S-101 Impact Study

For the past several years the IHO has been working on the development of S-101 – a new product specification for the Electronic Navigational Chart used in ECDIS. As part of the development process for new or revised IHO standards outlined in IHO resolution 2/2007 - "*HSSC should consider the impact on relevant stakeholders when assessing a proposal and planning any subsequent work. This assessment should systematically include a risk and feasibility analysis, and an estimate of the resources needed for the implementation of a new or revised standard or its development, including within Member States Hydrographic Services.*"

While S-101 will be similar to S-57 in that it is a transfer mechanism for nautical chart data, there are significant differences in its content and structure such that a review and identification of any potential impacts to the user community during the S-57 to S-101 transition period is required. The IHO is already working on an open source data convertor that will translate existing S-57 data – including updates, into S-101 formatted data for use in an S-101 compatible ECDIS. This is as a direct result of possible concerns from the hydrographic community that the changeover from S-57 ENC to S-101 ENC will incur significant organisation disruption and expense..

In 2011, The IHO Hydrographic Standards and Services Committee (HSSC) tasked its Transfer Standards Maintenance and Applications Development Working Group (TSMAD) to undertake a formal Impact Study for the introduction of S-101 – to identify the potential impacts of S-101on maritime stakeholder community and to ensure a smooth transition from the existing S-57 standard to the new S-101 standard.

This general survey of the user community is part of the impact study. An S-101 information paper that provides a high level overview of S-101 and its potential impact on various stakeholder communities accompanies this survey. You are strongly encouraged to read the information paper before responding to the survey, in particular, where appropriate, questions are cross referenced to the relevant section of the information paper.

The survey is divided into various sections. Different sections apply to different stakeholder communities. Please respond to the questions in the sections corresponding to your stakeholder community. Although many of the questions only require a yes/no answer please provide comments where appropriate.

QUESTIONS for ALL STAKEHOLDERS

1. Are you aware that an S-101 ENC product specification is being developed as a replacement for the S-57 ENC product specification?

2. How frequently do you use ENCs

QUESTIONS for ECDIS MANUFACTURERS

1. Machine readable catalogues (4.1)

   a. Do you consider this to be a positive step forward? Y/N
   b. If the answer is NO, please explain why you answered NO.
   c. Will this impact any maintenance service you currently provide to customers? Y/N
   d. If the answer is YES, please explain how and why.
   e. Would you support the sole use of the default symbol set, rather than developing your own bespoke version at a later date and as a supplementary option for the user? Y/N

2. Do you think that the new concept of providing point in polygon information in the data will greatly improve its use? (4.2) Y/N

3. Bearing in mind that S-101 is only the first step in providing a richer experience for users and that the plug and play functionality will facilitate easier introduction of other ECDIS products in the form of information overlays:
   a. Do you think there is a strong enough case to persuade your customers to upgrade to an S-100/S-101 environment? Y/N
   b. If NO, please explain why.
   c. Please comment if there any other changes/ improvements that you would recommend.

4. Has your company determined if there is a market for S-101? Y/N

5. if YES

   a.   If S-101 was adopted as an international standard by the IHO in 2014, what is your expected time to market with an S-101 compatible ECDIS?
   b.   What factors would influence when you would enter the market with an S-101 compatible ECDIS? Upgraded S101 and S63 specifications, customer demands, sufficient S101 coverage or other ?

6. Compatibility
   a. Will your S10X compliant system also be backward compatible with S57 encoded ENC data ?
   b. How will you manage the process where existing legacy systems only compatible with S57 will need to be upgraded to support S10x ? What is the duration of this process ?
   c. Is it planned that your system will be able at the same time to read, display, integrate and operate on ENC data supplied as S57 and S10x, or will your system only be able to work with either S57 or S10x data ?

d. How will you manage the same dataset installed on your system made available as both S57 and S101 data ?

7. Promotion
   a. How will you manage any relevant training or information to your users when functionality and ENCs are being delivered in S101 ?

QUESTIONS for ENC COMPILATION SOFTWARE MANUFACTURERS

1. Will the machine readable XML files be useful in updating your systems when updates to S-101 enter force from time to time? (4.1)

2. During the transition period until S-57 is withdrawn, do you anticipate any issues with a production system being capable of exporting both S-57 and S-101 datasets?

3. Do you anticipate any problems with storing and maintaining both S-57 and S-101 datasets?

4. Please comment if there any other changes/ improvements you would recommend

5. Has your company determined if there is a market for S-101 ENCs?

6. If S-101 was adopted by the IHO in 2014, what is your expected time to market with an S-101 ENC production system?

QUESTIONS for MARINERS

1. How familiar are you with Electronic Navigational Charts (ENCs)?
2. Do you use an ECDIS on a regular basis?
3. How familiar are you with additional information layers in an ECDIS?
4. If S-101 made significant improvements to the use and functionality of existing ECDIS would you consider upgrading?
5. Please tell us about your existing frustrations with ENCs and ECDIS?
6. Please comment if there any other changes/ improvements you would recommend

QUESTIONS for SHIP OWNERS
1. How familiar are you with Electronic Navigational Charts (ENCs)?
2. Is this the first time you have heard about S-101?
3. When was the date of your first ECDIS purchase?
4. When was the date of you last ECDIS purchase?

5. Do you pay for a maintenance/upgrade service on your ECDIS?
6. Is your ECDIS IMO compliant for the mandatory carriage of ECDIS?
7. When do you expect to refresh/replace your ECDIS with newer technology?

8. If S-101 made significant improvements to the use and functionality of existing ECDIS would you consider upgrading to a newer ECDIS?

QUESTIONS for HYDROGRAPHIC OFFICES

1. How familiar are you with the S-101 development process?

2. If your office is not directly involved with the development of S-101 would there be any benefit in having better access to the latest draft versions of S-101 and the work of the TSMAD internet development groups?

3. a. Do you currently have an ENC production system?

   b. If yes do you pay for a maintenance/upgrade service?

4. a. Do you consider that the ability to easily change both the content of S-101 (feature catalogue) and the symbology (portrayal catalogue) in ECDIS software at sea will be an issue for your office?
   b. If YES, please explain why.

5. Although S-101will continue to provide the basic structure and features of an ENC as a tool for safe navigation, it will introduce new concepts to either improve the efficiency of the data and the user experience. The following questions seek your understanding and potential use of these concepts:

   a. Scale dependent and scale independent data sets.
      i. Do you understand the principals of this concept?
      ii. Do you think it is a good solution for decreasing the number of updates?
      iii. If YES, will you introduce scale dependent and scale independent data sets at some point?
      iv. When would this occur?
   b. Cartographic text placement. This concept is intended to reduce clutter and improve the user experience.
      i. Do you consider this to be a worthwhile concept?
      ii. If NO, please explain why.
      iii. If YES, do you consider it would take a long time to change your data?
   c. Information Types have been introduced to improve the way meta information about features is encoded. For example the use of caution areas could be considerably reduced.
      i. Do you consider this to be a worthwhile concept?
      ii. If NO, please explain why.

      iii. If YES, do you consider it would take a long term to change your data?
    d. Complex attributes have been introduced to improve the way certain features are encoded and make them more easily processed in the end system.
      i. Do you consider this to be a worthwhile concept?
      ii. If NO, please explain why.
      iii. If YES, do you consider it would take a long term to change your data?

6. Data Distribution
    a. Are you aware that there will be an IHO S-57 to S-101 converter available free-of-charge during the transition period to convert S-57 data into S-101 data?
    b. Will you begin the migration to S-101 production as soon as production systems become available?
    c. If NO, what factors must be in place before you begin the transition?
    d. During the transition period and until there is 100% uptake of S-100/S-101 compatible ECDIS systems there will be a need for dual distribution of both S-57 and S-101 ENCs. Do you intend to provide a dual S57 and S101 service for an interim period ?
    e. If NO, how do you plan to support current mariners which are using type approved equipment which can only read S57 ENC data?
    f. If YES, do you consider that this will be a major overhead for your office?
    g. If YES, please explain why. For instance will you deliver a dual service where ENCs will be made available in S57 AND S101, or will ENC released in S101 cancel the corresponding ENC provided in S57 ?
    h. Do you distribute your ENCs via a RENC?
    i. If NO, please describe the mechanism that you use.

7. Time frame for transition
    a. What is the timeframe you expect are required to convert all your ENCs from S57 to S101 ?
    b. Do you expect to continue to provide all your ENCs in S57 format for an interim period after full S101 coverage is completed to support installed end-user legacy systems? How long do you believe this transition period must be ?

8. Promotion
    a. In the future S100 will derive a variety of different S-10X products. A proof of this is S-102 already accepted by IHO Member States. Are you planning delivery of S-102 or any other S-10X products for commercial use, and if so when ?

9. Please comment if you have other suggestions/improvements or concerns about the impending publication of S-101

QUESTIONS for RENCs and VARs

1. How familiar are you with the S-101 development process?
2. How involved is your organization in the S-101 development process?
3. Will you distribute S-101 data (either converted from S-57 or full specification) when it becomes available?
4. If NO, why not?
5. Do you foresee any issues with the need to operate a dual distribution service for both S-57 and S-101 ENCs during the transition period?
6. If YES, what are those issues?
7. Is it practicable for RENCS and VARs to offer a conversion service from S-57 ENCs to S-101 ENCs until HO's begin to produce full specification S-101 ENCs?
8. How will you inform your users about new ENC data being made available in S101 and the possible impacts it might have on any existing service elements?