10th CSPWG MEETING

Wellington, New Zealand, 21-24 January, 2014

Paper for Consideration by CSPCWG

Notes from sea experience by UKHO staff

Submitted by:	UK
Executive Summary:	A group of UKHO staff embarked aboard Royal Fleet Auxiliary 'Orangeleaf' to gain sea experience. This paper contains extracts from their report, which may be of interest to CSPCWG members.
Related Documents:	None
Related Projects:	None

Introduction

A group of UKHO staff embarked aboard Royal Fleet Auxiliary (RFA) 'Orangeleaf' to gain sea experience. This paper contains extracts from their report, which may be of interest to CSPCWG members.

During their time on board they were granted unlimited access to the bridge which was invaluable especially during pilotage in and out of port. The group were also given full access to the back of bridge operations and were fully briefed in the use of Admiralty Products and Services specifically in relation to passage planning and the updating of navigational products. There was much discussion which covered the full range of navigational products used from which both the UKHO contingent and RFA crew benefited hugely. The following is an overview of key points observed, raised and/or discussed.

Bridge Experience

Orangeleaf operates under the RFA Fleet policy of a paperless bridge and is fitted with ECDIS hardware provided by MES Marine Electronic Systems running on ECDIS Software ECPINS-W Sub 5.3.1 by Offshore Systems Ltd. utilising a radar overlay and AIS, a secondary ECPINS and a back of bridge ECDIS mainly used by the Navigation Officer for passage planning,

Use of a number of colour palettes was observed, being adjusted to suit the varying lighting conditions; watch keeping at night involved blacking out the back of bridge areas in order to preserve night vision.

A constant look-out on the bridge is maintained with observations being called out continuously to qualify radar contacts. All contacts noted on radar are sighted through binoculars or with the naked eye as soon as visibility allows.

Regular position fixing takes place every 6 minutes during entry/exit to port but extends to approximately every 15 minutes in open water. This can vary and is influenced by the speed of the ship and the number of dangers/levels of traffic/extent of safe water available. It was noted that it is military vessels in particular who undertake regular position fixing and that commercial vessels do so to a lesser extent. The radar overlay is checked regularly to ensure confidence in positional accuracy.

Position fixing is achieved quickly utilising visual fixing and bearing lines taken from bridge gyroscopes against pre-defined reference points within the ECDIS. It was noted that this was completed more efficiently and in a timelier manner using the ENC rather than a paper chart, providing the Officer with swift, accurate and real time position clarification.

It was interesting to experience passage through a TSS, seeing it clearly shown on the chart, however a bit unnerving when nothing is visible out of the window.

Passage Planning

The Navigation Officer uses raster charts via ECDIS for passage planning with particular emphasis on topography and light descriptions. Consensus amongst the Officers was that raster charts provide a better overview in coastal areas when planning entry/exits to ports.

Information considered includes state of tide 1 hour before and after estimated arrival, potential dangers, depths and drying heights.

Products used include Overview, General and Coastal ENCs, Pilot information (local info, tips, things to remember), Lights Lists, Port Authority information (using websites for radio, reporting items) and Sailing Directions.

With a minimum under keel clearance of 2m added to the ships draught (7-10 m depending on cargo, fuel load etc) and including 0.3m for squat effect, the Limiting Danger Line (LDL) is then set. During passage, RFA Orangeleaf set a safety depth of 9m, which resulted in the safety contour defaulting to the next deepest depth contour, hence a safety contour of 10m. The Navigator interpolates the 9m contour and draws this on manually onto the ENC to ensure maximum vessel manoeuvring capability. (See Wish list).

The average time taken to prepare passage planning in pilotage areas is approximately 15 minutes. For entry into an unfamiliar port approximately 1 hour's passage planning was required. It was noted that this is significantly less than when using paper charts.

The plan is then discussed in detail with the Captain – general overview, scheduled turns, water clearance, pre planned fixes are agreed.

It was also noted that when pilots are on board, it is still the ships passage plan that is utilised in port areas with additional expertise added by the Pilot.

Updating Admiralty Products

The Navigation Officer has responsibility for ensuring Admiralty Products are up to date.

How the software and display handles T&P NM updates was raised for review and advice.

Wish List for ENC content/display

When asked how we can improve our products (particularly ENCs), the following issues were highlighted:

LIGHTS - The ability to switch on and off lights on ENC/ECDIS would be advantageous – this is currently possible for text but clutters the screen - as light sectors in particular are difficult to identify and actual true representation is required. Animated lights reflecting the light sequence on an ENC would be much easier to identify.

LANDMARKS - seem to disappear at smaller scales – these are important for passage planning. It is possible that this is a SCAMIN issue.

IMAGERY - ENC imagery should be a mix of raster image on land (better definition of coastline and clearer depiction) and vector image in sea areas (real time representation).

CONTOURING - 1m contouring in major ports (probably between 5 and 10 m would suffice) to enable accurate setting of LDL.

ATTRIBUTION OF FEATURES - Reduction in attribution required. When interrogating features such as lights or conspicuous landmarks, it is often difficult to identify the navigational information required from within the extensive attribution information.

Notes for Paper Charting

Very difficult picking out lights at night as they can be easily confused with moving vehicles, other vessels, buoys, urban lights. Easier to identify using paper charts as lights are not easily identified on the ENC (light descriptions and sectored information has to be interrogated). The crew will use raster charts to identify lights not readily known. Leading lights are particularly difficult to spot.

The importance of Topography was raised and Officers were keen to explain how and why such features are used and why they are essential for safe navigation. Particular features such as towers, spot heights and even unusual lines of trees were pointed out to the group as being key features used in passage planning and navigation.

Notes for Electronic Charting and ECDIS display

The group saw just how much emphasis is placed on depth contours and shoal depths for position fixing; the echo sounder was used to reinforce features, such as the 100m depth contour or tracking over a shoal depth thus ensuring positional accuracy.

Lights were not easily selected for viewing in the pick report when a check point had been taken and not added from chart, unless zooming in to a dangerous scale to click on the position circle. It was also noted that the operator needed to scroll down beyond the FOGSIG to finally access the LIGHTS information in the pick report and that the object was over attributed as all the user wanted to see was the light description as shown on the raster chart. An OEM representative has confirmed that it is possible to bring up the text for the light description as the cursor is passed over the ECDIS screen; however this is not part of the IMO performance standards and therefore is unlikely to be implemented.

Real time tidal stream information is fed into ECPINS-W, in addition to radar contact information.

A stand alone AIS receiver feeds into both ECDIS and radar. This creates clutter on screen especially at large scales.

Military vessels are wary of reliability of information via AIS. Vessels can input their own data incorrectly.

A ghost ship image shown as a blue outline of the vessel on the ENC indicates the imminent movement of the ship which proves to be very useful especially when moving at slow speed and in confined waters. See picture below.

Admiralty Publications

NP250 Tidal Streams Atlas was in use on the bridge regularly.

Sailing Directions are used for briefing the Captain – essentially paper hard copies are preferred although a digital version is acknowledged to be easier to update. Officers observed that picture content is useful especially of prominent marks such as towers, lights, conspicuous landmarks, particularly when entering unfamiliar areas/ports.

Officers commented that the content of Sailing Directions can be inconsistent. There is a need for correlation between Publications eg. Lights List, SDs and it was inferred that digital publications would improve this.

Hard copies are kept at back of bridge and we were advised that relevant sections required from any future digital versions would be printed as part of the passage planning process, for briefings and to provide an audit trail.