SeaZone HydroSpatial, Charted Vector, Charted Raster and Digital Survey Bathymetry

User Guide

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SeaZone

Better Data, Better Science, Improved Decisions

SeaZone provides Marine Geographic Information Solutions from instrument to desktop, supporting decision making in the Marine Environment and Coastal Zone

We combine our knowledge of marine science, data acquisition and use, with expertise in geographic information systems (GIS) and data management, to provide customers with innovative solutions that address their data access, processing and management needs.

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1. INTRODUCTION

Welcome to the SeaZone Hydrospatial, Digital Survey Bathymetry, Charted Vector and Charted Raster User Guide.

SeaZone data represents a sea-change in digital marine, mapping, based on source data from the UK Hydrographic Office, other Government agencies, the private sector and developing overseas sources. Your investment in SeaZone data is supporting the creation and maintenance of comprehensive, definitive, improved and 'fit for purpose' marine geographic information to underpin policy, planning, site selection, engineering design and many other activities unrelated to navigation.

It is SeaZone's long-standing aim to create data products that represent the best available sources of data and to help users get the most from the data through software tools and support services. We encourage the re-use of information and the policy of collecting once, use many times. SeaZone supports global initiatives such as the Open Geospatial Consortium and UK national initiatives such as the Digital National Framework and the Marine Data Information Partnership, in which we are involved.

We welcome and encourage customer feedback, which is invaluable in assisting SeaZone in developing new data products and improvements to customer service and delivery. Please feel free to contact us with any views.

If you have any problems or queries about the datasets then please visit the Technical Support section of the SeaZone website (www.SeaZone.com/Support) or contact us by email support@seazone.com.

This document provides general information on the products, how they are installed on your system and technical details with regard to content and how it can be used by you to address your needs and solve difficulties you may encounter.

2. DATA UPDATES

Users are updated with the latest data annually on renewal or every 3 months, if this option has been taken out. Updates are issued on date of initial purchase, annual renewal and, for 3 monthly updates, in January, April, July and October. Presently, SeaZone is unable to provide change only updates to its data. We hope to introduce this in Version 2.

3. COORDINATE SYSTEM

Unless specifically requested at the time of ordering, all SeaZone supplied data (excluding Charted Raster) is in:

Projection: Geographic Coordinates

Horizontal Datum: WGS84

Vertical Datum: Chart Datum

Each Charted Raster has its own unique projection based on either Mercator or Transverse Mercator. The majority are referenced to the Horizontal WGS84 Datum, however some Mercator charts are referenced to other datums (please refer to SeaZone Charted Raster FAQs on our website (http://www.seazone.com/helpFaqs.php).

SeaZone is able to convert data into other datums and projections (e.g. ED50 or OSGB36 British National Grid) using best available transformation methodology. In order to convert coordinates to British National Grid (BNG), SeaZone uses a specially written version of the Ordnance Survey transformation method OSTN02. This allows transformation offshore but the user is cautioned about the efficacy of BNG more than a few kilometres from shore.

4. INSTALLATION

Place the CD supplied in the target PC CD drive. The data is structured by Product on the CD – Hydrospatial, Charted Vector, Charted Raster or Digital Survey Bathymetry.

Both the Hydrospatial and Charted Vector products are then subdivided by format: SHP (for ESRI users), BDS (for Cadcorp users), TAB (for MapInfo users).

If the Hydrospatial Bathymetry & Elevation Topic Layer is ordered then the Gridded Bathymetry component is also contained within the Data folder, this is also subdivided by format: ESRI Binary Grid, ESRI ASC, MIG. The relevant format folder (plus Gridded Bathymetry format folder, if included) should be copied to the local or network drive from where it can be accessed.

Charted Raster is subdivided into two sections – ArcGIS 9.3 and Other. Users of ArcGIS 9.3 only should use the ArcGIS 9.3 folder and must have Service Pack 1 installed while users of all other GIS systems should use the Other folder.

Vector data and Gridded Bathymetry is included for use in ESRI, MapInfo and Cadcorp formats. Charted Raster and Digital Survey Bathymetry are supplied in universal formats.

4.1 Installation of Font Files

Font files are required to be installed for MapInfo and ESRI users. Please follow the instructions below to install them.

1. The "Symbols" folder should contain 7 True Type font files as listed below:

metoc_2.ttf

metoc_3.ttf

metoc_10.ttf

metoc_6.ttf

metoc_topmark.ttf

metoc_wrecks.ttf

HydrographicSymbol.ttf

2. Copy all the above TTF font files into the windows font folder (e.g. c:/windows/fonts).You may require administrative rights on the PC where you are trying to install these fonts.

Note: The Charted Vector data should look familiar to those used to Admiralty paper charts. If you find colours (especially those of polygons e.g. land) are quite different from those that you may be familiar with, make sure that the monitor display colours are set to 32 bit. To do this, check the Colour Quality value in

Settings→Control Panel→Display→Settings→Colours.

4.2 Hydrospatial

For convenience and ease of use, a GIS Project is supplied for ESRI, Cadcorp and MapInfo so the data is displayed fully symbolised and attributed on opening. For MapInfo users this is dependant on the font files being installed – see the section Installation of Font Files. For details on how to load the data without using the Project file please see the section Loading SeaZone data outside the Project Files.

Software	File format	Project File
ArcGIS	Shape File (SHP)	\Data\Hydrospatial\SHP\SeaZone Hydrospatial.mxd
MapInfo	MapInfo Table (TAB)	\Data\Hydrospatial\TAB\SeaZone Hydrospatial.wor
Cadcorp	Base Dataset (BDS)	\Data\Hydrospatial\BDS\SeaZone Hydrospatial.sis

4.3 Gridded Bathymetry

Gridded Bathymetry is supplied as either ESRI Binary Grids, ESRI ASCII grids(.asc) or MapInfo Grids (.mig). MapInfo Grid files are only supplied for users of MapInfo versions 7.8 and earlier.

Layer files are also supplied for use in ESRI and these should be loaded rather than the raw grid files. They have been appropriately symbolised for use with SeaZone Hydrospatial vector data. Please note MXD's have not been supplied as ESRI has a limit of loading 64 grids at any one time and there may be more than 64 files supplied.

The ASC files can be read into Cadcorp and MapInfo 8.0. For Cadcorp users a Colourset is available in the SeaZone NOL file, titled *Gridded Bathymetry*, for applying the SeaZone colour-scheme to the data. For MapInfo 8.0 users a theme is supplied, titled *Gridded Bathymetry.thm*, for applying the SeaZone colour scheme. This is found in the ESRI ASC folder and should be copied to the user's ThmTmplt folder in the MapInfo Application Data folder in Documents and Settings e.g. *C:\Documents and Settings\user\Application Data\MapInfo\MapInfo\Professional\800\ThmTmplt.*

For users of MapInfo versions 7.8 and earlier MapInfo Grid files have been supplied, these are symbolised with the SeaZone colour scheme.

4.4 Charted Vector

For convenience and ease of use, a GIS Project is supplied for ESRI, Cadcorp and MapInfo so the data is displayed fully symbolised and attributed on opening. For ESRI and MapInfo users this is dependant on the font files being installed. For details on how to load the data without using the Project file please see the section Loading SeaZone data outside the Project Files.

Software	File format	Project File
ArcGIS	Shape File (SHP)	\Data\Hydrospatial\SHP\SeaZone Hydrospatial.mxd
MapInfo	MapInfo Table (TAB)	\Data\Hydrospatial\TAB\SeaZone Hydrospatial.wor
Cadcorp	Base Dataset (BDS)	\Data\Hydrospatial\BDS\SeaZone Hydrospatial.sis

Please note each Project File will contain either an SWD per level (Cadcorp users), a Data Frame per level (ESRI users), a Map per level (MapInfo users).

4.5 Digital Survey Bathymetry (DSB) / Digital Charted Bathymetry (DCB)

DSB and DCB data are supplied in ASCII XYZ file format (i.e. Bathymetry.xyz file) as standard. A Surfer blanking file (i.e. Coastaline.bln file) is supplied to mask land areas as required, this is based on the charted coastline.

4.6 Charted Raster

These files are available for use once copied to the user's system. GIS Project files are therefore not included with Charted Raster. Charted Raster files are encoded using the GeoTIFF format. Information used for georeferencing the files (i.e. the coordinate reference system) in target systems is encoded in the header. Our experience is that target systems may interpret the georeferencing information of GeoTIFFs differently. Users of ESRI ArcGIS 9.3 are provided with specific files (in folder **ArcGIS 9.3**) and are advised, if they have not done so already, to apply Service Pack 1 (or later depending on the status of incremental updates). Users of earlier versions of ArcGIS and other systems should use the files from **Other**.

MapInfo requires the projection information to be setup prior to loading, please see the section below (4.7).

For access to the data in other systems please contact us.

Please be aware some Charted Raster files have an unknown Datum which means there are no transformation parameters to translate the data to WGS84. The Geotiffs will still load into GIS software however if being used in conjunction with the users own data referenced to WGS84 there will be an offset between the two datasets. The value of this offset will be unknown and may amount to hundreds of metres. For a list of Charted Raster files affected by this please see our Charted Raster FAQs.

4.7 MapInfo Projection File setup for Charted Raster

Please find below instructions to setup the Charted Raster Projection Information in MapInfo.

The process involves modifying the MapInfo Projection Definition file - MAPINFOW.PRJ. Please ensure MapInfo is closed before starting the process.

1. Navigate to the MapInfo projection definition file - "MAPINFOW.PRJ". You can find this file in the MapInfo installation folder - \\MapInfo\Professional\

If you have installed MapInfo at the default location then you can find this file in the following location:

C:\Program Files\MapInfo\Professional\

NOTE A: If you access MapInfo remotely e.g. through a Citrix client then the projection definition file will be where MapInfo is physically installed and you may need to contact your IT department to assist with this.

2. Make a copy of MAPINFOW.PRJ file, e.g. Backup_of_MAPINFOW.PRJ

3. Open the original file in a text editor e.g. notepad or wordpad

NOTE B: If you have previously received SeaZone Charted Raster data before you should see "Admiralty Geotiff Coordinate Systems" already listed at the top of the file. In this case only copy the text below the title from the MapInfo Charted Raster.prj into the MapInfoW.prj file

4. Open "MapInfo Charted Raster.prj" contained in "Data\Charted Raster" folder on the SeaZone CD, using a text editor.

5. Copy and paste all the contents of the "MapInfo Charted Raster.prj" file into the top of MAPINFOW.PRJ file - see Note B above.

6. Save and close"MAPINFOW.PRJ". Please make sure you DO NOT change the file name or its extension. The file should be saved as "MAPINFOW.PRJ".

7. When you open the SeaZone Charted Raster files in MapInfo for the first time [Files of type: Raster Image (*.tif)], you will be prompted to choose the map projection.

a) Click on the "Category" drop-down box and scroll up

b) Select "Admiralty Geotiff Coordinate Systems"

c) From the "Category Members" list select the file name and click OK.

The Charted Raster will now be displayed in MapInfo with the correct projection and creates a .tab file in the same directory as the Charted Raster file. Subsequent opening of the chart can be achieved by opening the tab file.

4.8 Loading SeaZone data outside the Project Files

Cadcorp

Individual Topics can easily be loaded into user's existing maps as each Topic is supplied as a BDS file. For users with large spatial extents BDS files are supplied per Theme. To symbolise the datasets that are loaded individually, as SeaZone supply them, the user should ensure the SeaZone.NOL file is loaded into the workspace they are using. Each feature has a Feature Code and associated Feature Table. The NOL file contains the Feature Table information so each Feature Code defines the way in which a feature is symbolised.

ESRI

Individual Themes can be loaded into user's existing maps by loading the individual Shapefile required. If an entire Topic is to be used then Layer files have been supplied which can load the Topic fully symbolised. However if users require an individual Theme they can symbolise these using the relevant SeaZone Style file provided (SeaZone Hydrospatial.style or SeaZone Charted Vector.style) depending on the Product supplied.

To symbolise SeaZone Hydrospatial

The Style file contains line, fill and marker symbols named with the SeaZone Feature, with a few exceptions mentioned below. To apply this to a Theme use the Category→Match Symbols to a Style and select the SeaZone Hydrospatial.style from the Style list and SZFEATURE from the value list.

The exceptions to this are the Protected Areas Theme, Geology Theme and the Depth Areas theme, the table below shows which attributes to use to symbolise these datasets.

Theme	Attribute	Symbology Type
Protected Areas	CATENV	Match Symbols to a Style
Depth Areas	SZFEATCODE	Match Symbols to a Style
Geology	SZFEATURE, SZFEATCODE	Unique Values, Many Fields

The Geology Theme requires a little additional work, as the styles have to be manually applied. For all Feature Types except SEDLAY there are line and fill styles with the SZFEATURE name (e.g. MAGVAR). For the SEDLAY Feature Type the marker, line and fill styles are encoded with the SZFEATCODE (e.g. 20138).

To symbolise SeaZone Charted Vector

The Style file contains line, fill and marker symbols encoded with the Feature Code of the object. To apply this to a Theme use the Category→Match Symbols to a Style and select the SeaZone Charted Vector.style from the Style list and SZFEATCODE from the Value list

MapInfo

MapInfo TAB files store the symbology within them, so can be easily loaded into user's other maps. They will appear symbolised on loading as long as the True Type Font Files are loaded (see Installation of Font Files in the Installation section of this User Manual

4.9 Display Order for Vector Data

If the user is loading SeaZone Vector Data into their own maps then SeaZone recommends using the following details on layer order to best view the data. The list below shows the order in which the layers (**TOPICS** and **Themes**) should be visible – the first being at the 'back' of the map

UN Metafeatures & Cartography

- Cartographic
- Extents
- Survey

BE Bathymetry & Elevation

- BE14 Depth Areas
- BE11 Bathymetry
- BE12 Elevation

NP Natural & Physical Features

- NP21 Sea Cover
- NP22 Land Cover
- NP24 Hydrology
- NP25 Geology
- NP23 Flora & Fauna

SE Socio Economic & Marine Use

- SE44 Transportation & Routes
- SE43 Activity & Licence Areas
- SE41 Admin & Regulation
- SE45 Aquaculture & Fisheries
- SE42 National Limits

CE Conservation & Environmental Protection

- CE53 Protected Areas

SO Structures & Obstructions

- SO34 Navigation Aids
- SO32 Obstructions
- SO33 Offshore Installations
- SO31 Shoreline Constructions
- SO35 Wrecks

CO Climate & Oceanography

- CO61 Tides & Tidal Currents

5. DATA STRUCTURE

5.1 Hydrospatial

SeaZone Hydrospatial represents a sea-change in digital mapping for the marine environment and is the most appropriate source of marine geographic information for all users not requiring a charted background. It is supplied as a continuous mapping layer of the highest resolution of data available and is content rich. It currently includes UKHO S57 data together with data from other authoritative sources, such as the location of all known wrecks and obstructions from the UK Hydrographic Office and key datasets from other agencies including British Geological Survey.

Users should be aware that soundings are not included within SeaZone Hydrospatial. Instead, Gridded Bathymetry has been created using the best available charted data and is supplied as a component of the Bathymetry & Elevation Topic Layer. Should users require soundings data for their own modelling purposes then please contact SeaZone regarding the Digital Survey Bathymetry product.

The product consists of six Topic Layers, these are detailed below in the section entitled Vector Data Content.

The Bathymetry & Elevation Topic Layer is available in two scale bands:

Offshore Only (comprising best available scales up to 1:100,000)

Coastal & Offshore (comprising best available scale up to 1:2500)

The other 5 Topic Layers are comprised of a best available combination of scaleless and scale-derived source data and best available charted data.

The data layer naming conventions for these files vary depending on the software used.

Cadcorp

The files are named per Topic so have the naming convention 'SZ'+TopicCode, for example SZBE.bds. Using Cadcorp's Feature Tables the data is further split into Layers of Themes and Features. If a very large area is ordered then the data are split into Themes so have the naming convention 'SZ'+TopicCode_Theme, for example SZBE_Bathymetry.bds

ESRI

The files are named per Theme and then further divided based on Geometry type so the naming convention is 'SZ'+TopicCode_Theme_Geometry, for example SZBE_Bathymetry_point.shp

MapInfo

The files are named per Theme so have the naming convention 'SZ'+TopicCode_Theme, for example SZBE_Bathymetry.tab

5.2 Gridded Bathymetry

Gridded Bathymetry is produced using UK Hydrographic Office S-57 holdings at present.

It is supplied as Coastal and Offshore scale data. Coastal Grids are based on 1 ArcSecond grids (approximately 30m cell size) and Offshore Grids are based on 6 ArcSecond grids (approximately 180m cell size). Gridded bathymetry is only available as part of the Hydrospatial Bathymetry & Elevation Topic Layer.

The reference level of the depth data approximates to Lowest Astronomical Tide (LAT). The method used to produce the grid is triangulation with linear interpolation, with breaklines and contour analysis. These grids are supplied in WGS84 Latitude/ Longitude.

Files are named according to their SeaZone Tile Reference which are of the format **NWSYYYXXXX**

N = Northern or Southern Hemisphere (N or S)

W = Eastern or Western Hemisphere (E or W)

S = Size of Tile (5 – half degree tile, 2 – two degree tile)

YYY = Latitude of lower left corner of tile

XXXX = Longitude of lower left corner of tile

For example, NW55500055 would be situated in the Northern Hemisphere and West of the Greenwich meridian. It is a half degree tile with lower left corner of 55°N and 5.5°W.

5.3 Charted Vector

The Charted Vector Dataset is derived purely from S-57 charting data supplied by the UKHO. The data is split into levels according to the original scale of the S-57 source data e.g. H_Berthing, G_Harbour, F_Approaches, E_Coastal, D_General and C_Overview.

The data is organised into individual directories for each Level of data supplied.

Level	Nominal Scale
C_Overview	1:500,000
D_General	1:150,000
E_Coastal	1:50,000
F_Approaches	1:15,000
G_Harbour	1:5,000
H_Berthing	1:5,000

The accuracy of the data relates to cartographic capture standards. The UKHO Standards guidance in relation to product scale is as follows:

Positioning of core data points: 0.3mm

Georeferencing of the capture systems: 0.2mm

Raster replication of the paper chart: 0.1mm

This would mean a core data point (i.e. feature of navigational significance) would be within 15m of its real world position on a chart with a scale of 1:50,000.

Not all levels will be supplied for each order, it will vary depending on the geographic extents ordered and the product selected. Charted Vector Offshore only contains data from C_Overview and D_General, while Charted Vector Coastal and Offshore will contain a selection of the Levels depending on what is available in that area.

Within each Level the data is split into 6 Topic Layers, these are detailed below in the section entitled *Vector Data Content*.

The naming conventions for these files vary depending on the software used.

Cadcorp

The files are named per Topic so have the naming convention Level_TopicCode, for example C_BE.bds. Using Cadcorp's Feature Tables the data is further split into Layers of Themes and Features. If a very large area is ordered then the data are split into Themes so have the naming convention Level_TopicCode_Theme, for example C_BE_Bathymetry

ESRI

The files are named per Theme and then further divided based on Geometry type so the naming convention is Level_TopicCode_Theme_Geometry, for example C_BE_Bathymetry_point.

MapInfo

The files are named per Theme so have the naming convention Level_TopicCode_Theme, for example C_BE_Bathymetry

5.4 Digital Survey Bathymetry / Digital Charted Bathymetry

Digital Survey Bathymetry is based on source data from the UKHO which has an increased resolution, thereby assisting in improving the accuracy and real-world representation of the seabed. Individual survey sheets are also being digitised to further increase survey coverage.

In areas where coverage of Digital Survey Bathymetry is not yet available, DSB data can be complemented (i.e. 'infilled') by Digital Charted Bathymetry (DCB) across the users required extent. These soundings, contours and areas of fixed water depth (i.e. dredged areas) are derived from charted sources and supplied on a 'best-available' basis.

The dataset will also include an appropriately attributed extents file indicating clearly the source of the information. This extents file will be provided in Cadcorp BDS, ESRI Shapefile and MapInfo TAB file formats.

6. VECTOR DATA CONTENT

Please note that not all the features listed below will be found in every data supply, the features included will vary depending on the geographical area requested. This applies to both Charted Vector and Hydrospatial.

The data is split into 6 **Topic Layers**:

Bathymetry & Elevation (BE)

Natural & Physical Features (NP)

Structures & Obstructions (SO)

Socio-Economic & Marine Use (SE)

Conservation & Environment (CE) (SeaZone Hydrospatial only)

Climate & Oceanography (CO)

Each **Topic Layer** is broken down into **Themes**, which in turn contain **Feature Types**. These are described in the tables below. Each **Theme** has a code which relates to the *Summary Topic Layers and Themes* document supplied with each quotation. This code is only referenced in the documents and is not included anywhere within the data to ensure filenames are kept to a minimum.

In developing this data structure, SeaZone has complied with internationally recognised standards where they exist. The structure is founded on the International Hydrographic Organisation's (IHO) standard for hydrographic data (IHO S-57). However, SeaZone Hydrospatial includes many more **Feature Types** than is required for nautical charting (and therefore in the Charted Vector product). Consequently, SeaZone has extended the S-57 Feature Catalogue for SeaZone Hydrospatial to include the NATO standard for AML (Additional Military Layers). In addition, to take account of real world objects that are not included in either S-57 or AML, SeaZone has created its own extended Feature Catalogue for marine geographical information.

The tables below contain (in hierarchical order) the **Topic Layer** name, the **Theme** name and the **Feature Type** name in the first column. The main **Feature Type** is listed in **bold** with sub-categories of that **Feature Type** listed in plain text. The second column **Code** relates to the values in the SZFEATCODE attribute field in the datasets. The third column **Acronym** relates to the values in SZFEATURE in the datasets. Where the user is searching for a particular feature within the datasets they can look up the **Feature Type** and determine the corresponding **Acronym**. Equally, the reverse is true, where the **Acronym** or **Code** is known the corresponding **Topic Layer**, **Theme** and **Feature Type** can be deduced from the various tables below. Within each table (i.e. **Topic Layer**) both the **Themes** and **Feature Types** are listed in alphabetical order. The fourth and fifth columns show the source of the data for SeaZone's two vector products – Charted Vector and SeaZone Hydrospatial. If either column is blank then that **Feature Type** is <u>not</u> included within the product.

6.1 Data Dictionary

Supplied on the CD, alongside this help manual, is the SeaZone Data Dictionary in XML format. It lists all the Feature Acronyms from the Tables below, their Feature Names and Descriptions in alphabetical order. It also has a section containing the Attribute Acronyms, Names and Descriptions. These relate to the Attributes found on each feature when the data is viewed within GIS.

To view the Data Dictionary double click the file SeaZone_Data_Dictionary.xml and it will open in your default Internet Browser (e.g.Internet Explorer, Firefox etc.). If copying the Data Dictionary to another machine the file SeaZone_Stylesheet.xsl also needs to be copied to the same location, otherwise the file SeaZone_Stylesheet.xsl does not need to be accessed.

6.2 Data Source Codes

UKHO – United Kingdom Hydrographic Office

CCW – Countryside Council for Wales

NIEA – Northern Ireland Environment Agency (previously Environment & Heritage Services, Northern Ireland

NE – Natural England (previously English Nature)

SNH – Scottish Natural Heritage

TCE – The Crown Estate

UKDEAL – UK Offshore Oil and Gas Information

BGS – British Geological Survey

BODC – British Oceanographic Data Centre

DEHLG – Department of Environment, Heritage and Local Government (Republic Of Ireland) (previously DEHLG)

6.3 Bathymetry & Elevation

Bathymetry and Elevation contains data which describes the natural shape of the Earth's surface on land and under the sea, this includes depth and height contours, spot heights and soundings (Charted Vector only) and digital elevation models (Hydrospatial only). Also included are Depth Areas and Intertidal Areas, showing cartographic representations of areas of water depth.

Themes and feature types within Bathymetry & Elevation Topic Layer currently are:

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
BE BATHYMETRY & ELEVATION				
Bathymetry (BE11)				
Depth contour	4300	DEPCNT	S-57	S-57
Dredged area	4600	DRGARE	S-57	S-57
Sounding	12900	SOUNDG	S-57	
Elevation (BE12)				
Land elevation	7200	LNDELV	S-57	S-57
Depth Areas (BE14)				
Depth area				
undefined	4200	DEPARE	S-57	S-57
<=0	4201	DEPARE	S-57	S-57
<=10	4202	DEPARE	S-57	S-57
<=20	4203	DEPARE	S-57	S-57
<=50	4204	DEPARE	S-57	S-57
<=100	4205	DEPARE	S-57	S-57
<=500	4206	DEPARE	S-57	S-57
<=1000	4207	DEPARE	S-57	S-57
<=5000	4208	DEPARE	S-57	S-57
<=10000	4209	DEPARE	S-57	S-57

6.4 Natural & Physical Features

The Natural and Physical Features topic contains the natural and physical components of the coastal and marine environment including the biological, physical and chemical features within it. It describes the type and landscape setting of the marine environment to include the geology, seabed, water column and coastal landforms. Biological and physical components include biota, habitats, fish spawning and nursery areas and current streams, rocks and some human impacts are included such as dams, canals & dykes.

Themes and feature types within Natural & Physical Features Topic Layer currently are:

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
NP NATURAL & PHYSICAL FEATURES				
Sea Cover (NP21)				
Ice area				
undefined	6600	ICEARE	S-57	S-57
fast ice	6601	ICEARE	S-57	S-57
sea ice	6602	ICEARE	S-57	S-57
growler area	6603	ICEARE	S-57	S-57
pancake ice	6604	ICEARE	S-57	S-57
Glacier	6605	ICEARE	S-57	S-57
ice peak	6606	ICEARE	S-57	S-57
pack ice	6607	ICEARE	S-57	S-57
polar ice	6608	ICEARE	S-57	S-57
sea ice	6651	ICEARE		
pack ice	6652	ICEARE		
very open pack ice	6653	ICEARE		
open pack ice	6654	ICEARE		
close pack ice	6655	ICEARE		
very close pack ice	6656	ICEARE		
Iceberg	6657	ICEARE		
bergy bit	6658	ICEARE		
Growler	6659	ICEARE		
Sand waves	11800	SNDWAV	S-57	S-57
Sea area/named water area				
undefined	11900	SEAARE	S-57	S-57
Sea area in general	11901	SEAARE	S-57	S-57
Gat	11902	SEAARE	S-57	S-57

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
Bank	11903	SEAARE	S-57	S-57
Deep	11904	SEAARE	S-57	S-57
Bay	11905	SEAARE	S-57	S-57
Trench	11906	SEAARE	S-57	S-57
Basin	11907	SEAARE	S-57	S-57
mud flats	11908	SEAARE	S-57	S-57
Reef	11909	SEAARE	S-57	S-57
Ledge	11910	SEAARE	S-57	S-57
Canyon	11911	SEAARE	S-57	S-57
Narrows	11912	SEAARE	S-57	S-57
Shoal	11913	SEAARE	S-57	S-57
Knoll	11914	SEAARE	S-57	S-57
Ridge	11915	SEAARE	S-57	S-57
Seamount	11916	SEAARE	S-57	S-57
Pinnacle	11917	SEAARE	S-57	S-57
abyssal plain	11918	SEAARE	S-57	S-57
Plateau	11919	SEAARE	S-57	S-57
Spur	11920	SEAARE	S-57	S-57
Shelf	11921	SEAARE	S-57	S-57
Trough	11922	SEAARE	S-57	S-57
Saddle	11923	SEAARE	S-57	S-57
abyssal hills	11924	SEAARE	S-57	S-57
Apron	11925	SEAARE	S-57	S-57
archipelagic apron	11926	SEAARE	S-57	S-57
Borderland	11927	SEAARE	S-57	S-57
continental margin	11928	SEAARE	S-57	S-57
continental rise	11929	SEAARE	S-57	S-57
Escarpment	11930	SEAARE	S-57	S-57
Fan	11931	SEAARE	S-57	S-57
fracture zone	11932	SEAARE	S-57	S-57
Gap	11933	SEAARE	S-57	S-57
Guyot	11934	SEAARE	S-57	S-57
Hill	11935	SEAARE	S-57	S-57
Hole	11936	SEAARE	S-57	S-57
Levee	11937	SEAARE	S-57	S-57

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
median valley	11938	SEAARE	S-57	S-57
Moat	11939	SEAARE	S-57	S-57
Mountains	11940	SEAARE	S-57	S-57
Peak	11941	SEAARE	S-57	S-57
Province	11942	SEAARE	S-57	S-57
Rise	11943	SEAARE	S-57	S-57
sea channel	11944	SEAARE	S-57	S-57
seamount chain	11945	SEAARE	S-57	S-57
shelf-edge	11946	SEAARE	S-57	S-57
Sill	11947	SEAARE	S-57	S-57
slope	11948	SEAARE	S-57	S-57
terrace	11949	SEAARE	S-57	S-57
valley	11950	SEAARE	S-57	S-57
canal	11951	SEAARE	S-57	S-57
lake	11952	SEAARE	S-57	S-57
river	11953	SEAARE	S-57	S-57
reach	11954	SEAARE	S-57	S-57
estuary	11961	SEAARE		
nearshore	11962	SEAARE		
nearshore	11963	SEAARE		
opening	11964	SEAARE		
polynia	11965	SEAARE		
Spring	13000	SPRING	S-57	S-57
Tideway	14300	TIDEWY	S-57	S-57
Underwater/awash rock				
undefined	15300	UWTROC	S-57	S-57
partly submerged at high water	15301	UWTROC	S-57	S-57
always dry	15302	UWTROC	S-57	S-57
always under water/submerged	15303	UWTROC	S-57	S-57
covers and uncovers	15304	UWTROC	S-57	S-57
awash	15305	UWTROC	S-57	S-57
subject to inundation or flooding	15306	UWTROC	S-57	S-57
floating	15307	UWTROC	S-57	S-57
Water turbulence				
undefined	15600	WATTUR	S-57	S-57

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
breakers	15601	WATTUR	S-57	S-57
eddies	15602	WATTUR	S-57	S-57
overfalls	15603	WATTUR	S-57	S-57
tide rips	15604	WATTUR	S-57	S-57
bombora	15605	WATTUR	S-57	S-57
Land Cover (NP22)				
Bridge	1100	BRIDGE	S-57	S-57
Building, single	1200	BUISGL	S-57	S-57
Built-up area				
undefined	1300	BUAARE	S-57	S-57
urban area	1301	BUAARE	S-57	S-57
settlement	1302	BUAARE	S-57	S-57
village	1303	BUAARE	S-57	S-57
town	1304	BUAARE	S-57	S-57
city	1305	BUAARE	S-57	S-57
holiday village	1306	BUAARE	S-57	S-57
Canal bank	2400	CANBNK	S-57	S-57
Causeway				
undefined	2600	CAUSWY	S-57	S-57
partly submerged at high water	2601	CAUSWY	S-57	S-57
always dry	2602	CAUSWY	S-57	S-57
always under water/submerged	2603	CAUSWY	S-57	S-57
covers and uncovers	2604	CAUSWY	S-57	S-57
awash	2605	CAUSWY	S-57	S-57
subject to inundation or flooding	2606	CAUSWY	S-57	S-57
floating	2607	CAUSWY	S-57	S-57
Coastline				
undefined	3000	COALNE	S-57	
steep coast	3001	COALNE	S-57	
flat coast	3002	COALNE	S-57	
sandy shore	3003	COALNE	S-57	
stony shore	3004	COALNE	S-57	
shingly shore	3005	COALNE	S-57	
glacier (seaward end)	3006	COALNE	S-57	

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
mangrove	3007	COALNE	S-57	
marshy shore	3008	COALNE	S-57	
coral reef	3009	COALNE	S-57	
ice coast	3010	COALNE	S-57	
shelly shore	3011	COALNE	S-57	
Conveyor				
undefined	3400	CONVYR	S-57	S-57
aerial cableway (telepheric)	3401	CONVYR	S-57	S-57
belt conveyor	3402	CONVYR	S-57	S-57
Crane				
undefined	3500	CRANES	S-57	S-57
crane without specific construction	3501	CRANES	S-57	S-57
container crane/gantry	3502	CRANES	S-57	S-57
sheerlegs	3503	CRANES	S-57	S-57
travelling crane	3504	CRANES	S-57	S-57
A-frame	3505	CRANES	S-57	S-57
Dyke	4900	DYKCON	S-57	S-57
Fence/wall				
undefined	5200	FNCLNE	S-57	S-57
fence	5201	FNCLNE	S-57	S-57
muir	5202	FNCLNE	S-57	S-57
hedge	5203	FNCLNE	S-57	S-57
wall	5204	FNCLNE	S-57	S-57
Fortified structure				
undefined	5900	FORSTC	S-57	S-57
castle	5901	FORSTC	S-57	S-57
fort	5902	FORSTC	S-57	S-57
battery	5903	FORSTC	S-57	S-57
blockhouse	5904	FORSTC	S-57	S-57
martello tower	5905	FORSTC	S-57	S-57
redoubt	5906	FORSTC	S-57	S-57
Gate				
undefined	6100	GATCON	S-57	S-57
gate in general	6101	GATCON	S-57	S-57
flood barrage gate	6102	GATCON	S-57	S-57

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
caisson	6103	GATCON	S-57	S-57
lock gate	6104	GATCON	S-57	S-57
dyke gate	6105	GATCON	S-57	S-57
sluice	6106	GATCON	S-57	S-57
Gridiron	6200	GRIDRN	S-57	S-57
Lake shore	7000	LAKSHR	S-57	S-57
Land area	7100	LNDARE	S-57	S-57
Land region	7300	LNDRGN	S-57	S-57
Landmark	7400	LNDMRK	S-57	S-57
Pylon/bridge support				
undefined	9800	PYLONS	S-57	S-57
power transmission pylon/pole	9801	PYLONS	S-57	S-57
telephone/telegraph pylon/pole	9802	PYLONS	S-57	S-57
aerial cableway/sky pylon	9803	PYLONS	S-57	S-57
bridge pylon/tower	9804	PYLONS	S-57	S-57
bridge pier	9805	PYLONS	S-57	S-57
Railway	10600	RAILWY	S-57	S-57
River bank	11500	RIVBNK	S-57	S-57
Road				
undefined	11600	ROADWY	S-57	S-57
motorway	11601	ROADWY	S-57	S-57
major road	11602	ROADWY	S-57	S-57
minor road	11603	ROADWY	S-57	S-57
track/path	11604	ROADWY	S-57	S-57
major street	11605	ROADWY	S-57	S-57
minor street	11606	ROADWY	S-57	S-57
crossing	11607	ROADWY	S-57	S-57
Runway				
undefined	11700	RUNWAY	S-57	S-57
aeroplane runway	11701	RUNWAY	S-57	S-57
helicopter landing pad	11702	RUNWAY	S-57	S-57
Silo/tank				
undefined	12500	SILTNK	S-57	S-57
silo in general	12501	SILTNK	S-57	S-57
tank in general	12502	SILTNK	S-57	S-57

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
grain elevator	12503	SILTNK	S-57	S-57
water tower	12504	SILTNK	S-57	S-57
Slope topline				
undefined	12600	SLOTOP	S-57	S-57
cutting	12601	SLOTOP	S-57	S-57
embankment	12602	SLOTOP	S-57	S-57
dune	12603	SLOTOP	S-57	S-57
hill	12604	SLOTOP	S-57	S-57
pingo	12605	SLOTOP	S-57	S-57
cliff	12606	SLOTOP	S-57	S-57
scree	12607	SLOTOP	S-57	S-57
Sloping ground				
undefined	12700	SLOGRD	S-57	S-57
cutting	12701	SLOGRD	S-57	S-57
embankment	12702	SLOGRD	S-57	S-57
dune	12703	SLOGRD	S-57	S-57
hill	12704	SLOGRD	S-57	S-57
pingo	12705	SLOGRD	S-57	S-57
cliff	12706	SLOGRD	S-57	S-57
scree	12707	SLOGRD	S-57	S-57
Square	13100	SQUARE	S-57	S-57
Tunnel	15100	TUNNEL	S-57	S-57
Vegetation	15500	VEGATN	S-57	S-57
Flora & Fauna (NP23)				
Weed/Kelp				
undefined	15800	WEDKLP	S-57	S-57
kelp	15801	WEDKLP	S-57	S-57
sea weed	15802	WEDKLP	S-57	S-57
sea grass	15803	WEDKLP	S-57	S-57
sargasso	15804	WEDKLP	S-57	S-57
Posidonia	15851	WEDKLP		
Hydrology (NP24)				
Canal				

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
undefined	2300	CANALS	S-57	S-57
transportation	2301	CANALS	S-57	S-57
drainage	2302	CANALS	S-57	S-57
irrigation	2303	CANALS	S-57	S-57
Dam				
undefined	3800	DAMCON	S-57	S-57
weir	3801	DAMCON	S-57	S-57
dam	3802	DAMCON	S-57	S-57
flood barrage	3803	DAMCON	S-57	S-57
Lake	6900	LAKARE	S-57	S-57
Lock basin	7900	LOKBSN	S-57	S-57
Rapids	10700	RAPIDS	S-57	S-57
River	11400	RIVERS	S-57	S-57
Waterfall	15700	WATFAL	S-57	S-57
Geology (NP25)				
Bedrock	29500	BEDROK		BGS
Geological Layer				
undefined	20517	SEDLAY		BGS
Diamicton	21016	SEDLAY		BGS
Coral	21030	SEDLAY		BGS
Clays	21031	SEDLAY		BGS
Mud	21038	SEDLAY		BGS
Silt	21039	SEDLAY		BGS
Sand	21040	SEDLAY		BGS
Stone	21041	SEDLAY		BGS
Gravel	21042	SEDLAY		BGS
Pebbles	21043	SEDLAY		BGS
Cobbles	21044	SEDLAY		BGS
Rock	21045	SEDLAY		BGS
Lava	21046	SEDLAY		BGS
Shells	21047	SEDLAY		BGS
Boulder	21048	SEDLAY		BGS
Sandy mud (Folk)	21049	SEDLAY		BGS
Slightly gravelly mud (Folk)	21050	SEDLAY		BGS

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
Slightly gravelly sandy mud (Folk)	21051	SEDLAY		BGS
Gravelly mud (Folk)	21052	SEDLAY		BGS
Muddy Sand (Folk)	21053	SEDLAY		BGS
Slightly gravelly sand (Folk)	21054	SEDLAY		BGS
Slightly gravelly muddy sand (Folk)	21055	SEDLAY		BGS
Gravelly muddy sand (Folk)	21056	SEDLAY		BGS
Gravelly sand (Folk)	21057	SEDLAY		BGS
Muddy Gravel (Folk)	21058	SEDLAY		BGS
Muddy sandy gravel (Folk)	21059	SEDLAY		BGS
Sandy Gravel (Folk)	21060	SEDLAY		BGS
Local magnetic anomaly	7800	LOCMAG	S-57	S-57
Magnetic variation	8100	MAGVAR	S-57	S-57
Mineral Area	29700	MINARE		UKDEAL
Seabed area	12100	SBDARE	S-57	S-57

6.5 Structures & Obstructions

Structures and Obstructions are those features which are man-made and physically exist on land or under the sea. These features range from wind turbines and pipelines to those of a more general socio-economic purpose e.g. buoyage. Wrecks, obstructions and offshore installations included in this layer are obtained from the full database held by the UK Hydrographic Office. This contains much more than is usually displayed on a traditional nautical chart, including those wrecks that are not navigationally significant.

Themes and feature types within Structures & Obstructions Topic Layer are:

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
SO STRUCTURES & OBSTRUCTIONS				
Shoreline Constructions (SO31)				
Cable, overhead				
undefined	2100	CBLOHD	S-57	S-57
power line	2101	CBLOHD	S-57	S-57
telephone/telegraph	2102	CBLOHD	S-57	S-57
transmission line	2103	CBLOHD	S-57	S-57
Telephone	2104	CBLOHD	S-57	S-57
Telegraph	2105	CBLOHD	S-57	S-57
mooring cable/chain	2106	CBLOHD	S-57	S-57
data transmission	2151	CBLOHD		
fibre optic	2152	CBLOHD		
Dry dock	4700	DRYDOC	S-57	S-57
Mooring/Warping facility				
undefined	8400	MORFAC	S-57	S-57
Dolphin	8401	MORFAC	S-57	S-57
deviation dolphin	8402	MORFAC	S-57	S-57
Bollard	8403	MORFAC	S-57	S-57
tie-up wall	8404	MORFAC	S-57	S-57
post or pile	8405	MORFAC	S-57	S-57
chain/wire/cable	8406	MORFAC	S-57	S-57
mooring buoy	8407	MORFAC	S-57	S-57
fast patrol boat waiting position	8451	MORFAC		
Pipeline, overhead	9300	PIPOHD	S-57	S-57
Shoreline construction				

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
undefined	12200	SLCONS	S-57	S-57, UKDEAL
Breakwater	12201	SLCONS	S-57	S-57
groyne (groin)	12202	SLCONS	S-57	S-57
Mole	12203	SLCONS	S-57	S-57
pier (jetty)	12204	SLCONS	S-57	S-57
promenade pier	12205	SLCONS	S-57	S-57
wharf (quay)	12206	SLCONS	S-57	S-57
training wall	12207	SLCONS	S-57	S-57
rip rap	12208	SLCONS	S-57	S-57
Revetment	12209	SLCONS	S-57	S-57
sea wall	12210	SLCONS	S-57	S-57
landing steps	12211	SLCONS	S-57	S-57
Ramp	12212	SLCONS	S-57	S-57
Slipway	12213	SLCONS	S-57	S-57
Fender	12214	SLCONS	S-57	S-57
solid face wharf	12215	SLCONS	S-57	S-57
open face wharf	12216	SLCONS	S-57	S-57
log ramp	12217	SLCONS	S-57	S-57
artificial obstruction	12251	SLCONS		
natural obstruction	12252	SLCONS		
Oil/Gas Terminal	12291	SLCONS		UKDEAL
Obstructions (SO32)				
Hulk	6500	HULKES	S-57	S-57
Log pond	8000	LOGPON	S-57	S-57
Obstruction				
undefined	8600	OBSTRN	S-57	S-57, UKDEAL, UKHO
snag/stump	8601	OBSTRN	S-57	S-57,UKHO
Wellhead	8602	OBSTRN	S-57	
Diffuser	8603	OBSTRN	S-57	
Crib	8604	OBSTRN	S-57	S-57,UKHO
fish haven	8605	OBSTRN	S-57	S-57,UKHO
foul area	8606	OBSTRN	S-57	S-57,UKHO

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
foul ground	8607	OBSTRN	S-57	S-57, UKDEAL, UKHO
ice boom	8608	OBSTRN	S-57	S-57,UKHO
ground tackle	8609	OBSTRN	S-57	S-57, UKDEAL, UKHO
Boom	8610	OBSTRN	S-57	S-57,UKHO
pontoon	8658	OBSTRN		
sundry objects	8669	OBSTRN		
Oil barrier				
undefined	8900	OILBAR	S-57	S-57
oil retention (high pressure pipe)	8901	OILBAR	S-57	S-57
floating oil barrier	8902	OILBAR	S-57	S-57
Pile				
undefined	9000	PILPNT	S-57	S-57
stake	9001	PILPNT	S-57	S-57
snag	9002	PILPNT	S-57	S-57
post	9003	PILPNT	S-57	S-57
tripodal	9004	PILPNT	S-57	S-57
Pontoon	9500	PONTON	S-57	S-57
Offshore Installations (SO33)				
Buoy, installation				
undefined	1500	BOYINB	S-57	S-57, UKDEAL, UKHO
catenary anchor leg mooring (CALM)	1501	BOYINB	S-57	S-57
single buoy mooring (SBM or SPM)	1502	BOYINB	S-57	S-57, UKDEAL, UKHO
Cable area				
undefined	2000	CBLARE	S-57	S-57
power line	2001	CBLARE	S-57	S-57
telephone/telegraph	2002	CBLARE	S-57	S-57
transmission line	2003	CBLARE	S-57	S-57
Telephone	2004	CBLARE	S-57	S-57
Telegraph	2005	CBLARE	S-57	S-57

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
mooring cable/chain	2006	CBLARE	S-57	S-57
data transmission	2051	CBLARE		
fibre optic	2052	CBLARE		
Cable, submarine				
undefined	2200	CBLSUB	S-57	S-57,UKHO
power line	2201	CBLSUB	S-57	S-57,UKHO
telephone/telegraph	2202	CBLSUB	S-57	S-57,UKHO
transmission line	2203	CBLSUB	S-57	S-57,UKHO
telephone	2204	CBLSUB	S-57	S-57,UKHO
telegraph	2205	CBLSUB	S-57	S-57,UKHO
mooring cable/chain	2206	CBLSUB	S-57	S-57,UKHO
data transmission	2251	CBLSUB		UKHO
fibre optic	2252	CBLSUB		UKHO
Fishing facility				
undefined	5500	FSHFAC	S-57	S-57
fishing stake	5501	FSHFAC	S-57	S-57
fish trap	5502	FSHFAC	S-57	S-57
fish weir	5503	FSHFAC	S-57	S-57
tunny net	5504	FSHFAC	S-57	S-57
Floating dock	5700	FLODOC	S-57	S-57
Marine farm/culture				
undefined	8200	MARCUL	S-57	S-57
crustaceans	8201	MARCUL	S-57	S-57
oysters/mussels	8202	MARCUL	S-57	S-57
fish	8203	MARCUL	S-57	S-57
seaweed	8204	MARCUL	S-57	S-57
pearl culture farm	8205	MARCUL	S-57	S-57
Offshore Installation				
undefined	29600	OFSINS		UKDEAL, UKHO
Fixed platform/structure	29601	OFSINS		UKDEAL, UKHO
wellhead	29602	OFSINS		UKHO, UKDEAL,
diffuser	29603	OFSINS		UKHO, UKDEAL
articulated loading platform (ALP)	29604	OFSINS		UKDEAL

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
single anchor leg mooring (SALM)	29605	OFSINS		UKDEAL
mooring tower	29606	OFSINS		UKDEAL
artificial island	29607	OFSINS		UKDEAL
floating production, storage and off-loading vessel (FPSO)	29608	OFSINS		UKDEAL, UKHO
Underwater Turbine	29618	OFSINS		UKDEAL, UKHO
Wind Turbine	29619	OFSINS		S-57, UKDEAL, UKHO
Turbine Substation	29620	OFSINS		UKDEAL, UKHO
protection structure	29651	OFSINS		UKDEAL, UKHO
Unspecified subsea installation	29652	OFSINS		UKDEAL, UKHO
pipeline structure	29653	OFSINS		UKDEAL, UKHO
free standing conductor pipe	29654	OFSINS		UKDEAL, UKHO
manifold	29655	OFSINS		UKDEAL, UKHO
storage tank	29656	OFSINS		UKDEAL, UKHO
template	29657	OFSINS		UKDEAL, UKHO
Removed	29699	OFSINS		UKDEAL, UKHO
Offshore platform	8700	OFSPLF	S-57	S-57
Pipeline area	9200	PIPARE	S-57	S-57
Pipeline, submarine/on land	9400	PIPSOL	S-57	S-57, UKDEAL, UKHO
Navigation Aids (SO34)				
Beacon, cardinal				
undefined	500	BCNCAR	S-57	S-57
north cardinal mark	501	BCNCAR	S-57	S-57
east cardinal mark	502	BCNCAR	S-57	S-57
south cardinal mark	503	BCNCAR	S-57	S-57

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
west cardinal mark	504	BCNCAR	S-57	S-57
Beacon, isolated danger	600	BCNISD	S-57	S-57
Beacon, lateral				
undefined	700	BCNLAT	S-57	S-57
port-hand lateral mark	701	BCNLAT	S-57	S-57
starboard-hand lateral mark	702	BCNLAT	S-57	S-57
preferred channel to starboard lateral mark	703	BCNLAT	S-57	S-57
preferred channel to port lateral mark	704	BCNLAT	S-57	S-57
Beacon, safe water	800	BCNSAW	S-57	S-57
Beacon, special purpose/general	900	BCNSPP	S-57	S-57
Buoy, cardinal				
undefined	1400	BOYCAR	S-57	S-57
north cardinal mark	1401	BOYCAR	S-57	S-57
east cardinal mark	1402	BOYCAR	S-57	S-57
south cardinal mark	1403	BOYCAR	S-57	S-57
west cardinal mark	1404	BOYCAR	S-57	S-57
Buoy, isolated danger	1600	BOYISD	S-57	S-57
Buoy, lateral				
undefined	1700	BOYLAT	S-57	S-57
port-hand lateral mark	1701	BOYLAT	S-57	S-57
starboard-hand lateral mark	1702	BOYLAT	S-57	S-57
preferred channel to starboard lateral mark	1703	BOYLAT	S-57	S-57
preferred channel to port lateral mark	1704	BOYLAT	S-57	S-57
Buoy, safe water	1800	BOYSAW	S-57	S-57
Buoy, special purpose/general	1900	BOYSPP	S-57	S-57, UKDEAL, UKHO
Daymark				
undefined	3900	DAYMAR	S-57	S-57
cone, point up	3901	DAYMAR	S-57	S-57
cone, point down	3902	DAYMAR	S-57	S-57
sphere	3903	DAYMAR	S-57	S-57
2 spheres	3904	DAYMAR	S-57	S-57
cylinder (can)	3905	DAYMAR	S-57	S-57
board	3906	DAYMAR	S-57	S-57

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
x-shape (St. Andrew's cross)	3907	DAYMAR	S-57	S-57
upright cross (St George's cross)	3908	DAYMAR	S-57	S-57
cube, point up	3909	DAYMAR	S-57	S-57
2 cones, point to point	3910	DAYMAR	S-57	S-57
2 cones, base to base	3911	DAYMAR	S-57	S-57
rhombus (diamond)	3912	DAYMAR	S-57	S-57
2 cones (points upward)	3913	DAYMAR	S-57	S-57
2 cones (points downward)	3914	DAYMAR	S-57	S-57
besom, point up (broom or perch)	3915	DAYMAR	S-57	S-57
besom, point down (broom or perch)	3916	DAYMAR	S-57	S-57
flag	3917	DAYMAR	S-57	S-57
sphere over rhombus	3918	DAYMAR	S-57	S-57
square	3919	DAYMAR	S-57	S-57
rectangle, horizontal	3920	DAYMAR	S-57	S-57
rectangle, vertical	3921	DAYMAR	S-57	S-57
trapezium, up	3922	DAYMAR	S-57	S-57
trapezium, down	3923	DAYMAR	S-57	S-57
triangle, point up	3924	DAYMAR	S-57	S-57
triangle, point down	3925	DAYMAR	S-57	S-57
circle	3926	DAYMAR	S-57	S-57
two upright crosses (one over the other)	3927	DAYMAR	S-57	S-57
T-shape	3928	DAYMAR	S-57	S-57
triangle pointing up over a circle	3929	DAYMAR	S-57	S-57
upright cross over a circle	3930	DAYMAR	S-57	S-57
rhombus over a circle	3931	DAYMAR	S-57	S-57
circle over a triangle pointing up	3932	DAYMAR	S-57	S-57
other shape (see INFORM attribute)	3933	DAYMAR	S-57	S-57
Distance mark				
undefined	4400	DISMAR	S-57	S-57
distance mark not physically installed	4401	DISMAR	S-57	S-57
visible mark, pole	4402	DISMAR	S-57	S-57
visible mark, board	4403	DISMAR	S-57	S-57
visible mark, unknown shape	4404	DISMAR	S-57	S-57
Fog signal				

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
undefined	5800	FOGSIG	S-57	S-57
explosive	5801	FOGSIG	S-57	S-57
diaphone	5802	FOGSIG	S-57	S-57
siren	5803	FOGSIG	S-57	S-57
nautophone	5804	FOGSIG	S-57	S-57
reed	5805	FOGSIG	S-57	S-57
tyfon	5806	FOGSIG	S-57	S-57
bell	5807	FOGSIG	S-57	S-57
whistle	5808	FOGSIG	S-57	S-57
gong	5809	FOGSIG	S-57	S-57
horn	5810	FOGSIG	S-57	S-57
Light	7500	LIGHTS	S-57	S-57
Light float	7600	LITFLT	S-57	S-57
Light vessel	7700	LITVES	S-57	S-57
Radar range	10000	RADRNG	S-57	S-57
Radar reflector	10100	RADRFL	S-57	S-57
Radar station				
undefined	10200	RADSTA	S-57	S-57
radar surveillance station	10201	RADSTA	S-57	S-57
coast radar station	10202	RADSTA	S-57	S-57
Radar transponder beacon				
undefined	10300	RTPBCN	S-57	S-57
ramark, radar beacon transmitting continuously	10301	RTPBCN	S-57	S-57
racon, radar transponder beacon	10302	RTPBCN	S-57	S-57
leading racon/radar transponder beacon	10303	RTPBCN	S-57	S-57
Radio station	10500	RDOSTA	S-57	S-57
Retro-reflector	11300	RETRFL	S-57	S-57
Signal station, traffic	12300	SISTAT	S-57	S-57
Signal station, warning	12400	SISTAW	S-57	S-57
Topmark				
undefined	14400	TOPMAR	S-57	S-57
cone, point up	14401	TOPMAR	S-57	S-57
cone, point down	14402	TOPMAR	S-57	S-57
sphere	14403	TOPMAR	S-57	S-57

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
2 spheres	14404	TOPMAR	S-57	S-57
cylinder (can)	14405	TOPMAR	S-57	S-57
board	14406	TOPMAR	S-57	S-57
x-shape (St. Andrew's cross)	14407	TOPMAR	S-57	S-57
upright cross (St George's cross)	14408	TOPMAR	S-57	S-57
cube, point up	14409	TOPMAR	S-57	S-57
2 cones, point to point	14410	TOPMAR	S-57	S-57
2 cones, base to base	14411	TOPMAR	S-57	S-57
rhombus (diamond)	14412	TOPMAR	S-57	S-57
2 cones (points upward)	14413	TOPMAR	S-57	S-57
2 cones (points downward)	14414	TOPMAR	S-57	S-57
besom, point up (broom or perch)	14415	TOPMAR	S-57	S-57
besom, point down (broom or perch)	14416	TOPMAR	S-57	S-57
flag	14417	TOPMAR	S-57	S-57
sphere over rhombus	14418	TOPMAR	S-57	S-57
square	14419	TOPMAR	S-57	S-57
rectangle, horizontal	14420	TOPMAR	S-57	S-57
rectangle, vertical	14421	TOPMAR	S-57	S-57
trapezium, up	14422	TOPMAR	S-57	S-57
trapezium, down	14423	TOPMAR	S-57	S-57
triangle, point up	14424	TOPMAR	S-57	S-57
triangle, point down	14425	TOPMAR	S-57	S-57
Circle	14426	TOPMAR	S-57	S-57
two upright crosses (one over the other	14427	TOPMAR	S-57	S-57
T-shape	14428	TOPMAR	S-57	S-57
triangle pointing up over a circle	14429	TOPMAR	S-57	S-57
upright cross over a circle	14430	TOPMAR	S-57	S-57
rhombus over a circle	14431	TOPMAR	S-57	S-57
circle over a triangle pointing up	14432	TOPMAR	S-57	S-57
other shape (see INFORM)	14433	TOPMAR	S-57	S-57
Wrecks (SO35)				
Wreck				
undefined	15900	WRECKS	S-57	S-57,UKHO, UKDEAL

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
non-dangerous wreck	15901	WRECKS	S-57	S-57,UKHO
dangerous wreck	15902	WRECKS	S-57	S-57,UKHO
distributed remains of wreck	15903	WRECKS	S-57	S-57,UKHO
wreck showing mast/masts	15904	WRECKS	S-57	S-57,UKHO
wreck showing any portion of hull or superstructure	15905	WRECKS	S-57	S-57,UKHO

6.6 Socio-economic & Marine Use

Socio-economic and Marine Use specifies areas where one or more activities have been designated, are known to occur, or are restricted. These are largely non-physical human boundaries defining areas or zones of economic or social importance such as military areas, oil and gas or windfarm licence areas, navigation zones, dredging areas, fishing areas and national boundary limits.

Themes and feature types within Socio-economic & Marine Use Topic Layer currently are:

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
SE SOCIO ECONOMIC & MARINE USE				
Admin & Regulation (SE41)				
Administration Area (Named)				
Undefined	100	ADMARE	S-57	S-57
International	101	ADMARE	S-57	S-57
National	102	ADMARE	S-57	S-57
national sub-division	103	ADMARE	S-57	S-57
NATO	151	ADMARE		
Custom zone	3700	CUSZNE	S-57	S-57
Free port area	6000	FRPARE	S-57	S-57
Harbour area (administrative)	6300	HRBARE	S-57	S-57
National Limits (SE42)				
Contiguous zone				
undefined	3100	CONZNE	S-57	UKHO
Low Water Baseline	3101	CONZNE		
Normal Baseline	3102	CONZNE		
SI Boundary	3103	CONZNE		
Continental shelf area				
undefined	3200	COSARE	S-57	UKHO
Low Water Baseline	3201	COSARE		
Normal Baseline	3202	COSARE		
SI Boundary	3203	COSARE		
Environmental Protection Limit				
undefined	29900	ENVZNE		
Low Water Baseline	29901	ENVZNE		UKHO

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
Normal Baseline	29902	ENVZNE		UKHO
SI Boundary	29903	ENVZNE		
Exclusive economic zone				
undefined	5000	EXEZNE	S-57	S-57
Low Water Baseline	5001	EXEZNE		
Normal Baseline	5002	EXEZNE		
SI Boundary	5003	EXEZNE		
Fishery zone				
undefined	5400	FSHZNE	S-57	UKHO
Low Water Baseline	5401	FSHZNE		UKHO
Normal Baseline	5402	FSHZNE		UKHO
SI Boundary	5403	FSHZNE		UKHO
Straight territorial sea baseline				
undefined	13200	STSLNE	S-57	S-57
Low Water Baseline	13201	STSLNE		
Normal Baseline	13202	STSLNE		
SI Boundary	13203	STSLNE		
Territorial sea area				
undefined	13500	TESARE	S-57	UKHO
Low Water Baseline	13501	TESARE		UKHO
Normal Baseline	13502	TESARE		UKHO
SI Boundary	13503	TESARE		UKHO
Activity & Licence Areas (SE43)				
Dumping ground	4800	DMPGRD	S-57	S-57
Harbour facility	6400	HRBFAC	S-57	S-57
Incineration area	6700	ICNARE	S-57	S-57
Licensed Area				
undefined	29800	LICARE		TCE,UKDEAL
Dredging Area	29801	LICARE		TCE,UKDEAL
Wind Farm Area	29802	LICARE		TCE,UKDEAL
Oil & Gas Licence Area	29803	LICARE		TCE,UKDEAL
Military practice area	8300	MIPARE	S-57	S-57,UKHO
Offshore production area				
undefined	8800	OSPARE	S-57	S-57

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
quarry	8801	OSPARE	S-57	S-57
mine	8802	OSPARE	S-57	S-57
stockpile	8803	OSPARE	S-57	S-57
power station area	8804	OSPARE	S-57	S-57
refinery area	8805	OSPARE	S-57	S-57
timber yard	8806	OSPARE	S-57	S-57
factory area	8807	OSPARE	S-57	S-57
tank farm	8808	OSPARE	S-57	S-57
wind farm	8809	OSPARE	S-57	S-57
slag heap/spoil heap	8810	OSPARE	S-57	S-57
Production/storage area				
undefined	9700	PRDARE	S-57	S-57
Quarry	9701	PRDARE	S-57	S-57
Mine	9702	PRDARE	S-57	S-57
Stockpile	9703	PRDARE	S-57	S-57
power station area	9704	PRDARE	S-57	S-57
refinery area	9705	PRDARE	S-57	S-57
timber yard	9706	PRDARE	S-57	S-57
factory area	9707	PRDARE	S-57	S-57
tank farm	9708	PRDARE	S-57	S-57
wind farm	9709	PRDARE	S-57	S-57
slag heap/spoil heap	9710	PRDARE	S-57	S-57
Restricted area	11200	RESARE	S-57	S-57, UKHO
Transportation & Routes (SE44)				
Airport/airfield	200	AIRARE	S-57	S-57
Anchor berth	300	ACHBRT	S-57	S-57
Anchorage area	400	ACHARE	S-57	S-57
Berth	1000	BERTHS	S-57	S-57
Cargo transhipment area	2500	CTSARE	S-57	S-57
Caution area	2700	CTNARE	S-57	S-57
Checkpoint				
undefined	2800	CHKPNT	S-57	S-57
Custom	2801	CHKPNT	S-57	S-57
RV Location	2851	CHKPNT		

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
Coastguard station	2900	CGUSTA	S-57	S-57
Deep water route centreline				
undefined	4000	DWRTCL	S-57	S-57
Inbound	4001	DWRTCL	S-57	S-57
Outbound	4002	DWRTCL	S-57	S-57
one-way	4003	DWRTCL	S-57	S-57
two-way	4004	DWRTCL	S-57	S-57
Deep water route part				
undefined	4100	DWRTPT	S-57	S-57
Inbound	4101	DWRTPT	S-57	S-57
Outbound	4102	DWRTPT	S-57	S-57
one-way	4103	DWRTPT	S-57	S-57
two-way	4104	DWRTPT	S-57	S-57
Dock area				
undefined	4500	DOCARE	S-57	S-57
Tidal	4501	DOCARE	S-57	S-57
non-tidal (wet dock)	4502	DOCARE	S-57	S-57
Fairway				
undefined	5100	FAIRWY	S-57	S-57
Inbound	5101	FAIRWY	S-57	S-57
Outbound	5102	FAIRWY	S-57	S-57
one-way	5103	FAIRWY	S-57	S-57
two-way	5104	FAIRWY	S-57	S-57
Ferry route				
undefined	5300	FERYRT	S-57	S-57
'free-moving' ferry	5301	FERYRT	S-57	S-57
cable ferry	5302	FERYRT	S-57	S-57
ice ferry	5303	FERYRT	S-57	S-57
Inshore traffic zone				
undefined	6800	ISTZNE	S-57	S-57
IMO – adopted	6801	ISTZNE	S-57	S-57
not IMO – adopted	6802	ISTZNE	S-57	S-57
Navigation line				
undefined	8500	NAVLNE	S-57	S-57
clearing line	8501	NAVLNE	S-57	S-57

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
transit line	8502	NAVLNE	S-57	S-57
leading line bearing a recommended track	8503	NAVLNE	S-57	S-57
Pilot boarding place				
Undefined	9100	PILBOP	S-57	S-57
boarding by pilot-cruising vessel	9101	PILBOP	S-57	S-57
boarding by helicopter	9102	PILBOP	S-57	S-57
pilot comes out from shore	9103	PILBOP	S-57	S-57
Precautionary area	9600	PRCARE	S-57	S-57
Radar line	9900	RADLNE	S-57	S-57
Radio calling-in point				
Undefined	10400	RDOCAL	S-57	S-57
Inbound	10401	RDOCAL	S-57	S-57
Outbound	10402	RDOCAL	S-57	S-57
one-way	10403	RDOCAL	S-57	S-57
two-way	10404	RDOCAL	S-57	S-57
Recommended route centreline				
undefined	10800	RCRTCL	S-57	S-57
based on a system of fixed marks	10801	RCRTCL	S-57	S-57
not based on a system of fixed marks	10802	RCRTCL	S-57	S-57
Recommended track				
undefined	10900	RECTRC	S-57	S-57
based on a system of fixed marks	10901	RECTRC	S-57	S-57
not based on a system of fixed marks	10902	RECTRC	S-57	S-57
Recommended traffic lane part	11000	RCTLPT	S-57	S-57
Rescue station	11100	RSCSTA	S-57	S-57
Sea-plane landing area	12000	SPLARE	S-57	S-57
Small craft facility	12800	SMCFAC	S-57	S-57
Submarine transit lane	13300	SUBTLN	S-57	S-57
Swept Area	13400	SWPARE	S-57	S-57
Traffic separation line				
undefined	14500	TSELNE	S-57	S-57
IMO – adopted	14501	TSELNE	S-57	S-57
not IMO - adopted	14502	TSELNE	S-57	S-57
Traffic separation scheme boundary				

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
undefined	14600	TSSBND	S-57	S-57
IMO – adopted	14601	TSSBND	S-57	S-57
not IMO – adopted	14602	TSSBND	S-57	S-57
Traffic separation scheme crossing				
undefined	14700	TSSCRS	S-57	S-57
IMO – adopted	14701	TSSCRS	S-57	S-57
not IMO – adopted	14702	TSSCRS	S-57	S-57
Traffic separation scheme lane part				
undefined	14800	TSSLPT	S-57	S-57
IMO – adopted	14801	TSSLPT	S-57	S-57
not IMO – adopted	14802	TSSLPT	S-57	S-57
Traffic separation scheme roundabout				
undefined	14900	TSSRON	S-57	S-57
IMO – adopted	14901	TSSRON	S-57	S-57
not IMO – adopted	14902	TSSRON	S-57	S-57
Traffic separation zone				
undefined	15000	TSEZNE	S-57	S-57
IMO – adopted	15001	TSEZNE	S-57	S-57
not IMO – adopted	15002	TSEZNE	S-57	S-57
Two-way route part				
Undefined	15200	TWRTPT	S-57	S-57
based on a system of fixed marks	15201	TWRTPT	S-57	S-57
not based on a system of fixed marks	15202	TWRTPT	S-57	S-57
Aquaculture & Fisheries (SE45)				
Fishing ground	5600	FSHGRD	S-57	S-57

6.7 Conservation & Environment

The Conservation and Environment topic contains information on boundaries designated for the purposes of conservation and environmental protection of natural and cultural heritage. These boundaries include SSSI, SAC, archaeological sites, shellfish beds and monitoring and assessment points.

Themes and feature types within Conservation & Environment Topic Layer currently are:

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
CE CONSERVATION & ENVIRONMENTAL PROTECTION				
Protected Areas (CE53)				
Environmentally Sensitive Area				
Undefined	20499	ENVARE		CCW, NIEA,NE, SNH, DEHLG
SSSI (Site of Special Scientific Interest)	21499	ENVARE		CCW, NIEA,NE, SNH
NNR (National Nature Reserve)	22499	ENVARE		CCW, NIEA,NE, SNH, DEHLG
RAMSAR	23499	ENVARE		CCW, NIEA,NE, SNH
SAC (Special Area of Conservation)	24499	ENVARE		CCW, NIEA,NE, SNH, DEHLG
SPA (Special Protection Area)	25499	ENVARE		CCW, NIEA,NE, SNH, DEHLG
LNR (Local Nature Reserve)	26499	ENVARE		CCW, SNH
MNR (Marine Nature Reserve)	27499	ENVARE		CCW, NIEA
AONB (Area of Outstanding Natural Beauty)	28499	ENVARE		CCW, NIEA
HA (Heritage Area)	29499	ENVARE		CCW, DEHLG
LCA (Landscape Character Area)	30499	ENVARE		NIEA
MCA (Marine Consultation Area)	31499	ENVARE		SNH
NP (National Park)	32499	ENVARE		SNH
WHS (World Heritage Site)	33499	ENVARE		SNH
BIOGEN (Biogenetic Reserves)	34499	ENVARE		CCW, SNH
BIOSPH (Biospheric Reserves)	35499	ENVARE		CCW, SNH

6.8 Climate & Oceanography

The Climate and Oceanography topic contains data relating to climate, weather and tides. This varies from locations where measurement and monitoring is or has been known to occur to predicted tidal currents. All these datasets are of a mainly temporal nature.

Themes within Climate & Oceanography Topic Layer currently are:

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
CO CLIMATE & OCEANOGRAPHY				
Tides & Tidal Currents (CO61)				
Co-Tidal Line	29300	COTIDE		UKHO
Co-Range Line	29400	CORANG		UKHO
Current - non-gravitational	3600	CURENT	S-57	UKHO
Tidal stream - flood/ebb	16000	TS_FEB	S-57	UKHO
Tidal stream - harmonic prediction	13600	TS_PRH	S-57	UKHO
Tidal stream - non-harmonic prediction	13700	TS_PNH	S-57	UKHO
Tidal stream - time series	13900	TS_TIS	S-57	UKHO
Tidal stream panel data	13800	TS_PAD	S-57	UKHO
Tide - harmonic prediction	14000	T_HMON	S-57	UKHO
Tide - non-harmonic prediction	14100	T_NHMN	S-57	UKHO
Tide – time series	14200	T_TIMS	S-57	UKHO

6.9 Unassigned – Metafeatures & Cartography

The Metafeatures & Cartography topic contains data which relates to the metadata and other miscellaneous features. These are often cartographic i.e. have no real-world feature to represent for example, compass rose. They represent some metadata features which show the coverage of S57 source data.

Themes within Metafeatures & Cartography Topic Layer currently are:

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
UN Metafeatures & Cartography				
Extents				
Compilation scale of data	30100	M_CSCL	S-57	S-57
Coverage				
undefined	30200	M_COVR	S-57	S-57
coverage available	30201	M_COVR	S-57	S-57
no coverage available	30202	M_COVR	S-57	S-57
Horizontal datum of data	30300	M_HDAT	S-57	S-57
Horizontal datum shift parameters	30400	M_HOPA	S-57	S-57
Nautical publication information	30500	M_NPUB	S-57	S-57
Navigational system of marks				
undefined	30600	M_NSYS	S-57	S-57
IALA A	30601	M_NSYS	S-57	S-57
IALA B	30602	M_NSYS	S-57	S-57
modified US	30603	M_NSYS	S-57	S-57
old US	30604	M_NSYS	S-57	S-57
US intracoastal waterway	30605	M_NSYS	S-57	S-57
US uniform state	30606	M_NSYS	S-57	S-57
US western rivers	30607	M_NSYS	S-57	S-57
SIGNI	30608	M_NSYS	S-57	S-57
no system	30609	M_NSYS	S-57	S-57
other system	30610	M_NSYS	S-57	S-57
Production information	30700	M_PROD	S-57	S-57
Sounding datum of data	30900	M_SDAT	S-57	S-57
Units of measurement of data	31100	M_UNIT	S-57	S-57
Vertical datum of data	31200	M_VDAT	S-57	S-57

TOPIC / Theme / Feature Type	Code	Acronym	Source Charted Vector	Source SeaZone Hydrospatial
Survey				
Accuracy of data	30000	M_ACCY	S-57	S-57
Control point				
undefined	3300	CTRPNT	S-57	S-57
triangulation point	3301	CTRPNT	S-57	S-57
observation spot	3302	CTRPNT	S-57	S-57
fixed point	3303	CTRPNT	S-57	S-57
bench-mark	3304	CTRPNT	S-57	S-57
boundary mark	3305	CTRPNT	S-57	S-57
horizontal control, main station	3306	CTRPNT	S-57	S-57
horizontal control, secondary station	3307	CTRPNT	S-57	S-57
Measurement location	29200	MESLOC		BODC
Quality of data	30800	M_QUAL	S-57	S-57
Survey reliability	31000	M_SREL	S-57	S-57
Unsurveyed area	15400	UNSARE	S-57	S-57
Cartographic				
Aggregation	40000	C_AGGR	S-57	S-57
Association	40100	C_ASSO	S-57	S-57
Cartographic area	50000	$AREAS	S-57	S-57
Cartographic line	50100	$LINES	S-57	S-57
Cartographic symbol	50200	$CSYMB	S-57	S-57
Compass	50300	$COMPS	S-57	S-57
Stacked on/stacked under	40200	C_STAC	S-57	S-57
Text	50400	$TEXTS	S-57	S-57

6.10 SeaZone Attributes

In all the datasets listed above there are some common attributes which have been developed by SeaZone. These have been developed to give users easy access to the basic information about any object – its name, Feature Type and ID. These are listed below. However these may not all be available for each Feature Type.

Feature Type Acronym	Feature Type Name
SZID	SeaZone ID
FOID	Feature Object Identifier
SZDATASET	SeaZone Extent ID
SZFEATURE	Feature Class Acronym
SZGEO	Geometry of the Feature
SZLABEL	Label for the Feature, usually the name.
SZSOURCE	SeaZone Source ID
SZFEATCODE	SeaZone Type – defines the subcategory of a feature and used in conjunction with SZFEATURE to apply the symbology
SZFEATDESC	SeaZone Description of Type
SZSCALE	Absolute scale of the original data (applies to S-57 data only)
SZLEVEL	Scale level of the original data (applies to S-57 data only) 1 = Overview, 2 = Offshore, 3 = Coastal, 4 = Approach, 5 = Harbour, 6 = Berthing

7. SUPPORT AND TROUBLESHOOTING

1. Data does not display correctly - for ESRI and MapInfo users check font files are installed correctly. For Cadcorp users check the SeaZone.NOL file is loaded.
2. If you are not able to see all features or features of your interest, try these:
    a. In MapInfo, reorder the tab files using Map > Layer control
    b. If objects of type regions, lines and points are present in the same TAB file, then it is quite possible that regions might be 'hiding' lines/points. In such case try changing the default symbol for the tab file, or view a sorted version of the TAB file by using a query such as:

```
Fields {*}
Tables {TAB_File}
Where {}
Group {}
Order {Level, Group, Geo, Cell, File}
Into {Sorted_TAB_File}
Browse
```

3. Charted Raster will not load correctly:
    a. ESRI users of version 9.1 should make sure they have Service Pack 1 installed.
    b. MapInfo users need to make sure they have updated the MAPINFOW.PRJ file with the information supplied on the SeaZone CD.

More detailed Troubleshooting issues are on our Website. Please visit our Reference Zone (http://www.seazone.com/helpReferencezone.php) and FAQ (http://www.seazone.com/helpFaqs.php) pages.

If you have any problems or queries about the datasets then please visit the SeaZone website Reference Zone. If your query is not answered on these pages then please fill in our online Support Request Form (http://www.seazone.com/helpTechnicalsupportrequest.php) or contact us by email support@seazone.com. (Please note priority is given to the online support request form as we will receive all the information we require to provide complete and fast support).