

NORTH SEA HYDROGRAPHIC COMMISSION

Report

from the

26th CONFERENCE

Cardiff

20 - 23 September 2002

Compiled by the Swedish Hydrographic Office

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1.

LIST OF PARTICIPANTS

26th North Sea Hydrographic Conference

Cardiff, September 2004

26th NSHC – Cardiff

20 - 23 September 2004

<u>List of participants</u>		<u>Organisation</u>
Belgium	François De Cock	AWZ-AMS
	Nathalie Balcaen	AWZ-AMS
	Johan Verstraeten	AWZ-AMS
Denmark	Ole Berg	KMS
	Hanne Berg	KMS
	Arne Nielsen	FVV
France	Yves Desnoës	SHOM
	Michel Le Gouic	SHOM
Germany	Peter Ehlers	BSH
	Horst Hecht	BSH
Iceland	Hafstein Hafsteinsson	IHS
	Hilmar Helgason	IHS
The Netherlands	Ruurd van Rooijen	RNNHO
	Erwin Wormgoor	RNNHO
Norway	Frode Klepsvik	NHS
	Kjell Olsen	NHS
Sweden	Åke Magnusson	SMA
	Peter Sundberg	SMA
	Ralf Lindgren	SMA
	Patrik Wiberg	SMA
United Kingdom	Dr Wyn Williams	UKHO
	Dr Peter Wright	UKHO
	Mike Barritt	UKHO
	David Lye	UKHO
	Clive Manuel	UKHO
	Katie Jones	UKHO

Alexandros Maratos – Greece – IHB representative

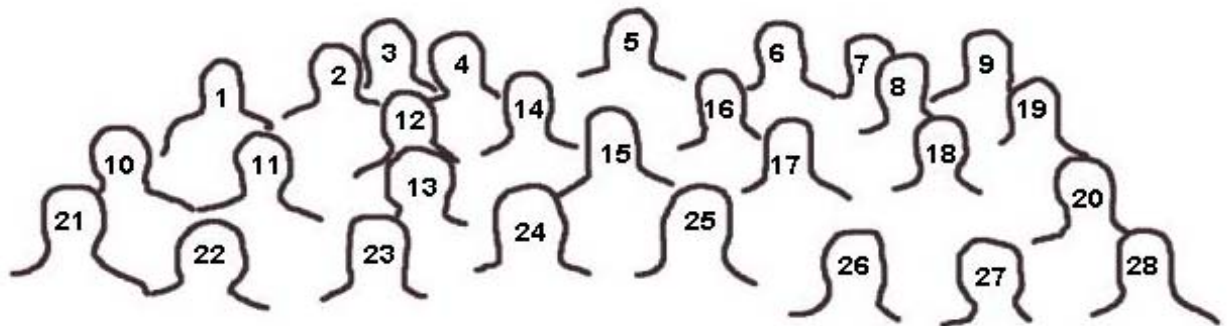
Michael Purcell – Ireland

Joe Collins – UK Maritime and Coastguard Agency

Photograph



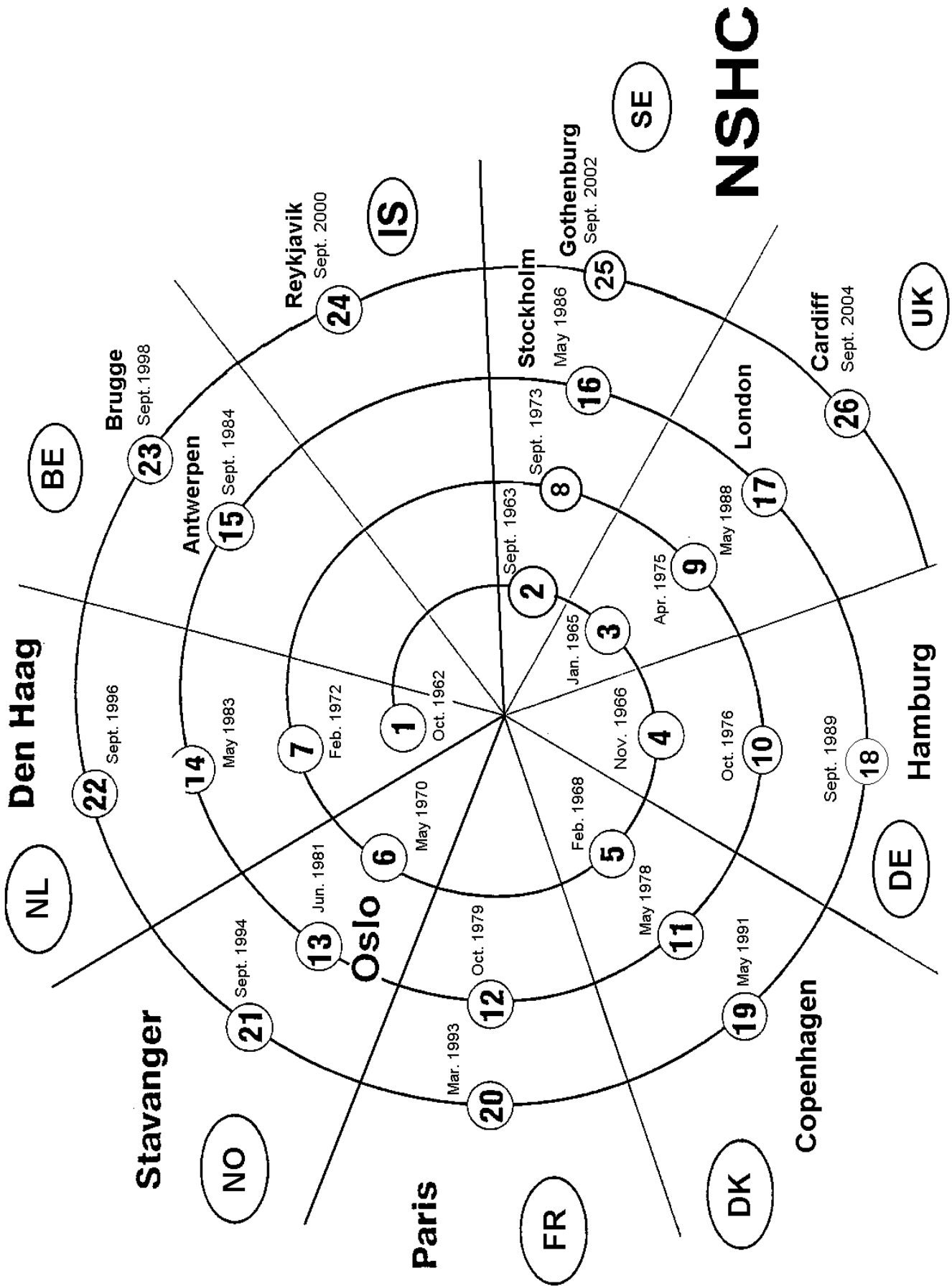
Photography by Rob Watkins



1 Katie Jones, UK
2 David Lye, UK
3 Michael Purcell, IE
4 Ruurd van Rooijen, NL
5 Michel Le Gouic, FR
6 Ole Berg, DK
7 Joe Collins, UK
8 Peter Wright, UK
9 Frode Klepsvik, NO

10 Hilmar Helgason, IS
11 Peter Sundberg, SE
12 Nathalie Balcaen, BE
13 Hanne Berg., DK
14 Mike Barrit, UK
15 Kjell Olsen, NO
16 Erwin Wormgoor, NL
17 Peter Ehlers, DE
18 Horst Hecht, DE
19 Clive Manuel, UK

20 Patrik Wiberg, SE
21 Ralf Lindgren, SE
22 Hafsteinn Hafsteinnsson, IS
23 Arne Nielsen, DK
24 Wyn Williams, UK
25 Åke Magnusson, SE
26 Alexandros Maratos, IHB
27 Francois De Cock, BE
28 Johan Verstraeten, BE



Summary of E-Mail addresses and Web-Sites of NSHC-Members
July 2004

NSHC Member	E-Mail address	Web Site	
Belgium	Francois.decock@lin.vlaanderen.be Arnold.fremout@lin.vlaanderen.be Johan.verstreten@lin.vlaanderen.be Isabella.taes@lin.vlaanderen.be	www.lin.vlaanderen.be	
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Ireland	Brian.Hogan@dcmnr.gov.ie Michael.Purcell@dcmnr.gov.ie		

2.

PROGRAMME

26th North Sea Hydrographic Conference

Cardiff, September 2004

Conference Programme

Monday 20th September		
14:00	UKHO representative available to meet delegates at the Hilton Hotel	Hilton Hotel Meetings Lounge, 1 st floor
20:00	Ice-breaker Reception Canapés and drinks, Welsh harpist	Hilton Hotel Meetings Lounge 1 st floor
Tuesday 21th September		
07:00	Breakfast serving begins	Hilton Hotel Dining Room, for those delegates staying at this hotel
09:00	NSHC Members Group Photograph	Hotel Hilton, main entrance steps
09:15-10:30	Conference session begins	Hilton Hotel, Sophia Suite, adjacent to Meeting Lounge
10:30	Break Coffee/Tea and Danish Pastries	Hilton Hotel Meetings Lounge, 1 st floor
10:45-12:30	Conference session resumes	Sophia Suite
12:30-13:30	Lunch Finger buffet	Meetings Lounge
13:30-15:00	Conference session resumes	Sophia Suite
15:00	Break Coffee/Tea and warm cookies	Meetings Lounge
15:15-16:30	Conference session resumes	Sophia Suit
16:30	Conference session ends	
18:45	Transport from Hilton Hotel to Millennium Stadium	Hilton Hotel Foyer
19:00	Transport from Millennium Stadium to La Fosse Restaurant	
20:30-22:30	Hosted Dinner	La Fosse Restaurant, Cardiff
22:30	Transport from La Fosse Restaurant to Hilton Hotel	
Wednesday 22nd September		
07:00	Breakfast serving begins	Hilton Hotel Dining Room, for those delegates staying at this hotel
09:00-10:30	Conference session begins	Sophia Suit
10:30	Break Coffee/Tea and Danish Pastries	Hilton Hotel Meetings Lounge, 1 st floor

10:45-12:30	Conference session resumes	Sophia Suite
12:30-13:30	Lunch Finger buffet	Meetings Lounge
13:30-15:00	Conference session resumes	Sophia Suite
15:00	Break Coffee/Tea and warm cookies	Meetings Lounge
15:15-16:30	Conference session resumes	Sophia Suit
16:30	Conference session ends	
19:15	Transport from Hilton Hotel to St. David's Hotel	Hilton Hotel Foyer
19:30-22:30	Hosted Dinner	St. David's Hotel, Tides Restaurant, Dock Side
22:30	Transport from St. David's Hotel to Hilton Hotel	
Thursday 23rd September		
07:00	Breakfast serving begins	Hilton Hotel Dining Room, for those delegates staying at this hotel
09:00-10:30	Conference session begins	Sophia Suit
10:30	Break Coffee/Tea and Biscuits	Meeting Lounge
10:45-12:30	Conference session resumes	Sophia Suite
12:30	Conference closes	
12:30-13:30	Lunch Finger buffet	Meetings Lounge

3.

AGENDA

26th North Sea Hydrographic Conference

Cardiff, September 2004

Adopted Agenda

FOR THE 26TH NORTH SEA HYDROGRAPHIC CONFERENCE

September 21st – 23rd 2004

A.	OPENING FORMALITIES	
A1	Opening Remarks	Chairman
A2	Administrative Arrangements	Host Country
A3	Adoption of Agenda	Chairman
A4	NSHC Conference Conclusions	Chairman
A5	NSHC outstanding/ongoing agenda items	Chairman
A6	Review of Statutes, when considered necessary	Chairman
A7	Activities of the IHO	IHB
B.	STRATEGIC ASPECTS OF THE WORK OF HOs - TECHNICAL ISSUES	
B1	<i>Mammals and multibeam: request for NSHC conclusion, reference IHO CLO 76/2002. Withdrawn.</i>	NL
B2	Vertical Offshore Reference Framework for the UK.	UK
B4	Experience gained by new positioning system (ABSPOS)	NO
B5	Status “Enhanced ENC Production”	NO
B6	Current status of S-55	UK
B7	Standardisation of digital exchange of NtMs	DE
B8	The French coastal reference initiative: Litto3D	FR
B9	Safety of electronic systems	FR
C.	STRATEGIC ASPECTS OF THE WORK OF IHO - ADMINISTRATIVE AND MARKETING ISSUES	
C1	Data release policy: reconsideration of NL proposal as addressed at 25 th NSHC Conference agenda item C3.	NL
C2	INT chart system: interpretation of financial matters i.a.w. Technical Resolution A 3.4	NL
C3	Prototype online licensing system.	UK
		DE
C4	Copyright pricing policy	FR
C5	ICZ Map.	UK

C6	Marine Data and Information Partnership	UK DE
C7	Integrated Coastal Hydrography	UK
C8	WEND update	UK
C9	Status harmonisation work NHS – Coastal Administration	NO
C10	Judicial verdict in Swedish copyright court case	SE
C11	Privately produced Small Craft Charts	DK
C12	Distribution of Charts	DK
C13	Kort & Matrikelstyrelsen, the National Institute for Spatial Information Infrastructure	DK
C14	Arrangements for the use of ENC's in international projects, (e.g. EU)	DE
C15	ISO 9001:2000 certification of SHOM	FR
C16	Progress with the Production and Distribution of ENC's	ALL
C17	UKHO Future Status	UK
D.	CO-OPERATIVE NSHC/IHO PROJECTS	
D1	LAT-conversion, report of progress.	NL
D2	WGS-84 conversion, report of progress.	NL UK
D3	Status of the work of SPWG	NO
D4	Preparation of the EIHC 2005	DE
D5	Status PRIMAR Stavanger	NO
D6	Ongoing work of the IHO CBC	UK
D7	Hydrographic capacities assessment in Western Africa	FR
D8	Status IC-ENC	UK
E.	NSHC WORKING GROUPS	
E1	Report of the NW-European Charting Group: transfer of chairmanship to UKHO from July 1 st onwards	NL
E2	Report of the Tidal working Group.	DK,UK
E3	Final arrangements for the winding up of the Custodianship System	DE
F.	MISCELLANEOUS	
F1	Production system upgrade SHIP2.	NL
F2	Digital Nautical Publications. NLTides and Sailing Directions.	NL
F3	Accreditation of UKHO cartographic courses.	UK

F4	International Training.	UK
F5	UK off shore wind farm development.	UK
F6	New Norwegian Survey Launch	NO
F7	Multibeam Training Course	NO
F8	Internet publishing of NtMs with database solution.	SE
F9	Surveying capacities	FR
G.	UNSCHEDULED ITEMS	
G1	North Sea Conference 2006	DE
G2	Shallow Water Survey Conference	UK
H.	CONCLUDING FORMALITIES	
H1	Approval of Conference Conclusions and Recommendations	Chairman
H2	Place and time of next Conference	Chairman
H3	Election of new Chairman	Chairman
H4	Closing Remarks	New Chairman

4.

MINUTES OF THE MEETING

26th North Sea Hydrographic Conference

Cardiff, September 2004

Minutes
26th North Sea Hydrographic Commission Conference
Cardiff, September 20th – 23rd 2004

A. OPENING FORMALITIES

A1. Opening Remarks

The chairman of North Sea Hydrographic Commission (NSHC), Åke Magnusson (SE), welcomed all delegates to 26th North Sea Hydrographic Conference. The chairman noted specifically and welcomed the delegates from Ireland, the IHB and the UK Maritime and Coastguard Agency as observers to the conference.

A2. Administrative Arrangements

Wyn Williams (UK) welcomed the delegates to Wales and the city of Cardiff. Clive Manuel gave details of the practical arrangements for the conference.

A3. Adoption of Agenda

DE proposed additions to agenda items C3 and C6. NL proposed to withdraw agenda item B1. DE proposed additional agenda item G1 to discuss input to the North Sea Conference 2006 and the UK suggested that it could provide information on the upcoming Shallow Water Survey Conference under this agenda item.

The changes were approved and the agenda was adopted.

A4. NSHC Conference Conclusions

A list of active conclusions will be included in the report of the 26th conference.

A5. Outstanding/ongoing activities

All actions from the 25th conference were considered to have been completed, superseded or covered by later agenda items.

A6. Review of Statutes, when considered necessary

No actions were considered necessary.

A7. Activities of the IHO

Alexandros Maratos, President of the IHB, reviewed the activities of the IHO since the last NSHC conference. Preparations are well underway for the 3rd Extraordinary International Hydrographic Conference in 2005 (EIHC). All vital documents for the conference have been distributed. A number of circular letters have been issued on practical arrangements, visits of survey ships, social events etc. The closing date for nominations for the post of EIHC President is the end of September 2004. A number of nominations have already been received.

The President also provided information on: SPWG, S55, the IHO CBC, discussions with the UN about World Hydrography Day, a proposal for a working group to revise S44, cooperation with other international organisations such as IMO and IALA, and the status of new members - Mauritius is next in line to join the IHO as MS nr 75 and Latvia, Romania, Saudi Arabia and Cameroon are in the process of joining.

Comments:

UK asked about World Hydrographic Day and plans for this event. The IHB mentioned that the bureau and MS should select a theme for the event every year.

B. STRATEGIC ASPECTS OF THE WORK OF HOs – TECHNICAL ISSUES

B2. (UK) Vertical Offshore Reference Framework for the UK

Reference: PowerPoint presentation on CD appended to final report, "Presentation B2 UK NSHC 2004.ppt".

Comments:

DE, NL and BE reported that similar activities are going on in their organisations. The Tidal WG could be a forum for further activities.

Action. The Tidal WG should consider vertical offshore reference frameworks as a topic for inclusion in their work programme.

B4. (NO) Experience gained by new positioning system ABSPOS.

NO reported on experiences using ABSPOS. The method involves post-processing measured data and has been proven to be efficient. See explanatory note (EN) for more details.

It was pointed out that this information could be of interest to MS outside of the NSHC area. Note that explanatory notes are available at the IHO web site.

B5. (NO) Status of "Enhanced ENC Production".

The goal is to create a modern maritime information infrastructure in Norway by the end of 2006. The project is well on track. The specifications for external contractors can be made available for NSHC members. The internal production system is primarily Intergraph today. Replacement of the current production system is underway.

B6. (IHB/UK) Current status of S55

Reference: PowerPoint presentation on CD appended to final report, "Presentation B6 IHB NSHC 2004.ppt".

S55 is intended as an important document in strategic discussions within IMO, UN etc. An analysis of main sea routes is needed. There are serious deficiencies in the Pacific and Polar regions among others. An S55 database is being built and a questionnaire is available on the IHO website. The update process is very important and assistance of NSHC members is appreciated.

Comments:

UK: The requirements for regional databases need to be specified. Graphical presentations are needed. This is a challenge for RHC's worldwide.

DE: This a very important issue where we need to do more. The homework has to be done, update S55 regularly, offer assistance to others, invite IHB to raise awareness, introduce hydrography as agenda items in bilateral meetings with shipping organisations.

SE: Helcom has a database of survey plans where regrettably the implementation is delayed until early 2005. Sweden will keep this information updated and published.

NO: Questioned how to use the information in S55 and how to prioritise? An IHO strategy may assist in the way ahead.

IHB: There are three important issues namely maritime safety information (MSI), surveying and charting (including ENC). Attention is brought to the IMO and we cooperate with the IMO. There is also work on improved relations with the media.

The Chairman emphasized the importance of keeping S55 up-to-date and the specific need for information about MSI.

UK: Believed that the IHB needed to explain the purpose of regional databases to RHCs and provide guidance on what these databases should contain.

DE: Asked whether the NSHC should try to formulate a conclusion on this topic.

DK: Appreciated the good work that had been done to update S55. DK considered that it might be worthwhile extending initiatives like Helcom into the North Sea. The next step could be something on a European level. There are a lot of activities under way and progress is being made.

See conclusion No. 80.

B7. (DE) Standardisation of digital exchange of NtM's

DE noted that there is a considerable bilateral exchange of NtM's. This activity would be made more efficient if standardised procedures were used. The purpose is not to standardise the content of NtMs, but to standardise the exchange format. One such format would be XML. It was suggested that a task group should be established to consider , to work by correspondence, is suggested.

Comments:

FR: Indicated that it would like to participate in this work.

UK: Indicated that it would like to be a member of the task group.

NL: Would prefer an activity under the CHRIS umbrella .

DE: Under CHRIS it will be more complicated and take more time.

CHRIS chairman: Whether the goal is global standard or not, an easy facilitation of electronic document exchange is a good initiative.

Action. A task group will be created, led by Germany.

B8. (FR) The French coastal reference initiative, Litto3D

Reference: PowerPoint presentation on CD appended to final report, "Presentation B8 FR NSHC 2004.ppt".

FR presented a national initiative with a test area in southern Brittany. Information is merged from different databases including orthophoto. Some problems exist with the lack of a common shore line. This could be extended into a European-wide initiative in future. There are obvious links to military applications.

B9. (FR) Safety of electronic systems

FR has delivered a letter to IHB about concerns regarding different functionality between type approved ECDIS systems. One third of ERs were rejected by the systems. The way how the safe functioning of crucial equipment is guaranteed in aviation may serve as guidance for improvements.

Comments:

DE: BSH has experience from its responsibility as type approval authority of navigational systems, e.g. ECDIS. Problems with type approval should be reported to the respective EU committee responsible for supervising the EU Marine Equipment Directive. DE proposed that

FR make their concerns known with its national Maritime Administration. DE also proposed that FR liaise with IEC and its WG7.

UK: This should be a topic for discussion with OEMs at IHO Industry Days.

IHB: The IHB has already sent a letter to the chairman of CHRIS and proposes that France also sends a letter, if it considers it appropriate.

C. STRATEGIC ASPECTS OF THE WORK OF IHO – ADMINISTRATIVE AND MARKETING ISSUES

C1. (NL) Data release policy.

A special logo was introduced for use by derived product producers but will be withdrawn from 2006 onwards due to a risk of misunderstandings and misuse.

C2. (NL) INT Chart system

NL suggested that member states should not have to pay royalties on foreign data in INT charts for which they are the producer nations.

Comments:

DK: Recognised that this is sensitive and complicated issue and that they are reasonably satisfied with the situation as it is.

UK: Similarly stated that it was willing to continue with its present practise of paying royalties on INT charts for which it is the producer nation

Chairman: Stated that this issue was best resolved using bilateral arrangements.

C3. (UK) Prototype online licensing system

Reference: PowerPoint presentation on CD appended to final report, "Presentation C3 UK NSHC 2004.ppt".

The UK demonstrated its prototype online licensing system. The resulting draft and final licenses are delivered through email. The UK invited NSHC members who are interested in this product to contact the UKHO for further details.

C3. (DE) EU directive on re-use of public sector information

Legislation following this directive is in process in Germany. An application for re-use of documents has to be made and a grant given can imply costs for the grantee. Electronic licensing procedures are expected and license terms should be internationally standardised.

C4. (FR) Copyright pricing policy

FR described its copyright pricing model.

C5. (UK) ICZMap

See C7.

C6. (UK) Marine Data and Information Partnership

See C7.

C6 (DE) The INSPIRE directive

Dealing with electronic/digital geospatial information puts HOs into a larger context of geodata providers. Marine data will be a part of information required in this and similar initiatives. A European portal for publishing metadata and availability is proposed. How do HOs fit in to a

larger perspective? INSPIRE is an item of major strategic importance for the future and international co-operation will be necessary.

Comments:

DK: Welcomed the INSPIRE initiative.

IHB: Reminded NSHC members about a CL regarding a Joint Board of geospatial societies.

FR: Noted that the proposed time schedule for implementation is very tight and demanding.

DE: Stated that it is a matter of strategic importance for the future production and use of maritime and hydrographic information.

FR: This is a demanding initiative and the implications are not clear yet. Exchange of comments may be of interest to circulate among NSHC members.

UK: The UKHO is working with other government departments in the UK to create a spatial data infrastructure which is compatible with INSPIRE. The UKHO is also working on a new data release and re-use policy which it would be willing to share with other NSHC members.

DE: Asked if the NSHC should create a WG on spatial planning and informational infrastructure.

FR: Stated that it would distribute its comments on the INSPIRE directive to member states. (Done during the meeting.)

Action. DE will invite NSHC members to a seminar on marine geospatial data infrastructure in Rostock in 2005.

Germany provided more information on its plans for the seminar later in the conference: The seminar will be held in Rostock in November 2005. Timetables have to be checked and the intention is to hold a two day seminar. Co-sponsors will be sought. A programme committee with participation from the IHB will prepare the seminar by correspondence. Call for papers will be announced. Horst Hecht is the contact person. The intended title of the seminar is for now "The role of hydrographic services in marine geospatial planning and data infrastructures".

C7. (UK) Integrated Coastal Hydrography

Agenda items C5,C6 UK,C7 were taken together.

The UK explained the relationship between its initiatives on ICZMap, the Marine Data and Information Partnership, and Integrated Coastal Hydrography. ICZMap, Integrated Coastal Zone Map, is a joint initiative between the UKHO, the Ordnance Survey and British Geological Survey. Datasets for use in GIS are created and a series of trial areas have been established. A business plan is being developed for a national product. A metadata registry on the availability of marine data is being developed as part of the Integrated Coastal Hydrography project. Datasets for use in GIS are being marketed under the "HydroSpatial" brand name. A joint venture company called "SeaZone" has been formed to serve the needs of those that wish to use hydrographic data for non-navigational purposes.

C8. (UK) WEND Update

The activities of the WEND Task Group were reviewed. There are three 3 main issues related to the production, quality and distribution of ENCs. The task group has defined the roles of RHCs, MS and RENCs. Work has been done to identify producer nations for small-scale ENCs based on existing INT charts. Recommendations for improving the quality and consistency of ENCs has been published in CL 47 2004. The task group is actively encouraging member states to distribute their ENCs through a RENC.

Comments:

DE: It is necessary to assist countries where ENC production is still unsatisfactory.

Chairman: The NSHC has received a letter from Ken Barbor of the IHB regarding these issues.

UK: The NSHC has not responded to the task group proposals for small-scale ENC production.

FR: There are two RENCs in the region and we can observe some problems with coordination. This can also help in defining how do we reach a WEND.

NO: The IHO has to discuss the real meaning of WEND. Such a discussion covers complex matters and preparations are needed. The connection to procedures and the role of IMO has to be taken into consideration.

IHB: The IMO NAV asks for a report on the ENC status.

Action. UK will respond to IHB WEND Task Group letter and co-ordinate the production of small scale ENCs for the NSHC area.

C9. (NO) Harmonisation work NHS and Coastal Administration

Norway reported on a comprehensive project where efficiency gains are expected. The project will run for another three years.

C10. (SE) Judicial verdict in Swedish copyright court case

Sweden gave a short report on the outcome of a copyright case where the ruling in the Court of Appeal was in favour of the external producer.

C11. (DK) Privately produced small craft charts

Denmark reported on the experience it has gained so far with the new model where most end user products are produced externally. Problems have been encountered with regard to information management at external producers.

Comments:

DE: We are in contact with Denmark about the production of official pleasure craft charts for Danish waters.

NO: There is a political trend to produce pleasure craft products by private companies.

Arguments on safety at sea are ignored.

UK: What are the legislative requirements for small craft to carry charts in other NSHC member states?

SE, NO, NL: There are no chart requirements for small craft.

DE: Note that according to SOLAS V **all** crafts are required to have charts. Exceptions may be made by national legislation.

DK: SOLAS V is valid, but in practice adherence for small crafts is not rigorously controlled.

FR: In France the situation is unclear.

C12. (DK) Distribution of Charts.

Denmark reported that there has been no legal verdict yet in the Danish procurement case.

C13. (DK) KMS – the National Institute for Spatial Information Infrastructure.

Reference: PowerPoint presentation on CD appended to final report, "Presentation C13 DK NSHC 2004.ppt".

C14. (DE) The use of ENCs in international projects.

ENCs are in demand for use as multi purpose datasets. Research programs of the EU, e.g. the INTERREG subprogram for Baltic region, BaltCoast, have asked that ENCs should be available free of charge for their applications.

Comments:

UK: Our experience is that ENC data is a good starting point, but it is not ideal for use in GIS for a lot of non-navigational applications.

BE: In Belgium government agencies get information free of charge.

NO: An initiative between government institutes in Norway to create a Marine Area Database is underway. More detailed bathymetric data is requested.

DE: The proposed seminar on marine geospatial data infrastructure will be important and we should discuss how to shift from reactive to a proactive position in these initiatives.

DK: There is a market in consulting engineering companies. We are advocating the concept that official ENCs are made available for other purposes.

FR: We cannot deliver totally free of charge. There is a need for policy making with regard to data protection, etc.

UK: The UKHO has formed a joint venture company called SeaZone to serve the needs of customers requiring hydrographic data for non-navigational purposes.

DK: We use a 50 % discount for use in research etc. Delivery should preferably go through RENCs.

DE: It is important to raise awareness of ENC as a standardised valuable dataset.

UK: There is often a need for more detailed data than that which is available in ENC.

NO: A generic model is useful for how these requests are to be handled by RENCs.

UK: The experience is that unencrypted data is preferred.

DE: As there is no agreement on a common policy on the supply of ENCs to international projects, the respective requests should be forwarded to the national HOs concerned for consideration.

C15. (FR) ISO 9001:2000 certification of SHOM

France reported on their work to achieve certification according to ISO 9001:2000. The certificate was received in spring 2004. At SHOM 34 processes have been identified and described. Attempts were made to create more generic processes but these were not successful. Simplifications will be made in the future, but it is expected that we keep around 30 processes. The Design and Development did not appear as a separate process but was also reorganised in the formalisation of the quality management.

One positive result from this work is that information and reports within the service are structured and better organised. France considered that the IHO could usefully provide advice to member states on how to improve their quality management systems based on the experience of those already certified and that could be an important task for the renovated organisation.

C16. (UK) Progress with the Production and Distribution of ENC's

It was accepted that these matters should be discussed under agenda items D5 and D8.

C17. (UK) UKHO Future Status

Reference: PowerPoint presentation on CD appended to final report, "Presentation C17 UK NSHC 2004.ppt".

The UKHO has to be commercial to continue to operate as a trading fund. A new government-owned holding company called Admiralty Holdings Ltd has been established, with two subsidiary joint venture companies called SeaZone Solutions Ltd and Admiralty Coastal Surveys AB. The business areas identified so far are shallow water surveys, environmental planning and management, energy exploration and leisure products. Others will follow.

A short questions and answers session followed on value of the brand, intellectual property rights, liability, disclaimers, staff issues and dominant position.

D. CO-OPERATIVE NSHC/IHO PROJECTS

D1. (NL) LAT-conversion, report of progress

This work has been delayed until the results of the SHIP2 project are implemented.

D2. (NL,UK) WGS84 conversion, report of progress

See respective explanatory note for more details.

D3. Status of the work of SPWG

See D4

D4. Preparations of the EIHC 2005

Agenda items D3 and D4 were taken together.

Reference: PowerPoint presentation on CD appended to final report, "Presentation D4 SPWG NSHC 2004.ppt".

Frode Klepsvik, chairman of SPWG, presented the SPWG work. Several seminars have been conducted to provide member states with information about the SPWG proposals. These proposals recommend a major change to the structure for IHO and IHB. Member states will be asked to vote on eight (8) proposals at the 3rd EIHC.

Comments:

DE: What is the general opinion of NSHC MS? Can the NSHC influence other member states?

FR: We will suggest amendments to the SPWG proposals. (*The proposed amendments from France were distributed directly to conference delegates.*)

DK,NL: We are in favour of the SPWG proposals.

DE: A general statement of support for the SPWG proposals from NSHC to IHO would be helpful.

DK: The strongest support can be made by comments to the actual CL concerning SPWG proposals.

DE: How can MS influence countries outside NSHC, maybe through diplomatic channels.

NO: This can be done by each MS individually, not by NSHC.

UK: Supported NO position.

DE: It would be useful to have information about the contact MS have with other countries so that countries are not missed and the same country is not approached several times by different MS.

UK: A list of contacts could be maintained by the NSHC Chairman.

The 26th NSHC agreed the following statement:

The members of NSHC welcome the results elaborated by SPWG and will support in general the proposals put forward by SPWG, in particular the amendments to the convention. The members are encouraged to individually undertake measures to convince other IHO member states of the importance of the proposals, and to keep the NSHC chairman informed about relevant initiatives.

D5. (NO) Status PRIMAR Stavanger

Agenda items D5 and D8 were taken together.

The PRIMAR RENC is developing in a positive direction. How to enforce the use of official ENC's remains a serious issue. The NHS has been accepted as VAR of IC-ENC. A new chart catalogue tool has been released. Presently 40 % of purchases are made outside office hours.

Reference: PowerPoint presentation on CD appended to final report, "Presentation D5 DK NSHC 2004.ppt".

Ole Berg, chairman of the PRIMAR Advisory Committee, reported on strategic issues. Work items have included: ENC encoding harmonisation, production of an information document on carriage requirements for charts, pricing policy issues and evaluation of S63.

Comments: See D8.

D6. (IHB) Ongoing work of the IHO CBC

Reference: PowerPoint presentation on CD appended to final report, "Presentation D6 IHB NSHC 2004.ppt".

The strategic document M2 of the IHO defines a phased approach to capacity building where the keywords are awareness, assessment, analysis and action.

Comments:

NO: Note that suggestions on funding mechanisms for capacity building are part of the work for the SPWG.

DE: How to proceed in order to form an opinion of the NSHC?

Action. All NSHC MS to carefully study the CBC draft strategy for capacity building and provide input to the CBC as soon as possible, preferably before 4 October 2004.

D7. (FR) Hydrographic capacities assessment in Western Africa

The East Atlantic Hydrographic Commission (EAtHC) stretches geographically from Brest to the Congos and there are 23 countries. There have been no serious surveys of West Africa in the last 40 years and this situation is entirely unsatisfactory. A capacity building programme has been established and 18 nations have been visited. The aim is to implement improvements according to the phases in M2. About 10 elementary actions have been introduced in each country. The next EAtHC meeting in Brest in October 2004 will be preceded by a technical workshop. A regional approach to capacity building has been considered where possible.

Comments:

FR: It is important that these efforts are long lasting and supported.

DE: We appreciate this work. Awareness of these efforts in other parts of the world is also important. Maybe the World Maritime University (WMU) of Malmö could be one possible way to raise awareness of this initiative.

IHB: Would like to stress that this topic is vital for the future of IHO. Input to CBC documents and the work of this committee is very important.

D8. (UK) Status IC-ENC

Agenda items D5 and D8 were taken together.

Reference: PowerPoint presentation on CD appended to final report, "Presentation D8 UK NSHC 2004.ppt".

The current growth rate of sales is 400 % per year. The critical factors for further growth are coverage, quality and consistency, carriage regulations, ease of use and availability.

Comments (D5 and D8):

UK: How is the liability for ENC's in the PRIMAR service apportioned between HO's as producers and NHS as operator of the RENC?

NO: MS are responsible for their information, the RENC is responsible for information added by the RENC.

IHB: A CL will be issued regarding the "S63 Extended WG". The working group is not part of the IHO structure and it will be asked to make changes to its website and its name.

E1. (NL) NW European Charting Group

There is still a requirement to co-ordinate the production of INT charts in the NSHC area. The conference was asked to approve the continuation of the NW European Charting Group.

UK: Supported the continuation of the group and said that it would be willing to continue to provide the chairman.

DE: Would prefer that the WG works by correspondence and that it works on clearly defined tasks that are approved by the commission.

The Chairman thanked the WG and its former chairman Mr Ferwerda for its good work and appreciated the offer from the UK to assume chairmanship of the group.

Action. The Chairman of the NW European Charting Group to review the Terms of Reference and devise a work plan for the WG, and circulate these for approval to NSHC MS.

E2. (DK,UK) Tidal WG

Action. All NSHC members to evaluate the Tidal WG report and provide comments to chairman of the WG.

Action. The Chairman of the Tidal Working Group to review the Terms of Reference and devise a work plan for the WG, and circulate these for approval to NSHC MS.

E3. (DE) Final arrangements for the winding up of the Custodianship system

Germany reminded MS that the custodianship system will terminate at the end of 2004.

Action. All MS to inform each other of the status of agreements according to the Custodianship Principle.

G. UNSCHEDULED ITEMS

G1. (DE) The 6th North Sea Conference 2006

Reference: PowerPoint presentation on CD appended to final report, "Presentation G1 DE NSHC 2004.ppt".

DE informed the conference that the specific items of the conference will be shipping and fishing. What input can the NSHC have to the conference?

Proposal from Germany:

- NSHC gives hydrographic input to North Sea Conference
- Chairman is asked to contact and inform CONSSO immediately
- NSHC drafts a concrete proposal before the end of 2004
- NSHC submits a proposal to working group on shipping in January 2005
- NSHC members contact their relevant ministries for support

Comments:

DK,NL,NO,UK: all in strong support of the proposal by DE.

Action. According to proposal above.

G2. (UK) The 4th Shallow water survey conference

The UK informed the conference that the 4th Shallow Water Survey Conference will be held in Plymouth, 12-15 September 2005.

F. MISCELLANEOUS

F1. (NL) Production system upgrade SHIP2

A contract with CARIS is being finalised for a solution based on HPD. The plan is to implement the new system over the next two years. The new system is expected to be fully operational in early 2007.

F2. (NL) Digital Nautical Publications. NLTides and Sailing Directions

From 2005 and onwards there will be a new official digital tidal information product for NL and BE. End user pricing will be decided by distributors, but will probably be similar to that of equivalent paper products.

Development is underway for a digital Sailing Directions product. This may be ready for presentation in late 2005 and will be an interactive program with search capabilities and additional information.

Comments:

UK: NL participation in the IHO Standardisation of Nautical Publications Working Group would be welcomed.

F3. (UK) Accreditation of UKHO cartographic courses

The UKHO hopes that its internal 18 week training course will be accredited as a Category B course and that this may lead to accreditation for its 5 and 2 week international training courses. It is important for capacity building activities that students receive certificates.

F4. (UK) International Training

The UK gave details of its 5 and 2-week international courses in hydrographic data processing and marine cartography, and ENC production. The 5 week courses are normally held in Taunton. The 2 week courses can be delivered at customer sites. A bursary scheme is available to cover the costs of the training, travel and food and accommodation. ENC training has been provided in Spanish!

F5. (UK) UK off-shore wind farm development

Reference: PowerPoint presentation on CD appended to final report, "Presentation F5 UK NSHC 2004.ppt".

Three strategic areas of wind farm development are planned in the UK. One wind farm in operation at the moment has 30 generators. In the next round, there are plans for wind farms with up to 300 turbines, for example in the Thames estuary. There is opposition to these plans. Co-operation between government departments has improved. MCA will release a Marine Guidance Note for consideration by wind farm developers.

Comments:

DE: Similar projects are being discussed in Germany. The BSH has succeeded in becoming the authorising government body for off-shore wind farm projects, as the hydrographic interest is vital.

DK: We are not the authorising authority, but we take part in the planning process for off-shore wind farms in Denmark.

F6. (NO) New Norwegian Survey Launch

Norway gave details of its early experience of using a new survey launch with the capacity to operate for 4-5 days away from its mother ship.

F7. (NO) Multibeam Training Course

Norway informed MS that places were still available on the multibeam training course. The course is held in Norway and arranged by Hydrometrica, Ocean Mapping Group and the University of New Brunswick.

F8. (SE) Internet publishing of NtMs with database solution

Reference: PowerPoint presentation on CD appended to final report, "Presentation F8 SE NSHC 2004.ppt".

Sweden gave details of a soon to be released service for the direct publishing of NtMs on the Internet. The information content of the NtMs has been structured and a database solution has been built. The weekly printed product is extracted from this database and this procedure has proved to be efficient.

F9. (FR) Surveying capacities

Reference: PowerPoint presentation on CD appended to final report, "Presentation F9 FR NSHC 2004.ppt".

A presentation was given on the new survey ships "Beautemps-Beaupré" and "Pourquoi pas?".

Comments:

IHB: Have had the pleasure of a visit onboard.

DE: France is to be congratulated for a wonderful vessel. There is a new survey vessel designed for operating in shallow waters that has been commissioned for BSH recently. Details will be published shortly in the magazine Hydro International.

FR: We have tried to design a flexible concept where information systems onboard are the same as those ashore.

H. CLOSING SESSION

H1. Approval of Conference Conclusions and Recommendations

NSHC resolution no. 80 resulting from agenda item B6 was approved.

Note also the special statement agreed under agenda item D4.

H2. Place and time of next conference

DE: Proposed that the 27th NSHC Conference should take place in Rostock during autumn 2006.

UK: Proposed to bring the next conference forward to autumn 2005 in order to be able to act on the outcome of the 3rd EIHC.

DK: Noted that it is possible to have extraordinary NSHC meetings as well if needed.

NL: Suggested that a SPWG meeting could be called in conjunction with the seminar in autumn 2005.

It was decided that the ordinary two-year cycle should be kept and the next conference will be in Rostock in autumn 2006, bearing in mind that an extraordinary NSHC conference may be arranged if it is considered necessary.

H3. Election of new chairman

Dr Wyn Williams, National Hydrographer and Chief Executive of the UK Hydrographic Office, was elected as the new chairman of NSHC.

H4. Closing remarks

The resigning chairman thanked all the delegates for their support during the period of his chairmanship and especially for the excellent meeting in Cardiff. He also extended his thanks to Dr Wyn Williams and the UK staff for all their hard work and efforts in both preparing for and providing support for the meeting. He added that the evening events were very enjoyable and the overall hospitality shown to all delegates was overwhelming.

The new chairman thanked all delegates for coming to Cardiff, for their efforts and contributions to the discussions of the previous 2 days, and he closed the conference.

5.

**CONCLUSIONS
and Statements**

26th North Sea Hydrographic Conference

Cardiff, September 2004

Conclusion No.	Place and year of adoption	Status
80	Cardiff, 2004	

S-55 Data-base

The North Sea Hydrographic Commission, during its 26th conference in Cardiff, September 2004;

Noting the report on the update of S-55,

Recommends that the IHB, assisted by the S-55 project co-ordinator, develop the IHO's strategy to overcome deficiencies in survey, charting and MSI coverage world-wide, using the S-55 data-base.

Resolves that the Hydrographic Offices of the Member States:

- (1) Use the on-line data-base (www.iho.shom.fr) and draw it to the attention of appropriate national authorities;
- (2) Put in place a systematic process for regular update of national data in S-55.

As a result from discussions in agenda item D4 the 26th NSHC agreed the following statement:

The members of NSHC welcome the results elaborated by SPWG and will support in general the proposals put forward by SPWG, in particular the amendments to the convention. The members are encouraged to individually undertake measures to convince other IHO member states of the importance of the proposals, and to keep the NSHC chairman informed about relevant initiatives.

6.

LIST OF ACTIONS

26th North Sea Hydrographic Conference

Cardiff, September 2004

Reference to agenda item	Responsible	Action	Status
B2	Chairman of the Tidal WG	To consider vertical offshore reference frameworks as a topic for inclusion in their work programme.	
B7	DE	To create and lead a task group to work on Digital Exchange of NtM's.	
C6	DE	To invite to a seminar on marine geospatial data infrastructure in Rostock 2005	
C8	UK	To respond to the IHB WEND Task Group letter and coordinate the production of small scale ENC's for the NSHC area.	
D3	All NSHC MS	To report to the NSHC chairman on any activities to promote SPWG proposals in other IHO MS.	
D6	All NSHC MS	To carefully study the CBC draft strategy for capacity building and provide input to the CBC as soon as possible, preferably before 4 October 2004.	
E1	Chairman of the NW European Charting Group	To review the Terms of Reference and devise a work plan for the WG, and circulate these for approval to NSHC MS	
E2	All NSHC MS	To evaluate the Tidal WG report and provide comments to chairman of the Tidal WG.	
E2	Chairman of the Tidal WG	To review the Terms of Reference and devise a work plan for the WG, and circulate these for approval to NSHC MS	
E3	All NSHC MS	To inform each other on status of agreements according to the Custodianship Principle	
G1	NSHC chairman	To prepare input to the 6 th North Sea Conference 2006 in accordance with proposal from Germany	

7.

EXPLANATORY NOTES

26th North Sea Hydrographic Conference

Cardiff, September 2004

Mammals and Multibeam

IHO Circular Letter 76 of 2003 dealt with the effect of Multibeam systems on marine mammals.

The problem was raised by Dr. Schenke of the Alfred Wegener Institut (DE) and during the answering of this CL we became aware that of course this problem is not unique for the Antarctic waters.

The Netherlands answer was approximately (abbreviated):

- Investigation the earth is important, but not at any price.
- A marine survey has only a temporary effect on the marine environment; there will be no lasting harm.
- Safety of shipping strongly benefits from these surveys. Good charts can prevent serious accidents to happen, thus avoiding lasting contamination.
- For several reasons it is hardly feasible to stop survey operations every time a marine mammal is believed to come in range.

Further study on this subject lead to the NATO-publication "The guidelines of NATO Undersea Research Centre (STAFF INSTRUCTION 77, NATO URC HUMAN DIVER AND MARINE MAMMAL RISK MITIGATION RULES)" (see Annex B1). The guidelines are based on intensive study and may be seen as a good starting point towards a workable solution for hydrographic operations.

We have no information about the opinion of other members, yet. In case other NSHCmembers would have deviating opinions on this matter, it would be good to have a discussion on the various aspects of this important matter. Preferably this should result in a shared NSHC-conclusion on the subject.

It is suggested an IHO workgroup will address the subject in detail, resulting in IHOguidelines for acoustic emissions in the presence of marine mammals based; the abovementioned guidelines (Annex B1) are a good starting point.

Vertical Offshore Reference Framework for the UK

The UKHO needs to develop a vertical surface separation model to accurately model the difference between Chart Datum, the minimum sea surface and ETRS89 in Home Waters. This will enable us to:

- Handle depth data from surveys which is referred to a WGS84 compatible datum rather than Chart Datum.
- Hold data in the HDB, referenced to a single seamless vertical datum.
- Output data to meet user-defined criteria.
- Offer a high accuracy set of transformation parameters suitable for licensing and/or inclusion in developing partner products and services.

Project VORF is running within V2F to meet this need and it is hoped that the model will be delivered by early 2006. UKHO is developing a vertical surface separation model to cover UK waters and cooperation with other bounding nations is sought – if for no other reason than to test the model at the boundaries.

Experience gained by new positioning system (Abspos)

Introduction

Over the last decade, the Norwegian Hydrographic Service (NHS) has utilized a mobile differential GPS system (Seapos) for hydrographic surveying. The use of a mobile system was required, since no permanent system could provide coverage in all the Norwegian fjords and on the Svalbard archipelago. As the Seapos system was introduced, it represented a dramatic efficiency improvement over the formerly used short-range radio navigation systems. However, the Seapos operations still required quite a lot of logistics, and the flexibility of the surveying operation was restricted due to the limited coverage of the DGPS radio link.

As the precise point positioning technique developed, the NHS caught interest in this approach as an alternative to DGPS.

What is Abspos and how does it work?

Abspos is short for “ABSolute POSitioning” (a rather ambitious name, but Abspos is at least more “absolute” than DGPS). Abspos is a GPS post processing software package, based on the precise point positioning technique.

The Abspos software requires high quality data as input, and new GPS receivers were purchased as Abspos was introduced. The Javad Navigation Systems Euro-GGD receiver was selected for Abspos. The receiver was configured as a dual frequency GPS receiver (no Glonass) with 1PPS output for equipment synchronisation and DGPS+WAAS/Egnos capability for real-time positioning. The MBX3 radio beacon receiver from CSI was selected for reception of IALA DGPS broadcasts.

The real-time positioning solution is based on a combination of Egnos corrections, DGPS corrections from IALA or uncorrected GPS positions. The solution mix depends on the availability of external correction sources. The real-time positioning accuracy requirement is in the order of 1-3 m, which is sufficient to ensure proper bottom coverage for the Multibeam Echosounder.

In real-time, dual frequency GPS code and phase observations are logged continuously (i.e. the logging of GPS data is not influenced by the logging of other sensors being turned on and off). Once a day (typically) the final positions are calculated by post processing with Abspos. The first step of the processing is to download recent IGS¹ orbits and clock corrections from the Internet. These files are quite small (the 24 hours orbit files are 80K and the corresponding clock files are 700K) and the data can easily be downloaded on a slow Internet connection. Three Internet connections are available on the vessels (GSM, Inmarsat and Iridium), which should ensure a quite reliable Internet access.

The IGS orbits come in three flavours: Ultra-rapid orbits, rapid orbits and final orbits. The availability and the quality of these products are given in Table 1, which is extracted from the

¹ IGS = International GPS Service

IGS Internet page. In the field, the processing is based either on the observed part of the ultra-rapid orbits or the rapid orbits. As the hydrographic data are transferred to the NHS office, the positions are routinely reprocessed utilizing rapid or final orbits.

Table 1 GPS orbits and clock corrections from IGS

IGS Product Table [GPS Broadcast values included for comparison]						
GPS Satellite Ephemerides/ Satellite & Station Clocks		Accuracy	Latency	Updates	Sample Interval	Archive locations
Broadcast	orbits	~200 cm	real time	--	daily	CDDIS(US-MD) SOPAC(US-CA) IGN(FR)
	Sat. clocks	~7 ns				
Ultra-Rapid (predicted half)	orbits	~10 cm	real time	four times daily	15 min	CDDIS(US-MD) SOPAC(US-CA) IGN(FR) IGS CB(US-CA)
	Sat. clocks	~5 ns				
Ultra-Rapid (observed half)	orbits	<5 cm	3 hours	four times daily	15 min	CDDIS(US-MD) SOPAC(US-CA) IGN(FR) IGS CB(US-CA)
	Sat. clocks	~0.2 ns				
Rapid	orbits	<5 cm	17 hours	daily	15 min	CDDIS(US-MD) SOPAC(US-CA) IGN(FR) IGS CB(US-CA)
	Sat. & Stn. clocks	0.1 ns			5 min	
Final	orbits	<5 cm	~13 days	weekly	15 min	CDDIS(US-MD) SOPAC(US-CA) IGN(FR) IGS CB(US-CA)
	Sat. & Stn. clocks	<0.1 ns			5 min	

Note 1: IGS accuracy limits, except for predicted orbits, based on comparisons with independent laser ranging results. The precision is better.
Note 2: The accuracy of all clocks is expressed relative to the IGS timescale, which is linearly aligned to GPS time in one-day segments.

GPSROG is a general post processing software for static and kinematic purposes developed at the Department of Mapping Sciences (Agricultural University of Norway) (Ovstedal 2000 and Ovstedal et al 2002). Abspos is developed from GPSROG as a precise point positioning module. The Abspos processing is based on un-differenced dual frequency code and phase measurements utilizing the standard navigation algorithm (ICD-GPS-200-c, 1997). The UNB3 tropospheric correction model with the Niell mapping function is used for tropospheric delay estimation.

Both carrier phase and pseudorange observations are used to estimate unknown parameters, and the observations are given weight according to their a priori accuracies. In Abspos the estimation part is carried out by batch least squares. In order to handle the large number of unknown parameters when processing in kinematic mode, the processing is carried out in two steps. In the first step the local parameters, i.e. parameters that change from epoch to epoch, are pre-eliminated from the normal equations. Global parameters, i.e. parameters that are common to several epochs, are then estimated. In standard kinematic processing the local parameters are coordinates and clock offsets for the GPS receiver and the global parameters are carrier phase ambiguities. Carrier phase ambiguity parameters are estimated for each set of satellite observations that are not influenced by cycle slips. For each cycle slip the number of ambiguity parameters is thus increased by one. To identify cycle slip free arcs, the approach of analyzing the continuity of range and ionospheric residuals is used. In a subsequent program run, the global parameters are fixed to their estimated values and receiver coordinates and clock offsets are estimated by batch least squares for each epoch.

The IGS satellite orbits are given in the ITRF2000 frame (International Terrestrial Reference Frame) at the central epoch of the measurements, and hence the resulting Abspos positions will relate to the same frame. However, some corrections must be applied to obtain true ITRF 2000 positions (Kouba and Heroux, 2001). These corrections comprise satellite antenna offsets, phase wind-up corrections, solid earth tides, ocean loading and earth rotation parameters. A correction for the satellite antenna offsets is applied, but most of this effect is absorbed in the ambiguity estimates and could hence have been neglected. No correction for phase wind-up is still applied, but this will be implemented in a future software version. A correction for solid earth tides (based on the Tamura 93 model) is applied. Ocean loading effects and effects from earth rotation parameters are neglected in the current software version.

The Abspos positions are transformed from ITRF2000 current epoch to the European Terrestrial Reference Frame 1989 (ETRF89 or Euref-89) before the positions are merged with the bathymetric data.

Abspos results

The main purpose of introducing Abspos in the hydrographic surveying, was to improve the fieldwork efficiency. Even though we still are unable to provide a number indicating the efficiency improvement, the reports from the field are very promising. Not at least the flexibility improvement has been a great benefit.

By introducing Abspos, we have not only gained efficiency, but also the positioning accuracy has been improved. Experiences gained by testing over the last two years show that Abspos has an accuracy of about 0.12 m (95%) horizontally and about 0.25 m (95%) vertically. Some of this testing is described in (Ovstedal et al 2002) and in (Ofstad and Andersen 2003). Work is still conducted to improve this accuracy.

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ENHANCED ENC PRODUCTION 2002 – 2006

Status external contracts

Status

Chart production

After the contract award to C-Map and IIC in 2002, a total of 16 charts in the main chart series (including ENC's covering the same geographical areas) have been produced. In addition 2 harbour charts and 2 charts covering the western coast of Svalbard have been produced. 4 charts are under production and will be ready later this year. ENC's in the area between the Danish boarder in Skagerak and the coverage of Norwegian coastal chart have been produced, and similar ENC's will shortly be produced from Skagerak to Stadt. In connection with the construction of a new gas production plant in Northern Norway, NHS and STATOIL are co-financing the production of 7 charts and 66 ENC's. 3 charts will be finalised this year, and the rest before July 2005.

External consultants/extra personnel in the production line

NHS has reduced the number of consultants to 9, and replaced some of them with short-term engagement personnel to reduce cost. Most of them are still working within the Data Management Section helping to establish and maintain the Primary database. There are also consultants in the Processing group and the Chart production Section.

Sea-surveying

The submittal of data set from the joint laser/multibeam operation in 2002 was delayed due to a number of negative circumstances. After a long and labour intensive operation with reprocessing of most of the data, all the data was accepted late summer 2003. OSAE also had a slow start in 2002, but has later carried out a very efficient season in 2003 and are currently surveying in the northern part of Norway. Together with the result from the surveys carried out with internal resources, a total of approximately 4500 km² will have been surveyed in the shallow areas (mainly with depths under 20 m.) along the Norwegian coast in 2002, 2003 and 2004. In addition approximately 16000 km² in the deeper areas along the Norwegian coast and 5600 km² in coastal areas in Svalbard has been surveyed in corporation with governmental agencies. The internal operations have been more effective after the introduction of AbsPos. This is a navigational system which has made us independent of shore based reference stations. (See separate report). NHS has further received a new surveying launch. This, together with plans later this year to install an EM1002 multibeam echo sounder on one of the smaller launches, will further improve the efficiency considerably.

Planned production 2005 – 2007

Chart production

In spite of the enhanced production of charts and ENC's in the main chart series from 1999, there will be a need to produce 15 charts/year in 2005, 2006 and 2007 to reach the overall goal.

This shall be possible with the total available internal and external resources. It is however dependent upon that sufficient funds are made available from the Government.

Sea surveying

External sea surveying will continue in 2005 and 2006. NHS plans to carry out an extensive season in 2005. As in 2002, air borne laser and multibeam echo sounder will be used in an integrated operation.

Extra resources in the internal production line

In order to process and model sufficient amount of data for internal and external ENC and chart production, it is necessary to continue with external consultants and engagement personnel through 2007.

CURRENT STATUS OF S-55

Captain Barritt, UKHO Special Adviser to the Head of International Relations, who has co-ordinated the update of IHO Special Publication 55: “The Status of Surveys and Charting Worldwide”, will present a Power Point brief on the status of this key tool for the organisation’s work.

He will cover the following topics:

- Access to, and update and exploitation of, the on-line data-base.
- Gaps which remain in the world-wide coverage.
- Comments from MS since the publication of the electronic 3rd edition.
- Progress with the concept of RHC layers for the IHO electronic data-base.

Background

NSHC attendees can view the S-55 data-base on the IHO web-site (www.iho.shom.fr). At the time of drafting this Explanatory Note, it is listed under the “NEW” section of the Home Page.

At the time of drafting this Explanatory Note the only gaps in input for the NSHC area are survey data for Greenland, and MSI/GMDSS data for the Faeroe Islands, Greenland, Jan Mayen and Svalbard.

IHO CL 35 invites MS to consider their procedures for systematic update of the data-base. There is a data input questionnaire on the web-site at the bottom of the Key on the left hand side. MS can use this at any time to submit updates.

IHO CL 35 also discusses the development of RHC data-bases as a more detailed layer below S-55. It is hoped that the prototype being developed by the IHB and HCA from S-59 will be available for demonstration by the time of the NSHC meeting. NSHC members will also wish to consider lessons from the adjacent BSHC, NHC and MBSHC regions, particularly the on-line data-base for the HELCOM co-ordinated re-survey plan which is being developed by Sweden.

Standardisation of digital exchange of Notices to Mariners

1. Introduction

Nowadays most HOs issue their NtM either in paper or digital form using a variety of data formats and distribution channels. Many HOs exchange their NtM via e-mail and/or make them available via Web-sites. Nevertheless, making efficient use of digital NtMs, frequently poses problems because of incompatible file formats and a lack of basic standardisation.

2. Proposal

A first step towards standardisation should be made by developing a common format for the distribution of digital NtM by different HOs. This format should be an open and already accepted format for the provision of NtM-type information by internet techniques, i.e. of texts and images. In this regard a promising candidate seems to be XML which is already in use for NtM distribution by a number of HOs. In order to achieve the intended standardisation, the development of a common basic XML structure for NtM and a set of standardised tags would be needed.

It should be noted that the use of XML does not imply that the appearance and the content of NtM produced by different HOs has to be identical. But, in the long term, the exploitation of exchanged NtM would be greatly facilitated.

It is proposed to establish a NSHC WG tasked to develop the XML structure and tags for digital NtM.

Project Litto3D

In 2003 the French Geographic Institute (IGN) and SHOM have been tasked by a committee chaired by the Prime Minister to work together in order to propose the realization of a seamless core data base for the coastal projects. The extension of the coastal area is as far as a height of 10 m towards the land and as far as a depth of 10 m or a distance of 10 km from the coastline toward the sea.

The preliminary study has shown that there s no critical problem in France for having continuous references at sea and on land, that an historical database “Histolitt” could be created rather quickly, and that the present technology allows to reach a metric accuracy for the location, and a decimetric accuracy for the heights or depths. A tidal and current model will be jointly determined.

A powerpoint will be presented

NSHC 26th Conference
Cardiff
September 2004

Explanatory Note
Item B9
France

Safety of electronic systems

Following the request of the 8th WEND meeting, the following letter has been sent to the IHB:

Original document in French

From: SHOM
To: IHB DC
Ref: N° 321 SHOM/EG/NP
NMR SITRAC: 1126

Paris 22 June 2004

Subject: ECDIS testing and certification/type approval : S-64 ECDIS Test Data:

Reference: References: 8th WEND Meeting 5-6 March 2004, Tokyo (Japan).

Dear Sirs,

On the occasion of the 8th WEND Meeting, France was requested to send to the IHB some shortcomings noted in Publication S-64 "ECDIS Test Data". (decision 13)

The experience gained with the ECDIS type approved systems on SHOM vessels has shown that certain objects were not properly dealt with once updated: for example destroyed equipment on aids to navigation or objects with activity dates (DATEND), DATSTA, PEREND, PERSTA....) It would therefore be possible to complete the Test Data so as to make sure that these points are taken into consideration by the ECDIS Type Approval.

Moreover, during the evaluation trials, over a third of the updates were rejected and several malfunctions were noted concerning the display (non-conformity with the S-52 standard) the dialogue tools (interrogation of malfunctioning objects, inversion of zoom in and zoom out), the aid to navigation (loss of positioning, uncertain route path). There again it would be possible to complete the Test Data in order to check that the abnormalities noted no longer effect the Certified ECDIS.

The IHO Publications S-64, S-57 and S-52 are of a good standard, and the many problems encountered in ECDIS do not stem from these Standards, but from the defects in conception and development of ECDIS.

An increase in the range of testing capabilities to take into consideration the anomalies, gives rise to a deadlock because the number of potential abnormal situations greatly increases with the number of parameters. The S-64 tests are necessary even if it is just to provide evidence of the

ECDIS functioning and to facilitate the comprehension for the developers, but the evidence they give is always incomplete as it only relates to a very small sample of possible inputs². To validate a software, it is clear that tests are needed (which take into consideration its internal construction as emphasised by the most commonly used standards for software development and that has to be done only in the design of the software) but above all it is necessary to demonstrate that the methods used for design, coding, testing are sufficient for the required level of safety, and the only way is to define standards of minimum requirements for those methods: it is also necessary to demonstrate that the development complies with the chosen methods.

In the field of aeronautics, standardising the requirements on software development is a normal preventative measure. Air and maritime navigation have many points in common: there are kinematical differences, but decisions must be made in each instance sometimes in a very short space of time, and if the plane cannot come to a stop, the ship represents a strong inertia which requires great anticipation. There is nothing logical in considering the preventions measures taken in one instance to be unnecessary in another.

It is necessary to note the inadequacies observed in the ECDIS certification methods and to complete them by defining a way to control the relevance of the design and development of the software. This task can be done by learning from already established statutory bodies (eg: ISO/CEI 12207, 12119 or 15504, EUROCAE/RTCA ED 76, RTCA DO 200 or 201). Such a task of “maritime” standard will gain in relevance and efficiency if it takes heed from the results of the similar tasks already carried out in the aeronautical world in which a synthesis exists under the standard RTCA/DO-178 B: software considerations in airborne systems and equipment certification.

This RTCA/DO-178 B standard may serve as a background to administer the good working of the software, which would considerably simplify the work to be undertaken, even if it is necessary to adapt it to a “maritime” world³. It seems to be more urgent to create an expert group (the HEG- Harmonization Group on ECDIS is a good example of such a group) to elaborate proper quality standards on ECDIS software, than to continue to increase a range of tests which will obviously be unable to cover all of the potentially abnormal situations in the complex system of ECDIS, especially when it is itself integrated within a complicated bridge.

² Extract from US DOD Software System Safety Handbook (SSS HDBK):

Systematic and thorough testing is clearly required as evidence for critical software assurance ; however, testing is "necessary but not sufficient." Testing is the chief way that evidence is provided about the actual behavior of the software produced, but the evidence it provides is always incomplete since testing for non-trivial systems is always a sampling of input states and not an exhaustive exercise of all possible system states. In addition, many of the testing and reliability estimation techniques developed for hardware components are not directly applicable to software; and care must, therefore, be taken when interpreting the implications of test results for operational reliability.

³ This standard defines for example 5 “critical” categories of deficiency in which correspond requirements which are more or less restricting, related to the reliability of the software component concerned: the affectation in these categories must take into consideration the maritime navigation specificities but it would be strange if none of these components of ECDIS Software would be identified in one of the most restricting categories and therefore that the DO178 B-like requirements would not apply.

Data Release Policy: reconsideration

From January 2001 onwards a less restricted data release policy has been introduced. In general all NLHO data became available for government departments and private industry under certain (limited) conditions. The NLHO Catalogue (HP7) has promulgated this data release policy and specifies the range of data and the corresponding different digital formats. A large number of data sets has been supplied. Especially gridded bathymetry, obstructions, maritime limits and fractions of nautical charts are most wanted. In general customers appreciated this initiative and it contributed to a better dialogue (and customer appreciation) and understanding of NLHO policy and mission. Also a confirmation of the value to the national economy in accordance with the IHO publication "National Maritime Policies and Hydrographic Services (M2)" was clearly demonstrated

To support this change of data policy NLHO also introduced a new logo for derived product producers (DPP), which issue digital products partly or mainly derived from data of the Netherlands Hydrographic Service (see figure below).



With the increase of diversity of DPP difficulties appeared. Many DPP are not able to show the new logo on their products without loss of readability and therefore introduce the risk of misinterpretation, namely "examined by NLHO" in stead of "not examined". This observation in combination with the earlier mentioned achievements lead to the decision to withdraw this special DPP-logo from 1st January 2006 onwards.

INT Chart System: financial matters

When INTERNATIONAL charts were “invented”, the idea was that IHO members would produce charts together, according to a predetermined International Chart Scheme, to avoid unnecessary double work. As nautical charts do overlap, almost by definition, it was obvious that neighbouring member states would have to exchange their data as much as possible, in order to produce the charts within that INT scheme efficiently. (Also before the INT-chart-era this exchange existed, of course).

It seemed straightforward to us, that such exchange of data would be without any financial compensation. Recently we noted, however, that not all members have the same perception of this kind of co-operation. We have seen a financial compensation asked from one member to another, for the use of chart data meant to be included into an adjoining (overlapping) INT chart (of the same scale). Of course we are aware of bilateral arrangements and copyright and royalties; but these are strictly related to the privation / loss, due to sales of reprinted INT charts by printer nations.

But now we are talking about financial compensation of data exchange for the (shared) production of an agreed Scheme of INT charts. With overlapping charts, one of the consequences will be that neighbouring countries will be using each other's material in the overlap. To our opinion this is a rather principal matter. The whole idea of the INT charts series is that countries are co-operating, sharing their efforts, to produce this world cover of paper INT charts. To our understanding it is principally wrong that the exchange of material in the overlap should be charged for.

We note that Technical Resolution A 3.4 could be read such as to justify this charging. However, we feel that this TR 3.4 was never meant to cover the basic exchange between producer nations for the shared production of agreed INT charts. We feel that we are drifting in an undesired direction and would like to hear the opinion of the NSHC members on this matter.

NSHC 26th Conference
Cardiff
September 2004

Explanatory Note
Item C3
Germany

Re-Use of public-sector information

BSH has just become aware of EU Directive 2003/98/EC defining the EU policy on the re-use of information provided by the public sector. EU Members have to implement this Directive into national law by July 2005.

Members are invited to take notice of the enclosed Directive, and to discuss the implications in conjunction with the Agenda items C3 and C1.

Prototype online licensing system

The majority of all requests to re-use UK Hydrographic Office (UKHO) copyright material are from members of the public or from small organisations who want to re-use the material for non-commercial or low-value commercial purposes.

About 30-40% of UKHO administrative effort is spent dealing with licensees and infringers that generate no licensing revenue. UK faced a choice of either increasing prices considerably to cover these costs or reducing the effort involved.

Her Majesty's Stationery Office (HMSO), the central UK Government department responsible for licensing all Government material, introduced a very simple and effective licensing system online. It allowed anybody to apply for and obtain a licence to exploit any UK Government material except:

- Material generated by a trading fund such as the UKHO; and
- Material that has been value-added for a commercial, non-statutory purpose.

It is UK Government's policy that its citizens should have easy access to Government information and the rights to re-use it. This is also true in the rest of the European Union (EU) through Freedom of Information regulations and the new EU Directive on the re-use of public sector information (2003/98/EC).

The UKHO has developed an online licensing system that should go live towards the end of 2004 that will allow anybody to apply for and obtain a licence that allows them to re-use published UKHO material (or material published by others derived from UKHO material) for non-commercial and low-value commercial purposes without any licensing charges.

UKHO-published material is often derived from other copyright material (e.g. adopted charts) so we have developed our own licensing system rather than use the HMSO system.

The system includes a large, relational database that stores information on all UKHO-published material and all material derived from UKHO copyright material. It includes details of the original copyright owners and flags to indicate if their permission is required to reproduce the material.

Users enter their personal details and select the products (or parts of products) that they want to copy. They then answer a series of yes/no questions that allows UKHO to confirm that they are eligible for a licence agreement. The system then queries the database to confirm we can grant permission or whether they must be referred to other copyright owners, and e-mails them a draft agreement for them to accept.

The entire process is designed to take a few minutes to complete for simple requests.

A working prototype of the system will be demonstrated at the 26th NSHC Conference.

We believe this system will encourage more people to request licences, which has the following benefits:

- It encourages wider use of government information by making the system simple, quick and cheap to use.
- It reduces the effort the UKHO spends detecting and resolving copyright infringements, concentrating those resources on the serious data pirates.
- It reduces the effort UKHO spends processing licence requests, concentrating those resources on the larger commercial re-users of our material.

The NSHC Working Group on Winding up the Custodianship System recommended that a simplified form of custodianship should continue for non-commercial and low-value commercial purposes. The UKHO suggests the NSHC Member States use online licensing to improve access to their material, releasing their resources to concentrate on commercial re-users. The UKHO is happy to discuss sharing its technology through its bilateral arrangements.

Copyright pricing policy

1. Background

Following the recommendations of the NSHC copyright working group, SHOM charged till 2003 the private producers (PP) digitizing (in raster or vector form) French data portrayed on paper charts, at a percentage of the gross sale price of the derived products.

It has been observed that some PPs, for which the commercial activity was mainly on systems and not on cartographic data, proposed on a CDROM a great number of reproduced charts, at a very low price corresponding to the duplication price of a CD, and thus denying the intrinsic value of cartographic data and distorting the market (as said other PPs).

In order to avoid this situation, which is a kind of dumping, SHOM decided to charge the PPs with a minimum fee per paper chart (10 % of the selling price of the printed chart equivalent (PCE)). Minimum is between the revenue from charging a percentage of the gross sale price of the derived products and this fee of 10% of the price of the PCE.

2. New provisions

This minimum charge led to strong reactions from the PPs, because the “market prices” are established at an international level (thus reflecting the practices of other countries than France) and that a minimum fee per PCE would increase the selling prices in the French data areas.

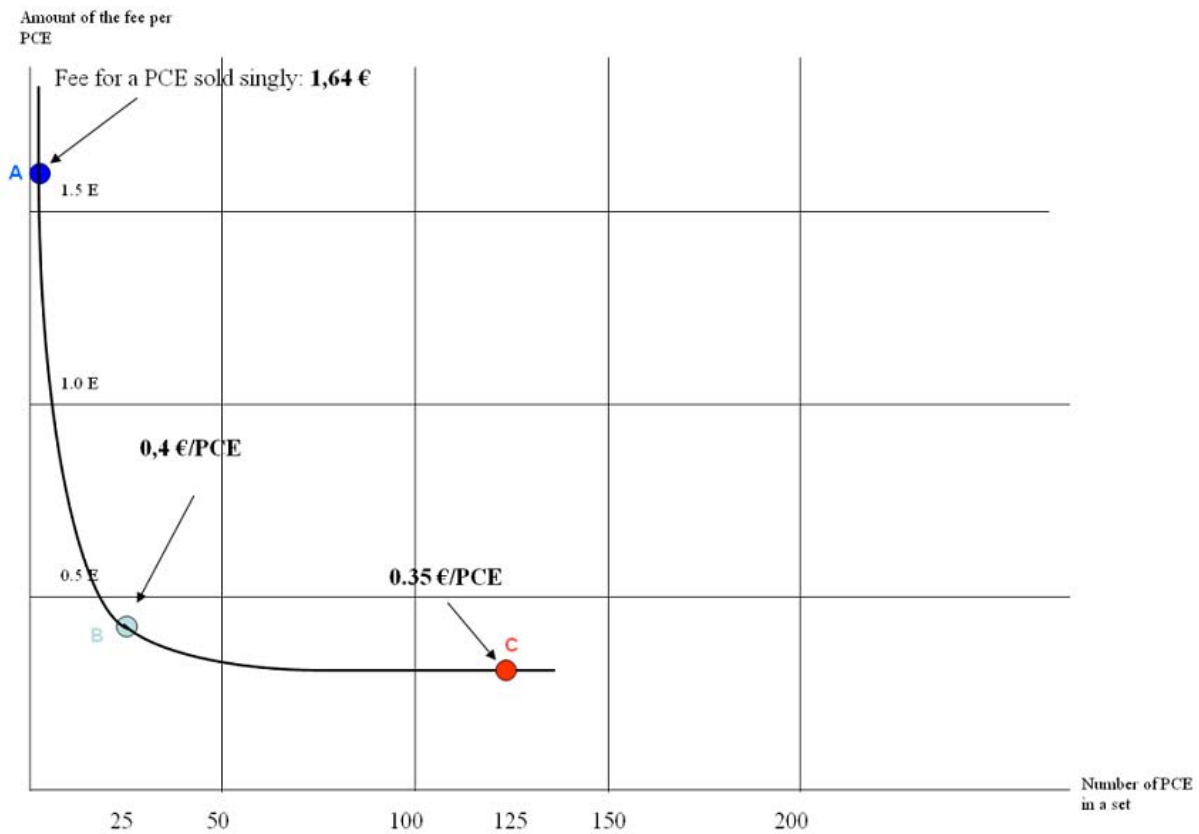
During the discussions with the PPs it appeared that the 10% fee per PCE was workable for the individual sales of derived digital charts, but that the common practice was for marketing reasons the packaging. The offer of sets of charts makes the distribution simpler to the end-user (there are a limited number of products in the catalogues), but the end-user has no need of all the charts included in a given set. The relative utility of a given chart decreases with the number of charts in a set.

This has been verified in some examples of packages, covering for instance Corsica in the catalogue of a well known PP, and it is true that a great part of the PCEs within a given set have no utility for the end-user: for instance for a leisure craft sailing on the West coast of Corsica, there is no use for the full series of scales 1/3500000, 1/100000, 1/350000, 1/150000, 1/50000, 1/15000, and for the part of the set concerning East Corsica and Sardinia. So we adopted a minimum fee per PCE decreasing with the average number of PCEs present in a set sold by the PP.

The graphic hereafter makes it possible to adopt the minimum fee per PCE depending of the average structure of the packages of data the PPs propose. For the simplicity of the accountings and the controls, the minimum fee is unique for all the sets.

For the time being these provisions have been applied to two PPs, and could be adopted by a third one (points A, B and C).

Unfortunately we have been obliged, for the time being, to have a threshold for the total number of PCE sold: when the sales are greater than this threshold, the percentage on the gross sale price model is applied again.



ICZMap®

Project summary

Background

The UK at present does not have a contiguous template of Coastal Zone mapping data. Many private and public organisations hold “local” data relevant to specific projects / areas of interest but there is a disconnect both in the physical attributes of the information and the geographical areas covered. The need for a “base map” was discussed in June 1999 at the CEFAS sponsored Conference “Integrated Mapping of the UK Marine and Coastal Zone – The Way Forward” and considered further by IACMST (Inter Agency Committee on Marine Science & Technology) meeting in February 2000. It was decided to proactively pursue this initiative in order to satisfy needs for “joined up government” and joined up geography and to support European Union Coastal Zone Management strategy.

In 2001, national data holders, Ordnance Survey (OS), United Kingdom Hydrographic Office (UKHO) and British Geological Survey (BGS) held exploratory talks aimed at defining a common approach to the provision of a contiguous dataset covering the coastal zone of the United Kingdom. The terms of reference for the project were defined as:

- To work together to establish ways in which hydrographic, geological and terrestrial data can be integrated to form a cohesive data model to which future UK coastal zone initiatives can be referred.
- To jointly produce demonstration software for market testing.

Funding for the project was obtained from the Treasury Invest to Save Budget (ISB).

The project aim was to “produce a common framework of integrated spatial data with a consistent format, projection and datum, suitable to support diverse coastal zone applications, and which can be obtained readily from a single source”.

The source data consisted of Ordnance Survey MasterMap™ data, S57 (edition 3) hydrographic data from the United Kingdom Hydrographic Office and DigMap series geological data from the British Geological Survey. The coastline adopted was Ordnance Survey’s Mean High Water (Springs).

The technical and cartographic challenges were as follows:

- Horizontal Datum and Projections.
- Vertical Datum Integration.
- Foreshore Representation.
- 3D Soundings into Attributed 2D Soundings.
- Expanding Integer Values into Meaningful Text.
- Data Formats.
- Offshore Referencing Framework

Results of the project

Pilot data was produced for three areas: the South Coast and Isle of Wight, the Forth Estuary, and Milford Haven on the Pembrokeshire coast. The project successfully produced non-navigational trial datasets for the trial areas and resolved issues surrounding datums, projections and data formats. The result is not a map, but a framework for integrated vector data across the littoral zone.

Feedback from users in the trial areas has been excellent.

What's next?

Following the end of the project several key capability gaps have been identified and are now being actioned by Ordnance Survey and the United Kingdom Hydrographic Office.

Several initiatives are on-going:

- Creation of a three dimensional height model for use by scientific, research, coastal management and planning organisations
- Foreshore representation interfacing UKHO data with OS MasterMap Mean High Water line (MHW) for Great Britain
- Develop offshore vertical datum reference model for UK
- Creation of a European reference system based on alternative technologies (such as altimetry).

The way forward

The partners have now developed a business model in order to complete the task of providing integrated coastal zone mapping for the whole of the UK. The UKHO is developing its production capability; Ordnance Survey has already defined its Mean High Water line; and priority geographic roll-out areas have been identified. Interoperability upgrade mechanisms for bathymetry and a refined vertical datum framework will be developed.

Benefits to future users

- Management of the marine environment (e.g. UK's responsibilities under the Water Framework Directive)
- Support for delivery of improved environmental risk management within the coastal zone (e.g. Flood risk).
- Improvements to the decision making within DEFRA and its agencies. 75% of decisions are estimated to be based on geographical information, which currently has very little marine content.
- Improvement to DEFRA (Marine Waterways) management of the marine science and monitoring information that is being collected under a £10M programme of work.
- Support for the delivery of DTI's Strategic Environmental Assessment (SEA) and Marine Planning Network initiatives.
- Supports ICZ Management and Marine Spatial Planning initiative
- Inputs to Shoreline Management Plans
- Increased efficiencies

Establishing a European Geospatial Data Infrastructure

BSH has just become aware of the enclosed draft EU Directive requesting the EU member states to participate in the establishment of a European Geospatial Data Infrastructure. Considering the long-term, potentially far-reaching impact this Directive, if adopted, may have, the Conference is invited to take notice of this EU initiative, and to discuss any implications in conjunction with Agenda Item C6.

UK Marine Data and Information Partnership

UKHO, alongside other forward thinking marine data providers, has been campaigning for the development of a Marine Geospatial Data Infrastructure (MGDI) which will underpin collection, management, updating and dissemination of marine data across the UK. The first strands of this work began in 2003 with a DEFRA sponsored audit of marine data undertaken by the Inter Agency Committee on Marine Science and Technology (IACMST). This was completed in early 2004. Further follow up work has recently been completed.

The recommendation from IACMST is for a broadly based Partnership of public and private sector organisations concerned with Marine data and information and arises from the recent deliberations of a broadly-based 'Expert Group', under the aegis of IACMST and its Marine Environmental Data Action Group (MEDAG). It has long been a recognised need for greater harmonisation and coordination in marine data and information in what is a very fragmented community. This fragmentation arises primarily from the diverse interests, roles and responsibilities of the organisations within the sector, particularly those within the public sector.

The need for increased levels of integration in marine data and information has long been recognised by data providers and users, and there have been previous attempts to provide a solution but none of these has been particularly successful.

IACMST through its Expert Group recommends:

- That a broadly-based Partnership of appropriate bodies be established as soon as is practicable, with the goal of improving the levels of integration of marine data and information within the UK, so as to improve access and utility, and hence enhance value.
- That, as a consequence of the IACMST remit, the Partnership be hosted by the IACMST.
- That membership of the Partnership be open to private sector and other bodies who are not members of IACMST.
- That the Partnership be managed by a Board consisting of representatives of the member bodies.
- That the Partnership Board be chaired by an Independent Chairman, appointed by IACMST.
- That the Partnership Board report to IACMST, either directly to the Plenary committee or via the Marine Environmental Data Action Group.
- That where a single Government Department is needed to lead aspects of the overall promotion and development of the Partnership, then DEFRA should take the lead.
- That a funding proposal be prepared for the creation of a web-based 'Gateway' to provide Users with a route to both the work of the Partnership and the many current ongoing and future data and information initiatives within the UK.
- That funding for the Partnership activities be obtained (as far as possible) from existing budgets within partner organisations.
- That where additional funding has to be found it should be sought from a range of public sector bodies on the basis of the obligations associated with policy evolution and

statutory requirements, and the requirements arising from e-Government, Environmental Information Regulations and Freedom of Information.

- That the Partnership should develop its activities so as to become a source of knowledge on best practice and an exemplar with respect to data and information standards, interoperability and access.
- That the Partnership activities be subject to periodic independent review, as required by IACMST.

UKHO has played a full role in developing these recommendations through its membership of the Expert Group. It is well placed to take a pivotal role in the development of the Partnership.

The recommendations are currently being circulated at UKHO for comment prior to responding to the proposals.

This proposal on the MDIP encompasses the relational aspects and mechanism for delivery to make the concept into a reality. Behind this lies a wider strategy for a marine geospatial data infrastructure for the UK.

Integrated Coastal Hydrography

Introduction

The Integrated Coastal Hydrography (ICH) project started just over two years ago as part of the Treasury's Invest to Save Budget (ISB) initiative. The UKHO, Maritime and Coastguard Agency (MCA), Environment Agency (EA) and the Ordnance Survey (OS) formed the team with UKHO taking the lead role. The project had three main aims:

1. Develop a common specification for surveys in the shallow water area.
2. Investigate emergent technologies for gathering survey data in the shallow water area and
3. Develop a web based graphical index showing where survey data is available for the shallow water areas.

Common Specification for Surveys in the Shallow Water area

Early on in the project it was realised that this task was far too large to be undertaken within the limited resources available to the project. The task was therefore modified to create a document that compared different specifications. The intention behind this was to allow users to understand how the various specifications related and therefore be able to assess if, for example, a LINZ order 1 survey would meet their needs should they be looking for an IHO order 1 etc.

Investigate emergent technologies for gathering survey data in the shallow water area

Two tasks were completed under this aim. Firstly a report was written that described current and emerging survey methods that allow data to be gathered in the very shallow areas. Secondly, research was conducted into the use of bathymetric Lidar. Lidar was chosen as the technology that appeared to offer most potential for shallow water data gathering. The Lidar research covered two aspects. Firstly a trial Lidar survey was commissioned covering some 5 square miles just south of Plymouth breakwater. Secondly a report was obtained that detailed where, and when, Lidar may be useable around the UK.

The survey showed that Lidar was a viable tool for surveying and since then the MCA has commissioned two Lidar surveys as part of the standard CHP survey work (Crossapol Bay and the Sound of Harris, both in Scotland). The report indicated that Scotland was the most promising area for Lidar although large parts of the UK coast are suitable at various times of the year.

ICH web site (www.coastalhydrography.com)

The ICH web site holds downloadable copies of the reports and also allows a user to graphically view the locations of surveys around the UK. These surveys can be queried and, if found to be suitable, their details added to an e-mail. The e-mail can then be sent to the data owner to ask for details of price etc.

So far the web site contains details of those bathymetric surveys carried out under the Civil Hydrography Programme (CHP) (Contract and Naval Party work), some port authority data and the EA terrestrial LIDAR data. DIJE sponsored surveys⁴ and other port authority data are awaiting release approval from the various bodies.

Conclusions

The ICH project proved to be a useful medium within which shallow survey methods could be investigated and has resulted in the adoption of Lidar as a suitable tool for conducting bathymetric surveys in support of SOLAS. The web site has attracted a reasonable amount of interest although not all available data has yet been put on it. As more data becomes visible it is expected to increase in usefulness and because of this, despite the ICH project as such having finished in March 2004, the web site is being maintained and enhanced for another 2 years.

Defra, under its marine stewardship initiative, has recently set up an “expert” Steering Group under the auspices of IACMST. The remit of the group was to deliver proposals for increased cohesion, collaboration and harmonisation of data and information across what is a highly fragmented marine community in the UK. The purpose is to provide direction towards increased access, custodianship and re-use of information so as to increase the strategic value of investment in data collection and syntheses/ assessment. One of its core recommendations is the creation of a Marine Data & Information Partnership (MDIP) and to propose the implementation of a Gateway to allow users to more easily access information (metadata), where to obtain it and how to procure it. As part of the framework defined in Marine Stewardship, the creation of de facto archiving centres has been recommended. UKHO as the centre of expertise for hydrographic data will fulfil one of these core roles (supporting e-Govt) with the ICH metadata web site linked to MDIP for hydrographic source information. ICH in this context has been identified by Government as one of the key building blocks in the development of the marine data infrastructure for UK.

⁴ Defence Data Release Framework; J Wood; Jan 2004

WEND Update

The following information provides the Conference with an update of the current status of issues relating to the work of the WEND Committee.

WEND Letter 2/2003

WEND Letter 2/2003, distributed in September 2003, requested input from all RHCs to provide information in four areas:

- A prioritised list of shipping routes in their area needing ENC coverage.
- A small scale ENC schema for the region with assignment of producer HOs.
- Recommendations for bilateral or multilateral assistance projects that would increase ENC production, quality and consistency.
- Proposals for speeding up ENC production and ensuring ENC quality and consistency.

Following its December meeting, as the timescales for actioning WEND 2/2003 were short, the WEND Task Group undertook to provide all RHC chairmen with strawman versions of the small scale scheme for their areas. (See below for details)

WEND Principles

The WEND Principles have been updated in order to reflect the requirement for and definition of integrated services and to add an annex providing guidance for the establishment of ENC production boundaries. The agreed definition of integrated services is:

“A variety of end-user services where each service is selling all its ENC data, regardless of source, to the end user within a single service proposition embracing format, data protection scheme and updating mechanism, packaged in a single exchange set.”

8th WEND Committee meeting

The WEND Committee held its 8th meeting in Tokyo in March 2004. It is important to note that for the first time, observers from non-governmental organisations and professional associations were invited.

Much of the meeting was concerned with the work of the task group established by the 7th Committee meeting.

Work of WEND Task Group

In their report to the WEND Committee the Task Group identified the main problems preventing increased use of ECDIS:

- Insufficient Coverage - ENC coverage is incomplete – coverage of national waters is patchy and there is very little coverage outside of these areas;
- Diversity in quality between HOs - ENCs are not uniform – the content and quality of ENCs varies from country to country;
- Diversity in services between ENC providers - the distribution of ENCs is fragmented and many are not available for use by international shipping.

Four areas were identified as requiring to be addressed immediately:

- Completion of small scale ENC coverage;
- Prioritised ENC production programmes for large scale coverage;

- Expanded ENC validation and distribution
- Training and Assistance in ENC production and maintenance.

Many of these echo concerns raised at the 2nd International ECDIS Conference in Singapore in September 2003:

- Coverage

There is a lack of ENC coverage in key areas and along major shipping routes. Co-operation between national HOs, and between national HOs and private sector companies, may assist in overcoming some of the current problems with the lack of ENC coverage.
- Data Consistency

There are inconsistencies in the way national Hydrographic Offices (HOs) interpret S-57 and discrepancies where data crosses cell boundaries.
- Carriage Requirements

There are differences in the way national regulatory authorities interpret the carriage requirements for ECDIS in SOLAS.
- Distribution

There are issues regarding RENC to RENC co-operation and their different policies for data supply. Better coordination and harmonisation by HOs and RENCs is needed to enable data to be offered to the market in a more coherent way and enable end users to buy all available ENC data on a single licence from a single supplier.
- Flexibility

Users expressed concerns about the flexibility of ENC services especially with regard to license periods. A choice of services with flexible and cost efficient licensing systems was called for.
- Catalogue

The lack of a comprehensive, universal, up-to-date and user-friendly catalogue is making it very difficult for end users to identify which ENCs are available and where they can buy them.
- Training

There are concerns over the availability and types of ECDIS training on offer – should training be generic, type-specific or provided by OEMs? It is because of this that few, if any, ECDIS training courses are internationally accredited.
- Choice

There is a requirement for both unofficial vector and official raster based dual fuel services to fill gaps while ENC coverage is growing.
- Value for Money

Pricing concerns are of paramount importance to ship owners and operators. The impact of the costs of data, equipment and training must be compared with the savings made due to improved fuel consumption and reduced insurance premiums.

Progress has been made in a number of these areas:

- Circular Letter re Consistency

IHO Circular Letter 47/2004, “Improving ENC Consistency” has recently been distributed. This develops the work originally produced by IC-ENC as the two documents, ‘Improving ENC Consistency’ and ‘SCAMIN’ and provides thirteen recommendations for HOs to assist in ensuring consistency between nations’ coverage.
- Integrated Catalogue

Discussions are continuing between IC-ENC and the IHB to develop single, comprehensive catalogue of ENCs available and in production around the world.

- Small Scale proposals for/from RHCs

As noted above the WEND Task Group completed strawman proposals for all RHCs for small scale coverage; that for the NSHC is attached at Annex B.

- ENC Cookbook

In order to assist nations beginning to develop ENC production and distribution facilities, an ‘ENC Cookbook’ has been drafted and, following circulation to WEND members for comment/approval, will be posted on the IHB website.

Roles and Responsibilities

In conclusion, it is worthwhile to repeat the summary of roles and responsibilities taken from a presentation made by the WEND Task Group:

Regional Hydrographic Commissions should:

- Include “Progress with the Production and Distribution of ENCs” as a standing agenda item for all RHC meetings.
- Identify key shipping routes and ports within their regions.
- Identify charts covering these routes and ports that should be captured as ENCs.
- Identify producer nations for the ENCs.
- Arrange for their production.

Wherever possible ENCs should be based on INT charts and the producer nations for the ENCs should be the same as the producer nations for the corresponding INT charts

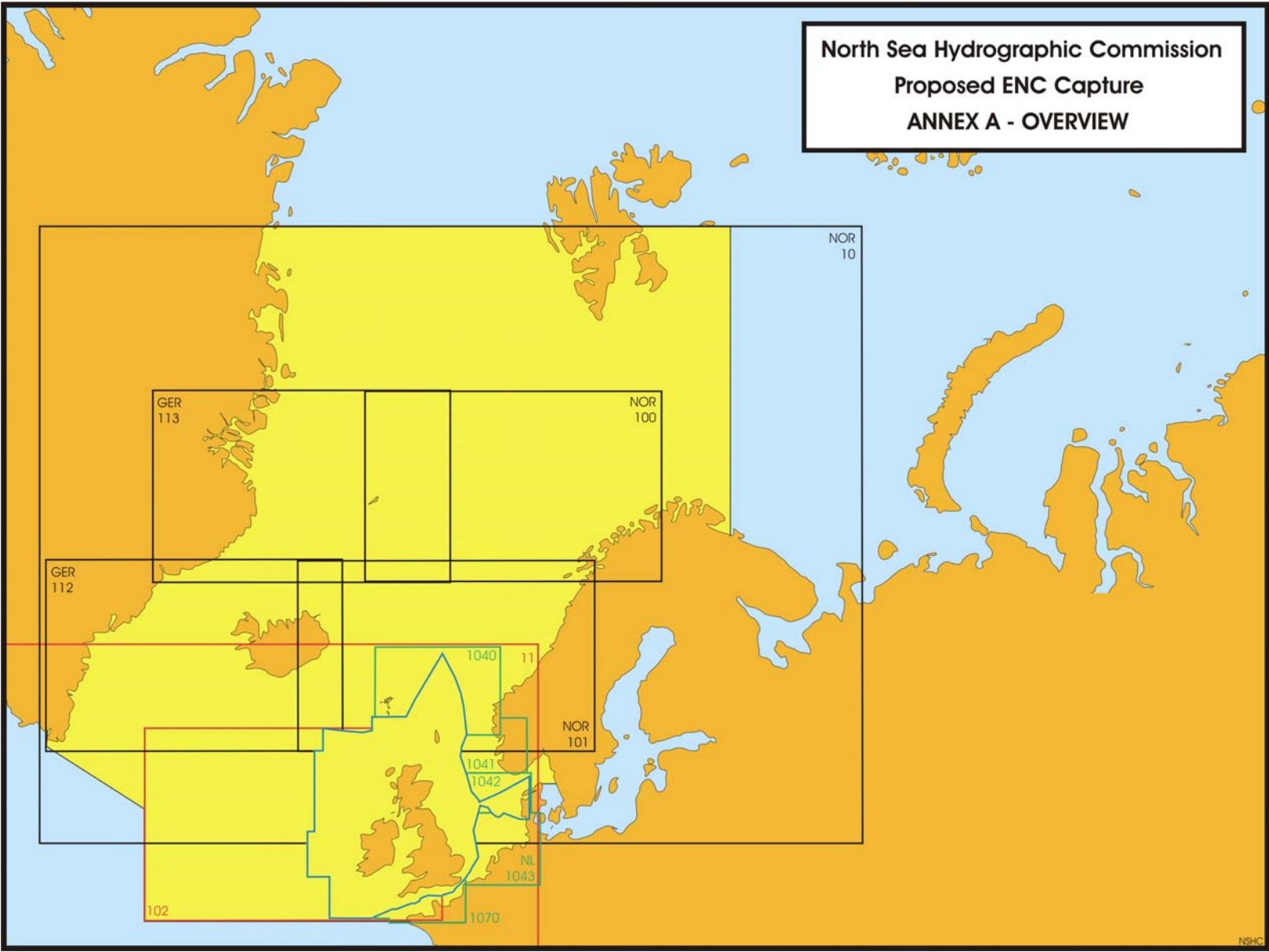
Nations that are incapable of producing ENCs at present should seek assistance from nations offering assistance (IHO CL 47/2003 refers)

Member States should:

- Co-operate with Regional Hydrographic Commissions to improve ENC coverage.
- Ensure that their ENCs are fully compliant with S-57 and the additional guidelines to be issued by the IHB.
- Make their ENCs available for worldwide distribution through a RENC or other Service Providers.

RENCs should:

- Co-operate to ensure that ENCs are quality assured to the same standards worldwide.
- Arrange for the exchange of ENCs between RENCs to enable Service Providers to provide one-stop services for ENCs worldwide.



LIST OF CHARTS

OVERVIEW Usage Band

The cell limits are shown at Annex A

INT Chart No.	Chart No.	Title	Scale	Producer Nation
10	4010	Norwegian Sea and adjacent seas	1:10,000,000	NORWAY
11	4011	North Atlantic Ocean – Northern Part	1:10,000,000	UNITED KINGDOM
100	4100	Norwegian Sea – Norway to Jan Mayen	1:3,500,000	NORWAY
101	4101	Norwegian Sea – Norway to Iceland	1:3,500,000	NORWAY
102	4102	Western Approaches to The British Isles	1:3,500,000	UNITED KINGDOM
112	4112	Iceland to Greenland	1:3,500,000	GERMANY
113	4113	Greenland and Norwegian Seas	1:3,500,000	GERMANY
1040	2182D	Norwegian Sea – Foroyar to Bergen	1:750,000	UNITED KINGDOM
1041	2182C	North Sea – Northern Sheet	1:750,000	UNITED KINGDOM
1042	2182B	North Sea – Central Sheet	1:750,000	UNITED KINGDOM
1043	2182A	North Sea – Southern Sheet	1:750,000	NETHERLANDS
1070	2675	English Channel	1:500,000	UNITED KINGDOM

A PRODUCTION PLAN FOR SMALL SCALE ELECTRONIC NAVIGATIONAL CHARTS (ENC) OF THE AREA COVERED BY THE NORTH SEA HYDROGRAPHIC COMMISSION (NSHC)

Introduction

ENCs are grouped, depending on chart coverage, into six Usage Bands; the scale ranges below have been proposed by the TSMAD Working Group but as yet have not been accepted:

- a. Overview (< 1:1,499,999)
- b. General (1:350,000 – 1:1,149,999)
- c. Coastal (1:90,000 – 1:349,999)
- d. Approaches (1:22,000 – 1:89,999)
- e. Harbour (1:4,000 – 1:21,999)
- f. Berthing (>1:4,000)

Production Plan

Please note:

1. **Wherever possible the production plan is based on the capture of INT charts of appropriate scales.**
2. **Data in ENC in the same usage band must not overlap. For this reason some of the charts identified will be only partially captured. Selection will be based on the best (usually largest) scale and latest New Edition date.**
3. **Areas of commercially available ENC coverage are shown in Blue on the graphic at Annex A. (This information has been obtained from the IC-ENC World Catalogue (correct to 15 January 2004) which is sourced from ENC producer websites).**
4. **Existing UK ENC coverage has been captured up to an agreed limit (for ENC Data capture purposes only) the ENC coverage outside of this limit requiring capture is shown in Green on Annex A.**
5. **INT Charts for which the UK has been designated the Producer Nation are shown in red on Annex A.**
6. **In order to speed up the production of ENCs in this region, the UKHO would be willing to produce ENCs of INT charts for other nations and ENCs from other UK charts where the limits of these charts are identical to those in the INT series. These cells would be handed over to the Producer Nations when they have the capability to maintain them.**

Peter Wright
Secretary of the WEND Task Group
and
Head of International Relations
UK Hydrographic Office
17 February 2004

Harmonisation work Norwegian Hydrographic Service - Norwegian Coastal Administration

The Norwegian Hydrographic Service (NHS) and the Norwegian Coastal Administration (NCA) continue the harmonisation work between the two organisations. A feasibility study that was carried out in 2003 called attention to some major issues of common interest, and the potential areas of improvements.

Both organisations produce and manage data of common interest. It's a challenge to bring the data and the systems up to a proper level of interoperability, avoiding expensive data conversion, data redundancy, duplication of time-consuming processes, etc. Utilisation of digital geographic information as a support for a more effective execution of internal processes, is another issue. The common interest of increasing safety at sea is the superior, driving factor in this harmonisation work.

NHS and NCS will develop a common infrastructure of maritime information with the aim to:

- Increase the efficiency of the data production and data management through optimisation, integration and interaction between the two organisation's processes
- Improve products and services with adapted quality and availability, supporting the value chains and public services within the two organisations
- Contribute to increase safety at sea through an efficient, reliable and co-ordinated communication of updated geographic information and supported services

The overall development has a long-term perspective, with a goal-oriented implementation on the way.

In first hand, the project will be focusing on the fairway management in conjunction with the geographic information management. There has been started a pilot project that will be running for 2004-2005. The aim is to demonstrate the usability of digital geographic information for planing, management and maintenance of the fairway, lights and beacons, and the ability to keep those features continuously updated in a common, integrated management environment, easily accessible for additional applications.

Judicial verdict in Swedish copyright court case

During 1999 the Swedish HO (SHO) initiated a court case against Nautische Veröffentlichung Verlagsgesellschaft mbH (NVV) for violating copyright when producing a pleasure craft chart.

Court proceedings were held in 2000 and the verdict was in favour of SHO, that is the court found that SHO copyright had been violated by NVV. The evidence given by SHO during proceedings were mainly focused on capture and presentation of hydrographic features.

NVV made an appeal against the verdict in court of appeal and this time , january 2002, the ruling was in favour of NVV. The court of appeal was of the opinion that as a whole the chart was an independently produced chart and thus not violating SHO copyright.

The SHO was interested in finding the bottom line of the case and if possible create judicial precedent. An application for permit to take the case to supreme court was made by SHO. The supreme court rejected the application.

So , case closed and SHO is on the losing side. The implications for SHO will be briefly discussed along with some more details.

Privately produced Small Craft Charts

As you may well be aware, Kort & Matrikelstyrelsen, Denmark is no longer entitled to produce special tailored products to the leisure craft market. Instead we are seeking partners who are willing and able to produce such kind of products based on the Danish digital data.

In 2003 KMS signed a contract with one of the major German private companies producing products for the leisure boat market namely Delius-Klasing.

Even though based on Danish digital data we do not bear any responsibility of the product, neither do Delius-Klasing. according to the company itself.

KMS will give a short status on the cooperation.

Distribution of Charts

In 2003 Kort & Matrikelstyrelsen, Denmark ran a EU-tender with the aim of finding a private company which could take over the distribution of Danish charts and nautical publications.

Only a very limited number of companies applied. The appointed company, Schultz Information, signed the contract on 30th September. The contract applies for the next 3 years.

The nearly daily contact and cooperation between the two partners KMS and Schultz Information is running very smoothly and well and it is the impression that both parties are very satisfied with the arrangement.

However as we say in Danish: There is always a snake in the Garden of Eden. In this case one of the loosing companies afterwards has brought KMS for "The Danish Complaints Board for Public Procurement" accusing KMS for running and handling the tender incorrectly.

On 7th September KMS is called to the stand to give evidence.

KMS will give a short report on the result.

Kort & Matrikelstyrelsen the National Institute for Spatial Information Infrastructure

Kort & Matrikelstyrelsen (KMS) was transferred from the Ministry of Housing to the Ministry of the Environment in 2001

Following the transfer, KMS went through a major revision of tasks and funding done by The Treasury, The Ministry of Environment and KMS.

The main outcome was a change of focus of KMS Activities. The new focus was to establish and maintain a core spatial data infrastructure for the use of the public administration.

A brief status of the progress of the transition will be provided at the meeting.

Arrangements for the use of ENC's in international projects, e.g. EU

ENCs generally not only are the navigational data basis in an ECDIS, but also represent the most comprehensive internationally standardised geographic information data base of the marine areas. Apart from navigational use, ENC's may therefore be useful for a wide range of international administrative and research activities such as those under the EU umbrella.

One particular example is the **EU Interreg Programme** supporting projects focusing on transnational cooperation in spatial development. Two sub-programmes are of interest within the NSHC Region: the Baltic Sea Programme involving the Baltic Sea countries and Norway (see www.bsrinterreg.net), the North Sea Programme (see www.interregnorthsea.org) covering the North Sea countries (not including France), and the North-West European programme (see www.nweurope.org) including, a.o., France, UK, Belgium and Germany.

In the Baltic Sea Programme, plans have been developed to establish a data base of uses of the marine zones in Baltic Sea. As ENC coverage in the Baltic Sea is almost complete, the idea has come up to use ENC's as a basis rather than embarking on a costly and most likely less successful own data production. One can expect the other programmes to eventually develop similar ideas. It should be noted that ENC's for use in administrative and research programmes usually do not require the frequent updating necessary for navigational purposes; e.g. once per year would be sufficient.

Germany believes that the Interreg Programme should be supported by NSHC. Facilitating the use of ENC's as GIS data base in these programmes would also promote the reputation of the ENC's as a comprehensive, continually updated standardised data set. NSHC members are invited to discuss:

- whether and how to facilitate the use of ENC in the Interreg and similar programmes, and
- whether the ENC's should be provided through the RENC's, or individually by country.

ISO 9001 quality certification of SHOM activities.

IN SHORT

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

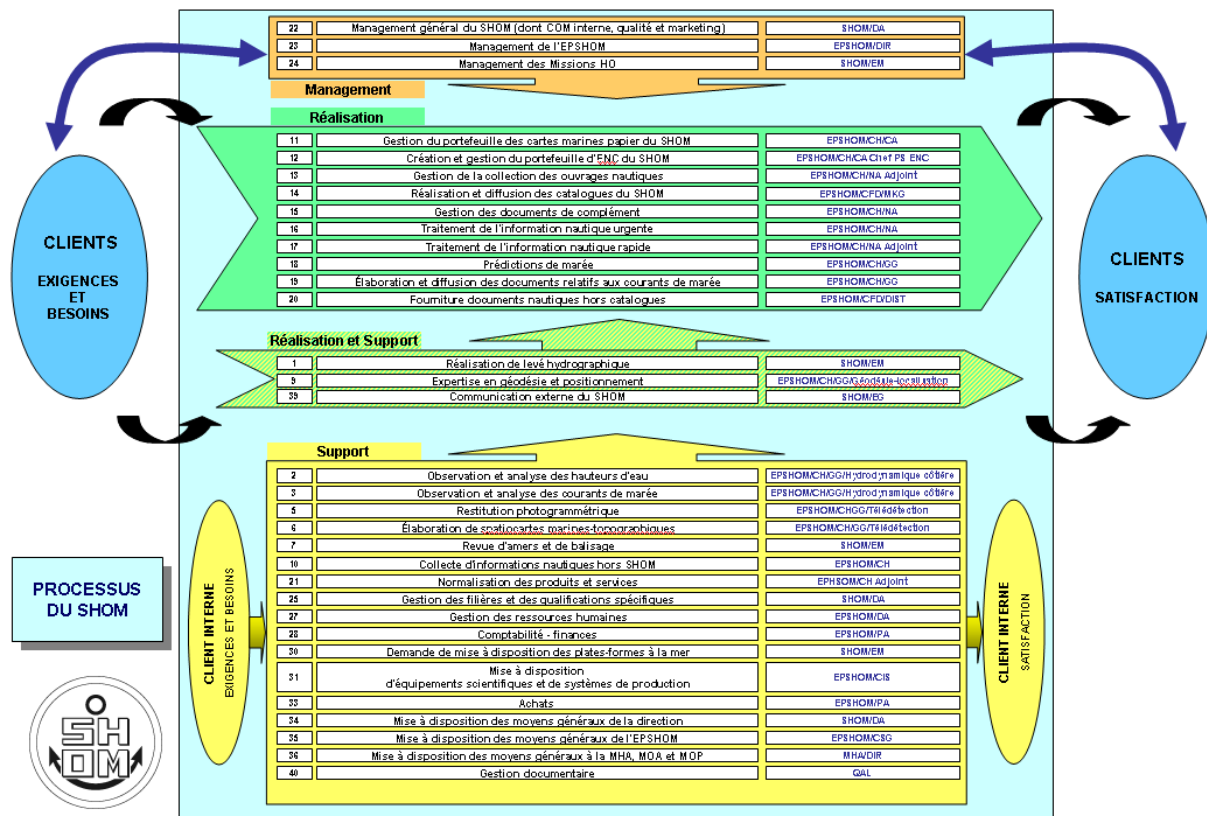
The field of certification concerns all the activities of SHOM relative to the safety of the navigation, as listed in international conventions signed by France, notably that on the protection of the life at sea (SOLAS).

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 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 tackling the various challenges to which it will be confronted, particularly in the field of safe and reliable electronic navigation.

The cartography of the processes is illustrated below:



WITH MORE DETAILS

ISO 9001-2000 Certification of the French Hydrographic Office (SHOM) : a new beginning

Yves Desnoës, director of the “Service Hydrographique et Océanographique de la Marine” - SHOM

As pointed out by many of those who preceded us on the path of certification, the rapid growth of information systems and of automation has often outpaced the up-dating of procedures, leading to a growing gap between what was being actually done and what was written on what was to be done. For organizations like ours, where safety and traceability are nearly sacred, this gap had to be filled. In addition, the systems used for production are growing in complexity, and their quality has a direct impact on the quality of products⁵, including the integrity of information.

It was thus decided at the end of 2000 to take the measures necessary for the ISO 9001-2000 certification of SHOM, covering all the aspects quoted above, including the design and development of the systems used for surveys, for data management and processing and for production. It took that time to focus everybody in the service, to prepare contracts for support and to upgrade the quality management system, including writing its formal description.

We describe here the experiences we found most original compared to what we read in the literature on the subject.

1) An approach of the processes by product categories.

We tried at the beginning of our work to minimize the number of processes by defining generic processes we would apply to very large categories of products (including services). This proved to be impracticable, or at least the consensus was that it was impracticable to manage customers' satisfaction and to take into account the various specific human skills through the links between generic processes. We consequently shifted to processes structured according to categories of very similar products, from customers' needs to customers' satisfaction.

This led to 13 processes providing products to external customers, 18 processes providing only support to internal customers and 3 management processes.

The 13 "external" processes are : management⁶ of the paper chart portfolio, creation and management of the ENC portfolio, management of the nautical publications series (including i.a. sailing directions), realization and distribution of catalogues, management of complementary publications, processing of urgent nautical information, processing of rapid nautical information, tidal prediction, production and distribution of tidal stream publications, provision of non-catalogue nautical documents, realization of hydrographic surveys, expertise in geodesy and positioning and external communication.

⁵ you need systems quality to obtain product quality, but you can still produce bad products with good systems : these also need to be properly handled, and for that you need well managed production processes ; systems quality also reduces the cost of systems for a given performance on the long run,

⁶ for products and services, “management” includes the collection of needs, the design, the development, the production (with quality control), the delivery and the up-dating

It was something of a surprise to discover that design and development were integrated and somewhat hidden in the processes. We thus had to handle them by specific objectives in the policy statement on quality for SHOM (see 3 below for more information).

The descriptions of processes, together with objectives for improvement, offer a global picture of the service which is far more readable than the previous set of disconnected papers, and with much less holes in it ; it seems to be a good tool for improving the organization of the service.

2) No weak link

Safety suffers no compromise : all tasks having an impact on safety had to be included in the field of certification.

This explains why we have so many processes for a relatively small organization, and is probably one of the reasons it took us some time to achieve our goal of being certified (another cause for some delays is the length of administrative procedures for public contracts). We must observe that, once the final formalization process was launched, with the necessary help of external consultants, it took us only 18 months to achieve certification level ; we take it as a proof that our “traditional” processes were rigorous and well mastered, and the remark above must be interpreted as meaning that the relative complexity of our processes made it difficult for us to brace ourselves up, so to say, that is to specify what we had to do ; in this process, for instance, we tried the “generic processes” approach I mentioned earlier, which was subsequently discarded.

The processes involved cover everything from surveying to distributing, including processing, data management, charting etc. As already stated, design and development also have to be certified, and it may be said that the ISO 9000-2000 series is less prescriptive on this matter than ISO 9000-1994, where ISO 9001 was dedicated to design and development.

ISO 9000 certification is not an absolute proof in itself, it is only a proof that you are well organized and apply your procedures in the field you have chosen ; some organizations for instance are certified only for production, some others only for project management (for instance, an entity in charge of project management may be certified for project management only, even if it belongs to a larger organization). We could have adopted a strategy of more progressive certification, beginning with a certification field like the above-mentioned ones, but we felt that the mission of the service called for a clear commitment and a clear image, internal as well as external, which would have been incompatible with partial certification.

3) Design and development

Systems quality, which is necessary for safety and for cost effectiveness, is obtained by following well defined methods and procedures in their design and development.

There exist a lot of recommendations and of standards for design and development, but they do not constitute a set of sufficient applicable rules ; they even include some minor discrepancies and imprecisions ; their teaching needs to be selected and adapted to your own service.

Surprisingly enough, despite the fact that a lot of modern systems are based on information processing and incur a lot of evolutions during their life cycle, the handling of evolutions is scantily specified in the main standards. We had to devise a set of recommendations for incremental development, where each increment is managed as a project in itself in the ISO 9000 meaning, with possible overlapping of the development phases of successive increments.

A lot of other aspects of life cycle and procurement also had to be defined. We are a part of the ministry of defence and as this ministry has a strong tradition and strong standards for project management, including specification and configuration management, and considering that we have to cooperate with other parts of the ministry for procurement, we decided to use the same methods and the same terminology. One of the main sources of know-how is the R.G. Aero set of recommendations, where it should be noted that "Aero" refers to the organization that produced the recommendations (Bureau de la normalisation de l'aéronautique et de l'espace), but that the recommendations were designed for application in all fields of defence procurement, a feature which gives them a very broad spectrum and makes them suited to almost any kind of application domain.

But systems in our field are much smaller than a lot of defence systems, and it seemed unpractical to use the whole series of R.G. Aero recommendations⁷. We thought it appropriate to select a few general ones which are fundamental for defining the frame and the organization of systems :

- RG Aero 00040 general recommendation for the program management specification
- RG Aero 00023 guide for the application of the principles of the configuration management
- RG Aero 00008 guide to the drawing up of technical specification.

There are many more, and we think that our designers, project manager and engineers will be able to use them when needed once they have assimilated the basic ones.

One should not be impressed by the huge size of some of the systems which have been developed using those recommendations : for small systems, many recommendations can be followed by limited actions described in a few lines of text, whereas for large systems they may require books ; but the recommendations are always good, even when they do not apply, because the decision that they do not apply is based on a rationale and thus less prone to error.

4) A lot of semantics

Quality, methods and organization use a lot of very general words which have to be given a more precise meaning before they can be used for efficient management.

Part of it can be seen, more or less implicitly, in the previous paragraphs, especially the previous one where we mentioned that we had to resort to a terminology defined in external recommendations, and we imply by "terminology" that we adopt the sub-lying concepts.

Of course ISO 9000 is widely used for basic concepts, definitions and schemes. But this is not enough, and we also had to define very general and common words like project, system, engineering, increments, ...

One of the reasons is that the huge wealth of existing standards and recommendations is not perfectly coherent despite their very high quality and usefulness, and this can be seen by studying the evolution of those documents, accounting for their different origins. The choices made here are far from universal, owing to the well-known fact that methodologies have to be adapted to the environment where they are used. This is a real difficulty for those who do not have the "critical mass" in their staff for that kind of work, and it was a high burden on SHOM staff, probably not far from the limit.

⁷ most of recommendations are available in English and may be ordered by any interested organization

Some more standardization in the hydrographic field would probably help middle-size Hydrographic Offices, and the new (to be decided) organization of the International Hydrographic Organization (IHO) should allow for a more rapid progression towards such goals.

Like quality, semantics is not an end in itself ; it is only a tool for those who use it. What is important in improving semantics is that the people in the organization have a tool for improving their communication and consequently their collective efficiency and their organization, which we may summarize in “better teamwork”. As modern technologies tend to complexify many systems, understanding each other becomes more and more difficult and efforts must be devoted to defining common words and associated common concepts.

5) An important overhaul of documentation

A lot of reference documents of the Service were managed in different (hand-held) repositories, some of them somewhat out-dated. We had to sort out all our references, and that was a considerable work, for which we felt that only automation could give us the necessary capacity.

Instead of resorting to a commercial documentary system, for which a lengthy procurement process would have been inevitable, one of our best software people developed a small tool based on an off-the-shelf workflow package. This tool was thus very cheap and proved to be very efficient.

All in all, we reached the number of approximately 1000 references, which seems fairly high. We will certainly reduce it and make it more rational, but we won't change the order of magnitude, which shows that our profession needs very elaborate skills and procedures : safety does not come cheap.

6) Customer needs

One of the important features of ISO 9000-2000 is the prominence given to the users of the products and services, called “the customer”. We were helped in this area by the fact that, a few years ago, we had already identified the necessity of improving marketing and hired a specialist in the field. This may seem obvious to some hydrographic offices, but, for a lot of them which probably have a more governmental tasking, it might be useful to consider that the techniques used in marketing are also useful for quality. Quality rests on the analysis of users needs, and so does marketing ; a lot of the processes necessary for quality are more or less common with marketing, like for instance market segmentation or inquiries on customer satisfaction.

But customer satisfaction cannot be the only criterion for a governmental service : it is fundamentally limited by its public mission, for us producing charts and nautical documents and information necessary for safe navigation, and going beyond that into the competitive market is precluded. We thus had to specify this limitation in our policy statement on quality.

Another issue is the difference between the need expressed by users and the necessities of safety. A lot of users are ready to take risks they do not precisely identify by using tools or

systems they perceive as bringing significant progress in automation and productivity or ease of use, and this puts pressure on hydrographic offices for producing more and more sophisticated products and services. But new techniques imply new kinds of risks and these are not all mastered yet. As we are in charge of preventing (hopefully) rare catastrophes, we cannot wait for the statistical effects of quality management systems to yield their benefits ; we must do our best to foresee the new risks and to enforce measures adapted to their minimization. We thus have to consider that the needs to be taken into account are not only those expressed now by the direct users of our products, but also those that will arise after the next sea disasters, from direct users as well as from other stakeholders ; in short, we need foresight in the evolution of safety needs. We may observe that, at least in France, pollution caused by ships and loss of lives at sea are less and less accepted by the public and by their representatives. We think that, as a minimum, prevention measures applied in comparable fields should be studied and adapted to our own field when useful, and that mere prudence, which is a general duty of all bodies involved in public safety, dictates such an attitude. This is not simple and takes time, and more standardization is necessary for the affordability of some safety tools (mainly software). It should be observed that this is probably more an IMO task than an IHO task, but IHO is involved anyway. The effect of this implicit need is to apparently slow down the development of some products or services, but it is only apparently, because in the mean time we are doing our best to develop the real safe products instead of more risky ones which could be driven only by commercial considerations which are secondary to our safety goals.

Conclusion : an efficient tool for future progress

We are not in a static world. We either progress or regress and the choice is mainly ours. A quality management system is not a complete guarantee for progress, but it is one of the necessary tools for that purpose.

First of all, certification has to be maintained, at least every year, and that is a powerful incentive against regress. Anybody may claim that his quality management system is as good as certified, but certifying is entering into a new world where no step backwards is allowed.

Secondly, as already stated in paragraph one, the formal homogeneous description of SHOM processes which was put together in the up-grading of the quality management system for certification is a good tool for improving the organization, and so is the new vision on reference documents which were properly filed in a library easily accessible to everybody in SHOM.

As SHOM is not only in charge of hydrography, but also in charge of oceanography and meteorology for the Navy, we cannot give the impression that we consider one of our “customers” as more important than the others, nor that we consider some parts of the service as more important as some others. We have thus decided to certify these more military parts in a second step. Part of the work is well advanced, because some of the progress we have made in general procedures (e. g. the handling of systems and projects) is already applied everywhere in SHOM, because the certification process in hydrography has been closely followed by all the executives in SHOM and because the approach by processes has already been launched under the form of functional analysis (for systemic purposes rather than for quality in itself, but the result is there and available for quality).

We now have in SHOM a brand new tool for progress, be it with a lot of ancient parts. But it is only a tool. What is most important is the skill and dedication of everybody in the Service,

which will be the more effective with a renewed quality management system. Of paramount importance is also the improvement in communication, inside the Service and with external partners, which is one of the benefits of quality enhancement ; communication connects people more than machines and people, as shown in several observations above, are what really counts in the end.

Progress with the Production and Distribution of Electronic Navigational Charts

The following information provides the Conference with an update of the current status of ENC production within the UKHO.

Number of S-57 Edition 3.1 ENCs in home waters (listed by usage bands):

Usage Band	ENC Cells Produced	% Total ENC Coverage	Additional ENCs one year ahead	ENCs on the market (with updating service)
Berthing	-	-	-	-
Harbour	112	56%	87	103
Approach	75	67%	36	69
Coastal	75	100%	-	75
General	40	100%	-	40
Overview	13	100%	-	13
Total	315	85%	123	300

N.B. There are an additional 101 cells to be produced that have not been included in the above figures. These are mostly large scale harbour and approach cells and have been identified as part of the Shoreline project enabling complete coastline coverage of the UK at the largest available scale.

Admiralty Value Added Reseller (VAR) Service

The Admiralty VAR service was introduced in July 2002 following a reorganisation of Northern European ENC distribution arrangements. This service includes ENCs from Germany, Netherlands, Greece, Spain, Portugal, Belgium, South Africa and the UK. It is the intention to include ENCs from a wide variety of sources as they become available to ensure that the maximum coverage is available from a single source.

ENCs within the Admiralty VAR Service are sourced from the International Centre for ENCs (IC-ENC), the RENC operated independently from the UKHO on behalf of its Hydrographic Office member-nations.

Both IC-ENC and the UKHO as an ENC service provider place great emphasis on the quality of data made available to the user. Considerable effort is put into ensuring that ENCs within the service meet the highest standards and are fully compatible with current ECDIS systems.

ENC Capture Priorities

The UKHO's core responsibility is to provide charting within home waters and other areas of UK charting responsibility for vessels governed by SOLAS. ENC production schedules are prioritised to take this into account using the following as guidelines:

1. Key areas of SOLAS operation within UK waters such as the English Channel.
2. Non-UK areas of key SOLAS operation such as the Suez Canal (within UK responsibility or under bilateral agreement).
3. Completion of home waters (still for SOLAS vessels).

Other factors that have affected these priorities are UK defence requirements, political interests, internal compilation schedules (e.g WGS conversions, re-scheming or new charts/editions) and bilateral negotiations.

Trained ENC Compilers

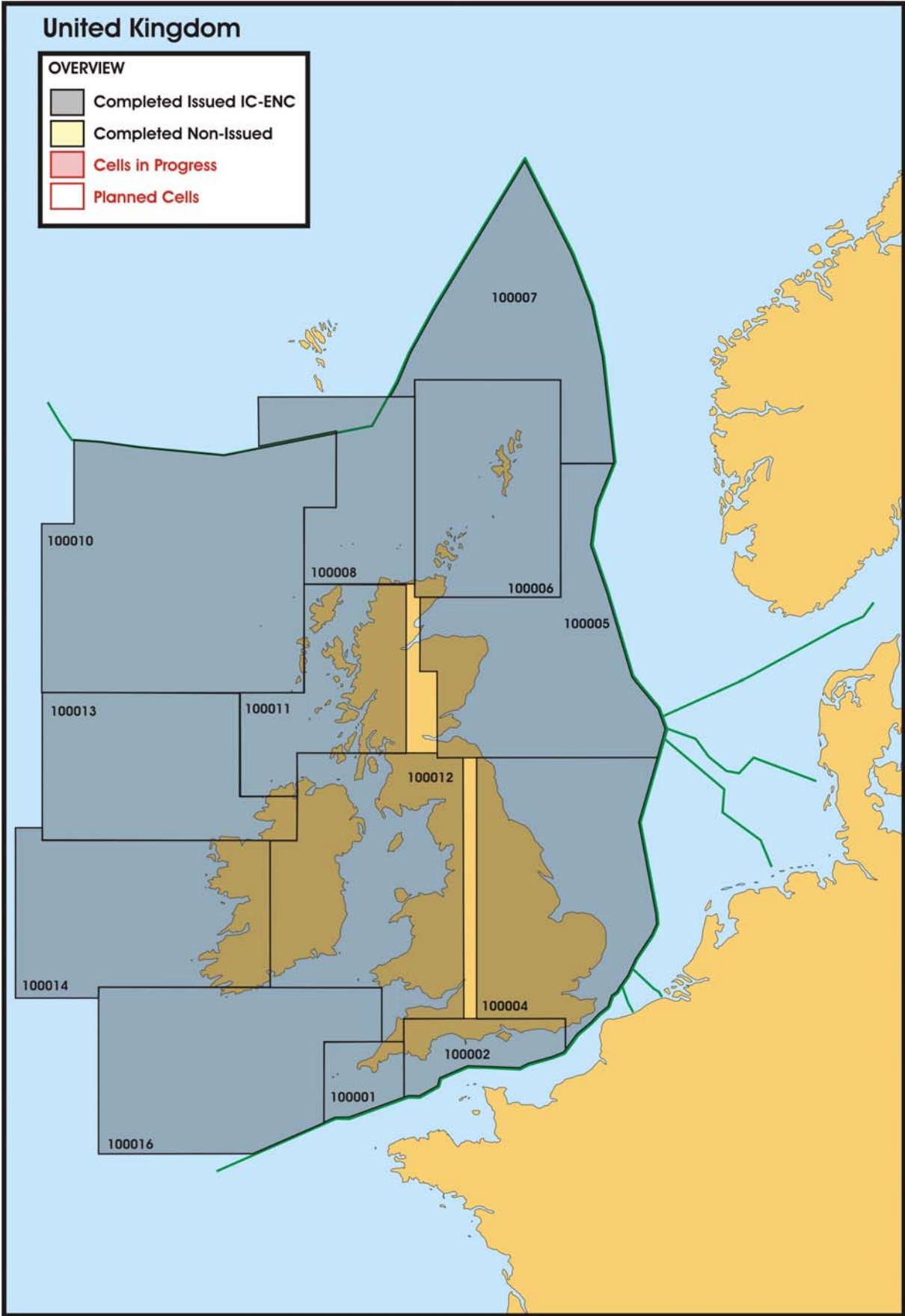
We believe that the number of staff dedicated to ENC Production at UKHO will be sufficient to achieve our longer term production targets. We are, however, conscious that we need to increase the number of experienced staff to cover both future needs and any short term contingency, and will therefore maintain on-going conversion training for existing compilers and an ENC component in our standard training for all newly recruited compilers. In addition to supporting our own UKHO ENC production, we envisage that this approach will enable us to generate some spare capacity which can be used as required to advise, train or support other HOs in developing their own capability.

ENC Production Systems

Systems are now available to do the job of ENC production and their capability is proven in actual use. We are confident that there will be continuous enhancement as the worldwide ENC Programme gathers momentum and experience is gained. We would expect this to manifest itself in both greater productivity and ultimately improved production efficiencies.

The UKHO's forthcoming ECDIS Service

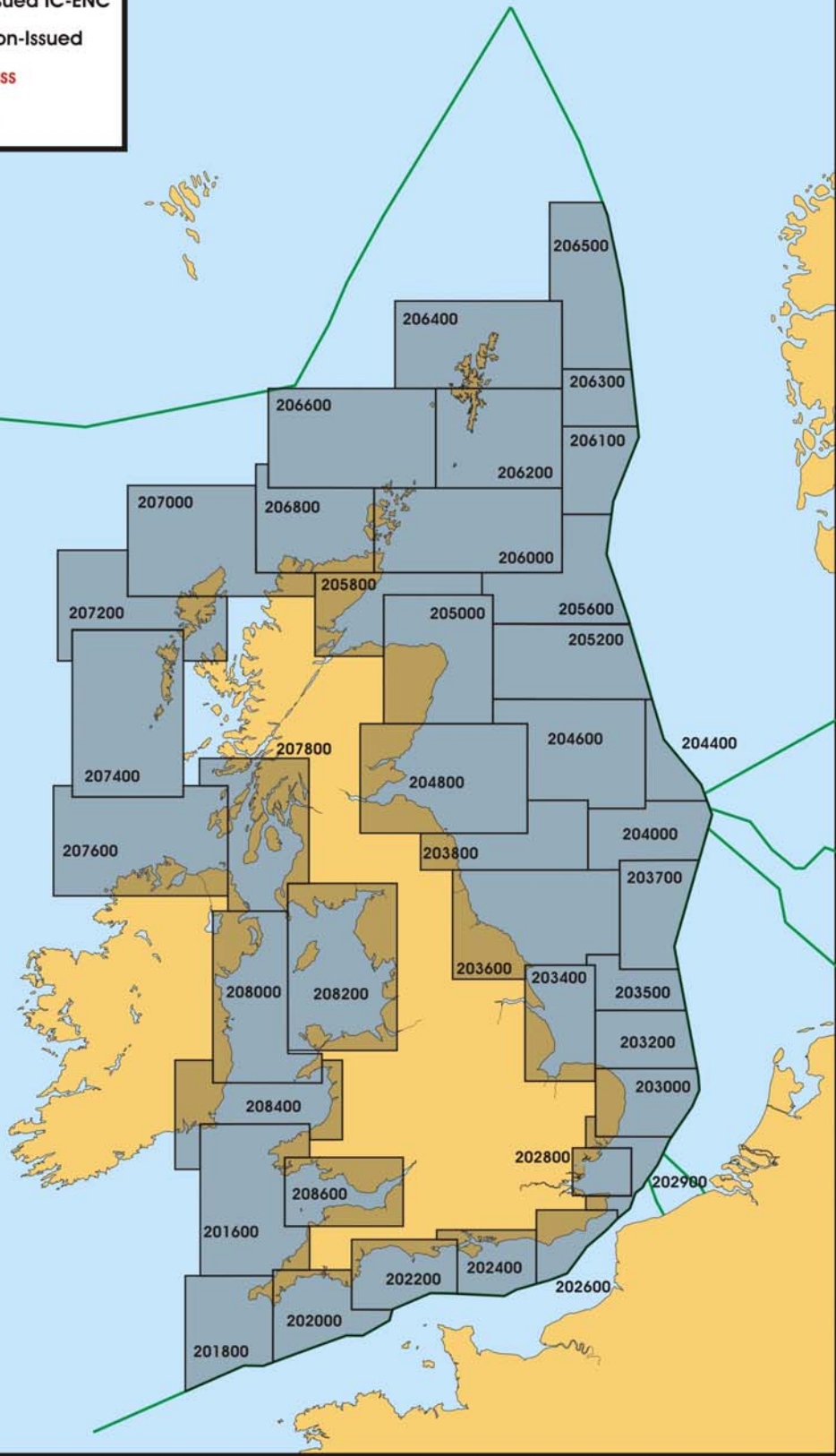
The UKHO is developing an ECDIS Service. The service will provide ENCs where available and ARCS to fill the gaps in order to give the end user a global electronic chart service that meets regulatory requirements. In order for the concept to work UKHO has to supply new ENCs to customers as they become available. This means mapping new ENCs onto existing ARCS coverage.

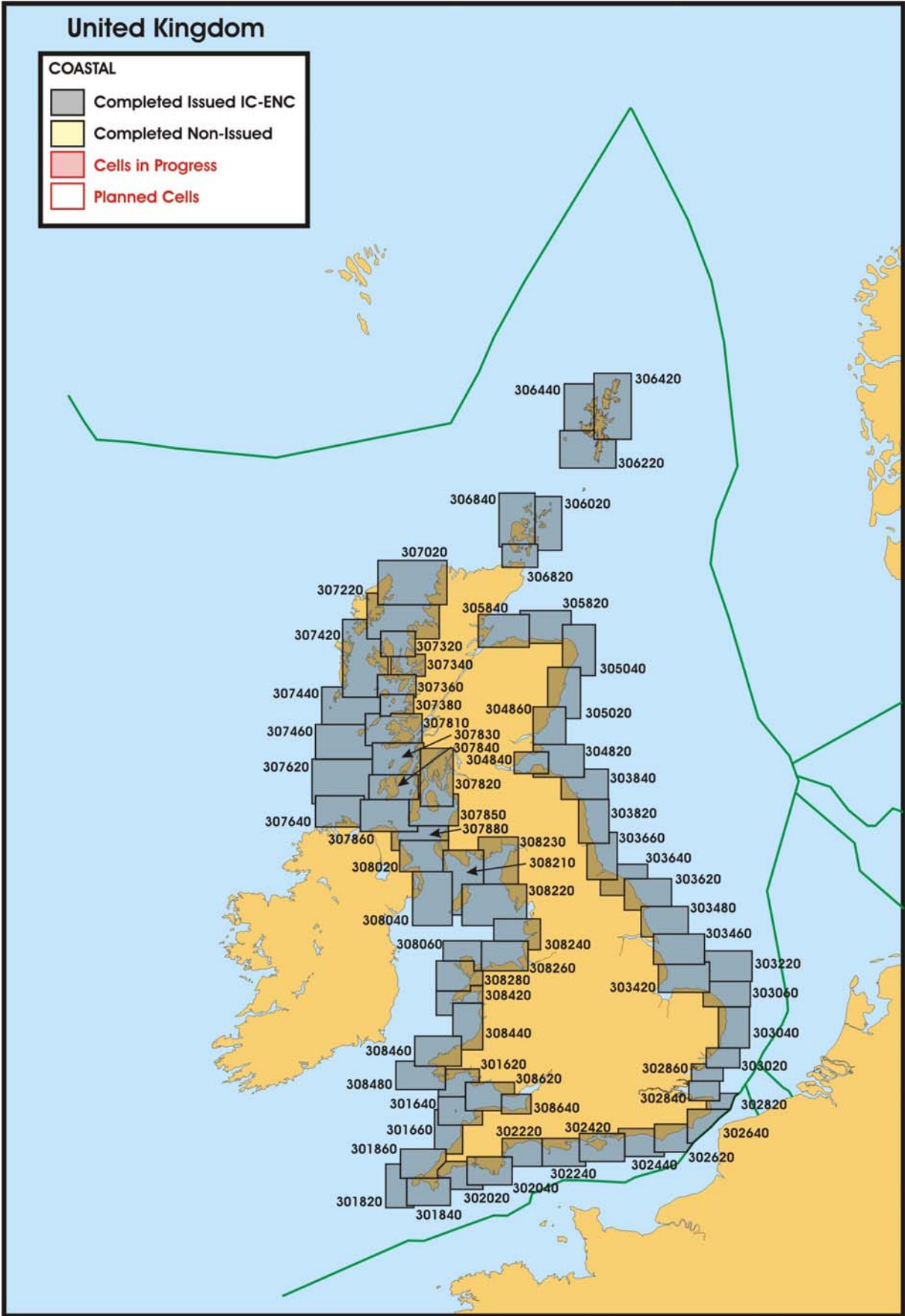


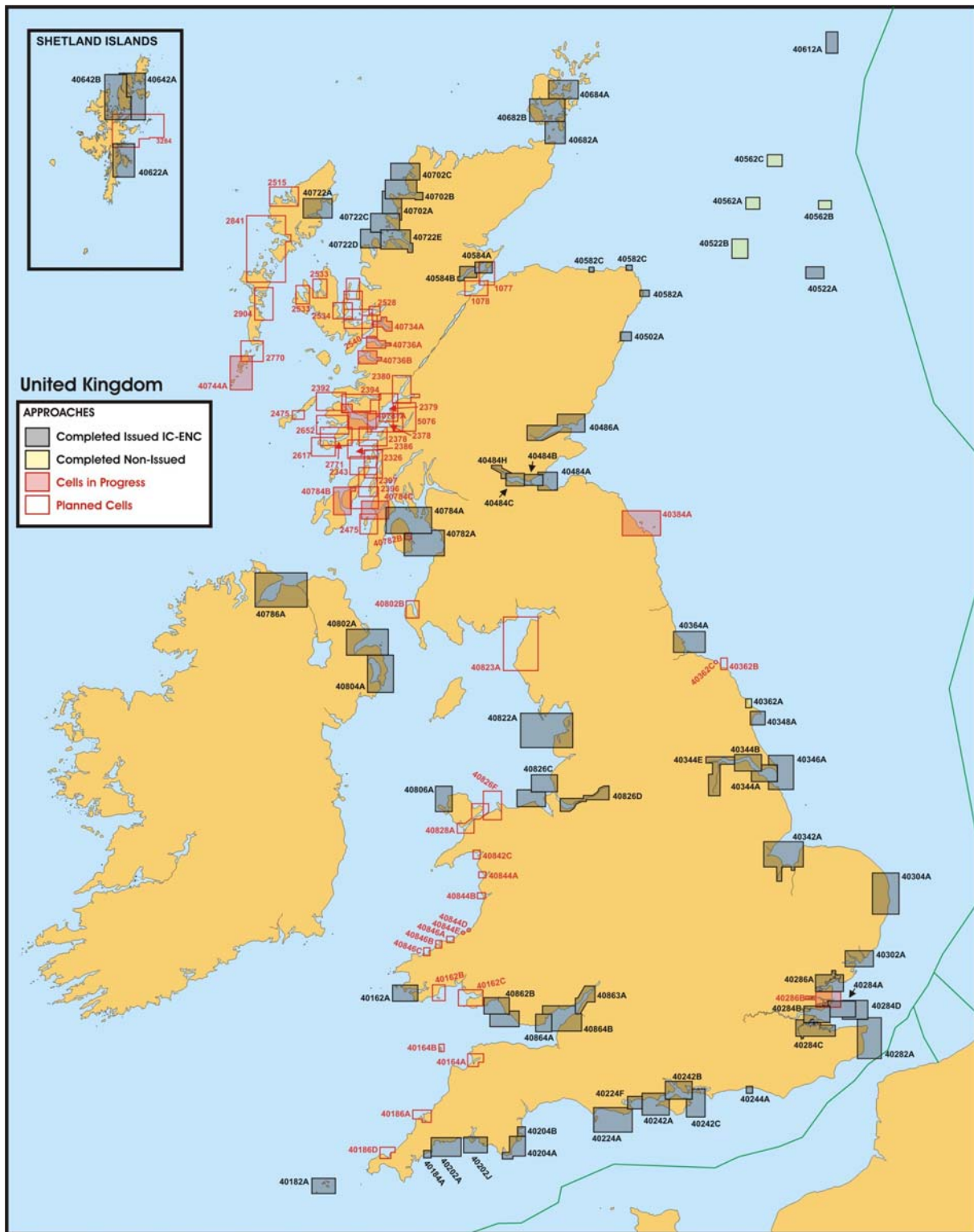
United Kingdom

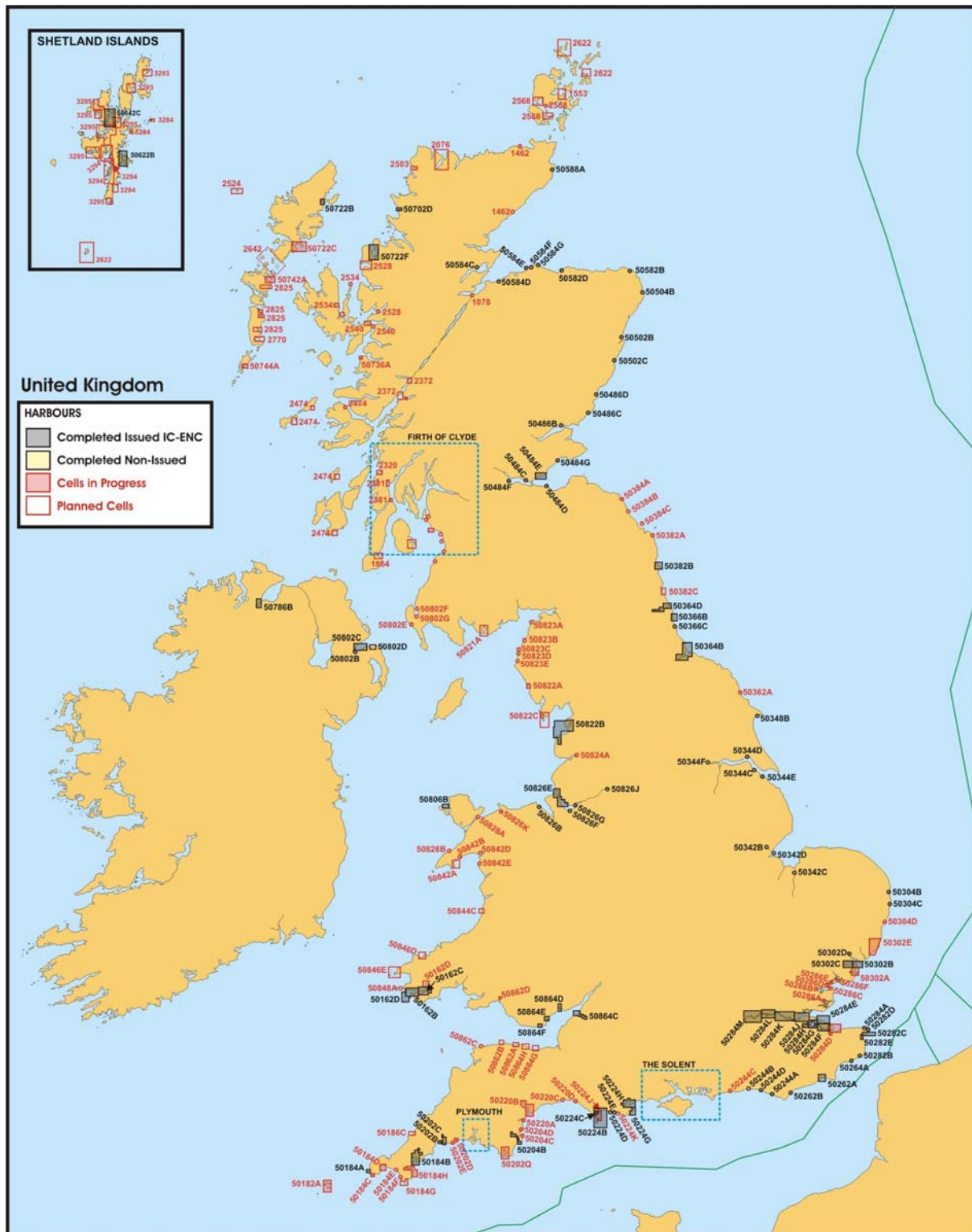
GENERAL

- Completed Issued IC-ENC
- Completed Non-Issued
- Cells in Progress
- Planned Cells

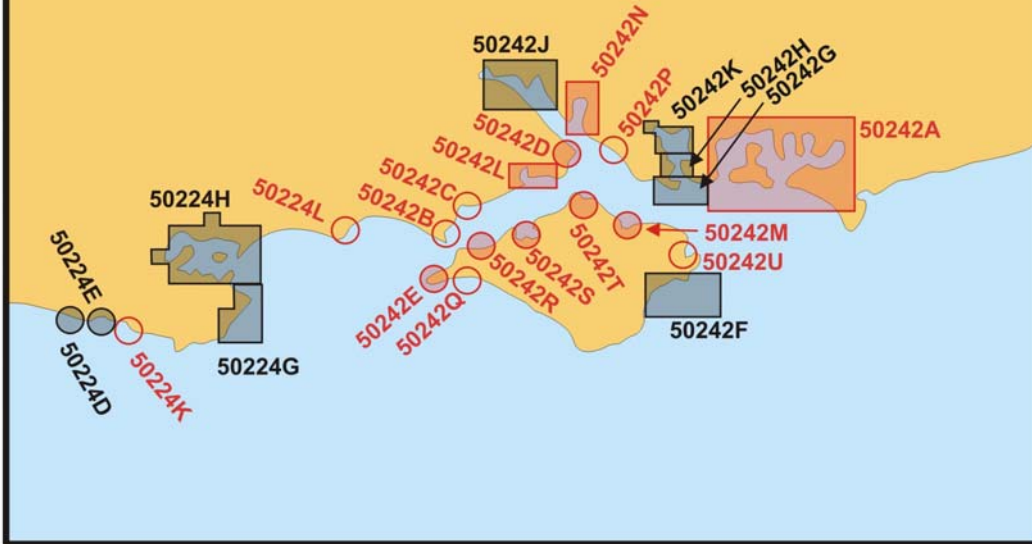








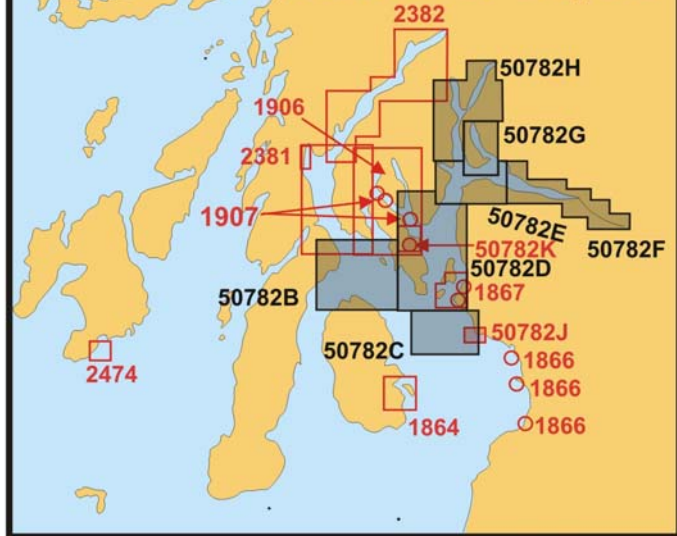
The Solent



Plymouth



Firth of Clyde



UKHO Future Status

The United Kingdom Hydrographic Office (UKHO) recently underwent a government review to investigate the possibility of becoming a Government-Owned Company. The outcome determined that the organisation will retain its existing status as a Trading Fund Agency and will not make the transition to Company status.

A major factor in the decision was the importance of UKHO relationships with other hydrographic offices and the need to continue working closely within the inter-governmental framework of hydrography. The primary mission of the UKHO continues to be the protection of safety of life at sea and support UK defence forces.

Whilst the status and focus remains the same, the UKHO is seeking to develop a comprehensive partnership programme with industry and other government organisations as we move into the digital era. Therefore our future includes new partners, products, services and markets.

To undertake this work, the UKHO has established a government-owned company called Admiralty Holdings Limited (AHL) to sit alongside the UKHO, and provide a route through which formal legal partnerships, such as Joint Ventures, can be formed with industry.

Two joint ventures have been announced recently, namely Admiralty Coastal Surveys AB and SeaZone Solutions Ltd. The UKHO is currently exploring a number of other opportunities. The UKHO will outline these developments and how they might be of benefit to other HOs.

**NSHC 26th Conference
Cardiff
September 2004
Update on LAT progress**

**Explanatory Note
Item D 1
Netherlands**

LAT-conversion: report of progress

No work has been done on the LAT subject due to postponing LAT until the realisation of the SHIP2 project. The realisation of SHIP2 has recently been postponed until at least early 2007. However, possibilities are researched to introduce LAT as of 2006. Depending on the progress in BE and DE we will probably request for new LAT model data at our National Institute for Coastal and Marine Management (RIKZ) next year.

WGS-84: report of progress

At present the following progress has been made with regard to the WGS-84 conversion of nautical charts:

Southern North Sea: completed (excluding one small scale charts INT 1043 1:750.000 (issue 2005)).

Caribbean Area: 70 % medium/large scale (completed 2007 after survey campaign in 2006)
0% scale smaller than 1:300.000 (completed 2007)

WGS84 Conversion, Report of Progress

The initial programme to transfer 334 charts of the United Kingdom from OSGB36 Datum (or OSI Datum) to a WGS84 compatible datum started on 8 June 2000. This program has now been extended to include the North Sea Offshore charts and some new charts, a total of 347.

It has been decided to transfer all charts of Scotland and Ireland to European Terrestrial Reference System 1989 Datum (the current equivalent of WGS84 Datum for Europe).

251 WGS84 charts have been published as of 2nd July 2004.

The entire coast of England and Wales, including the Channel Islands has been completed. Areas of Scotland already covered include the East Coast as far north as the Moray Firth; the River Clyde; most of Shetland and the large scale charts of Orkney. Charts of Belfast and Larne have been transferred, while the remaining charts of Northern Ireland are scheduled for publication by September 2004.

Status of the work of SPWG

Following Decision No 2 of the XVIth IH Conference, the SPWG has done a thorough review of the Basic Documents of the IHO and of its structure and procedures, in order to determine whether a more flexible, efficient Organization could be constructed.

A report on the outcome of the work of the SPWG was attached to CCL No 2 dated 10 May 2004, followed by CCL No 5 dated 29 June 2004. The latter also included, in addition to a consolidated version of the draft Convention (to be dealt with at the 3rd IH EOC in April 2005), a draft Version of the other Basic Documents submitted to the IHO Member States for information only.

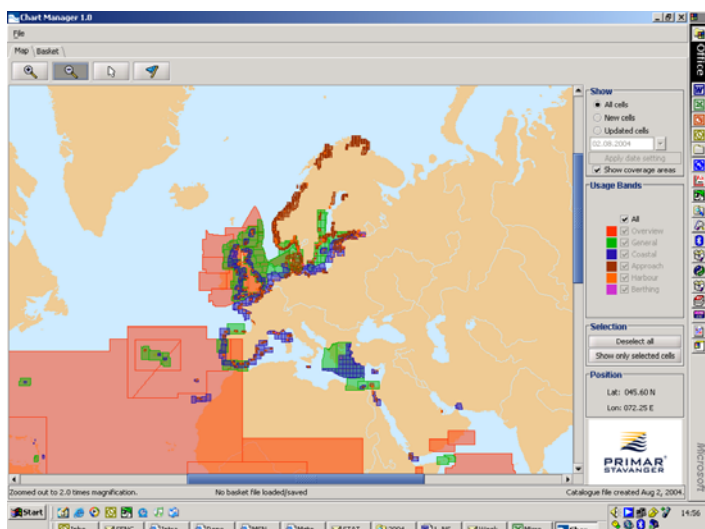
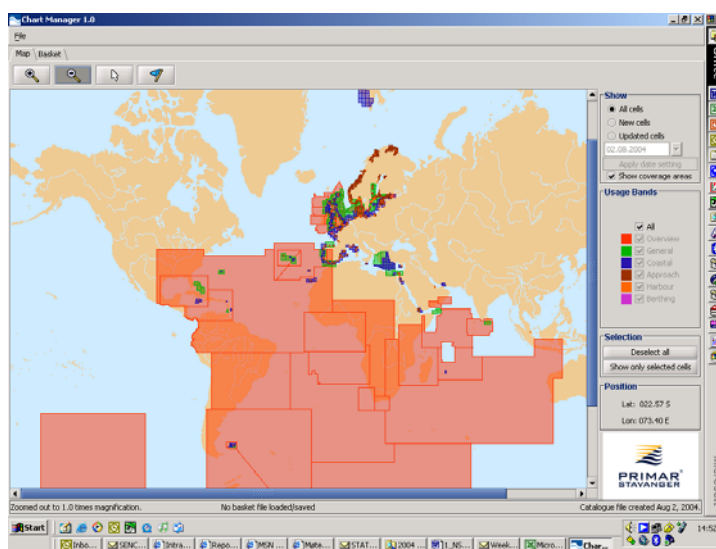
A summary of the findings of the SPWG, together with the “*PROPOSALS TO THE 3RD IHO EXTRAORDINARY CONFERENCE*” (CCL2 Annex E), will be presented and discussed at the 26th NSHC. It is considered to be of particular importance that the 26th NSHC meeting have some preliminary discussions on the strategy necessary to implement the decisions eventually made by the 3rd EOC, ref Proposal 8 2).

STATUS OF RENCs - PRIMAR STAVANGER

The Primar Stavanger international ENC coordinating centre has been in operation since 1st April 2002. The service, a successor of Primar, is consistent with the RENC concept formulated by the IHO's Worldwide ENC Database (WEND) model. Primar Stavanger is operated by the Norwegian Hydrographic Service on behalf of a group of European nations.

Operation

The partnership today ranks as the largest single source of official electronic navigational charts (ENCs). Primar Stavanger delivers as per August 2004 1.448 ENCs from *Denmark, Estonia, Finland, France, Greece, Norway, Poland, and Sweden*. In addition NHS has signed distributor and Value Added Reseller (VAR) agreements with MPA and IC-ENC for distribution of their ENCs. This now resulting in distribution of ENCs from eighteen countries.



Primar Stavanger currently provides a pure ENC service. Today the ENCs and updates are sold and distributed through a network of 27 leading charts agents and distributors. Primar Stavanger distributors can sell the official ENCs together with vector charts, raster charts and complementary information from other suppliers by downloading the ENC data on-line and produce their own branded CD service.

The recommended retail price for yearly subscription of an ENC, equivalent in size to one paper chart, is now 24 USD. This includes all new editions as well as updates released on a weekly basis. As the take up of ENCs is steadily increasing, Primar Stavanger is now reviewing the pricing structure including the cost

benefit of introducing volume discount models. The ENC service from Primar Stavanger is accepted by the market as a quality electronic chart service. A consequence is a growing interest of using official ENCs also on non-type approved equipment (ECS), e.g. onboard fishing vessels and pleasure craft.

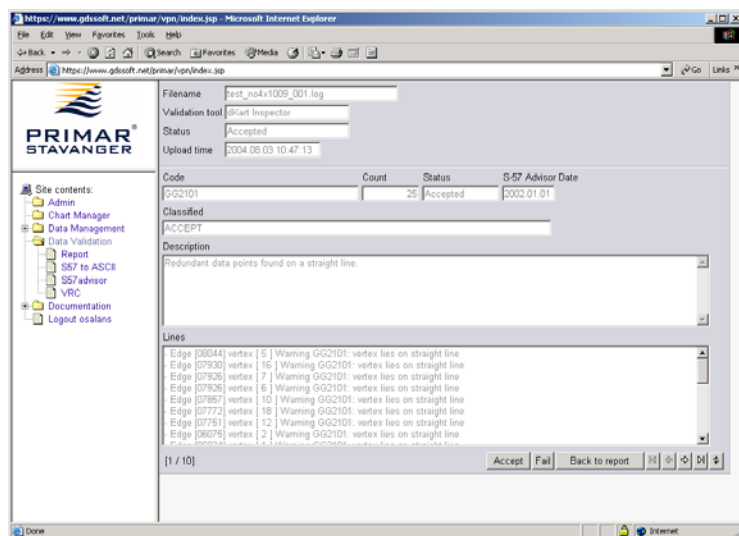
Security and Industry

The service is distributed securely using the IHO S63 Standard Security Scheme. More than 32 equipment manufacturers, covering the majority of type approved ECDIS systems, are supporting the Primar Stavanger ENC service.

Primar Stavanger will continue to offer support to all RENCs, based on an understanding and agreement on a common way forward with the IHO S63 security scheme under the guidance of the IHO Data Protection Scheme Advisory Group (DPSAG).

Supporting Tools

Primar Stavanger uses new virtual validation tools which is on-line for its cooperating partners, which will considerably reduce the resources required for validation and ensure a consistent processing of all possible S57 deviations. The *Validation Report Checker* (VRC) provides an on-line automatic evaluation of the ENC validation reports from the recent versions of the most popular S57 validation tools. The VRC is automatically reviewing all the validation responses and guarantees a consistent classification of all identified issues with a possible identification of the source of the problem and recommended corrective measures from our S57 Advisor expert database system. The VRC also supports the complete on-line quality management of all supplied ENC data with validation logs, reports and approvals. This will ensure a consistent and high quality on all ENC data from the Primar Stavanger partners since the S57 Advisor database is continuously kept updated with the inclusion of more experience.



The *Virtual Primar Stavanger Network* (VPN) is used by the Hydrographic Offices to manage all their ENC information available in the Primar Stavanger service. It enables the Hydrographic Offices to securely and interactively control and manage their national ENC database, and release new data to be incorporated the ENC service, using a secure internet interface. Further functionality has been made available on request to enable the Hydrographic Offices to provide a national ENC service with the automated creation of base and update ENC exchange sets.

The *Graphical Chart Catalogue/Primar Chart Manager* is becoming the major tool to access ENC services from Primar Stavanger. It provides a dynamic interface for the access to and download of ENC information for the Primar Stavanger distributors, the national Navy suppliers, SENC service providers and derived product suppliers using the ENCs as source for their products. The Chart Catalogue/Chart Manager supports these user groups with intuitive

and flexible, automated functions for ENC selection and customised chart folio management and on-line orders.

Some Hydrographic Offices are in the process of establishing national licensing agreements for the use of ENC as basis for derived products in ECS applications. These nations will use the available interactive tools for the ENC services to provide the ECS manufacturers an on-line access to their national ENC datasets.

Contact Point

Should you have any comments or questions concerning the report, please contact the Norwegian Hydrographic Service.

Ongoing Work of the IHOCBC

Captain Barritt, Vice Chairman of the IHOCBC, will present a Power Point brief on the ongoing work of this important co-ordination forum.

He will cover the following topics:

- An update on the inception, composition and role of the CBC.
- Actions for RHCs arising from the 1st IHOCBC meeting.
- The draft CBC Strategy Paper.
- NSHC input to the 2nd IHOCBC on 11-12 Nov 04.

Background

NSHC attendees should read the minutes and actions arising from the 1st IHOCBC, and the draft Strategy Paper, in the IHOCBC section of the IHO web-site (www.iho.shom.fr). It will be found under the “Committees” heading on the left hand side of the Home Page.

IHO CL 14/2004 provides a progress report on the activities of the committee. The documents for the 2nd IHOCBC can be found on the web-site. These include an annotated agenda.

NSHC MS have provided members for several of the IHOCBC working groups and they may wish to provide input for discussion under this Agenda Item. The draft Strategy Paper will provide the framework for this discussion. The IHOCBC particularly needs to have MS advice on the way ahead for handling capacity building funds.

NSHC MS may wish to report on their capacity building programmes and their involvement in bilateral or multilateral projects in other RHC areas. This meeting will give an important opportunity to enable the Vice Chairman and other NSHC members of the IHOCBC to ensure that all ongoing effort is taken into account during formulation of the Action Plan for 2005-06.

Hydrographic capacities assessment in Western Africa

report from the Western Africa Action Team⁸

ABSTRACT

This article provides some information obtained by a team of international hydrographic experts representing the International Hydrographic Organisation (IHO) Eastern Atlantic Hydrographic Commission (EAtHC). Our mandate was to collect information in West African countries within NAVAREA II in an effort to determine what could be done to improve charting and safety of navigation in the region. The experience gained could be applied to other maritime regions of the world.

THE NEW SOLAS CONVENTION AND THE WEST AFRICAN NEEDS

The International Maritime Organization (IMO) has revised the 'Convention on Safety of Life at Sea' (SOLAS). A newly revised chapter V was adopted in December 2000, entering into force on 1 July 2002. This revision details the obligation of maritime states to provide hydrographic services. Rules 4, 9 and 31 chapter V (table 1) are the most significant and respectively describe navigational warnings, hydrographic services and danger messages. Taken as a whole, governments of maritime nations are now obliged to take all necessary steps to collect, handle, disseminate, and keep up to date nautical information and hydrographic services necessary for safe navigation in their waters.

In many African states, such "hydrographic services" are provided by European countries with which strong institutional links have been established. Countries like Spain, France, Portugal and the United Kingdom keep nautical charts and publications updated, based on data collected by the African states concerned. Unfortunately, much of the data displayed on these charts go back more than 40 years and, therefore is inadequate for the current requirements of international maritime navigation, protection of the environment or exploitation of resources.

At the sixth and seventh meetings of the EAtHC, in June 2000 and October 2002, the present situation was deemed worrying by the participating Member States of the IHO, Associate Members of the Commission and Observers. As a result it was decided to create a team of experts in hydrography, marine cartography and nautical information, tasked to visit countries where a lack of surveys, charts and nautical information has been identified, provided that the countries concerned would welcome such a visit. This team became known as the West African Action Team (WAAT). The aim of the visit would be to assess national hydrographic capacity with a view to offering advice to the relevant national authorities on how to improve the collection and dissemination of nautical information in the region and engender progress through regional co-operation. The next step will be decided during the ninth meeting of EAtHC now planned for the end of 2004 in Brest.

THE THREE PHASES OF HYDROGRAPHIC CAPABILITY DEVELOPMENT AND THE OBLIGATION TO FORMALIZE THE PROCESS WITH BILATERAL AGREEMENTS

⁸ Have participated in the visits : Michel Le Gouic, Michel Even and Dominique Baggio (France), Fernando Pimentel and Paolo Brandao (Portugal), Ian Turner and Mike Barrit (United Kingdom) and Bob Bullard (USA)

Generally, the development of a national capability can be examined in three phases (table 2) :

The first phase, the most urgent and easiest to implement, consists of organizing the collection and circulation of nautical information, necessary to maintain and update existing charts and publications. Such an organisation brings together all the institutions involved in maritime activities. It provides an immediate advantage to international shipping and allows for real integration of the country into the World-Wide Navigational Warning Service (WWNWS).

Logically, the second phase is the creation of a hydrographic survey capability, first to collect data in the coastal zone where the needs are usually the most pressing. Generally, a small structure is sufficient to collect the data required for most coastal projects e.g. surveys to assure port access. Cartographic exploitation of such new surveys can often best be handled by the historical charting authority.

The third phase consists of the acquisition of the means to produce charts and publications independently. This phase cannot be achieved hastily, and will be facilitated by close co-ordination with the historical charting authority. This phase requires not only human and financial resources, but also a capacity to distribute world-wide the documents and the capability to keep them up to date.

While the first phase is relatively inexpensive and the most easily implemented, phase two requires longer term planning because training and equipment acquisition are required. The cost of implementing phase two is low compared to total harbour revenues. On the other hand, the third phase, requires more human and financial investments, and takes longer to implement. This phase can usually be subcontracted to an existing hydrographic office, at least during the transition period.

While not specifically spelled out in Chapter V of the new SOLAS convention, contracting governments are by default required to formalize the process, due to their new responsibilities. Writing and signing technical arrangements at the national level is necessary to clearly define the disposition of data, especially national holdings that are to be made available to a foreign government.

THE VISITS

The French Naval Hydrographic and Oceanographic Service (SHOM), in charge of co-ordinating the project, invited all the littoral states in West Africa, from Morocco to the Democratic Republic of Congo, to consider accepting a visit from the team of hydrographic experts. Seventeen nations responded positively, and sixteen have been visited in four trips made between the Fall of 2002 and the Spring of 2004 (table 3). The team comprised of members from those nations which have charting responsibility in the region (France, UK and Portugal) and a representative from the US.

All the visited countries are members of IMO and many of them are members of Maritime Organisation of West and Central Africa (MOWCA) and Port Management Association of West and Central Africa (PMAWCA).

In most cases, the team was able to meet local people at three different levels :

- at the highest level, with Ministers or Permanent Secretaries, where it was possible to sensitize the government to their responsibilities and highlight the important contribution that can be made by hydrography to development of the maritime arena.
- at the management level, with officials and managers of the government or port authorities who play a key role in planning, funding and overseeing maritime affairs. It is this level of

management that will play a key role in implementing most of the follow-on actions provided in the Country Reports.

- at the practical level, with those individuals (Port Surveyors and Harbour Masters) who appreciated encouragement, advice and support in their work.

GENERAL OVERVIEW

The team was struck by how different the maritime situation of each country visited was from another (table 3). In many cases the authority with overall responsibility for safety of navigation had not been long established, and often division of areas of responsibility between Port Authorities, National Maritime Authorities and Naval Forces were not entirely clear.

In many of the countries visited, the determination of maritime borders is still ongoing. Discussions with authorities of the various countries gave the WAAT the opportunity to explain the importance of modern hydrographic surveys and subsequent marine charts. Unlike land borders, which can be marked with such things as boundary stones or a barbed wire fence, the delimitation of maritime borders is not so easy. The marine chart is the only instrument that can be used to depict marine boundaries. This is true from a practical as well as a legal point of view. Additionally, this also applies to the EEZ delimitation, which is determined from baselines drawn from the coastline.

Maritime defense and security arrangements were generally considered to be a weak area in most of the countries visited. Concerns were often expressed about piracy and other criminal activity at sea. Naval and Coast Guard forces were often found to be under-funded and under-resourced to carry out their tasks and there is a lack of infrastructure to enable adequate coastal surveillance and communications. Hence these forces are generally not in a position to play a strong role in co-ordination of Maritime Safety Information (MSI) broadcasts and Search and Rescue (SAR).

Therefore priority must be given to implement phase 1 of hydrographic development, which could clarify tasks and responsibilities of the various involved players and identify a focal point for collecting and disseminating Maritime Safety Information (MSI)

DETAILED SITUATION AND PROPOSALS FOR CAPACITY BUILDING

NATIONAL HYDROGRAPHIC COMMITTEE OR MARITIME SAFETY COMMITTEE

The visits helped draw attention to the importance of hydrography to the development of a maritime state. It was well understood at all levels that a high-level group could easily be created to study hydrographic matters within the broader context of maritime safety and security issues. Besides problems of coastal erosion in many countries, as well as offshore oil production in others, it was noted that maritime security, particularly in response to the threat posed by piracy and criminal activity, was a major concern and appeared to dominate the agenda. The team drew attention to the new SOLAS regulation regarding the government's responsibility to provide hydrographic services, noting that the only hydrographic capability very often resided in the Port Authority. This emphasized the need for high-level co-ordination and planning in order to make the most of limited resources in developing a national hydrographic service. The defense forces invariably have a role to play in this high-level body; always as expert users of hydrographic data, and sometimes as qualified surveyors. In countries with offshore oil production, it appears that the collection of hydrographic and other MSI data from the private oil companies is not effective. Participation by an expert of the main petroleum companies to the National Hydrographic

Committee and/or Maritime Safety Committee is advised. A suggested Terms of Reference and tasks for a national maritime safety committee is suggested (table 4).

POTENTIAL FOR DEVELOPMENT OF NATIONAL CAPABILITY, OR FOR IMPROVED LIAISON WITH CO-ORDINATING AUTHORITIES

Countries generally expressed a desire to improve the safety of navigation in their waters and to build a national hydrographic capability to serve their needs into the future. The team was careful to emphasise that the development of a national capability must proceed in logical steps, the first of which is to have an organisation that can deal with the collection and dissemination of nautical information. In most cases there was a great deal of important safety information that was known locally but not transmitted to the correct authority for navigational warnings or charting action. The most logical focal point was normally the Harbour Master's organisation, however, information in the coastal waters was often gathered by other agencies such as the Navy or Fisheries Department or the Energy Department in case of oil producing nations. Hence the need for improved co-ordination between these types of authorities clearly exists.

In some of the countries Port Surveyors represented the only national hydrographic experts and were generally identified as the logical base upon which to build a national Hydrographic Service. In the some countries, having several trained hydrographers to monitor subcontracted hydrographic surveys seems to be a pragmatic and practical approach. Tasks beyond the port limits need to be identified and prioritised before considering what additional trained personnel are needed and what equipment should be purchased. Several issues arise that need close co-ordination between authorities. For example, wrecks outside of the port limits are usually the responsibility of the National Maritime Authority, but the Port Authority, or the Navy, might have the only means to find and position them. Once again, co-ordination and communication is the key to building an effective organisation.

URGENT GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS) ACTIONS

There are no NAVTEX stations along the coast of West Africa in the EAthC area and only one country sends Maritime Safety Information (MSI) to the NAVAREA II coordinator (EPSHOM in Brest).

Many of the countries visited have stated intentions in the GMDSS Master Plan to have A1 (VHF) and some have decided to implement A2 (HF) coverage, for example Senegal. However, all countries except Ghana have been unable to confirm an operational plan.

On the other hand, an efficient and more economical dissemination method is possible. Taking into account the short coastlines of some countries compared with the relatively large NAVTEX station coverage, a regional approach should be organised to fix station implementation along the coast to handle the region instead of on a country by country basis.. A national point of contact for GMDSS issues should be identified to discuss the national strategy with the IMO.

In the short term, all the countries have been invited to use SafetyNET as an interim arrangement prior to any NAVTEX stations becoming operational, and to make contact with NAVAREA II co-ordinator in Brest. To effectively use this solution, all the countries must determine a focal point to collect and validate information on a 24 hours a day basis.

REGIONAL CO-OPERATIVE OPPORTUNITIES

The differences between each country (language, political situation, capabilities...) seem to outweigh a regional approach. Except in very few cases this regional concept has not been successfully explored.

Equally, there must be a degree of political and economic stability within a region before joint initiatives can be launched between neighbouring countries. Nevertheless some cooperation exists and more should be developed :

- one example is Mauritania, Senegal, and The Gambia using complementary and unique means, i.e., the sharing of a buoy tender and a dredger
- the Tema radio coastal station, could broadcast information towards neighbouring countries and mariners.

Developing the first phase of hydrographic services could be an opportunity for regional co-operation between the identified agencies, for instance under the aegis of EAtHC.

TRAINING

The team provided information, whenever appropriate, on training which is available in North America and Europe, including the International Maritime Academy in Trieste. The Regional Maritime Academy in Accra, Ghana, is one example of a potential location for regional hydrographic training in the future.

FUNDING

In general, some of the revenues from the port fees could and should be reinvested in the maintenance of the fairways and buoys.

Moreover, many sources of incomes from maritime activities could be made available (for example fishing and off-shore exploration) and some financial aid might be found which could be linked to those activities. Funding for the pursuit of hydrography and charting in and of itself is not attractive to donor organizations. However hydrography is a necessary first step for many needed maritime projects, (eg buoyage, environmental protection, fishing, aquaculture, etc. and of course infrastructure development).

EXAMPLES OF PROPOSITIONS AND FIRST RESULTS

The seventeen visit reports show more than 120 proposals which can be listed in three categories:

1. **Proposals for co-ordination and capacity building** ; they can in general be conducted at national level. The main items are : National Hydrographic Committee, MSI organisation and GMDSS, reversion from hydrographic initiatives benefits, and establishing a hydrographic capability (phase 2),
2. **Proposals for assistance** ; the main matters are : training, equipment and funding ; they can involve a foreign country. Training opportunities are usually not a problem.
3. **Follow up actions** :
 - formation of a National Hydrographic Committee
 - provision of hydrographic services in accordance with SOLAS
 - encouragement of effective and timely collection and promulgation of hydrographic Information (easy to set up)
 - encouragement of development of a Hydrographic Capability
 - clarification through bilaterals of the way SOLAS commitments are en(d)forced

Positive results have already come to light: examples:

- Cape Verde has strengthened links between the Port Authority and the Portuguese Hydrographic Office ; 7 actions are now ongoing, initiated by the Cape Verde Minister of Infrastructures and Transportation,
- Morocco, Mauritania and Senegal have sent representatives to visit SHOM and NAVAREA II coordination center in Brest,
- France and Senegal have entered into an agreement in order to address responsibilities as outlined in the new SOLAS Convention,
- Togo has formed a national hydrographic committee and such a committee is under development in Nigeria ,
- Benin and Nigeria are receiving hydrographic training in France and in United Kingdom
- Cameroon will apply for joining the IHO
- aso.

At the same time American survey ships *LITTLEHALES* and *HENSON* and French hydrographic ships *LAPÉROUSE* and *BORDA* have recently surveyed off some main ports.

The next EAtHC conference planned in France at the end of 2004 will be the next opportunity to strengthen links between the maritime countries in hydrographic and maritime charting matters and to prepare future. A technical workshop concerning SOLAS and MSI is planned to coincide with this conference.

Many decisions have to be taken at the political level to improve safety life at sea. The first actions could take momentum and eventually snowball. These experiences could also be applicable to maritime countries in other navigation areas.

Table 1

IMO SOLAS CONVENTION (Safety Of Life At Sea) (excerpts)

CHAPTER V

SAFETY OF NAVIGATION

Regulation 4 : Navigational warnings

Each Contracting Government shall take all steps necessary to ensure that, when intelligence of any dangers is received from whatever reliable source, it shall be promptly brought to the knowledge of those concerned and communicated to other interested Governments⁽¹⁾.

Regulation 9 : Hydrographic services

1 Contracting Governments undertake to arrange for the collection and compilation of hydrographic data and the publication, dissemination and keeping up to date of all nautical information necessary for safe navigation.

2 In particular, Contracting Governments undertake to co-operate in carrying out, as far as possible, the following nautical and hydrographic services, in the manner most suitable for the purpose of aiding navigation:

- .1 to ensure that hydrographic surveying is carried out, as far as possible, adequate to the requirements of safe navigation;
- .2 to prepare and issue nautical charts, sailing directions, lists of lights, tide tables and other nautical publications, where applicable, satisfying the needs of safe navigation;
- .3 to promulgate notices to mariners in order that nautical charts and publications are kept, as far as possible, up to date; and
- .4 to provide data management arrangements to support these services.

3 Contracting Governments undertake to ensure the greatest possible uniformity in charts and nautical publications and to take into account, whenever possible, relevant international resolutions and recommendations⁽²⁾.

4 Contracting Governments undertake to co-ordinate their activities to the greatest possible degree in order to ensure that hydrographic and nautical information is made available on a world-wide scale as timely, reliably, and unambiguously as possible.

Regulation 31 : Danger messages

2 Each Contracting Government will take all steps necessary to ensure that when intelligence of any of the dangers specified in paragraph 1 is received, it will be promptly brought to the knowledge of those concerned and communicated to other interested Governments.

(1) Refer to the Guidance on the IMO/IHO World-Wide Navigational Warning Service adopted by the Organization by resolution A.706 (17), as amended.

(2) Refer to the appropriate resolutions and recommendations by the International Hydrographic Organization

Table 2

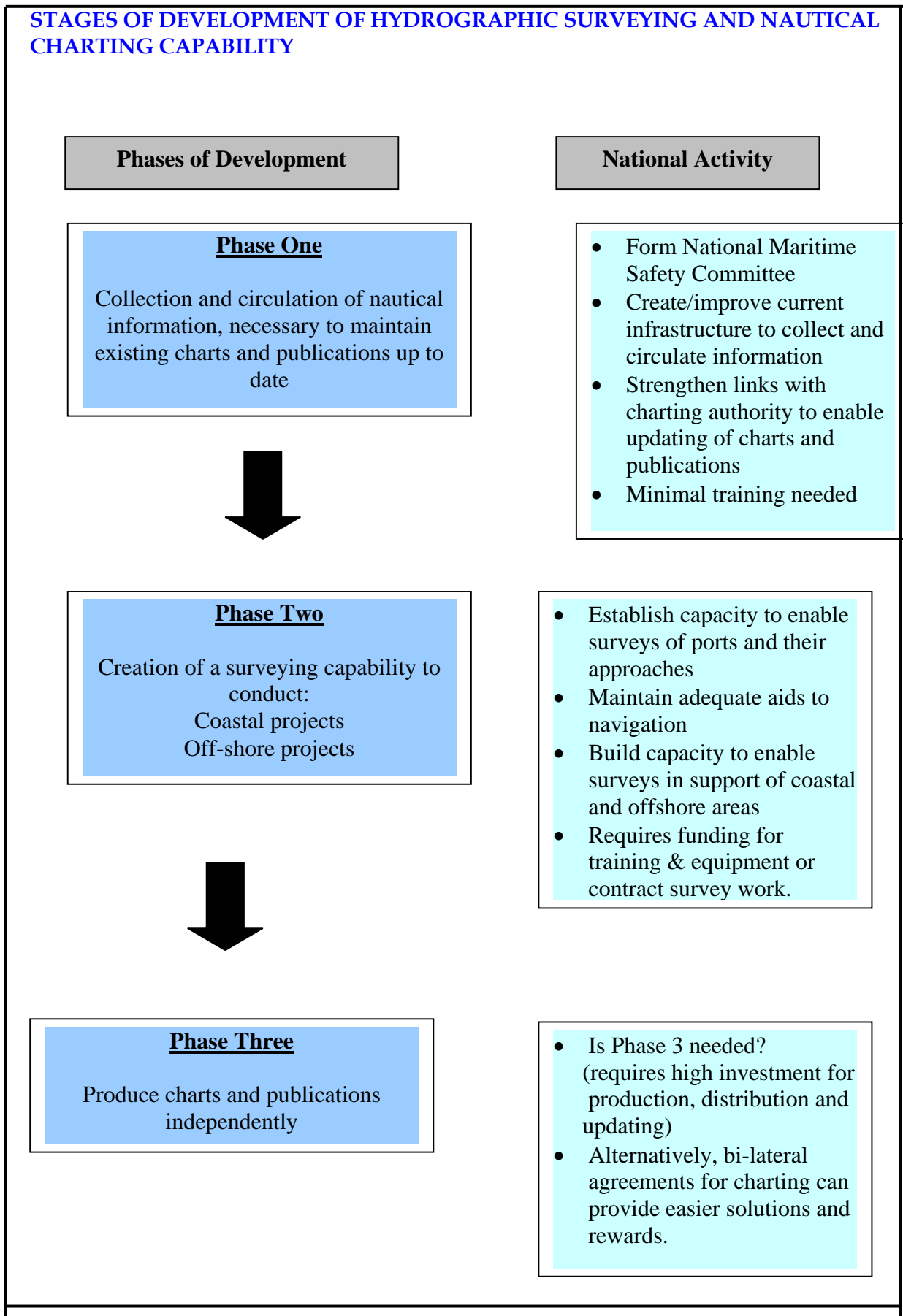


Table 3 : Assessment of National Hydrographic Capability

Country	IHO Member	IMO Member	IALA Member	EAHC Member ⁹	NHC ¹⁰ Proposed	Phase 1 Capacity	Phase 2 Capacity	Phase 3 Capacity
Cap Verde	No	Yes	No	Assoc M	Yes	Partial	No	No
Mauritania¹¹	Pending	Yes	No	Assoc M	No	No	No	No
Senegal	No	Yes	Yes	Assoc M	Yes	Partial	Yes	Partial
The Gambia	No	Yes	No	No	Yes	Partial	No	No
Guinea-Bissau	No	Yes	No	No	Yes	No	No	No
Guinea	No	Yes	No	Assoc M	Yes	Partial	Partial	No
Sierra Leone	No	Yes	Yes	No	No	No	No	No
Ghana	No	Yes	Yes	Assoc M	Yes	Partial	Partial	No
Togo	No	Yes	No	No	Yes	Partial	No	No
Benin	No	Yes	Yes	Assoc M	Yes	In process	Yes	No
Nigeria	Yes	Yes	No	Member	Yes	Partial	Partial	Partial
Équatorial Guinea	No	Yes	Yes	No	Yes	No	No	No
Gabon	No	Yes	No	No	Yes	Partial	Partial	No
Congo	No	Yes	No	No	Yes	Partial	No	No
D.R.C	No	Yes	No	No	Yes	No	No ?	No
Cameroon	No	Yes	Yes	Assoc M	Yes	Partial	Yes	No

⁹ Eastern Atlantic Hydrographic Commission

¹⁰ National Hydrographic Committee

¹¹ Mauritania membership pending deposit of adhesion

Status IC-ENC

As one of the two RENCs in the NSHC region, IC-ENC has been operating now for over two years and continues to provide independent quality assurance and international distribution services to its growing membership. IC-ENC currently distributes the ENCs of 8 nations, and is working closely to support the production programmes of a number of other nations. IC-ENC expects that several of these nations will start to release their ENC data through IC-ENC before the end of this year.

IC-ENC cooperates regularly with the second RENC in the NSHC region, PRIMAR-Stavanger, discussing ways to harmonise activities and to resolve differences in policy. This has included joint meetings of the technical experts from the member nations of each RENC, as well as the Chairmen of the committees of each RENC attending the committee meetings of the other RENC to exchange ideas and views. NSHC is invited to consider the current level of cooperation between the two RENCs and to review opportunities to further the cooperation between the members of both RENCs on ENC matters, and to harmonise the approaches of the two RENCs.

Report of the Co-ordinator NW-European Charting Group (Region D)

By the chairman (until June 4th 2004)

Some history

The North Sea International Chart Committee (NSICC) devised the original Scheme of INT Charts of the region. Details were set out as Appendix F to the NSICC Report to the XIth International Hydrographic Conference (1977). After discontinuation of the NSICC in 1983 the North Sea International chart Sub-Committee (NSICSC) succeeded this group (Conclusion 43 of the 14th NSHC Conference).

The NSICSC, in turn, was disbanded in 1988 (Conclusion 52 of the 17th NSHC-Conference), but an "Ad-Hoc Working Group" on INT charts was established at the same meeting (Conclusion 53). In 1989 (NSHC 18) the Ad-Hoc group was replaced by the "NSHC INT Chart Scheming Group" (Conclusion 56): chaired by the Netherlands.

At NSHC 20 it was concluded to change the name into "Northwest European Charting Group (Region D)" so as to avoid confusion due to the word "North Sea".

Developments since NSHC 25 (2002)

Progress of production of medium and large scale charts:

Total number of charts in the Scheme	212
Total number of charts published	199 (94%)
Number of charts reprinted by at least one nation	147
Total cases of adopted (reprinted) charts	235

Subjects taken into consideration

Summary. There were a number of cases of rescheming or new charts (concerning Netherlands territory, Londonderry-Belfast, the German Bight and Icelandic East coast) plus two amendments to the stock of INT numbers available to Region D. Finally the chairmanship was handed over to UKHO from July 1st onwards. NSHC 26 is asked to reconsider the way ahead of this Charting Group.

Netherlands Continental Shelf. An extensive re-scheming plan, proposed (July 2002) by the NL-HO comprised changes in the charts 1: 150 000. After some serious comments from some members, the plan needed further study. March 2003 a revised plan was proposed, now also containing 3 national charts (40 - 60 000), which were proposed as future INT charts. The result of more consultation and study was that 2 new INT charts were accepted:

INT	NL-Nr	Title	Scale	production
1468	126	Approaches to Den Helder	60 000	2003
1469	125	Approaches to Scheveningen and IJmuiden	60 000	2003

The coverage of an earlier proposed INT chart 1477 (NL 116), scale 1:40 000, for the entrance of the River Scheldt, is still under discussion between NL and BE.

The rescheming of 1:150 000 charts by the Netherlands finally came out as follows.

INT	NL-Nr	Scale :	South	West	North	East	Envisaged production
1416	(new 1630)	150 000 (51°-00)	51-22,20 N	01-58,00 E	52-21,70 N	04-19,00 E	2004
1417	(new 1633)	150 000 (54°-00)	53-12,00 N	04-12,00 E	54-13,00 N	06-42,90 E	2005
1418	(new 1631)	150 000 (51°-00)	52-16,70 N	02-33,00 E	53-15,00 N	04 54,00 E	2004
1420	(new 1632)	150 000 (54°-00)	53-10,00 N	02-32,00 E	54-11,10 N	05-02,90 E	2005
Former 1414	(2593)	150 000	<i>To be cancelled upon production of INT 1417</i>				
Former 1415	(2322)	150 000	<i>To be replaced by INT 1418</i>				
Former 1419	(1507)	150 000	<i>To be cancelled upon production of INT 1417</i>				

Belfast and Londonderry. In July 2003 the UKHO proposed an amended charting of both harbours. Because no printer nations for the existing INT charts were known (apart from USA), and in view of the very straightforward plans it was believed that this could be done without the consultation of the whole Charting Group.

INT	BA-Nr	Scale	South	West	North	East	Production
1658	2510	15 000	Approaches and River Foyle to Londonderry (in 3 panels)		07-00,53W to 07-19,45W		New chart
With Plan D: Lisahally Terminal							
1659	2511	25 000	55-08,30N	07-08,80W	55-17,06N	06-42,92W	New Chart
With plan A Lough Foyle							
1660	2499		<i>To be cancelled</i>				
1661	1753	37 500	To be retained; new edition				
With plans: A: Bangor Bay and B: Donaghadee Sound							
1664	1752	15 000	54-38,33N	05-58,39W	54-43,59N	05-44,17W	New chart
With Plan A: Belfast Docks							

The coverage of an earlier proposed INT chart 1477 (NL 116), scale 1:40 000, for the entrance of the River Scheldt, is still under discussion between NL and BE.

The rescheming of 1:150 000 charts by the Netherlands finally came out as follows.

INT	NL-Nr	Scale :	South	West	North	East	Envisaged production
1416	(new 1630)	150 000 (51°-00)	51-22,20 N	01-58,00 E	52-21,70 N	04-19,00 E	2004
1417	(new 1633)	150 000 (54°-00)	53-12,00 N	04-12,00 E	54-13,00 N	06-42,90 E	2005
1418	(new 1631)	150 000 (51°-00)	52-16,70 N	02-33,00 E	53-15,00 N	04 54,00 E	2004
1420	(new 1632)	150 000 (54°-00)	53-10,00 N	02-32,00 E	54-11,10 N	05-02,90 E	2005
Former 1414	(2593)	150 000	<i>To be cancelled upon production of INT 1417</i>				
Former 1415	(2322)	150 000	<i>To be replaced by INT 1418</i>				
Former 1419	(1507)	150 000	<i>To be cancelled upon production of INT 1417</i>				

Belfast and Londonderry. In July 2003 the UKHO proposed an amended charting of both harbours. Because no printer nations for the existing INT charts were known (apart from USA), and in view of the very straightforward plans it was believed that this could be done without the consultation of the whole Charting Group.

INT	BA-Nr	Scale	South	West	North	East	Production
1658	2510	15 000	Approaches and River Foyle to Londonderry (in 3 panels) 07-00,53W to 07-19,45W				New chart
With Plan D: Lisahally Terminal							
1659	2511	25 000	55-08,30N	07-08,80W	55-17,06N	06-42,92W	New Chart
With plan A Lough Foyle							
1660	2499		<i>To be cancelled</i>				
1661	1753	37 500	To be retained; new edition				
With plans: A: Bangor Bay and B: Donaghadee Sound							
1664	1752	15 000	54-38,33N	05-58,39W	54-43,59N	05-44,17W	New chart
With Plan A: Belfast Docks							

German Bight. BSH has proposed an additional chart in the approaches to Elbe, Weser and Jade. Reactions received were generally positive although some thought the chart possibly a bit superfluous. Finally the chart was accepted in the Scheme.

INT	DE-Nr	Scale	South	West	North	East	Production
1463	D-49	100 000 54°	53- 40,00N	07-24,00E	54- 15,00N	09- 03,00E	(soon)

Iceland. Iceland announced that it would produce the INT charts from the scheme with an amended coverage. Not many reactions were received from members of the group. Some members, however, noted the very small overlaps and the extension of chart 1101 into deep water, the necessity for which was not made very clear. None of the members intends to be a printer nation, except for UK (INT 1010, 1101, 1102 but not 1111). There were no serious objections to all Icelandic amendments. It was proposed that perhaps UKHO could communicate with IS about ‘the quality’ of the overlaps, in the process of becoming a printer-nation.

The amendments are listed below.

INT No	IS No	Scale: At Latitude	South	West	North	East	Inner neat line	Envisaged production
1010	New 21	1 000 000 (65°-00)	62-00-00 N	29-00-00 W	67-50-00 N	08-30-00 W	967.2 x 667.9 mm	2005
1100	61	300 000 (65°-00)	65-30-00 N	16-40-00 W	67-10-00 N	10-33-00 W	961.8 x 652.4 mm	Already published
1101	71	300 000 (65°-00)	63-55-00 N	15-05-00 W	65-35-00 N	09-00-00 W	956.6 x 643.5 mm	2004
1102	81	300 000 (65°-00)	62-30-00 N	19-15- 00W	64-20-00 N	13-10-00 W	956.6 x 643.6 mm	2004

In addition to the above stated amendments, IS proposed to delete the detailed (plan) charts on INT Chart 1111. Three harbour plans, Seydisfjordur-Nordfjordur-Eskifjordur, will now be published by IS on small size (A-3) national charts in the series of harbour plans consisting of 21 small charts.

Amendments to the INT Chart Numbers allotted to our Region D. On request of the Chairman CSPCWG (former CSC) a group of chart numbers was transferred to the Baltic Sea International Charting Committee (BSICC). It concerns INT charts **1130 - 1169** (40 charts).

Within our own ‘stock’ of available chart numbers a group of charts was assigned to a different geographic area. In consultation with the Norwegian HO (and the Chairman CSPCWG) charts **1463 - 1469** (7 charts), earlier assigned to Norwegian waters, were now added to the chart numbers available for German Bight and Netherlands North coast.

Chairmanship for the NW-European Charting Group.

Via Conclusion 56 (NSHC 18) the NW-European Charting Group came into existence, chaired by NL. Aim was to examine new proposals for INT charts. Another aim was to keep updated the special NSHC INT-chart Catalogue. *[At the 20st NSHC (Paris 1993), however, it*

was decided that the IHO-publication M-11 would replace the NSHC-Catalogue].
At the 22nd Conference (1996) it was agreed that the group should continue, albeit 'on a lower key'. At the 24th NSHC Sweden proposed that NL should continue and also in 2002 (25th NSHC-Conference) NL was willing to continue.

Due to an early retirement of Mr. Ferwerda by July 1st 2004, the Netherlands HO preferred to find a volunteer outside NLHO for this job. In close consultation with the Chairman NSHC, the United Kingdom Hydrographic Office was willing to make Mr T. Wellington available for this job. After consultation of all members by the NSHC Chairman, Mr. Wellington has been appointed as the new chairman of the NW-European Charting Group (Region D).

NSHC 26 is asked to take note of the change of chair and to reconsider the way ahead of this Charting Group.

Report of the NSHC Tidal Working Group

1 Introduction

Since the Tidal Working Group (TWG) was formed (decision NSHC 17th Conference) the group has met 13 times. Up to and including the 8th meeting UK chaired the TWG, and UKHO also provided very adequate secretarial support. Starting with the 9th meeting the host nation has provided both chairman and secretary.

The TWG may be considered as a well organised forum within the NSHC where all tidal matters (including exchange of views, data, knowledge and experience) are discussed and harmonised.

2 Meetings

Since the 25th NSHC Conference, the TWG has met on two occasions ; in November 2002 the meeting was held in Copenhagen (Denmark) and was attended by representatives from Belgium, Denmark, France, Germany, Netherlands, Norway and United Kingdom ; and in May 2004 the meeting was held in Taunton (United Kingdom) and was attended by representatives from Belgium, France, Netherlands, Norway and United Kingdom.

3 Agenda

The agendas for the two meetings included:

- updating the Co-tidal Chart 5059
- implementation of LAT as a Chart Datum in the member states
- information on modern tide gauges
- implementation of tidal streams, sea level observations and forecasts in Electronic Chart Systems
- a continuous surface of Chart Datum
- the common North Sea Geoid
- numerical modelling of tides and tidal streams
- online reduction methods
- developments in digital tide tables
- developments in website tidal predictions

4 Presentations

The presentations given by attendees included:

Oceanographic information for Electronic Chart Systems – NO presented a model for currents around Trondheim developed for display in electronic sea charts. Also a system for meteorological and oceanographic observations and forecasts for the entire Norwegian coastline was presented.

Online reduction method for hydrographic vessels – NL presented a method for real time off shore tidal reduction based on models for the North Sea.

Vertical Datum Separation Model – UK presented their proposals for using satellite altimetry to obtain MSL heights references to ETRF89 and to hold the data in a seamless manner.

SHOM Project on Vertical References – FR presented their plans for determining LAT relative to ITRF on a global scale by using satellite altimetry to determine the mean sea surface.

Developments in digital tide tables – UK presented the latest version of TotalTide and NL presented a national version of this product. Global tide predictions (web or CD) are being developed by FR and BE.

Developments in website tidal predictions – UK presented a web-based product for free worldwide predictions up to 7 days together with the newly enhanced fee-paying version.

Sea level data and GPS data via the web – FR presented a web-based system for accessing French sea level data. 20 permanent gauges (9 acoustic and 11 radar gauges) are included along with four GPS stations. The purpose is to serve scientific projects like ESEAS (see below) and GLOSS.

EU-project ESEAS-Research Infrastructure – NO and BE presented this new project under ESEAS (European Sea Level Service). Five work packages are established covering all aspects of sea level variation in European waters. Sea level data from all involved countries will be made accessible via the web.

ESA Tidal Services Project – BE presented the results of this project and stated that although the output of both tidal and tidal stream data was less reliable at spring tides, the overall trial was considered to be a success.

5 Discussions

High resolution tidal modelling for implementing tidal stream fields in Electronic Chart Systems (ECS)

Norway has developed a model for tidal streams. For each grid point the harmonic constituents are derived and can be used for displaying tidal streams in electronic sea charts.

Tidal predictions, sea level observations and sea level forecasts in ECS

Norway has developed a web-based system for displaying sea level observations and forecasts for the entire Norwegian coastline.

A seamless Chart Datum reference surface

A continuous surface of Chart Datum relative the ellipsoid is needed to reduce depth soundings by RTK-GPS. Norway has started to construct this surface. Germany is planning a similar work for the German Bight.

The common North Sea geoid

The need for a common North Sea Geoid was discussed at length. Soon two new satellites will provide a reliable one. A North Sea Geoid project in the Netherlands had to be terminated because of manpower shortage.

Envisaged online reduction method for hydrographic vessels

Tidal reduction of depth soundings offshore can be done in real time. The Netherlands presented the method based on nested models in the North Sea. The models combine astronomical predictions with measurements from fixed gauges and meteorological data. The initial idea was to provide vessels with the information by the Astra satellite, but subsequently it has been found better to use a new tidal model at the NLHO and transmit the reduction data to the vessels via Inmarsat.

Experiences in the use of modern tide gauges

Norway has acted as the focal point within the Tidal Working Group for the assimilation of technical data on modern tidegauges, and advised members of the outcome of recent trials in Spain as part of the ESEAS Project comparing the results from 8 different types of tide gauge.

Developments in website tidal predictions

All members provide an online website service of one sort or another with the predictions limited usually to 7 days free of charge, although NO offers 2 years (“current-plus-next” year) free of charge. The UK has recently introduced an enhanced fee-paying website service offering predictions for any 7-day period from year 00 to +50 years from the current date.

Release of full sets of harmonic constants outside National Hydrographic Offices

All member states reaffirmed that they abide by the recommendations of the IHO Technical Resolution A6.9 and do not release their full sets of harmonic constants to any commercial company or organisation.

NSHC 25th Conference in Göteborg 10-13 September 2002

There were no direct actions affecting the Tidal Working Group arising from this conference. However, it was noted that DE suggested that deadlines be set for the TWG work, but without any specific objectives it is impractical to set deadlines. The group’s primary tasks were initially to establish a common Chart Datum and discuss the release of tidal data to commercial companies. Now that the tasks have changed to establishing the relationship between Chart Datum and the ellipsoid for the North Sea and developing a forum for discussing tidal related matters, it was discussed whether the Tidal Working Group should change its name to *Tidal Committee*. It is the considered opinion of the group that as a *Tidal Committee* they would be an invaluable forum where shared experiences, projects and innovative ideas would provide substantial benefits for all member states. This would become particularly important in the development of tidal models for the reduction of soundings associated with the increasing use of satellite technology in hydrographic surveying and by resolving vertical datum issues.

6 Recommendations

The TWG to be re-named *Tidal Committee*, whereupon formal Terms of Reference would need to be drawn up by the group. They would thereby become established on a more permanent basis and continue to seek fresh information concerning the advances in tidal techniques and technology, which serve to improve their role as a tidal authority for each member state.

To this end the group would positively pursue the following activities :

- Account for the implementation of LAT in the member states
- Monitor the developments with modern tide gauges
- Monitor the developments with digital tide tables and web-based tide tables
- Monitor the introduction of tidal related projects to avoid duplication work
- Monitor the use of satellite altimetry for the determination of MSL
- Determine LAT against the ellipsoid
- Update the NSHC reduction chart for the North Sea
- Exchange harmonic constituents freely between all member states

7 Conclusions

The two TWG Meetings provided further valuable forums from which the NSHC Hydrographic Offices could continue to derive considerable benefit from the discussions.

The 26th NSHC Conference is invited to :

- Approve this report, after having made any amendments necessary
- Approve the change of name to Tidal Committee
- Decide on the continuation of the group until the 27th NSHC Conference, noting that the next meeting is scheduled to take place in Oostende in October 2005.

28 June 2004

**Palle Bo Nielsen, The Royal Danish Administration of Navigation and Hydrography,
Denmark**

John Page, Hydrographic Office, United Kingdom

Final arrangements for the winding up of the Custodianship System

The transitional period for winding up the Custodianship System will terminate at the end of the year 2004. By that time all license agreements will be expected to be limited to the areas of national prime charting responsibility.

Wherever an HO has acted according to the Custodianship Principle and has concluded licence agreements with companies covering the areas of responsibility of other HOs, the other HOs may not be aware of such agreements and the present status of them. Following the UK example, HOs are invited to exchange, at the earliest convenience, information about the companies they have licence arrangements with and whether, or by what date, the arrangements will be adjusted to the area of national charting responsibility. This appears helpful to ensure a seamless transition of the licence arrangements to the new scheme for all companies concerned.

Production System Upgrade SHIP2

Project Status:

The Royal Netherlands Navy sent out the Request for Quotation for the SHIP2 production system in December 2002 and selected the Caris Hydrographic Production Database as the most promising core component for the new system. During the year 2003 the HPD has been extensively evaluated, however not without difficulties because the software was not very mature at that moment in time. The evaluations have led to the conclusion that the Caris HPD system can act as the kernel of the SHIP2 system. Not all functionality required for SHIP2 is present in the HPD, and the missing elements have to be build separately, either as functionality in the HPD or as a separate component that will communicate with the HPD through an Application Programmer Interface.

During the first half year of 2004 the design of the system, based on HPD as the core component, has been analysed. The full SHIP2 system will contain a number of other components to perform functionality not covered by the HPD. Originally it was envisioned that a system integrator would perform the bulk of the integration and conversion work, but during the evaluations it became clear that the project would take much more time than anticipated. Since the amount of integration work was less than anticipated it was decided that the NLHO would do the integration and conversion.

The HPD components that will be purchased are the HPD Source Editor, ENC Editor, Paper Chart Editor and an API. A contract with Caris is currently under preparation.

Project Planning:

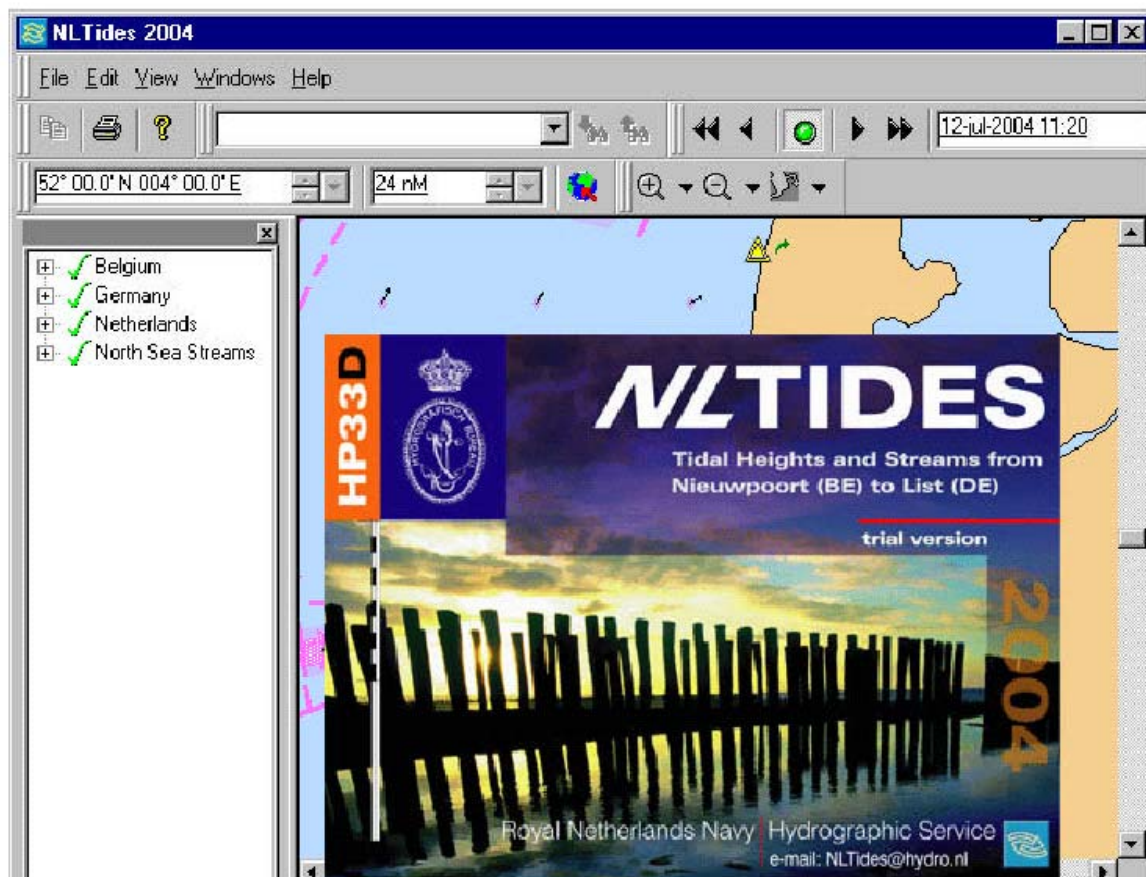
The project is split in two phases. Phase 1 is defined as a fully functional system that has at least the integrated functionality of all the separate components of the current SHIP1 system. Phase 2 will add the remaining required functionality, including Planning and Workflow management functionality and support for type 3 nautical publications.

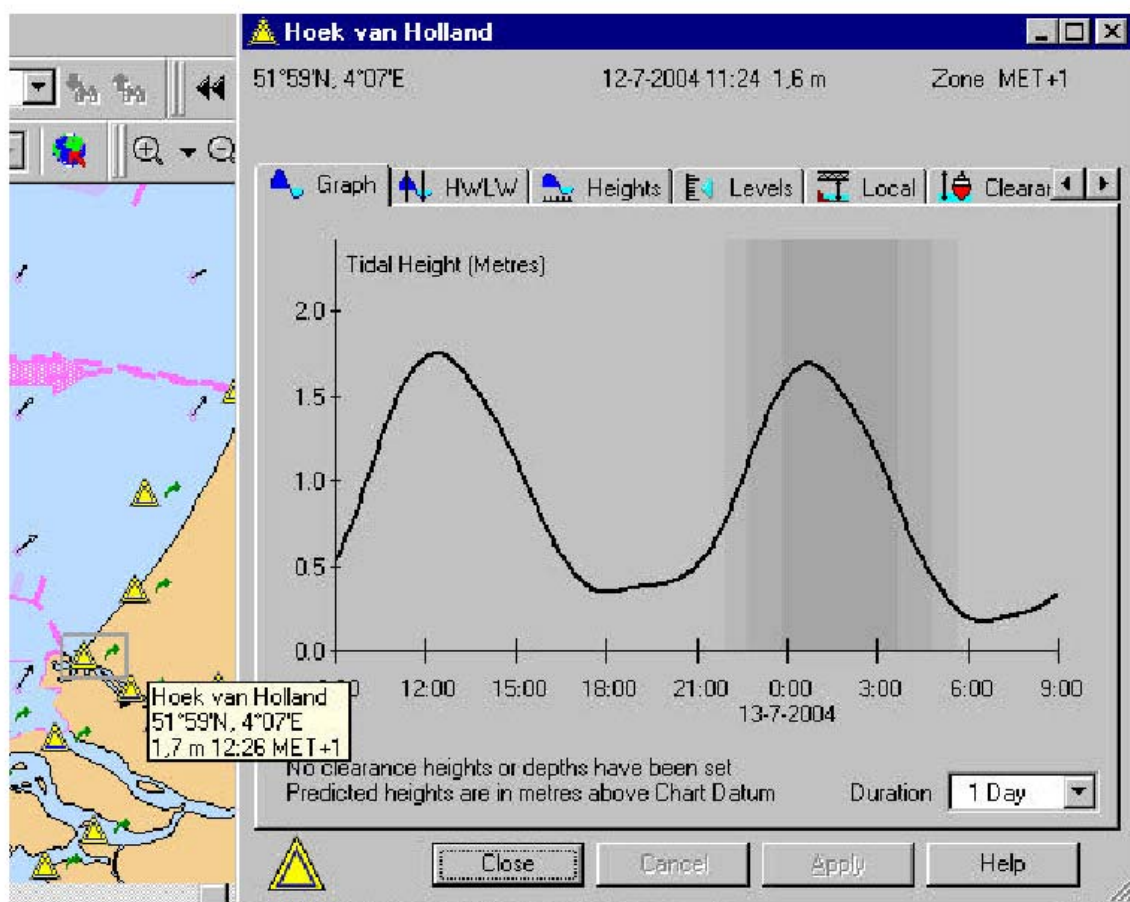
Phase 1 is planned to be completed in December 2006. Several HPD evaluations have been planned to evaluate and test the functionality. A number of non HPD components will be developed and integrated bij NLHO. A User Acceptance Test and an integral Site Acceptance test complete Phase 1.

Digital Nautical Publications: NLTides and Sailing Directions

NLTides

The software within this product is based on the United Kingdom Hydrographic Office's TotalTides program. As we were not able to finish the model data in time for the release of "NLTides edition 2004" we published a trial version for just the Southern North Sea (with also Belgian and German ports). We put NLTides for free on the internet at www.hydro.nl which gives very good reviews in the press and with the general public. From January until May we have had over 4000 downloads. Next edition (2005) will be complete and have detailed stream information of Western and Eastern Scheldt, tidal rivers, major ports and the Waddenzee. The paper version will be updated accordingly. NLTides will be sold through our agents for a price comparable to the paper tide tables and stream atlases (HP33).





NL Sailing Directions

In accordance with the recommendations of the XVIth Hydrographic Conference (2002: section 7 "Digital Nautical Publications") NLHO is preparing the first release of the digital sailing directions "Netherlands Coast Pilot". The publication date is scheduled for late 2005; this first release is based upon the IHO specifications for NP2 "digital publication based upon existing paper publications". Although the content is consistent with the equivalent paper publications the data structuring, maintenance, presentation and user interface are totally different. There is a web based content management system (SQL server) with export facilities for XML/Access data bases and finally compilation of the CD-ROM/DVD with Flash Script and Flash Design for use on board in a desk top environment. After completion of this ICT infra structure, the web based content management system is also the primary source for compilation of the paper publication (NP1 type) and possibly for the future ECDIS compatible publications.

From experiences gained with this NP2 type product NLHO will then contribute to the CHRIS-SNPWG work items: specifications of NP3 products "ECDIS compatible data sets". It is envisaged that finally all types of NP-products should be maintained: NP1, NP2 and NP3.

The figures below give an impression of the thematic groups for content and user interface.


HP 1D Digipilot

Koninklijke Marine - Dienst der Hydrografie

HP 1D

PILOT

North Sea Approaches Destination



1

0

BACK

HP 1D

Approaches Westerschelde




-  Navigational aids and services
-  Areas
-  Regulation / Rules
-  Sailing directions
-  Signals
-  Oceanography
-  Offshore
-  Cautions
-  Communication
-  Meteorology











2

HP 1D

Destination Vlissingen Buitenhaven



-  Navigational aids and services
-  Areas
-  Regulation / Rules
-  Signals
-  Oceanography
-  Communication
-  Port information



3

BACK

HP 1D

Navigational aids and services



- Buoyage systems
- Nautical charts
- Images
- Positioning systems
- Routing measures
- Coast guard
- Search and rescue
- Pilotage
- Helicopter service
- Meteorological service
- Maritime radio services / GMOSS

4

Accreditation of UKHO cartographic courses

For the future the UKHO is looking to gain IHO/FIG/ICA accreditation for the 18 week internal Hydrographic Data Processing and Marine Cartography course. As both the 5 & 2 week international training courses are derived from the 18 week course, it is hoped that formal certification may be offered to those who successfully complete all elements of the UKHO Training Modules. The UKHO course has been submitted in 2004 with the aim of attaining Category B status of the IHO M8 Standard for Cartographers.

An E Learning package is also being developed which will enhance and support future UKHO Training provision internationally.

The UKHO is also investigating higher level (degree and above) training, and plans to provide more details next year.

International Training

To increase the accessibility of UKHO training, a new modular training programme was designed in January 2001 offering two main courses; a 5 week modular training course in Hydrographic Data Processing and Marine Cartography, and a compact 2 week modular training course – developed for delivery at other Hydrographic Offices.

The latter course is tailored to the requirements of the sponsoring nation, and has successfully been delivered to about 70 students. The most recent was a 2 week course at the Academy of Applied Hydrography and Oceanography, Kuala Lumpur, Malaysia to 16 students. This 2 week course, which can be delivered at overseas HO's, subject to adequate demand and facilities, costs £5,000 for up to 10 students plus the travel and subsistence costs of the trainer(s). The five week course is held at the UKHO, and places particular emphasis on the International Hydrographic Organization's capacity building programme. This course accommodates 9 students annually to undertake training in a variety of subjects which lay the foundations for data assessment and chart compilation skills. These skills are equally relevant to a conventional or digital production environment. 6 students have so far attended the 5 week paying course at the UKHO in 2003, with another 6 students attending in October 2004. This 5 week course costs £1875 per student plus their own travel and subsistence costs. (These costs are being reviewed for 2005).

Sponsorship can be offered in the form of bursaries which cover the cost of tuition. In certain circumstances the cost of travel, food and accommodation 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 capacity building programme. The UKHO has so far sponsored 17 students as part of the Bursary programme. Of these 17, 5 students attended a Cartographic course in 2003, and 7 students attending the same programme in 2004. In May 2003 5 students from South America and Caribbean were sponsored to attend an ENC Course at the UKHO, which was translated into Spanish.

In September 2004, another 5 students will also be sponsored to attend the 2004 ENC Course.

In addition to the advertised courses the UKHO has delivered a 1 week ENC Acquaint course to officers from Uruguay and Philippines, with another planned in August 2004 for an officer from the Solomon Islands.

Literature advertising the 2 week and 5 week courses was issued to sixty five countries at the 2002 IHO Conference, and copies are available from the International Training Manager (UKHO). Questionnaires were also circulated to establish the likely demand for training. Requests are encouraged from all those wishing to attend any of the courses mentioned, so that dates can be scheduled and appropriate arrangements put in place (including security clearances).

UK off shore wind farm development

The United Kingdom has significant potential for the generation of electricity from offshore renewable sources such as wind, tidal streams and waves. Offshore wind technology is already advanced to the extent that the industry is poised for major and rapid development. In December 2000 the United Kingdom's Crown Estate announced the first invitation to developers to apply for site leases for the development of offshore wind farms. It appears that offshore development interest is likely to be clustered in three general regions; the Thames Estuary, the Greater Wash and the North West of England [refer to diagram on Crown Estate's web site].

Wind farms may consist of 60 or more turbine generators spaced 200 metres or more apart. The typical offshore wind turbine generator has several components. The turbine is mounted on a tower on a platform connected to the foundations. The foundations may be a mono-pile sunk into the seabed, an anchored tripod, or a caisson (basket) filled with aggregate. The foundations themselves may be surrounded by rocks which prevent them from the scouring action of currents. A network of cables connects the individual turbines to a separate platform containing electrical switchgear and transformers which condition the power ready for transmission, along a cable to an onshore sub-station.

Offshore wind farms will be marked and lit in accordance with IALA Recommendation 0-117 (May 2000). The United Kingdom Hydrographic Office [UKHO] liaises with the relevant offshore wind farm developers and other authorities in order to promulgate safety critical information and to update Admiralty Charts. A set of Standard Information that is required by UKHO has been generated, to enable developers to provide the necessary level of detail of these features. These details are included in the UKHO Offshore Structures Database and included on charts as appropriate.

A General Preliminary Notice to Mariners, 3397(P)/03 has been issued, which includes the majority of the above information.

The website www.crown.estate.co.uk can be accessed for further details.

New Survey Launch for Norwegian Hydrographic Service.



The survey launch "Sjøfalk" was commissioned in July 2004 for survey works along the Norwegian coast and at Spitsbergen. The survey launch is a new concept built on a standard leisureboat hull. It is semi-autonomous, and has facilities to operate away from the mothership for 4- 6 days accommodating a crew of 4 persons. The launch is classified by the Norwegian Maritime Directorate, and built according to "Nordisk Båt Standard" for work boats under 15 meter.

Type boat:	Tresfjord Atlantik 37` built in Polyester GR
Length overall:	37` 11,75 meter
Breath moulded:	3,60 meter
Max draught:	1,20 meter.
Service speed:	25 knots
Main engine:	Yanmar 6 CX-GTE2 465 kW, RPM 2900.
Auxiliary:	Panda PMS 12.000NE Power: 10 kW / 230 v – 50HZ.
Survey equipment:	
Echo sounder:	Simrad EM3000D Multibeam echo sounder
Positioning system:	Javad GPS receiver with in-house post processing software (AbsPos)
Motion sensor:	Kongsberg Seatex Seapath 200
Data acquisition system:	In-house "Havlogg"

Multibeam training course

1-6th November 2004 **Norwegian Hydrographic Service - Hydrometrica**, at the SAS Globetrotter in Stavanger, Norway. Maximum number of participants 55.

The course has previously been arranged 34 times. It has been scheduled once a year in Europe since 1999. The first European course was arranged by RDANH in 1995.

The aim of this course is to prepare and train experienced hydrographers in the use of multibeam sonar systems for hydrographic surveys. In particular it is designed to provide overviews of

- the technology and problems associated with shallow water multibeam surveys,
- the processing and visualization techniques designed to address the complexities of swath mapping,
- the constraints on using swath bathymetry to produce hydrographic quality data.

While the course is primarily designed to provide a theoretical and practical background in marine swath survey technology and techniques to conventional hydrographic surveyors, the information is increasingly tailored for those using marine swath systems in non-traditional ocean survey fields such as continental shelf boundary delimitation, offshore engineering, harbour dredging, fisheries habitat, route survey and scientific research fields.

Topics covered :

- * Review of underwater acoustics and overview of acoustic seabed mapping systems;
- * Multibeam principles and multibeam calibration methods;
- * Positioning and motion compensation for multibeam surveys;
- * Multibeam survey planning;
- * Data structures and multibeam data processing;
- * Seabed acoustic backscatter and characterisation;
- * Visualisation methods and quality control.

Instructors:

Dr. Larry Mayer, Director of the Coastal and Ocean Mapping Center at the University of New Hampshire

Dr. John E. Hughes Clarke, Chair of the Ocean Mapping Group at the University of New Brunswick

Dr. David Wells, Professor at the University of New Brunswick, the University of New Hampshire, and the University of Southern Mississippi

Dr. Christian P. de Moustier, Professor of Ocean Engineering at the Coastal and Ocean Mapping Center at the University of New Hampshire.

Cost:

Course enrolment is limited to a maximum of 55 participants. The registration fee of \$3,250 (USD) includes all course materials and lunch for all 6 days (but excludes accommodation). Accommodation is at the venue at the cost of 675 NOK , date of arrival and departure date should be included in registration.

More Details and Registration:

If you are interested in learning more and receiving a registration form, see: www.ststkart.no Hydrographic Course, or contact either of the following:

Lindsay Gee

Tel: +1 603 431 1773

Fax: +1 506 454 0352

Email: lgee@ivs3d.com

Kjell Ove Aksland

Tel: +47 51 85 87 00

Fax: +47 51 85 87 01

Email: kjell-ove.aksland@statkart.no

Internet publishing of NtM's with database solution

During the autumn 2004 an Internet service, where Swedish Notices to Mariners are published, will be released. Since several months already all NtM information is managed in a database. This production database will be mirrored regularly, probably daily, to a distribution database outside of internal firewalls.

The end user will be able to search for NtM's and formulate the queries based on area of interest, chart number, notice number and dates.

As a fact the Swedish weekly printed NtM booklet is produced "directly" from the database solution and this production line has been in operation since April 2004. The extraction of NtM's to the desktop publishing tool (Adobe InDesign) is guided by a template and the final editorial work before print is less than one hour.

Some examples will be given and if possible more information on the plans for release of the service.

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, TAAF¹²) 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 Ifremer¹³ concerning NO¹⁴ *Pourquoi pas?* and BHO¹⁵ *Beautemps-Beaupré*.

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. Manoeuvre 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.

¹² TAAF : Terres Australes et Antarctiques françaises : southern and antarctic French territories.

¹³ Ifremer : French institute for research at sea

¹⁴ NO : Navire Océanographique : oceanographic vessel.

¹⁵ BHO : Bâtiment Hydrographique et Océanographique : survey vessel.

General characteristics

Displacement	3265 tons
Dimensions	<ul style="list-style-type: none"> • Length : 80.6 metres • Width : 14.9 metres • Draught : 6.9 metres
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"> • one lineshaft • one bow thrusters (440 kW) • two stern thrusters (2x220 kW)
Speed	<ul style="list-style-type: none"> • Cruise speed : 12 knots • Full speed : 14 knots
Crew	2x28 persons alternatively
Scientific Crew	22 persons
Gears	<ul style="list-style-type: none"> • multipurpose rear gantry, • lateral gantry for core sampling with winch and double capstan, • lateral gantry for hydrology and two winches • winch for coring and dredging, • detachable “Sea-Soar” winch, • two additional winches to handle small equipment, • 100-ton crane on the rear, • 12-ton crane on the bow.
Craft	<ul style="list-style-type: none"> • two 8-metre motor hydrographic survey launches, • two dinghies for ten persons each, • a 4-metre launch
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 Hénin 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.

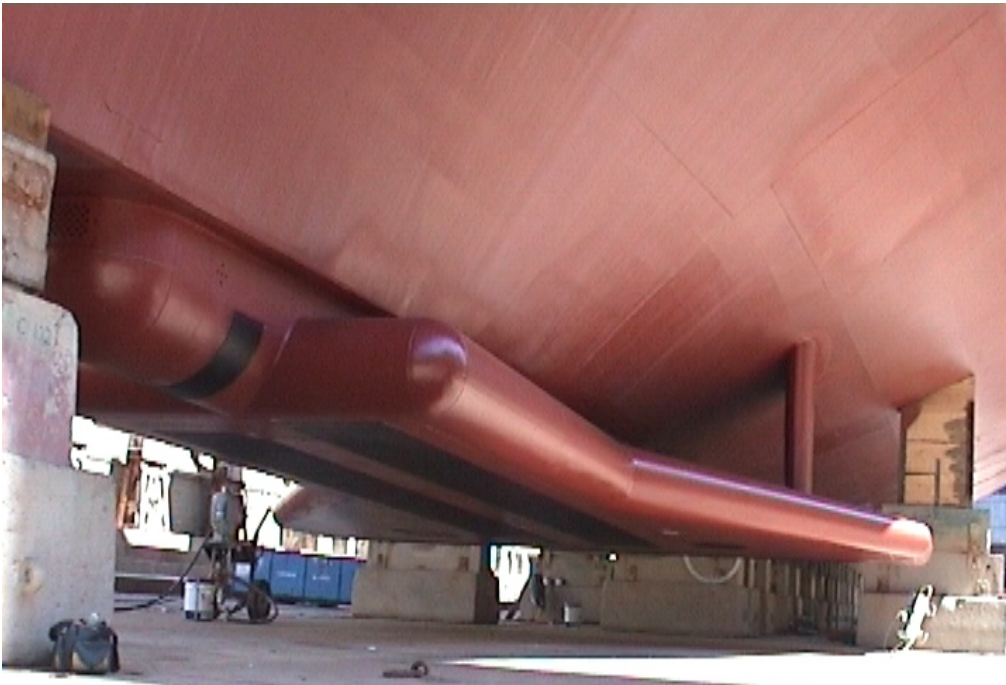
After being commissioned in Summer 2002 the ship reached her Nouméa station on the 22nd November 2002.

General characteristics

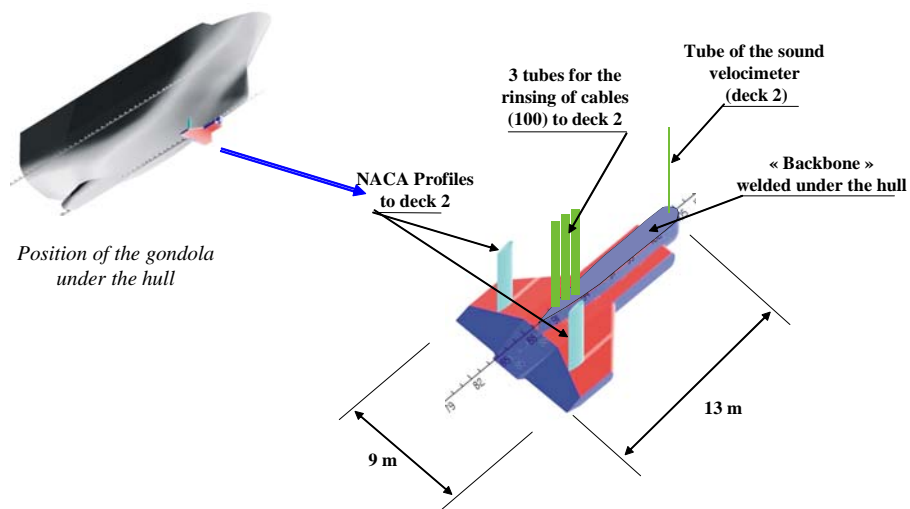
Length	28 m
Width	7.7 m
Draught	2.1 m
Engine	2 x 450 hp
Speed	12 knots
Autonomy	12 days, 12 persons on board
Light tonnage	96 t
Crew	6 persons
Scientific crew	6 persons



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

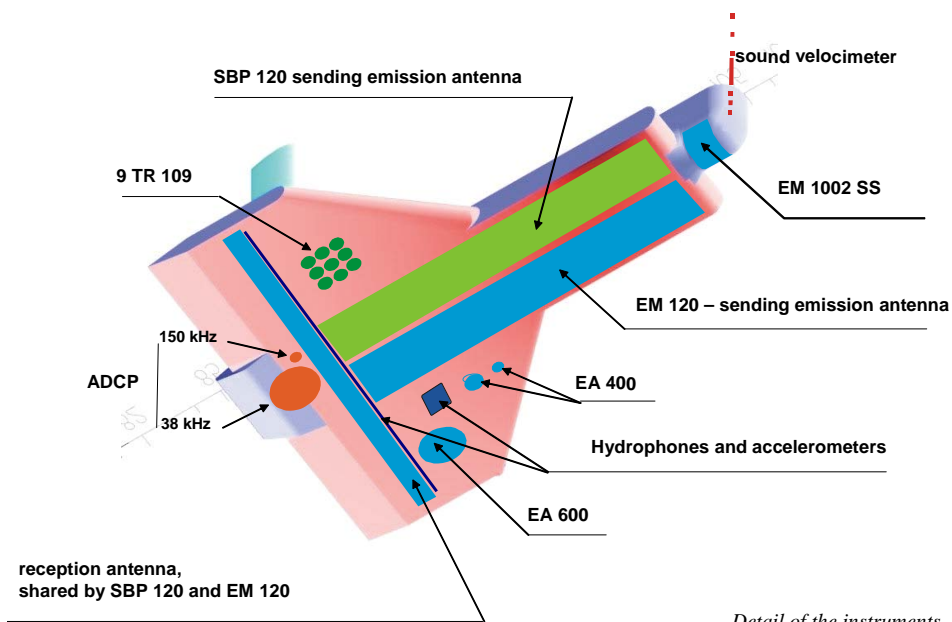


The gondola of BHO Beautemps-Beaupré



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

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

8.

Lists of NSHC Conclusions

26th North Sea Hydrographic Conference

Cardiff, September 2004

Conclusions of the North Sea Hydrographic Commission

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Active

No	Title/Subject	Staus
5	Amendment of the Statutes	Active
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11	Conclusions reflecting decisions of the NSHC	Active
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16	IMCO matters	Active
17	Joint use of electronic position fixing transmitters	Active
28	Resurveying of critical areas	Active
31	Deep draught shipping versus seabed exploitation activities	Active
34	NSHC Instruction Officers at RN Hydrographic School	Active
44	Negative Tidal Surges Warning Service	Active
45	Exploratory drilling in the area of the texel traffic Separation Scheme	Active
46	Passage of VLCC's south and Southwest bound through the North Sea and Dover Strait to the English Channel	Active
50	Under keel allowance for deep draught vessels in the Dover Strait and Approaches	Active
56	NSHC Ad hoc Working Group on INT charts and NSHC ECDS	Active
59	INT Chart Specifications: National Symbology on INT Charts	Active
65	Reliability of chart	Active
66	Training	Active
69	Copyright matters relating to commercial publishers	Active
70	Working Group on Copyright and Pricing Matters	Active
72	Report of Tidal Working Group	Active
73	Adoption of WGS84 as horisontal datum for nautical charts	Active
75	Co-operation Strategy for European HO's	Active
76	Report of the Working Group on copyright and Pricing related Matters	Active
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78	Digital equivalentents meeting SOLAS chapter V carriage requirement	Active
79	Oslo-Paris Commission request	Active
80	S-55 Data-base	Active

Conclusions of the North Sea Hydrographic Commission

Contents

Effectuated / Obsolete

No	Title/Subject	Status
1	Statutes for the North Sea Hydrographic Commission	Effectuated
2	Publication of Fisheries Charts	Effectuated
3	Necessity of survey work outside territorial waters	Obsolete
4	Gravity and geo-magnetic measurements at sea	Obsolete
6	North sea Surveys Progress Chart	Obsolete
8	Co tidal lines and Range Chart	Obsolete
9	Survey Priorities Chart	Obsolete
10	Legal Status of the International Hydrographic Bureau	Obsolete
12	Position of light buoy S2	Obsolete
13	Symbol and note regarding deep-draught routes	Obsolete
14	Symbol for mechanical sweeping of wrecks	Obsolete
18	NSHC Sub-Committee on International Charts	Obsolete
19	Dept information in metres and decimetres in charts	Obsolete
20	The setting up of a World Wide Radio Warning System	Obsolete
21	Group of Tidal Experts	Obsolete
22	Deep draught passage east of Indefatigable Banks	Obsolete
23	Governmental consultancy of Hydrographic Offices	Obsolete
24	Depiction in charts of IMCO separation schemes and routes	Obsolete
25	Inventories and exchange of computer programs	Obsolete
26	Training in the UK Hydrographic School	Effectuated
27	Proposal to the IMCO of a surveyed, specified VLCC route	Obsolete
29	INT Chart differences, producer versus printer nations	Obsolete
30	Definition of Area 1 in RaNaWa	Obsolete
32	DW Routes	Obsolete
33	Membership of France	Effectuated
35	Survey classification reflected in Survey Progress Chart NSHC 1	Obsolete
36	Definition of "Adequate Comprehensive Survey" and its use on North Sea Survey Progress Charts NSHC 1 and NSHC 2	Obsolete
37	The continued use of DR 1 and S2 DW routes	Obsolete
38	Membership of Belgium	Effectuated
39	Radio frequencies for surveying purposes	Effectuated
40	Radio Navigational Warnings	Effectuated
41	Copyright of nautical charts and publications	Obsolete
42	Hydrographic survey of deep-water (DW) routes -use of side-scan sonar	Obsolete
43	Plan for completion of scheming for the portion of the coasts of the NSHC area not vet schemed at large scale	Obsolete
47	Working Groups on Electronic Chart Display Systems	Effectuated
48	Establishment of an ad hoc NSHC Working Group on Electronic Chart Display System	Obsolete
49	Course in Nautical Cartography at the ITC, the Netherlands	Obsolete
51	List of Radio location Systems in use in the North Sea	Obsolete
52	Progress report: NSICS	Obsolete

53	Evaluation of the INT Chart	Effectuated
54	Regional Electronic Chart Base	Obsolete
55	Regional Electronic Chart Base - Administrative arrangements	Obsolete
57	International Charts - INT chart financial regulations	Obsolete
58	Standardization of Notices to Mariners and Lights Lists	Effectuated
60	Standardization of Sailing Directions	Effectuated
61	Data Exchange Format for Electronic Chart Data	Obsolete
62	International Charts - Technical Resolutions	Obsolete
63	Position Fixing and Hydrographic Surveying Technique	Obsolete
64	Bilateral Arrangements Between Hydrographic Offices	Effectuated
67	System of Election of IHB Directing Committee	Obsolete
68	Statutes of the North Sea Hydrographic Commission	Effectuated
71	Principles and procedures for exchange of data	Effectuated
74	NSHC Working Group on Consistent Survey Policies	Obsolete