

**14<sup>th</sup> CHRIS MEETING**  
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**MARINE INDUSTRY WORKSHOP “INDUSTRY DAYS”**  
**IHB, Monaco, 26 – 28 June 2002**

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*For the third year the IHB Directing Committee organised the annual Marine Industry Workshop at their premises in Monaco. Experience has shown that regular and constant interface between the major role players in the world of hydrography is necessary. It is important for the views of representatives from related industry and the authorities responsible for implementation of charting to be heard, as it is for that of the official producers of the data.*

*The Committee felt that this year they should revert to a more workshop-style model as opposed to the conference-style models used in previous Workshops. It was therefore decided to have Discussion Panels for each Session comprising two representatives from industry and two from the IHO. Each panel discussion was preceded by some short presentations of papers of which the full version was also available in print. Many papers and particularly the contribution of the panel member instigated lively discussions, some to carry on until late in the evening on the terraces of Monaco's restaurants.*

*The leading thread running through the whole Workshop was unmistakable the issue of the lack of official Electronic Navigational Charts (ENC), possibly causing the decline in the sales of ECDIS. Many, both from the Industry and representatives of the IHO or affiliated organisations expressed their worry regarding the over specification in standards and the number of planned revisions' to the standards.*

*The Directing Committee, in one of their letters, expressed their hope that the discussions will result in meaningful ideas, conclusions and recommendations being made. It is fair to say that these objectives have been achieved. It is now very much a question whether both the IHO and the Industry (this time) pick up the ideas, conclusions and recommendations and follow them up. So that may be on next years' agenda there will be an item "What have we done, and have we done it right" (this time).*

*A complete review of all presentations and discussions would take up too much space. The fact that some are not mentioned or not referred to, does not mean that they were not of interest to the attendees. The IHB will put copies of all papers presented during the Workshop and made available to them, on their web site.*

**Welcome.**

Rear Admiral Neil Guy, Director of the IHB, welcomed the approximately 70 participants. He expressed his hope that the workshop may become a standard annual occasion where the IHO and

the Industry have an opportunity to discuss problems relevant to both parties. He emphasised that he wanted the views of the Industry to be clearly understood and acted upon.

Rear Admiral Guiseppe Angrisano, President of the IHB mentioned in his word of welcome that maintaining and improving the relation to the Industry was in line without the IHO's Strategic Plan and that he was confident that the meeting would produce tangible results to improve hydrographic products and services. Admiral Angrisano made a strong plea to the Industry to assist in establishing Hydrographic Services in developing countries.

### **Keynote Address.**

“[What] Have we done, and Are We Doing it Right?” was the title of a most interesting address from Michael Rambaut, the Deputy Secretary of the Committee International Radio Maritime (CIRM) and also Secretary of IEC TC 80. CIRM is an organisation representing 75 maritime equipment manufacturers from 23 nations and IEC TC 80 develops test standard from maritime products e.g. IEC 61174 (test specifications for ECDIS). After a brief overview of problems inherent to writing technical specifications based on poorly formulated carriage requirements, he came to the subject which in fact proved to become one of the main topics of the workshop: “*Where are we with ECDIS*”. He noted that the test specifications were available, that there are mature IHO standards, and that we have “permission” from the IMO. There are type approved ECDIS available and we know that there is a market with about 55,000 (SOLAS) vessels and between 1600 and 2000 new builds per year. However how do we sell it? Can we tell the potential customer that the technology is mature, that the ENC coverage is adequate, that there are no imminent changes to the standards, that the distribution and security are not a problem and that we can sell it for an affordable price?

The presentation was concluded with a clear message to the IHO, advising them that they may want to relinquish some of the work of the Colours and Symbols Maintenance Group, or share the resources and instead concentrate on producing ENC data including an ENC security scheme if required, maintain the S 57 standard and step back from over-specification.

A very valuable contribution was presented by George Arts, President of Marine Press of Canada, distributors of nautical books and charts. He explained the problems that chart agents encounter, by trying to sell ENC to ship owners, which are mainly caused by issues like the limited coverage, competition of private manufacturers of data, the various other formats used by HO's, and the reluctance of EDCIS producers to adapt their systems to read a wide(r) range of formats. It shows that some ship owners subscribe to the services of private data providers as they feel it takes too long for national administrations to decide on the reduction of paper chart carriage requirements. Mr. Arts draw the attention to the fact that now that the SENC format has been approved some users are concerned that they may not be able to notice the difference between official and non-official data. He advised measures to be taken to separate them. He emphasised the importance of a close co-operation between system manufacturers and distributors.

During the following discussion, one of the ECDIS manufacturers noted that without sufficient ENC data there will never be an ECDIS market. Sales of ECDIS has fallen while the number of ECS has grown. This may result in the use of sub-standard equipment but in general ECS offers much more functionality than ECDIS. There is confusion over the use of raster versus vector, different security schemes and ENC update services.

Many of the participants agreed that ECDIS was losing out to ECS albeit primarily in the retrofit market. The main reasons given were: the lack of ENC, the over specification (complexity) of IEC 61174 (ECDIS test specifications) and the IHO Presentation Library. Also the significant difference in cost between ECDIS and ECS was mentioned as contributing to what one of the

attendees named “The ECDIS crisis”, while someone else remarked that “ECDIS is going downhill”. Other reasons identified were that, in general, ECS offer more features than ECDIS and that ECDIS is not a mandatory carriage requirement. The Secretary of TC 80 drew the attention of the workshop to the fact that IEC 61174 test procedures are based on the IMO performance Standards for ECDIS and relevant IHO specifications. These standards and specifications would need to be revised and this was not considered a realistic option.

#### **ENC Production, Coverage and Delivery.**

This session was opened by Michel Huet (IHB) with a presentation of the IHO WEND (Worldwide ENC Data base Committee) study on “ENC Coverage and Requirement for International Shipping”. This study performed by the Portuguese Hydrographic Office has not yet been completed but the excerpts showed that although the production of ENC cells is well disseminated around the world, there are only a few areas where the coverage and the availability on the market are satisfactory. This is mainly the fact in the Baltic and North Sea, the Canadian coasts and East Asia. The worst situation is relative to Africa, including the Mediterranean coast. In this continent the only ENC producers are the Republic of South Africa and the United Kingdom (Egyptian waters). Regrettably the study does (yet) not include an overview of the major shipping routes versus the availability of ENC.

Andrey Dmitriev from HydroService AS presented a paper on Data Validation underlining the fact that private companies can now offer the tools to assist the HO’s in quality data production and assessment. It was later, during the discussion, brought forward that the recommendations on data validation procedures of HydroService should be taken into consideration by TSMAD (Transfer Standard Maintenance and Application Development Working Group).

This paper was followed by a presentation of Freddy Pøhner from Kongsberg Simrad AS with a paper called “Complete production Line for Charts in Paper and Electronic Format”. Dr. Pøhner, a well known authority in the world of ‘multi-beam sounding’, discussed the solution as developed by Kongsberg Simrad, Roxar Software Solutions and HydroService for a total data collection and processing system as provided for the Greek Hydrographic Office. The paper describes the process from (multi-beam) data collection to the final product(s) i.e. ENC, Paper Charts and Notices to Mariners. An excellent example of co-operation within the industry in support of a HO.

During the following panel discussion it was mentioned that the WEND Report showing poor ENC coverage underlined that IHO and HO’s must find additional means to reduce the lack of data. Again it was pointed out that one solution to solve this problem, within an acceptable time frame, might be for the HO’s to adopt the quality data, meeting the technical ENC specifications produced by the major private data manufacturers.

Two other important issues were observed during this discussion being the importance of sticking to one IHO ENC security scheme and a single SENC format.

Mr. Frode Klepshvik, Hydrographer of Norway, commented that he considered it the role of the IHO in the future to find ways to address gaps in the ENC coverage. He considers that co-operation with the industry is important and as such a considerable part of his budget is spent on support by the Industry. It should however be noted that the role of a HO is different from that of the Industry. The HO’s have a responsibility to deliver high quality data. Adopting private manufactured data is a time consuming process and it also takes some time to bring the Industry up to the right level. Norway is working with Det Norske Veritas (DNV) to develop a SENC distribution format.

### **Development of Control of Standards.**

Mr. Robert Sandvik from Primar-Stavanger opened this session, with a presentation of the work of the IHO Data Protection Scheme Advisory Group. This Advisory Group, headed by Primar and assisted by the Canadian Hydrographic Service (CHS), is tasked with the development of an IHO ENC data protection kernel and supporting documentation modelled on the Primar Security Scheme. The aim is to get the Data Protection Scheme (DPS) in place by the end of 2002. Thereafter, a version 2 will be developed to be released in April 2004.

Dr Mathias Jonas (BSH), Chairman of the IHO Colours & Symbols Maintenance Working Group mentioned that he would like the industry to be more involved in the revision of the specifications. The workgroup will concentrate on the display of the charted information and aim at a new edition (3.3) by the end of 2002. The Open ECDIS Forum is effectively being used for discussion of some technical issues. This triggered (again) the discussion about the necessity to change standards and it was remarked that the standards should preferably not be changed and effort been spent on production of data instead.

Michael Rambaut remarked that control changes to standards are as important as the creation of standards itself. We have been informed about new changes to S-57 and new security systems. It takes a long time before the IEC produces new test specifications (some times 2 years). Make the industry aware in good time when new or revised standards are going to be introduced. Changes have to be written out as proposals. That is the discipline required.

Industry expressed their worries about the need for 2 security schemes. Both official IHO and commercial security schemes have implications for type approval. Greg Levonian (CHS) commented that the overall intent is to have just one IHO approved security scheme. He also remarked that at present, neither Canada nor the USA had any plans to implement a security scheme. Mike Rambaut was concerned that somebody who purchased an ECDIS some years ago, would be presently prevented from the use of ENC. It was felt by some that the IMO would not be pleased if they were informed that the IHO plans to implement a security scheme. It was however stated that it is up to the HO's to protect their data.

Chris Drinkwater introduced the plan to come with a new edition of S-57. It will become edition 4 and it will enable the transfer of all hydrographic data. Presently the format only deals with vector data. The current product specification will be retained. The new edition will among others also accommodate multi-beam data, meteorological data etc. The target date for the Edition 4 Working Group is 2004. The development of this new version would require the involvement of the Industry. Participation through the Open ECDIS Forum was encouraged. To safeguard people's investments, users should be able to carry on with edition 3.1. Edition 4 will be ISO compliant. This will make it possible to use S-57 data with Commercial Off The Shelf (COTS) software.

One of the industry participants drew attention to the fact that it was obvious that less and less resources were available to industry for its involvement in the issue of maintenance of standards. We are confronted with very complex standards for a relatively small market. The IMO standards cover the performance (what shall be done) while the IHO and the IEC cover the implementation side. Perhaps the Industry could take over the implementation side. In that case we have, of course, first of all to solve the problem that there is *no clear Industry group on ECDIS*.

### ***The ECS as a legal equivalent of the paper chart (!).***

This was the 'conclusion' of a presentation by Mortimer Rogoff, President of the Navigational Electronic Chart Systems Association (NECSA), with as subject an (ISO) certification standard

of private manufactured data. Mortimer Rogoff mentioned that there are not yet any standards neither for ECS software nor for ECS data. Both IHO and IMO consider ECS not as their business; hence it is not regulated by SOLAS. However ECS is nowadays being used at least 10 times more than ECDIS. As AIS becomes mandatory and national administrations are responsible for its implementation, the role of ECS worldwide becomes even more important. Consequently national HO's will become involved in ECS.

The standard (ISO 19379) does cover the content of the chart, the quality, updating and testing. It does not include the format nor the colours and symbol requirements. That is left to the ECS software specifications (for instance as produced by the RCTM). The standard has been developed by an international Working Group and is presently being circulated among the voting members of the group of countries associated with ISO Technical Committee 8, Sub-Committee 6 (Navigation). The aim of the standard is to make it possible that ECS be used as the legal equivalent to a paper chart.

From the lively and entertaining discussion that followed, the following was noted. When asked whether ECS would be able to meet the requirements of meeting the new SOLAS chapter V, it was answered that this would be up to the national authorities. Furthermore it was explained that the standard was absolutely necessary, for the sake of safety at sea, and that HO's were reluctant to test private manufactured data. Also many ECS systems do not support ENC. The goal is to produce private manufactured data that is as safe as ENC. Joe Ryan (Consultant to the USA Navy) remarked that possibly, ECS meeting the RCTM standards and using official HO data, or data certified by an HO, could be accepted as back up arrangement for ECDIS.

### **Strategic Planning.**

A session chaired by Frode Klepsvik, the Norwegian Hydrographer. He informed the audience that it had been decided to re-establish the Strategic Planning Work Group (SPWG) with new Terms Of Reference: "How the IHO should be structured in the future". The working group has been given a very wide mandate, but a very short time limit. The subjects discussed during the Industry Workshop will be given high attention by the SPWG. It was made quite clear to the industry that this was "the chance of a lifetime" for the Industry to provide some input because there will probably not be another opportunity for the next 25 years. The SPWG is looking for proposals of what the Industry can contribute and how the IHO can deal with a representation of the Industry.

Tor Svanes (C-MAP Norway) mentioned that, in his opinion, there are two ways the Industry can play a significant role. Contribute to the standard and to the production. He noticed that within the IHO, the Industry had customers, suppliers or even competitors. Regarding the standards it seems that the large HO's, with the biggest resources, attend all the meetings and dominate these meetings. The Industry has to prioritise, has less time and less money. In a new structure it may be possible to include the Industry in some form of membership including a fee to cover expenses. The Industry could contribute by taking over maintenance of standards regarding ENC production or the Colours and Symbols Maintenance Working Group. The IHO have to identify the companies that produce either survey data or chart data. Some co-operation has to be established. HO's have not sufficient money to do what they have to do. The biggest issue in ENC production is fund raising. The IHO could possibly play a more active role in this.

Hans van Opstal commented that the discussion should not be restricted to what the Industry can mean for the IHO but also what the IHO can do for the Industry. A very important role for the IHO is fund raising to help developing countries to establish HO's. The Industry can provide the necessary hardware and software. We need a structured co-operation between the IHO and the

Industry. For the next Industry days we need a proposal on the agenda to get this off the ground. Otherwise we will carry on discussing forever without any result.

Lee Alexander (UNH) mentioned that there is an important role that the Industry can play in assisting the HO's with the preparation of proposals to obtain funding from international organisations.

### **Developments in Data Gathering / Processing**

Paul Cooper (Director International Division of the Naval Oceanographic Office) opened this session with a presentation of the work of the Pan American Institute of Geography and History (PAIGH). An excellent example of international collaboration. In his paper, special attention was given to a recently held multi-beam Workshop with support from several players of the industry involved in data gathering and processing.

Another interesting presentation showing good co-operation between a Hydrographic Service and the Industry was presented by Commander Paolo Lusiani of the Italian HO and Alessandro Dibona from Pangea. Their paper on 'Advanced Software Tools for analysis, control and processing of high volume multi-beam data', gave a clear view of the conduct and processing of a modern and comprehensive bathymetric survey.

Lee Alexander presented a highly interesting paper on "Alternative uses of hydrographic data". He showed the possibilities offered by combining images from different sources like ordinary topographic data, photogrammetry, high-density survey data, 3 dimensional and geological survey data, etc. The results of these combinations prove most useful to solve a variety of problems like accurate delineation of certain boundaries in relation to the law of the sea, to measure the impact of global warming, rising sea levels, what the impact will be, where and when it will occur. But also for more practical implications like pipe line and cable routing, measuring the amount of back scatter to monitor fish habitat or detect possible presence of fossil fuel.

### **Regulatory / General Aspects.**

Mathias Jonas (BSH) gave a presentation on ECDIS in relation to the new SOLAS Chapter V of IMO. He drew the attention of the audience to the fact that ECDIS will soon get the status of a so-called "Wheelmark". This means mutual recognition of ECDIS type approval certificates within the European Union by the national administrations without further investigation or re-testing. The recognition of an ECDIS system as legal substitute for paper charts is the responsibility of the Flag State. Unfortunately, although there should not be, there are differences between flag states regarding the requirements for ECDIS as a legal substitute. He gave as an example Germany that requires a recognised type approved ECDIS system; official S-57 data coverage for the operating area; ARCS/Seafarer/BSB for S-57 uncovered data, accompanied by a reduced set of paper charts selected on master decision; a back up arrangement (double installation or full set of updated paper charts).

Other flag states ask for less, e.g. The Netherlands where the use of raster chart systems is permitted for individual ships, or additional individual risk assessment for a particular ship e.g. Great Britain, Finland and Australia. Some flag states don't say anything like for instance the USA. Dr. Jonas proposed that the IHO, the Manufacturers, and organisations like CIRM, RCTM and IEC encourage the IMO, by all means, to adopt a unified approach or to give a firm statement on how they interpret ECDIS as a legal substitute for paper charts.

Another probably more difficult issue is the attitude of the Port States. Will the Port State accept the requirements regarding the carriage of ECDIS from the Flag State? Whom to approach? There

is yet no international body to answer this question. However Port States co-operate in regions e.g. the European Countries under the so-called “Paris Memorandum of Understanding”. The Asian countries have agreed to operate under the Tokyo MOU etc. The Paris MOU countries have adopted ‘Guidelines for use of ECDIS’ based on the UK and German position with an amendment that the master and watch keeping officer should be able to produce appropriate documentation that generic and type-specific ECDIS familiarisation has been undertaken and a deviation describing that, in the RCDS-mode added by an appropriate set of paper charts, it should be ensured that the vessel can navigate to a safe haven in the event of total electronic failure.

Joe Collins (MCA –UK) stated that, in the UK, there have so far been only a few shipping companies expressing their wish to carry ECDIS instead of paper charts. They can be counted on one hand. The scarcity of ENC data is a major issue. We welcome the wheelmarking. The production of ENC in the UK is slow because the MCA wants to see the ENC based on modern surveys. We use a risk assessment to assist the user to define what paper charts are required when operating in the RCDS mode. It is quite possible that the outcome of the risk assessment is that no paper charts at all are required.

Robert Ward (HO Australia) mentioned that guidance regarding the implementation of the carriage of ECDIS between flag states is very important. We are dealing with a gross lack of understanding and technology. We are in for some difficult times as from the first of July. We may find ourselves in some embarrassing situations where people on bridges of ship may think they have an ECDIS and official charts. Without an increased level of understanding and commitment, ignorance, accidents and disillusionment will likely occur.

Gert Buttgenbach (SevenC’s) mentioned that, as a member of the ECDIS industry for over 10 years, 7C’s has now become a victim of over-specification and regulatory implementation. Unless changes are made, there may be only a few manufacturers left within 1 to 2 year’s time. The industry is loosing its interest in ECDIS. He made a strong plea to allow some flexibility in the interpretation of the sometimes-unnecessary rigid and complex standards.

### **Concluding Discussions.**

Neil Guy who expressed his thanks to all present closed the meeting. A special word was for Gert Buttgenbach from SevenC’s. Not just because for his intensive and often original participation in the discussions but particularly for his contribution in establishing the Open ECDIS Forum and all the effort he spent on maintaining it.

It was suggested that the name Industry and possibly the format of the meeting should be changed in future. Admiral Guy, about to retire as Director of the IHB, mentioned that over the years he had had the pleasure of chairing the workshops, the relation between the IHO and the Industry has much improved. It is obvious that some Member States still have reservations relating to co-operation with the Industry. It might be an idea for the future to have some volunteers to form a small committee assisting in organising the Workshop. He is looking forward to the views of the industry regarding the work of the SPWG. All recommendations of the meeting will be passed on to CHRIS (Committee on Hydrographic Requirements for Information Systems).

Neil Guy suggested the following important outcomes:

- The format of the Workshop could be improved and the industry should be considered Stakeholders.

- It was clear that ECDIS is losing to ECS (mainly in the retrofit sphere). This probably is caused by lack of resources or structure, and complicated requirements to produce ENC. Possible solution could be better IHO programmes in support of production and more involvement of commercial companies, and the adoption of non-official data.
- An action point list will be prepared based on the report of the “Rapporteur”. Participants were invited to come with proposals of items to be included in this list.

*Note from the Author.*

It was agreed that participants would provide the IHB with a proposed Action Point list. In my opinion such a list should at least include a recommendation that IHO Member States should consider working more closely with the Industry, particularly to solve the serious problems of the lack of ENC. Furthermore all involved in ECDIS and its specifications and standards should pay more attention to the users wishes instead of confronting them with the perspective of the IHO. Member States should consider consulting the Industry and users first before tasking working groups to revise standards. Otherwise there may soon be no equipment left for which the revised standards are applicable. There is no time to waste for the Industry. They have to get their act together and come with a proposal on how, as a group, to liaise with the IHO, particularly in relation to the SPWG. The IHO has opened the door. It is now time to seize the opportunity with both hands to give a formal structure to the relation between the two parties. But the initiative has to come from the Industry.