

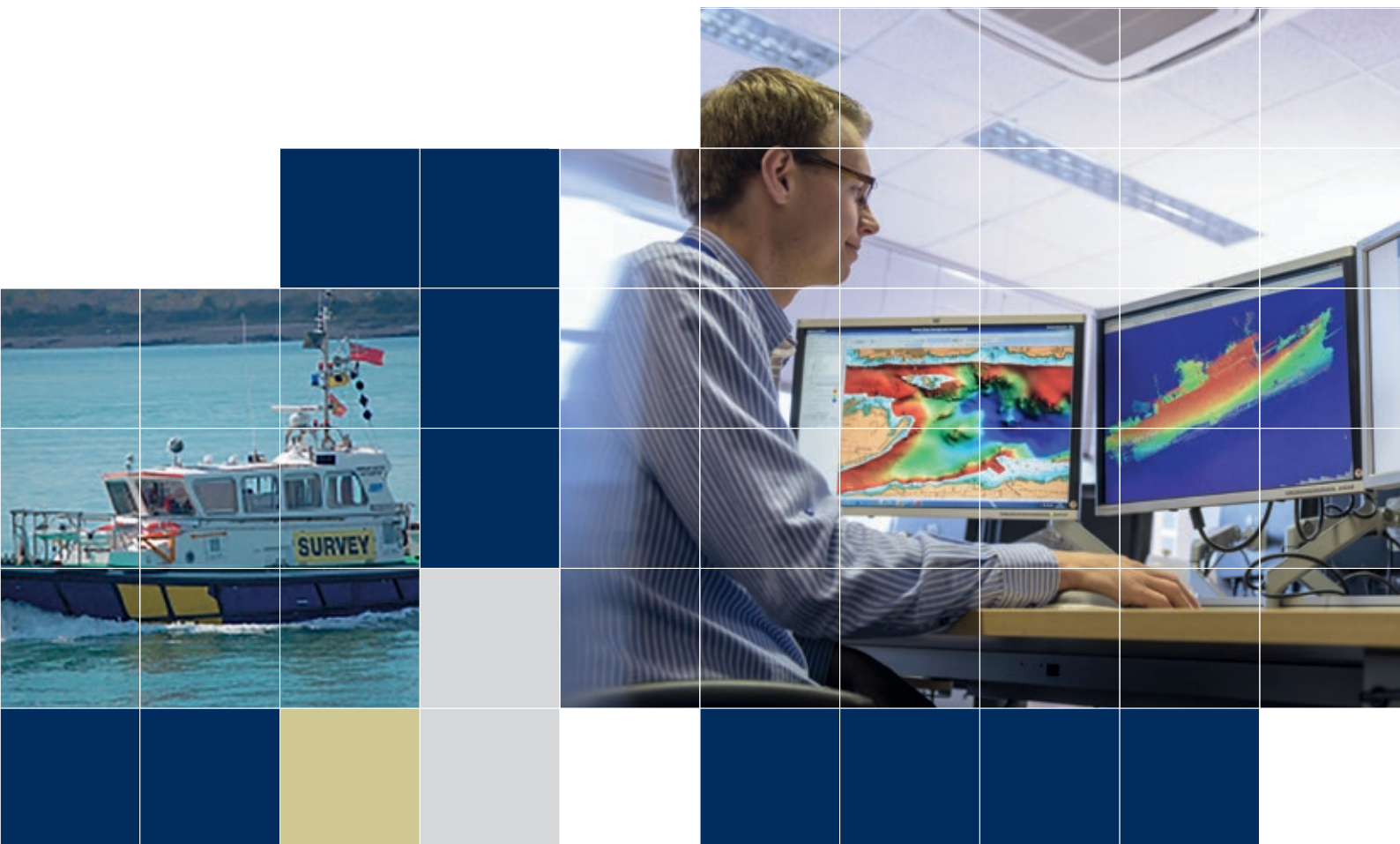


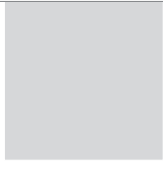
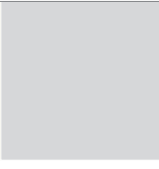
United Kingdom
Hydrographic Office



Harbour Masters' guide to hydrographic and maritime information exchange

Developed by the United Kingdom Hydrographic Office and the UK Harbour Masters' Association





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Foreword by Rear Admiral Tim Lowe, UK National Hydrographer



I feel highly privileged to write this foreword to the updated Harbour Masters' guide to hydrographic and maritime information exchange on behalf of the United Kingdom Hydrographic Office (UKHO).

The first version was jointly written and distributed in 2001 by the UKHO and the United Kingdom Harbour Masters' Association (UKHMA). By ensuring the accuracy and currency of our charts and publications, it enhanced maritime safety, the protection of the marine environment and the efficient use of ports. These objectives are just as true today despite the many technological advances in navigation and cartography that have taken place over the intervening years.

I am therefore confident that the relationship between the UKHO and the UKHMA is in the best interests of the mariner, a fact that is clearly reflected in this latest edition of the Harbour Masters' guide to hydrographic and maritime information exchange.

Rear Admiral Tim Lowe
UK National Hydrographer

A handwritten signature in blue ink, appearing to read 'Tim Lowe', written over a horizontal line.

Foreword by Commander David Vaughan OBE, President, UKHMA



The office of Hydrographer was created in 1795 with the appointment of Alexander Dalrymple as the first Hydrographer of the British Admiralty. By contrast, the United Kingdom Harbour Masters' Association (UKHMA) was formed as recently as 1993. The office of Harbour Master, of course, is much older. It can be traced back to Roman times and possibly even earlier.

Few would argue with the belief that the two roles – Hydrographer and Harbour Master – are inextricably linked and interdependent. The main responsibility of any Harbour Master is to enable safe navigation in their harbour and its approaches, a fundamental requirement that cannot be met without up-to-date survey data and accurate charts. The Port Marine Safety Code highlights this basic responsibility and reinforces the importance of the relationship between the two roles.

The UKHMA values its close association with the UKHO. I am therefore delighted to welcome this timely revision of the Harbour Masters' guide to hydrographic and maritime information exchange, and look forward to a continued productive and mutually beneficial relationship between our two organisations for many years to come.

Commander David Vaughan OBE
President, UKHMA

D. M. Vaughan



Responsibilities for Sharing Maritime Information – ports and harbours

Background

This, the third edition of the Harbour Masters' guide to hydrographic and maritime information exchange (previously known as the 'Code of Practice'), has been jointly prepared by the United Kingdom Hydrographic Office (UKHO) and the United Kingdom Harbour Masters' Association (UKHMA).

Its origin was a draft paper prepared by the UKHO in the late 1990s. This defined the need for ports to provide up-to-date information, including hydrographic surveys and other navigational data, for efficient distribution to mariners and other chart users. The original document took the form of a Code of Practice outlining the requirements of the UKHO, including guidance on how to provide it with the information it needed.

This new edition of the Harbour Masters' guide to hydrographic and maritime information exchange has been updated to take into account recent technologies that are enabling greater accuracy and better data management. It also reflects the UKHO's and UKHMA's joint commitment to the Port Marine Safety Code, ensuring safer navigation and more efficient port operations. We believe that safer and more efficient ports attract more and larger ships, more goods and services, and therefore contribute to the overall success of the local and national economies.

I Responsibilities

I.1 The UKHO


The United Kingdom Hydrographic Office (UKHO) is an executive agency and trading fund of the United Kingdom's Ministry of Defence. Together with other national hydrographic offices and the International Hydrographic Organization (IHO), it works to set and raise global standards of hydrography, cartography and navigation.

The UKHO has three main responsibilities:

1. Its primary aim is to provide hydrographic and maritime geospatial products and services for the Royal Navy, merchant mariners and maritime organisations across the world; in this way, it protects lives at sea and the marine environment as well as supporting the efficiency of global trade.
2. Serving the wider government by supporting the Maritime and Coastguard Agency's (MCA) obligations to the SOLAS treaty; by ensuring that marine data relating to the UK coastal waters is accurate and up-to-date.
3. It also serves small craft and leisure mariners, and also provides a range of consultancy services.

The UKHO's market-leading portfolio of ADMIRALTY Maritime Products & Services provides the most comprehensive range of SOLAS-compliant charts and publications. These are available in a choice of paper or digital formats, both providing geographically-referenced maritime navigational information to keep crews, cargo and ships safe.

Although the UKHO produces and updates such navigational charts and publications, it does not normally commission any surveys or data-gathering activities. Instead, it relies on information passed to it by relevant authorities.



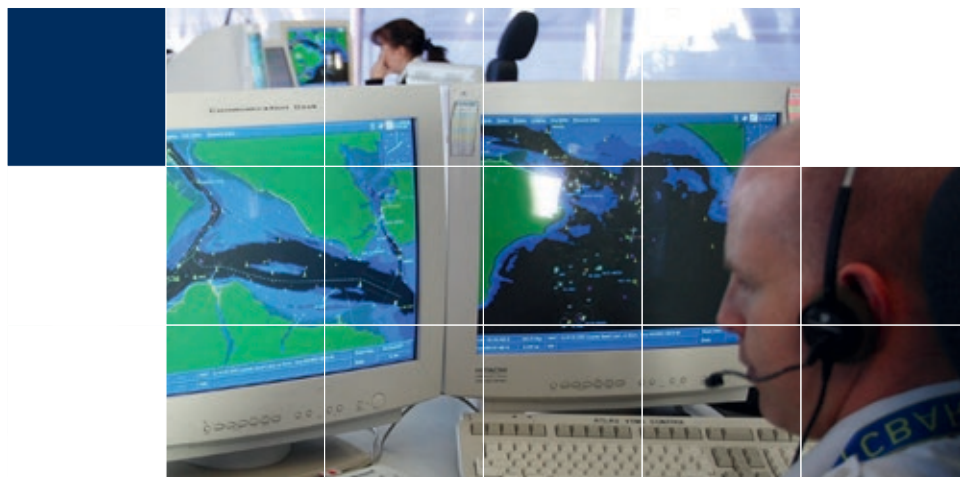
Beyond port limits, the UKHO receives data from sources including commercial surveys commissioned by the MCA, the General Lighthouse Authorities, Royal Navy surveys and engineering and energy-exploration companies. The MCA conducts surveys specifically for charting under the Civil Hydrography Programme.

The UKHO normally relies on Port Authorities to provide information from within port limits and their approaches. With this in mind, the UKHO has developed long-term Port Agreements (see Section 6) that facilitate the effective exchange of data between Port Authorities and the UKHO. Harbour Masters are strongly recommended to consider setting up and maintaining such Port Agreements. The UKHMA supports Port Agreements and are able, when necessary, to offer impartial advice.

Although the UKHO assesses the information it receives from these sources within strictly administered time-frames, accurate assessment of new data and incorporating the resulting changes into various affected products takes time. Under usual circumstances, an assessment can result in ADMIRALTY charts and publications being updated by Notices to Mariners (NMs) or even by the publication of a New Edition.

Changes considered critical for safe navigation are distributed rapidly via a Radio Navigational Warning (RNW) and/or Temporary or Preliminary Notices to Mariners (T&P NMs), so indicating to mariners that a significant change has taken place. The RNW and T&P NMs are withdrawn once the affected products have been updated by Notices to Mariners (NMs) or New Edition.

In some instances, when the UKHO considers that new information does not sufficiently alter ADMIRALTY products to be immediately significant to mariners, it will update its Hydrographic Database (HDB) to ensure that the new information is already incorporated into future charts and publications. This means that new data it receives may not appear on an updated product for several months.



I.2 Harbour Masters

In keeping with the Port Marine Safety Code and under existing legislation, Harbour Masters have a duty in law to take all reasonable steps to inform masters of visiting ships of any changes affecting navigation, where a lack of knowledge might endanger their ships.

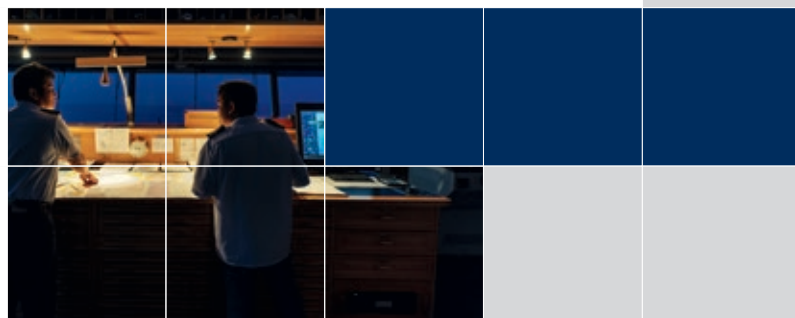
Port Authorities have therefore committed to undertake regular surveys and to ensure that hydrographic information is published in a timely manner.

The preferred way of ensuring that masters of visiting ships know of such changes is for Harbour Masters to inform the UKHO about them. The types of information that are useful are covered in the sections below.

Because of the time taken between the UKHO being informed and a change appearing in relevant charts and publications, Harbour Masters need other means of distributing significant data. These typically involve communicating via pilots, Vessel Traffic Services (VTS), Local Radio Navigational Warnings and Local Notices to Mariners. Such alternative means may also be needed for very short-term events, such as a sailing regatta, the planned movement of an especially large vessel or works on a quay, as the UKHO does not usually update its products or use RNWs in such cases.

I.3 Masters of Ships visiting a port

Shipmasters have a responsibility to ensure their ships meet Flag and Port State requirements for carriage compliance. These state that ships must carry official nautical charts, such as ADMIRALTY Standard Nautical Charts (SNCs) or Electronic Navigational Charts (ENCs), and supporting publications, that are up-to-date and adequate for the intended voyage. Port State Control Officers may check compliance with the regulations when a ship enters port.





2 Data regulations on maritime navigation

The maritime navigation environment is highly regulated, and includes among others the following entities and conventions.

2.1 Key organisations

2.1.1 International Maritime Organization (IMO)

The IMO is a United Nations specialised agency that has responsibility for the safety and security of shipping and the prevention of marine pollution by ships. An example of an IMO convention is the Safety of Life at Sea (SOLAS) Convention.

The governments of most seafaring nations are IMO Member States (see imo.org/About/Membership/Pages/MemberStates.aspx). When they adopt IMO Conventions, they must incorporate the associated requirements into their national laws.

The technical committees of the IMO are assisted in their work of setting maritime regulations and standards by other inter-governmental organisations such as the International Hydrographic Organization (IHO) and industry group representatives such as the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) (see below).

2.1.2 International Hydrographic Organization (IHO)

The IHO is the authoritative, worldwide hydrographic body. It actively engages all coastal and interested states to advance maritime safety and the protection of the marine environment. It co-ordinates the activities of national hydrographic offices and seeks to promote the greatest possible uniformity in nautical charts and documents. It has created the standards (S-57, S-52, S-63) that are used in the production and display of ENCs.

2.1.3 International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA)

IALA is the non-profit, non-governmental, international technical association that aims to harmonise aids to navigation worldwide.

2.1.4 Hydrographic offices

Hydrographic offices (HOs) are governmental organisations that collect, create and maintain hydrographic information about their territorial waters as required by the SOLAS Convention. Data is collected in many forms and from many sources before publication via nautical charts (both paper and digital), sailing directions, tide tables, lists of lights, nautical almanacs etc.

Hydrographic offices apply IHO standards in the production of the charts and publications that the IMO's SOLAS convention requires ships to carry. Only charts and publications issued by a hydrographic office or other governmental organisation can be called 'official'.

The UKHO plays a leading role within the IHO. It is one of the few HOs to produce charts and publications that cover waters outside their national territories. It is the only one to issue comprehensive worldwide coverage that is widely available. It also has an unrivalled body of technical experts.

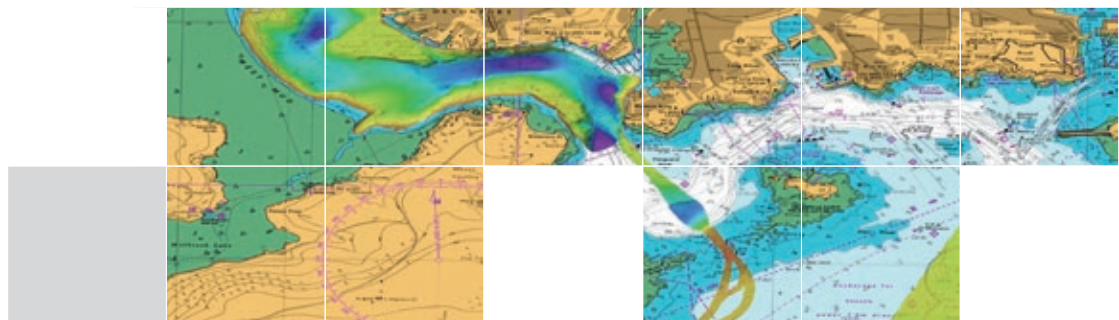
Hydrographic offices frequently share data and products to support the safety of navigation. The UKHO's ADMIRALTY charts and publications portfolio depends significantly on the work of other hydrographic offices.

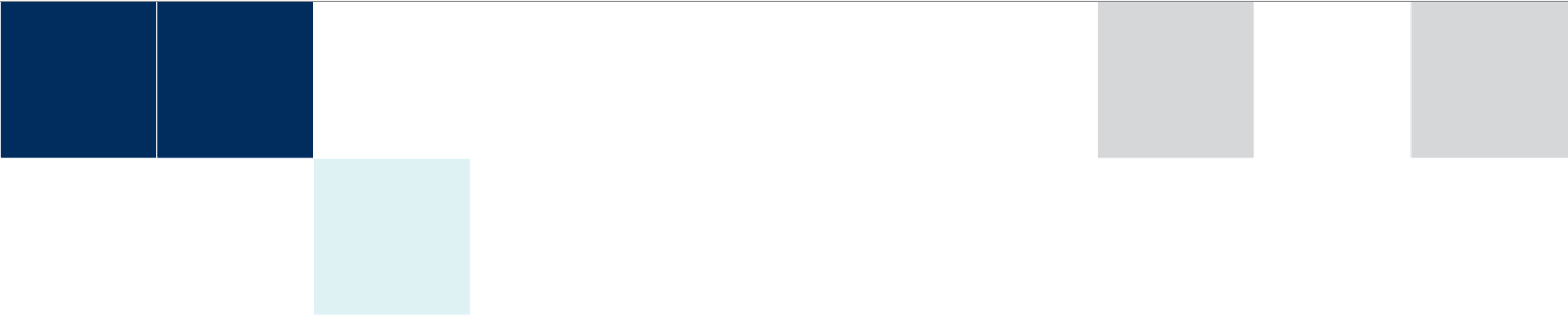
2.2 Related chapters of the SOLAS Convention

The IMO's Safety Of Life At Sea (SOLAS) Convention is generally regarded as the most important international treaty relating to the safety of merchant ships. It is regularly updated and amended to ensure that it reflects current shipping and safety requirements. It consists of 12 chapters, covering topics from ship building to cargo.

2.2.1 Safety of Navigation – SOLAS Chapter V

Chapter V, 'Safety of Navigation', is the only chapter that is applicable to all ships on all voyages. Signatories to the SOLAS Convention will have incorporated the requirements contained in Chapter V into their national law, meaning they apply to all ships operating under that nation's flag (the Flag State). If a ship is in breach of the requirements of Chapter V, it will almost certainly also be in breach of Flag State regulations and is likely to be found deficient during any Port State Control check.





Chapter V Regulation 2.2 defines the charts and publications that can be used to meet carriage requirements. These must be issued officially by a government, hydrographic office or other governmental body. Regulation 19 requires ships to carry compliant charts and publications to plan, display and monitor their voyages. Regulation 27 requires that charts and publications are adequate for the intended voyage and that they are kept up-to-date.

An amendment to Chapter V Regulation 19 came into force in 2002 acknowledging that Electronic Chart Display and Information System (ECDIS) may be used to meet carriage requirements for charts.

2.2.2 Mandatory carriage of ECDIS

A further amendment to Chapter V in January 2011 made it mandatory to fit ECDIS to most large ships on a rolling timetable from July 2012 to July 2018. Ships within two years of their end-of-life may be exempted.

Where ECDIS is used for navigation, an independent backup system containing official charts must also be in place. This can be either another ECDIS, an Electronic Chart System (ECS) displaying official Raster Navigational Charts (RNCs), or an appropriate set of official paper charts. All back-up charts must be agreed with the ship's Flag State and appropriate Port State Authorities beforehand.

2.2.3 Management for the safe operations of ships – SOLAS Chapter IX

In 1989, the IMO adopted the International Management Code for the Safe Operation of Ships and for Pollution Prevention. Also known as the International Safety Management (ISM) Code, its primary objectives are to use sound management and operating practices to ensure safety, prevent human injury or loss of life and to avoid damage to the environment and to property.

SOLAS Chapter IX, 'Management for the safe operation of ships', makes it mandatory for all ships to follow the standards of the ISM Code. The code states that all international passenger ships and oil tankers, chemical tankers, gas carriers, bulk carriers and cargo ships of 500 gross tons or more must have a Safety Management System (SMS). The SMS should be used on board to identify hazards, control potential risks and ensure that all risk controls are effective.

The ship owner, or any person who has assumed responsibility for the ship, must define, implement and document an SMS policy that meets the objectives set out in the ISM Code. A copy of the SMS documentation must be kept on board the ship.

Official and compliant nautical charts and publications constitute a key part of SMS documentation. To remain compliant with SOLAS, it is vital that these charts and publications are kept up-to-date by using the Notices to Mariners (NMs) service.

3 Data quality supporting safe navigation

The UKHO should be informed of any changes to maritime information at the earliest opportunity. Whenever possible, it should be informed before a change takes place, so that it can minimise any interval between the change occurring and being recorded in an ADMIRALTY NM or shown on a chart. Knowing about a sequence of developments, surveys or a forthcoming series of improvements will allow the UKHO charting team to respond in the most appropriate way. This might start with the rapid issue of Preliminary Notices to Mariners (PNMs) or Temporary Notices to Mariners (TNMs), to be replaced with a full NM or a New Edition when the port development is completed.

Certain types of information may take several months before they can be published on a chart. If the UKHO is only notified of changes when they are completed, this may require Harbour Masters to use their own resources to continue communicating changes for a longer period.

The UKHO encourages Port Authorities to use electronic means to submit change information as the speed and accuracy of this approach enables a smoother internal assessment. The International Harbour Masters' Association (IHMA) produces two templates (the 'Port Information Guide' and the 'Port Sections Guide'), which Harbour Masters can use to publish nautical port information in a consistent manner. These can both be downloaded from the IHMA's website (www.harbourmaster.org) together with full instructions. The UKHO supports this initiative, and welcomes ports using the templates to provide hydrographic information; this can be submitted by email directly to sdr@ukho.gov.uk

3.1 Official and approved data

It is essential to make the distinction between official, unofficial and counterfeit charts. Official charts are issued by an authorised source, such as a hydrographic office, and are therefore compliant with SOLAS requirements. Unofficial charts are produced and issued by private companies, and are not SOLAS compliant. Counterfeit charts are illegal, not SOLAS compliant and could be dangerous.

3.1.1 Official charts

An official nautical chart is defined as “a special-purpose map or book... that is issued officially by or on the authority of a Government, authorised Hydrographic Office or other relevant government institution and is designed to meet the requirements of marine navigation.” (SOLAS Chapter V, Regulation 19.2.1.4.)

For a ship to comply with SOLAS Chapter V requirements, it must carry official and up-to-date nautical charts and publications.



3.1.2 Private sector/unofficial charts

Charts that are produced by the private sector are not official and do not meet the above definition of nautical charts in SOLAS Chapter V. Although private-sector charts may be created under licence from hydrographic offices, this does not mean that their charts are authorised by those offices.

In addition, unofficial digital charts do not comply with regulations relating to the use of ECDIS. While unofficial data may be used in an electronic charting system as a supplementary aid to navigation, an ECDIS that is fitted as a carriage requirement or being used for navigation must have official ENC installed.

3.2 Watch out for dangerous counterfeit navigational products

Counterfeit charts and publications have not been through the same rigorous checking procedures as official ADMIRALTY charts and publications. They may not be accurate and may be dangerous, increasing the level of risk faced by ships, crews, cargoes and the marine environment. They therefore cannot be trusted for voyage planning or navigational purposes.

The UKHO is aware of an increase in the number of counterfeit versions of its ADMIRALTY charts and publications in circulation. In the interests of safety, it therefore asks all Port State Authorities to be on the lookout for counterfeit products and to report them immediately.

As stated above, counterfeit charts and publications do not satisfy SOLAS carriage requirements, as they have not been issued officially by or on the authority of a government, an authorised hydrographic office or any other relevant government institution (see Chapter V, Regulations 2.2 and 19.2.1.4 of the SOLAS Convention). Carrying them may also fail to satisfy, and even break the laws of Flag State Authorities and Port State Control. Carrying counterfeit documents is also against the law in all countries that have signed the Berne Convention on copyright, which includes the vast majority of nations, which means users could face prosecution.

In addition to all the above, users found to have counterfeit charts and publications may in the event of an incident find their insurance is invalid.

In its continuing work to seek and stop the production and sale of counterfeit copies of its charts and publications, the UKHO has raised its concerns with the International Maritime Organization, the International Hydrographic Organization and Flag States. It also urges all purchasers, users, inspectors and regulators to be vigilant for counterfeit ADMIRALTY charts and publications. And it encourages anyone who suspects they may be in possession of counterfeit products to get in touch with the UKHO.

To reduce the use of counterfeits, and help users and inspectors distinguish official ADMIRALTY charts and publications from counterfeit versions, the UKHO has updated its simple 'Guide to Identifying Genuine ADMIRALTY Products' – see below for a number of key excerpts from the guide.

3.2.1 Paper chart watermarks

All genuine ADMIRALTY paper charts bear the ADMIRALTY 'Flying A' watermark or the new 'ADMIRALTY' watermark within the paper on which they are printed. This watermark can be seen by holding the chart up to the light. Once you have identified the watermark on official ADMIRALTY charts, you can compare it with any suspicious charts.



3.2.2 Paper chart thumb labels

Every genuine ADMIRALTY chart also carries a 'thumb label' strip on its reverse, containing the ADMIRALTY logo, the chart number, the geographic area featured, a barcode and date. Your ADMIRALTY Chart Agent should have also stamped the chart.





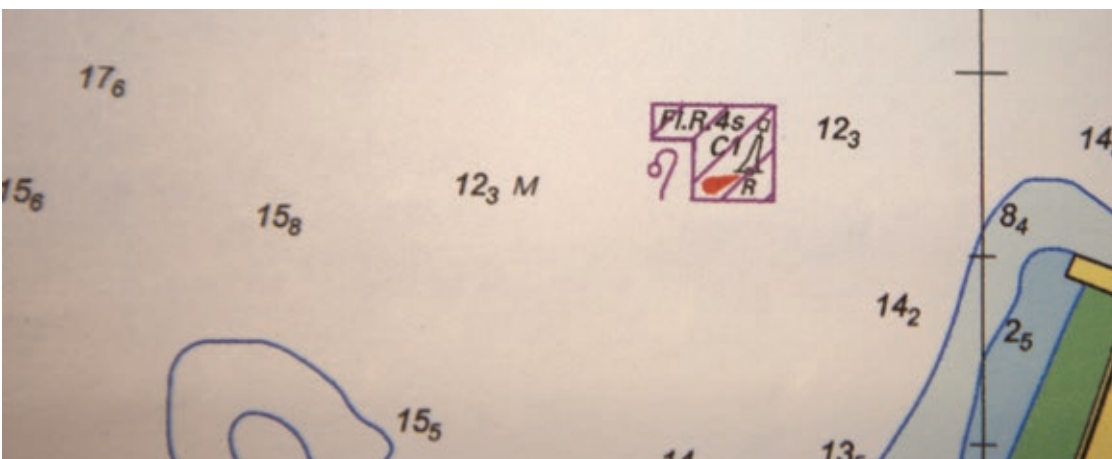
3.2.3 Inconsistent use of colours and weights of paper on paper charts

If suspicious, you can compare the look and feel of a chart with that of a genuine ADMIRALTY chart. If the ink on a chart looks to be a different colour tone, weight or feel, then it might be a counterfeit copy.



3.2.4 NMs printed on paper charts

In some instances, NMs have been printed onto charts. These are certainly counterfeit, as this is not a practice that is approved or implemented by the UKHO.



3.2.5 Certificates of authenticity on paper publications

Publications published since October 2014 include a certificate of authenticity. This can be found inside the rear cover of the publication or within the opening pages. The certificate will be stamped and dated by the issuing ADMIRALTY Chart Agent to certify that it is a genuine ADMIRALTY product.





3.2.6 Protective graphics on paper publications

Publications published since October 2014 also include a grey graphic showing the UKHO crest across random pages. If photocopied, the words 'ILLEGAL COPY' will be visible. Counterfeiters have been known to try and overcome this by removing the graphic completely, resulting in pages not being numbered.

They may also remove the entire graphic except the part covering the page number. In this instance, some of the graphic can still be seen, meaning the page number will have a grey rather than a plain white background.



3.2.7 Crest on paper publication front covers

All ADMIRALTY publications published since October 2014 have a transparent but easily visible UKHO crest overlaid on the front cover.



3.2.8 Inconsistent printing and finishing standards

You can also inspect the quality of printing. If a publication has uneven pages, inconsistent margins, variable ink densities or an unfamiliar paper stock, it is almost certainly counterfeit. An example of inconsistent printing standards can be seen below.

You can also check the binding. Genuine publications are tightly bound, whereas counterfeits may have a weak spine (and even text on the inside of the spine). An example of this can be seen below.

You might also compare a new edition with the previous edition to see if there are differences in look and feel.



For further information, updates and other initiatives aiming to prevent counterfeit production, download the 'Guide to Identifying Genuine ADMIRALTY Products' for free from either the UKHO or ADMIRALTY websites.

4 Data exchange

The ADMIRALTY Maritime Products & Services portfolio provides the world's most comprehensive global hydrographic and geospatial information, comprising SOLAS-compliant charts, publications and digital services to keep crews, cargo and ships safe. Their importance means that significant time and effort is devoted to ensuring that they are up-to-date and correct.

These are some of the reasons why mariners have relied on the ADMIRALTY portfolio for more than 200 years, and why it is found today on over 90% of the world's ships trading internationally.

The UKHO can supply Port Authorities with a set of charts and publications covering their port limits and their approaches for review and notification purposes. This is usually free of charge as part of the terms of a bilateral Port Agreement. The UKHO always welcomes comments on the suitability of all ADMIRALTY Maritime Products & Services, such as coverage and scale. It also encourages input on the accuracy of features shown, such as bathymetry, radio frequencies, navigation light positions and characteristics, and any changes affecting navigation. In addition, it will always consider revisions to the charts and publications that cover a port, such as revising scales and chart limits. It will only make significant changes where these deliver a clear improvement and have no adverse impact on the product or other products outside the limits of the port.

Harbour Masters wishing for amendments should mark up the relevant publication or scanned copy and send it to the UKHO. If required, the UKHO will then provide a corrected replacement copy.

The UKHO encourages Port Authorities to discuss the ADMIRALTY charts and publications covering their ports and approaches with the appropriate UKHO Geographic Manager or Regional Team, or with the UKHO's Head of Maritime Safety and Publications. (See list of UKHO contacts in Annex 2.)

4.1 Bathymetric data

4.1.1 Bathymetric surveys

To meet their duty to inform the masters of visiting ships of any changes affecting navigation, Port Authorities have committed to helping ensure that regular surveys and hydrographic information are published in a timely manner. The preferred way of ensuring that shipmasters know of such changes is for Harbour Masters to inform the UKHO, through the prompt release of port survey results.



To do so, Harbour Masters need to assess new surveys against their previous versions and against current ENC, ADMIRALTY SNCs or ADMIRALTY Raster Charts. If they find differences between the new survey and the current charts that are significant to navigation, Harbour Masters should issue Port Notices as necessary, forwarding the survey and relevant Port Notice to the UKHO.

If no significant differences are found, they should forward the new survey to the UKHO with covering documentation stating that no differences were found. The new survey data will then be considered for inclusion in the next New Edition, and can be incorporated, with consent, into the UKHO hydrographic database. Local arrangements between the UKHO and the Port Authority are in place to cover this process for certain ports that are surveyed on a frequent basis.

4.1.2 Category Zone of Confidence (CATZOC)

CATZOC is a vital component of all ENCs. It describes the quality of the bathymetric data to the mariner through defined position and depth accuracies. CATZOC values are derived based on the knowledge UKHO has about each dataset: the higher the CATZOC values, the higher the confidence required in the data and the procedures applied.

Responsibility for the classification lies with Harbour Masters, who are expected to state their level of confidence to the UKHO in writing. The UKHO will assign a CATZOC even if a Harbour Master does not request one, but this is likely to be of a lower category than the data could actually support. The amount of confidence that the UKHO can have in any dataset is determined by the method of survey, the format of the data (see 4.1.4 opposite) and the quality of any supporting information. Because processed XYZ data does not allow the survey methodology to be thoroughly checked, it can only be assigned a maximum of CATZOC B. Full-density data with a good report and supporting information may be assigned a higher CATZOC if the UKHO has confidence in the survey.

Harbour Masters wishing to have a specific CATZOC allocated to an area of their port should let the UKHO know the limits and the CATZOC value that is required. Subject to confirming checks, the UKHO will then apply the specified value. Before submitting a request for a high-order CATZOC value, Harbour Masters should be fully aware of the implications of such a classification: in particular, they might incur increased liability for future incidents in an area where a high-order CATZOC has been assigned.

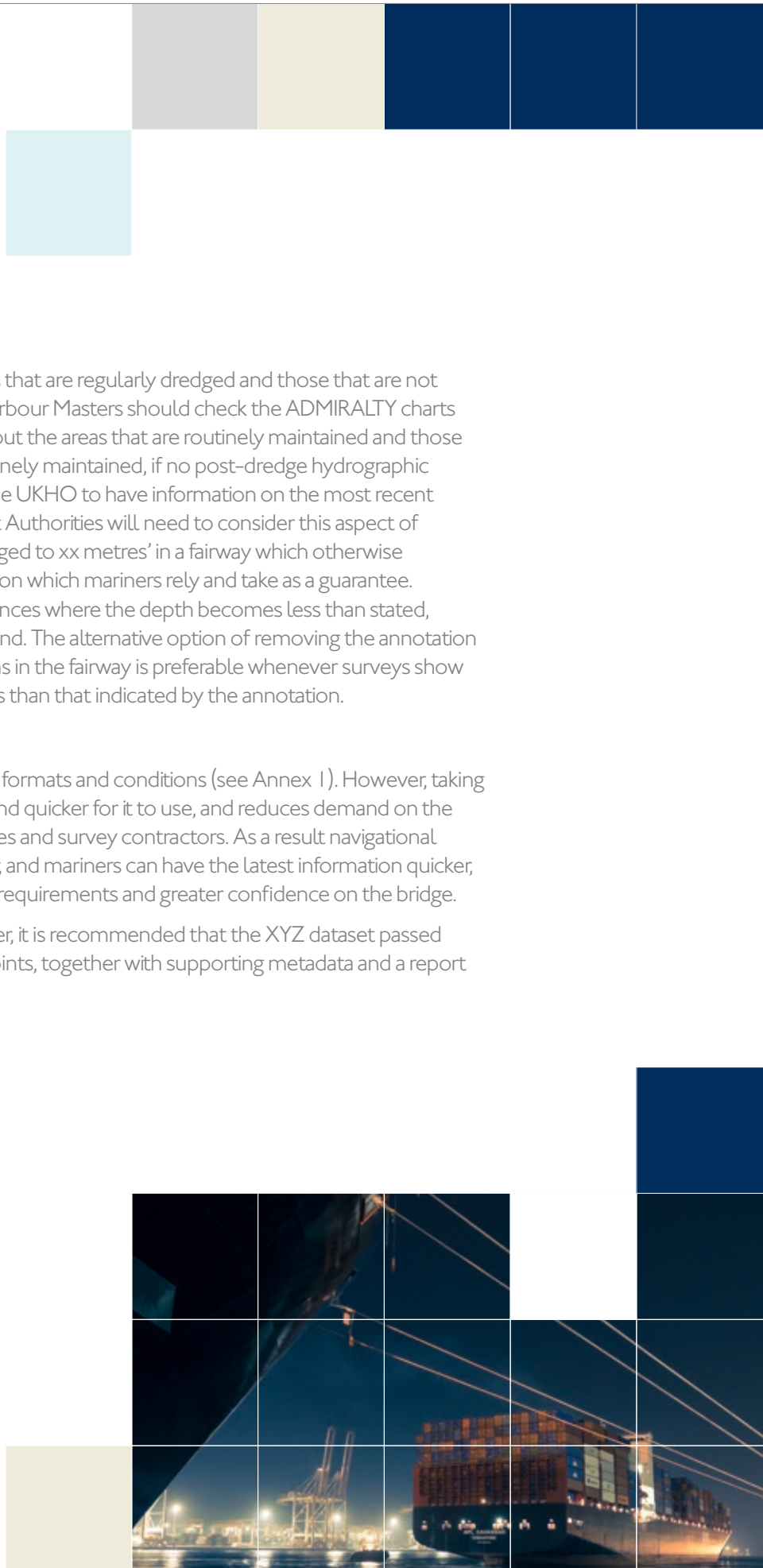
4.1.3 Dredged and maintained areas


ADMIRALTY charts distinguish between areas that are regularly dredged and those that are not routinely maintained at a particular depth. Harbour Masters should check the ADMIRALTY charts covering their port and inform the UKHO about the areas that are routinely maintained and those that are not. For those areas that are not routinely maintained, if no post-dredge hydrographic surveys are available, it would be useful for the UKHO to have information on the most recent dredging, its date and the depth reached. Port Authorities will need to consider this aspect of charting most carefully. The annotation 'Dredged to xx metres' in a fairway which otherwise shows no soundings is a statement of fact upon which mariners rely and take as a guarantee. Harbour Masters should beware of circumstances where the depth becomes less than stated, creating the risk that a vessel might run aground. The alternative option of removing the annotation 'Dredged to xx metres' and showing all depths in the fairway is preferable whenever surveys show that the shallowest depth in the fairway is less than that indicated by the annotation.

4.1.4 Format of bathymetric data

The UKHO can accept data in many different formats and conditions (see Annex 1). However, taking a few simple steps makes the data far easier and quicker for it to use, and reduces demand on the valuable time and resources of Port Authorities and survey contractors. As a result navigational charts and publications can be updated faster, and mariners can have the latest information quicker, all supporting safer voyages, SOLAS carriage requirements and greater confidence on the bridge.

If the data is from a single-beam echo sounder, it is recommended that the XYZ dataset passed to UKHO contains all the full-density data points, together with supporting metadata and a report of survey.





If the data is from a swathe system (such as a multi-beam echo sounder), gridding the data to a suitable resolution (typically two metres) is recommended; in such cases, details of the gridding method used also need to be supplied. The UKHO also recommends using shoal-biased gridding to ensure that critical depths are not lost.

The preferred format for bathymetric data is a digital dataset: XYZ datasets should preferably be provided in ASCII format: latitude; longitude or Grid E; Grid N, and depth, with all details being provided in the metadata. The UKHO will, however, accept survey graphics if digital datasets are not possible. For certain ports, both the digital dataset and survey graphic are required where the latter shows the latest information for non-bathymetric features such as buoys, dredged limits and port developments. Where this occurs, it is beneficial if the graphic is supplied at the same time as the digital dataset and annotated to show that it is intended for non-bathymetric data only.

In all cases, the data should be cleaned, with all unreliable data removed. The full-density data should retain the unreliable data, clearly flagged as 'rejected'.

For all swathe surveys, man-made features such as quay walls and beacons that are vertical and dry at all states of tide, should have all bathymetric data points removed from the vertical element of the structure (alongside depths may otherwise be incorrectly charted).

All survey depths need to be adjusted for tides. To be of most use, soundings should be reduced to the relevant local Chart Datum (CD). Preferably, observed tides should be used (the use of predicted tides should be avoided, as these may not be accurate enough). Where the surveying method uses GNSS (GPS) height and an appropriate tidal model such as VORF to calibrate depths, the need for observed tides may be negated. If large differences are discovered between observed and predicted tides, the UKHO's tides team should be informed (see paragraph 4.11 and Annex 2 for contacts).

The minimum (critical) metadata to be delivered with the data is detailed in the form in Annex 3, which also details additional supporting metadata that would be of further use if it could be supplied.

Harbour Masters are advised to contact the UKHO Bathymetric Data Centre (see Annex 2) for detailed advice regarding data formats.

It is important that Harbour Masters supply bathymetric survey data to the UKHO as soon as possible so that it can update products and databases. For ports surveyed on a very frequent basis, local data supply arrangements between the port and the UKHO may be necessary to ensure that data is supplied on time and in the right format. A system that works well involves the UKHO having access to the port survey database so that it can manage the data-supply process. This system has been found to save time and effort for Port Surveyors and Harbour Masters, as the UKHO works in the background, interrogating and downloading information as and when it is required.

4.1.5 Survey support

The UKHO Bathymetric Data Centre can provide data and surveying support upon request (see Annex 2). This can be especially useful when non-routine surveying is being carried out, such as when a contract surveyor is used for the first time.

Examples of the support that the UKHO can provide include:

- › Providing an example of a survey specification
- › Providing an example of a report of survey
- › Advising on pre-written specifications to ensure they achieve the required quality
- › Support during survey operations
- › Miscellaneous advice on data content and data collection through site visits, visits to the UKHO or external communications

4.2 Port developments

Port and harbour developments affecting quays, dredged areas, new berths and onshore building outlines within the harbour area are of particular interest to the UKHO. Harbour Masters can help by notifying the UKHO before work begins and sending full details on completion. Port Authorities are requested to give information on the nature of the work, its location (with any preliminary drawings) and key scheduled dates. Any associated new or temporary aids to navigation to be put in place are of particular importance, including information on when they will be installed, when they will be operational and precisely where they will be located. This information will enable the UKHO to consider any preliminary chart/publication or NM action that it needs to take. Many such changes can usefully be covered by PNMs, while wording such as 'Works in Progress 2016' might be needed for extensive changes. On completion, the UKHO would like to receive copies of engineering drawings showing the development, together with details of aids to navigation and their characteristics and the limits of any new dredged areas or depths in the area. Harbour Masters will need to obtain this information from port engineers or direct from the developers. In some cases, Port Authorities may consider it beneficial to commission a survey from a firm of qualified surveyors to chart the new features 'as built'.

4.3 Aids to Navigation (AtoNs): Fixed and floating navigational lights, buoyage and fog signals

In considering any amendments to fixed lights Harbour Masters should, in the first instance, meet their obligations to advise the relevant General Lighthouse Authority (GLA) – Trinity House, The Northern Lighthouse Board, or the Commissioners of Irish Lights.

70,000 individual light structures, including lighthouses, lightships, lit floating marks and fog signals from around the world are contained in the ADMIRALTY List of Lights (ALL), although do not cover buoyage. The ADMIRALTY List of Lights are available in digital (ADMIRALTY Digital List of Lights – ADLL) and printed publications.

The UKHO encourages Harbour Masters to check the latest version of ALL (updated to the latest available section V Weekly ADMIRALTY NMs) to confirm that it accurately shows all the fixed navigational lights in their ports. The UKHO should be informed immediately if any of the lights are shown incorrectly (including changes to shape, colour, type of structure, altered characteristics, light discontinued etc.), or if new lights have been established. It would particularly appreciate receiving information concerning the continuing relevance of any temporary and preliminary amendments, shown in column 8 of the paper version.

The following information describes what the List of Lights database holds. For a new light, all details should be provided. For existing structures, it is sufficient to quote the ALL number and then list those items which are to be changed.

- › Name, location, geographic position and datum on which the position is based. If an existing light, the ALL number should also be included
- › Characteristics of light and phases
- › Visible sectors with bearings from seaward and including any arcs obscured
- › Elevation of the light above MHWS
- › Nominal range
- › Description of structure (including topmark), with height of the structure above ground level
- › For leading lights or lights in line, the lead and distance between front and rear lights
- › For directional lights, the centre line bearing from seaward and colours/characteristics/bearings of all visible sectors
- › Detailed description of any fog signal
- › Details of any other co-located Aids to Navigation (RACONS or AIS stations)
- › Details of any temporary disruptions to service (eg Temporarily Extinguished) with dates

To ensure the relevant charts and publications can accurately show these important navigational items, the UKHO would also like to be informed of any impending changes, so that it can begin preparatory work on updating ADMIRALTY charts and publications in a timely manner once the change occurs. Provided sufficient notice is given, the UKHO can ensure that a new pattern of buoys, for example, is shown in the relevant chart from the day it is put in place.

Ports that issue their own Local Notices to Mariners usually provide the UKHO with changes to AtoNs in this form. However, when this is not the case, it is important that the UKHO is notified of all changes promptly, preferably in advance of implementation and including the implementation date. As most Harbour Masters and Port Authorities have established approval processes for Local Notices to Mariners, the point of approval is a good opportunity to provide the UKHO with preliminary advice. The annual MCA Port Inspection should be the trigger for an audit of all those AtoNs for which the port is the local lighthouse authority. Again, this provides a good opportunity to advise the UKHO of any changes or amendments.



4.4 Pilot services, VTS and port operations

Essential information on more than 3,600 service locations worldwide is contained in the ADMIRALTY List of Radio Signals paper publication (NP286) and in the ADMIRALTY Digital List of Radio Signals (ADRS 6).

Such information includes:

- › Detailed pilot information, contact details and procedures
- › Vessel Traffic Service (VTS) information, contact details and procedures
- › National and international ship reporting systems
- › Port information, contact details and procedures

Harbour Masters should report details of all new services and procedures, as well as amendments to existing ones, to the UKHO. Whenever possible, such details should be provided before implementation so that the UKHO has time to update affected ADMIRALTY charts and publications and to spread the information as widely as possible. The description of the navigational services and operational procedures used in the port and its approaches should also be regularly reviewed. Port Authorities should consider an annual review, placing themselves in the position of the masters of the various classes of vessel visiting the port, assuming each to be the first such visit. The information's completeness should be judged as well as its correctness. If certain vessels, such as pleasure craft, are exempt from compliance with some requirements, this should also be made clear.



4.5 Radio positional and timekeeping references

These radio references aid the calculation of positions and times worldwide, to help ensure that ships are in the right place at the right time. The references are contained in the ADMIRALTY List of Radio Signals paper publication (NP282) and in the ADMIRALTY Digital List of Radio Signals (ADRS 2), which also include worldwide listings of:

- › VHF radio-direction-finding stations
- › Radar beacons (RACONS and RAMARKS)
- › Known operational Automatic Identification System (AIS) Aids to Navigation (AtoN)
- › Radio beacons transmitting DGPS corrections
- › International standard and daylight saving times and dates
- › International radio time signal broadcast details
- › Electronic position fixing system

4.6 Other radio communications and information relay

These assist the mariner in routine radio communications, receiving and providing weather reports and safety information, pollution and quarantine reporting, and in seeking Telemedical Assistance Services (TMAS). They also provide detailed procedures in the event of a distress or Search and Rescue SAR incident.

They are contained in the ADMIRALTY Digital List of Radio Signals (ADRS 1, 3, 4, 5) and in the ADMIRALTY List of Radio Signals (ALRS) paper publications:

NP281 – Maritime Radio Stations

NP283 – Radio Aids to Navigation, Satellite Navigation Systems, Differential GPS (DGPS)
Legal Time, Radio Time Signals and Electronic Position Fixing Systems

NP284 – Meteorological Observation Stations

NP285 – Global Maritime Distress and Safety System (GMDSS)

Details of radio signals information should be compared with the entry within the relevant ALRS volume, updated to the latest available Section VI Weekly ADMIRALTY NMs.

New, additional or confirming information provided to the UKHO should include details of who provided the information, confirming in particular that it is based on an announcement by, or has been verified with, the relevant authority.

4.7 ADMIRALTY Sailing Directions (often referred to as 'Pilots')

Sailing Directions (SDs) offer mariners a clear picture of their environment by providing comprehensive coverage of cautions, landmarks, navigational hazards, buoyage, meteorological data, details of pilotage, national shipping regulations, port facilities and guides to major port entry. Each publication is available in printed and digital formats.

Amendments to SDs should state to which volume they refer, together with its date and the latest Section IV Weekly ADMIRALTY NMs. In each case, the position of the amendment should be identified by its page number, paragraph and marginal sub-paragraph indicator.

Harbour Masters should bear in mind that clearly setting out up-to-date information on port facilities and services in SDs provides a port with commercial and other advantages.

ADMIRALTY Sailing Directions are greatly enhanced by the use of topical, up-to-date colour photographs of important features. Where opportunity and resources allow, Harbour Masters are therefore encouraged to support these publications by offering aerial oblique colour photographs of the approaches to ports and along recommended leading lines, along with other general views wherever these would be useful. Whenever possible, colour photographs illustrating the amendments to the SDs should be provided. Photographs should be taken and submitted following the guidance given in the Mariner's Handbook (NP 100), paragraphs 4.74 – 4.84.



4.8 Tidal data

The tidal predictions that the UKHO produces, published as the ADMIRALTY Tide Tables, TotalTide and EasyTide products, are calculated based on analyses of tidal observations gathered at various ports and locations worldwide. As the existing tidal streams at a port can be altered by any major dredging or engineering works, it is therefore possible that the predictions in these ADMIRALTY publications may require updating. When Harbour Masters operate a tide gauge, the UKHO welcomes confirmation that the values it records agree with the predictions obtained from the ADMIRALTY products (taking into consideration any weather-related variations). If the values do not agree, then the UKHO should be provided with raw tidal records from the gauge for potential re-analysis and recalculation of the port's tidal predictions.

In order to create tidal predictions, the UKHO needs tidal records that have been recorded over a minimum of 30 days. Data covering a longer period enables the UKHO to calculate more accurate tidal predictions.

Harbour Masters should include the following information with the tidal height/stream records:

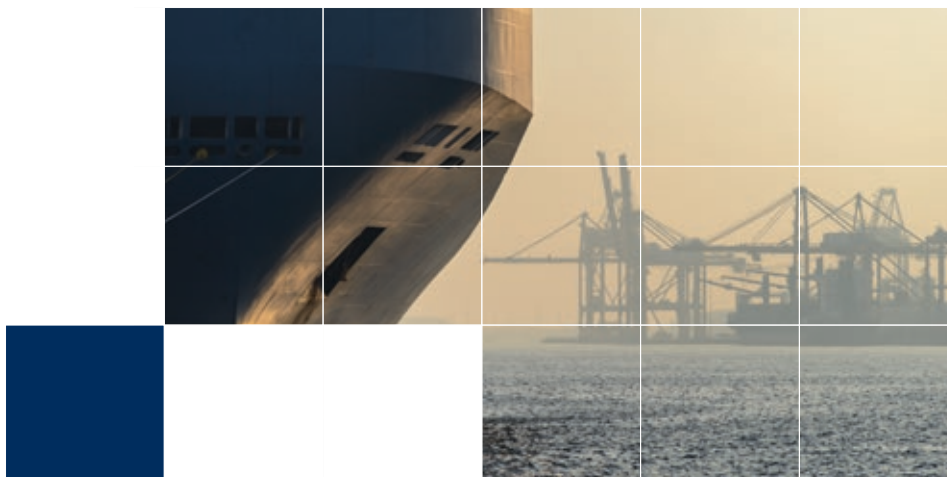
Tidal Height Data	Tidal Stream Data
Name, location, horizontal geographic position and vertical datum upon which the position of the recording gauge is based	Name, location, horizontal geographic position and description of the recording stream equipment (eg Acoustic Doppler Current Profiler (ADCP) or similar)
Connection between the zero of the tide gauge and Chart Datum, and/or Ordnance Datum (Newlyn or Local Ordnance Datum). Additionally, a GNSS (GPS) height of the recording gauge if available	Depth of water in which the equipment is located and how the recorded data relates to the depth below the sea surface and above the seabed
Time Zone preferably maintained in GMT (Zone 0000) throughout the record Preferably an 'on-the-hour' time stamp, with a maximum output of hourly heights (gauges usually record every 10 or 15 minutes, or similar)	Time Zone preferably maintained in GMT (Zone 0000) throughout the record Preferably an 'on-the-hour' time stamp with a maximum output of half-hourly rates and directions (ADCPs and the like usually record every 10 or 15 minutes, or similar)
Digital data in Excel or Text format, with clear indication as to which is the raw recorded tidal data (when other data such as weather records is included)	
Data can be submitted via email if convenient, at regular intervals (for example in calendar months, quarterly etc.)	

4.9 Other hydrographic information

Information on other new or changed hydrographic features, including cables, pipelines and marine farms that are either on or below the surface, should be passed to the UKHO. Up-to-date copies of local port regulations, port guides and local byelaws containing useful information for updating ADMIRALTY charts and publications should also be provided. Features of interest include regulated anchorages, anchoring-prohibited areas, harbour limits and local speed regulations.

4.10 Topographic information

Details of onshore building developments in the port area and throughout the adjacent coastal surroundings can be of great benefit to navigation. Although beyond the normal scope of ADMIRALTY NMs, such information can significantly enhance New Editions of ADMIRALTY SNCs, and can therefore be of substantial interest to the UKHO. This is particularly relevant where formerly conspicuous buildings have become obscured or where highly noticeable new structures have been erected. Port Authorities should initiate regular reviews of such changes when discussing charting and nautical publications with pilots and bridge officers. They should also consider undertaking an occasional inspection of the shoreline from the water.





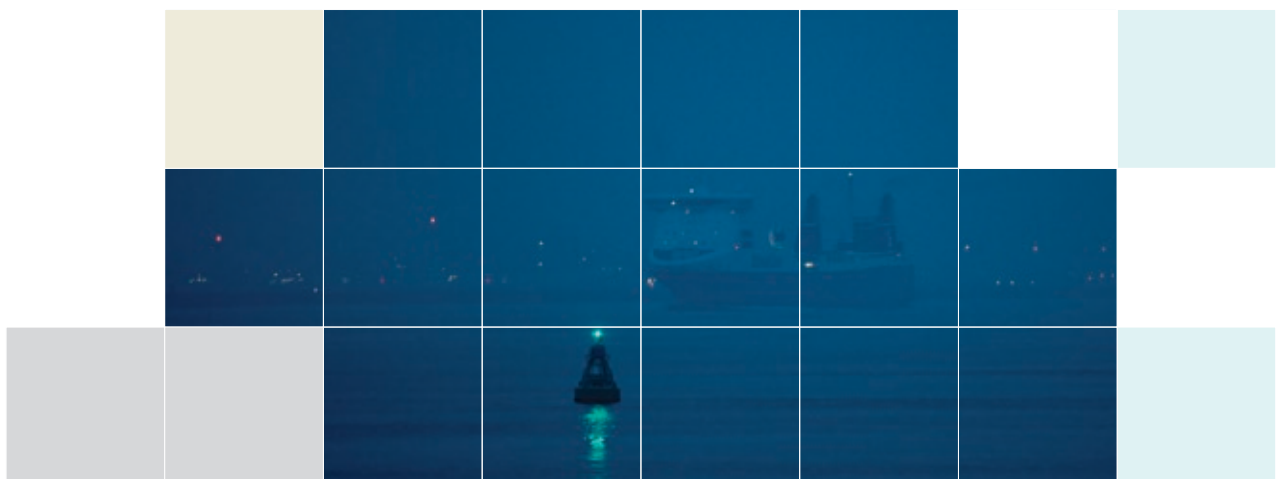
4.11 Data sent through hydrographic notes

Reporting new or suspected dangers to navigation or changes observed in aids to navigation can also be sent to the UKHO using Hydrographic Notes (H-notes).

H-note forms can be found in the Mariner’s Handbook (NP100) or downloaded from the UKHO website. The completed H-note can either be sent via email to sdr@ukho.gov.uk or fax to: +44 (0) 1823 352561. For additional clarification, the inclusion of chart images and photographs would be of great help.

The UKHO has also successfully launched the ADMIRALTY H-note app for those who would prefer to report hydrographic data using tablets and smartphones. The application takes advantage of the mobile device’s built-in camera and GPS to help gather important navigational information and to email it to the UKHO using the device’s email software once the vessel is in a WiFi or cellular coverage area.

The H-Note App can be downloaded on Google Play and on the App Store.



5 Distributing Maritime Safety Information

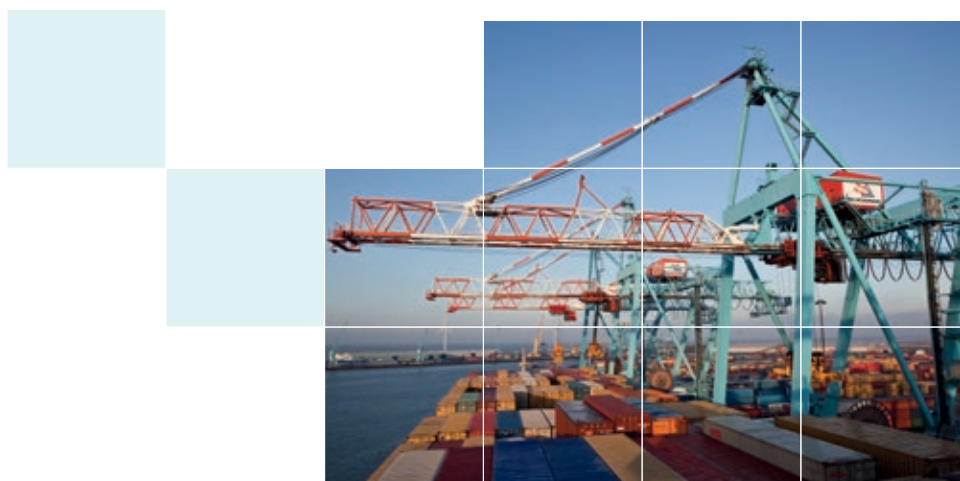
Maritime Safety Information (MSI) is the collective term for all temporary and permanent information likely to affect the safety of navigation at sea, including within a harbour's confines and approaches. By supplying MSI to the UKHO, the Harbour Authority fulfils many of its Safety of Life at Sea (SOLAS) and Port Marine Safety Code obligations.

The timely and effective distribution of such information by competent authorities is critical to:

- › Ensuring the safety of life and property
- › Minimising the risk of pollution and environmental damage
- › Discharging any liability resting with the competent authority

Increasing numbers of ships are adopting electronic tools for passage planning and navigation. This goes beyond using ECDIS driven by the SOLAS mandate, but also using electronic formats of publications, databases and computer applications. Combining this with recent technologies that bring significant improvements in accuracy and data-handling abilities gives such ships the capability and need for the most up-to-date information available.

The UKHO is continuing to invest in and optimise its digital capability, information management, production systems and processes. Through closer working relationships with maritime organisations around the world, and the greater speed and flexibility accrued from its improved digital capability, the UKHO will continue to make additional assured sources of maritime geospatial data available to satisfy the growing needs of mariners and shipping companies.



5.1 Radio Navigational Warnings (RNW)

The methods that the UKHO uses to distribute MSI depend upon urgency and location. A Radio Navigational Warning (RNW) is most appropriate for data that requires immediate attention, while less urgent information may be distributed by NMs.

The UK is a signatory to the International Maritime Organization (IMO) resolution on the provision of Navigational Warnings to shipping, in accordance with Chapter V of the SOLAS Convention. This resolution established the World-Wide Navigational Warning Service (WWNWS), and provides for three types of RNW:

- › **NAVAREA** – long-range warnings required by vessels entering an area and making a landfall. The world is divided into 16 NAVAREAs, each with a designated NAVAREA Co-ordinator; NAVAREA I covers the NE Atlantic area, including the UK. These warnings are distributed via the SafetyNET and NAVTEX systems
- › **Coastal** – distributed by a national co-ordinator to cover a designated region. In UK waters these are known as WZ messages distributed via NAVTEX and Coastguard VHF/MF broadcasts. They cover areas to seaward of the fairway buoy
- › **Local** – covering inshore waters, often within the limits of jurisdiction of a Harbour or Port Authority. They are usually distributed by VHF, either via a local coast radio station/coastguard or directly by a VTS or harbour control authority

5.1.1 The UKHO RNW section

The UKHO's RNW section carries out the day-to-day operational tasks of the NAVAREA I Co-ordinator and the UK National Co-ordinator. Distributing urgent Local Navigational Warnings covering information within port and harbour limits is the responsibility of the relevant Harbour or Port Authority. However, changes which may affect mariners outside the port area, such as alterations to fairway buoys or changes to lights that can be seen outside harbour limits, should be passed to the UKHO for assessment and possible wider distribution. As UK National Co-ordinator, the UKHO provides guidance on operational issues and standards. Harbour Masters are encouraged to contact the RNW section and discuss issues and procedures, particularly if they are intending to start a Local Navigational Warning service. The RNW section is manned 24 hours a day, seven days a week and can be contacted by telephone, fax or email. Contact details are given in Annex 2 and on the front cover of ADMIRALTY Notices to Mariners.

5.1.2 The Mariner's Handbook (NP 100)

Within the ADMIRALTY Mariner's Handbook (NP 100), paragraphs 4.6 – 4.24 describe the operation of the WWNWS more fully. The definitive reference publication for RNW is the International Hydrographic Organization (IHO) publication S-53 (Joint IMO/IHO/WMO Manual on Maritime Safety Information), and Appendix I (List of NAVAREA and Sub-Area Co-ordinators – operational points of contact).

5.1.3 Local Navigational Warnings

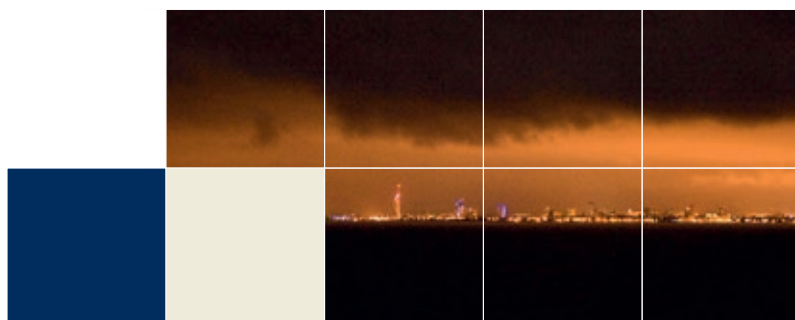
These should comprise the following elements:

- › Message ID (consecutive numbers) – this is optional but desirable
- › Preamble – describing the general locality
- › Warning – key subject (eg wreck, shoal, etc.), geographical position, any amplifying remarks
- › Cancellations – a Local Navigational Warning can be self-cancelling on a particular date/time, or can otherwise be used to cancel a specific previous warning

5.1.4 Subject matter suitable for Navigational Warnings

This includes:

- › Loss or damage to lights, fog signals, buoyage and radio navigation aids (particularly those marking the main fairway/channel)
- › Uncharted dangerous wrecks, new or amended shoal depths and, if relevant, their marking
- › Establishment of new aids to navigation or significant changes to existing ones which might be misleading to shipping
- › Activities involving vessels with restricted manoeuvring ability such as cable or pipe-laying operations, surveying, dredging, unwieldy tows etc.
- › Anti-pollution operations that require vessels to keep clear
- › Search and Rescue (SAR) operations in progress, either to keep clear of ongoing search operations, to maintain vigilance for casualties, or to provide other mission-related assistance
- › Unexpected suspension/blockage of channel(s)
- › Any other activities requiring a wide berth or vessels to pass with caution, such as a collision, fire-fighting operations, salvage operations etc.





5.2 Notices to Mariners (NMs)

Details of all significant changes within a port should be reported to the UKHO, in order to enable charts and publications to be kept up-to-date. Paragraphs 4.1 – 4.5 in Chapter 4 of the Mariner's Handbook (NP 100) detail the policy for the selection and distribution of navigationally significant information for charts. Changes to significant features which fall within these selection criteria will usually be distributed by textual NMs, issued by the UKHO quickly after it receives the source information. More complex data, such as that derived from surveys, requires longer to be assessed and may result in the issue of a Notice to Mariners Block or even a New Edition of the appropriate chart or charts. Where the data is complex, it is helpful to include a textual summary of the more significant changes. This summary might be used as the basis for Preliminary Notices to Mariners (PMNs), which can be issued promptly to get the more significant changes into the public domain. Such PMNs will then stay in force until the chart updates are issued.

For changes, features or events within the jurisdiction of the port or harbour, Local NMs may be issued where the distribution requirement is not as urgent as that required for an RNW. Local NMs usually distribute information on forthcoming changes or events; they should include similar elements to an RNW, but their format can be less rigid.





6 Port Agreements

6.1 The UKHO

In the best interests of the UK's international seaborne trade, it is necessary to maintain and develop the existing close relationship between the UKHO and UK ports. With this in mind, the UKHO has developed long-term Port Agreements that are designed to:

- › Ensure the safety of shipping through fast and effective updates in response to data received
- › Maintain the ADMIRALTY chart and publication series as the primary series for all UK waters
- › Maintain or improve access to port/estuary data sources
- › Ensure that the ownership of data is recognised
- › Assist the development of new co-operative opportunities where possible
- › Help enhance port effectiveness

6.2 The UKHMA

Schemes to initiate and maintain Port Agreements are supported on the basis that they can:

- › Help to maintain a more consistent supply of data
- › Assist with frequent and regular updates of port information on charts and in publications
- › Provide contacts for more routine feedback to the ports on how the UKHO has used the data
- › Provide an opportunity for liaison regarding routine re-surveys
- › Allow ports to regulate the use of their data by the UKHO
- › Provide an equitable and satisfactory basis for recognising the ownership of original data
- › Help provide evidence of compliance with the Port Marine Safety Code

6.3 Setting up Port Agreements

Harbour Masters are strongly recommended to consider setting up Port Agreements with the UKHO. They can seek advice from the External Engagement team at the UKHO (see Annex 2), and from ports that have already entered into such agreements. Outside UK and Irish waters, they should contact the UKHO Head of International Partnering for the appropriate world region, via the UKHO External Engagement team. The UKHMA is able, when necessary, to offer impartial advice.

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Annex I – List of Horizontal Datums and Grids

1. Datums that can be converted from/to WGS84 Datum at various levels of accuracy (usually ± 5 metres or better) are:
 - › Ordnance Survey of Great Britain 1936 Datum, commonly known as OSGB36
 - › European Datum 1950 Datum, commonly known as ED50
 - › European Terrestrial Reference System 1989, commonly known as ETRS89
 - › World Geodetic System 1972 Datum, commonly known as WGS72
 - › Ireland (1965) Datum
 - › Ireland (1975) Datum
 - › Ordnance Survey of Ireland Datum
2. Commonly used grids that can be converted from/to geographical positions are:
 - › Universal Transverse Mercator, zones 29, 30 or 31
 - › Pseudo UTM with a non-standard central meridian
 - › National Grid of Great Britain
 - › Irish National Grid
 - › Local engineering or surveying grids, if enough information about parameters is provided (ie Datum/Spheroid, projection, origin (latitude and longitude), false easting, false northing, scale factor)
3. The UKHO may be able to work with other datums, grids or formats; if in doubt, the UKHO Geodesy team should be consulted: see Annex 2.

For digital data, a variety of formats can be handled. The preferred format of receipt for textual information is either Adobe PDF or Word (.docx). AutoCAD (.dxf) is preferred for graphics of port infrastructure. For full-density bathymetric data, Caris HIPS or GSF are preferred, although the UKHO can work with some other formats. For gridded data, the UKHO can accept Caris CSAR surface or ASCII XYZ files (see paragraph 3.2.4). Contact the UKHO Bathymetric Data Centre (see Annex 2) for detailed advice on data formats.

Annex 2 – Contacts

4. The United Kingdom Hydrographic Office (UKHO), Admiralty Way, Taunton, Somerset, TA1 2DN
Tel: +44(0) 1823 723366 Website: www.gov.uk/ukho

Useful Contact Information		
Subject	Contact	Email
UK and Ireland Port Agreements and International queries	External Engagement	ExternalEngagement-Partnering@ukho.gov.uk
Charting queries, UK and Ireland	Regional Team	RT1HWQueries@ukho.gov.uk
Publication queries	Maritime Safety Information	MaritimeSafetyInformation@ukho.gov.uk
Tidal queries	Tides	tides@ukho.gov.uk
Submission of surveys. Survey advice and queries	Bathymetric Data Centre	bdc@ukho.gov.uk
Submission of non-survey data	Source Data Receipt	sdr@ukho.gov.uk
Datum and projection queries	Geodesy	geodesy@ukho.gov.uk

Urgent Navigational Information

Tel: +44(0) 1823 353448 Fax: +44(0) 1823 322352 Email: nawarnings@btconnect.com

5. The United Kingdom Harbour Masters' Association (UKHMA), Maritime Centre, F5 Northney Marina, Hayling Island, Hants, PO11 0NH Tel: +44(0) 23 92 460111 Website: www.ukhma.org

Useful Contact Information

Contact	Email
Executive Officer and Secretary of the UKHMA	sec@ukhma.org

6. The United Kingdom Major Ports Group Limited (UKMPG), 30 Park Street, London, SE1 9EQ
Tel: +44(0) 20 7260 1785 Email: info@ukmajorports.org.uk Website: www.ukmajorports.org.uk
7. The British Ports Association (BPA), 4th Floor, Carthusian Court, 12 Carthusian Street, London, EC1M 6EZ Tel: +44(0) 20 7260 1780 Fax: +44(0) 20 3598 1732 Email: info@britishports.org.uk
Website: www.britishports.org.uk
8. The International Harbour Masters' Association (IHMA), PO Box 3111, Lancing, BN15 5BQ
Tel: +44(0) 1903 218269 Email: secretary.ihma@harbourmaster.org
Website: www.harbourmaster.org



Annex 3 – Metadata form

This form is available in digital format on request from UKHO BDC (see Annex 2).

Meta-Data Report for Bathymetry Deliverables to UKHO

Critical items

Please fill in all these items. These are necessary for us to evaluate the data.

Survey Start Date	
Survey End Date	
Primary Bathymetric Instrument Type, Make and Model	
Primary Navigation Type	
Horizontal Datum	
Coordinate type	
Projection (if applicable)	
Vertical Datum	
Reduction of Sounding to Datum Method	
Gridding Method (Shoal bias preferred)	
Details of XYZ file (eg E, N, lat, long, depths/heights)	
Intellectual Property Rights, Principal Ownership	
Do you agree to the data being made available to the public via the UKHO INSPIRE portal?*	
(Please note that unless otherwise specified, the data will be made available)	

*The DAC (Data Archiving Centre) portal makes UK data publicly available for free download. Unless the UKHO receives clear instructions to the contrary, it will assume that data submitted for charting can be released into the public domain.



Additional items

Please fill in all these items where known. These will help us to evaluate the data. Where the answer is not known, please put 'Not known'. Where an item is not applicable or relevant to the survey, please put 'n/a'.

Survey details

Survey Name	
Commissioning Organisation	
Survey Company/ Collecting Organisation	
Name Of Main Survey Vessel	
Collection Organisation Country	
Principle Purpose for Collection Of Data	
Classification/Protective Marking	
Contact For Survey Queries	

Data details

Survey Standard	
Survey Category/IHO Order Achieved	
Processing Software and Version Used	
Unresolved Problems or Other Notable Data Issues	
Wreck Data to Follow in Full RoS/ H525?	

Harbour Masters' guide to hydrographic and maritime information exchange

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The United Kingdom Hydrographic Office (UKHO)

Admiralty Way, Taunton, Somerset, TA1 2DN

Tel: +44(0) 1823 723366 Website: www.gov.uk/ukho

The United Kingdom Harbour Masters' Association (UKHMA)

Maritime Centre, F5 Northney Marina, Hayling Island, Hants, PO11 0NH

Tel: +44(0) 23 92 460111 Website: www.ukhma.org



United Kingdom
Hydrographic Office

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