



# 8<sup>ème</sup> CONFÉRENCE CHATO

## COMPTE RENDU

28-29 octobre 2004

Brest, France

# 8<sup>th</sup> EAHC COMMISSION

## REPORT

28-29 October 2004

Brest, France

## Volume 2

Rapports nationaux  
National reports

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## 8<sup>ème</sup> conférence de la CHAtO

28 – 29 octobre 2004

### Rapport d'activités au Bénin

Le problème de levé hydrographique est depuis longtemps une spécialité du Port Autonome de Cotonou. C'est ce qui justifie depuis 1979 la naissance dans les services du Port Autonome d'une unité hydrographique et topographique.

Ce service n'étant pas doté jusque là de matériel hydrographique adéquat conforme aux normes internationales, prenait les levés bathymétriques et hydrographiques à l'instar de ce qui se fait au Port de Conakry.

Mais depuis plus de quatre ans le Port Autonome de Cotonou dispose grâce à la coopération Bénino-Danoise d'une vedette hydrographique mixte équipée de matériel et de logiciel très performants mais conçus sur le programme PDS 2000 à convertir.

Le service hydrographique et topographique est confronté à un problème de niveau de formation du personnel.

#### Activités :

Compte tenu du fait que le PAC est souvent confronté au problème d'ensablement fréquent et d'érosion côtière sur les côtes béninoises du fait de ses installations, le service hydrographique et topographique procède à des levés bathymétriques et hydrographiques tous les deux mois afin de suivre l'évolution des fonds marins du chenal d'accès et du bassin.

Le service suit aussi pour le compte de l'Etat le phénomène de l'érosion côtière qui se produit à l'Est des installations portuaires et l'engraissement qui se produit à l'Ouest du Port.

Suite à la visite et au passage de la mission WAAT, des dispositions sont en cours pour la mise en place du comité hydrographique national devant regrouper :

- le port Autonome de Cotonou (PAC)
- la direction de la marine marchande
- la marine nationale (ministère de la défense)
- l'institut géographique national (IGN)
- l'institut océanographique du Bénin
- la direction des pêches.

Mais comme nous le demandons depuis le démarrage des travaux des présentes assises, une formation du personnel et une acquisition du matériel conforme aux normes internationales de l'OHI s'imposent.

A cet effet, des contacts seront pris avec le BHI et l'EPSHOM pour faire le nécessaire dans le sens des recommandations de la mission WAAT et des résolutions des présentes assises.

**REPUBLIQUE DU CAMEROUN**

Paix – Travail - Patrie

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PORT AUTONOME DE DOUALA

(P.A.D.)  
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**REPUBLIC OF CAMEROON**

Peace – Work - Fatherland

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PORT AUTHORITY OF DOUALA

(P.A.D.)  
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**8<sup>ème</sup> CONFERENCE CHATO  
(26 – 29 OCTOBRE 2004)  
CONTRIBUTION DU PORT AUTONOME DE DOUALA**

Au Cameroun, l'hydrographie fait partie des services concédés par l'Etat à l'ex-Office National des Ports du Cameroun, services qui dépendent encore du Port Autonome de Douala. A cet égard, l'hydrographie est régulièrement exécutée pour les besoins de la navigation maritime et des travaux de dragage.

Cette activité est concentrée à plus de 90% au port de Douala en raison, d'une part de l'importance de ce port (96% du trafic du pays), et d'autre part de l'activité intense de dragage pour faire face au phénomène de sédimentation que connaissent généralement les ports d'estuaire.

En effet, pour accéder à ce port, il faut emprunter un chenal long d'environ 50 km dont la partie extérieure présente des fonds naturels de 8 m et la partie intérieure des fonds naturels de 4 m qu'il faut draguer pour offrir aux bateaux la cote requise (6 à 7 m).

**I. PERSONNEL**

Le personnel directement concerné par l'activité d'hydrographie est composé de :

- 1 ingénieur ;
- 3 hydrographes ;
- 2 aides hydrographes ;
- 4 marins constituant l'équipage de la vedette hydrographique.

**II. MATERIEL**

Le matériel suivant est utilisé :

- Une vedette hydrographique (Cap Cameroun ayant les caractéristiques indiquées en annexe 1) ;
- Un sondeur ATLAS DESO 17 ;
- Un système de positionnement par satellites DGPS ;
- Quatre stations marégraphiques dont trois sont en exploitation, les données étant transmises automatiquement par VHF à terre ;
- Le système d'acquisition et de traitement automatique des données de sondages hydrographiques DALI ;

**III. ZONES LEVEES ET FREQUENCES DES LEVEES HYDROGRAPHIQUES**

- Zone portuaire de Douala : 1 levé par mois à l'échelle 1/5000è ;
- Chenal d'accès partie intérieure : 1 levé toutes les deux semaines à l'échelle 1/5000è;
- Chenal d'accès partie extérieure : 1 levé par an à l'échelle 1/5000è;
- Zone portuaire de Kribi : 1 levé tous les 4 mois ;
- Zone portuaire de Limbe : 1 levé par an ;

- Façade maritime du Cameroun : levé effectué par le SHOM en fonction des besoins ;
- Zones pétrolières : à la demande.

Il faut noter que par manque de moyens, les levés de la façade maritime du Cameroun ne sont pas régulièrement effectués.

#### **IV. REALISATIONS**

##### **4.1 Approfondissement du chenal d'accès au port de Douala**

Depuis plus trois ans, d'importants travaux de dragage effectués ont permis de porter la cote du chenal du Wouri de 6 à 7 m. Ces travaux se poursuivent en vue d'atteindre la cote 7,50 m.

Une importante étude réalisée a conclu qu'au-delà de cette cote, la construction des ouvrages de calibrage est absolument nécessaire pour réduire les coûts de dragage, l'optimum étant la cote 8 m. La recherche des financements est en cours pour réaliser ce projet.

##### **4.2 ACTUALISATION DE LA CARTOGRAPHIE DE L'ESTUAIRE DU WOURI**

Le SHOM a effectué du 26 mai au 3 juillet 2004 des levés en vue de l'actualisation de la cartographie de l'estuaire du Wouri

##### **4.3 ACTUALISATION DE LA CARTOGRAPHIE DE LA ZONE DE KRIBI**

Le PAD recueille auprès des sociétés concernées les données nécessaires en vue de la mise à jour de la cartographie de la zone de Kribi en intégrant les données nouvelles des terminaux pétroliers. Ces données, dès que possible, seront communiquées au SHOM.

#### **V. PROJETS**

##### **5.1 Acquisition d'un système de positionnement par satellites DGPS**

Dans les prochains mois, le port Autonome de Douala va acquérir un nouveau système de positionnement par satellites DGPS de précision centimétrique en altimétrie et en planimétrie pour les besoins des travaux d'hydrographie, de balisage et de dragage.

##### **5.2 Nouvelle vedette hydrographique**

Une nouvelle vedette hydrographique est en cours de construction pour le Port autonome de Douala. Elle sera entièrement équipée pour l'acquisition et le traitement rapides des levés hydrographiques au Cameroun. Ses caractéristiques techniques sont indiquées en annexe 2.

##### **5.3 Infrastructure Intégrée d'Information Maritime**

L'étude de faisabilité du projet d'une Infrastructure Intégrée d'Information Maritime (IIIM) a été réalisée et vise à regrouper un ensemble d'informations disponibles aux centres de contrôle, à bord des navires et sur internet. Elle est réalisée par la Société canadienne SEAQUEST TECHNOLOGIES et vise :

- à l'information sur les fonds (hydrographie, océanographie, paramètres environnementaux, etc.) ;
- à la fluidité du trafic ;
- et à la sécurité et la sûreté de la navigation maritime.

## VEDETTE HYDROGRAPHIQUE CAP CAMEROUN

### CARACTERISTIQUES TECHNIQUES

- Année de construction	: 1973
- Constructeur	: DAMEN SHIPIARD (HOLLAND)
- Immatriculation D 231	
- Société de Classification	: Bureau VERITAS
- Longueur Hors Tout	: 15,7 m
- Longueur entrée perpendiculaire	:
- Largeur au maître coupe (H.T.)	: 4,80 m
- Tirant d'eau maxi	: 1,40 m
- Creux sur quille	: 2,30 m
- Jauge nette	:
- Jauge brute	: 36 TX
- Capacité soute à combustible	: 5000 l
- Capacité réserve d'eau potable	:
- Capacité Ballast	: 2000 l
- Moteur propulsion	: CATERPILLAR 180 CV x DILLAR D 2206- 2000 t/mn
- Réducteur-inverseur-embroyeur	: TWIN DISK MG 509 6 Ration 4,5
- Groupe électrogène	: Moteur DIESEL HONDA – Type E 79, 5KVA
- Alternateur	: MOTOROLA – type 8M H3005F–24 CV/25/CV
- Appareil à gouverner	: DAMEN
- Sondeur hydrographique	: DESO 17 bifréquences 33 et 210 kz
- Positionnement	: DGPS
- Coque	: acier

## ANNEXE 2

### **PROJET NOUVELLE VEDETTE HYDROGRAPHIQUE (EXTRAIT DU CCTP DU MARCHE)**

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#### **I – DESCRIPTION**

The vessel shall be a steel hulled (wheelhouse aluminium), twin-screwed, diesel motor driven hydrographic survey vessel and shall have, for identification purposes, the BUILDER's Hull no. 119 and shall be constructed, equipped and completed in accordance with the provisions of this Contact, and the specifications and the plans (herein collectively called the "Specification") initialled by each of the Parties hereto and for the purpose of identification attached hereto and made an integral part hereof.

#### **II – DIMENSIONS AND CHARACTERISTICS**

Length, overall	:	about 17.95 m
Length, between perpendiculars	:	5.73 m
Breadth, moulded	:	4.44 m
Depth, to main deck	:	2.65 M
Deadweight on designed draft (moulded)	:	40 tdw
Propelling Machinery	:	2 x 298 kW
Arial speed at design draft and 90 % MCR	:	12 knots.

The above particulars as well as the definitions and method of measurements and calculation of the performance data of the vessel are described in more detail in the specification.



REPÚBLICA CABO VERDE  
MINISTÉRIO DAS INFRA-ESTRUTURAS E TRANSPORTES  
**DIRECÇÃO GERAL DA MARINHA E  
PORTOS**

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TEL: (238) 324342 + FAX: (238) 324343 - E.MAIL: [dgmp@cvtelecom.cv](mailto:dgmp@cvtelecom.cv)

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## **CAPE VERDE REPORT**

### **TO THE 8<sup>TH</sup> CONFERENCE OF THE EASTERN ATLANTIC HYDROGRAPHIC COMMISSION (EACHT)**

**28-29 October in Brest, France**

Cape Verde as a Maritime Nation with long tradition as a country of seafarers, aspires to become recognized as a Member of the International Maritime Community and the Government is preparing an institutional reform in the maritime sector in order to ensure the effective exercise of Port and Flag State Control and Coastal State Jurisdiction, maritime legislation, and maritime environment protection.

Important steps has been made, now the country is part of the most relevant IMO instruments, mainly safety and marine pollution related conventions, and important projects is in process of implementation:

- Project to establish a Vessel Traffic Management System-VTMS around the Cape Island and Ports
- Upgrading the National Coastal Communication Station (implementation of the GMDSS system)
- Establishment national oil spill response contingency plan
- Upgrading the national aids to navigations (buoys, coastal and ports lighthouses)
- Implementation of national Hydrographic Services
- Under the existing Cooperation Agreement with Portugal, the survey of several ports is at this time underway in the following ports:
  1. Palmeira Port at Sal Island;
  2. Sal Rei port at Boavista Island;
  3. Praia Port at Santiago island
  4. Port of Tarrafal in São Nicolau Island

A meeting of the Commission that coordinates the above mentioned Cooperation Agreement will occur on November 22 and 23 in Cape Verde, were a program will be established in order to strength the role of the Cape Verde Maritime Administration as the Competent National Authority in maritime affairs, especially on issues relating to safety of navigation, and a project will be established in order to survey the ports and CV waters and produce new navigation charts,

#### **Cape Verde Program on the GMDSS**

- Monitoring of watch channels in Sea Areas A1 (VHF) A2 (MHF) in accordance with GMDSS (Phase 1).
- Coordination of Search and Rescue Operations.
- Broadcasting of Meteorological and Navigational warnings via NAVTEX in accordance with GMDSS (Phase 2).



- Public telecommunications service between shore and ship.
- Commitment of the country towards the international community in terms of GMDSS.
- Ships' identification via AIS (Phase 2).

**(Table of frequencies)**

<b>Bandes</b>	<b>Détresse – sécurité Digital (ASN)</b>	<b>Détresse – sécurité Analogique</b>	<b>idem Radio telex</b>	<b>Zones Maritimes</b>
VHF	Channel 70	Channel 16	No facility	A1 – 40 n.m.
MF	2187.5	2182	2174.5	A2 – 200 n.m.
HF 4MHz	4307.5	4185	4187.5	A3 / A4
HF 6MHz	6512	6315	6278	A3 / A4
HF 8MHz	8424.5	8891	8396.5	A3 / A4
HF12MHz	12977	12690	12540	A3 / A4
HF16MHz	16804.5	16490	16695	A3 / A4
MF KHz	No facility	No facility	518 (English)	A2 – 200 n.m.
MF Khz	No facility	No facility	490 (Portuguese)	A2 – 200 n.m.

**EQUIPMENT DISTRIBUTION**

- **MHF** Transmit Centre located at Mindelo, S. Vicente Island.
- **Control and Receive** Centre located at Mindelo, S. Vicente Island.
- **VHF** relay station located at Mt Curral, Sal Island.
- **VHF** relay station located at Mt Xota, Santiago Island.
- **VHF** relay station located at Mt Verde, S. Vicente Island.

**CAPE VERDE GMDSS NETWORK**

**Composition :**

**Sal – Mt. Curral – Altitude 60m**

- Technical cabinet VHF/GMDSS type A1
- VHF 50W Transmitters / Receivers
- Modems, UPS

**Santiago – Mt. Xota – Altitude 1050m**

- Technical cabinet VHF/GMDSS type A1
- VHF 50W Transmitters / Receivers
- Modems, UPS

**Sao Vicente – Mt. Verde – Altitude 750m**

- Technical cabinet VHF/GMDSS type A1
- VHF 50W Transmitters / Receivers
- Modems, UPS

**Sao Vicente – Mindelo – Altitude 15 m**

- Transmitters MHF 1000W / Receivers
- Technical cabinet MHF/GMDSS type A2
- Workstations type “PC”
- Servers GMDSS type “PC”
- Modems, UPS

The General Director  
Zeferino Fortes

**EASTERN ATLANTIC HYDROGRAPHIC COMMISSION (EATHC)**  
**GHANA REPORT TO THE 8<sup>th</sup> CONFERENCE OF THE**  
**28<sup>th</sup> – 29<sup>th</sup> OCTOBER, 2004, IN BREST, France**

## **THE STATE OF HYDROGRAPHY.**

The Ghana Ports & Harbours Authority basically undertakes hydrography in practice in the country. The aim is to service navigational issues of the two ports of Ghana. The main aspect undertaken is bathymetry and positioning of navigational aids. These surveys mainly cover the ports and their immediate approaches. However on the positioning of navigational aids, it has wider coverage. This includes buoys, mooring buoys and lighthouses. The Hydrographic Section was formerly involved in maintenance dredging until the dredger became faulty and has since not been replaced. Dredging activities are now given out to contracting dredging firms to undertake. The section also undertakes salvage, search and rescue operations.

Owing to the low siltation rate within the ports, general bathymetric surveys are undertaken once in a year in each port. However, random surveys are undertaken as and when necessary within some critical areas when complaints are received from pilots. Checks on the navigational aids within the ports and approaches are routinely carried out to ensure that they are functioning well and also in position. Actual observations are also undertaken on the tide levels to check on the accuracies of the predicted tide tables, and any major discrepancies are reported to U.K.H.O.

## **INTERNATIONAL CO-OPERATION.**

The Navigational charts are produced by the U.K. Hydrographic Office, and the tide predictions are also produced by the Proudman Oceanographic Laboratory, U.K.

## **EQUIPMENT.**

NO.	EQUIPMENT	QUANTITY
1.	Survey Boat (6m x 18m)	3 (one is not seaworthy)
2.	Microfix Positioning System (Type 90601) Control Measurement Unit	1 (out of order)
3.	Remote Microfix transponders	4
4.	Omni Directional Antenna	1
5.	Sector Directional Antenna	3
6.	Deso 20 Echo Sounders complete with transducer	1
7.	Portable Computers	4
8.	Additional Echo Sounders installed on survey boats	2
9.	HP DeskJet 840c Printer	2
10.	HP Design jet Cad HP-9c2	2
11.	Millennium GPS Card Software Version 4.501	2
12.	Printing Machine	1
13.	Lead line	1
14.	Tide pole	1
15.	Sextant	1

## **RESPONSE TO WEST AFRICAN ACTION TEAM ON HYDROGRAPHY (WAAT) RECOMMENDATIONS – OCT-NOV 2002.**

In view of the recommendations made in the above report the Ghana Ports & Authority has initiated a series of moves towards its implementation.

One staff member has been sent to undertake the IHO Category "B" course in Trieste, Italy, in order to beef up the Hydrographer. The Board and management have also transferred the Hydrographic Section to the Headquarters to oversee the Hydrographic needs of the two Ports. Additional Geodetic Surveyor, Cartographer and other auxiliary staff are in the process of being recruited to beef up the personnel requirement.

Dredging was undertaken in the year 2002/2003 and the Hydrographic Section undertook the supervision. The newly dredged levels in the two Ports have been forwarded to the U.K. Hydrographic Office. Temporary notice has also been forwarded to the U.K.H.O. on the quay extension works that is in progress at the Tema Port.

There is a liaison between the Regional Maritime Academy and the Port Hydrographer to start a course in Hydrography. Syllabus has been recommended to the Academy, however it is envisaged that it is being started as a subject to be studied. The necessary arrangement is to be entered into between Regional Maritime Academy and G.P.H.A. management to enable the students to undertake the field exercises in the Port, when the course takes off.

### **G.M.D.S.S.**

Navigational warnings are not sent to the NAVAREA II coordinator from Ghana. However they are sent to the U.K.H.O. as notices to mariners. Plans are far advanced to ensure that communications will also be established with the NAVAREA II coordinator in France.

République de Côte d'Ivoire

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Ministère des Infrastructures  
Economiques (MIE)

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Port Autonome d'Abidjan  
(PAA)

### **8<sup>ème</sup> conférence hydrographique de la Chato**

Le service hydrographique est un des services créé au sein du PAA. Sa création en 1950 se justifie par le suivi des profondeurs du canal de Vridi, un ouvrage majeur dont le musoir était obstrué par le sable issu du transit littoral d'ouest en est.

Au fur et à mesure du développement du PAA, différentes missions ont été confiées à ce service, à savoir :

- le suivi des plafonds de dragage (ou côte d'exploitation) des chenaux de navigation (chenal d'accès sud, chenal d'accès nord, canal de Vridi) ;
- le contrôle des profondeurs aux quais (quai sud, quai nord, quai ouest, etc...) ;
- le contrôle des travaux de dragages par l'exécution de levés hydrographiques avant et après dragage pour l'estimation des volumes dragués.

Le service joue un rôle de service national.

A cet effet, l'état confie au service hydrographique du PAA des travaux sur toute l'étendue du territoire de la Côte d'Ivoire à savoir :

- le levé des embouchures de la Comoé à grand Bassam, du Bandaman à Grand Lahou
- d'Assinie mafia
- les canaux : le canal d'Azagny, de Toukouzou etc...

Pour mener à bien ses activités, le service hydrographique dispose de moyens humains et matériels.

➤ Les moyens humains :

- un hydrographe
- quatre hydrographes niveau H3
- trois gabiers
- deux patrons de vedette
- un aide hydrographe
- quatre manœuvres occasionnels

➤ Les moyens matériels :

- un GPS (une balise UHF NDS100MKII)

- un récepteur NR103 embarqué
- un compensateur de houle TSS335B
- un SVP (sound velocity profileur) pour s'affranchir de la barre d'étalonnage
- deux DESO 20
- deux DESO 17
- un DESO 300 (embarqué sur le canot pneumatique pour faire des levés automatisés)
- une vedette hydrographique conçue par les ateliers Longuet en 1996 (longueur : 15 m tirant d'eau : 1,50 m – largeur : environ 5 m)
- un canot pneumatique
- un T2
- deux T16 en degré
- deux T1 en degré
- des jalons
- des portes jalons
- une équerre optique
- deux chaînes de 50 m
- un distomat, etc
- un niveau Nak2
- un niveau NK2
- trois mires

➤ Les travaux effectués :

- quai ouest : 2 fois par an
- quai nord : 2 fois par an
- quai sud : 2 fois par an
- quai bananier : 2 fois par an
- canal de midi : 3 fois par an
- chenal d'accès nord : 2 fois par an
- chenal d'accès sud : 2 fois par an
- quai Siveng, Socopao : 1 fois par an
- la rade d'abidjan : 1 fois par an

➤ Projet en cours :

Acquisition d'une vedette hydrographique en 2005 plus légère avec un tirant d'eau plus faible (environ 0,60 m) pour les zones de faibles profondeurs, les bords de quai et le musoir du canal de Vridi).

➤ Objectif à long terme :

A l'état actuel, le service hydrographique ne peut procéder qu'à des levés portuaires eu égard à la portée du GPS qui n'est que de 20 km de rayon autour de la balise.

Si les levés doivent s'étendre aux zones au-delà de la zone portuaire (ZEE et eaux internationales s'entend) il nous faut l'assistance des organismes tels l'OHI, l'OMI, etc...

**Contribution de l'Espagne à la  
8<sup>ème</sup> Conférence CHAtO**

**Spanish Contribution to the  
8<sup>th</sup> EAthC Conference**

## **PART I**

### **REVISION OF CONCLUSIONS ADOPTED DURING THE 7TH EAHC CONFERENCE AT LISBON.**

- Conclusion No 1** No action required.
- Conclusion No 2** Spain is not participating in that Working Group.
- Conclusion No 3** Spain is currently a member of one RENC.
- Conclusion No 4** It has been taken into account.
- Conclusion No 5** There are contacts with the EAHC representative.
- Conclusion No 6** No action required.
- Conclusion No 7** It has been taken into account.
- Conclusion No 8** No action required.
- Conclusion No 9** A list of private companies is available in the Spanish contribution.
- Conclusion No 10** There is a proposal from the CHATINTCHART Co-ordinator (France). Please find a similar proposal in the Spanish contribution.
- Conclusion No 11** The problem of the lack of co-operation between existing RENCs has been dealt with at the IC-ENC Steering Committee.
- Conclusion No 12** There are fluent relations with the NAVAREA II co-ordinator.



## PART II

### 2.1 NEW TECHNIQUES AND EQUIPMENT

#### 2.1.1 Hydrography:

Since 1995 the Instituto Hidrográfico de la Marina has been carrying out hydrographic surveys using multi-beam echo sounders in the Spanish EEZ one month a year, through Hydrographic Commissions on board RV “Hespérides”.

From 1995 to 1997 survey works were focused in waters around the Balearic Islands within the Mediterranean Sea project, for 40556 km.

In September 1998 it was started the survey of the Canary Island, covering 100000 km overall in 1998, 1999 and 2000.

In 2001, 2002 and 2003 there were surveys in the area of Galicia.

Data captured by EM 12 and EM 1002 sounders are processed at the IHM since 1997, so as to obtain Bathymetric Maps at scale 1:200000 as well as fair sheets for cartographic updating.

Software used for this process was HIPS (bathymetry) and SIPS (reflectivity) by Caris Universal Ltd, at we consider that up to date is fully covers our requirement for cartographic production. We should note that according to our experience, workstations for processing must be high performance hardware, so that the work is seamless and speedy (always considering the slowness intrinsic to high accuracy processing).

On 27 February 2004 the Spanish Navy received the second hydrographic small craft, named “Escandallo”. This small craft is similar to previous “Astrolabio”, and comes fitted with EA 3000D echosounder.

The following have been surveyed by the “Astrolabio” small craft using multi-beam echo sounder:

- Entrance channel, ports and anchorages in Cádiz, Zona Franca and Estación Naval de Puntales.
- Rota Navy Base.
- Entrance, anchorage and port of Ceuta.
- Entrance and ria of Huelva.
- Entrance, anchorage and port of Ferrol.

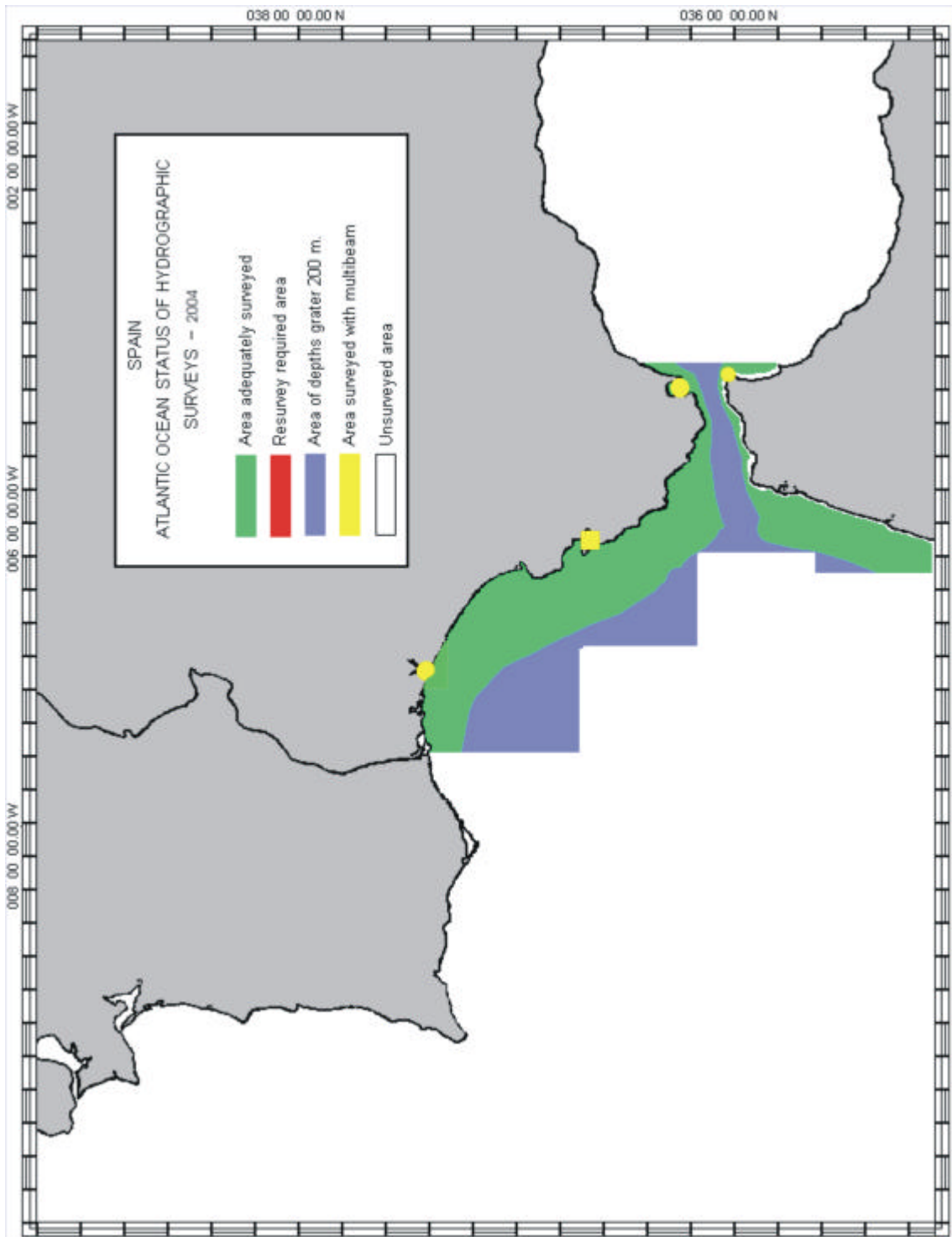
The “Escandallo” small craft has completed the entrance, anchorage and port of A Coruña.

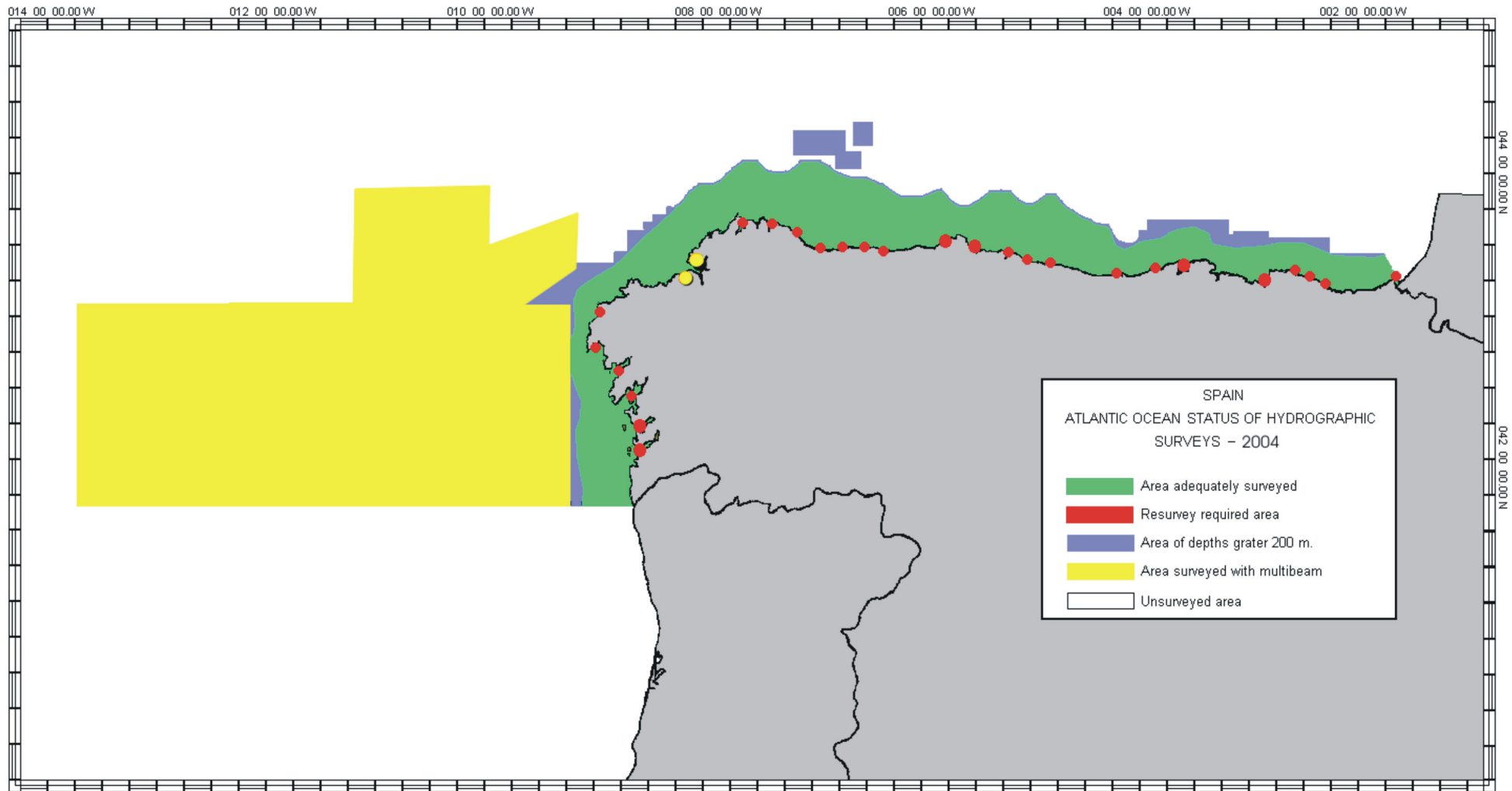
Both small crafts are expected to continue with the multi-beam surveying of entrances and main ports of the Iberian Peninsula.

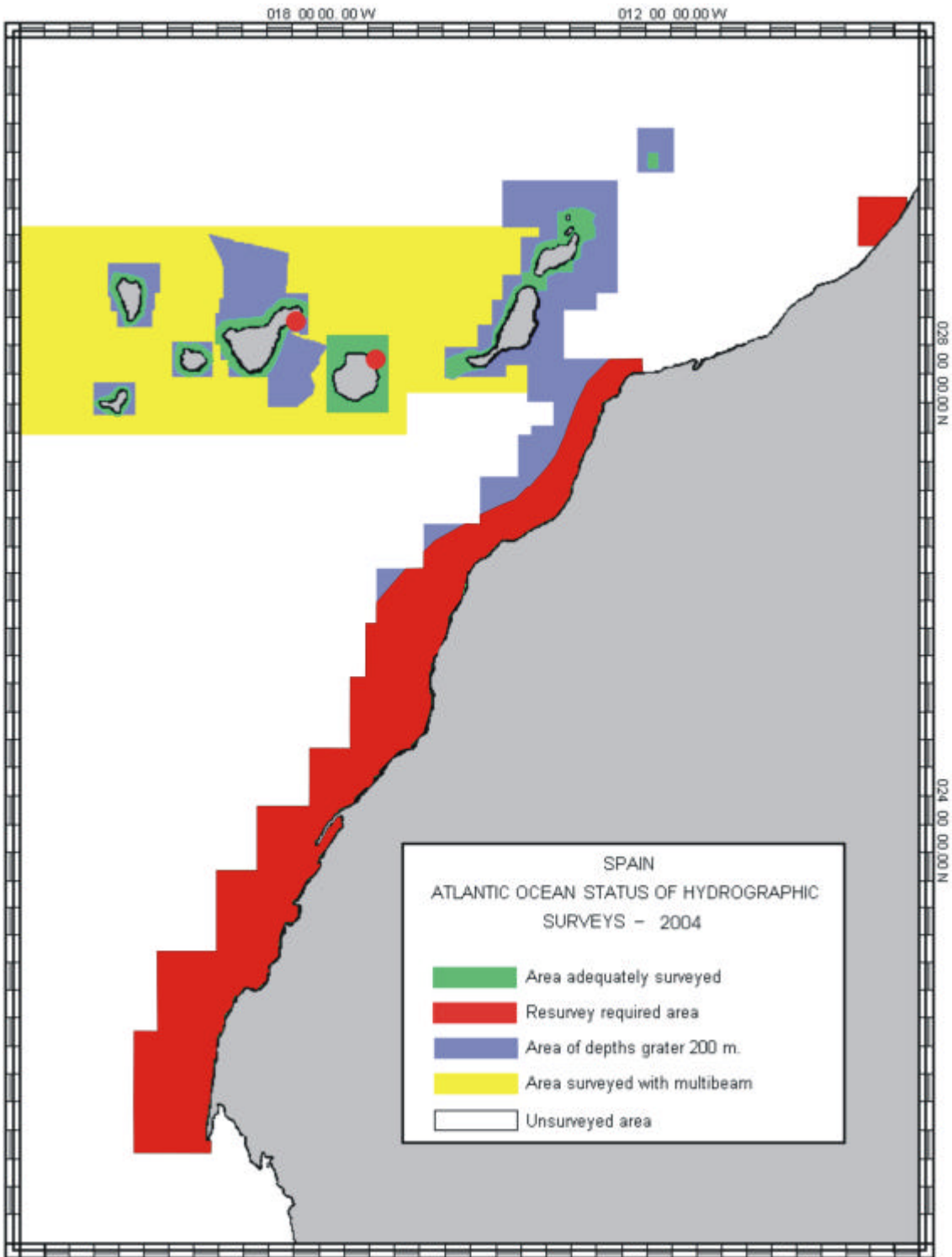
HV Pollux has been decommissioned, and on 10 September 2004 HV Castor will be likewise decommissioned.

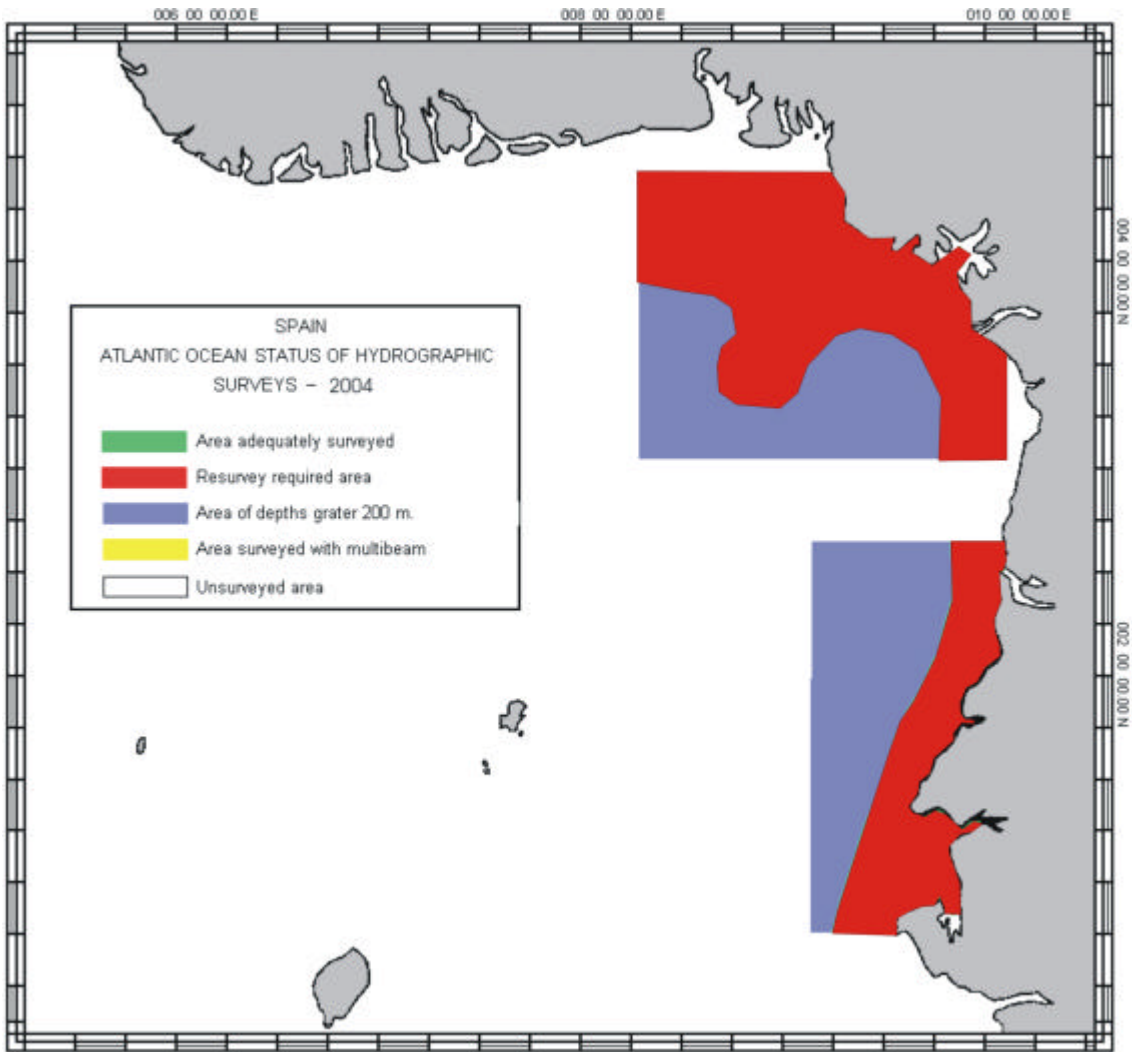
A new deep water (up to 5000 deep) multi-beam echo sounder EM-300 is being fitted onboard HV Tofiño. The calibration and final testing of the equipment is scheduled for September 2004, and after this calibration the aforementioned multi-beam echo sounder will start surveying the waters of the Straits of Gibraltar.

Please find attached figures depicting the status of hydrographic surveys.









### **2.1.2 Geodesy and Photogrammetry:**

The replacement of the old photogrammetric analogical plotters by digital stations is being accomplished. So far, two digital stations are now completely operative, and a third one is expected to be received shortly.

A new geodetic tools software has been built recently and is now being tested. It is to replace the old program which ran in DOS. This new program allows to solve several geodetic problems, such as transformation between different datums and projections, field surveying management and connection to field marks databases.

## **2.2 TECHNICAL ASSISTANCE, TRAINING AND CO-OPERATION**

A collaboration project with the Royal Moroccan Navy is scheduled for 2005, to continue with joint surveys in Nautical Chart 105 (INT 3150) started on 2001. Spain was designated as leader of the Pilot Project within the collaborations programmed during the “Sea Power Symposium”, held in Venice in 1999.



## 2.3 PRODUCTION

### 2.3.1 Paper Chart Production

#### 2.3.1.1 Implementation of CHATINTCHART Project by Spain.

Status of INT Chart Production assigned to Spain:

Scale	No of Charts	No of Charts Published
Small (1:3500000-1:1000000)	3	3
Medium (1:350000-1:150000)	15	6
Large (1:30000-1:5000)	13	12
<b>TOTAL</b>	<b>31</b>	<b>21</b>

INT Charts Produced by Spain: Since the 7th Conference, the following new editions of INT Charts assigned to Spain have been published.

<b>INT No</b>	<b>Nat No</b>	<b>TITLE</b>	<b>SCALE</b>
1080	4A	Golfo de Vizcaya. De Brest al Cabo Finisterre	1:1000000
1083	5B	De Cabo Yubi a Rastimiris con las Islas Canarias	1:100000
1808	41A	De la Estaca de Bares al Cabo Finisterre	1:200000
1809	41B	De las Islas Sisargas a la Desembocadura del Río Miño	1:200000
1851	3941	Puerto de Bilbao. Plano inserto: Ria de Bilbao	1:12500
1852	4011	Puerto de Santander	1:15000
1903	4430	Puerto de Cádiz	1:12500

#### 2.3.1.2 Amendments to CHATINTCHART Catalogue.

Amendments to CHATINTCHART Catalogue dated September 2002 are as follows:

<b>INT No</b>	<b>Producer</b>	<b>National No</b>	<b>Publication</b>	<b>Edition</b>	<b>Scale 1:</b>	<b>Latitude</b>
1808	ES	41A	1995	2004	200000	43°30
1809	ES	41B	2004		200000	42°30
1851				2004		
1852				2003		
1903				2004		
1929	ES	6120	2003		12500	28°27'N

#### 2.3.1.3 Proposals for the amendment of the INT Chart Scheme.

2.3.1.3.1 Taking into account the discussions during the last Conference, and after due consultation with Portugal, Spain proposed the CHATINTCHART co-ordinator new boundaries for INT Chart 1819, as follows:

INT No	Nat No	Scale 1:	N Limit	S Limit	E Limit	W Limit
1819	44B	175000	37°17',00N	35°38',00N	6°01',00W	7°27',00W

2.3.1.3.2 As a consequence of the amendment of the Finisterre TSS, it became necessary to reduce the scale of INT charts 1808 and 1809 to accommodate the whole of the TSS. New boundaries and scales are as follows:

INT No	Nat No	Scale 1:	N Limit	S Limit	E Limit	W Limit
1808	41A	200000	44°13',00N	42°51',00N	7°39',00W	10°20',00W
1809	41B	200000	43°32',00N	41°44',00N	8°35',00W	10°20',00W

2.3.1.3.3 Spain suggests the amendment of the boundaries for INT chart 1080 assigned to France, so that it includes the whole of the amended D'Ouessant TSS.. Boundaries proposed are as follows:

INT No	Scale 1:	N Limit	S Limit	E Limit	W Limit
1080	1000000	49°05',50N	42°40',50N	0°00',00W	13°26',50W

## 2.3.2. Digital Chart Production.

### 2.3.2.1 ENC Cartography.

#### ENC Production

Current status of Spanish (Atlantic and Mediterranean) ENC production is as follows:

<b>Purpose 1</b>	<b>Purpose 2</b>	<b>Purpose 3</b>	<b>Purpose 4</b>	<b>Purpose 5</b>	<b>Overall</b>
-	3	16	33	37	89

#### Distribution

ENCs and updates are made available to mariners through the International Centre for ENC. For further information please check [www.ic-enc.org](http://www.ic-enc.org)

ENC COVERAGE (OCTOBER 2004)

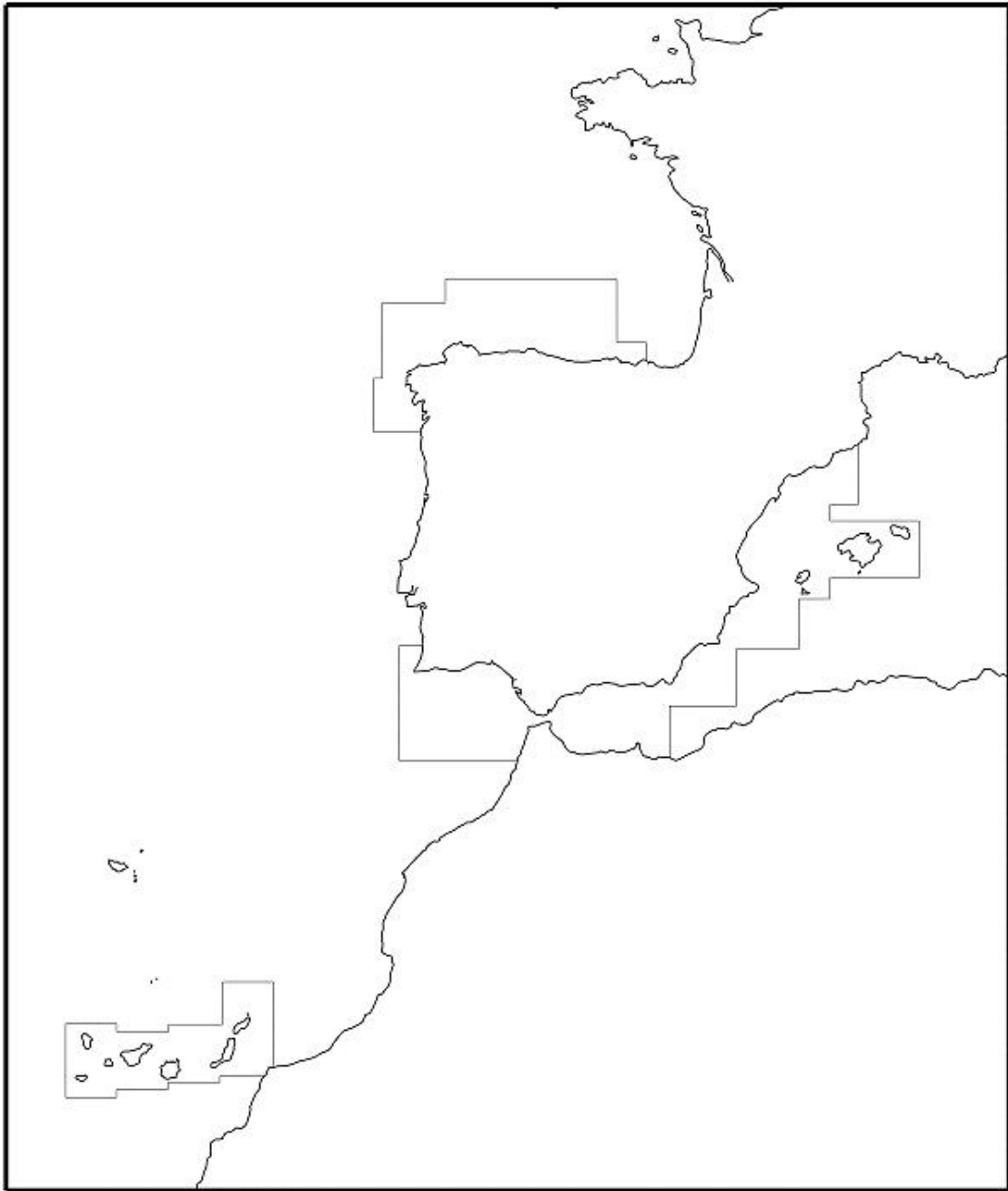


GRAFICO 3

### 2.3.3. Small – Scale ENC

The need for small scale ENCs to help in planning routes has been stated repeatedly in the past.

Currently there are already small scale ENCs produced by United Kingdom and Portugal that cover the area of this Hydrographic Commission.

Considering the above and from the WEND Principles and the Guidelines for the Establishment of ENC Production Boundaries, it would be convenient the establishment and assignation of small scale ENC production boundaries.

#### **Navigational Purpose 1.**

Currently there are the following ENCs Navigational Purpose 1:

(see attached graphic)

Charts Produced	INT Chart Reference	Scale
GB 104012	INT 12	1:10000000
PT 111101		1:2500000
GB 104021	INT 21	1:10000000
GB 104209	INT 209	1:3500000

Charts Planned	INT Chart Reference	Scale
GB 104011	INT 11	1:10000000
GB 104102	INT 102	1:3500000

This situation can be considered as satisfactory, although it could be improved by adding cells at bigger scales within the selfsame navigational purpose.

#### **Navigational Purpose 2.**

The CHATINTCHART scheme lists the series of charts 1080, 1081, 1082, 1083, 1084, 1085, 2086, 2087, 2088 and 2089, with scales at 1:1000000 or 1:1100000.

Considering the recommendations on consistency in IHB Circular Letter No 47/2004, these charts should be at Compilation Scale 700000 and included under Usage Band 2.

Consequently, it is proposed the adoption of this scheme for ENC production; Usage Band 2, with boundaries similar to those assigned in the attached graphic.

ENC COVERAGE U.B. 1



EXISTING \_\_\_\_\_

PLANED - - - - -

GRAFICO 1

PROPOUSAL ENC COVERAGE U.B. 2

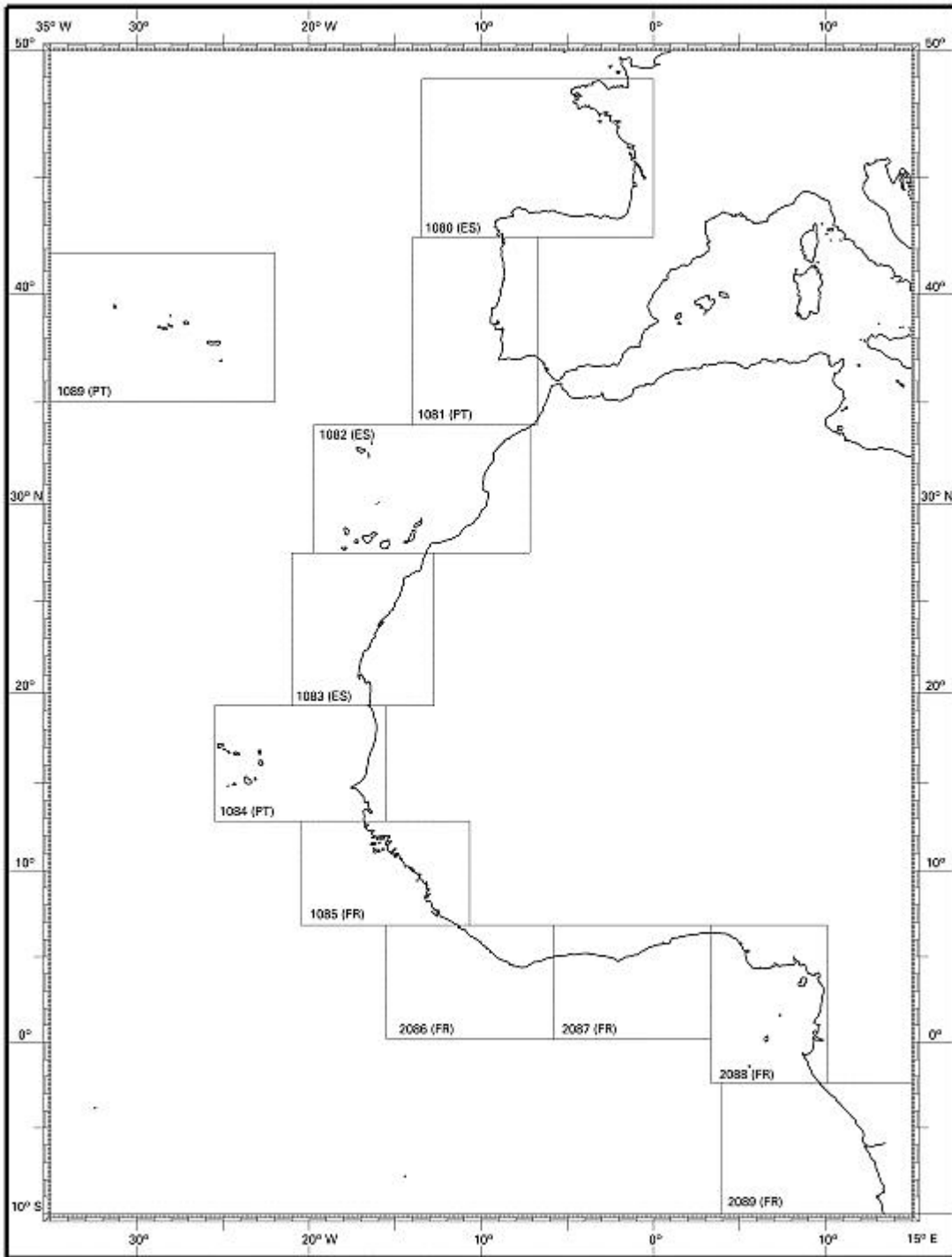


Grafico 2

## **2.4 OCEANOGRAPHY**

### **Digital Tide Tables**

Tide tables in digital format have been produced.

Also, permanent tideimeters established at the ports of Pasajes and Burela have been removed.

### **New equipment for oceanographic data acquisition**

A rosette for real-time CTD has been purchased, as well a fluorometer for Chlorophyll measurements and a PAR radiometer to compute light extinguishing curves.

Bathithermographic tracings have been inputted into the new Oceanographic System Information (SIO) Database, both from Fleet units and from data captured in several oceanographic cruises using CTD, Sound Velocity Profilers and XBT.

### **Processing of multi-beam data using CARIS HIPS & CARIS SIPS**

Digital processing of data captured by the sidescan sonar Klein 2000 is continued. The use of CARIS SIPS processing software allows for an output which is standardized and compatible with the output from other branches of the Instituto Hidrográfico, as well as the access to shared cartographic tools.



## 2.5 MARITIME SAFETY INFORMATION

Current situation of the broadcasting of Maritime Safety Information (MSI) can be summarized as follows:

### **Notices to Mariners:**

- **Co-ordinator:** IHM acts as the Co-ordinator for coastal and local radio warnings.
- **Means:**
  - NAVTEX stations (under SASEMAR)
  - OM and VHF stations (under TELEFONICA)

Any information that the Instituto Hidrográfico de la Marina, in its capacity as National Co-ordinator for Radio Navigational Warnings, considers as relevant for vessels sailing the Navarea II Area and French coastal waters is submitted via fax to FRANAUT (Navarea II Co-ordinator). Conversely, FRANAUT provides us as ETABHYDROC BREST via telex over the SACOMAR network any maritime safety information relevant for Spanish coastal waters and the Navarea III coverage area. Consequently, there is a fluid exchange of information maintained between both Co-ordinators.

Likewise, if the Instituto Hidrográfico learns of any event of relevance for maritime safety in seas of another country within Navarea II Zone, both the country and the Navarea II Co-ordinator are duly informed.

### **SAR:**

- **Co-ordinator:** SASEMAR through its National Centre and Zonal, Regional and Local Centres.
- **Means:** NAVTEX stations and broadcasting stations of SASEMAR Centres, as well as OM VHF TELEFONICA Coastal Stations.

## 2.6 SCHOOLING AND TRAINING

### 2.6.1 Technical Assistance and Training

The School of Hydrography, based in the Instituto Hidrográfico, is tasked with the training of Navy hydrographic staff of all ranks as stated in chapter 18 of the OMD no 132/82 dated 29 April which approves its Rules.

A series of reforms had the School become established in the Instituto Hidrográfico in 1974 to teach both the courses for Hydrographic Surveyor and Specialization for Officers already taught at the Instituto, and the course of Access to the Ranks of Petty Officer and for Sailors previously taught at the Hydrographic Vessel TOFIÑO.

Training of hydrographic staff is achieved through different courses of Training and Enhancement on four levels of training, as follows:

- \* Hydrographic Surveying Officer, which enables him to carry out tasks of Technical-Facultative Management at the Instituto Hidrográfico de la Marina.
- \* Specialization in Hydrography for Officers, for them to direct hydrographic surveys on Hydrographic Commissions and Vessels. This course has been acknowledged with category “A” on hydrographic competence in accordance with IHO publication S-47.
- \* Specialization for Petty Officers, technical training to operate systems and equipment on Vessels and at the Instituto Hidrográfico. This course has been acknowledged with category “B” on hydrographic competence in accordance with IHO publication S-47.
- \* Navy staff specialized in Handling and Navigation, for them to carry out auxiliary tasks in hydrographic surveys.

Courses taught to Spanish Officers and Petty Officers are regularly attended by staff from foreign navies under the “Collaboration Program with Foreign Countries in Military Training” of the Spanish Ministry of Defense.

Also, workshops are available for personnel from other areas (mainly personnel on board warships), that is workshops on “Trisponder”, “Differential GPS”, “Side Scan Sonar” and “Acoustics and Sound Propagation”.

## **2.7. COPYRIGHT**

In compliance with Conclusion no 9 of the 7<sup>th</sup> EAthC Conference, the list of companies which have signed agreements with the IHM are the following:

- Transas Marine.
- C-Map.
- Garmin.

# Rapport de la France

## A LA 8<sup>EME</sup> CONFERENCE DE LA COMMISSION HYDROGRAPHIQUE DE L'ATLANTIQUE ORIENTAL (CHATO)

(28 - 29 Octobre 2004 à Brest , France)

### 1. Documents nautiques publiés depuis la précédente conférence

Depuis la précédente conférence, les cartes suivantes ont été publiées par la France dans la zone couverte par la CHATO :

7429 (INT 1929)	12 500	Puerto de Santa Cruz de Tenerife
7427 (INT 1846)	25 000 20 000	La Gironde – De Mortane sur Gironde au bec D'ambès – La Garonne et la Dordogne jusqu'à Bordeaux et Libourne
6989	345 000	Des Héaux de Bréhat à Belle-Ile
7030	20 000	Cours de la Garonne – Du Bec d'Ambès à Bordeaux
7066 (INT 1800)	150 000	De l'Ile Vierge à la Pointe de Penmarc'h - Abords de Brest
7069 (INT 1803)	165 000	De l'Ile d'Yeu à la Pointe de La Coubre
7149	49 000	Du Goulet de Brest à Portsall – Ile d'Ouessant
7211 (INT 1080)	1000000	Golfe de Gascogne – de Brest à Cabo Finisterre
7142	25 000	Belle-Ile
7298 (INT 1878)	200 000	De Puerto de San Cyrian à Cabo Finisterre
7649 (INT 1478)	Div	Portugal – Viara do Castello
7650 (INT 1870)	Div	Portugal – Leixoes et Barra Rio Douro

ainsi que les ouvrages nautiques suivant:

Instructions nautiques :

C2.3 de Belle-Ile à la frontière espagnole

P1 France Bretagne sud : de la Pointe de Penmarc'h à la Vilaine

P3 France Pointe de Bretagne des Heaux de Bréhat à la Pointe de Penmarc'h

P5 France (côte Atlantique) : de la Vilaine à la frontière espagnole

C4 Afrique (côte ouest) de Ras Spartel à Cape Palmas

Livres de Feux :

CA France côtes Nord et Ouest

CB Atlantique : de l'Espagne à l'Afrique du Sud

Radiosignaux :

91.1 Radionavigation : volume 1 (systèmes par satellites et à infrastructure terrestre)

91.2 Radionavigation : volume 1 (Radiogoniométrie, radiophares, racons et ramarks)

92.1 Radiocommunications maritimes - Europe

96.1 Stations radiométéorologiques – Europe – Afrique - Asie

92.4 Radiocommunications maritimes – le SMDSM

93.2 Radiocommunications pour la surveillance du trafic et le pilotage – Europe Occidentale et Méditerranée

940 GPS et navigation maritime

99 Répertoire des radiosignaux : petit cabotage, pêche, plaisance

Divers :

95 Météorologie maritime

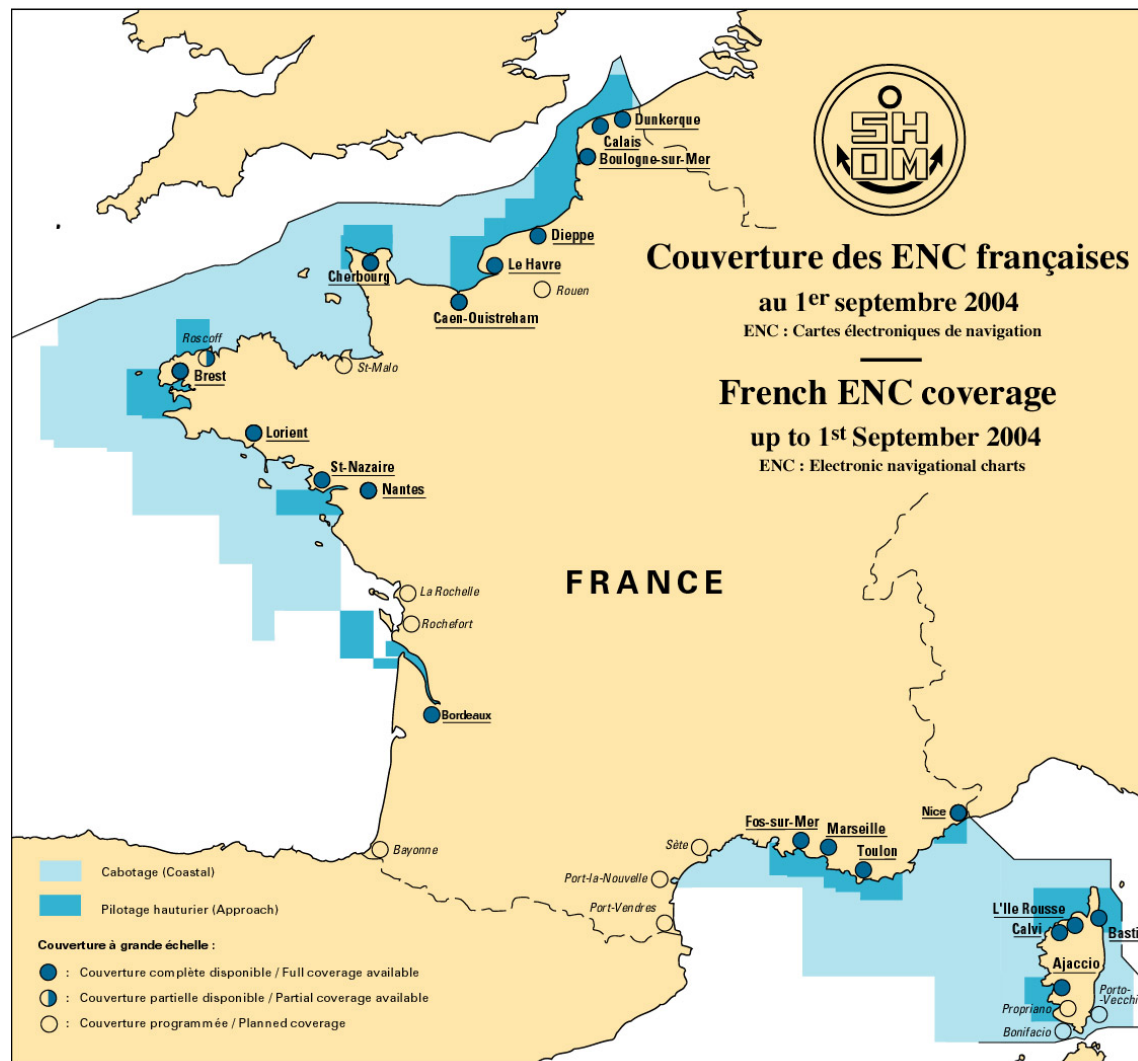
## 2. Cartographie électronique

La France (en ligne avec les conclusions du “WEND task group ») considère qu’il y a un grand intérêt à tirer avantage des schémas de cartographie INT pour définir les ENC à petite échelle. Les limites ainsi que le producteur sont aisés à définir à partir des schémas INT, ce qui rend les choses plus faciles.

Par exemple, la France a proposé au Président de la CHAtO (voir annexe) un schéma à petite échelle couvrant les côtes couvertes par cette commission. Il est proposé pour être discuté lors de la 8<sup>ème</sup> réunion de la CHAtO.

Les limites sont définies en utilisant les règles additionnelles adoptées par la commission WEND.

Toutes les ENC françaises sont disponibles à travers les distributeurs de Primar Stavanger.



## 3. Certification ISO 9001 des activités du SHOM

En juin 2004 le SHOM a reçu la certification ISO 9001 version 2000 pour son système de management de la qualité.

Le champ de certification concerne toutes les activités du SHOM relatives à la sécurité de la navigation, inscrites dans les conventions internationales souscrites par la France, notamment celle sur la sauvegarde de la vie en mer (SOLAS).

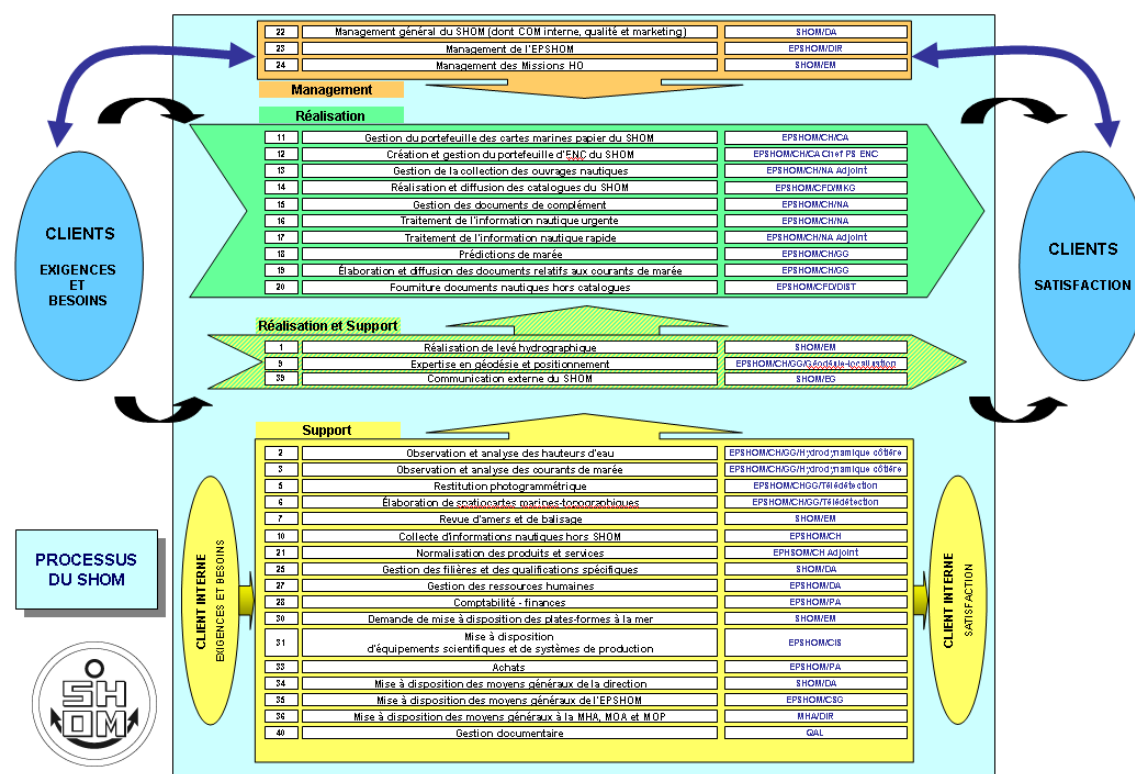
C'est un jalon important pour le SHOM qui a effectué une mise à niveau complète de son système de management de la qualité. La multiplicité de ses activités et l'ampleur de leur champ technique, depuis le recueil de l'information nautique jusqu'à sa diffusion en passant par la conception et le développement, ont conduit le service à définir un nombre particulièrement élevé de processus.

La sécurité de navigation ne souffre pas les maillons faibles, et le SHOM a développé depuis sa création une culture de rigueur et de traçabilité : cette culture préexistante a permis de préparer la certification en un temps record vu la complexité du domaine.

Doté d'une organisation désormais reconnue par un organisme indépendant, le SHOM sera plus performant face aux différents enjeux auxquels il sera confronté, tout particulièrement dans le domaine de la navigation électronique sûre.

La forte synergie interne des activités du SHOM fait que sa mission de soutien des forces bénéficie déjà des retombées du travail accompli pour l'ensemble des navigateurs, avant qu'elle-même soit audité dans une prochaine étape.

La cartographie des processus est illustrée ci-dessous



#### 4. Projet Litto3D

Le SHOM et l'Institut Géographique National (IGN) sont associés dans un projet baptisé Litto3D, afin d'établir un modèle numérique topographique et bathymétrique (incluant la mer) des côtes de France, continu, moderne et précis (grosso modo depuis les profondeurs 10 m ou une distance de 10km vers la mer, jusqu'à une altitude de 10m ou une distance de 10 km vers l'intérieur des côtes)

Ce projet a été créé à la demande du Premier Ministre afin de soutenir plus de 100 applications pour la gestion du littoral, la protection, l'exploitation ... identifiées lors d'une étude préliminaire auprès des acteurs du littoral et des utilisateurs de données géoréférencées. C'est le noyau pour des projets de gestion intégrée du littoral. L'utilisation de lasers bathymétriques, de SMF, de positionnement RTK, d'orthophotographies, d'observatoires permanents de marée, ... permettra de viser une précision sub-métrique.

#### 5. Coastchart

Le projet de l'Agence Spatiale Européenne de rénovation de la cartographie du trait de côte des côtes ouest de l'Afrique.

## **6. Groupe de travail SPWG**

Comme suite à la lettre circulaire de la 3<sup>ème</sup> CHIE n°5 du 29 juin 2004, la France adressera les commentaires suivants, relatifs aux propositions présentées par le groupe de travail sur la planification stratégique.

### **PRO 2 : Approbation des amendements à la convention relative à l'OHI**

#### Commentaire :

Pour de nombreuses organisations traitant de normalisation (par exemple ISO ou CEI) une majorité des deux-tiers est une règle normale de décision. L'article 9 c) de la convention modifiée à l'issue des travaux du SPWG stipule « Si la présente convention n'en dispose pas autrement, les décisions sont prises à la majorité des Etats Membres présents et votant » : il est pourtant hautement souhaitable que la règle normale de décision des instances de normalisation puisse être appliquée au sein de l'OHI. Afin de pouvoir mettre en application cette règle normale sans devoir modifier ultérieurement la convention, il est proposé d'adopter l'article 9 g) suivant :

« (g) L'Assemblée peut décider que les décisions techniques d'un organe subsidiaire concernant les normes ou des résolutions techniques soient prises à la majorité des deux-tiers des membres présents et votant. »

Le recours à la majorité des deux-tiers est ainsi limité à certaines décisions d'ordre technique lorsqu'il est important que les décisions prises aient une solide assise, la décision finale, une fois que les considérations techniques auront été mûrement analysées, restant la majorité simple. L'utilisation de la majorité des deux-tiers devra être décidée au cas par cas, ce qui fait que cet amendement ajoute une flexibilité à la Convention sans implication supplémentaire des Etats Membres.

### **PRO 4 : Acceptation des principes établis pour la procédure de sélection des membres du conseil de l'OHI**

#### Commentaire :

La rédaction de l'article IV (a) de la convention proposée par le SPWG définit comme suit la composition du Conseil :

« (a) Un quart des Etats Membres siège au conseil. Néanmoins le nombre de ces Etats Membres ne peut être inférieur à trente. Deux tiers d'entre eux sont validés comme membres du Conseil en fonction du critère de représentation régionale et le tiers restant en fonction du critère des intérêts hydrographiques, tel le tonnage de leur flotte. »

Dans ce texte le tonnage de la flotte est donné comme un exemple de ce que peuvent être les « intérêts hydrographiques ». Ces intérêts hydrographiques sont en fait définis par les objectifs et la mission de l'Organisation qui sont posés:

- dans le préambule de la convention modifiée par le SPWG où il est indiqué que *l'Organisation hydrographique internationale a pour mission d'apporter son appui aux Etats afin qu'ils fournissent des*

*données, produits et services hydrographiques, appropriés et en temps utile, et en assurent la plus large utilisation possible ;*

- dans l'article II de la convention modifiée qui précise que *l'Organisation [...] a pour but :*

- (a) de promouvoir l'utilisation de l'hydrographie pour la sécurité de la navigation ainsi que pour toute autre activité maritime et d'accroître la prise de conscience générale de l'importance de l'hydrographie ;*
- (b) d'améliorer, au niveau mondial, la disponibilité et la qualité des données, informations, produits et services hydrographiques ainsi que leur accessibilité;*
- (c) d'améliorer, au niveau mondial, les capacités, moyens, sciences et techniques hydrographiques ;*
- (d) de créer et d'apporter son aide au développement de normes internationales pour la qualité et les formats des données, informations, produits, services et techniques hydrographiques ainsi que de parvenir à la plus grande uniformité possible dans l'utilisation de ces normes ;*
- (e) de donner des conseils faisant autorité, en temps utile, aux Etats et organisations internationales, sur tout sujet ayant trait à l'hydrographie ;*
- (f) de faciliter la coordination des activités hydrographiques des Etats Membres ;*
- (g) d'accroître la coopération des activités hydrographiques entre les Etats à l'échelle régionale.*

Le critère sur le tonnage ne reflète pas correctement les ambitions de l'OHI qui ne sont pas couvertes par le seul critère de la représentation régionale. Le tonnage reflète d'une certaine façon le bénéfice tiré de l'activité hydrographique (la possibilité de naviguer dans des conditions de sécurité nautique raisonnables) mais pas cette activité (production de documents et services qualifiés permettant ces conditions raisonnables de sécurité nautique, mais aussi de sécurité pour l'environnement ainsi que prévu dans la convention modifiée). C'est pourquoi il y eut des discussions considérables sur le sujet au cours des 4<sup>ème</sup> et 5<sup>ème</sup> réunions du SPWG, sans parvenir à un consensus. Divers critères ont été comparés ( par exemple tonnage de la flotte, surface de la ZEE, critère combinant surface de la ZEE et tonnage), mais d'autres n'ont été qu'évoqués comme le nombre de cartes originales publiées, les surfaces des zones de responsabilité cartographique ou encore une désignation par vote de l'Assemblée. La France considère que la formulation retenue dans l'article 16 du Règlement général proposé n'a pour objectif que de montrer que la convention modifiée permettra le fonctionnement effectif de l'Organisation, mais que l'article 16 doit être amélioré pour bien prendre en compte les mission et objectifs réels de l'OHI.

La rédaction de l'article IV (a) de la convention modifiée confère intentionnellement une certaine flexibilité pour faire des ajustements au mode de fonctionnement de l'Organisation sans recourir à de nouveaux amendements à la convention, qui sont, d'expérience, difficiles à mettre en application. Il n'est donc probablement pas nécessaire qu'un consensus soit atteint à l'issue de la 3<sup>ème</sup> CHIE sur la formulation précise à retenir pour le Règlement général, mais il est nécessaire d'analyser sereinement et de façon approfondie la meilleure façon de refléter les intérêts hydrographiques qui sont mentionnés dans la convention modifiée proposée par le SPWG.

La France propose en conséquence que le SPWG, ou un groupe de travail en son sein, soit mandaté pour étudier la meilleure façon de refléter dans la composition du conseil les « intérêts hydrographiques », et de présenter ses conclusions à la 17<sup>ème</sup> CHI.

Si toutefois la conférence souhaitait que les documents de base accompagnant la convention modifiée soient présentés sous une forme pouvant être transmise dès à présent aux autorités nationales qui seront chargées de ratifier la convention modifiée, la France propose de changer le libellé du § 16 c) des règles générales pour lire :



« (c) Le tiers restant du Conseil sera choisi parmi les Etats Membres ayant les intérêts hydrographiques les plus grands. A cette fin le Secrétaire général établit deux listes. La première est établie en accord avec le règlement financier dans l'ordre décroissant des tonnages des Etats Membres. La deuxième est établie en accord avec la publication S55 dans l'ordre décroissant des ZEE placées sous la responsabilité cartographique des Etats Membres. Le Secrétaire général détermine le tiers restant de la composition du Conseil en retenant alternativement dans la première et la seconde liste, dans l'ordre décroissant, les Etats Membres ayant confirmé leur volonté de siéger au Conseil et n'étant pas encore retenus pour y siéger. »

## **PRO 6 : Acceptation des principes établis pour les critères d'éligibilité et les conditions de service du secrétaire général et des directeurs**

### Commentaire :

Il est souhaitable que le critère d'éligibilité et les conditions de service du secrétaire général et des directeurs ne conduise pas à éliminer de bons candidats qui n'auraient pas d'expérience pratique de l'hydrographie et c'est ce que les critères proposés par le SPWG permettent. Mais nous devons aussi tenir compte du fait que l'OHI est d'une nature résolument technique ainsi que stipule à l'article 2 de la convention modifiée, et nous ne devons pas passer d'un extrême à l'autre. Il serait ainsi pour le moins paradoxal que le Secrétariat ne comprenne aucun membre possédant une réelle compétence et expérience en hydrographie. C'est pourquoi la France propose d'ajouter la phrase suivante dans l'article 20 du règlement général : « Le secrétaire général ou un des directeurs au moins doit avoir une bonne expérience pratique de l'hydrographie. »

Les procédures pour mettre en oeuvre cette règle ne seront pas plus complexes que les procédures actuelles. On peut par exemple séparer les candidats en deux listes, « avec » ou « sans » expérience solide en hydrographie : dès que deux membres du secrétariat de la liste « sans » auront été élus, les autres candidats de cette liste « sans » seront exclus du dernier vote.

## **7. Point sur le renouvellement de la flotte hydro-océanographique**

La marine nationale modernise sa flotte hydro-océanographique. Le renouvellement des navires passe par la modernisation et la coopération :

- Remplacement de deux unités hauturières, le BH1 *L'Espérance* (désarmé en 2000) et le BO *D'Entrecasteaux* (retiré du service actif en 2003), et des vedettes hydrographiques de 8 et 9 m ;
- Modernisation des BH2 *Borda* et *Laplace* ;
- Coopération avec l'Ifremer pour le *Pourquoi pas ?*, et le *Beautemps-Beaupré*.

Utilisés de façon intensive pour le recueil de données, les bâtiments hydrographiques et océanographiques sont des navires polyvalents destinés à assurer les missions du Service Hydrographique et Océanographique de la Marine (SHOM) :

- travaux d'océanographie et d'hydrographie d'intérêt militaire pour répondre aux besoins des forces maritimes ;
- travaux d'hydrographie générale dans la cadre de la mission de service public de la marine nationale.

En matière d'hydrographie, d'océanographie et météorologie militaires (HOM), les missions sont axées sur la connaissance physique, biologique, chimique et géologique des mers et des fonds marins. L'objectif est de disposer d'une perception de plus en plus précise de l'environnement aéromaritime, afin de permettre une exploitation optimale du milieu marin par les sous-marins et les forces aéronavales.

Les travaux du SHOM en matière d'hydrographie générale sont effectués en coopération avec les Etats membres de l'Organisation Hydrographique Internationale (OHI). De nombreuses côtes insuffisamment hydrographiées représentent encore une source de dangers pour la navigation, des anciens levés

doivent être vérifiés et complétés, ou doivent être refaits pour satisfaire les nouvelles conditions de navigation. Les levés servent ensuite à élaborer la documentation nautique (cartes et ouvrages).

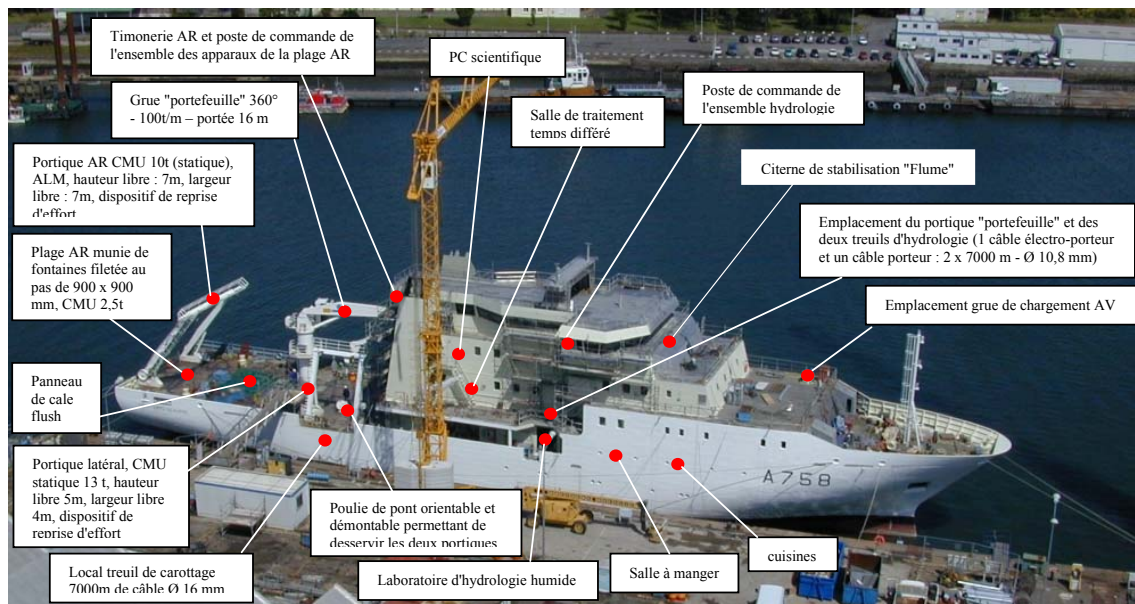
**Le Bâtiment Hydrographique et Océanographique (BHO) *Beautemps-Beaupré***, a été commandé en 2000 pour une livraison en décembre 2002 et une mise en service opérationnel au premier semestre 2003. C'est la première des deux unités construites en partenariat avec l'Ifremer, aux termes d'un accord entre les ministres de la défense et de la recherche, signé en 2000 et fixant la participation de l'Ifremer au coût de construction à hauteur de 5%. Le constructeur est le chantier Alstom Leroux Naval (ALN), qui a réalisé, entre autres, le Queen Mary 2.

Conçu selon des standards civils, il marque pour la marine nationale un tournant dans la manière de conduire et d'exploiter un bâtiment. Une large automatisation a permis de supprimer le quart à la machine et de limiter l'équipe de quart passerelle à deux personnes. Le *Beautemps-Beaupré* sera utilisé 300 jours par an, ce qui impose de constituer deux équipages (de 28 personnes) pour en assurer la conduite.

En ce qui concerne les instruments scientifiques et appareils spécifiques, il est doté des sondeurs mono- et multifaisceaux les plus modernes (EA 600 et EM 120 pour les grands fonds, EA 400 et EM 1002 S pour les petits fonds), de deux courantomètres de coque à effet Doppler (ADCP à 38 et 150 kHz de RDI), de deux bases ultracourtes (Posidonia pour positionner les engins sous la coque et Géonet pour les engins remorqués), de deux pénétrateurs de sédiments, l'un à faisceaux étroits (SBP 120), l'autre à faisceau large (développé par le SHOM). L'ensemble des équipements sont regroupés dans la « gondole », un appendice profilé, spécialement étudié par ALN et soudé sous le premier tiers de la coque. Les appareils de manœuvres (trois propulseurs latéraux, moteur électrique, portiques, treuils et grues) sont dimensionnés pour une mise en œuvre aisée des matériels océanographiques (bouées, sources acoustiques, carottiers, dragues,...)

Caractéristiques générales:

Déplacement	3265 tonnes
Dimensions	Longueur : 80,6 mètres Largeur : 14,9 mètres Tirant d'eau : 6,9 mètres
Puissance	4 moteurs Mitsubishi diesel électrique de 1 Mégawatt chacun alimentant un moteur électrique de propulsion d'une puissance de 3 000 chevaux (2 200 kW)
Propulsion	Une ligne d'arbre Un propulseur latéral à l'avant (440 kW) Deux propulseurs latéraux à l'arrière (2X220 kW)
Vitesse de croisière	12 nœuds
Vitesse maximum	14 nœuds
Equipage de conduite	Deux équipages de 25 personnes en alternance 25 personnes
Manutention élaborée et adaptée	Un portique arrière multifonctions Un portique latéral de carottage, treuil associé et bica-bestan Un portique latéral d'hydrologie et deux treuils associés Un treuil carottage / dragage Un treuil « Sea-Soar » amovible Deux treuils pour petits équipements Une grue arrière de 100 tonnes/m Une grue avant de 12 tonnes/m
Drôme	2 vedettes hydrographiques de 8 m sous bossoirs monobras démontables ; 2 embarcations pneumatiques de 10 places ; 1 coraline de 4 m
Autonomie	45 jours



Le BHO *Beautemps-Beaupré* à Lorient en juillet 2002



La "gondole" accueillant les équipements hydrographiques

**Le Navire Océanographique (N/O) *Pourquoi pas ?***, second navire du programme de coopération défense-recherche, a été commandé au dernier trimestre 2002 après un appel d'offre européen. La part de la marine nationale dans ce 2<sup>ème</sup> navire est de 45%. Le N/O *Pourquoi pas ?* a un statut civil et répond à la fois aux besoins de l'Ifremer et de la marine, celle-ci bénéficiant de 150 jours de mer par an. Le *Pourquoi pas ?* a été mis à l'eau en octobre 2004.

Les caractéristiques générales du *Pourquoi pas ?* sont :

- un navire tous océans hors hautes latitudes ;
- un navire équipé en standard de systèmes de positionnement de type DGPS ;
- un navire capable de travailler en station, à petite vitesse et en profil ;
- une autonomie de l'ordre de 45 jours ;
- un navire capable de mettre en œuvre des gros équipements (carottier *Calypso*, pénétrateur de sédiments, sismique HR et 3D, ...) ;
- un navire capable de mettre en œuvre au cours d'une même mission un submersible et au moins un autre engin (sonar remorqué, AUV, engin pesant) avec passage de l'un à l'autre dans un délai raisonnable ;

Il sera capable d'accueillir 40 scientifiques.

Ces exigences feront du *Pourquoi pas ?* un navire de fort tonnage (6 500 t environ, pour 100 mètres de long et 20 mètres de large).

Silhouette du *Pourquoi pas ?*

### Les dates-clé du programme "*Beautemps-Beaupré – Pourquoi pas ?*"

- 13 juillet 2000	: signature du contrat <i>Beautemps-Beaupré</i> .
- 17 juillet 2000	: signature du partenariat défense – recherche.
- 17 juillet 2001	: découpe de la première tôle du <i>Beautemps-Beaupré</i> .
- 26 avril 2002	: mise à l'eau du <i>Beautemps-Beaupré</i> au chantier naval ALN du Rohu, à Lanester près de Lorient.
- octobre 2002	: début des essais à la mer.
- décembre 2002	: livraison du <i>Beautemps-Beaupré</i> .
- fin 2002	: choix Ifremer/Défense du chantier maître d'œuvre du <i>Pourquoi pas ?</i> après appel d'offre européen.
- octobre 2004	: mise à l'eau du <i>Pourquoi pas ?</i>
- avril 2005	: navire livré
- novembre 2005	: première mission SHOM (Antilles, Guyane)

**Sept vedettes de 8 m (5t) en aluminium** sont équipées d'un sondeur multifaisceaux très petits fonds. Elles disposent de bases 33 et 210 kHz destinées à un sondeur monofaisceau, d'un récepteur GPS type Aquarius, d'un système d'acquisition des données, d'un célérimètre de coque et peuvent remorquer un sondeur latéral et un magnétomètre. Elles peuvent servir de base à 3 plongeurs par exemple pour la mise en place d'un marégraphe ou d'un courantomètre.

Ces vedettes ont été construites par le chantier naval allemand FASSMER dont les ateliers se situent près de Brème. Elles sont mises en œuvre chacune par un bossoir monobras démontable permettant des manœuvres, le navire porteur étant en route (< 8 nœuds) et jusqu'à mer 4, effectuées par un seul homme.

Caractéristiques principales :

Longueur :	8m
Largeur :	2,8m
Tirant d'eau :	0,5m
Motorisation :	VOLVO 41 TD – Z drive double hélice
Vitesse :	> 12 nœuds
Autonomie :	10h à 8 nœuds
Poids max. :	5t
Armement :	1 manœuvrier

**Un baliseur polyvalent, le Louis Hénin**, a été construit aux Sables d'Olonnes sur commande du Territoire de Nouvelle-Calédonie. Il est utilisé depuis début 2003 par la Mission Océanographique du Pacifique (MOP) pour les travaux que mène le SHOM en Nouvelle-Calédonie.

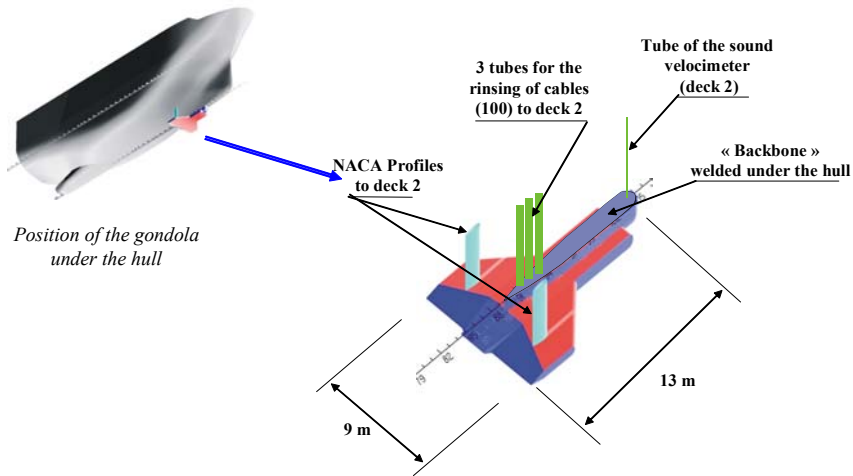
Il dispose d'équipements fixes et mobiles : transducteurs 33 & 210 kHz pour DESO 17 ou EA 400, thermosalinomètre de coque, deux treuils (un pour le sondeur latéral, un pour les mesures hydrologiques), centrale à inertie et réseau informatique.



*BHO Beautemps-Beaupré au mouillage à l'île Europa (Océan Indien)*

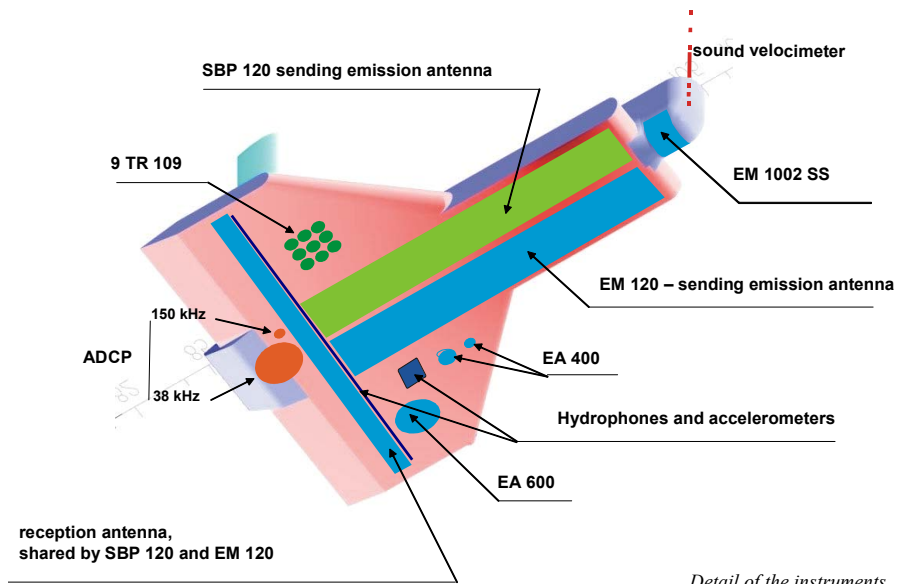


**Mise à l'eau d'une vedette, Beautemps Beaupré en route**



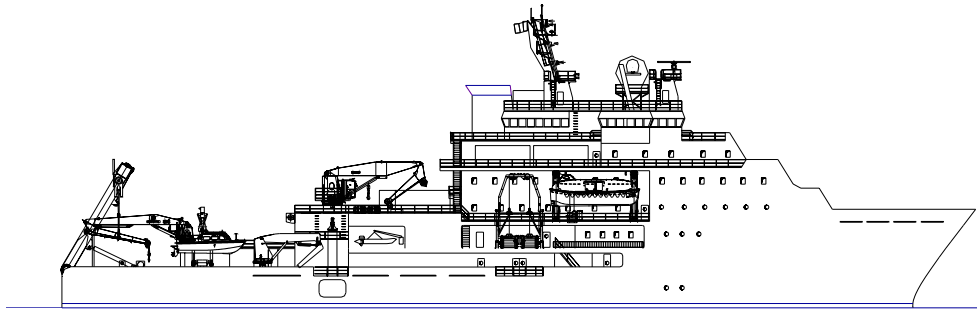
*Fixing of the gondola and rising of cables in the ship*

***La fixation de la gondola et le passage des cables vers le navire.***



*Detail of the instruments*

***Detail des instruments***



*Silhouette du Pourquoi pas ?*



*Le Louis-Hénin aux Sables d'Olonnes*

## ANNEXE I

Paris, le 10 décembre 2003

N° 510 SHOM/EG/NP

NMR SITRAC : 2137

Vice Amiral Carlos Antonio David da Silva Cardoso  
Chairman of EAthC  
Instituto Hidrografico  
1249-093  
LISBOA  
Portugal

Objet : Wend Task Group.

Référence(s) : Circular letter WEND 2/2002 of 15 September 2003.

P. jointe(s) : One annex.

-

**Dear Colleague,**

The WEND Circular letter 2/2003 conveys the concern expressed by the WEND Task Group set up during the 7<sup>th</sup> meeting of the WEND Committee on how to foster the availability and to increase the quality of ENC's. This circular letter is sent to the Chairmen of the Regional Hydrographic Commissions in order they consult the members, associate members and observers of their RHCs on these matters.

In particular this CL asks to send comments related to 4 items. French comments are as follows:

**1) A prioritized list of shipping routes within your region needing ENC coverage.**

France till now has given priority to their ENC's covering their European waters. Next priorities will be shared between completion of the European waters coverage, the overseas (with a general priority to Western Indies and Guyana), the areas of French historic and international cartographic responsibility. For EAthC, the priorities, outside France mainland, are to the accesses to Dakar and Abidjan.

The main shipping routes have already been analysed when establishing the INT charts scheme.

**2) A small-scale ENC schema for your region with assignment of Producer Hydrographic Offices.**

France considers that the small scale ENC schemes could be established by taking advantage of the existing INT charts schemes. The limits can easily be put in line with the producers as well as with the INT charting, which make things easier.

As an example France has established a scheme for small scale ENC's covering the areas of Easter Atlantic Ocean where they produce paper charts: this scheme, shown in annex, could be considered for small scale ENC production within EAthC.

Furthermore the way the limits have been defined are in accordance with the additional WEND principles (cf IHB CL 2002/58), for which the quorum of positive votes has been reached.



**3) Recommendations for bi-lateral or multi-lateral assistance projects that would increase ENC production, quality and consistency.**

For ensuring ENC quality and consistency, we should take advantage of the considerable experience gained in the existing RENCs which have to deal with such problems.

An other benefit of cooperating with an existing RENC is to use their capacities of accounting and distribution. It is then not necessary to distract personnel from production tasks in order to appoint them on the tasks of accounting and distribution: these tasks are to a large extent automated in the RENC which have develop effective business models for an integrated ENC service.

**4) Proposals from your Regional Commission for speeding up ENC production and ensuring ENC quality and consistency.**

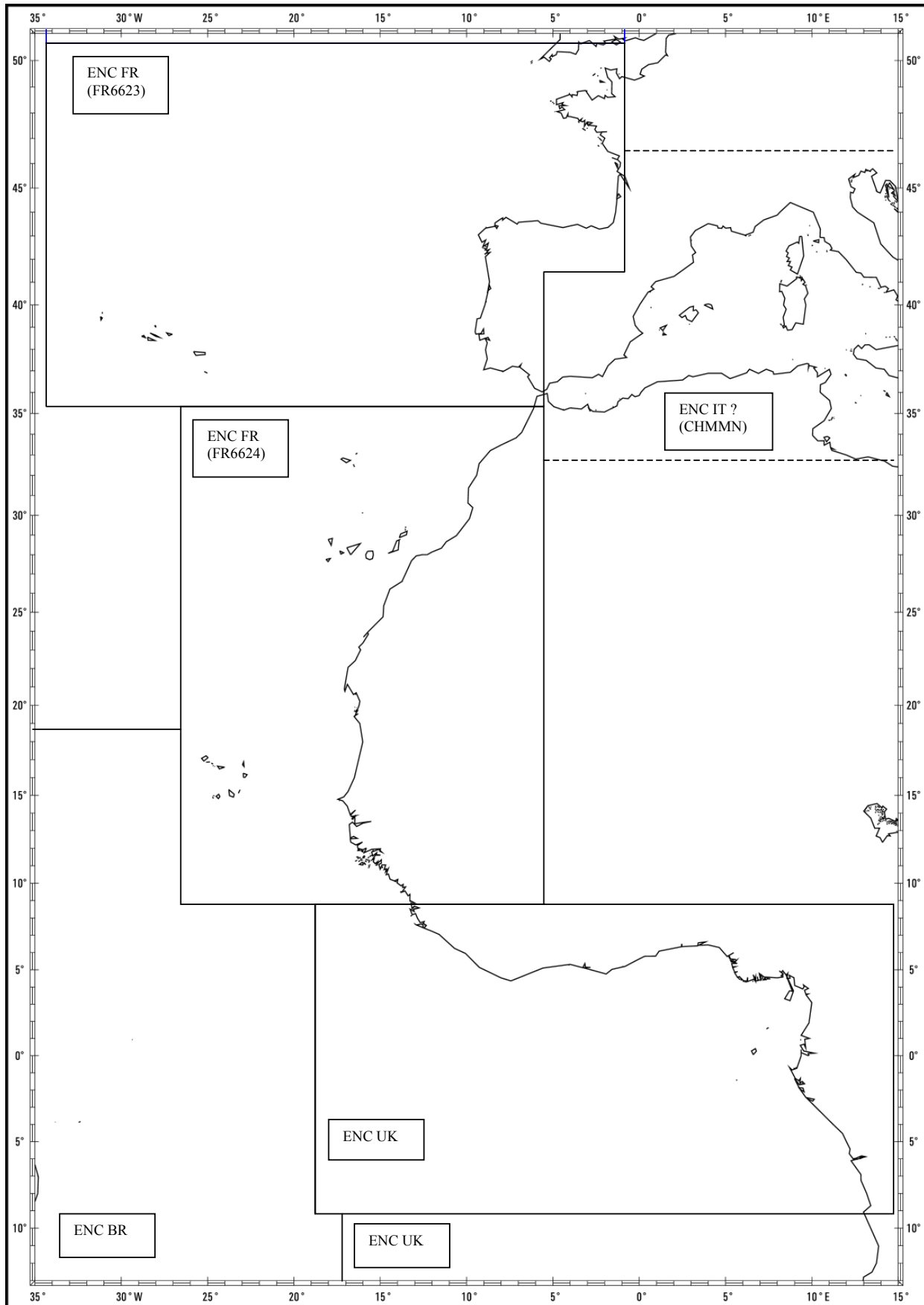
See 3.

Yours sincerely,

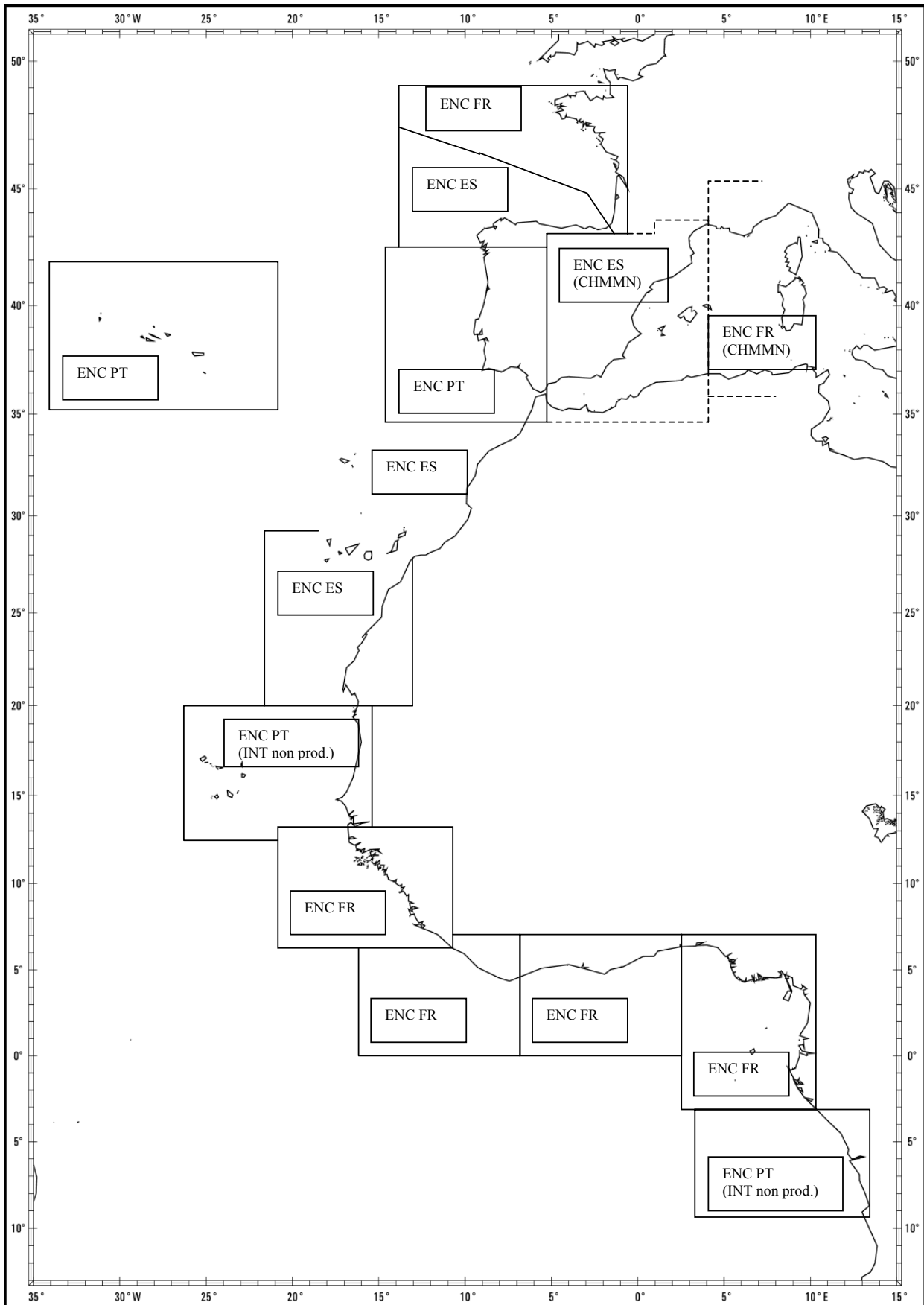
**On behalf the Hydrographer  
Ingénieur en chef Michel Le Gouic  
Head of the bureau for General Affairs**

ANNEXE II

**Coupages INT proches de l'échelle 1/3000000 (overview)**



# Coupures INT proches de l'échelle 1/1000000 (general)



# France REPORT

## TO THE 8<sup>th</sup> CONFERENCE OF THE EASTERN ATLANTIC HYROGRAPHIC COMMISSION (EATHC)

(28 - 29 October 2004 in Brest , France)

[www.shom.fr](http://www.shom.fr)

### 1. Nautical publications issued since last conference

Since last conference , the following charts have been produced by France in the EATHC area.

7429 (INT 1929)	12 500	Puerto de Santa Cruz de Tenerife
7427 (INT 1846)	25 000 20 000	La Gironde – De Mortane sur Gironde au bec D'ambès – La Garonne et la Dordogne jusqu'à Bordeaux et Libourne
6989	345 000	Des Héaux de Bréhat à Belle-Ile
7030	20 000	Cours de la Garonne – Du Bec d'Ambès à Bordeaux
7066 (INT 1800)	150 000	De l'Ile Vierge à la Pointe de Penmarc'h - Abords de Brest
7069 (INT 1803)	165 000	De l'Ile d'Yeu à la Pointe de La Coubre
7149	49 000	Du Goulet de Brest à Portsall – Ile d'Ouessant
7211 (INT 1080)	1000000	Golfe de Gascogne – de Brest à Cabo Finisterre
7142	25 000	Belle-Ile
7298 (INT 1878)	200 000	De Puerto de San Cyrian à Cabo Finisterre
7649 (INT 1478)	Div	Portugal – Viara do Castello
7650 (INT 1870)	Div	Portugal – Leixoes et Barra Rio Douro

and the following nautical books:

Sailing directions :

C2.3 de Belle-Ile à la frontière espagnole

P1 France Bretagne sud : de la Pointe de Penmarc'h à la Vilaine

P3 France Pointe de Bretagne des Heaux de Bréhat à la Pointe de Penmarc'h

P5 France (côte Atlantique) : de la Vilaine à la frontière espagnole

C4 Afrique (côte ouest) de Ras Spartel à Cape Palmas

Lists of Lights :

CA France côtes Nord et Ouest

CB Atlantique : de l'Espagne à l'Afrique du Sud

Radiosignals :

91.1 Radionavigation : volume 1 (systèmes par satellites et à infrastructure terrestre)

91.2 Radionavigation : volume 1 (Radiogoniométrie, radiophares, racons et ramarks)

92.1 Radiocommunications maritimes - Europe

96.1 Stations radiométéorologiques – Europe – Afrique - Asie

92.4 Radiocommunications maritimes – le SMDSM

93.2 Radiocommunications pour la surveillance du trafic et le pilotage – Europe Occidentale et Méditerranée

940 GPS et navigation maritime

99 Répertoire des radiosignaux : petit cabotage, pêche, plaisance

Miscellaneous :

95 Météorologie maritime

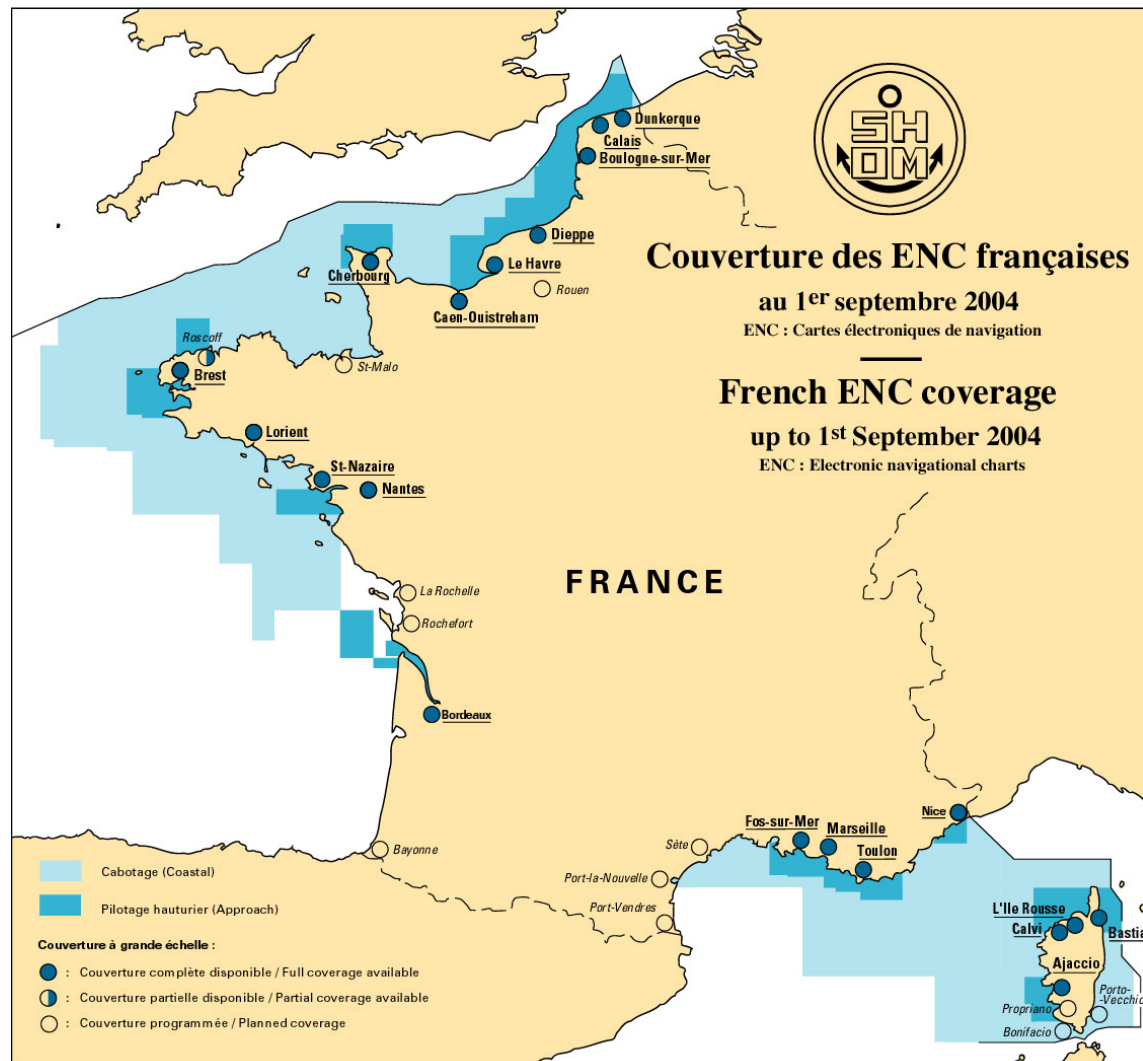
## 2. Electronic charts

France (in line with the WEND task group) considers that the small scale ENC schemes should be established by taking advantage of the existing INT charts schemes. The limits can easily be put in line with the producers as well as with the INT charting, which make things easier.

As an example France has proposed to EAthC chairman a scheme for small scale ENCs covering the areas of EAthC where they produce paper charts: this scheme, shown in annex, could be considered for small scale ENC production within EAthC.

Furthermore the way the limits have been defined are in accordance with the “additional” WEND principles (now included in these principles).

All French ENCs are available via PRIMAR’s distributors network.



## 3. ISO 9001 quality certification of SHOM activities

On March 25, 2004 the French Hydrographic Office (SHOM) was recommended for the certification ISO 9001 version 2000 by COFRAC.

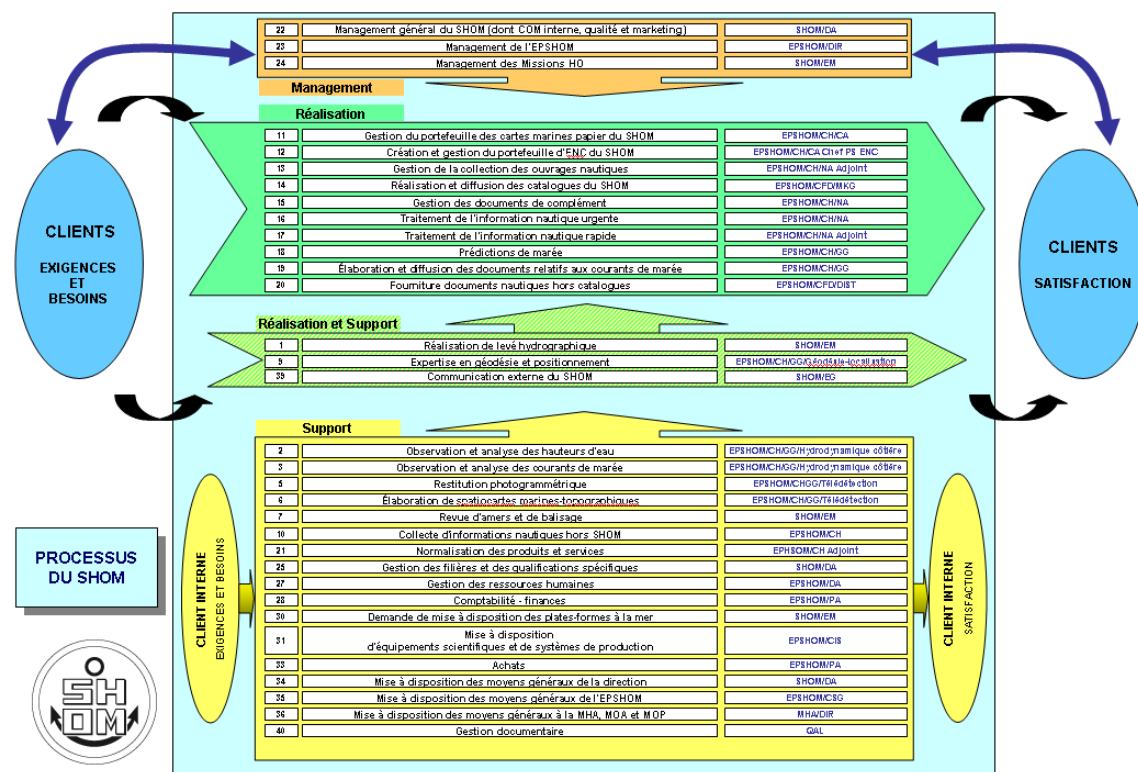
The field of certification concerns all the activities of SHOM relative to the safety of the navigation, as listed in international conventions signed by France, notably that on the protection of the life at sea ( SOLAS).

It is an important milestone for SHOM which made a complete upgrade of its quality management system. The multiplicity of the activities and the range of their technical field, from the collection of the nautical information to its distribution, including design and development, led SHOM to define a particularly great number of processes (34).

The safety of navigation does not suffer the weak links, and SHOM developed since its creation a culture of rigour and traceability: this pre-existent culture helped for preparing the certification very fast considering the complexity of the domain.

With an organization now qualified by an independent body, SHOM will be more effective in face with various stakes with which it will be confronted, particularly in the field of reliable electronic navigation.

The cartography of the processes is illustrated below:



#### 4. Litto3D project

SHOM and the French National Institute for Geography (IGN) are associated in a project called Litto 3D, and aiming at delivering a seamless, modern, precise topographic and bathymetric model (including tides) on the French coastal areas (grosso modo till a depth of 10m or a distance of 10 km sea-ward, till a height of 10m or a distance of 10km inland).

This project has been created in order to meet the needs of more than hundred applications of coastal management, protection and exploitation ... recorded during a preliminary study conducted among the actors of the littoral area and the users of geo-referenced data. It is a core for integrated coastal zone management projects. Laser bathymetry and topography, MBES, RTK, ortho-photos, permanent digital tide gauges, ... will allow to reach submetric accuracy.

#### 5. Coastchart project

A powerpoint on this ESA project will be presented

## **6. SPWG matters**

The Conference circular letter 5 of 29 June 2004 has disseminated the text of the revised convention of the IHO as it results from the work of the Strategic Planning Working Group. Three points appear to France still to be better clarified and these are:

### **6.1 Council composition**

The proposed amendments to the Convention state that the Council is composed as follows:

*“One-fourth, but not less than thirty, Member States shall take seats in the Council, the first two-thirds of whom shall take their seats on a regional basis and the remaining one-third on the basis of hydrographic interests, such as the tonnage of their fleets”<sup>1</sup>*

In this text, the tonnage of the fleets is given as an example to illustrate “the hydrographic interests”. These interests are clearly given by the mission and the objectives of the IHO as they are laid down in:

- the preamble of the convention: *the mission of the IHO is to support States in their provision of adequate and timely hydrographic data, products and services and ensure their widest possible use ;*
- the article II of the convention : *It shall be the object of the Organisation :*
  - a) *to promote the use of hydrography for the safety of navigation and all other purposes and to raise global awareness of the importance of hydrography ;*
  - b) *to improve global coverage, availability, quality and access to hydrographic data, information, products and services ;*
  - c) *to improve global hydrographic capability, capacity, science and techniques ;*
  - d) *to establish and support the development of international standards for the quality and formats of hydrographic data, information, products, services and techniques and to achieve the greatest possible uniformity in the use of these standards ;*
  - e) *to give authoritative and timely guidance on all hydrographic matters to States and international organisations ;*
  - f) *to facilitate coordination and enhance cooperation of hydrographic activities among Member States<sup>1</sup>*

The criterion on tonnage does not reflect correctly the part of the ambitions of the IHO which are not covered by the sole regional representation. This is the more important as the proposed amendments explicit the role of the IHO beyond safety of navigation. That is the reason why considerable discussions took place during the 4<sup>th</sup> and 5<sup>th</sup> meeting of the SPWG, without reaching to a consensus. The following criteria were compared: tonnage of the fleets, surface of EEZ and combined tonnage and surface of EEZ, but some other possibilities have just been evoked like a reference to the number of original charts published by the Member States, the surfaces of the areas of original charting responsibility, or an Assembly vote for the final arbitration.

The formulation given in the article 16 of the General Regulations is only considered as aiming at showing the feasibility of the Organisation to work under the revised convention when it will be adopted, but that this article 16 has still to be improved in the light of the real mission and objectives of the IHO.

The present wording of the amendments to the convention intentionally gives enough flexibility to make the adjustments to the functioning modes of the Organisation in order to avoid the present situation where several amendments adopted by the Conference have not been implemented. It is therefore probably not necessary to try to reach a consensus during the 3<sup>rd</sup> EIHC, but it is deemed essential to

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<sup>1</sup> In italic, extract of the revised Convention

analyse thoroughly the best way to reflect the hydrographic interests of the Member States which are mentioned in the amended convention for the composition of the council.

It seems therefore necessary to establish a working group under SPWG, tasked to study the best way to reflect in the composition of the Council the hydrographic interests mentioned in the revised Convention, and to present its conclusions to the 17<sup>th</sup> IHC.

## 6.2 Majority required for adoption of standards

The two-thirds majority is a rule in many standardization organizations, e.g. ISO and IEC. As the draft amendments to the IHO convention state that « except as otherwise provided in this convention, decisions shall be taken by a simple majority... », it is highly desirable to keep the possibility of applying normal rules without having to modify the Convention, and article 9 g) could easily read as follows:

« (g) The assembly may decide that the technical decisions of a subsidiary organ concerning standards and/or technical resolutions shall be taken by a two-thirds majority of members present and voting. »

The spirit of this proposal is to keep the two-thirds majority possibility at the technical level, where it is important to avoid too « exotic » proposals, but to use the simple majority once the technicalities have been sorted out, so that the overall management of the Organization is optimized. The use of the two-thirds majority will have to be decided on a case by case basis anyway, so that this proposal is adding flexibility to the convention and requires no commitment from the Member States.

## 6.3 Qualifications of the secretary general and the directors

It is desirable that the criteria on qualifications required from the secretary general and the directors do not eliminate good candidates without practical experience in hydrography, and that is what the present criteria are doing. But we should not go from an extreme to the other. The IHO has a definitely technical nature as stated in article 2 of the amended convention. It would thus be paradoxical, to say the least, if the direction of the Secretariat had no member with hydrographic experience. As PRO 6 from SPWG requests the approval of the « principles laid down for the eligibility criteria », those principles have to be finalized by the 3d EIHC.

These principles could be completed with « At least the secretary-general or one of the directors shall have practical experience in hydrography »

The procedures for implementing this rule will not be more complex than the existing ones : the candidates will have to be separated on two lists according to their having hydrographic experience or not. As soon as two candidates of the list « without » will have been elected, the remaining candidates of that list will be excluded.

## **7. Surveying capacities**

The French Navy is modernizing its survey fleet. The current fleet comprises three survey ships, BH2 type (*Borda*, *Lapérouse* and *Laplace*), and SHOM uses vessels of opportunity (Navy, Lighthouses & Buoys Division, TAAF<sup>2</sup>) which take on board survey fleet teams. The renewal will go through modernization and cooperation:

- replacement of two ocean survey ships BH1 *L'Espérance* (laid up in 2000) and BO *D'Entrecasteaux* (decommissioned in 2003), as well as 8 and 9-meter hydrographic survey launches ;
- Modernization of survey ships BH2 *Borda* and BH2 *Laplace* ;
- Cooperation with Ifremer<sup>3</sup> concerning NO<sup>4</sup> *Pourquoi pas?* and BHO<sup>5</sup> *Beautemps-Beaupré*.

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<sup>2</sup> TAAF : Terres Australes et Antarctiques françaises : southern and antarctic French territories.

<sup>3</sup> Ifremer : French institute for research at sea

<sup>4</sup> NO : Navire Océanographique : oceanographic vessel.

<sup>5</sup> BHO : Bâtiment Hydrographique et Océanographique : survey vessel.



**BHO *Beautemps-Beaupré*** was ordered in 2000 to be delivered in December 2002 and was commissioned in February 2003. She has been built by civilian shipyard Alstom Leroux Naval (ALN) in partnership with Ifremer (civilian Institute) but she is a military ship. Ifremer finances up to 5% of the overall building costs.

Designed in accordance with civil standards, she will change the Navy traditional way of operating ships. Wide automation allows for the suppression of main engine and auxiliaries watches and the reduction of watchstaff to two persons. *Beautemps-Beaupré* will be at sea 300 days a year, and requires two crews of 28 people for her conduct.

She is fitted with single and multibeam echo sounders (SIMRAD-Kongsberg EA 600 and EM 120 for deep waters, EA 400 and EM 1002 for shallow waters), two hull fixed Acoustic Doppler Current Profiler (38 and 150 kHz RDI ADCP), two acoustic positioning systems (Posidonia for positioning equipment under hull and Géonet for towed devices), two subbottom profilers, one with narrow beam from SIMRAD-Kongsberg (SBP120) the other with wide beam developed by SHOM, a gravimeter KSS31... This equipment will be located in an additional “gondola” of 13 metres long specially designed by ALN and welded under the ship’s hull. Manoeuver gears (transverse thrusters, electric engine, gantries, winches and cranes) are dimensioned in such a way that oceanographic devices can be operated efficiently (buoys, acoustic sources, core samplers, dredgers, magnetometers, towed vehicles ...).

The gondola has proven to be an effective solution to reduce hydrodynamic noises and to optimize the performances of MBES (comparisons with US equipment have been made by American teams). Furthermore the maintenance and replacement of the equipments will be easier than with classical hull mounted antennas.

#### General characteristics

Displacement	3265 tons
Dimensions	<ul style="list-style-type: none"> <li>• Length: 80.6 metres</li> <li>• Width: 14.9 metres</li> <li>• Draught: 6.9 metres</li> </ul>
Power	Four diesel/electric Mitsubishi engines of 1 MW each supplying a 3000 HP (2200 kW) electric propulsive engine.
Propulsion	<ul style="list-style-type: none"> <li>• one lineshaft</li> <li>• one bow thrusters (440 kW)</li> <li>• two stern thrusters (2x220 kW)</li> </ul>
Speed	<ul style="list-style-type: none"> <li>• Cruise speed: 12 knots</li> <li>• Full speed: 14 knots</li> </ul>
Crew	2x28 persons alternatively
Scientific Crew	22 persons
Gears	<ul style="list-style-type: none"> <li>• multipurpose rear gantry,</li> <li>• lateral gantry for core sampling with winch and double capstan,</li> <li>• lateral gantry for hydrology and two winches</li> <li>• winch for coring and dredging,</li> <li>• detachable “Sea-Soar” winch,</li> </ul>

	<ul style="list-style-type: none"> <li>• two additional winches to handle small equipment,</li> <li>• 100-ton crane on the rear,</li> <li>• 12-ton crane on the bow.</li> </ul>
Craft	<ul style="list-style-type: none"> <li>• two 8-metre motor hydrographic survey launches,</li> <li>• two dinghies for ten persons each,</li> <li>• a 4-metre launch</li> </ul>
Autonomy	45 days

The second ship of the co-operation, **NO *Pourquoi pas?*** was ordered with a view to have the ship delivered in 2005. Ifremer is the main contractor and the French Navy contributes up to 45% of the costs. *NO Pourquoi Pas?* will serve under a civilian status for the Navy 150 days a year, for Ifremer about 180 days a year..

Main characteristics of the *Pourquoi Pas?*:

- around the world ocean survey capacity except for high latitudes,
- Differential Global Positioning System,
- 45 days autonomy,
- Capacity to run a line at low speed and keep a station,
- Specific equipment: core sampler « Calypso » of 30 metre long, « Boxore », sediment echo sounders, high resolution and 3D seismic sounders ...
- Capacity to operate at least one towed sonar and one AUV or equivalent heavy equipment simultaneously.

Accommodation for 40 scientists.

These requirements can explain *Pourquoi Pas?*'s large dimensions for a survey ship : 100 metres long, 20 metres wide and 5000 tons of displacement.

**Seven aluminum survey launches of 8m (5t)** are fitted each with a shallow water multibeam echo sounder and a 33 & 210 kHz single beam echo sounder, DESO 14 or SIMRAD EA 400, Thales Aquarius GPS, integrated acquisition system, hull-mounted celerity profiler, towed side scan sonar and magnetometer. These launches can accommodate three divers to moor tide gauges or current profilers for instance.

These launches have been built by Bremen-based FASSMER shipyard. A crew member, on his own, can deploy any of these launches from a survey vessel en route (<8 Knots, sea state 4) by operating a single armed davit.

General characteristics

Length	8 m
Width	2.8 m
Draught	0.5 m
Engine	VOLVO 41 TD – Z double propeller
Speed	> 12 knots
Autonomy	10 hours at 8 knots
Maximum weight	5 tons
Crew	1 maneuver

**The multipurpose buoy tender Louis Henin** has been built in Sables d’Olonnes for Lighthouses and Buoys Division’s operations in New Caledonia and is able to carry out hydrographic surveys. She is used by SHOM’s Pacific survey unit (MOP) for surveys around New Caledonia.

She is geared with fixed and mobile equipment : transponders 33 & 210 kHz for a DESO 17 or a EA 400, hull-mounted thermosalinometer, two gantries (one for side-mounted echosounder, the second one for hydrology), inertial measurement unit and computer network.

After being commissioned in Summer 2002 the ship reached her Noumea station on the 22<sup>nd</sup> November 2002.

#### General characteristics

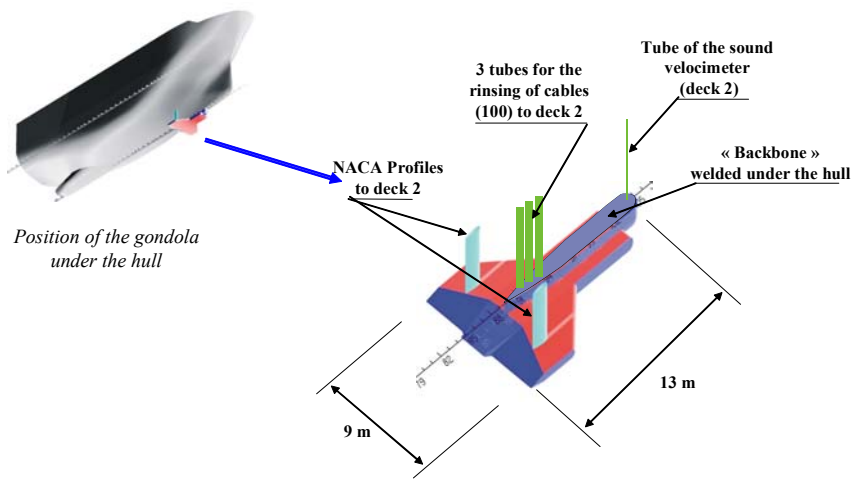
Length	28 m
Width	7.7 m
Draught	2.1 m
Engine	2 x 450 hp
Speed	12 knots
Autonomy	12 days, 12 persons on board
Light tonnage	96 t
Crew	6 persons
Scientific crew	6 persons



***BHO Beautemps-Beaupré mooring in Europa Island (Indian Ocean)***

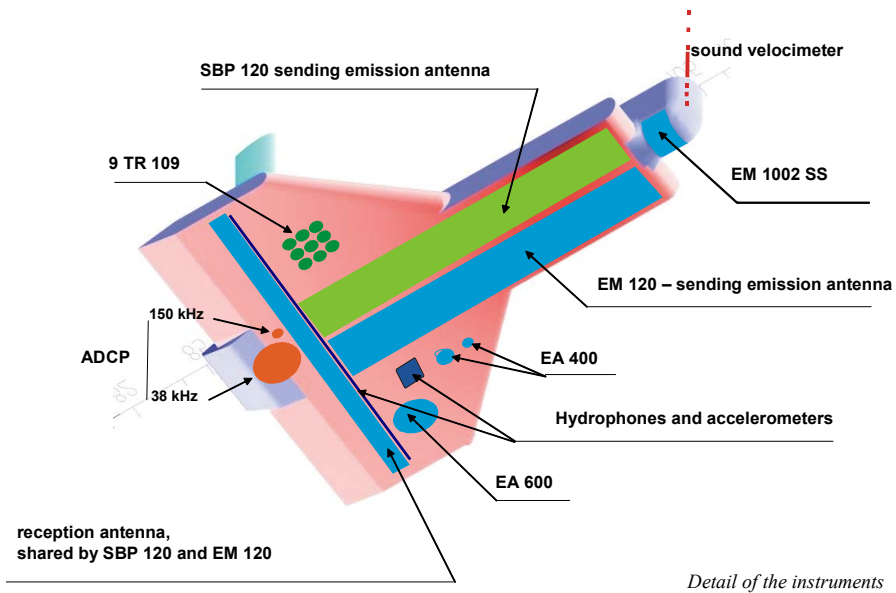


***The gondola of BHO Beautemps-Beaupré***



*Fixing of the gondola and rising of cables in the ship*

***Fixing of the gondola and rising of cables in the ship.***



*Detail of the instruments*



*Deployment of a new survey launch, Beautemps Beaupré being en route*



*Artist view of a project for the NO Pourquoi pas ?*



*Louis-Hénin in Sables d'Olonnes*



ANNEXE I

Paris, le 10 décembre 2003  
N° 510 SHOM/EG/NP  
NMR SITRAC : 2137

Vice Amiral Carlos Antonio David da Silva Cardoso  
Chairman of EAthC  
Instituto Hidrografico  
1249-093  
LISBOA  
Portugal

Objet : Wend Task Group.

Référence(s): Circular letter WEND 2/2002 of 15 September 2003.

P. jointe(s) : One annex.

-

**Dear Colleague,**

The WEND Circular letter 2/2003 conveys the concern expressed by the WEND Task Group set up during the 7<sup>th</sup> meeting of the WEND Committee on how to foster the availability and to increase the quality of ENC's. This circular letter is sent to the Chairmen of the Regional Hydrographic Commissions in order they consult the members, associate members and observers of their RHCs on these matters.

In particular this CL asks to send comments related to 4 items. French comments are as follows:

**1) A prioritized list of shipping routes within your region needing ENC coverage.**

France till now has given priority to their ENC's covering their European waters. Next priorities will be shared between completion of the European waters coverage, the overseas (with a general priority to Western Indies and Guyana), the areas of French historic and international cartographic responsibility.

For EAthC, the priorities, outside France mainland, are to the accesses to Dakar and Abidjan.

The main shipping routes have already been analysed when establishing the INT charts scheme.

**2) A small-scale ENC schema for your region with assignment of Producer Hydrographic Offices.**

France considers that the small scale ENC schemes could be established by taking advantage of the existing INT charts schemes. The limits can easily be put in line with the producers as well as with the INT charting, which make things easier.



As an example France has established a scheme for small scale ENC's covering the areas of Easter Atlantic Ocean where they produce paper charts: this scheme, shown in annex, could be considered for small scale ENC production within EAthC.

Furthermore the way the limits have been defined are in accordance with the additional WEND principles (cf IHB CL 2002/58), for which the quorum of positive votes has been reached.

**3) Recommendations for bi-lateral or multi-lateral assistance projects that would increase ENC production, quality and consistency.**

For ensuring ENC quality and consistency, we should take advantage of the considerable experience gained in the existing RENCs which have to deal with such problems.

An other benefit of cooperating with an existing RENC is to use their capacities of accounting and distribution. It is then not necessary to distract personnel from production tasks in order to appoint them on the tasks of accounting and distribution: these tasks are to a large extent automated in the RENC which have develop effective business models for an integrated ENC service.

**4) Proposals from your Regional Commission for speeding up ENC production and ensuring ENC quality and consistency.**

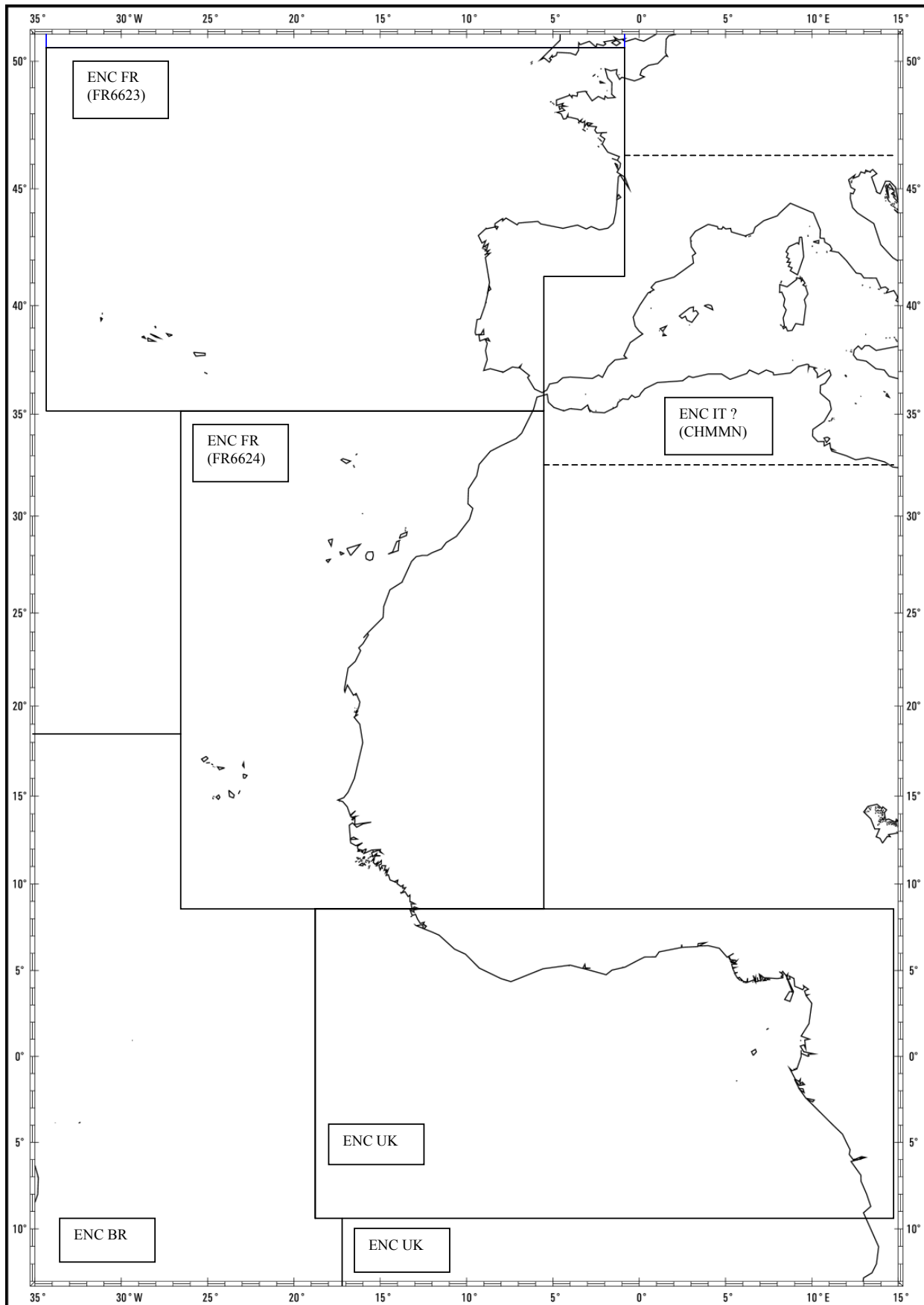
See 3.

Yours sincerely,

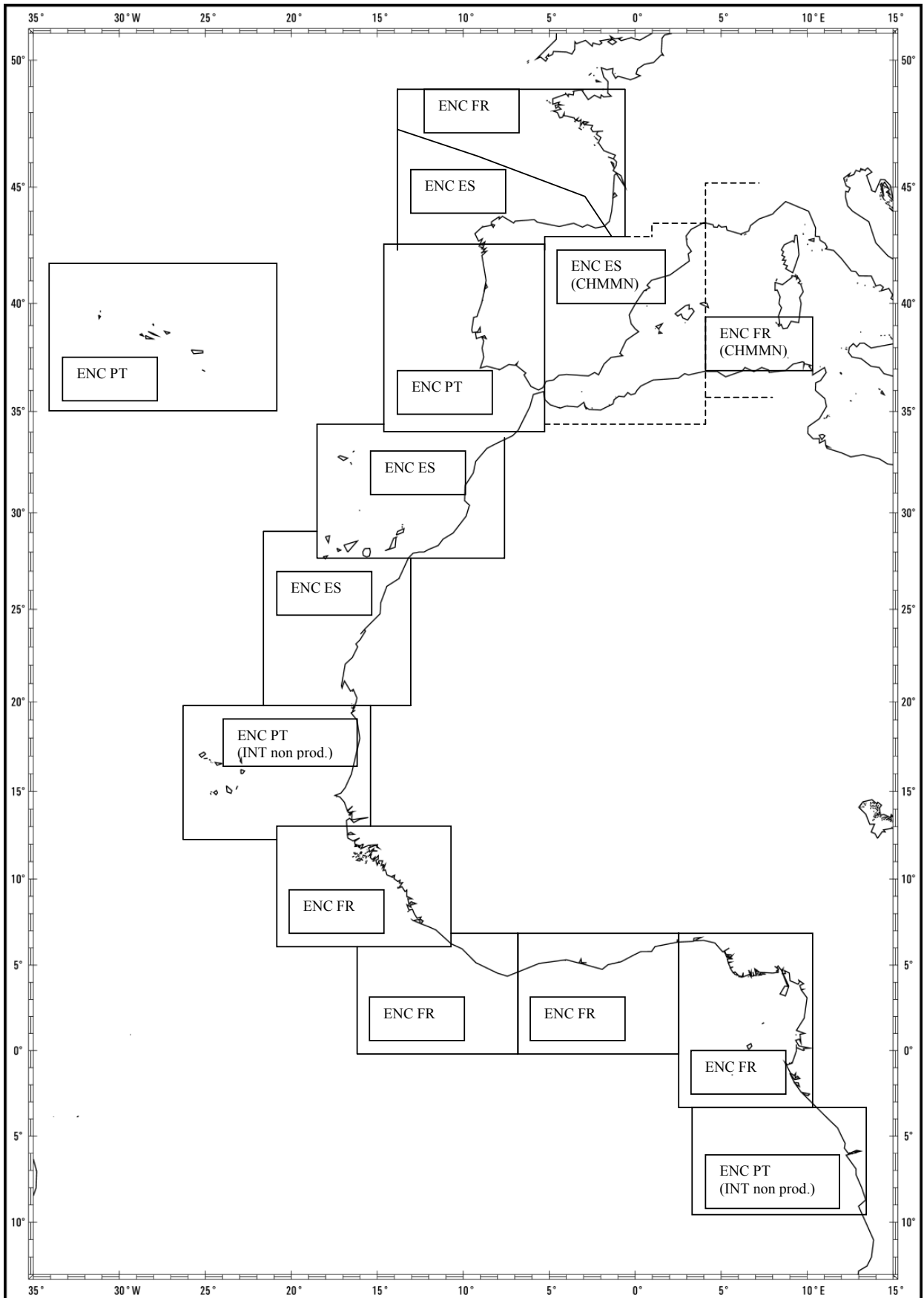
**On behalf the Hydrographer  
Ingénieur en chef Michel Le Gouic  
Head of the bureau for General Affairs**

ANNEXE II

**Coupures INT proches de l'échelle 1/3000000 (overview)**



**Coupures INT proches de l'échelle 1/1000000 (general)**



**8<sup>ème</sup> conférence CHAtO, 28-29 octobre 2004, Brest-France**  
**8<sup>th</sup> Meeting EatHC, 28-29 October, Brest-France**

**Contribution de la République de Guinée**

A l'attention du Président de la CHAtO

Nous avons accusé la réception de votre mail, relatif au projet d'ordre du jour de la 8<sup>ème</sup> CHAtO et des rapports nationaux.

Nous ne trouvons aucune objection quant au projet d'ordre du jour.  
S'agissant du rapport national de la République de Guinée, depuis la dernière réunion de la CHAtO à Lisbonne, il n'y a pas eu d'évolutions majeures sur la situation de l'hydrographie et de la cartographie dans notre Port et dans le pays en général.

Par contre, au courant de l'exercice 2002-2003, des travaux de dragage d'entretien du bassin portuaire et du chenal d'accès ont été effectués par la société de dragage international (SDI) de la Belgique pour un volume de vase de près de 2.160.000 m<sup>3</sup>.

A la fin des travaux, les sondages réalisés ont été transmis par nos soins à l'Etablissement Principal du Service Hydrographique et Océanographique de la Marine à Brest pour une actualisation de la carte. Le responsable de la cartographie de la NAVAREA II, Monsieur Pascal Le Dû aux dernières nouvelles était à la recherche du fichier numérique des données pour réaliser cette opération. Nous l'avons mis en contact avec SDI pour l'obtention de ce fichier pour lui faciliter le travail.

Aussi, le Kontron électronique qui nous sert de PC de saisie des sondages à bord a été réceptionné il y a quelques jours à partir d'un expert de Hamburg Port Consulting en mission à Conakry.

Dans le cadre d'un troisième Projet Portuaire financé par la BEI, la KfW et l'AFD, d'importants travaux d'établissement seront entrepris dans les années à venir pour l'extension du terminal à conteneurs existant et la construction d'un quai de 265 mètres de long pour accueillir des portes conteneurs. Le bouclage du financement est en cours.

Cher président pour des problèmes de handicap de langage (anglais), le questionnaire mis à disposition lors de la dernière CHAtO n'a pu encore être complètement répondu car certaines réponses devraient provenir soit de la Direction nationale de la Marine Marchande (DNMM), correspondant de L'OMI en Guinée ou L'Agence de navigation maritime (ANAM).

Sur place à Brest, nous vous communiquerons les contacts de ces décideurs pour que vous rentriez directement en relation avec eux pour la résolution des problèmes posés.

Dans l'espoir de vous rencontrer très prochainement et de vous avoir documenté, veuillez recevoir nos salutations distinguées.

Mr BAH SOULEYMANE

**8<sup>ème</sup> conférence La CHAtHO**  
**26 – 29 octobre 2004**

**Rapport de la Guinée Bissao**

Le pays a accueilli avec satisfaction la visite de WAAT du 3 au 5 mai de l'année en cours dans laquelle l'équipe dirigée par l'ingénieur général de l'armement , Monsieur Michel Le Gouic, a produit un rapport complet et objectif dont le contenu reflète la réalité constatée sur le terrain.

Egalement un mot de reconnaissance pour le service hydrographique du Portugal qui a eu l'attention de traduire le rapport en version portugaise afin de renforcer la compréhension de tous, les structures d'états ayant des responsabilités directes dans le secteur maritime.

Le WAAT ne produit pas seulement d'importantes recommandations mais il a également eu pour effet de sensibiliser, puis de mobiliser le pouvoir politique sur l'importance de l'hydrographie dans le contexte de développement économique du pays. Pour cela il est nécessaire de créer des conditions minimales pour la garantie de la sécurité maritime à la navigation.

La situation hydrographique est fragile et le pays ne dispose pas de capacité nationale pour procéder au levé hydrographique, effectuer le dragage et l'évacuation des épaves des navires dans le port et les approches.

Dans le cadre de la coopération sous régionale, nous avons signé un accord avec le port de Gambie et le port autonome de Dakar relatif au dragage et à l'hydrographie.

En matière de formation, nous n'avons rien à signaler. Le Portugal s'est toujours montré sensible et disponible dans ce domaine.

Nous avons eu l'opportunité de présenter à l'équipe WAAT un projet hydrographique qui a pour but l'ouverture d'un couloir de trafic ou une autoroute maritime dans le milieu de Chenal Geba mesurant six cents mètres de large depuis la bouée d'atterrissage jusqu'au port de Bissau dont la longueur est d'environ soixante huit mille nautique.

La garantie de la sécurité maritime est notre principale préoccupation bien que la Guinée-Bissau soit largement dépendante de l'extérieur dans ce domaine. 90 % environ de produits importés sont transités par voie maritime ce qui signifie que le développement du pays passe nécessairement par la réhabilitation des infrastructures maritimes.

Nous pensons dans un premier temps que si le chenal d'accès est bien balisé, cela sera suffisant pour assurer et garantir l'entrée et la sortie des navires en conditions de sécurité à la navigation.

Pour terminer l'exposé, j'aimerais faire un appel à l'OHI afin qu'une attention spéciale soit portée à l'hydrographie en Guinée Bissau et en particulier que la mobilisation de fonds auprès de l'institution financière internationale puisse se traduire par une aide financière afin de réaliser ce projet.

Je remercie tous les collègues délégués pour leur attention.

## **8<sup>ème</sup> conférence de la CHAtO**

**28 – 29 octobre 2004**

### **Rapport de la délégation de Guinée Equatoriale**

Après la visite officielle faite par la Commission Hydrographique de l'Atlantique Orientale (CHAtO) 2003, la Guinée Equatoriale n'a pas fait de commentaires ni de rapport sur le sujet à la Commission parce que dans le pays n'existe pas une synthèse d'organisation nationale sur l'hydrographie. Pour cette raison l'Administration des Ports de la Guinée Equatoriale (APGE) à travers les services techniques de signalisation maritime prend en charge à partir de ce moment l'hydrographie en raison de l'accroissement du trafic maritime de notre port.

Le Service Technique de Signalisation Maritime (STSM) – Administration des Ports de la Guinée Equatoriale (APGE) demande à l'HOA/WAAT une aide technique sur la structure du comité hydrographique portuaire : la formation d'une personne avec la capacité suffisante (niveau B-OHI) et confirmer officiellement notre intégration comme membre de la WAAT.

La Guinée Equatoriale à ce moment veut être présente à toutes les réunions et conférences organisées par la CHAtO.

## 8<sup>th</sup> Conference of the EAthC

28 – 29 October 2004

### NATIONAL REPORT –NIGERIA

1. The WAAT visit to Nigeria in the autumn of 2002 produced a Report which has been widely circulated among all hydrographic stakeholders in Nigeria. The Report rightly identified some issues that have been inimical to the establishment of adequate human and material infrastructure in support of objectives of the SOLAS V Regulation 9 within our area of responsibility.
2. We have taken the challenge of the credible efforts of the IHO, IHB and the WAAT. In this regard, Nigeria is fully in support of the recommendations of the WAAT Report. We have taken steps to implement aspects of the recommendation, despite a few official bureaucracies, which we consider to be motivational rather than impedimental. The following actions are some of the steps we have taken:
  - We are willing to establish bilateral arrangements with the UKHO.
  - We have formed a professional hydrographic body, as a prelude to the establishment of the National Hydrographic Commission.
  - We have established a joint working arrangement between the Nigerian Navy Hydrographic Office and the National Maritime Authority with the secondment of a Naval Officer to the newly established Department of Hydrographic Services within the National Maritime Authority.
  - We are conducting an update of the African Pilot on the Nigerian Chapter.
3. Bearing in mind the pragmatic philosophy of the IHO regarding hydrographic regional cooperation, we would also wish to humbly state some of our existing hydrographic achievements related to training:
  - We have a Hydrographic School in one of our coastal city (Port-Harcourt) run by the Nigerian Navy. We run Survey Recorders Class I & II Courses for our Naval Ratings. We presently do not have a FIG/IHO accreditation for these courses; this may be considered by IHO for evaluation and subsequent categorization.
  - We have about a dozen trained Cat A Hydrographic officers from the Indian Hydrographic School, and 1 officer trained in Nautical Cartography from IMA, Trieste, Italy.
  - We presenting have one of our personnel undergoing a Hydrographic course at the University of Plymouth, UK, under the laudable sponsorship initiative from the UKHO.
  - We were also fortunate to be beneficiary of the GEBSCO-NIPPON Foundation Ocean Mapping course at the University of New- Hampshire USA.

4. We wish to endorse the IHO S-55 documentation on the Status of Charting in Nigeria. We wish to reinstate our determination to take the “Baton and Run”, as far as hydrography is concerned.
5. We would like to use this opportunity to inform the East Atlantic Hydrographic Commission Conference of the Peer Review Mechanism (PRM) of NEPAD, as a tool for creating hydrographic capacity awareness especially among West African States. This awareness is particularly needed at the policy and decision making levels of government, namely the presidential and ministerial levels. The Mechanism is been employed by some African States in the Educational, Health and Agriculture sectors of the national economy. The Environment which has been identified by NEPAD as one of the eight priority areas for action is devoid of hydrographic capacity building awareness and projects. Any West African State or the IHB could explore this option.
6. We wish to extend our hands of cooperation to all counties represented at the EAthC conference, regarding Hydrographic Capacity building. We would like to share assets and experiences as applicable towards achieving SOLAS V Regulation 9 objectives.



**8th Conference of the EAthC**  
**28 -29 October 2004**

**REPORT FROM PORTUGAL**  
**INSTITUTO HIDROGRÁFICO**  
**(IHPT)**



## 1. INTRODUCTION

This report describes the main technical activities and developments of the IHPT during the period of October 2002 to October 2004. It was elaborated in order to be presented to the 8<sup>th</sup> Conference of the EAthC, and specially covered the following areas: Hydrography, Cartography, Information Technologies and GIS, Marine safety, IBCEA project and Technical Assistance and Training.

## 2. HYDROGRAPHY.

The hydrographic surveys within the IHPT are done with both singlebeam and multibeam echosounders, using the GPS (Differential or RTK/OTF) for positioning.

The singlebeam echosounders with digital output (ATLAS DESO 20/22/25, MARIMATECH E206, and KNUDSEN 320 M) are used with automated data acquisition systems (currently the HYPACK MAX). The values of sound speed in the water are collected by sound speed profilers (APPLIED MICROSYSTEMS SVP-16 and SVP PLUS). ATLAS calibration transducers are also used. The heave is measured with an inertial motion sensor (TSS 320/333/335, SEATEX MRU5 or MRU H). One echosounder SIMRAD EA600 with two side scan transducers was recently acquired and is currently under test.

Data processing is done with the system used for the data acquisition (HYPACK MAX). For presentation and archive purposes the data is transferred to the CARIS GIS format. The CARIS files are the layout used to store the hydrographic data that can be readily used for cartographic production.

The IHPT is presently operating several multibeam echosounder systems (MBES): for shallow waters a portable system (SIMRAD EM 3000), for medium/shallow waters (SIMRAD EM 950) on board a 15 metre launch and for deep waters (SIMRAD EM 120) on the Hydrographic Ship "D. Carlos I". Each of those systems also includes one SEATEX SEAPATH 200 or SEAPATH 200 RTK (for positioning, heading, pitch, roll and heave measurements), one sound speed sensor at the transducer draft (APPLIED MICROSYSTEMS SMART PROBE) and a sound speed profiler (APPLIED MICROSYSTEMS SVP-16 or SVP PLUS). Data processing is done with the Hydrographic Information Processing System (CARIS HIPS). One portable SIMRAD EM 3002 was recently acquired and is currently under test.

The coastal topography and horizontal control is being done, for the most part, with geodetic GPS methods, including kinematic positioning and RTK/OTF (with TRIMBLE 4000 series and TRIMBLE 5700). Sometimes hydrographic surveys are complemented with GPS surveys on-shore, done by walking surveyors or with a moto-quad. Nevertheless, to complement GPS observations, topographic total stations (LEICA TC 305 and LEICA TC 1800) are also used. Data processing is performed with TRIMBLE software (TRIMBLE Geomatics Office), AutoCAD MAP and in-house software COORD (for pure traditional measurements -angles and distances).

The use of GPS RTK/OTF techniques for tide measurements is sometimes used. For the areas that are surveyed on a regular basis, the local geoidal height was computed, in order to have a geoid model with an adequate accuracy.

The procedures (planning, execution and processing) of hydrographic surveys within the IHPT are in accordance with the IHO Special Publication S-44 (4th Edition, 1998). Special attention has been paid to the development of procedures for Quality Assurance (QA) and

Quality Control (QC) of hydrographic data. These include: error budgets, analysis of the digital terrain model from the raw data, statistical analysis per beam, and analysis of the spatial and temporal variation of sound speed profiles on depth measurement and positioning.

A new side scan sonar system (KLEIN 5000) was also acquired, including a digital processing software package (TRITON ELICS).

Most of the hydrographic surveys during the last two years were done in specific coastal areas and in harbours and their approaches. The geological continental shelf of Continental Portugal is completely surveyed with echosounders and electronic positioning systems, as well as the more critical areas of the Archipelagos of Açores and Madeira. So, the next systematic resurvey of Portuguese coastal waters will be done with MBES and GPS positioning.

The Hydrographic Ship “D. Carlos I” made three major surveys. One was in the West coast of Portugal, in the Iberian Abyssal Plain and it was related to the works of extension of the Continental Shelf. The other two were done in the South coast of Portugal, in the Horseshoe Abyssal Plain and Gulf of Cadiz, and they were requested by Portuguese universities, in cooperation with foreign universities and other research institutions.

Some surveys for environmental studies and coastal protection were also done. In these surveys, hydrographic and topographic integrated methods were used and, commonly, simultaneous wave, tidal and current data were acquired. In some cases, these surveys included light seismic geological methods and sediment and water chemical analysis.

Using an ORACLE database management system it was developed in-house a Hydrographic Data Warehouse (HDW) in order to integrate all the bathymetric data available. The HDW is under the population phase, what implies sometimes the digitization of older survey fair sheets.

### 3. CARTOGRAPHY.

The paper chart production in the IHPT is fully done by the Computer Assisted Cartography system (CAC), since mid 2004. All charts are stored in digital files, which are then used for Electronic Navigational Chart (ENC) production.

The CAC is based on the software CARIS. Some topographic data processing and import/export are also done using AutoCAD MAP. Developments using the several CARIS modules were done, as for instance the automatic chart correction and several scripts for QC and spatial data assimilation, these using specially the Visual Basic, C and TCL/TK programming languages. The main development in the last years was the total transfer from UNIX workstations to WINDOWS computers, running the new versions of CARIS GIS.

All the IHPT new charts and new editions are bilingual (in Portuguese and English) and follow the INT specifications, whether or not they belong to the INT series. A list of the official paper charts produced by the IHPT since 2002 is presented in Annex A.

The production of ENC cells starts with some CARIS software modules (HOM) but the main work is done using software produced by 7 -C's (ENC Tools) and HydroServices (dKart Inspector). In 2002 the IHPT changed the cells format from S-57/Edition 3.0 to S-57/Edition 3.1.

It was acquired a desktop ECDIS software ECPINS-M to make the final validation of the ENC cells. Two of the Portuguese Navy hydrographic ships equipped with ECDIS have been used to verify the IHPT ENC cells in real navigation conditions.

After the splitting of the PRIMAR initial organization, the IHPT joined the International Centre for ENCs (IC-ENC), managed by the UKHO. The IHPT actively participated in the works of both PRIMAR and IC-ENC, including in their Technical Experts Working Groups. It is expected that 42 Portuguese ENC cells will be available for distribution at the IC- ENC by the end of 2004, charting all the oceanic and coastal waters of Portugal, as well as the main harbours and their approaches.

The issuing of Notices to Mariners (NtM), which affect the paper charts and the corresponding ENC cells, is coordinated with the issue of the ENC CDs by the IC- ENC. It should be noted that the number of ENC updates increased enormously and so the production and validation of updates continues to be one of the major works of the IHPT ENC production team.

A list of the official ENC cells produced by the IHPT is presented in Annex B.

The IHPT acquired a CARIS Hydrographic Production Database (HPD) which will allow a full integration of the cartographic production, both paper charts and ENC cells. The HPD works with an ORACLE 9i database management system and permits to have a single and seamless database for all the cartographic information available in the IHPT. The data format follows the S-57 specifications and all the spatial information use WGS84 coordinates. This system is currently in tests and data population.

Following the full digital cartographic production, and after exhaustive tests of plotters, papers and inks, the IHPT is now installing a Print-on-Demand system, in order to print the nautical charts as they are requested by the users.

The IHPT joined the COASTCHART project, funded by the European Space Agency, as well as UKHO, SHOM-FR and IHM-ES. This project aims to get the digitized coastline of central and western Africa with the recourse to satellite imagery.

#### 4. NAUTICAL PUBLICATIONS AND MARINE SAFETY.

The IHPT provides a 24h service of Navigational Warnings, including NAVTEX and cooperation with the NAVAREA II coordinator.

Every two weeks the IHPT publishes a Group of Notices to Mariners, containing all the permanent, preliminary and temporary warnings in force for the corresponding period.

Since 2002, the **IHPT** published the following nautical publications:

- Annual Group of Notices to Mariners (2003)
- Annual Group of Notices to Mariners (2004)
- Coast Pilot of Portugal – Archipelago of Açores – 2<sup>nd</sup> edition – Supplement 01 (2003)
- Coast Pilot of Portugal – Archipelago of Madeira – 3<sup>rd</sup> edition – Supplement 01 (2003)
- Aids to Navigation – List of Lights, Buoys, Beacons and Fog Signals – 6<sup>th</sup> edition (2003)
- Aids to Navigation – List of Radiosignals and Services – 4<sup>th</sup> edition (2003)
- Catalogue of Symbols and abbreviations used on Portuguese Nautical Charts – 2<sup>nd</sup> edition (2003)

Annually, the IHPT also publishes the Tide Tables for the main harbours of Continental Portugal and the Archipelagos of Açores and Madeira. During the last years some of the tidal constituents continued to be recalculated using more recent tidal observations. In 2002 started a project to automate the tidal stations in order to provide remote access to their data.

The Broadcast Stations of the Differential GPS National Service in Portugal are now operational. The mainland component consists of two DGPS Broadcast Stations, with redundancy and integrity monitoring, located at Cape Carvoeiro and Sagres. There are also two Broadcast Stations at the Portuguese archipelagos, which are on validation/test period: one in the Azores (Horta station) and another one in Madeira (Porto Santo station).

## 5. INFORMATION TECHNOLOGIES AND GIS.

The IHPT has an Internet site ([www.hidrografico.pt](http://www.hidrografico.pt)) presenting its organization, information about its main activities, products offered and specific on-line data.

The Notices to Mariners issued by the IHPT are also available in the IHPT Internet site, as well as general information about the Portuguese Official Nautical Charts and other Nautical Publications.

Databases and related applications are being developed using ORACLE 8i or 9i. They include not only hydrographic and cartographic applications but also environmental and coastal management products. The basis of these is SIGAMAR (Geographic Information System for the Marine Environment).

SIGAMAR is a geographic information system for the marine environment under development at IHPT and deals with technical and scientific data within IHPT. The main SIGAMAR's development objectives are to improve the internal production processes and to support the operational, planning and strategic decision-making. Its core is an Oracle Spatial database management system that is explored in several ways producing tables, charts, web pages and reports, and feeding several GIS packages.

The system was designed to be explored both internally and externally. Due to security reasons, the internal computer network is physically separated from any external network. To keep system coherency, a replica of a subset of the database is published in the internet-enabled network and feeds Internet users with two information products: tide predictions and sea state data available at the IHPT already referred Internet site.

The sea state information process was designed to automate data acquisition. A set of moored wave buoys measure sea-state offshore Portugal and send their readings, every 3 hours, to the nearest Portuguese Navy facility (generally a lighthouse) that relays then via modem to the Office. An application then directs these data to the database and updates sea state information on intranet and Internet servers. Available sea state information includes wave height, direction and sea temperature in both chart and tabular format. Historic information is available in chart format only (last week, month, trimester and year). Both tide prediction and sea state information products can also be explored via WAP -cell phone with Internet access - at [www.vizzavi.pt/~vb39873a/default.wml](http://www.vizzavi.pt/~vb39873a/default.wml).

Budget issues and data policy limit the external exploration of the system, but it is expected that a complete Internet catalogue of the IHPT data holdings and a metadata engine for their documentation will be publicly available in the near future.

This system is also being used to support IC-ENC by providing a world ENC availability catalogue (independent of maker or distributor) for mariners to use.

Using the GIS capacities of CARIS GIS and CARIS LOTS, several studies for maritime delimitations were done, in accordance to the United Nations Convention on the Law of the Sea (UNCLOS). These included the Desktop study relative to the possible extension of the Portuguese Continental Shelf, during 2003.

#### 6. IBCEA PROJECT.

The IBCBA Sheet 1.01 (Portugal - Continental Portugal) was edited in February 2002. The corresponding digital information was also supplied to the British Oceanographic Data Centre in order to be integrated in the new edition of the GEBCO Digital Atlas, edited in 2003 during the GEBCO Centenary.

The IBCEA Sheet 1.02 (Portugal - Archipelago of Madeira) is under compilation of bathymetric information at the scale of 1:250 000, but the progress is quite slow.

Relatively to the IBCEA Sheet 1.03 (Portugal - Archipelago of Açores), the compilation of information at the scale of 1:250 000 is completed. The bathymetric information was transposed to the final scale of 1:1 000 000 and completed with land information. Initial reviews and colour tests were also made. Several dozens of new names were proposed to the Sub-Commission for Undersea Feature Names (SCUFN). The final review is now underway by Professor Jean Vanney. The edition of IBCEA 1.03 is expected to occur in 2005, depending on the availability of Professor Vanney, which coordinates the project.

The work for IBCEA Sheet 1.05 (Cabo Verde) was not initiated yet.

#### 7. TECHNICAL ASSISTANCE AND TRAINING.

The IHPT continues to compute and publish annually the Tide Tables for the Portuguese Speaking African Countries, including, within the EAthC area, Cabo Verde, Guiné-Bissau and S. Tomé e Príncipe.

In 2001 it was realized in Lisbon the Meeting for Technical Cooperation in Hydrography and Aids to Navigation with the Western and Central Africa Countries. The Meeting was organized by the IHPT, in cooperation with the IHB, and it was co-chaired by the Director-General of the IHPT, the President of the IHB and the Director of the IHMES, Chairman of the EAthC at that time. It was attended by representatives of: France, Morocco, Portugal and Spain, as EAthC Members, United Kingdom and United States of America, as observers, and Angola, Cameroon, Republic of Guinea and Ivory Coast. Representatives of IMO, IOC and PMAWCA also attended the Meeting. The main results were an initial assessment of the needs for hydrography and aids to navigation in the area and the constitution of West Africa Action Team (WAAT) to visit several of the affected countries, in order to contact their political and administrative authorities and start the planning of specific actions.

This WAAT has done several visits during 2002, 2003 and 2004. These visits included: Gabon, Nigeria, Ghana, Mauritania, Senegal, Cabo Verde, Guinea, Gambia, Democratic Republic of Congo, Republic of Congo, Equatorial Guinea, Benin, Togo, Cameroon, Sierra Leone and Guiné-Bissau. One representative of the IHPT participated in the visits to Cabo Verde and Guiné-Bissau.

In 2000, a delegation of the Directorate of Commerce Navy and Ports of the Republic of Guiné-Bissau visited the IHPT and the Lighthouse Authority of the Portuguese Navy, to present the needs of its country relatively to marine safety, hydrography and aids to navigation. In 2002, two elements of the Administration of the Ports of Guiné-Bissau visited the IHPT during two months. They attended the Specialization Course in Hydrography in the early nineties and were now integrated in the work of the Hydrographic Team of the IHPT. This included their participation in the field works and data processing of several harbour and costal surveys, in order to adapt them to the new techniques and equipments, especially in what concerns to automated data acquisition and GPS positioning. They also had a refresh in hydrographic data management and nautical cartography at the Hydrography Division of the IHPT. The Institute of Cooperation of Portugal funded this visit. In 2004, following the WAAT visit, the Minister of Transports of Guiné-Bissau requested the Portuguese government to make a study for the survey of River Geba, in order to provide a safe navigation channel of access to Bissau harbour. This study is currently in progress at the IHPT.

In 2001 the IHPT cancelled five harbour charts of Cabo Verde from its official folio, as the local maritime authorities issued updated editions of the original charts published by the IHPT. After the WAAT visit to this country, the local authorities requested, under the existing Cooperation Agreement with Portugal, the survey of several harbours and the corresponding update of the nautical charts produced by the IHPT. The survey of three harbours is at this time underway, in the islands of Sal, Boavista and Santiago, by a team of IHPT surveyors with local assistance provided by the Marine and Ports General Directorate of Cabo Verde. A meeting of the Commission that coordinates the referred Cooperation Agreement is also expected to occur by mid November 2004, in Cabo Verde.

Outside the EAHC area, the IHPT has realized several actions of cooperation with Moçambique and Angola. The IHPT participated in the feasibility study for the implementation of a hydrographic and lighthouse service in Angola. In October 2002 an IHPT team visited Luanda, in order to assess the present situation and gather information about the local capacities and special needs. A product of this study was an outline of the organization, functionalities and development steps of the new service. Later, in March 2004, another visit was done in order to analyse locally more practical details for the implementation of the service. This diagnostic team included, by the IHPT, the Technical Director, the Head of Navigation Division, the Assessor for Maritime Spaces and the Chief of the Hydrographic Team, as well as a representative of the Portuguese Navy Lighthouse Authority. The team produced a Diagnostic Report which was delivered to the Angolan authorities.

Several foreign students attended the Specialization Course in Hydrography (FIG/IHO Category A) at the IHPT. However, they were mainly from Mozambique and Angola, outside the EAHC area. In the academic year or 2002/2003 the Course was attended by one student from Moçambique and two navy officers serving at the Hydrographic Service of the Royal Navy of Morocco. In 2003/2004 the Course was attended by six civilian from Angola, under the initiative to install a Hydrographic Service in that country. In this academic year, 2004/2005, the Course is attended by one civilian from Moçambique and one navy officer from the Tunisian Navy.

## Annex A

## PAPER CHARTS EDITED BY PORTUGAL SINCE 2002

NUMBER	INT	TITLE	EDITION	REPRINT	DATE
25R10	-	PONTA DA ATALAIA AO BURG AU	1 <sup>a</sup>	3 <sup>a</sup>	OCT 02
464 01	-	ILHAS DAS FLORES E DO CORVO	1 <sup>a</sup>	-	DEC 02
362 01		ILHA DA MADEIRA	1 <sup>a</sup>	-	JAN 03
26303	INT 1875	BAÍA DE CASCAIS E BARRAS DO RIO TEJO (PORTO DE LISBOA)	6 <sup>a</sup>		MAR 03
26304	INT 1876	PORTO DE LISBOA (PAÇO DE ARCOS AO TERREIRO DO TRIGO)	5 <sup>a</sup>		APR 03
25R11		PONTA DE SAGRES A VILAMOURA	1 <sup>a</sup>	3 <sup>a</sup>	JUL 03
25R12		VILAMOURA À FOZ DO GUADIANA	1 <sup>a</sup>	3 <sup>a</sup>	JUL 03
232 03		LISBOA AO CABO DE SÃO VICENTE	2 <sup>a</sup>	-	NOV 02
311 01	1921	ARQUIPÉLAGO DA MADEIRA	1 <sup>a</sup>	-	DEZ 03
25R02		LEIXÕES A AVEIRO	1 <sup>a</sup>	1 <sup>a</sup>	FEV04
25R07		CABO DA ROCA AO CABO ESPICHEL	1 <sup>a</sup>	3 <sup>a</sup>	FEV04
25R01		CAMINHA A LEÇA DA PALMEIRA	1 <sup>a</sup>	1 <sup>a</sup>	ABR 04
25R03		AVEIRO À FIGUEIRA DA FOZ	1 <sup>a</sup>	1 <sup>a</sup>	ABR 04
25R10		PONTA DA ATALAIA AO BURG AU	1 <sup>a</sup>	4 <sup>a</sup>	ABR 04
263 10		BARRA E PORTO DE PORTIMÃO	3 <sup>a</sup>	-	ABR 04
263 11	INT 1885	BARRA E PORTOS DE FARO E OLHÃO	2 <sup>a</sup>	-	MAI 04
263 09		PORTO DE SETÚBAL – Da CARRACA À ILHA DO CAVALO	2 <sup>a</sup>	-	MAI 04



<b>ELECTRONIC NAVIGATIONAL CHARTS – CELLS EDITED BY PORTUGAL</b>
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NUMBER	CNO NR	Navigation Purpose	TITLE	EDITION	ISSUE DATE
PT 111101	11101	1	Portugal Continental e Arquipélago da Madeira	1	14 FEV 03
PT 141101	41101	1	Arquipélago dos Açores	1	13 DEZ 00
PT 141101	41101	1	Arquipélago dos Açores	2	06 JUL 01
PT 223202	23202	2	Cabo Silleiro ao Cabo Carvoeiro	1	21 ABR 03
PT 233101 *	33101	2	Arquipélago da Madeira	1	23 SET 04
PT 243101	43101	2	Arquipélago dos Açores – Grupo Ocidental	1	22 ABR 03
PT 243102	43102	2	Arquipélago dos Açores – Grupo Central	1	25 SET 00
PT 243102	43102	2	Arquipélago dos Açores – Grupo Central	2	04 JUL 01
PT 243103	43103	2	Arquipélago dos Açores – Grupo Oriental	1	25 SET 00
PT 243103	43103	2	Arquipélago dos Açores – Grupo Oriental	2	04 JUL 01
PT 324201	24201	3	Caminha a Aveiro	1	26 MAR 02
PT 324202	24202	3	Aveiro a Peniche	1	30 JAN 01
PT 324202	24202	3	Aveiro a Peniche	2	22 JUN 01
PT 324203	24203	3	Nazaré a Lisboa	1	17 JUL 01
PT 324204	24204	3	Cabo da Roca a Sines	1	17 DEZ 01
PT 324205	24205	3	Cabo de Sines a Lagos	1	24 JUL 00
PT 324205	24205	3	Cabo de Sines a Lagos	2	03 JUL 01
PT 324206	24206	3	Cabo de S. Vicente à Foz do Guadiana	1	24 JUL 00
PT 324206	24206	3	Cabo de S. Vicente à Foz do Guadiana	2	21 JUN 01
PT 324206	24206	3	Cabo de S. Vicente à Foz do Guadiana	3	16 OUT 01
PT 336201	36201	3	Ilha da Madeira	1	30 JUL 03
PT 346405	46405	3	Ilha Terceira	1	30 JUL 02
PT 346406	46406	3	Ilha de S. Miguel	1	30 JUL 02

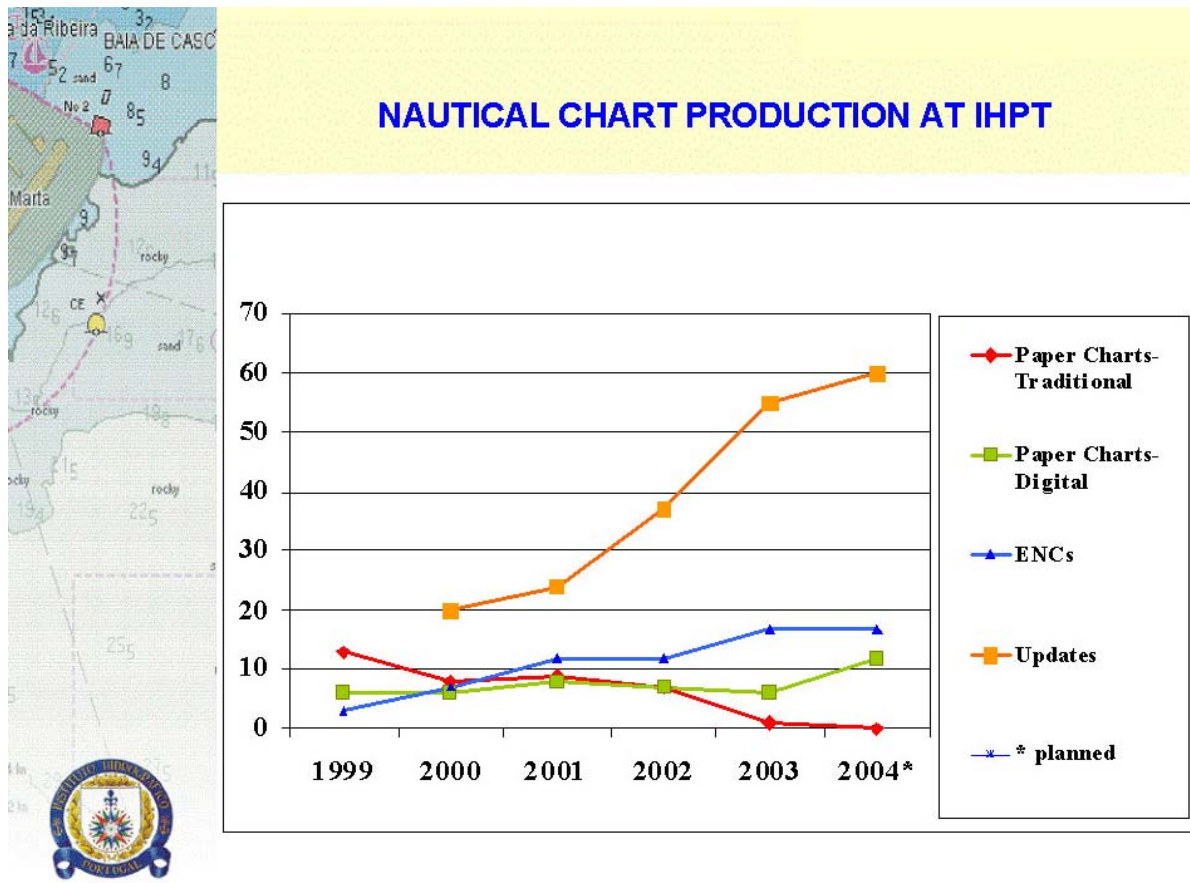
**ELECTRONIC NAVIGATIONAL CHARTS – CELLS EDITED BY PORTUGAL**

NUMBER	CNO NR	Navigation Purpose	TITLE	EDITION	ISSUE DATE
PT 426401	26401	4	Aproximações a Viana do Castelo	1	26 MAR 02
PT 426402	26402	4	Aproximações a Leixões	1	16 NOV 00
PT 426402	26402	4	Aproximações a Leixões	2	14 FEV 03
PT 426407	26407	4	Sesimbra	1	16 JAN 03
PT 426408	26408	4	Aproximações a Sines	1	20 FEV 01
PT 436401	36401	4	Ilha de Porto Santo	1	30 ABR 03
PT 436402	36402	4	Câmara de Lobos à Pta de S. Lourenço	1	13 NOVR 02
PT 436402	36402	4	Câmara de Lobos à Pta de S. Lourenço	2	12 MAR 03
PT 446401	46401	3	Ilha das Flores e Ilha do Corvo	1	30 JUL 03
PT 526303	26303	5	Barras do porto de Lisboa e baía de Cascais	1	31 AGO 98
PT 526303	26303	5	Barras do porto de Lisboa e baía de Cascais	2	31 JAN 00
PT 526303	26303	5	Barras do porto de Lisboa e baía de Cascais	3	21 JUN 01
PT 526303	26401	5	Barras do porto de Lisboa e baía de Cascais	4	26 MAR 02
PT 526303	26303	5	Barras do porto de Lisboa e baía de Cascais	4	11 FEV 04
PT 526304	26304	5	Porto de Lisboa (Paço de Arcos ao Terreiro do Trigo)	1	09 MAI 00
PT 526304	26304	5	Porto de Lisboa (Paço de Arcos ao Terreiro do Trigo)	2	21 JUN 01
PT 526304	26304	5	Porto de Lisboa (Paço de Arcos ao Terreiro do Trigo)	3	11 FEV 04
PT 526305	26305	5	Porto de Lisboa (Alcântara ao Montijo)	1	30 JAN 01
PT 526305	26305	5	Porto de Lisboa (Alcântara ao Montijo)	2	21 JUN 01
	26305	5	Porto de Lisboa (Alcântara ao Montijo)	3	11 FEV 04
PT 526306	26306	5	Porto de Lisboa (Cais do Sodré a Sacavém)	1	31 JAN 00
PT 526306	26306	5	Porto de Lisboa (Cais do Sodré a Sacavém)	2	21 JUN 01
PT 526306	26306	5	Porto de Lisboa (Cais do Sodré a Sacavém)	3	21 NOV 02
PT 526306	26306	5	Porto de Lisboa (Cais do Sodré a Sacavém)	4	11 FEV 04
PT 526308	26308	5	Barra e porto de Setúbal	1	16 JAN 03
PT 526310	26310	5	Barra e porto de Portimão	1	14 FEV 02

**ELECTRONIC NAVIGATIONAL CHARTS – CELLS EDITED BY PORTUGAL**

<b>NUMBER</b>	<b>CNO NR</b>	<b>Navigation Purpose</b>	<b>TITLE</b>	<b>EDITION</b>	<b>ISSUE DATE</b>
PT 528501	26401	5	Porto de Viana do Castelo	1	26 MAR 02
PT 528505	26402	5	Barra do rio Douro	2	14 FEV 03
PT 528513	26407	5	Porto de Sesimbra	1	16 JAN 03
PT 528514	26408	5	Porto de Sines	1	31 JAN 01
PT 538501	36401	5	Baía e Porto do Porto Santo	1	30 ABR 03
PT 538504	36402	5	Porto do Caniçal	1	16 JAN 03
PT 538506	36402	5	Porto do Funchal	1	13 OUT 02
PT 548501	46401	5	Porto da Casa	1	28 MAI 03
PT 548502	46401	5	Porto de Santa Cruz das Flores	1	30 JUL 03
PT 548503	46401	5	Porto das Lages (Ilha das Flores)	1	28 MAI 03
PT 548514	46405	5	Porto de Angra do Heroísmo	1	30 JUL 02
PT 548515	46405	5	Porto da Praia da Victoria	1	13 NOV 02
PT 548519	46406	5	Porto de Ponta Delgada	1	21 NOV 02

COMPARATIVE GRAPHIC OF THE PRODUCTION OF PAPER CHARTS AND ENC CELLS





UNITED KINGDOM

NATIONAL REPORT FOR THE  
8<sup>TH</sup> EAST ATLANTIC HYDROGRAPHIC COMMISSION

Brest, France

28-29 October 2004

## CONTENTS

- 1 - INT Charting Activities
- 2 - Other Charting Activities
- 3 - Regional Cooperation
- 4 - Admiralty Raster Chart Service
- 5 - Electronic Navigational Charts
- 6 - Admiralty Notices to Mariners ~On-Line~ Services
- 7 - Paper Publications
- 8 - Digital Publications
- 9 - MSI & Radio Navigational Warnings
- 10 - Training at the UKHO
- 11 - Training at the HMTG (Hydrographic & Meteorological Training Group)

## 1. INT CHARTING ACTIVITIES

### 1.1 New Charts

The UKHO has published three medium scale International Charts covering Ghana and Nigeria and are in the process of publishing a fourth.

BA1383 (INT 2806) Lagune Aby to Tema, 1:300,000, published August 2004.

BA1384 (INT 2807) Tema to Cotonou, 1:300,000, to be published in 2004.

BA1385 (INT 2808) Cotonou to Pennington River, 1:300,000 published June 2004.

BA1386 (INT 2809) Pennington River to Opobo River, 1:300,000 published August 2004.

### 1.2 Joint Publication

BA1387 (INT 2810) Calabar to Bata, 1:300,000, cooperation compilation, to be published by SHOM and adopted into the UK chart series in the near future.

### 1.3 Adoptions

BA3327 (INT 2811) Bata to Pointe Ngombe, 1:300,000, adoption in progress.

BA3328 (INT 2812) Pointe Ngombe to Lagune Ndogo, 1:300,000, adoption in progress.

## 2. OTHER CHARTING ACTIVITIES

Below is a brief description of the charting activities in 2003 and 2004 in areas covered by the EAthC where the UK has primary responsibility.

### 2.1 Gibraltar

2.1.1 The charting coverage of Gibraltar has been updated and revised. New editions of charts BA45 and BA144 were published on 29<sup>th</sup> April 2004 and included regraduation to WGS84 and general updating of the port and harbour infrastructure. A new edition of BA1448 will be published on 28<sup>th</sup> October to include extended limits and a slight reduction in scale, in order to improve coverage from the Strait of Gibraltar TSS.

## 3. REGIONAL COOPERATION

### 3.1 FRANCE

3.3.1. Adoption of the French 1:50,000 coastal series in the Bay of Biscay is nearing completion and new adoptions of the Port de Fos, Marseille and Toulon areas have been published.

### 3.2 SPAIN

3.2.1. Re-adoption of the new editions of BA1730 and BA1731 in Ria de Vigo have now been completed; dated for 28<sup>th</sup> October 2004 which include the new Routeing measures in the approaches.

### 3.3 PORTUGAL

3.3.1. Re-adoption of the new editions of BA3220, BA3221 and BA3222 in the Port of Lisbon have now been completed; dated for 28<sup>th</sup> October 2004.

#### **4. ADMIRALTY RASTER CHART SERVICE (ARCS)**

4.1 ARCS provides digital copies of paper Admiralty charts on 11 area-based CD-ROMs. Virtually all of the charts in the UKHO standard navigational chart inventory are held in Raster Navigational Chart (RNC) format for base maintenance purposes, including daily Notice to Mariners updating. 3000 charts of the UKHO inventory, including full coverage of the EAHC region, are available for customer use in the ARCS series. Additional charts will be published subject to agreements with other Hydrographic Offices (HOs).

4.2 ARCS is made available to the mariner through three levels of service:

4.2.1 **ARCS Navigator** is designed for the SOLAS market and provides an annual licence for charts including all weekly updates. Charts are kept corrected by means of a weekly Update CD-ROM which contains all the outstanding Notices to Mariners, New Charts and New Editions for the whole of the series. The user can therefore have a completely up-to-date worldwide chart outfit on just 12 CD-ROM discs.

4.2.2 The ARCS Navigator Online Update Service is currently being developed for release later. The service will enable all ARCS Navigator users to access ARCS updates via web download or email request. The provision of this online service will allow users' access to safety critical chart updates as soon as they are published. Further information about the service will be made available via the UKHO website in due course.

4.2.3 **ARCS Skipper** is designed for the leisure user. Charts are supplied up to date at the time of purchase for a one-off fee and supplemented with additional updates as required at extra cost.

4.2.4 A third service designed for the leisure user (the **Admiralty RYA Chart Plotter**) includes charts and navigational software packaged together on a single CD-ROM. Licensed on an annual basis; it is currently only available in UK waters and is designed to provide leisure users with an introduction to electronic navigation.

4.3 Navigation software and display systems for ARCS have been developed by many commercial manufacturers, ARCS itself being a navigation data supply service only. Many of these display systems will support both ARCS and vector ENC charts. Following evaluation by UKHO of data protection and safety-critical functions, systems are now available for purchase from over 45 companies. These systems range from integrated bridge systems for large vessels to stand-alone PC applications for small craft.

4.4 As a result, ARCS users range from the largest container vessels and cruise ships, through workboats and fishing vessels, to yachts.

#### **5. ELECTRONIC NAVIGATIONAL CHARTS (ENC)**

##### **5.1 Production**

5.1.1 By September 2004, the UKHO had 425 ENCs available for distribution through IC-ENC and the UKHO's ENC service.

5.1.2 The UKHO has the capacity to produce up to 20 ENCs per month (either as new cells, new editions, or as a mixture of both).

5.1.3 All of the UKHO's ENC production processes are ISO 9001:2000 certified.

##### **5.2 Coverage**



5.2.1 The main areas of geographic coverage of the UKHO's ENC's are the waters around the UK and parts of the Mediterranean Sea, the Red Sea and the Gulf. Plans to extend the coverage to other parts of the world are presently under consideration. Within the region the UK has produced Overview cells from the two INT charts for which the UK is the producer nation (INT 12 at 1:10,000,000 and INT 209 at 1:3,500,000).

5.2.2 Each of the UKHO's ENC's is broadly equivalent to a paper chart both in terms of its area of coverage and its content.

### 5.3 Data Capture and Verification

5.3.1 Initial data capture is contracted out to a company in India (IIC). This reduces the average in-house production time for new cells from 6 to 3 weeks.

5.3.2 The verification of data from IIC and all work on the production of updates for ENC's and new editions is done in-house in the UKHO.

### 5.4 Training and Assistance

5.4.1 The UKHO is able to offer the following services to other national hydrographic offices:

- Production of ENC's
- Quality Assurance (QA) of ENC's
- Updating of ENC's for Notices to Mariners and New Editions
- Provision of training in ENC's and their production (see IHO Special Publication S-47)
- Assistance with the establishment of ENC production facilities
- Assistance with the establishment of a Quality Management System for ENC production
- Assistance with the distribution of ENC's (through IC-ENC and UKHO's ENC service)

### 5.5 ENC Distribution

5.5.1 During 2002, the arrangements supporting the collection and distribution to market of ENC's, set up in 1998 as PRIMAR, were reviewed and dissolved in favour of a new approach. Norway continues to operate a distribution centre called PRIMAR-Stavanger and the UK has set up a second RENC, based in Taunton, known as IC-ENC - International Centre for ENC's.

5.5.2 IC-ENC is operated on behalf of Belgium, Germany, Greece, India, The Netherlands, Portugal, South Africa, Spain and the UK. IC-ENC operates a different financial structure from the original PRIMAR, and a different strategy for release to the market, replacing a single end-user service with specialist distributors (Value Added Resellers), who can package ENC's to meet the needs of the shipping market. IC-ENC considers it essential to provide comprehensive data validation, ECDIS and consistency checks prior to ENC release to ensure a supply of high quality consistent data to end-users. IC-ENC is therefore an ideal mechanism to assist nations who have ENC data ready for distribution and are either unsure of its conformity to S-57 specifications or have not yet joined a RENC.

5.5.3 IC-ENC currently has six Value Added Resellers, who each provide their own tailored services to the international market. They are C-Map Norway, Kelvin-Hughes, Norwegian Hydrographic Office, SevenCs, Transas and UKHO.

5.5.4 In its capacity as an IC-ENC VAR, the UKHO has developed the Admiralty ENC Service. The service works in the same way as the UKHO's Admiralty Raster Chart Service (ARCS). The UKHO issues the latest ENC corrections every week to ensure all subscribers have fast access to all safety critical information. Initially updates are being supplied on CD-ROM but the UKHO intends to expand the service to include remote updating via web or email. ENCs are supplied on a unit by unit basis where one unit is approximately equal to a paper chart.

## **6. ADMIRALTY NOTICES TO MARINERS ~On-Line~ SERVICES**

- 6.1 Since January 2000, the UKHO has provided a free service known as Admiralty Notices to Mariners ~On-Line~ (ANMO).
- 6.2 Two types of data are being provided on a weekly basis, digital Notices to Mariners (Textual) and digital Notices to Mariners (Tracings). The digital tracing service is only available through appointed Admiralty Chart Distributors. The Text file is a replication of the NM Weekly Booklet containing all Chart and Publication updates together with monochrome image of the NM Block corrections. Full-colour NM Blocks are available (from week 30/2000) as separate files for those who need to update their charts by Block correction. Experience indicates that this textual data is of most use for the correction of publications and to help keep an efficient archive of NMs.
- 6.3 The UKHO NM Website was enhanced in May 2002 by the inclusion of a search facility to enable Chart Distributors and Users to:
  - Search the ANMO service for all Admiralty Chart updates from the latest edition.
  - Search for all Admiralty Chart updates from previous Notices to Mariners numbers.
  - Search for all Admiralty Chart from a defined date.
  - Search for an individual NM by number and year.
- 6.4 The ANMO web site database contains historical NM updates from 1 January 2000. For updates prior to that date, reference should be made to former copies of the NP234 Cumulative List which are also available on the UKHO Website.
- 6.5 HO's who wish to access the UKHO Website can do so via [www.ukho.gov.uk](http://www.ukho.gov.uk). The searchable NM service can be accessed directly via [www.nmwebsearch.com](http://www.nmwebsearch.com). Whilst these ANMO services are freely available, the UKHO does not permit use of the information to provide a customised service to end users in competition with Admiralty Chart Distributors or approved Value Added Resellers.
- 6.6 Commercial vessels may obtain the digital NM text data from Admiralty Chart Distributors or directly from the Website.
- 6.7 One of the principal user benefits is the ability to receive this information whilst at sea. However, although the use of the Adobe Acrobat Portable Document Format avoids corruption of the data, it does result in large data files. Therefore it should be noted that satellite transmission is only cost effective for vessels in range of land-line communication or equipped with High-Speed Data links.
- 6.8 The UKHO has licensed four commercial companies to distribute Admiralty Notices to Mariners via satellite direct to vessels at sea. These electronic courier or value added reseller companies supply customised correction NM datasets directly related to a vessel's portfolio of charts and publications. These companies also provide ENC updates from PRI-

MAR-Stavanger and IC-ENC and are now capable of carrying digital updates to the Admiralty Digital List of Lights.

- 6.9 The digital form of the Admiralty Notices to Mariners is officially accepted by the UK's Maritime and Coastguard Agency (MCA), as meeting the carriage requirements for such Notices under Chapter V of the Safety of Life at Sea (SOLAS) Convention, and the Merchant Shipping (Carriage of Nautical Publications) Regulations.

## **7. PAPER PUBLICATIONS**

- 7.1 One of our main initiatives for the paper publications product group includes the action to accelerate and convert all 74 Sailing Directions (SD) books into Continuous Revision (CR) by the end of 2007. The majority of the series will then be maintained and republished on a 3 yearly cycle removing the need for Supplements. As at 1 July 2004, 47 out of the 74 SD titles had been published in the CR format.

- 7.2 Another initiative to 'add value' to our SD product portfolio is to package a CD-ROM version with the book. The first SD to contain a CD-ROM version was NP54 North Sea (West) Pilot published December 2003 and our intention (subject to satisfactory market research) is to publish all subsequent new edition titles with a CD-ROM version.

- 7.3 The following SDs in the EAthC Region are scheduled for publication as shown:

- NP22 Bay of Biscay Pilot – December 2004
- NP67 West Coasts of Spain & Portugal Pilot – February 2006
- NP01 Africa Pilot Vol 1 – March 2006
- NP02 Africa Pilot Vol II – June 2005

- 7.4 The 5th edition of the UKHO's Ocean Passages for the World (NP136) has just been published – June 2004. This publication provides a wealth of information to enable both professional mariners and leisure sailors to accurately plan their ocean voyages. NP136 is designed to assist with planning, background research and as a reference guide. The book is complementary to the routing charts and Sailing Directions.

- 7.5 To support end users in the best practices of chart correcting a third edition of 'How to Correct Your Charts the Admiralty Way' (NP294) is scheduled to be published March 2005.

## **8. DIGITAL PUBLICATIONS**

The UKHO has continued to develop new digital publications alongside its paper counterparts.

- 8.1 For the 2005 edition of Admiralty TotalTide (DP550), premier tidal prediction software, the UKHO is putting in place an annualised version with improved licensing for the end user. Also being developed is a flexible network solution of the product targeted at new shore markets and large commercial fleets.

- 8.2 A new edition of SHM for Windows (DP560) was released at the beginning of September 2004. SHM for Windows is easy to use. Users simply enter the harmonic constants for a particular port (as referred to in Admiralty Tide Tables or NP160 - Tidal Harmonic Constants), and predictions are displayed as a graph of height against time for a period of up to 24 hours, for a maximum of seven consecutive days. A major advantage of the program is the ability to store harmonic constants for any number of ports across the world, making SHM for Windows invaluable for both the professional mariner and recreational sailor. SHM for Windows (DP560) is presented on CD-ROM and is available from most Admiralty Distributors worldwide at £30.00 (UKRRP excl. VAT).

8.3 Admiralty Digital List of Lights (DP565) was released in August 2003 and is specifically designed to reduce the time and effort spent on manual corrections of paper publications. It uses exactly the same data as the paper version and gives complete world coverage divided into nine geographic areas. The product includes an interactive chart-based interface and comprehensive search facilities. It is available on an annual subscription with a free automated weekly update service provided on CD-ROM, via the UKHO web site or email downloads.

8.4 Admiralty Sailing Directions have been supported by the introduction of simple Adobe PDF files included on a CD-ROM at the back of the book, containing the text and additional images. This CD-ROM supplement is designed to compliment the paper book and is not correctable.

8.5 Admiralty Online Catalogue was launched March 2004. This catalogue will provide access to information concerning all commercially available Admiralty products and will be freely available on the UKHO website. This product is due to be launched in Spring 2004.

8.6 The UKHO is working on producing digital versions of the Admiralty List of Radio Signals (ALRS) starting with ALRS Volume 6, Pilot Services, Vessel Traffic Services and Port Operations scheduled for release 2006.

## **9. MSI & RADIO NAVIGATIONAL WARNINGS**

9.1 The region lies within NAVAREA II of the World-wide Navigational Warning Service. France acts as NAVAREA co-ordinator and is also responsible for the provision of Met information. In terms of GMDSS infrastructure and services the area is divided markedly in two, with the European part well served and the African part extremely sparsely served. At present there is no organisation for promulgating Coastal navigation warnings anywhere in the African part of this area, although Local navigational warnings may be broadcast by some port authorities on VHF.

9.2 The UK was represented in the Project Hydro West Africa Technical Study Team which visited the African part of the area in 2002/3. Part of the remit of this team was to encourage the development of GMDSS facilities and the initiation of services for the promulgation of MSI in the region, initially through SafetyNET via the NAVAREA II Co-ordinator. Whilst this visit undoubtedly raised awareness of the issues involved, little tangible progress has been made since the visit, probably due to a variety of organisational, technical and financial constraints. The technical workshop prior to the RHC meeting will attempt to progress some of these issues and UK delegation representatives will attend.

9.3 Currently no GMDSS facilities exist in any of the United Kingdom Dependent Territories within the area (Ascension/St Helena).

## **10. TRAINING AT UKHO**

10.1 UKHO offers training in Hydrographic Data Processing and Marine Cartography designed specifically for students from overseas HOs. The training aims to provide a sound introduction to techniques of processing hydrographic data into published form, particularly nautical charts. It lays the foundation for data assessment and chart compilation skills and is equally relevant to a conventional or digital production environment.

10.2 To increase the accessibility of the modular training programme, two courses are available:

- A 5 week modular training course in Hydrographic Data Processing and Marine Cartography at the UKHO.

- A compact 2 week modular training course – developed for delivery at other HOs, subject to adequate demand and facilities.
- 10.3 The latter course is tailored to the requirements of the sponsoring nation and has successfully been delivered to 59 students. The 5 week course places particular emphasis on the International Hydrographic Organization's capacity building programme. A 5 week course has been delivered in July – Aug 2004, for 7 students. A 5 week course for countries paying for their training will be held in the autumn of 2004.
- 10.4 ENC Training and Assistance
- 10.4.1 UKHO is keen to see the successful uptake of ECDIS using ENC, and is willing to assist other nations to produce, maintain and distribute ENCs.
- 10.4.2 UKHO now offers the following:
- a. A 5 week course at the UKHO which includes an introduction to ENC and S-57, and ENC Production Training which is aimed at being as generic as possible (using Hydroservice dKart Software).
  - b. A 2 week course off site which is non-system specific and provides an introduction to ENC and S-57.
- 10.4.3 Both of these courses are advertised in IHO S-47 (Training Courses in Hydrography and Nautical Cartography).
- 10.4.4 UKHO ENC Training also forms part of the UKHO submission to IHO/FIG Advisory Board for accreditation of Cartographic Training, and has been included as the specialism element of the submission. This submission was presented to the board in June 2003. Following feedback from the advisory board the course has been re-submitted this year with intention of achieving Category B status of the IHO M8 standard.
- 10.4.5 In April–May 2003 UKHO also delivered a 5 week ENC Training Course to students from the Gulf of Mexico and Caribbean region. This course was delivered in Spanish, with a translator present throughout the course. All course documentation was also available in Spanish.
- 10.4.6 A one week ENC 'Acquaint' course was also delivered to 2 Uruguayan officers in November 2003, with similar courses delivered to officers from the Philippines in May 2004, and the Solomon Islands in August 2004.
- 10.4.7 A 5 week ENC course is being delivered in September/October 2004.
- 10.5 Sponsorship is offered in the form of bursaries which cover the cost of tuition. In certain circumstances travel, food and accommodation charges can also be sponsored. There is a selection process, to ensure that sponsorship is offered to the countries considered to benefit most from the free tuition in line with the IHO Capacity Building programme. Sponsorship is available for all courses, subject to availability and selection. Between 2000 and the end of 2004 the UKHO will have trained 73 staff from 17 nations.

## 11. TRAINING AT HMTG

- 11.1 At HMTG (Hydrographic and Meteorological Training Group), Royal Navy officers begin the hydrographic element of their combined HM training with a 12 week FIG/IHO Category B course at the HMTG formerly known as the RN Hydrographic School, in Plymouth.
- 11.2 After about four years at sea, officers wishing to become specialists in surveying will return to HMTG for the HM Advanced Survey Course (HMASC), which replaced the former Long Course from September 2001. The HMASC lasts for 21 weeks and is accredited as FIG/IHO Category A.
- 11.3 Both Category A and Category B courses are open to attendance by overseas personnel (military and civilian) and are usually fully subscribed. In 2000-2002 overseas students from Australia, Denmark, Egypt, Netherlands, New Zealand, Nigeria, Oman, South Africa and Singapore were trained.
- 11.4 At HMTG there is scope for delivery of customised training for overseas naval and civilian students in Hydrography, Cartography and Data Management to meet the needs of developed and developing Hydrographic Offices. Such courses can, by mutual agreement, involve both training at the UKHO and at HMTG.

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15 October 2004

## VIIIème Conférence de la CHAtO Brest (France) 28-29 octobre 2004

### Rapport d'activités du Sénégal

#### Préambule :

Le Service de Sécurité maritime du Sénégal (SSM), qui traite des questions de balisage maritime et d'hydrographie, est un service de l'Etat dont la gestion et l'exploitation sont confiées au Port Autonome de Dakar par une convention entre celui-ci et l'Etat en juin 1977.

Ce service se compose essentiellement de la Subdivision des Phares et Balises.

La juridiction de ce service porte sur les côtes du Sénégal qui s'étendent sur 244 milles nautiques ainsi que sur les différents fleuve et estuaires du Sénégal (St Louis, Saloum et Casamance).

#### Activités :

Les principales activités de la Subdivision des Phares et Balises en matière d'hydrographie sont :

- Hydrographie du chenal du Saloum : ce chenal est sujet à un fréquent déplacement compte tenu du mouvement important de sable de ses fonds. Des levés fréquents sont effectués (tous les 2 ans) pour remettre en place le balisage ;
- Hydrographie du plan d'eau du port de Ziguinchor dans le Sud (à 150MN de Dakar) ;
- Hydrographie du bassin de l'île de Karabane ( à 120MN de Dakar) ;
- Hydrographie du plan d'eau du PAD : un contrat lie le PAD à la Subdivision des Phares et Balises pour un levé complet annuel et éventuellement le suivi et le contrôle des opérations de dragage (nous sommes actuellement de suivre des travaux de dragage d'entretien des bassins et du chenal d'accès) ;
- Hydrographie du fleuve Sénégal : nous avons mis en place une convention de groupement avec le Port Autonome de Nouakchott (Mauritanie) afin de mettre en commun nos moyens en matière de balisage maritime et d'hydrographie pour mieux faire face à nos besoins. Nous avons été approchés par l'Organisation pour la Mise en Valeur du fleuve Sénégal (OMVS), qui est un organisme intergouvernemental que se partagent le Sénégal, la Mauritanie et le Mali, pour faire une proposition technique et financière pour dans un premier temps effectuer les travaux topographique, géodésique et bathymétrique sur le lit mineur du fleuve. Ainsi, notre proposition a été acceptée. les travaux topographique et géodésique ont été confiés à l'Institut géographique du Mali qui a invité les instituts géographiques du Sénégal et de la Mauritanie à participer aux travaux ; ils sont terminés depuis le mois de juillet 2004. les travaux de bathymétrie (de Diama à Ambidédi, soit une distance de 915Km) sont réalisés à hauteur de 80%. Le groupement aura également à effectuer les travaux de balisage fluvial sommaire en 2005 ;

### **Equipements :**

La Subdivision dispose des équipements et matériels ci-dessous :

- une vedette hydrographique de 8.5m de long et de 2.5m de large et de 0.5m de tirant d'eau.
- du matériel de positionnement acquis avec la société THALES : 1 système émetteur et récepteur Aquarius RTK bifréquences L1&L2,
- du matériel d'acquisition de données composé de deux échosondeurs déso 14 et déso 17,
- un système de marégraphie limnimétrique type OTT,
- un marégraphe numérique installé au PAD par la NOAA,
- des logiciels pour l'acquisition et le traitement des données : PC NAV2, PC DALI2000 et MAPINFO PRO,
- des imprimantes et tables traçantes aux formats A0, A1, A2 et A3.

### **Personnel :**

Nous disposons de personnels initiés depuis plus de quinze ans aux levés bathymétriques sans être diplômés aux normes internationales de l'OHI ; seul un hydrographe a été formé à l'EPSHOM en 1989.

Nous avons un besoin urgent de formation et c'est pourquoi nous avons entrepris l'année passée des démarches auprès de l'EPSHOM pour des facilités de formations d'agents des ports de l'Afrique de l'Ouest et du Centre.

### **Comité Hydrographique National :**

Nous avons mis en place un Comité Hydrographique National (CHN) suite aux recommandations du groupe d'experts hydrographes WAAT. Ce comité se compose pour l'essentiel de :

- Subdivision des Phares et Balises, Président
- Port Autonome de Dakar,
- Direction de la Marine Marchande,
- Marine Nationale,
- Météorologie Nationale,
- Direction des Travaux Géographiques et Cartographiques,
- Centre des Recherches Océanographiques de Dakar,
- Direction de l'Environnement,
- Direction des Pêches Maritimes,
- Direction de la Protection et de la Surveillance des Pêches.

Ce comité a étudié les conclusions et recommandations WAAT et a fait des propositions au Ministère de l'Economie Maritime pour leur mise en œuvre en urgence.

Il est en train de finaliser les documents de demande d'adhésion du Sénégal à l'Organisation Hydrographique Internationale.

Il a également étudié le projet d'arrangement administratif entre la France et le Sénégal pour la gestion de la Cartographie des côtes et accès au Sénégal.

### **Offres de services :**



Nous portons à la connaissance des pays amis et frères de l'Afrique de l'Ouest et du Centre que nous disposons d'un navire baliseur de 65m de long, de 10m de large et d'une capacité de manutention de 15T avec un équipage qui revendique un retour d'expérience en matière de maintenance de balisage maritime de plus de 50 ans.

Nous avons déjà des accords de coopération avec la Mauritanie (mise en œuvre effective), la Gambie et la Guinée-Bissau.

Les contacts au besoin sont :

Subdivision des Phares et Balises (Port Autonome de Dakar)

BP : 3195 Dakar Sénégal

Méls : [mamadou.thioub@portdakar.sn](mailto:mamadou.thioub@portdakar.sn)

[mthioub@hotmail.com](mailto:mthioub@hotmail.com)

**Projets** :

- coopération et assistance techniques dans la sous-région,
- extension du terminal à conteneur du PAD : sondages et contrôle dragage,
- acquisition d'une deuxième vedette hydrographique financée par le fonds Nordique pour le Développement,
- acquisition d'un navire baliseur polyvalent (balisage, hydrographie, océanographie, pollution et incendie) : ce projet est déjà présenté sous la forme d'un projet sous-régional.

### COMPTE-RENDU DU TOGO

Le Togo remercie la France, particulièrement la Coopération militaire et le SHOM pour son dynamisme en matière d'hydrographie et de cartographie et félicite l'OHI pour le renforcement de la mise en route de la politique de sécurité maritime au Togo.

#### 2002

- La mission hydrographique Laplace a été initiée dans le cadre de la coopération militaire France-Togo en vue de réactualiser les cartes marines, de les replacer dans le nouveau système géodésique WGS84 et d'assurer le processus de la sécurité de la navigation qui est devenue très importante.

Cette mission a enclenché la mobilisation des institutions rattachées à la mer sur l'importance de l'hydrographie.

- Les travaux ont porté sur :
  - le contrôle du chenal d'accès au bassin portuaire
  - la détermination des obstructions en XYZ
  - la collecte des sédiments dans les aires hydrographiées
  - la collecte des eaux (les sédiments et les eaux ont été mis à la disposition de l'université de Lomé pour traitement ; pour des raisons de panne d'équipements les analyses n'ont pas pu être réalisées.
- Les résultats des levés hydrographiques ont été communiqués par le SHOM sur format papier (bathymétrie et sédimentologie). Les commentaires sont toujours attendus.

Au total, le processus de corrections (partielles) des cartes existantes a repris ; de meilleures appréciations des fonds autour du port sont enregistrées ; ce qui dénote une sécurité de navigation élevée. Il reste à obtenir le format numérique de ces données dans un format accessible pour des usages de recherche. Le SHOM (commandant Dolou Henri) confirme la mise à disposition de ces données numériques.

#### 2003

- La mobilisation des institutions rattachées à la mer a pour objet la prise en compte de l'importance de l'hydrographie pour des intérêts militaires, économiques et scientifiques. La marine nationale joue le rôle de chef de file avec l'appui du chargé militaire de la marine française au Togo.
- La mission OHI (WAAT) en mars 2003 a permis la mise en place du comité national hydrographique (informel). Elle a été reçue par la ministre de la défense, des transports et autres autorités.
  - o échanges de correspondance entre le SHOM et le Togo (l'arrangement administratif proposé par le SHOM pour la prise en charge des questions cartographiques et hydrographiques est réceptionné, en attente de suite sans doute favorable, ne serait-ce qu'après la mise en place du comité national de sécurité maritime).
  - o échanges d'intentions au niveau local entre les institutions pouvant détenir la responsabilité de l'autorité maritime (ministère de la défense et ministère des transports).

- réunion de mise en commun des institutions rattachées à la mer montrant l'engagement technique très avancé : il reste un cadrage institutionnel pour la mise en œuvre diplomatique en vue de l'adhésion du Togo à l'OHI et à la CHAtO.
- Le port autonome de Lomé envisage la création de son service hydrographique et environnement : les réflexions et les échanges d'expérience sont en cours sur les étapes de la mise en œuvre du développement global de cette vision qui comportera les phases de formation et d'acquisition d'équipement pour les tâches d'hydrographie, de sédimentologie, de biologie, de pollution, d'érosion côtière et d'environnement marin côtier.
- Le port de Lomé a effectué le dragage de son bassin portuaire et du chenal d'accès (14 mètres) et vérifié les fonds marins par une compagnie étrangère sous le contrôle du bureau Lackner dans le cadre des travaux d'entretien périodiques (le dernier dragage remonte à 15 ans). Les données hydrographiques issues de ce dragage ont été communiquées au SHOM (MHA, commandant Dolou – mai 2004).

## **2004**

- La mission hydrographique Laplace a effectué :
  - le contrôle des aires hydrographiques en 2002
  - le levé hydrographique autour du Wharf de Kpémé
  - des travaux d'accompagnement demandés par l'université de Lomé : bathymétrie des petits fonds non réalisée du fait de mauvais temps, prélèvement de sédiments par plongée. Les sédiments confiés à l'université de Lomé ont été analysés et traités : les résultats sont disponibles et seront communiqués au SHOM. Par contre les données hydrographiques sont en cours de traitement au SHOM.

## **En conclusion :**

Le Togo s'emploie pour son adhésion à l'OHI et la CHAtO, également à signer les conventions SOLAS et OMI. Il souhaite former de jeunes cadres hydrographes avec le concours de la mission de coopération militaire à Lomé et d'autres instituts hydrographiques d'Europe. Il entend être guidé par l'OHI dans la réalisation de son projet de service hydrographique au port autonome de Lomé en matière d'aide à la requête de fonds pour la formation et la mise en place des premiers équipements.