INTERTANKO

paper

HSSC9-05.2D

on

End users perspective on ENC and ECDIS

LEADING THE WAY,
MAKING A DIFFERENCE

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Introduction

- In the work on INTERTANKO Navigation and ECDIS Guidelines, INTERTANKO highlights some issues with ECDIS and ENC's that require workarounds.
- Below some of these and others that INTERTANKO members have brought to our attention are listed.

Safety Contour and Safety Depth(1)

- The safety contour was originally meant to separate safe from unsafe waters.
- In the best compiled ENCs, the available contours are 5-10-15-20 meters.
- It is a rare occurrence that safety contour really coincides with the line separating safe from unsafe waters.

Safety Contour and Safety Depth(2)

- INTERTANKO has identified three (3) different work arounds.
- Each one has distinct advantages and disadvantages but all of them include the manual drawing of No-Go Areas so that the safe area is easily visible to the navigator.
- Any approach to this No-Go area will give a visible and audible alarm to the navigator.

Safety Contour and Safety Depth(3)

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Workaround #1

- Two colour pattern is used.
- Safety contour and safety depth are set equal to safe draft and No-Go Areas are drawn manually by the navigator.
- **Advantages**
  - Procedure for deciding the safety contour and safety draft are clear, simple and always remains the same, irrespective of the situation.
  - Isolated dangers which are applicable for the vessel will be shown (please note that isolated dangers will be shown only if the function “show isolated danger in shallow area” is activated).

- **Disadvantages**
  - Vessel will sail through blue waters, which is considered ‘unsafe’ in scenario one.
  - Safety contour alarm will not sound at the proper depth but will sound at a much earlier stage.
  - Area portrayed as ‘unsafe’ (area inside the safety contour) will not correspond to reality.
  - Image not clear in dusk and night time setting.
  - Misinterpretation and feeling of complacency by navigating with an activated anti-grounding alarm.

Safety Contour and Safety Depth(4)

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- Safety contour=13 m, Safety depth=13m
- two color depth selected
- No-Go Areas are drawn manually by the navigator

Safety Contour and Safety Depth(5)

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Workaround #2

- Two colour pattern is used.
- Safety contour is set to the previous shallower depth contour than the safe draft. For example if the safe depth is 13 metres and the available depth contours are 10m and 20m then the safety contour is set at 10m.
- **Advantages**
  - Image clear even in dusk and night time setting.
  - Applicable isolated dangers will be shown up to the safety contour depth setting.
  - Vessel will sail through 'safe' waters. This might be considered as a disadvantage as more water will be portrayed as safe than what is actually safe but the advantage will be that the navigators are getting accustomed to how the display should look.
  - Safety contour alarm will not sound without it being actually applicable.
- **Disadvantages**
  - Procedure for setting depth alarm settings (safety depth, safety contour) is more complicated than the procedure in Workaround #1
  - Area portrayed as safe (area outside the safety contour) does not correspond to the reality.
  - Safety contour alarm will not sound at the proper depth but will sound at a later stage.

Safety Contour and Safety Depth(6)

- Safety contour=10m Safety depth=13m
- two colour depth selected
- No-Go Areas are drawn manually by the navigator

Safety Contour and Safety Depth(7)

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Workaround #3

- Four colour pattern is used
- Safety contour is set to the previous shallower depth contour than the safe draft. Deep contour is set to the next deeper depth contour than the safe draft. Shallow contour may be set to any available contour lower than the safety contour. Safety depth set equal to safe draft and No-Go Areas are drawn manually by the navigator. .
- **Advantages**
  - Applicable isolated dangers will be shown up to the safety contour depth setting.
  - Vessel will sail through 'safe' waters. This might be considered as a disadvantage as more water will be portrayed as safe than what is actually safe but the advantage is that the navigators are getting accustomed to how the display should look.
  - Safety contour alarm will not sound without it being actually applicable.
  - The navigable waters area in this case is narrower and provides to the navigator an extra visual warning that they are approaching dangerous waters.
  - No doubt about the safety of the white area (deep water area in the four colour pattern) as this area is clearly distinguishable and contains all of the area which is deeper than the deep contour setting.
- **Disadvantages**
  - Procedure for setting depth alarm settings (safety depth, safety contour, deep contour, shallow contour) more complicated than the procedure in workaround #1 and workaround #2.
  - Area portrayed as safe (area outside the safe contour) does not correspond to the reality.
  - Safety contour alarm will not sound at the proper depth but will sound at a later stage

Safety Contour and Safety Depth(8)

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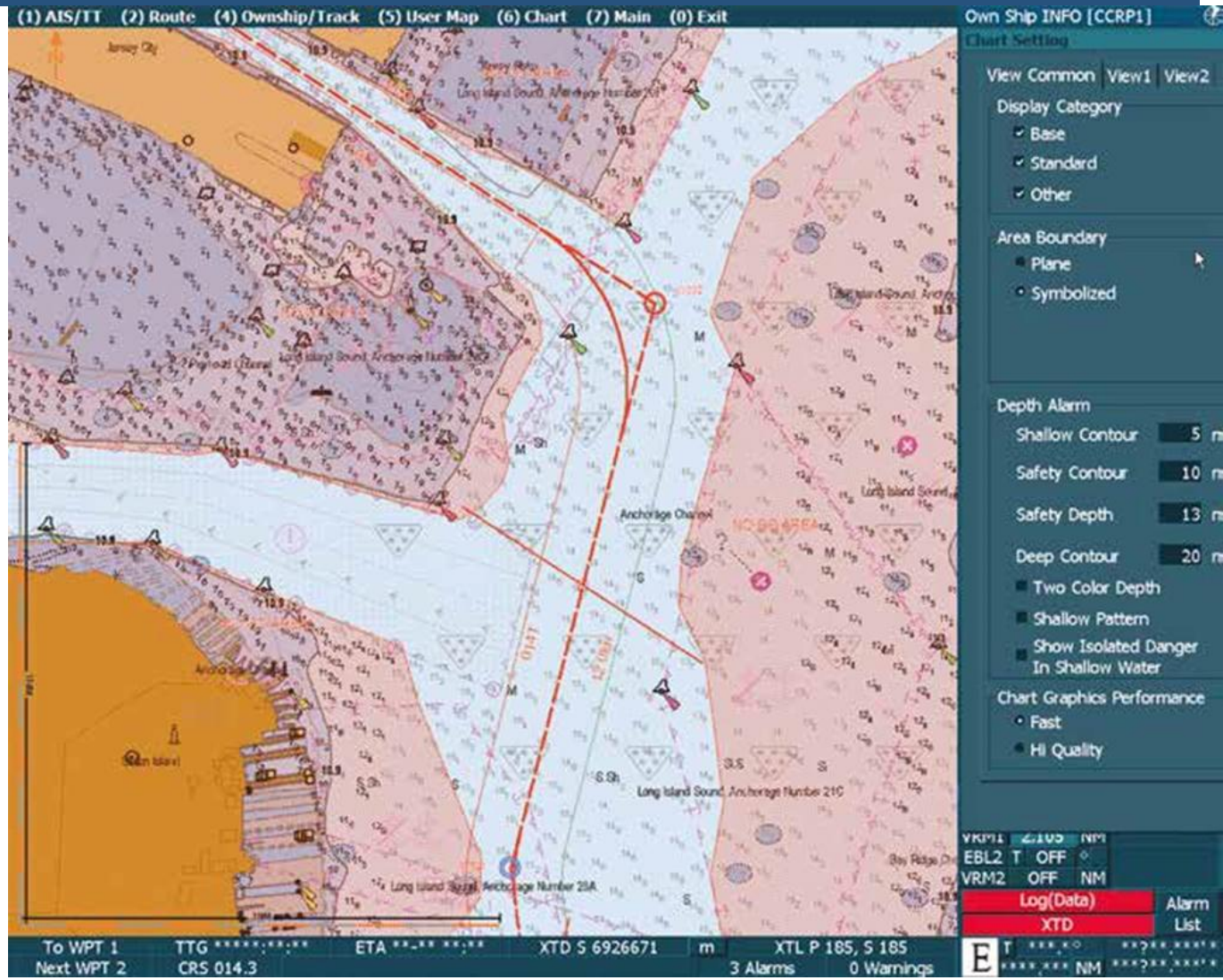
- Safety contour=10m Safety depth=13m
- Four Colour Depth selected
- No-Go Areas drawn manually by the navigator



Safety Contour and Safety Depth(9)

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Proposal: Phase one

- The navigator plots manually the no-go areas on the ENCs. This is time consuming and difficult task since the navigator has to scan visually all depths in order to connect those concerned and produce in this manner the no go area.
- It is obvious as well that the task is subject to lots of mistakes since the navigator has to almost constantly interpolates among the existing depths in order to pick the desired one.

Safety Contour and Safety Depth(10)

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Proposal: Phase one (2)

- On the other hand, **the ECDIS unit should be able to plot automatically the no-go area** based on the company's policy.
- Indeed, the unit may also have to interpolate among the existing values in order to get the proper one, yet it will not be time consuming.
- In addition, a no go area generated by the unit will certainly be able to generate alarms in case the navigator is about to violate it.
- It would further be appropriate if IHO issue a guidance on how to address the problem with safety contours aimed at mariners. INTERTANKO can assist in producing such guidance.

Safety Contour and Safety Depth(11)

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Proposal: Phase two

- Almost all HOs have today available databases with soundings that goes beyond what is shown in the charts (not to be mistaken with high density bathymetric information, that's another thing).
- Todays ENCs are usually a mirror image of a paper chart where depths and contours are aimed at the printed charts.
- For the future our ECDIS charts and systems must leave the paper chart thinking and go fully digital.
- We must have smarter ECDIS systems that are provided with much more data. In the example above, an ENC should have as high as there is available density bathymetric data (Such systems are available today for pilots, but off the shelf systems cannot use them)
- Then use the safety contour thinking as it was intended namely safety contour=safe draft.
- We will only have one way to do this and its GO areas created with higher density bathymetric data (not to be mistaken by the high density bathymetric data as laid out in S-102 that is needed for precision navigation).

Quality of ENC data (1)

- Members of INTERTANKO have raised concerns on the quality and the speed in which new and updated terminals, fairways, light boys, dredging, CATZOC values etc find their way into charts and ENC's
- The examples are listed in the paper will not be repeated here.

Quality of ENC data (2)

Recommendations:

- The Hydrographic Organisations around the world must be aware of the huge the trust mariners have in the publicised charts and the information in them.
- The hydrographic offices around the world should make all efforts to have the correct and most updated information on charts and ENC's in a timely manner.

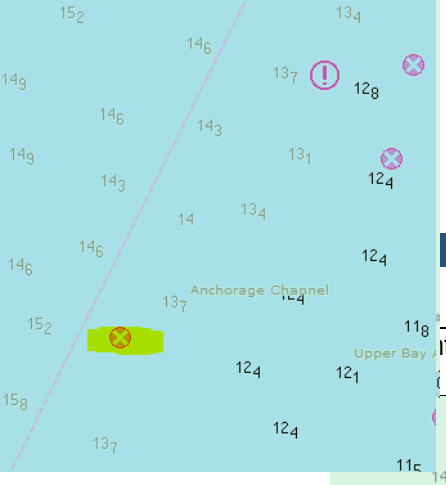
<u>Our main concerns:</u>

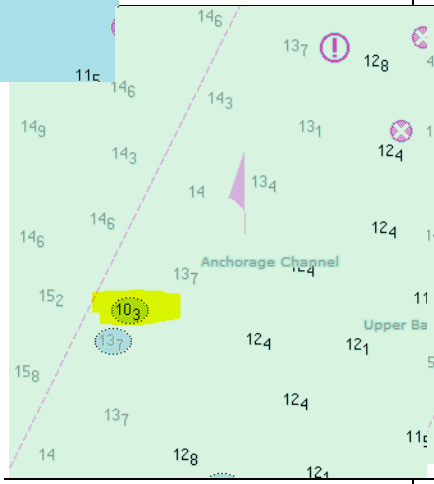
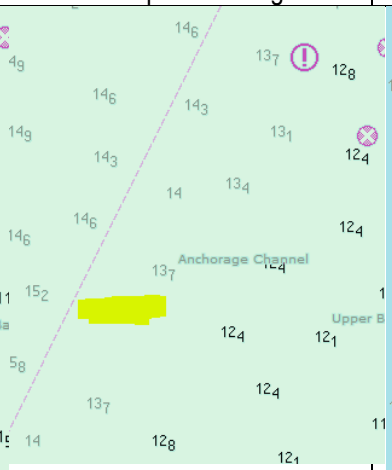
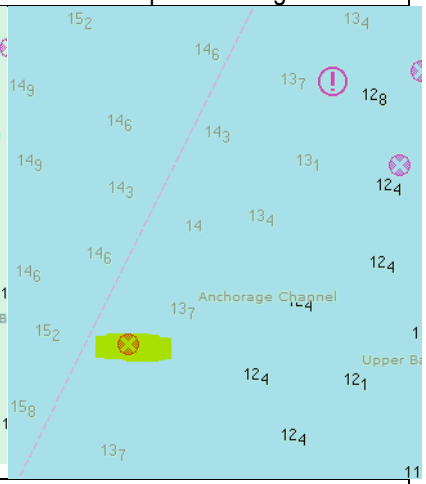
i. to minimise the "unassessed" areas particularly near shore and in ports

ii. Ensure that a too high ZOC value are not used

iii. If the "depth accuracy" figure should be taken into account in doing UKC calculations (since this was not a practice when paper charts were in use). an IHO guideline on this would be very helpful.

Marking in ECDISs and charts



tour set = 10m	Safety contour set = 10m Standard + spot sounding	Safety contour set = 13m Standard + Spot sounding
		
Dangerous object of 10.3m is shown on the chart but not as an isolated danger	Dangerous object of 10.3m is NOT shown on the chart at all	Dangerous object of 10.3m is shown on the chart as an isolated danger and will produce relevant alerts –

Its very difficult to understand how it has been made selectable for obstructions with soundings in the ECDIS charts.
This can prove to cause groundings if this has been unticked by mistake.

T & P notices

- INTERTANKO notes the IHO progress on recognizing that T&P notices in general do not have a role in ENC production and that the weekly updates should include T&P notices.
- INTERTANKO also recognizes that the new Presentation library allows for timed entries in ENC updates.
- However, INTERTANKO do, despite the fact that this has been recognised by HSSC and IHO, there is still not a finalised solution and UKHO is still issuing AIO because there is a need to do so.

Recommendations

- INTERTANKO asks HSSC to clarify where this issue is right now and asks HSSC and IHO for guidance on how to apply T&P notices onboard ships going forward.

README.TXT file

- The README.TXT file consist of disclaimer and specific information from the countries that deliver ENCs.
- This information sometimes could be navigationally significant and required to be reviewed for changes when the ECDIS is updated.

Recommendations

- INTERTANKO Suggest having an Initial (base) readme file which may contain the standard information which currently repeated in every update.
- In addition to this create a new file to contain only the changed or amended information.