

conferences

Ice in ECDIS workshop **Captain David A Snider, MNI** **Canadian Coast Guard**

An 'Ice in ECDIS' workshop was held, 5-6 June, in St. John, Newfoundland. Sponsored by the Canadian Ice Service (CIS), in conjunction with the Canadian Hydrographic Service (CHS) and Canadian Centre for Marine Communications (CCMC), the purpose was to agree on ways to move forward the development of software and hardware to enable the display of ice information on shipboard electronic chart display and information systems (ECDIS).

Approximately 40 attendees attended, including representatives from data suppliers, software and hardware developers and manufacturers, marine regulatory and marine industry end-users.

During the two-day workshop, attendees were brought up-to-date with the progress of ECDIS in general, and ice in ECDIS development more specifically. With input from all participants, a workable consensus was achieved and agreed upon in terms of the best means and process to implement an ice information service for use with ECDIS. Having seen an almost five year delay in this implementation, it was agreed that a concerted effort would be made to move forward by establishing a pilot project. This effort will include the production and dissemination of a basic electronic chart data 'ice chart' in the IHO S-57 format. Starting in December 2000, a daily ice coverage update will be distributed. This layer of ice information will be distributed via internet and overlaid on the ice chart shown on the ECDIS or ECS being carried by participating vessels.

Trials will be conducted on board a variety of government and commercial vessels operating within ice areas in the Gulf of St Lawrence and St Lawrence river during the winter 2000-2001 operating season. Gaining the interest and support of the manufacturers to deliver enhanced tools to support the use of ice information is of particular concern. Likewise, other key stakeholders must be committed to maintaining the critical mass needed to make the vision of 'ice in ECDIS' a reality.

Day one provided various speakers the opportunity to bring all attendees up to date with the development of ice in ECDIS and provide background for the working group/breakout sessions scheduled for day two.

The Canadian ECDIS working group spoke of the need to encourage further movement to

accept and move forward with ECDIS. All attendees agreed with representative John Pace's assertion that ECDIS is now a proven technology.

As ECDIS power lays in its integration of data, it is not unreasonable to look to determine whether or not information traditionally received and viewed in a separate paper format may also be integrated. Daily, ECDIS is more routinely brought into the passage-planning function as part of process-oriented procedures and protocols. Ice information is integral to passage planning in both strategic and tactical methodology. Care must be taken to ensure no bridge sensory overload occurs and that new detailed bridge procedures for use and operation are developed. The bridge structure should be organized to deal with real time information as well as usual bridge resource management practices. Further, shore managers must be made to realize the need to provide clear concise training in the correct and efficient use of such a valuable tool.

Speaking from both the technical and end-users' perspectives, Dr Lee Alexander (University of New Hampshire) exhorted those attending the workshop to make positive movement forward. Technologies to display ice information on an ECDIS screen exist, he said. The major factors causing delay were related more to people and process.

Alexander's presentation was backed up by those of Bruce Ramsey and several others from Canadian Ice Service (CIS). CIS has the ability to produce ice information from such data sources as Canada's Radarsat, NOAA's various weather satellites, and the earth resource satellite (ERS). It could then encode this data into IHO S-57 ice objects developed by Germany's SevenCs. Delivery could be provided in a number of ways, through world wide web (www), file transfer protocol (FTP) or email. Inmarsat, cellular and other communications systems would provide the means for transmission.

It was pointed out that to display either chart or navigation data on the ECDIS screen, certain software protocols must be adhered to. Now considered the standard for ECDIS software, the S-57 format prescribes IHO transfer standards for digital hydrographic data, the international standard for hydrographic chart data in digital format. This includes an 'exchange standards' for data transmission, an 'object catalogue' defining the symbolism that will be visible on the electronic navigational chart (ENC), and the 'product specification'. The current edition (edition 3.0) was released in November 1996, and had been 'frozen' for three years.

The initial day's presentations made it clear that previous R&D projects showed the value of providing the latest daily ice disposition and forecast data to a navigator utilizing ECDIS technology. However, the greatest value of the conference came on the second day. Conference participants were divided into three working groups. Each group tackled specific questions in breakout sessions and thus coordinated the disparate concerns of the various parties into an agreed format for further development.

At the conclusion of the working groups and presentations, the full conference convened to agree on final recommendations. The outcome of the conference was the endorsement of the development of a core pilot project.

For the purposes of the pilot project, the CIS will provide daily ice chart data in digital format. These digital files will be readable and able to be converted for ECDIS/ECS presentation. To keep costs down, existing communications infrastructures will be utilized. CIS will maintain the data files on the CIS-maintained FTP site and website. This initial source may be paralleled by other existing sites such as that of Nautical Data International (NDI).

Daily feedback will be required of users to provide full validation and satisfaction assurance during the period of the trial and various companies/centres were tasked to provide resources for support functions.

Suggested initial operational trial users are the Canadian Coast Guard and Canada Steamship Lines

By the end of the workshop, it was felt by most of the participants that the four-year hiatus in ice in ECDIS development was over. All groups worked together with a desire to realize a further increase in safety at sea with the marriage of technology and practicality. This came about as a result of the positive interaction between theorists, technologists, manufacturers and end-users. As the core pilot project moves ahead, further proof of value to the mariner transiting ice infested waters is expected to be clearly demonstrated.