

7th MEETING OF THE HYDROGRAPHIC SERVICES AND STANDARDS COMMITTEE

Busan, Republic of Korea, 9-13 November 2015

Information Paper for HSSC

ADDITIONAL INFORMATION OVERLAYS – UPDATE FROM WENDWG

24 September 2015

Submitted by:	WENDWG Chair
Executive Summary:	As part of its current programme of work, WENDWG has been tasked to consider the relevance of information overlay services. This is ongoing activity and this report provides an update on the UKHO report on AIO and feedback received to date.
Related Documents:	<p>IRCC6-08B - <i>Relevance of information overlay services and their status in the global IHO ENC programme. (Presentation)</i></p> <p>IRCC6/29 – <i>Action on UK and France to address the issue of AIO bilaterally.</i></p> <p>HSSC6-05.5D – <i>Relevance of information overlay services with respect to IHO standards.</i></p> <p>WENDWG5-04B - <i>Relevance of information overlay services and their status in the global IHO ENC programme. (Presentation)</i></p> <p>WENDWG Work Programme 2015-16 Task K – <i>To address the relevance of information overlay services and their status in the global IHO ENC programme.</i></p> <p>WENDWG5/02 follow on – <i>UKHO report on AIO dated 15 May 15.</i></p> <p>HSSC7-05.6A – <i>Report of the NCWG (Section 7.2)</i></p> <p>HSSC7-05.6C - <i>AIO and P/T updates in ENCs</i></p> <p>IRCC7 Report (Section 3b/)</p>

Background

The relevance of information overlay services was presented by France at the 6th meeting of IRCC¹ in May 2014. After debate, it was concluded that UK and France address the specific issue of the Admiralty Information Overlay (AIO) bilaterally and report back to IRCC7. The issue of overlays was also raised at HSSC6 in November 2014 as an agenda item with respect to IHO standards. HSSC²

¹ IRCC – Inter Regional Coordination Committee

² HSSC - Hydrographic Services and Standards Committee

directed that CSPCWG, now renamed NCWG³, should include this as a new work item with respect to IHO Publication S-4.

WENDWG Consideration and Programme of Work

In the meantime IRCC has directed that WENDWG⁴, as part of its programme of work, addresses the relevance of information overlay services and their status in the global IHO ENC Programme.

In Mar 2015, WENDWG5 considered the overlay services presentation from France. Following discussion the outcome was that WENDWG would prepare a way ahead to progress the issue and include this within its programme of work. UKHO undertook to provide a report on “AIO benefits/risk assessments” and this is included at [Annex A](#) to this report.

WENDWG members were encouraged to provide comments by the end of Aug 2015. Some feedback has been received from Member States, a Regional Hydrographic Commission and the NCWG. This has yet to be circulated to WENDWG members for consideration and discussion: thus in advance of this, it would be premature to offer or to seek detailed HSSC comment. Nonetheless a summary of feedback is offered at [Annex B](#) to this Report.

Action required of HSSC

HSSC is requested to note:

- The UKHO paper on AIO benefits/risk assessments ([Annex A](#)).
- The feedback on the UKHO paper ([Annex B](#)).
- WENDWG has yet to analyse and discuss this feedback and will do so over the period between now and the next WG session. Accordingly no analysis is yet offered to HSSC.

HSSC is requested to further note:

- The ongoing requirement for WENDWG to address the relevance of information overlay services as part of its current programme of work.
- WENDWG7 is scheduled for 8-9 Mar 2016.

³ NCWG – Nautical Cartography Working Group. The successor of the Chart Standardization and Paper Chart Working Group (CSPCWG).

⁴ WENDWG - Worldwide ENC Database Working Group.

**Annex A to WENDWG
Information Paper for HSSC
dated 24 September 2015**

**The UKHO paper on AIO benefits/risk assessments
5th WEND WORKING GROUP MEETING
Action 5/02
ADMIRALTY Information Overlay (AIO)
Submitted by UK**

Introduction and Background

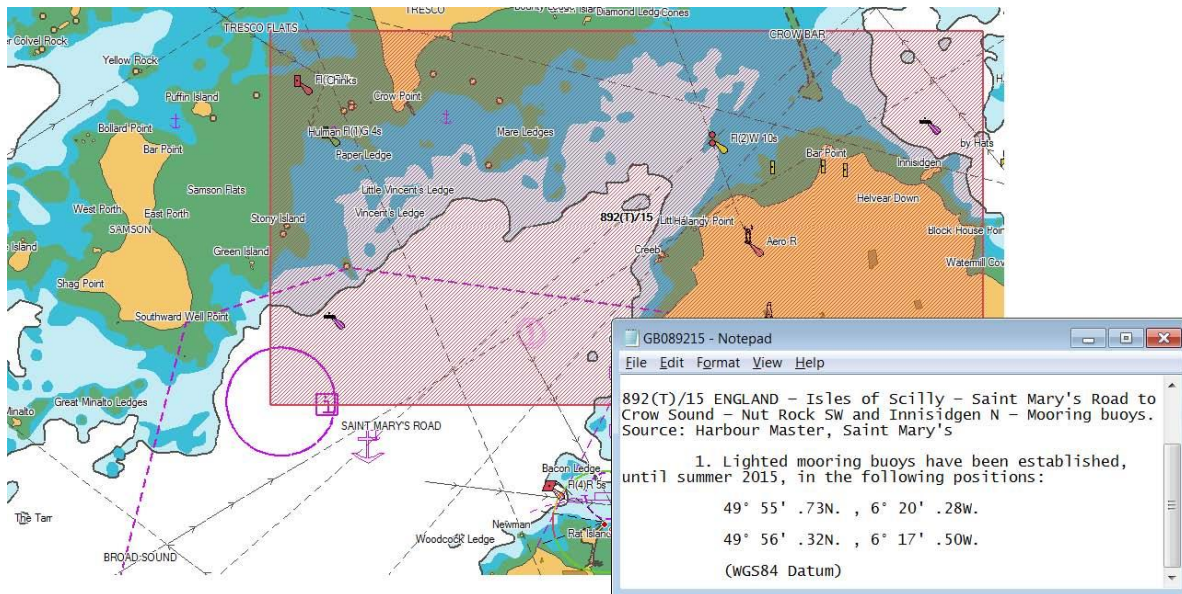
1. WENDWG5 considered a paper from France (WENDWG5-04B) titled “Relevance of information overlay services and their status in the global IHO ENC programme”.
2. This subject was originally raised by France at IRCC6 May 2014 (IRCC6-08B). IRCC Action 29 was that UK and France address the AIO issue bilaterally and report back to IRCC7 (deadline: IRCC7 June 2015).
3. However, in addition to the IRCC action for France and UK to address the issue bilaterally, France sent a letter to the Chair of HSSC (copy IHB) to investigate potential standardization issues. In a letter to the Chair of CSPCWG, the Chair of HSSC tasked the CSPCWG/NCWG to consider this request. In liaison with the Chair of the CSPWG, IHB submitted HSSC6-05.5D rev1 to HSSC6 accordingly. The introduction to the HSSC paper specified UK’s ‘Admiralty Information Service’ (AIO) as the case in point. In response, and as suggested by IHB, HSSC tasked CSPCWG/NCWG to consider standardization issues related to additional overlay services and provide recommendations as appropriate.
4. This paper responds to WENDWG5 Action 5/02 requiring UKHO to provide a report on the AIO benefits/risk assessments and to include an Annex depicting the AIO workflow process.

Analysis and Discussion

What is AIO?

5. The AIO is an optional additional overlay that can be turned on and off within ECDIS independently of the display of ENC data and is intended to support passage planning and demonstration of compliance. The ECDIS standards and IHO working groups always envisaged the production of value added data layers such as AIO, that is after all why it is a ‘Chart Display **and Information** System’, and many other examples exist including weather and piracy. It has three features:
 - a. EPNMs (Electronic Preliminary Notice to Mariner) - to help the mariner resolve problems (inconsistencies) they may face using ENCs and ADMIRALTY paper charts;
 - b. T&P information – to show the mariner where T&P notices apply to ENCs;
 - c. No Overlay – to show where the UKHO is unable to provide either EPNMs or T&P information;
6. AIO is an S-57 based data set that uses ‘private extensions’ to the object catalogue to

describe the features and attributes. AIO features are shown as simple polygons drawn on top of the ENC data with the identifier encoded in the OBJNAM attribute and a description in the INFORM attribute. Where necessary text and picture files are included to provide further



detail.

7. The following screen shot shows an AIO feature displayed over an ENC in a chart display system:

Figure 1 AIO feature displayed over an ENC in ECDIS

What is the requirement for AIO?

8. The AIO was born out of customer demand based on their experience of using ECDIS at sea and dealing with vessel inspections around the world. It has three features:

a. EPNMs. Especially for those who are navigating in a mixed paper/digital environment (who remain the significant majority) there is a need to understand the reason for a difference between the ADMIRALTY paper chart and ENC. This is basically the same process that has always existed for paper P notices, that is: we have received some information which needs further investigation, or for which the chart cannot yet be fully updated for some other reason, but in the meantime here is some information to which the mariner can apply judgement. The 'further investigation' would include correspondence with the ENC producer to resolve the issue. Sometimes this takes some time, so a temporary method of informing the mariner of a potentially dangerous situation is necessary if we are to fulfil our duty of care as a Hydrographic Office.

b. T&P information. Port state and SIREs (Ship Inspection and Reporting) inspectors want to see evidence that a vessel is managing and taking note of T&P information; if the vessel cannot adequately demonstrate this, it gets a deficiency. The T&P part of AIO provides visual evidence of where T&Ps apply - both to the inspectors and to the crew

during passage planning. Even where the T&P information has been incorporated into the ENC, in accordance with the S-57 UOC, this highlighting is still valuable. For example, many P notices may be encoded using DATSTA and DATEND attributes that hide the feature from view until the 'go-live' date; if a mariner does not know that such a feature exists as they plan a voyage in advance of the go-live, they may not be able to take its effect into account. PRIMAR has recognised a similar issue with the difficulty of identifying where an ENC has been updated and has launched its Update Tracker to offer a solution to this. Where T&P NM information is encoded in ENCs, it is often very difficult to distinguish from standard chart features. S-57 does allow features to be encoded with a start and/or end date and periodicity using the DATSTA, DATEND, PERSTA and PEREND attributes. However the S-52 Presentation Library does not currently present this information adequately in the chart display. The new version of S-52 addresses this issue, to some degree, but it will not be fully implemented until late 2016. Annex A shows examples of T&P NMs in ENCs from 2 producers that indicate that they do include T&P NM information in their ENCs, along with their depiction in AIO. Also many ECDIS do not display this time variable information in a clear way – often just displaying all features – both the new and the superseded on screen at the same time.

c. No Overlay. AVCS contains all ENCs from ENC producers, which often have coverage beyond the extent of ADMIRALTY paper chart coverage. If UKHO is unable to provide EPNM and T&P information for a given area because there is no equivalent scale ADMIRALTY paper chart, then to ensure that users understand the limitations, the AIO displays a “No Overlay” feature in these areas that carries the note:

“The UKHO does not publish a comparable scale paper chart in this area and cannot therefore produce ENC Preliminary (EP) NMs or Admiralty Temporary (T) or Preliminary (P) NMs within it. The user should be aware that the local Hydrographic Office may produce T&P notices for their charts in this area”

Annex B shows an example of the No Overlay feature and note.

How we produce AIO

9. EPNMs. Where a navigationally significant difference is identified between an ENC and an ADMIRALTY paper chart, we attempt to resolve the difference before we issue an EPNM. Differences arise for many reasons; including the fact that UKHO has been gathering ship's reports (H-Notes) from vessels around the world and including them on our charts for many decades. Where evidence exists that the information on the ADMIRALTY chart is out of date, we will update it by Notice to Mariners or new edition. Where such evidence does not exist, we will retain the information on our charts in the interests of navigational safety. If this information is not reflected in the corresponding ENC and the difference cannot be resolved within a reasonable period of time, then we will issue an EPNM in AIO to alert ENC users to the presence of potentially navigationally significant information. Annex D shows examples of differences that we have identified that have not been resolved and have resulted in the issue of an EPNM. There are over 2700 such differences in AIO (19 March 2015).

10. T&P NMs. Around 35% of ENC producers that publish T&P NMs for their paper charts do not include the information in their ENCs. This figure comes from the IHO's Status of Temporary and Preliminary ENC Updates information paper to HSSC5 (HSSC5-INF2 rev3), updated by UKHO's monitoring of ENC producer policies. A list of the latest available information from each ENC producer is available on the UKHO website [here](#). UKHO produces T&P NMs for its ADMIRALTY paper charts, often sourced from national NMs. These T&P NMs are incorporated in the AIO. GB ENCs incorporate T&PNMs and we also include these T&Ps in the AIO for GB ENCs because of the value to the user of making them visible.

11. Annex C shows the workflows for the inclusion of EPNMs and T&Ps in the AIO

T&P Management

12. Where vessels do not have access to AIO, alternative approaches are being adopted to manage T&P NM information and its use in electronic passage planning. A common approach, directly observed on a number of vessels, is to maintain a binder of T&P NMs extracted from weekly Notices to Mariners bulletins. Any NMs in the vessel's operational area are manually added to the ECDIS as Mariner's Information Objects so that they can be used in the ECDIS. This carries the inherent risks of manual processing – either missing relevant information or introducing an error in its transfer to the ECDIS.

Conclusions

13. AIO is valuable to the mariner as evidenced by the fact that 60% of AVCS users subscribe to the service, all the major OEMs have adapted their ECDIS at their own cost to support the service and major shipping companies are specifying that the ECDIS for their vessels must have AIO capability.

14. The technologies used to create AIO are all open and readily available to other organisations delivering ENC services. The underlying format is S-57, distributed using S-63. Considerable investment has been needed to establish the process of comparing ENCs to ADMIRALTY paper charts. However it is not complex. Further investment has been needed to capture T&P NMs in a digitally. UKHO has made these investments in response to demand from the users of AVCS.

15. AIO is a complementary service for the users of AVCS that acts to reduce navigational risk by highlighting information that may materially affect a vessel's passage plan, therefore allowing the navigating officer to exercise judgement.

16. AIO also reduces navigational risk by automating some of the manual plotting and data entry tasks currently carried out.

17. As the differences between paper charts and ENCs are resolved and the depiction of T&P NM information in ECDIS improves, AIO will gradually become less relevant and its use will decline.

18. There is no impediment to other ENC service providers developing similar value added data layers where they see the need and demand from their customers.

Recommendations

- a. The WEND WG continues to encourage chart producers to ensure that their ENCs and paper charts are consistent for navigationally significant content;
- b. WEND WG acknowledges the comparison work being undertaken by UKHO, and accepts the value to its customers of being made aware of unresolved navigationally significant differences between ENCs and ADMIRALTY charts;
- c. EPNMs can be avoided by quick resolution of issues; Member States are therefore encouraged to respond quickly when informed of issues;
- d. Until issues of presentation of T&Ps are resolved the use of overlays to highlight where they appear is recognised as a useful safety feature;
- e. Member states should be encouraged to include T&P information in their ENCs and work with service providers to ensure that any overlays produced are accurate and timely in presenting information.

Justification and Impacts

Reduction in navigational risk through increased awareness of T&P information, differences and automatic plotting

Annex A Examples of T&P NMs

19. T NM indicating buoys removed for repairs

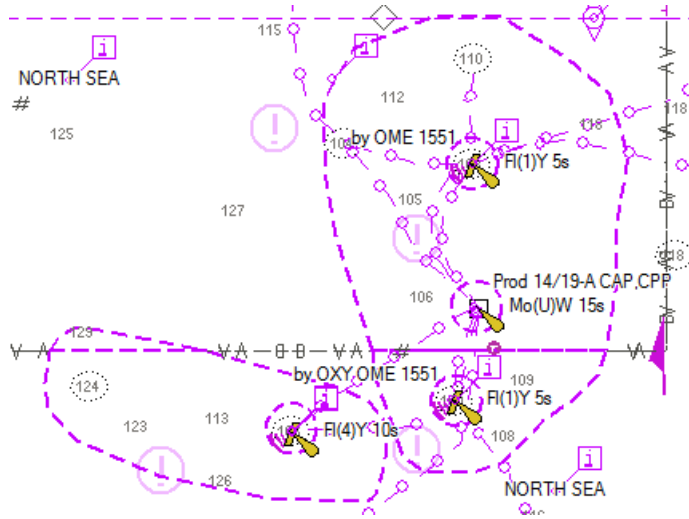


Figure 2 Standard ECDIS display in the vicinity of NM 5562(T)/14

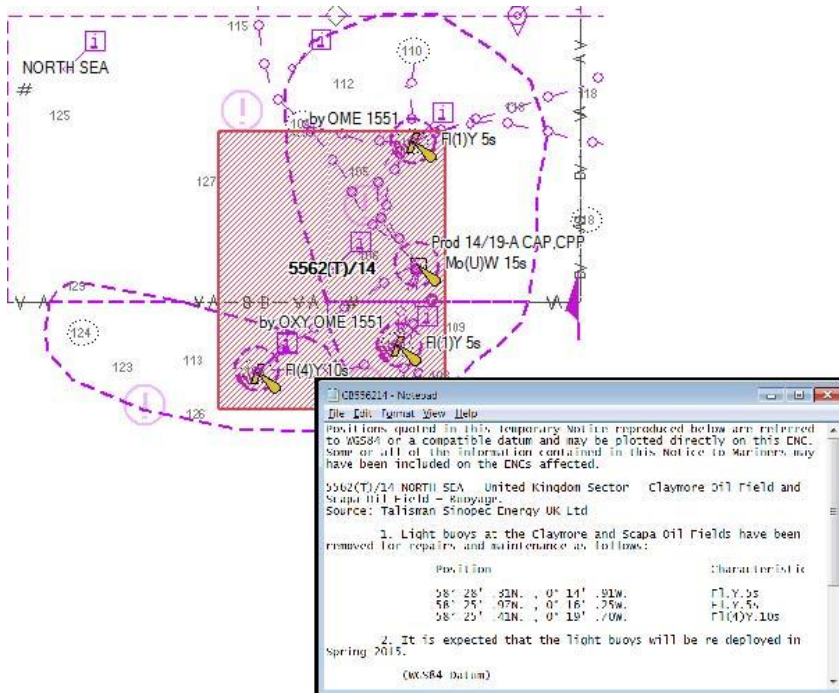


Figure 3 AIO showing NM 5562(T)/14

20. P NM showing a routing measure change that takes effect from 1 June 2015

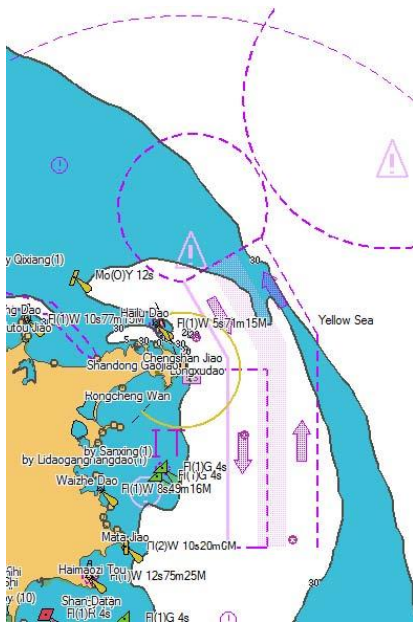


Figure 4 Standard ENC display in the vicinity of NM 111(P)/15

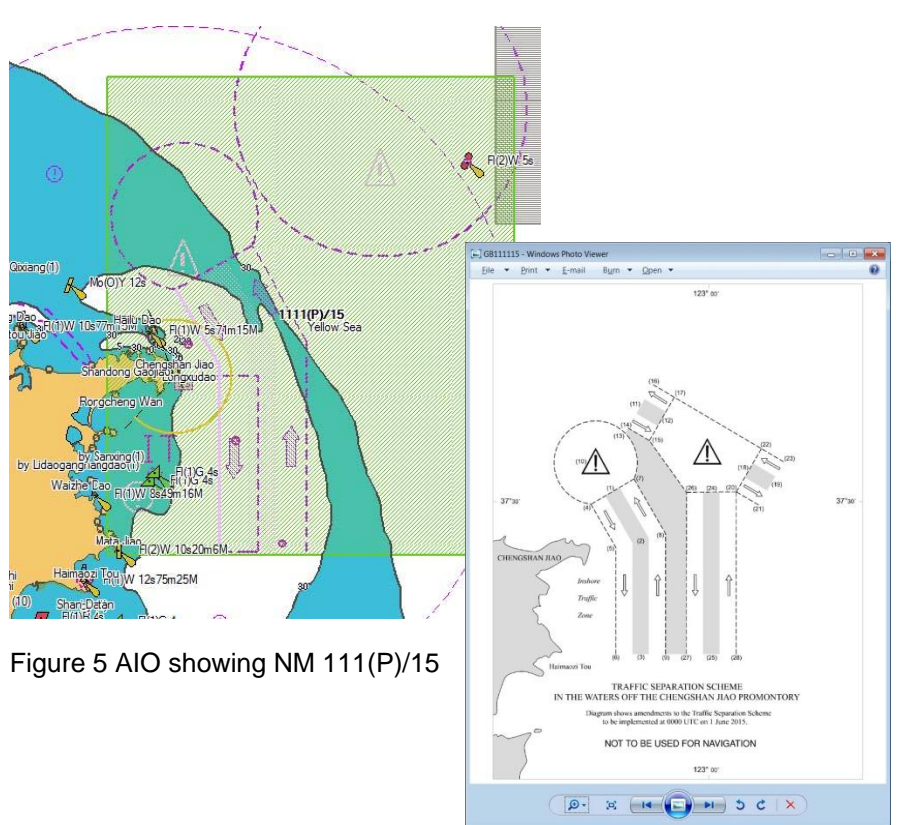


Figure 5 AIO showing NM 111(P)/15

Annex B Example of the No Overlay feature

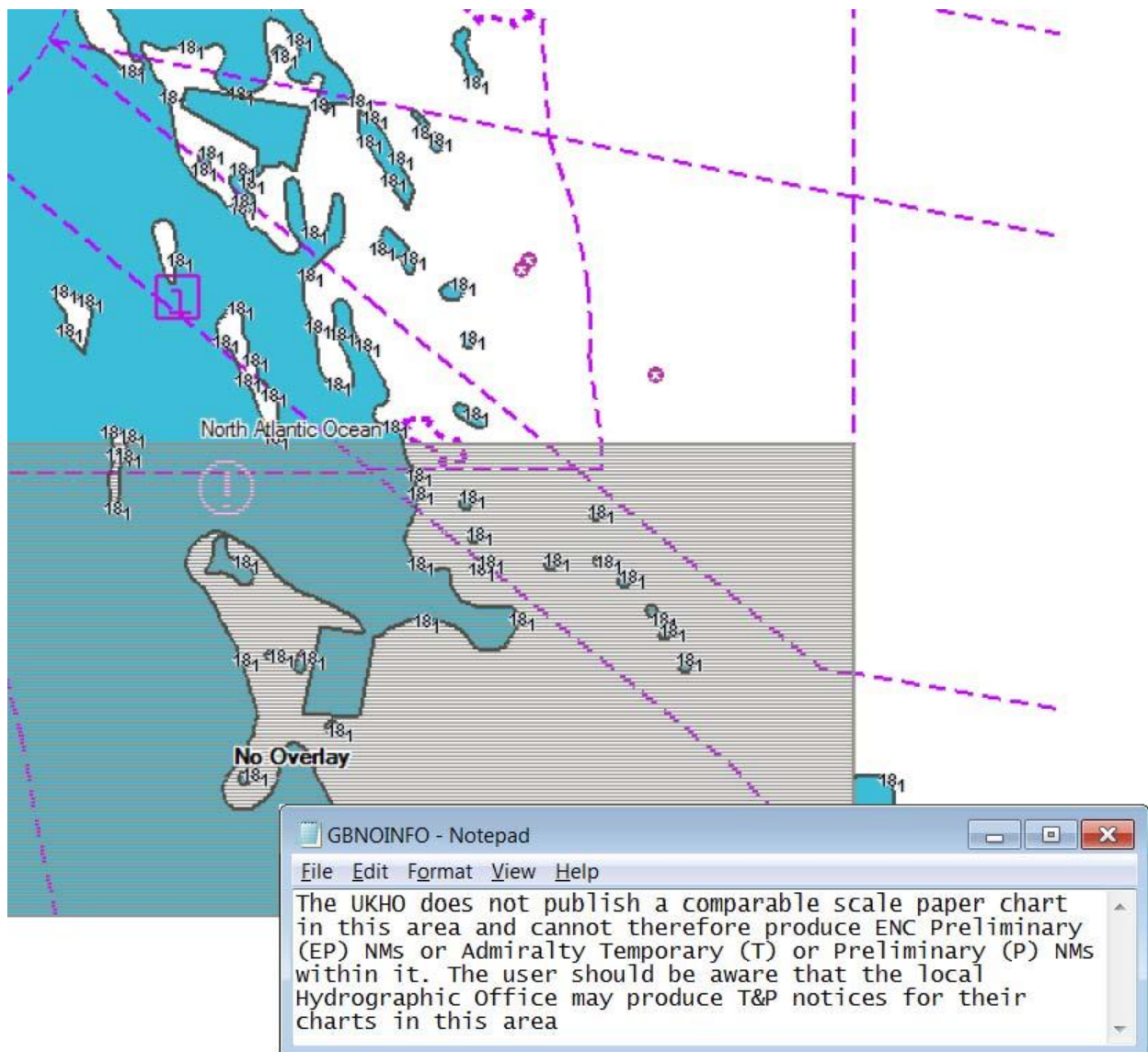
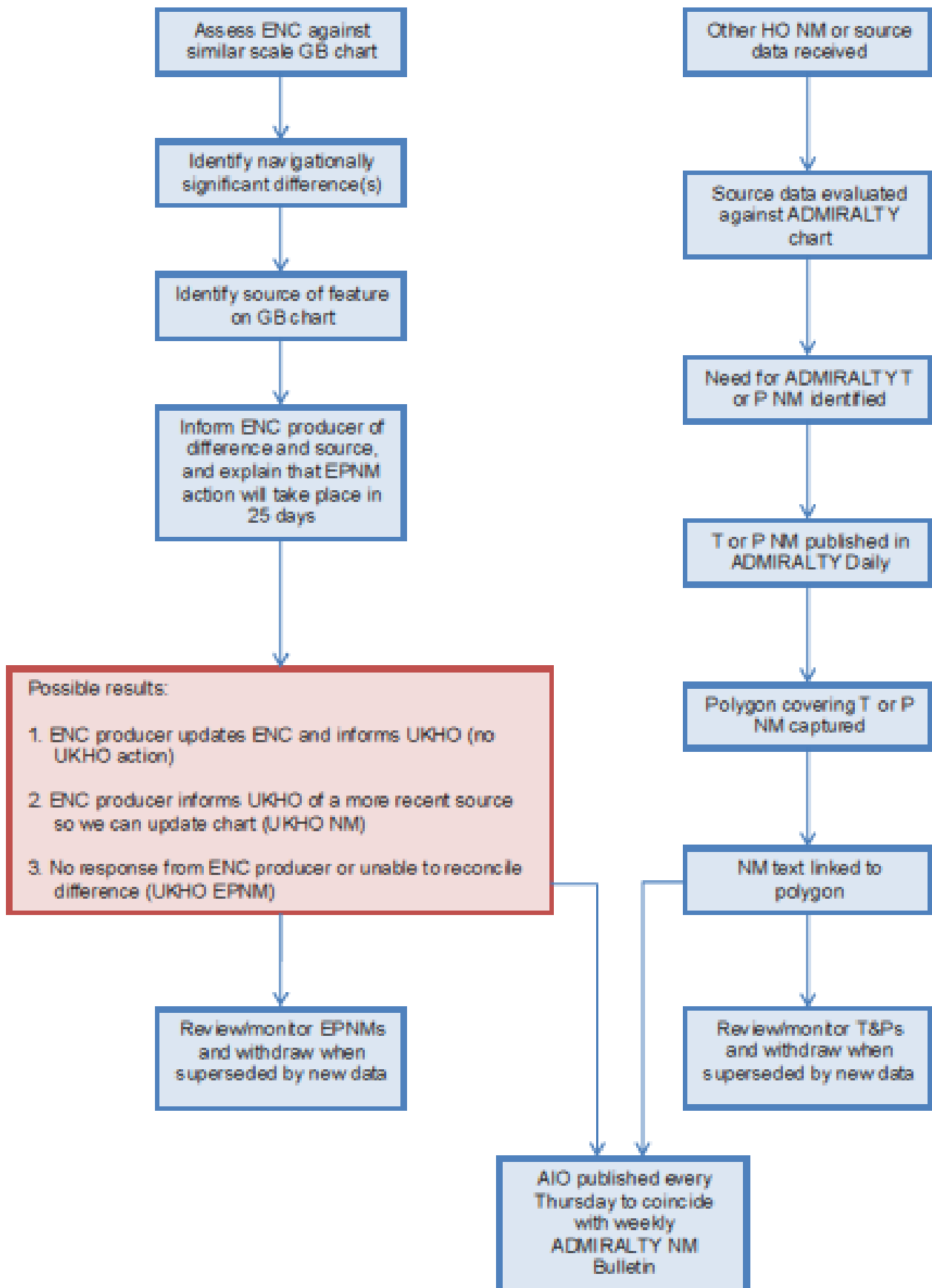


Figure 6 No Overlay feature and note

Annex C AIO Workflow



Annex D Examples of differences between ENC's and ADMIRALTY paper charts

21. Reported depths shown on the ADMIRALTY chart and not shown on the ENC

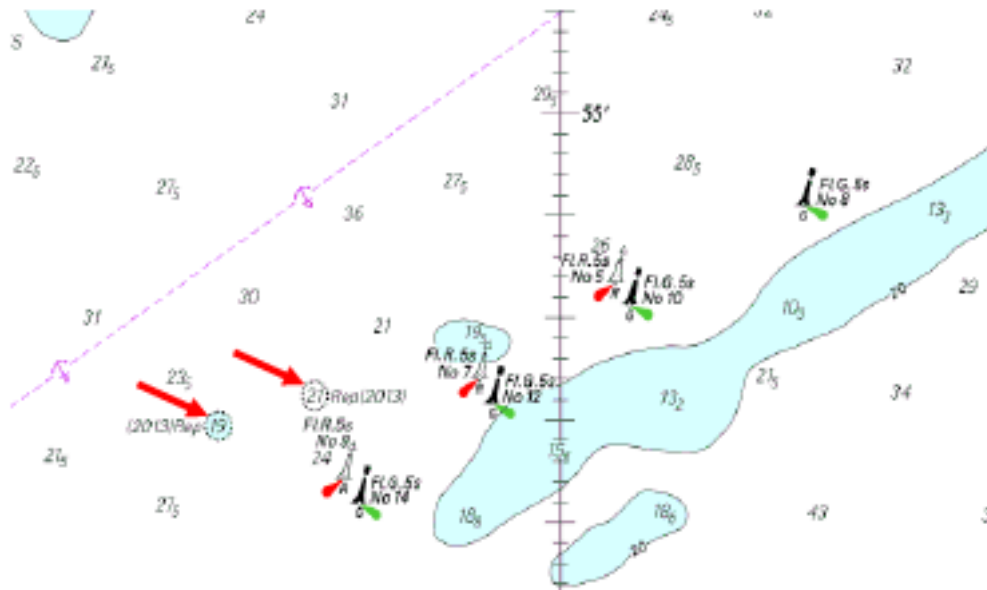


Figure 7 ADMIRALTY chart showing reported depths

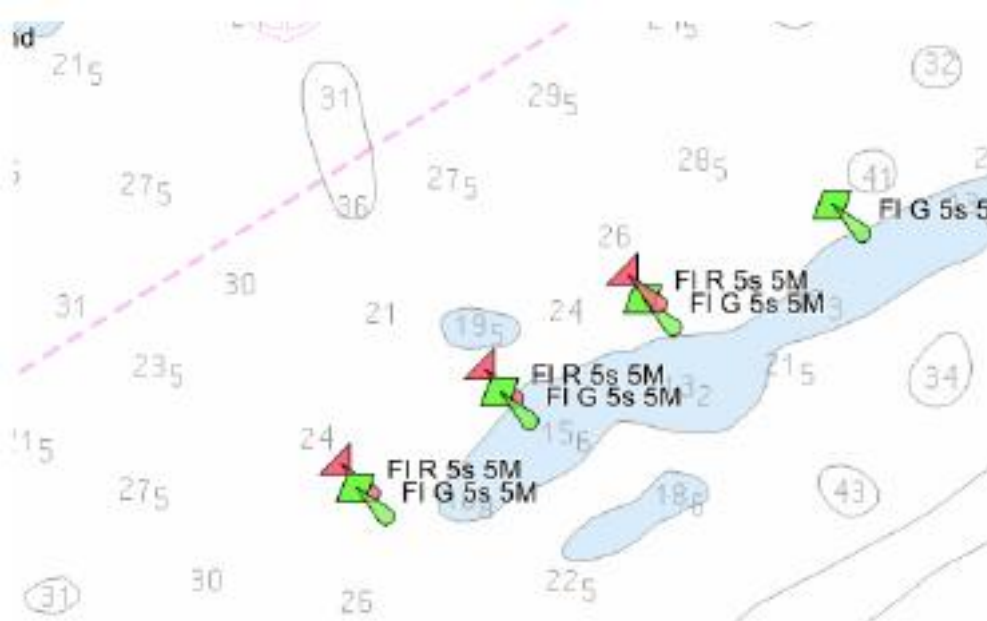


Figure 8 ENC with no reported depths shown

22. Obstruction shown on the ADMIRALTY chart and not shown on the ENC

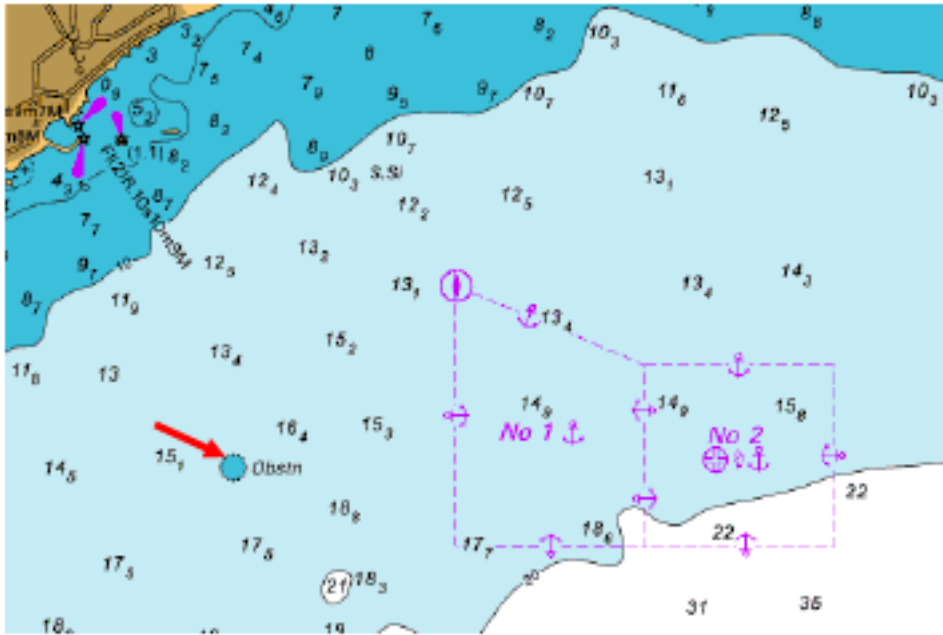


Figure 9 ADMIRALTY chart showing obstruction

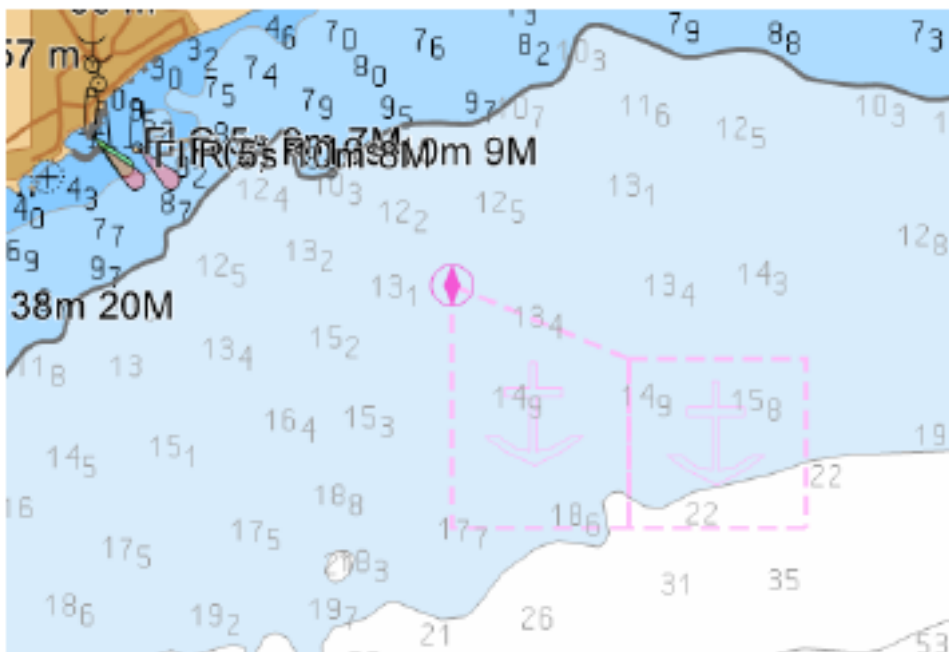


Figure 10 ENC with obstruction not shown

23. Dangerous wreck and note not shown on ENC, pilot boarding place in a different position

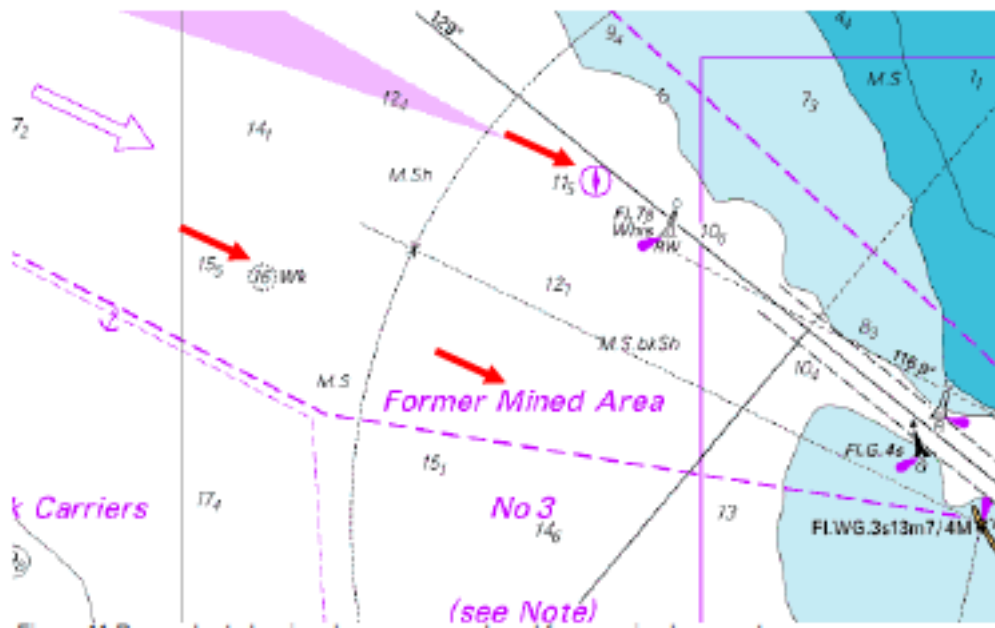


Figure 11 Paper chart showing dangerous wreck and former mined area note



Figure 12 ENC with dangerous wreck and former mined area note not shown, pilot boarding place in a different position

**Annex B to WENDWG
Information Paper for HSSC
dated 24 September 2015**

Feedback on the UKHO paper on AIO benefits/risk assessments

Contributor	Feedback
Finland (FI) <i>acting as</i> BSHC Region E Coordinator	The next BSHC meeting is from 16-18 Sept. 2015, the AIO issue will be discussed later on at the BSHC meeting. Letter sent by FI (as NHC Member). FI also states that it has sent formal letter (dated 02 October 2014) to UKHO to clarify the situation and discontinue Admiralty Information Overlay in Finnish national ENC's, because T&P messages are included in Finnish ENC's.
Poland (PL)	<p>In general HOPN invites all actions and solutions which act to reduce navigational risk and increase comfort of navigation.</p> <p>Undoubtedly there are some deficiencies in the WEND/RENCs system like not coherent updating mechanism of ENC's and paper charts or not adequate S-52 presentation of time variable information (T&P) in ECDIS systems. In our evaluation all necessary improvements apply to AIO as well should be accomplished under IHO umbrella and close cooperation with IMO.</p> <p>Keeping in mind safety of navigation it seems to us that AIO service should have information (stamp, flag, etc.) that a given state provided consent for bringing about the AIO data on its national waters.</p>
Sweden (SE)	Requests an agenda item on AIO and P/T in ENC's at the next HSSC7 meeting in Busan, Rep. of Korea (which is planned as part of the NCWG section).
France (FR)	Letter No 67 SHOM/DMI dated 1 Sept 2015 (Appendix 1 to this Report).
NCWG	<p>AIO were discussed at length at the NCWG-1 as part of the NCWG Programme of Work (Work Item A22). Section 9.4 of the Report of NCWG-1 refers to the AIO discussions. In summary:</p> <ul style="list-style-type: none"> • The NCWG is the competent authority to make recommendations in S-4 for consistency between products only. New wording in relevant sections of S-4 have been proposed to NCWG Members through NCWG Letter 03/2015 (deadline 1 Sept). The NCWG Chair will report to HSSC-7 on HSSC6-05.5D_Rev1 Recommendations i/ and ii/. • The NCWG, supported by the HSSC Chair, did not consider itself as competent to address the 3rd recommendation made in HSSC6-05.5D_Rev1 ("iii: Recommending that information overlay services must not be produced where the ENC Producer has included the equivalent of paper chart (T) and (P) NMs as part of their ENC Update service"). This is the role of the WENDWG. <p>See also section 7.2 of the report of the NCWG to HSSC-7 (Doc. HSSC7-05.6A)</p>

Appendix 1 to Annex B to WENDWG
Information Paper for HSSC
dated 24 September 2015

Letter No 67 SHOM/DMI dated 1 Sept 2015

5TH WEND WORKING GROUP MEETING
ACTION 5/02
ADMIRALTY INFORMATION OVERLAY (AIO)
COMMENTS BY FRANCE

Introduction

WENDWG5 decided action 5/02 requiring UKHO to provide a report on the AIO benefits/risk assessment and to include an Annex depicting the AIO workflow process.

This paper responds to WENDWG5 action 5/02 requiring WENDWG members to provide comments on this report.

Analysis and discussion

Annex A gives SHOM's comments on the report.

AIO is presented as a mean to give the most up to date information to the navigator, to resolve inconsistencies and to highlight information for the purpose of the safety of navigation. Although the intention is praiseworthy, SHOM has identified shortcomings and possible sources of confusion in the process.

1/ AIO depicts differences between Admiralty paper charts and ENC. For areas where UKHO is not the charting authority, Admiralty paper charts should not be taken as the reference for a comparison with ENCs produced by another charting authority.

2/ AIO does not resolve the difference with Admiralty paper charts but detects it which can certainly be useful in helping UKHO to alert the charting authority through normal bilateral process for the purpose of the safety of navigation.

3/ AIO highlights information which is presented as a mean to facilitate/secure passage plan. However some examples given in annexe A for the "standard ENC display" ignore some possibilities of existing standards and ECDIS. For example it is possible in passage planning, to display an ENC for the date of voyage, so that the navigator is fully aware of existing T&P that will be enforced at the date of voyage. Also for cases like Traffic Separation Scheme evolution

(example 2 of Annex A) where it is vital to draw the attention of the mariner on the date of start (DATSTA) and the date of end (DATEND), S-57 recommends at least one month before TSS change an updated data set should be issued including the creation of a “caution area object” covering both the current and the future TSS.

4/ The UKHO NtM can be slightly different from the original T&P. For example an area depiction could be different from the original in a deliberately simplified NtM. This may puzzle the navigator, wondering whether the difference between the ENC, updated with the original T&P, and the AIO is due to a simplification in the AIO, or to an error in the ENC.

5/ Some examples given in the UKHO’s report on AIO illustrate the importance of highlighting some T&P information in order to draw the attention of the navigator. One could fear that this focus on T&P might result in lesser attention to other modifications in the ENC.

6/ AIO is presented as a mean for UKHO to fulfil its “duty of care as a Hydrographic Office” in reporting discrepancies between Admiralty charts and ENC. It should be noted that issuing additional hydrographic information makes impossible to the SH producing the ENC to guarantee the consistency of the electronic information used by the mariners.

7/ AIO is presented as a mean to prove that T&P information has been taken into account by the navigator for the purpose of demonstration of compliance to Port state and SIREs (Ship Inspection and Reporting). Actually, controls appear to be based on the checking of chart data base to verify that the latest edition and update number of the ENC is available on the ECDIS of the vessel. Having the AIO does not mean nor prove that the vessel has updated its ENC, as AIO and ENC updates go through different processes. Furthermore, T&P information from AIO are not applicable to ENC updated with T&P and might on the contrary result in confusion: for example an AIO suggesting to displace a buoy when it has already been displaced in application of the normal T&P ENC service may raise more questions and confuse the navigator rather than help him.

Conclusion/recommendation

AIO is presented as an additional information overlay and ECDIS as a mean always envisaged by IHO to display information. SHOM considers that information on safety of navigation cannot be additional/optional information but is mandatory in the ENC and that additional layers are intended for other types of information regarding security for example (weather, piracy...). Additional layer should be reserved for information not concerning safety of navigation.

AIO blurs the responsibility for the provision of hydrographic services which according to SOLAS convention is to the coastal States. The duty of care UKHO set forward, as a Hydrographic Service, to justify the production of AIO set a doubt on the HO responsible for the ENC which might be damaging.

ENC is the only official electronic navigation cartographic information for safety of navigation and should contain all necessary information for safety of navigation. In cases where AIO might reveal some possible improvement of the safety of navigation process, a better use of actual possibilities of ENC and ECDIS should be sought in the first place or, when existing standards are not satisfying, priority should be given to their improvement under IHO aegis.

SHOM produces T&P NMSs and considers that AIO are not necessary for the safety of navigation in waters for which it is primary charting authority. SHOM strongly recommends that AIO service be stopped for these waters.

L'ingénieur en chef de l'armement Laurent Kerléguer directeur des
missions institutionnelles et des relations internationales
signé : Laurent Kerléguer

Annex

SHOM comments on UKHO's paper on AIO with SHOM's comments

Ref: paper submitted by UK, action 5/02 of the 5th WEND working group

Comments are given with reference to paragraph numbers of the paper in reference.

(5.)

Although ECDIS have the capacity to display additional layers, all information related to safety of navigation should be charted in the ENC, additional layers should be reserved for other information such as meteorology information or security (like piracy for example).

(5.a)

EPNMs help to *detect* discrepancies rather than to *resolve* them.

Admiralty paper charts should not be taken as the reference on waters for which UKHO is not the charting authority

(5.b)

T&P information is not applicable to ENCs when it has been updated by the ENC producer, only resulting in some possible confusion:

- Risk that a T&P is applied on an ENC which has been already updated,

- Risk that the AIO T&P (for example for the purpose of simplification of the NtM) is slightly different from the original correction on the ENC, thus puzzling the navigator.

(5.c)

The main reason why there should be no overlay, before technical capacity to produce one, is that there is no need for overlays for ENCs that are updated.

(7)

If it is considered that automatic update of ENC does not draw enough the attention of the navigator on recent changes (compared to the paper chart process, in which the mariner processes himself the NtM) resulting in some potential hazard for safety of navigation, then an improvement of standards should be worked under the IHO aegis.

(8.a)

The paper “P notices” and AIO detecting difference between Admiralty paper chart and ENC cannot be considered the same processes, as in the latter case, the information that “needs further investigation” is an official ENC: any discrepancy should be understood and resolved, not on the mariner’s screen (ECDIS), but bilaterally upstream.

If it is the duty of UKHO, as a hydrographic office, to inform the mariner, it shouldn’t result in diminishing the capacity of the ENC producer to play its own role. A risk is identified here since the ENC producer has not in hand the same documents (AIO) as the sailor has.

(8.b)

All port States do not seem to include this obligation in their Inspection procedures. The status of this obligation should be made clear, and if confirmed, considered by IMO and IHO, as having an impact on hydrographic services provided by coastal States.

Furthermore, having the AIO does not prove that the ENC has been updated, and not having the AIO does not imply that the ENC is not up to date. It is important that the inspection really verifies that ENC are up to date, whether it uses AIO or not. The process to achieve that important goal should be discussed with IMO especially if some tool seems to improve or facilitate the control.

(9)

It is understood that UKHO informs the relevant charting authority as soon as it receives ship’s reports (H-notes). IHO should probably think about the need for better informing mariners of the process of charting in the ENC age, and maybe of installing a more robust/direct process. A sequential process (H-notes → UKHO → relevant charting authority) should be avoided in order to save time and lighten the burden lying on UKHO’s shoulders.

(10)

As a consequence of this paragraph there is no need to produce AIO for the 65% of ENC producers that publish T&P NMs for their paper charts and include the information in their ENCs.

(12)

The mariners should be made aware that where AIO are not available or they do not have access to it, it is still possible that ENC are up to date when HO responsible provides a T&P update service (65% of ENC producers that publish T&P NMs for their paper charts).

(14)

Comparison between ENCs and Admiralty paper charts is relevant only for waters for which UKHO is the primary charting authority. The question of addressing differences between paper charts and ENCs should be on IHO agenda.

The demand of users for improvement of ENC's services should be on the IHO agenda.

(15)

The merit of highlighting T&P information could be discussed :

- 1) An up to date ENC is the nominal product and does not require any further additional layer
- 2) Highlighting T&P areas may result in diminishing vigilance in other areas
- 3) Some examples of AIO introducing confusion have been observed (example: buoys displacement that might be applied twice: one with the ENC update, one with the AIO if navigator gets confused). The ENC, updated with T/P notices and the overlay displaying the same information are redundant and may lead to misunderstanding.