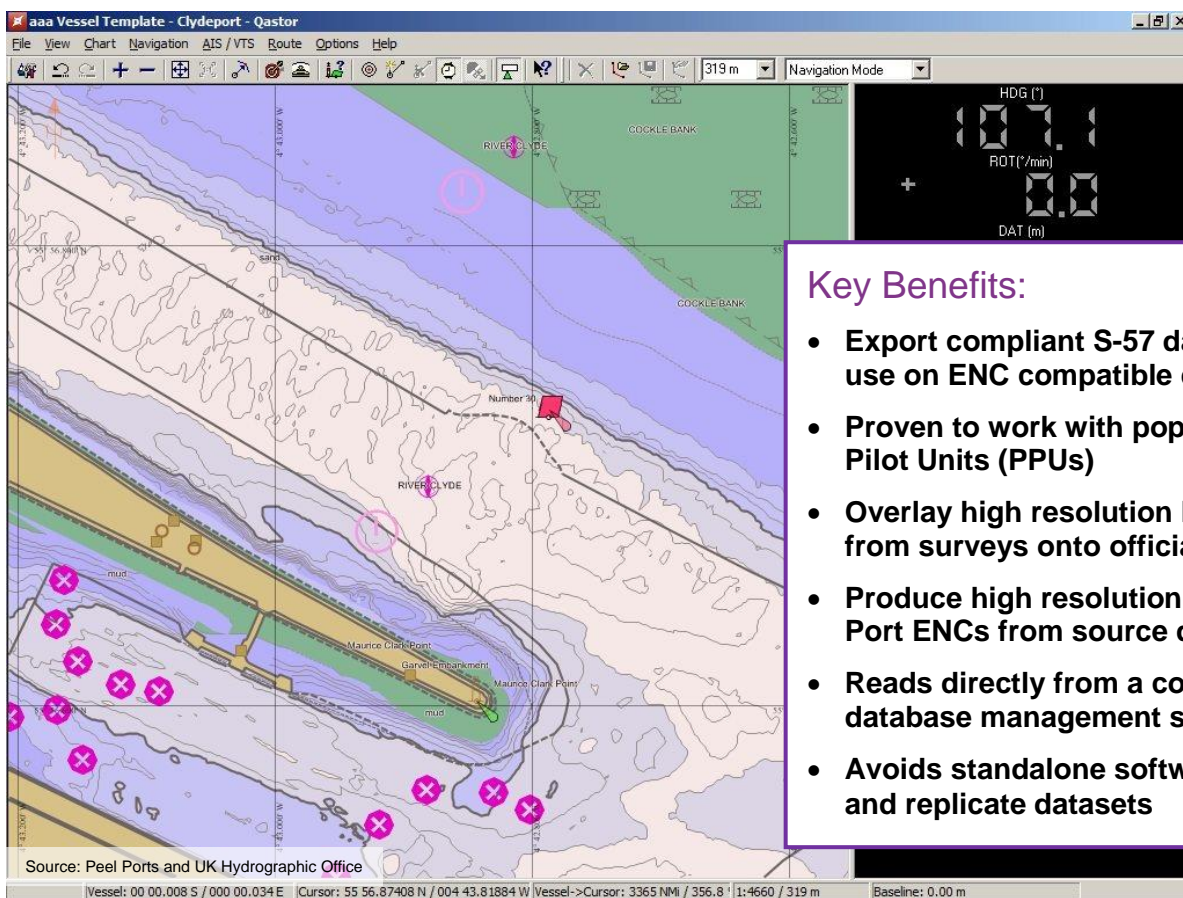# Maritime Toolbar
ENC Writer Extension

Create Bathymetric & Port ENCs easily within an integrated system

Source: Peel Ports and UK Hydrographic Office

Key Benefits:

- **Export compliant S-57 data files for use on ENC compatible devices**

- **Proven to work with popular Portable Pilot Units (PPUs)**

- **Overlay high resolution bathymetry from surveys onto official ENCs**

- **Produce high resolution and accurate Port ENCs from source datasets**

- **Reads directly from a common spatial database management system**

- **Avoids standalone software products and replicate datasets**

Pilots and other operators are demanding higher resolution and comprehensive datasets on which to base port and maritime operations. Usually this means being able to access S-57 data files which can be loaded easily and reliably into ENC compatible devices, such as Portable Pilot Units (PPUs).

ENC Writer is a natural extension to **OceanWise**'s maritime workflow software suite and provides users with the ability to create Bathymetric, Port and other types of ENC as part of an integrated system. The extension was developed by OceanWise's French business partner and S-57 expert, **Geomod**.

Electronic Navigational Charts (ENCs) are produced by official Hydrographic Offices (HOs) for use in Electronic Chart Display and Information Systems (ECDIS). They are produced to the International Hydrographic Organisation's (IHO) standard for ENCs known as S-57. Although a new standard known as S-100 has been published S-57 is still the primary standard and as yet no HO is producing S-100 based ENCs officially.

In addition to ECDIS, ENCs are also used in numerous ENC compatible devices such as Vessel Traffic Service (VTS) systems and Portable Pilot Units (PPUs). These devices work

with official ENCs but the users often have requirements that go beyond those found in an official ENC. These requirements include being able to access much more detailed and potentially accurate bathymetry and to visualise types of geographic features that are not included on the official ENC.

To meet this demand the maritime community has endorsed the idea of the Bathymetric, Inland and Port ENC. In addition, ECDIS is able to read and make additional layers of data available to the navigator in the form of Marine Information Overlays (MIO) or Additional Military Layers (AML).

All of these types of ENC rely on being able to produce S-57 data files from geographic information.

ABP Southampton and UK Hydrographic Office

## The Role of GIS and Maritime Toolbar

Geographic Information Systems (GIS) offer multiple benefits to maritime users wishing to acquire, analyse and disseminate environmental, asset and business data using 'location' as a common factor. **Maritime Toolbar** and **OceanWise**'s **Workflow Extensions** build on the data management and manipulation tools inherent in GIS to address particular demands within an overall 'Maritime Information Infrastructure'.

Geographic features acquired from generic land mapping, local land and hydrographic surveys are combined with data on aids to navigation and other port infrastructure and stored within a centrally managed spatial database. These features are then used directly to produce S-57 data files which natively read into ENC compatible devices such as PPUs.

The requirements for specialist standalone ENC production software and the need to hold data in replicate individual data files or in proprietary formats are totally unnecessary.
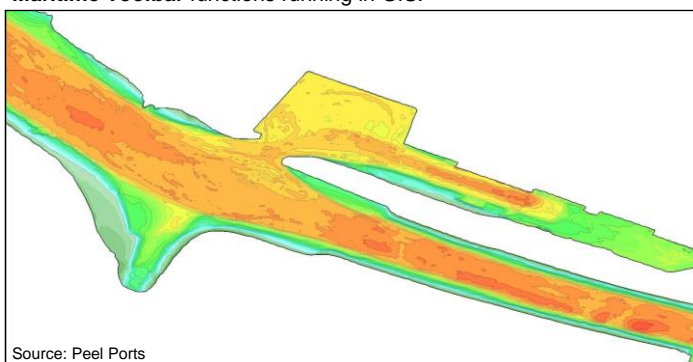
The ENC production process

Import bathymetric grids from survey acquisition software (e.g. PDS 2000) and produce contours using **Maritime Toolbar**.
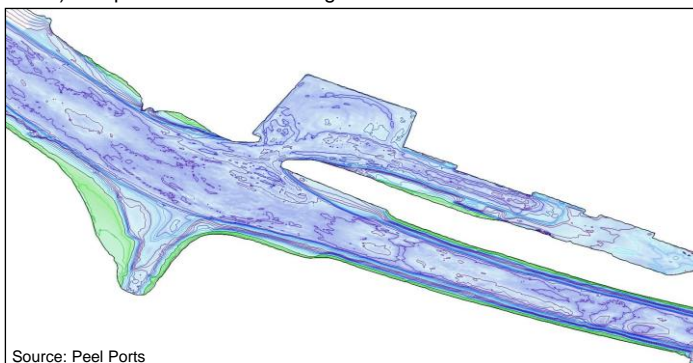
Source: Peel Ports

Create the S-57 topology model and attributed depth areas using **Maritime Toolbar** functions running in GIS.
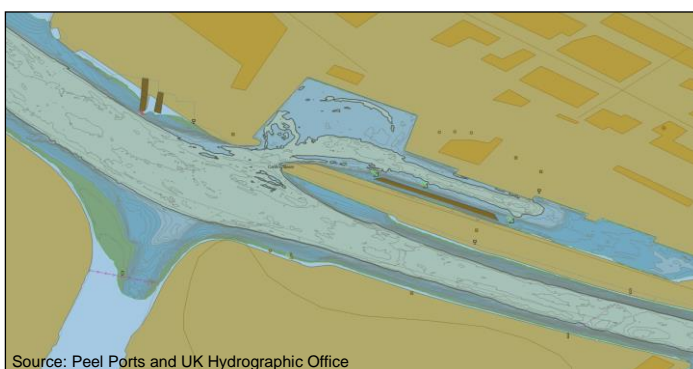

Source: Peel Ports

Import additional features from **Ocean Database** (e.g. coastline, port installations and aids to navigation).

Source: Peel Ports and UK Hydrographic Office

Export to ENC, as valid S-57, using **ENC Writer Extension**. Files can be accessed by any ENC compatible software or device e.g. PPUs.

Source: Peel Ports and UK Hydrographic Office