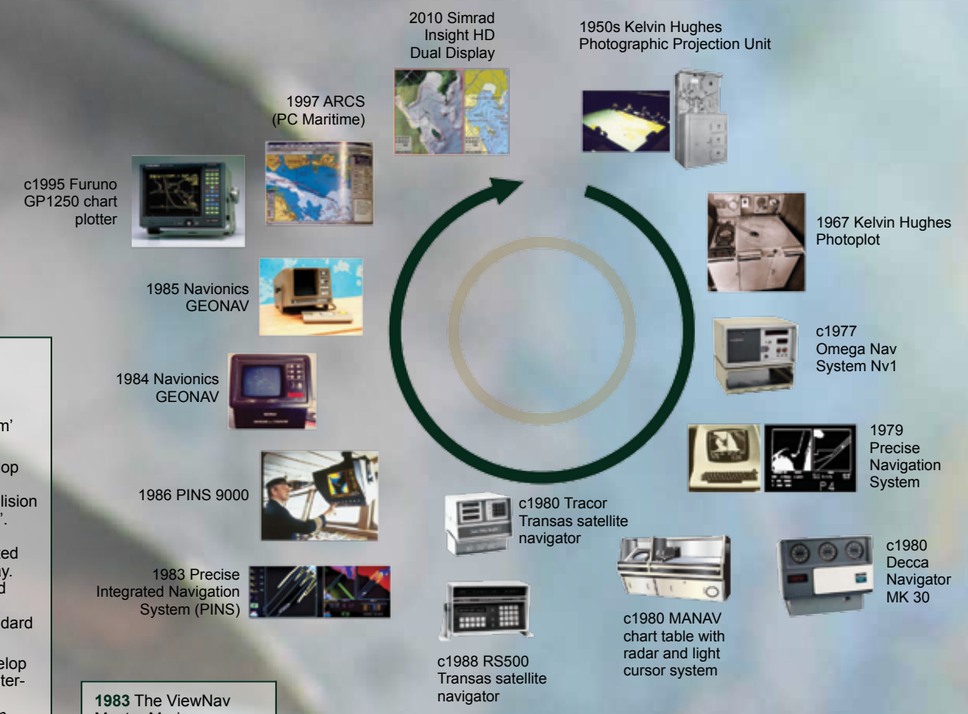
Evolution of ECDIS

IMO requires that ECDIS shall be fitted on:

- High-speed craft constructed on or after 1 July 2008
- High-speed craft constructed before 1 July 2008, not later than 1 July 2010
- Passenger ships >500 gt constructed on or after 1 July 2012
- Tankers >3,000 gt constructed on or after 1 July 2012
- Cargo ships >10,000 gt constructed on or after 1 July 2013
- Cargo ships >3,000 gt but <10,000 gt constructed on or after 1 July 2014
- Passenger ships >500 gt constructed before 1 July 2012, not later than the first survey on or after 1 July 2014
- Tankers >3,000 gt constructed before 1 July 2012, not later than the first survey on or after 1 July 2015
- Cargo ships >50,000 gt constructed before 1 July 2013, not later than the first survey on or after 1 July 2016
- Cargo ships >20,000 gt but <50,000 gt constructed before 1 July 2013, not later than the first survey on or after 1 July 2017
- Cargo ships >10,000 gt but <20,000 gt constructed before 1 July 2013, not later than the first survey on or after 1 July 2018



Technology

1912 Titanic disaster

1937 A low frequency hyperbolic position-fixing technique, forming the basis for the Decca Navigator system, is invented in the USA.

1939-1945 (World War II) Radar developed.

1943 The Royal Navy (RN) trial reflectoscopes, which optically superimpose a radar chart onto radar screens.

The US Navy develop radar projection devices.

1944 The Decca Navigator system is developed and then released for commercial use in 1945.

1947 Omega, a worldwide hyperbolic navigation system is created.

1950s Kelvin Hughes develop a projection system where a radar PPI is photographed, the film rapidly processed and the image projected onto a screen.

1952 Loran (Long Range Navigation) terrestrial radio navigation system is commercialised.

1958 Loran-C becomes operational.

1958 Transit/Navsat Navigational Satellites System (NNSS), based on Doppler shift, developed in the USA.

1963 Navstar/Global Positioning System (GPS) created by the space division of the US Air Force.

US government develop the 'Operational Automated Ship's Information System' (OASIS)

1973 Sperry develop an 'integrated navigation and collision avoidance system'. Simple electronic charts are integrated with a radar display. (They incorporated a 'Kalman filter' (algorithm), a standard still in use.)

1976 The RN develop the CANE (computer-aided navigation equipment) system.

1977 Omega establish a fully functioning worldwide hyperbolic navigation system.

1978 Racal-Decca trial the Manoeuvring and Navigation System (MANAV) using ARPA and CANE technology. MANAV uses an automatic chart table with a computer and a radar display. Standard navigation charts are clamped to the table and a computer-driven illuminated cursor projects the position onto the chart. The navigator can trace shapes from the chart and superimpose these onto the radar.

1983 The ViewNav Master Mariner System is developed, generating electronic charts by tracing chart contours on a digitising table. The ship's position is fixed by combining differential Loran-C and radar readings on a PC.

1984 Navionics GEONAV project is created using Loran-C to display a ship's position on an electronic vector chart.

1986 Racal Marine produce a prototype Integrated Bridge Electronics System (IBES) that allows control and operation of all marine functions from the bridge.

1992 Racal introduce an electronic vector chart that can comprise part of its MIRANS 3000 and MIRANS 4000 integrated bridge systems.

1993 The prototype Admiralty Raster Chart Service (ARCS) is launched.

1996 ARCS becomes commercially available

2005 The RN adopt Offshore System International's Warship ECDIS (incorporating additional military information), alongside the navies of Australia, Canada, Denmark, Portugal and New Zealand.

2010 Satellite overlay and dual displays become a standard feature on Navionics (and other) electronic charts.

1800s | 1900-1949 | 1950s | 1960s | 1970s | 1980s | 1990s | 2000s | 2010s

Regulation

1853 International conference in Brussels to establish a common plan for observation of winds and oceanic currents.

1889 International Marine Conference in Washington, DC, proposes a 'permanent international commission'.

Similar proposals are made in St Petersburg in **1908** and **1912**.

1914 Safety of Life at Sea (SOLAS) Convention created.

1919 Great Britain and France convene an international conference of hydrographers.

1921 International Hydrographic Bureau established.

1983 The IHO create a sub-committee to deal with future chart design.

1984 The IHO create a Committee on the Exchange of Digital Data.

1986 The IHO Committee on ECDIS is established.

1992 The Worldwide Electronic Navigational Database Committee (WEND) is established.

1995 The ECDIS performance standard for electronic charts is approved for vector charts - Resolution A.817(19).

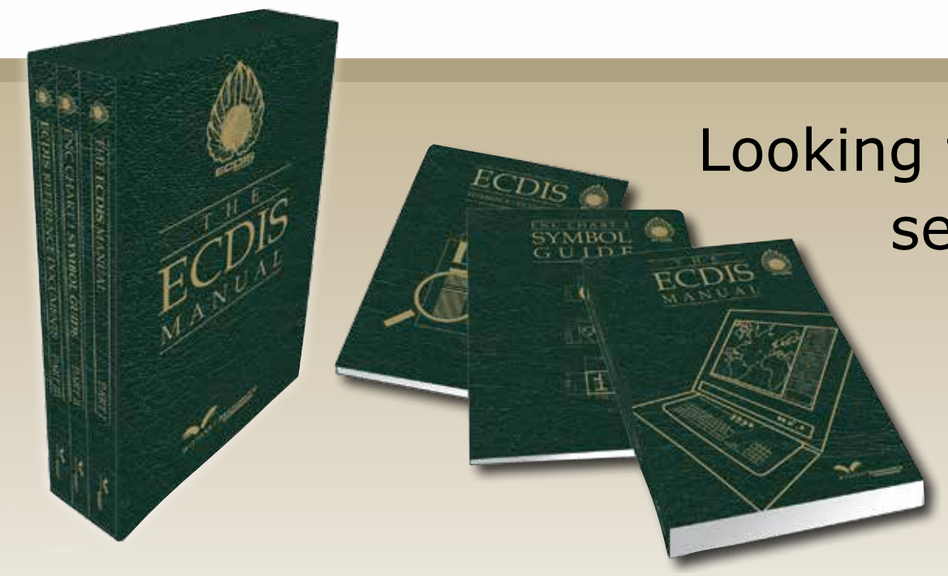
1996 The final data exchange standard S-57 version 3.0 is released.

1998 The equipment testing method standard Type Approval 61174 is published.

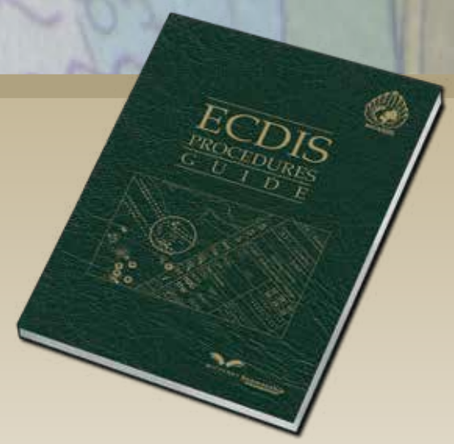
2010 Training arrangements are agreed in the Manila Amendments to STCW 95.

2010 S100, a new electronic chart language that interfaces with land-based geographic information systems, is being developed by the ISO.

2012 The Manila Amendments to the STCW Convention and Code enter into force on 1st January 2012. Any officers with navigational responsibilities require Flag State approved STCW ECDIS training certification.



Looking for more information on ECDIS see 'The ECDIS Manual' and 'ECDIS Procedures Guide' on **witherbyseamanship.com**



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