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Newsletter

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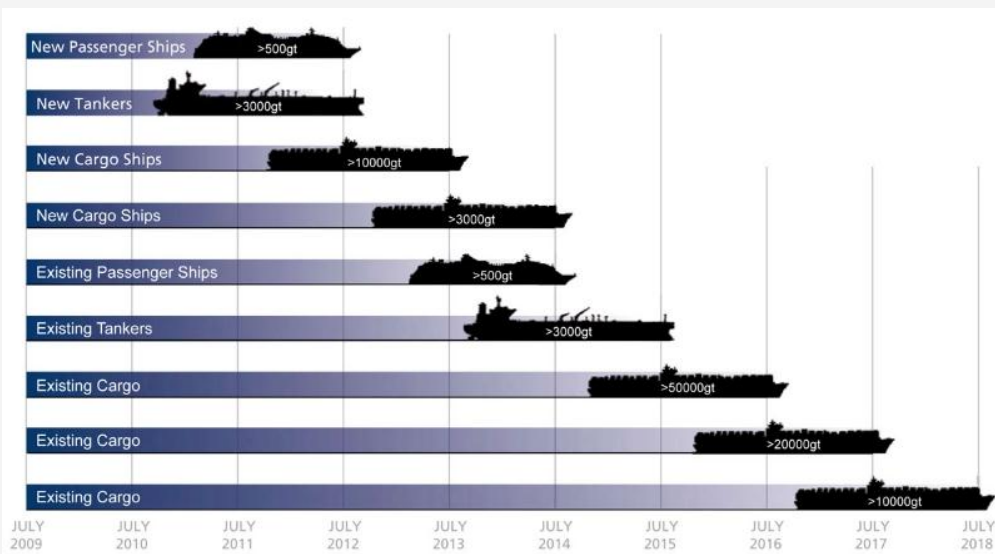
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Electronic Chart Display Information System (ECDIS)

An ECDIS system displays the information from electronic navigational charts (ENC) or Digital Nautical Charts (DNC) and integrates position information from position, heading and speed through water reference systems and optionally other navigational sensors. Other sensors which could interface with an ECDIS are radar, Navtex, automatic identification systems (AIS), Sailing Directions, etc.



Since July 2012 the carriage/use of ECDIS is mandatory (IMO/SOLAS) as outlined in below scheme.



Properties of ECDIS

The Electronic Navigation Chart data are the only data of the International Hydrographic Organisation (IHO) S-57 standards transformed into the ECDIS for display and use. The standardized colour and symbol are required in accordance with IHO S-52 standards. Updating of the ENC's through NTM is easy and can be done automatically via e-mail, reducing the time-consuming workload of manual correction of paper charts. The scale in displaying the ENC can be changed freely by the user by means of the display scale. Additional navigational-related information depends on the layer of display can be manipulated by the user. These are: Base, Standard and All. The ECDIS is a sophisticated navigational system that provides alarms or indications with regard to preset safety parameters, e.g. safe depth, safe contour etc. Other navigational sources such as Global Navigational Satellite System (GNSS/GPS), Automatic Identification System (AIS) and Radar and ARPA picture, etc. can be overlaid on the ECDIS screen for navigation purpose.

Types of charts

The two most commonly used types of electronic chart data are the following.

Vector / Electronic Navigation Charts (ENC)

ENCs are vector charts that conform to the requirements for the chart databases for ECDIS, with standardized content, structure and format, issued for use with ECDIS on the authority of government authorized hydrographic offices. ENCs are vector charts that also conform to International Hydrographic Organization (IHO).

ENCs contain all the chart information necessary for safe navigation and may contain supplementary information in addition to that contained in the paper chart (e.g. sailing directions). This supplementary information may be considered necessary for safe navigation and can be displayed together as a seamless chart. Systems using ENC charts can be programmed to give warning of impending danger in relation to the vessel's position and movement. Chart systems certified according to marine regulations are required to show these dangers.

Raster charts

Raster navigational charts are raster charts that conform to IHO specifications and are produced by converting paper charts to digital image by scanner. The image is similar to digital camera pictures, which could be zoomed in for more detailed information as it does in ENC's. IHO Publication S-61 provides guidelines for the production of raster data. IMO Resolution MSC.86(70) permits ECDIS equipment to operate in a Raster Chart Display System (RCDS) mode in the absence of ENC's

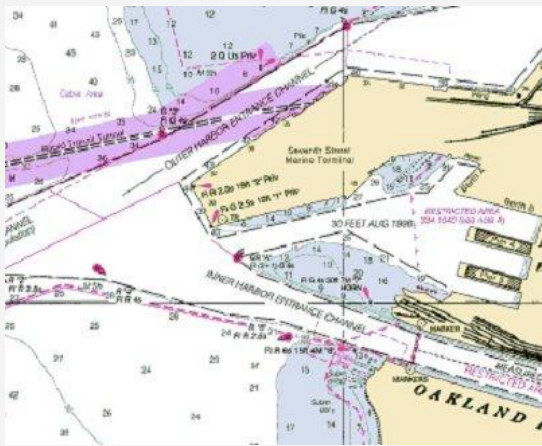


fig. 1 Raster chart

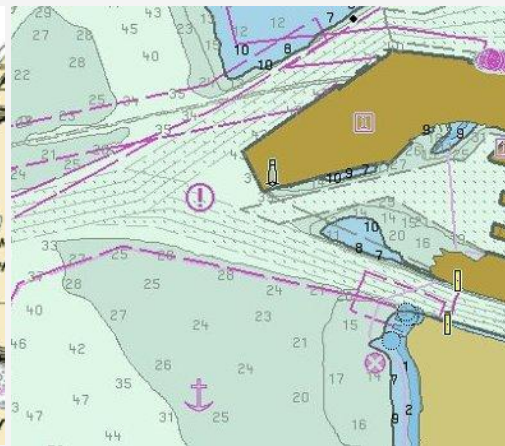


fig. 2 ENC chart

Amongst others, the following differences between vector and raster charts are:

- Vector charts have no defined boundaries and provide a seamless display where raster charts operate similar to paper charts.
- Raster chart data cannot trigger automatic alarms, although some alarms may be entered manually by the user.
- Horizontal date and chart projection may differ between raster charts.
- Chart features cannot be simplified or removed to suit particular navigation circumstances.
- Without selecting different scale charts the view "ahead" capability of raster charts can be restricted.
- Orientation of the raster display to other than chart up display may affect the readability of the chart.
- Display of the ship specific safety contour or safety depth cannot be highlighted on a raster chart unless manually entered by the user during the passage planning.
- Excessive zooming in or out from the original chart scale of the raster chart can seriously degrade the capability.

Alarms/Warnings

The ECDIS provides warnings and alarms. It combines several functions into one computerized system which is possible to provide alarms or display warnings (indication) when certain parameters are met or exceeded as determined by the navigator.

Types of Warning:

1. Deviating from a planned route.
2. Approach to waypoints.
3. Failure of the positioning system.
4. Vessel crossing safety contour.
5. System malfunction or failure, etc.

Advantages over paper chart

The ECDIS is not only an adequate replacement for the paper navigational chart, but also a system containing all information important for navigation. It reduces the time-consuming manual correction of paper charts.

The ECDIS display can be superimposed with radar images and with the radar targets of ARPA; and the vessel's position is continuously shown on the chart display and stored at regular intervals. Hence manual chart exchange is no longer required.

The elements of route planning in ECDIS are waypoints and course line to ensuring safe track keeping. The cross distance along the course line can be set for activation of the alarm if the vessel deviates from the scope of course line. The ECDIS "knows" whether a vessel can pass safely through an area, on the basis of the vessel's information fed in.

The risks and limitations of ECDIS

It should be considered that an ECDIS is only an **aid** that assists a navigational officer in safely and effectively navigation of a ship. One of the biggest risks with the transition to ECDIS is an over-reliance in the information provided by the system, as well as wrong interpretation of the information provided.

Furthermore, there are some limitations of the ECDIS a.o. the following:

1. Chart accuracy

ECDIS provides the navigation officer a tactical tool which comprises of a high accuracy positioning device. The navigator can "zoom" in on an ECDIS chart to a scale beyond the intended accuracy of the charted information. Furthermore, the charts are operated (updated) under a permit system which may expire, charts in use not corrected up-to-date, updates not correctly applied. ENC coverage unavailable requiring the system to be used in the raster chart mode without the appropriate paper chart folio being available.

2. Technical limitation and other devices

The accuracy also depends on the technical limitation of other devices linked to ECDIS, such as GPS, radar, etc. The mariner must be attentive to the source and accuracy of the position fixing device utilized by the ECDIS. Furthermore, the ECDIS itself may suffer failure, both hardware and software, including power outages, sensor input failure and potential virus infection.

3. Information overload

The mariner is cautioned to be wary of information overload and a very cluttered display screen. Information overload and a cluttered screen seriously degrade navigation safety for the mariner and could result in a "technology-assisted incident". In connection thereof

4. Familiarization / training of ECDIS

Due to the mandatory implementation of the ECDIS as outlined previously, navigational officers who operate the ECDIS today or are planning to operate the ECDIS in the future (STCW requires that all masters and officers in charge of a navigational watch (Officer of the Watch: OOW) on a ship fitted with the ECDIS must have completed a generic ECDIS course). Local administrations or vetting administrations might require the OOW to hold an ECDIS certificate in accordance with IMO model course 1.27.

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Maritime Labour Convention

Why MLC 2006 matters

The Maritime Labour Conventions 2006 (MLC 2006) came into force in August 2013, twelve months after the threshold of 30 member state ratifications with a total share in the world gross tonnage of ships of 33% was achieved.

We would like to remember the readers of this Newsletter of the relevancy of MLC 2006 and the consequent obligations of shipowners under the convention, also because of Port State Control inspections in this respect.

IG Clubs and others informed their members and insured of the MLC 2006 last year and we would like to refer to their information as follows.

As an international legal instrument MLC 2006 does not apply directly to shipowners but, like all international law, relies on implementation by countries through their national laws or other measures. It is the national law or other measures would then apply to shipowners, seafarers and ships. The MLC 2006 sets out the minimum standards that must be implemented by all countries that ratify it.

All merchant ships of 500 gross tons or over flagged to a ratifying state and, engaged in international voyages will need to show compliance by carrying a Maritime Labour Certificate and Declaration of Maritime Labour Compliance.

Ratifying states will also be required to incorporate MLC compliance as part of their Port State control. Every foreign ship calling, in the normal course of its business or for operational reasons, in the port of an ILO Member

may be inspected to review compliance with the Convention in respect of the working and living conditions of seafarers on the ship.



The Maritime Labour Convention 2006 is a comprehensive international labour convention adopted by the International Labour Conference of the International Labour Organization (ILO), in February 2006.

It sets out seafarers' rights to decent conditions of work and helps to create conditions of fair competition for shipowners. The Convention "consolidates" and revises the existing international law on all these matters. It brings all, except four, of the existing maritime labour instruments (International Labour Standards (ILS)) together in a single Convention using a new format to reflect modern conditions and language. MLC 2006 is intended to be globally applicable, easily understandable, readily updatable and uniformly enforced.

MLC 2006 has been designed to become a global legal instrument that will be the "fourth pillar" of the international regulatory regime for quality shipping, complementing the key Conventions of the International Maritime Organization (IMO) such as the International Convention for the Safety of Life at Sea, 1974, as amended (SOLAS), the International Convention on Standards of Training, Certification and Watchkeeping, 1978, as amended (STCW) and the International Convention for the Prevention of Pollution from Ships, 73/78 (MARPOL).

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COLOPHON

With this quarterly newsletter we'd like to inform you on interesting topics relevant to the shipping industry and Dutch P&I.

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