



IHB File No. S1/1810

CIRCULAR LETTER 23/2008  
28 February 2008

**IHB RESPONSE TO AN ARTICLE IN DIGITAL SHIP  
CONCERNING JEPPESEN MARINE**

Dear Hydrographer,

1. The Directing Committee has been made aware of a report in the March edition of Digital Ship that Jeppesen Marine are suggesting that national Hydrographic Offices keep out of the commercial sector and focus entirely on the production of hydrographic data, leaving the commercial providers to produce charts and nautical publications from that data. Jeppesen Marine's Director Maritime Industry Safety Affairs and Services has in effect reconfirmed the views presented in the article via an email sent to the President IHB.

2. A copy of the article from Digital Ship is attached to this letter for your information. It is available on the internet at:

<http://www.thedigitalship.com/Dsmagazine/DigitShipMar08.pdf>

3. Given the nature of the article and its message, the Directing Committee felt that it was important to provide the editor of Digital Ship with an informed IHO statement on this issue in order to provide a balanced perspective. As a result, a factual summary of the various obligations and commitments that fall upon national Hydrographic Offices in relation to the provision of hydrographic services was sent to the editor of Digital Ship on 26 February 2008. A copy of this statement is included as Annex A to this letter.

4. The Directing Committee will continue to monitor the situation.

On behalf of the Directing Committee  
Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Robert Ward', is written over a white background.

Captain Robert WARD  
Director

Annex A:- IHB Statement - *The Obligations and Commitments Placed on National Hydrographic Offices for the Provision of Hydrographic Services*

Attachment 1: Extract from Digital Ship March 2008 - Pages 27-29.

## IHB STATEMENT

### **The Obligations and Commitments Placed on National Hydrographic Offices for the Provision of Hydrographic Services**

There have been recent reports in Digital Ship that Jeppesen Marine (recently incorporating C-Map) are suggesting that national Hydrographic Offices, which are Governmental Authorities, keep out of the commercial sector and focus entirely on the production of hydrographic data, leaving commercial providers to produce charts and nautical publications from that data.

The provision of hydrographic services, which includes hydrographic surveying, the production of nautical charts and publications, as well as the promulgation of Notices to Mariners, is an obligation placed on **governments** under International Treaty Law. This public service responsibility therefore lies with governments and cannot be directly transferred to commercial providers. At the same time, the role of the commercial sector in supporting these government responsibilities through efficient and cost-effective downstream production and distribution mechanisms for official nautical products is fully recognized and is being used increasingly by the World's Hydrographic Offices.

The following facts are relevant to these issues.

The provision of hydrographic services, which includes hydrographic surveying, the publication of nautical charts, lists of lights, tide tables and other nautical publications, as well as the promulgation of Notices to Mariners is an obligation placed on **governments** under International Treaty Law – in particular SOLAS Chapter V Regulation 9.

International treaty law clearly places a legal obligation and a responsibility on Contracting Governments not only for the collection of data, but also for the production of nautical charts and publications and their subsequent maintenance and updating. These are **governmental obligations** that are carried out by the respective national Hydrographic Offices. They are not treated separately because they are interconnected and all fundamental to the interests of Coastal States' regarding safety at sea, the protection of lives, the protection of the marine environment, maritime security and the management of coastal zones.

It is a primary responsibility of Coastal States to ensure the creation and distribution of official government-endorsed navigation products in the SOLAS environment, rather than the commercial sector. The role of the commercial sector is to support such activity and to continue to provide efficient and cost-effective distribution mechanisms for these official products.

#### **Government Obligations under International Law**

Governments have agreed to the conditions of various international agreements, treaties, Conventions and obligations concerning hydrography, nautical charting and the safety of navigation and protection of the marine environment. As such, they are known as Contracting Governments.

Hydrographic Offices collect and manage hydrographic data, produce nautical charts and nautical publications and provide an updating service on behalf of the Contracting Governments. This is done to satisfy the international treaty law obligations of those Contracting Governments. Hydrographic Offices have always accepted responsibility for their charts and services.

The following Conventions and International Agreements are all relevant to nautical charts and nautical publications:

### **SOLAS V, Regulation 9 – Provision of Hydrographic Services**

This regulation defines explicitly that the Contacting Governments must:

- Ensure that **hydrographic surveying** is carried out, as far as possible, adequate to the requirements of safe navigation;
- **Prepare and issue nautical charts, sailing directions, lists of lights, tide tables and other nautical publications**, where applicable, satisfying the needs of safe navigation.
- **Promulgate notices to mariners** in order that nautical charts and publications are kept, as far as possible, up to date; and
- Provide data management arrangements to support these services.

It also stipulates that Contracting Governments undertake to

- Ensure the greatest possible uniformity in charts and nautical publications;
- Take into account, whenever possible, relevant **international resolutions** and recommendations (and in particular those adopted by the IHO); and
- 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.

### **SOLAS V, Regulation 2 – Definition of Nautical Chart and Nautical Publications**

This regulation clearly defines the nature of the products that the Contracting Governments are obliged to provide under Regulation 9. It states that:

*“ ... a nautical chart or nautical publication is a special-purpose map or book, or a specially compiled database from which such a map or book is derived, that is issued **officially by or on the authority of a Government authorized Hydrographic Office or other relevant government institution** and is designed to meet the requirements of marine navigation”.*

This regulation also makes reference in a footnote to appropriate resolutions and recommendations of the IHO concerning the authority and responsibilities of Coastal States in the provision of charting in accordance with Regulation 9.

**IMO Assembly Resolution A.958(23)** under the provision of hydrographic services: “Invites **Governments**, in addition to their existing obligations under SOLAS regulation V/9, to promote through their maritime administrations, the use of ECDIS together with the use and further production of **official electronic charts (ENCs)**.”

**UN Assembly Resolution A/58/240 (2003)**, under the chapter on Oceans and Law of the Sea “invites the IHO and IMO to continue their coordinated efforts, to jointly adopt measures with a view to encourage greater international cooperation and coordination for the transition to electronic nautical charts and to increase the coverage of hydrographic information on a global basis, especially in the areas of international navigation and ports where there are vulnerable or protected marine areas”.

**Article VIII.c of the IHO Convention** directs the International Hydrographic Bureau (IHB) to “further the exchange of nautical charts and documents between hydrographic offices of Member Governments”.

## **Industry Involvement**

The 80 Member States of the IHO have recognized the importance of the various stakeholders (equipment manufacturers, software producers, mariners, ship operators, classification societies, and others) in assisting the provision of hydrographic services and especially in contributing to the implementation of ECDIS and the production of ENC's.

The IHO convenes an annual two-day meeting, known as the "stakeholders' forum", where all issues relating to the provision of hydrographic services are examined. In addition, Non-Government International Organizations (NGIOs) and invited "expert contributors" participate in the works of various IHO technical bodies, by providing their experience and knowledge in establishing the best standards, procedures and practises for the benefit of the mariners and the maritime community.

Many of the IHO's "expert contributors" come from commercial chart producers, such as Jeppesen, and provide a valued contribution to the IHO in its role as the coordinator of global hydrographic activity and the production and maintenance of supporting international standards.

The commercial chart producers have acknowledged levels of expertise, particularly in copying and managing existing, verified data and products and are assisting some Hydrographic Offices, under contract, with routine and preliminary aspects of chart production; however, the selection of relevant hydrographic data, validation of the work undertaken, as well as updating of the charts and the overall responsibility for the chart is a substantially different task for which the expertise lies within Hydrographic Offices and thus rightly remains with the parent government in accordance with the principles explained earlier.

## **ENC Distribution**

Product sales, distribution and availability of charts are matters for individual Hydrographic Offices and their parent Coastal State governments to establish and are driven by national policies and requirements. The overall cost of providing hydrographic services is financed largely through public funding. The financial return from chart sales covers only a tiny fraction of this cost.

For ENC's, the IHO has established a number of principles to help ensure consistency in the production and availability of ENC's. These are the so-called Worldwide ENC Database (WEND) Principles approved by IHO Member States. One of the WEND Principles encourages Hydrographic Offices to make their ENC's available to retailers through Regional ENC coordination Centres or RENC's. At present there are two main RENC's - IC-ENC based in UK and run by the UKHO and Primar based in Norway and run by the NHS. IC-ENC has an Australasian sub-centre based in Australia and run by the Australian Hydrographic Service.

RENC's are not-for-profit organisations that provide a "one-stop" distribution outlet for retailers to obtain ENC's at wholesale prices. RENC's do not market or sell directly to the public. This is done through retailers; one of which is Jeppesen Marine.

RENC's are a collective wholesaler of ENC's, acting on behalf of contributing Hydrographic Offices. They have been set up to assist in ensuring the consistency and availability of ENC's and associated updating services. They are not involved in direct sales nor are they in competition with the downstream commercial chart distribution market. The wholesale price of ENC's available through RENC's is dictated by the governments of the participating Hydrographic Offices.

The RENCs are governed by Management Boards made up of the representatives of the participating national Hydrographic Offices.

Some Hydrographic Offices do not distribute their ENC's through the RENCs. They make them directly available to the end users or through retailers in the same way as paper charts and other nautical publications have always been made available.

The accelerated rate of production of official ENC's has been recognised by many maritime stakeholders including safety administrations, mariners and classification societies, who also accept that ENC coverage in some parts of the world is already adequate. During the IHO Conference in April 2007, the Member States renewed their commitment to ENC production and resolved to achieve adequate coverage, availability, consistency and quality of ENC's by 2010. There is every indication that this will be achieved.

## Jeppesen to HOs - 'cease commercial operations'

**Jeppesen Marine, a subsidiary of the Boeing company that acquired maritime chart company C-Map in 2007, has released a 'manifesto' of corporate opinions that calls for government bodies to 'cease commercial operations' - a move that is sure to rattle the cages of the Hydrographic Offices.**  
**Digital Ship spoke to Tor Svanes and Tim Sukle, Jeppesen Marine**

Jeppesen Marine has marked the first anniversary of its acquisition of Norwegian chart provider C-Map by releasing a list of four corporate 'opinions', a controversial grouping of in-house strategy and changes that the company would like to see in the market.

The cornerstone of this 'Jeppesen manifesto', likely to rattle the cages of the commercially active Hydrographic Offices, is the statement: "Governments must focus their energies (all of it) on the creation of new navigation content, and let commercial industry compete to create products that drive customer value."

As a background to this statement, Tim Sukle, senior vice president and general manager at Jeppesen Marine, explained how he believes the company's status as a subsidiary of the massive Jeppesen organisation can create commercial advantages that could benefit the market.

Jeppesen is the world leader in the production of navigational charts for use in aviation, and it is this expertise that the

company hopes to bring to bear in the shipping sector.

"Our core competency at Jeppesen is the global management and distribution of information," he told us.

"We're pretty proud of this, we've spent seventy years just about on it, and continue to invest hundreds of millions of dollars annually on the technology to maintain all of the processes and the quality management systems and tools that underlay what we do for a living."

Jeppesen counts over 1 million pilots and mariners as users of its services, which Mr Sukle says can be found onboard nearly all of the airlines of the world and over 20,000 commercial shipping vessels.

"Our system today is capable of adjusting to over 250,000 changes in a single week, transported to a million customers' systems that same week - we can ingest a change from a sovereign government as late as Wednesday afternoon and have that onboard operators' systems by

Friday," he said.

Jeppesen is also strengthened further by its status as a subsidiary of the Boeing company.

"This allows us to reach into the Boeing system and gain access to the tremendous amount of research and development that goes on within Boeing," said Mr Sukle. "These guys are, right now, helping us on the marine side to develop some advanced routing and guidance technology, and with large scale systems integration."

### ENCs

On the maritime side, the company is focused on the creation and delivery of digital charts for the commercial sector, carrying on from where C-Map left off, but taking advantage of the added resources of its new parent.

"Over the years our business has changed," explained Tor Svanes, division director, commercial navigation, Jeppesen Norway.

"We provide tools and services to help

Hydrographic Offices (HOs) create Electronic Navigational Charts (ENCs) and also paper charts. Those become official sources (of navigation data), created through Jeppesen systems."

"Our own database, the C-Map Professional database, is the data that we produce ourselves based on different sources. That is kept updated and it has ISO certification."

"We get information from different sources in the industry, maritime organisations, Hydrographic Offices, the RENC that are collecting ENCs from different countries, Met Offices. So it's not only ENCs or our own database anymore, it's a lot of information and a lot of services."

He continued: "In the beginning, 15 years ago, it was about the sale of data, today we're moving towards the subscription of data. 95 per cent of the business with data today is subscription on a regular basis."

"We look at it that we have this channel between us and the consumer, and want

## Marine Satellite Communications Applied Satellite Technology Ltd

### Global Providers of Satellite Communications

AST are key players in the marine sector, supplying a range of effective communications equipment & airtime which enable operational optimisation and efficiency.

### The Benefits

As stockists of the new Fleet BroadBand terminals and VMS systems, Inmarsat, Iridium, Thuraya, Globalstar products and airtime we can guarantee a solution that gives you the reassurance you demand, when you need it the most.

### Experts in our Field

With over 15 years of experience in maritime communications, from vessel monitoring systems to broadband VSAT, AST are dedicated to finding a solution and product which meets your specific requirements.

AST Pte Ltd  
84 Genting Lane, #07-03  
SINGAPORE 349584

tel: +(65) 6291 6605  
fax: +(65) 6297 9876  
e-mail: info.sing@ast-uk.com



Inmarsat  
Fleet BroadBand 500



Visit us at Asia Pacific Maritime Exhibition - Stand C09

[www.satcomms.com](http://www.satcomms.com)

## ELECTRONICS &amp; NAVIGATION



*The amount of content created has to go up greatly from the governments, that's where their energies should be focused - Tim Sukle, Jeppesen Marine*

to see how we can serve the customer better with that."

It is in the ENC market that the most contentious issues lie. ENCs are official charts, that are legally allowed to be used for navigation. Other digital sources, such as Jeppesen's own database previously mentioned, may only be used as an aid in conjunction with an official chart, be that paper or electronic.

"ENCs, by definition, are electronic charts produced and stamped by a Hydrographic Office, but with that I would like to add that Jeppesen has probably been involved in producing more than 50 per cent of ENCs on the market today," said Mr Svanes.

"We are producing ENCs for the Hydrographic Offices, based on different sources, and supply technology to them, production systems to them, and train their people. So a lot of the ENCs available have been within Jeppesen one way or another."

"What we do with ENCs we get from the Hydrographic Offices, we put it onto a separate DVD that has SENC format distribution, and do seamless merging with our own data, so there are no open areas on the screen."

The electronic nature of these products has changed the game, as it were, compared to navigating by paper chart. New charts can be transmitted and added to an onboard portfolio almost instantaneously over the satellite communications system.

"Real-time updating is one of the most important things now, as I said, the main business for us now is in subscriptions

with the vessels and for that they need a real time update service," said Mr Svanes.

"There's a very sophisticated system to keep all of these charts updated. That's very important with the ENCs, because many of the Hydrographic Offices don't give incremental updates, they just give you a new file. If you're going to transfer all of these files in an open S-57 or S-53 format it's going to cost you a fortune over the satellite. We send compressed data in incremental updates."

"Then we have the issue of dynamic licensing. This had to be developed because the market said 'ENCs are too expensive, we cannot buy them.'"

Dynamic licensing is a system whereby a vessel operator only pays for the use of the ENCs they actually use. The charts are stored onboard the ship, but only incur a charge once they are opened and used.

"We actually had one customer coming in, they said 'I need to have ENCs of the whole world,'" said Mr Svanes. "We said 'are you sure?', and he said 'yes, I normally use ENCs.'"

"We gave him a quotation, and it was \$98,000 per year. He came back and said 'I'll start with the Mediterranean'. So pricing is an important issue, and with this dynamic licensing it's a service where you can 'pay as you go'."

#### Data formats

One aspect of the distribution service that Jeppesen feels is of particular benefit to users of its products is the conversion of encrypted ENC data into a usable format, which it completes at its offices before sending the charts out to its customers.

"It's something that people sometimes have difficulty understanding, but when you get an ENC from an official source on a DVD it is encrypted with something called S-63, so when you get it you have to get a licence to open it up," Mr Svanes told us.

"When you put it into the ECDIS (electronic chart display information system) you have to convert the data. If you subscribe to Northern Europe, let's say, that would probably take you six to eight hours to convert."

"This conversion we do in our office, because it's not only the time for the conversion itself it's also all of the errors you will get on the screen. There's the issue of harmonisation of data - the data in Singapore, the data in Japan, the data in Europe, they're not compiled in the same way. Then the ECDIS could say 'this is no good', and you'll get all of these error messages on the screen."

"We have, as of today, agreement with 98 manufacturers of ECDIS and ECS (electronic charts systems), that's probably 90 per cent of the world's companies that deal with this kind of thing, to use our format in their systems."

#### Manifesto

Already established in the maritime industry, through the C-Map brand, it seems, however, that Jeppesen is not entirely content with its position in the market, particularly with regard to the regulations governing the use of electronic data for navigation.

The company believes that there is a better way to organise the distribution of navigational charts in the modern era, though conveniently this new method would involve a decrease in the number of competitors Jeppesen would have to deal with.

"Things were much simpler in days gone by," said Mr Sukle. "If it was cloudy the sextant didn't work that well, as long as your lead line was long enough to reach the bottom the depth worked pretty well. People tended to stay within a local area more often than not, and you ended up with masters who were focused on the operation of the vessel."

commercial aviation. What this said was that if the maritime incident rate was applied to commercial aviation, we would experience 1.5 incidents every business day. What can we do about this?"

Jeppesen's publication of its 'corporate opinions' reflects its suggestions of how improvements could be made. The first of these, in particular, may be unpalatable to HOs that run commercial operations, such as the UKHO's Admiralty brand and the Primar company operated by the Norwegian Hydrographic Service.

"Opinion number one is that we believe that governments must focus their energies, all of it, on the creation of new navigation content, and let commercial industry compete to create products that drive customer value," said Mr Sukle.

"We find that in the collection of sovereign sources we still have areas where charts were created in the 1700s with soundings, and we just don't think that's reasonably okay in this day and age. The amount of content created has to go up greatly from the governments, that's where their energies should be focused."

"On the product side, a free market economy is a better environment for creating products. If our products and services

**'The turnover (the HOs) have by selling the data has nothing to do with the cost of surveying'**

- Tor Svanes, Jeppesen Norway.

"If we look at what we face today, as an industry, we have many things now that become challenges that need a few more brain cells to be applied to come up with solutions. We have the highest oil prices in the history of the world, the information age is flooding everyone with information through Blackberrys, e-mail, and so on. Worldwide trade is a given, no longer can you survive in a local regional area."

He continued: "Our cross-industry view allows us to make comparisons, draw conclusions, and deploy capabilities and ideas that make sense from one industry to another."

"A study that was done by the state of Alaska almost 10 years after the Exxon Valdez incident in 1989 looked at incident rates in maritime and compared this with

don't directly add value to our customers we don't have a business. We have to compete with other people with investment, innovation and ideas, and that results in, overall, better products and services being offered."

Mr Svanes continued: "About 20 years ago, we got money from the Norwegian research council to develop ECDIS, on the basis of promises from the Norwegian Hydrographic Office that they would create data for the ECDIS."

"That was 20 years ago. Now the Hydrographic community is saying the same things, 'if you implement mandatory ECDIS by 2012, we will make sure you have enough data'. Still there is no coverage. The issue here is, should industry be allowed to make the product?"

#### Funding

Of course, were the HOs to cease commercial operations it would eliminate a revenue stream that is presumably used to partly fund the creation of the hydrographic data in the first place.

If that were the case these HOs would have to find some way to replace that money - and the two most likely options would be an unpopular additional burden on the taxpayer, or a possibly more unpopular extra charge for ENCs.

Mr Svanes argues that a

## Advanced, Reliable Systems Recognized Worldwide

Why is JRC a name recognized worldwide in the field of marine electronics?  
Because of our state-of-the-art technologies and knowhow developed over many years.

Since 1915

**JRC**

Visit: [www.jrc.co.jp](http://www.jrc.co.jp)

JRC-4187  
Inmarsat Fleet 977  
Mobile Earth Station

**inmarsat**

Digital Ship March 2008 page 28

## Digital Ship

move away from commercial activity on behalf of the HOs would not necessarily have to result in extra costs being passed on to other parties.

"The turnover they have by selling the data has nothing to do with the cost of surveying," he said.

"It's only really one main Hydrographic Office in the world that actually makes some sort of business out of this that is



*"The obligation of the Hydrographic Offices is to provide safe information, and that's it" - Tor Svanes, Jeppesen Norway*

worldwide. The other ones are domestic, and do it as a service. If they should base the charge for a paper chart on the cost of survey, each chart might cost \$1 million."

"The obligation of the Hydrographic Offices is to provide safe information, and that's it. That's the obligation they have from IMO and the UN. There's nothing said that the Hydrographic Office should create a business out of their products. Anyway, they are funded by the government. The money they make on whatever business they do, all others, except one, is close to zero."

Mr Svanes also contends that Jeppesen could increase the total volume of charts being sold in the market if it were given this opportunity, resulting in an increasing income for the HOs through royalty payments.

"They are still the owners of the data, they will still have royalties on the data," he said. "If the usage goes up, if the volume goes up, they will make more money."

"We started with a worldwide database in 1993, and the price was \$5,000. The price is still \$5,000, though the database is probably ten times bigger. This is economies of scale. We have the volume to keep that going, and with that we can pay for the infrastructure."

It would seem that, regardless of these funding issues, Jeppesen believes that the HOs have no business operating in the commercial arena and should leave that side of things to private industry.

"All of the countries have signed a paper with IMO and the UN that they have to provide this information," said Mr Svanes. "Why shouldn't this happen, when we have been waiting 20 years for the ENC's?"

When asked if this move was a direct challenge to UKHO in particular, Mr

Svanes replied: "We haven't mentioned the name, but I see they do look at us as a competitor. I find that very odd, that an authority is looking at private industry like that."

"I have never defined UKHO as a competitor, as long as we don't have the (official government) stamp we cannot compete on equal terms. If we had the stamp we could compete on equal terms."

"We have offered to the HOs to do data for them, the way we do it. We sell our services, our products, to the HOs. We have produced the whole portfolio of South Africa, the whole portfolio of Greece, of Columbia, of Iceland."

"I think the industry is better served by private companies doing products and services than the authorities. It's not going to happen tomorrow, but we have to start somewhere."

Mr Svanes also suggested that the influence of government authorities in the commercial sector can be detrimental when they are also involved in setting the regulations for the market.

"You can see what happens when the authorities are in control," he said. "In 1997 all of the HOs, and they have been the driver behind this all the time, forced, and I would say forced, IMO to implement raster charts in ECDIS."

"What happened with raster charts? Now they're going away again. For 10 years the industry has spent millions and millions of dollars to develop and implement raster technology, and it's never been accepted in the marketplace. That's not the way it should work."

### Standards

The second 'opinion' in the Jeppesen manifesto relates to the use of standards in the maritime industry. Again, this is another area where the company feels HOs should stay out, and allow private companies to take control.

"Opinion number two is that, in the technology age, precise harmonisation of standards is essential," said Mr Sukle. "We have learned from our aviation business that systems run very well on very precise standards."

"An onboard system that has to render and display a navigation chart requires that data to be in a very precise standard. And it takes work to be able to do that, as you might guess. The slightest deviation in interpretation of these standards from source can often cause the wrong information to be displayed."

We believe that for all 70 Hydrographic Offices of the world to understand the standard, to interpret the standard correctly, and produce data with the right precision levels against that standard such that a system can display it consistently, is not going to happen. There's too much variation in that."

Mr Sukle says that the global overview necessary for the development of overarching standards cannot be achieved by HOs, given the localised mandate they are set by their own governments in most cases.

"Unless it can be done in conjunction with the technologies that are onboard, and can be done on a global scale, (it won't work)," he said.

"Just to do it for their own country, it doesn't work. It's like the experience of the SENC format we talked about, and the

hours compiling that onboard - that's the procedure that needs to be harmonised."

"If we're providing a technology that works in these 90 per cent of different ECDIS systems, we have to be sure that we have harmonised that data so that it plays directly in the display environment."

Further to this, Jeppesen has also called for an opening-up of the regulations describing what types of electronic data can be classed as 'official' (and therefore legal for use for navigation). This is another argument sure to cause major disagreements with the HOs.

"We see our role as also being the provider of a database that would be allowed to meet full ECDIS carriage requirements, and adhere to the standards that are set for SOLAS," said Mr Sukle.

"Right now regulations say that that digital data must come individually from the Hydrographic Offices. The industry has to step it up a little bit here."

Mr Svanes added: "We get the data and we make products out of it. An ENC is a product, it's a subset of what is called S-57."

"HOs should make S-57 data, which is a transfer standard so that the data can be transferred. We would get all of the S-57 data available - if it's not available we'd have to create the data from paper charts or other sources."

"(We want that data to be allowed to) meet the carriage requirements. If that happened I'm not sure you would need mandatory carriage requirements for ECDIS, because the cost / benefit of using electronic charts is so high anyhow that all ships

would install it. For now that is prevented because the price of ENC's is so high"

### Better tools

The third and fourth of Jeppesen's 'opinions' are somewhat less controversial than the first couple, stating that "We must look to the master and help them lighten (not increase) their workload. They need better situational awareness and decision making tools"; and "Everything we do must earn its way onboard."

The key to these approaches, said Mr Sukle, is to deliver products and services that create value for vessel operators.

"In the interests of safety, people need better situational awareness and decision making tools," he said.

"We're looking at a concept that collapses a bunch of different types of things onto a chart or a digital image, that brings in sovereign data, local regulations, the shipping company's own policies and procedures, tailored information about the particular vessel, and volatile information about tides, weather, and so on."

"This would all be condensed into a diagram or picture that's procedural based, not cartography based - the idea is 'we want to get this asset to this area, how do we make that work.' You'll see some new things coming out."

"We need to look way beyond today, at what we need to do to develop the kind of situational awareness tools that are needed to process this increasingly complex amount of information in a way that the person can make a safe decision." DS

**TRANSAS INTEGRATED NAVIGATION SYSTEM**

- Navigational data with enhanced integration level
- ECDIS, Radar and Conning simultaneous execution on one workstation with easy switching between them
- Synchronized double network for high level of redundancy
- Integral monitoring of essential navigational data quality
- Intelligent and efficient alarm management
- Charts and user databases synchronization on all the workstations
- Distribution of radar pictures from all available radars within INS

**Transas International Office:**  
10 Eastgate Avenue, Eastgate Business Park,  
Little Island, Cork, Ireland  
Tel: +353 (0) 21 4 710 400, Fax: +353 (0) 21 4 710 410  
information@transas.com, www.transas.com

**TRANSAS**  
SETS THE STANDARD