



White Paper & Discussion Document

Approved Electronic Chart Systems for small commercial vessels



Background

New international electronic chart system (ECS) regulations — including USCG NVIC 01-16 CHG 3, the RTCM-SC109 performance standard and the UK MCA's SV-ECS framework are redefining navigation requirements for smaller commercial vessels, tugs, workboats and fishing fleets. These new regulations even apply to small US 6 pack charter fishing vessels (USCG Operator of Uninspected Passenger Vessels). These are important and enforceable safety regulations where failure to comply can lead to deficiencies and civil penalties under USCG regulations.

ECS vs ECDIS

Currently, maritime authorities in the United States, the United Kingdom and Norway have introduced updated guidance and standards to formalize the use of Electronic Chart Systems on commercial vessels that are not required to carry full ECDIS – that's the IMO compliant electronic chart plotter products for large commercial ships with significant cost and complexity. Recognising this gap, the USCG, MCA and Norwegian NCA/NMA developed SV-ECS as a cost-effective and practical alternative with a primary aim to improve navigational safety. It replaces ant mini-ECDIS standards that may have been developed.

The Small Vessel Electronic Chart System (SV-ECS) standard has been in force from 2025 and strict enforcement has now started from authorities. The rules, while similar, do differ between nation states but in general, SV-ECS is a tailored solution that provides essential nautical information for safe navigation. It includes features such as official charts with route planning, alerting and monitoring ensuring that small vessel operators can meet safety and navigation standards without the need for full ECDIS systems.



Regulations cover pilot vessels, harbour tugs, passenger carrying vessels, fishing boats, charter vessels, wind farm support craft etc.



The Importance of Official ENC Charts & Updates in Meeting ECS Standards

One key element of the standard is that the latest official chart data is available for the vessel captain and navigator. Official charts (ENCs) using S57/63/100 standards must be utilised and kept updated with a log of updates. Updating ENCs weekly is crucial for ensuring maritime safety. Weekly updates incorporate the latest navigational information including changes to water depths, hazards and modifications to aids to navigation such as buoy positions or light sequences.

Traditionally, paper charts would be updated by hand from Notice to Mariner information but this is a labour intensive task, time consuming and fraught with errors. In the US, NOAA who produce the official government charts, have stopped paper chart printing. Therefore the use of an approved ECS delivers value, security and safety for the operator.

While no boat operator likes regulation, the new ECS rules will ultimately make workboats safer and more efficient – and provide an enhanced navigation experience for all operators.

Charting Standards

The IHO (International Hydrographic Organization) charting standards S-52, S-57, S-63, and S-100 define the creation, security and evolution of electronic navigational charts (ENCs) used in ECDIS and now ECS's. S-57 and S-63 constitute the current standard for digital charting, while S-100 represents the next-generation framework designed for modern, data-rich navigation.

S52/57 provides a uniform format (vector-based) for hydrographic offices to create data that can be interpreted by any type-approved ECDIS/ECS and standardises how data is displayed in terms of colours, symbols, dangers, boundaries etc so mariners have a consistent chart display. S63 defines the encryption, security and authentication scheme plus ensures data only comes from official sources.

S100 provides a more modern, flexible, and comprehensive hydrographic data model that will replace S-57 as systems progress. It provides better support for real-time information such as ocean currents, water levels and tides with more advanced chart bathymetry. These standards will evolve continually but are here to stay and need implementing now with a suitable hardware solution.



A Commercial Solution From Digital Deep Sea

Digital Deep Sea is Digital Yacht's commercial and workboat brand. We have designed and manufactured a technically advanced yet affordable ECS solution meeting compliance requirements for the various nations while also offering a feature rich solution and capability for the future. You can find out more at our website below

www.digitalyachtamerica.com