.

Here are the ENCs planned for 2015/2016:

Number	Scale 1:	Title	Comment
Nouvelle-Calédonie			
FR468270	45 000	Du Mont Dore à Port-Boisé - Passes de Mato et de Uatio	<i>New edition</i>
FR477550	45 000	De Ponérihouen au Cap Dumoulin	
FR57755A	12 000	Baie de Poro	
FR57755B	12 000	Baie de Ugué	
Polynésie			
FR273700	1 500 000	De Mururoa à Ducie Island	
FR273470	1 500 000	De l'Archipel des Tuamotu aux Iles Australes	
FR474660	12 000	Bora-Bora	
FR574660	4 000	Passe Teavanui	
FR67460A	8 000	De la Passe de Taapuna à la Passe d'Arue Port de Papeete	<i>New edition</i>
FR67460B	8 000		<i>New edition</i>

The status of ENC production in the area is:

Usage Band	Produced Cells	Planned Cells	%
1	1	1	100%
2	10	12	83%
3	6	23	26%
4	31	68	45%

5	41	150	37%
6	14		
Total	103	254	41%

3.2. ENC Distribution method

3.3. RNCs

3.4. INT charts

See next section for details.

Here the overall planification of SHOM for INT chart production:

Scale	Produced INT charts	Planned INT charts	%
Small (<1/1 000 000)	7	7	100
Medium	0	0	N/A
Large (>1/100 000)	6	10	60%
Total	13	17	76%

3.5. National paper charts

Here are the charts produced since the last conference:

National	INT	Scale 1 :	Title
7756	/	60 000	De Touho à Ponérihouen (<i>Replaces 6537/ 6852</i>)
7318	/	60 000	De Poum à l'île Pam - <i>Edition</i>
7319	/	60 000	De l'île Pam au cap Colnett - <i>Edition</i>
7645	6898	30 000	Canal de La Havannah et Canal Woodin - <i>Edition</i>
6955	/	175 000	Approches des îles de Tahiti et de Mooréa - Iles de Maiao et de Tétiaroa - <i>Edition</i>
6033	/	175 000	Archipel de la Société - Iles Sous-le-Vent - <i>Edition</i>
7051	/	60 000	Du Cap Colnett à Touho

The following charts are planned in 2015/2016:

National	INT	Scale 1:	Title
6827	6882	60 000	Du Mont Dore à Port-Boisé - Passes de Mato et de Uatio
7755	/	60 000	De Ponérihouen au Cap Dumoulin (<i>Replaces 3475 / 6528 / 6529</i>)
7466	6955	20 000	Bora-Bora (<i>Replaces 6002</i>)

7460	6940	10 000	De la Passe de Taapuna au Chenal de Faaa. Port de Papeete
7281	/	75 000	Hao

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

NTR.

3.7. Problems encountered

4. New publications & updates

4.1. New Publications

Since the last SWPHC conference, a new edition has been issued for the following publication:

- Livre des feux et signaux de brume L.C : Océan Atlantique (Est) – Océan Indien (Ouest) – Océan Pacifique (2014).

4.2. Updated publications

NTR.

4.3. Means of delivery

SHOM continues to increase the production of its digital nautical publications. At the end of 2014, 75 % of SHOM's nautical publications were available in digital format (weekly updated pdf files) on its online store diffusion.shom.fr.

4.4. Problems encountered

NTR.

5. MSI Existing infrastructure for transmission

In SWPHC area, SHOM has delegated its national coordinator functions to two maritime authorities:
- in New-Caledonia, to the Commandant de la zone maritime for Nouméa, with operating organism: MRCC NOUMEA for regions in NAVAREA X and XIV areas,
- in French Polynesia, to the Commandant de la zone maritime Polynésie Française, with operating organism: MRCC Papeete, for region in NAVAREA XIV area.

Hereafter are listed the coordinates of those authorities:

Area	Phone number	Fax number	Email address
New Caledonia	+687 292 332	+687 292 303	mrcc.nc@lagoon.nc
French Polynesia	+689 40 541 615	+689 40 423 915	rccpapeete@mail.pf

5.1. New infrastructure in accordance with GMDSS Master Plan

NTR.

5.2. Problems encountered

NTR.

6. C-55 Latest update

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

Survey status		Depth < 200m			Depth > 200m		
		A	B	C	A	B	C
L	Polynésie française	17	38	45	11	2	87
	Wallis et Futuna - France	86	0	14	0	1	99
	Nouvelle Calédonie - France	9	21	70	2	3	95

Charting status		Small (<1 M)			Medium (1M < / < 100 000)			Large (> 100 000)			Metric	WGS84
		A	B	C	A	B	C	A	B	C		
L	Polynésie française	100	0	100	33	0	73,91	58	0	25,58	100	96
	Wallis et Futuna - France	100	0	NA	100	0	NA	75	0	100	100	100
	Nouvelle Calédonie - France	100	0	100	100	0	42,86	74	0	69,6	100	100

Fig. 19: C-55 update values for survey status (top table) and charting status (down table). Updated values are red colored.

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.

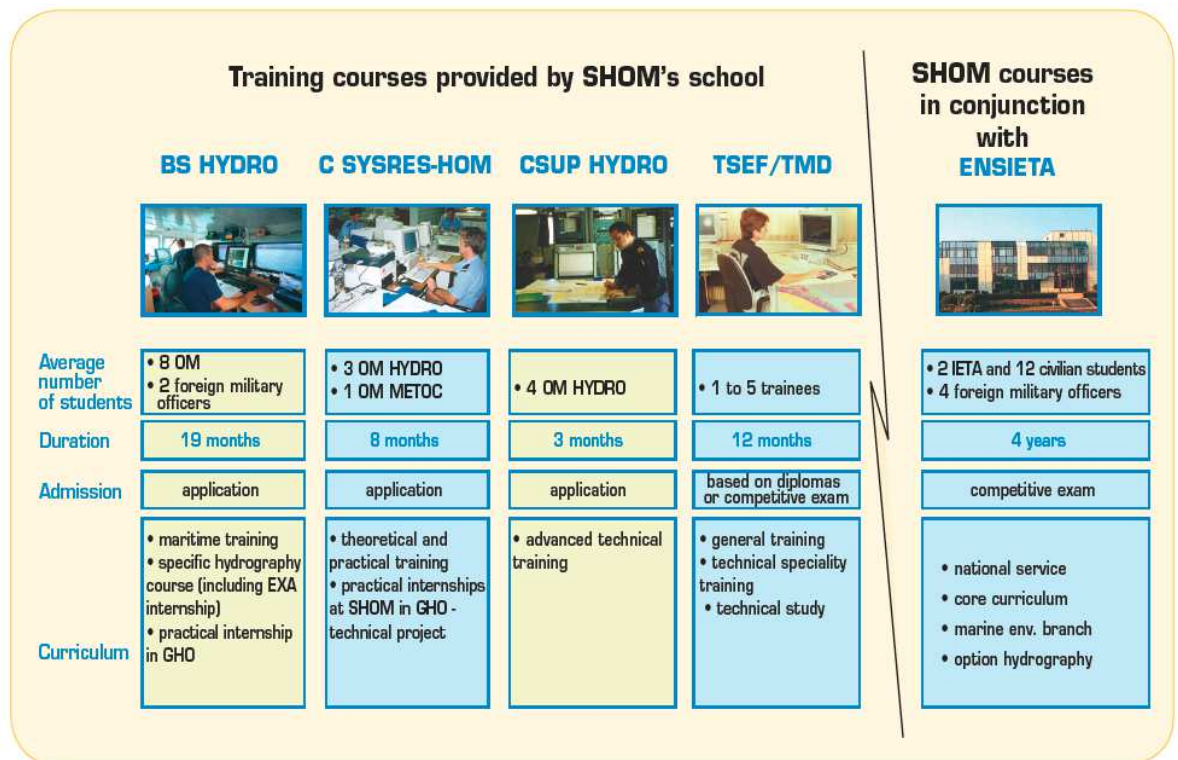


Fig.20: Courses and training provided at the SHOM hydrographic school.

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

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

Besides, a dedicated team is appointed to transfer the SHOM know-how to coastal States willing to get new hydrographic and oceanographic capabilities (Point of contact: Patrice Laporte, patrice.laporte@shom.fr).

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 programme. Real time and processed tide gauge measurements are now accessible on the web <http://refmar.shom.fr> in all areas around the world under French jurisdiction as shown hereunder:

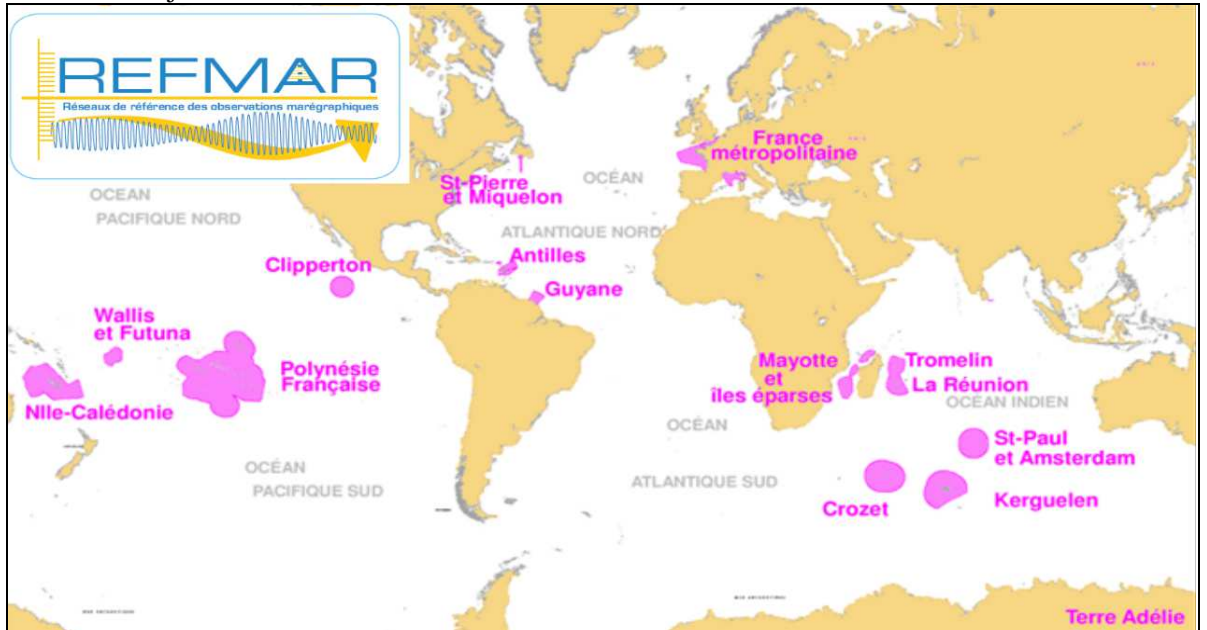


Fig. 21: Refmar tide gauge network.

Since the last conference, several installation or maintenance work have been carried out.

New Caledonia

Tide gauges network in New Caledonia is composed of 5 stations: Hienghène, Numbo (Noumea), Maré, Lifou and Ouinné. Maintenance operations on the existing gauges are now performed every 6 months and soon on a yearly basis (fig. 22). A new gauge will be installed in Thio and Touho (Grande Terre) in 2015. The network over the Loyalty islands will be completed in 2016 with the set-up of a new station in Ouvea.

A new tide gauge observatory has also been installed in Wallis since the last Conference.



French Polynesia

Maintenance of the existing tide gauges in the Pacific permanent network was conducted on the existing tide gauges, and the installation of a new observatory in Makemo in Tuamotu Archipelago (fig.23).

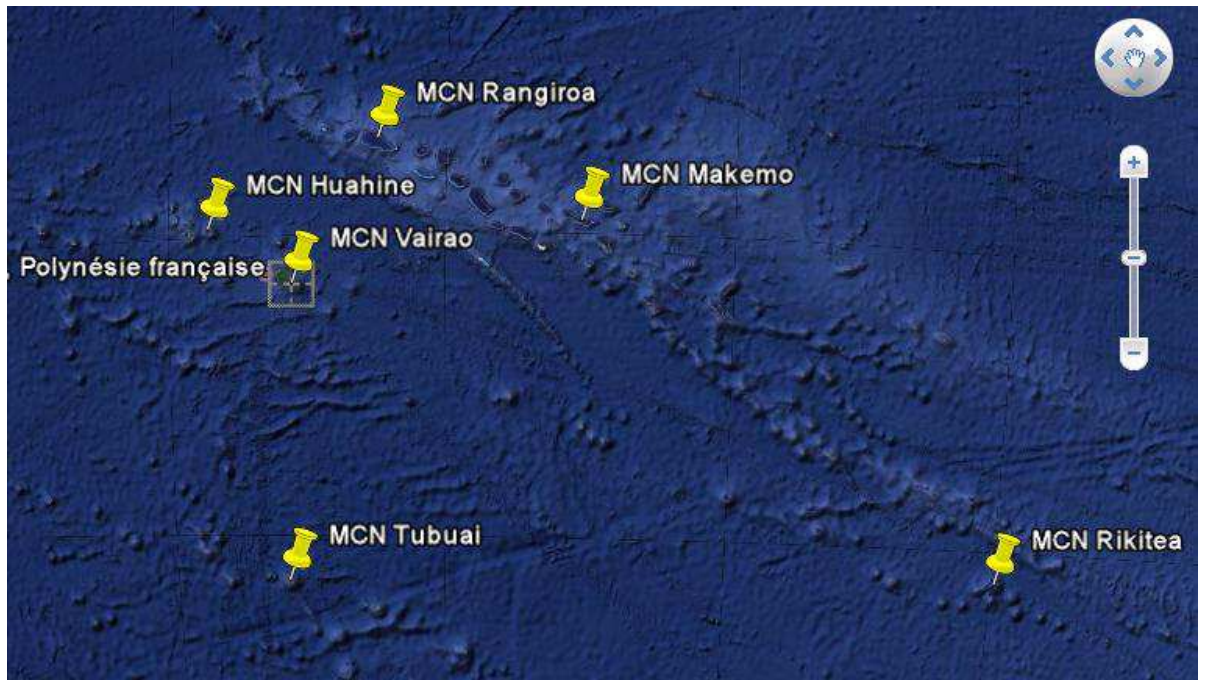


Fig. 23: Tidal gauges network covering French Polynesia waters.

Work is in progress in New Caledonia, Wallis and Futuna and French Polynesia to enhance SHOM's permanent tide gauges performances by enabling real-time data transmission, and to increase the network coverage in appropriate locations.

In French Polynesia, SHOM is involved in the development of the tsunami alert system, under the leadership of the CEA and the University of French Polynesia, and with the participation of other partners such as CNES, Météo-France and BRGM.

In February 2016, SHOM organized the next edition of the “REFMAR days” meeting on sea level to exchange on tide gauge instruments, data quality and research results on tide modelling, tsunamis and storm surges warning. This meeting, endorsed by IOC and the French Ministry of Ecology and Sustainable development, will be hosted by UNESCO in Paris.

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 contributes to the development of the tsunami warning system for the Pacific ocean. The importance of the expansion of the real-time SHOM tide gauge network named RONIM is recognised as a key component. SHOM currently acts as the French national coordinator of sea level measurements, due to its national responsibility to conduct surveys, to maintain RONIM and to make and distribute the official tidal predictions. This network is recognized as an important tool for coastal operational oceanography, risk assessment, studies on the evolution of the mean sea level, etc.

France may have Navy ships in the SWPHC 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

- **Coastal flooding :**

Tide gauges real time transmission can be used for Tsunami warning as well as coastal flooding warning. In France, the French Meteorological office (Météo-France) has been operating a storm surge warning system in collaboration with SHOM since October 2011. This system is to be extended on overseas territories, where a strong swell warning is already in place, operated by Météo-France (fig. 21).

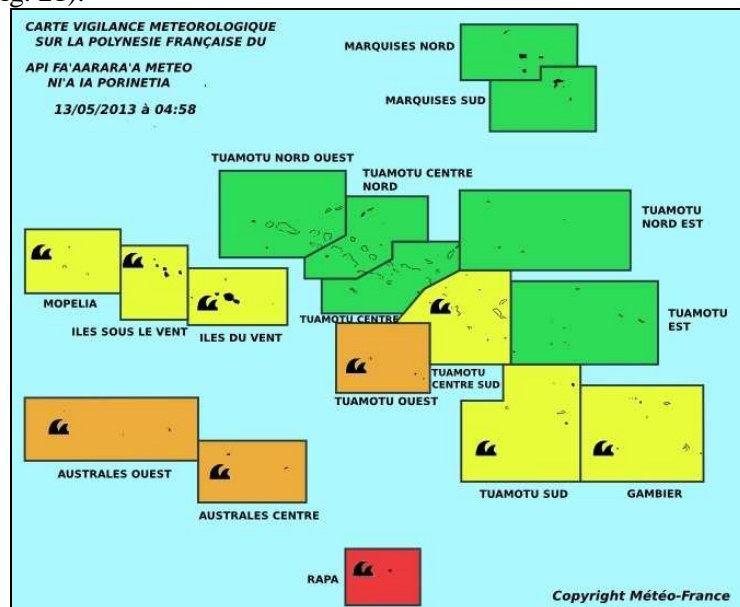


Fig. 24: Strong swell warning system over French Polynesia waters (source: météo-france).

Joint efforts are undertaken to improve storm surge modelling, including at the coastline using observations, tide predictions, atmospheric pressure and wind forecasts.

- **Oil spills:**

NTR.

9.4. Environmental protection

NTR.

9.5. Astronomical observations

NTR.

9.6. Magnetic/Gravity surveys

NTR.

9.7. MSDI Progress

In January 2013, another milestone has been reached with the launch of SHOM's 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.

Since then, SHOM's data portal, whose developments can be followed via Twitter (@shom-fr), has been implemented with new online services data layers on a regular basis. Hereafter are listed the some of the latest ones:

- <http://zerohydro.data.shom.fr>: 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;

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

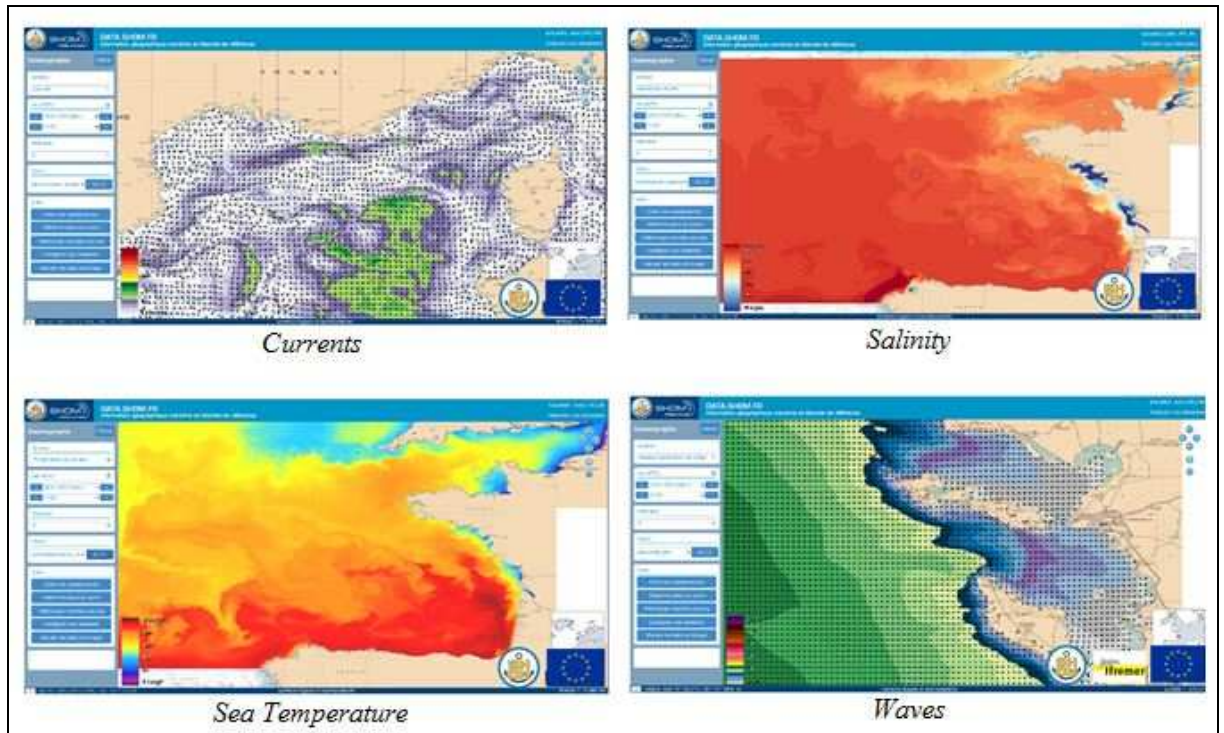


Fig.25: Oceanographic forecasts on SHOM's data portal (data.shom.fr)

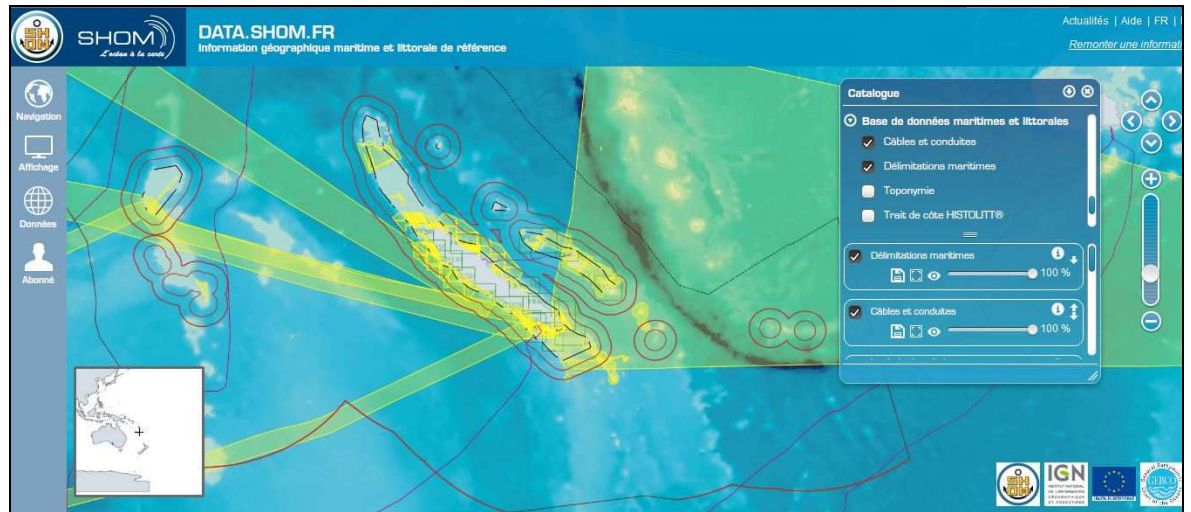


Fig.26: SHOM's data portal (data.shom.fr)

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 a member or associate member in 9 regional hydrographic commissions.

The detail of SHOM's involvement in other 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

SHOM supports any initiatives aiming at improving the maritime knowledge and the navigation safety, as far as the data collected benefits the charting authorities and the update of nautical documentation of that region.

