Dual Fuel ECDIS & S-100 Implementation

S-102 Bathymetric Surface in ‘S-57 ECDIS’

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Background

- ECDIS community suffers from low resolution bathymetry (5-10-20 m)
- Introduction of HD ENCs unfortunately has not resulted in any significant coverage
- ECDIS Users are forced to draw No Go lines manually

Source: Intertanko
S-102 Data availability & Technology

- S-102 data is available already and counting
- S-102 use together with S-57 is technologically possible, which a variety of commercially available PPU and other ECS applications shows
- Quote*: “There is no need for industry to wait for the final implementation of an S-101 ENC enabled ECDIS. Additional S-1xx products can be used in existing systems with upgrades to software for those clients who wish to use them.”
- Questionable if this is in line with current ECDIS regulations (may work with simple overlays), but what about alert functions etc.
- Consequently, mariners have to wait until ECDIS performance standards have been updated to cater for S-100.

* Roadmap for the S-100 Implementation Decade (2020 – 2030)
S-100 Implementation decade

- S-100 Implementation decade activities are making good progress but have not reached sufficient level of maturity to be available to the SOLAS shipping market anytime soon.
- Risk: Shipping companies will wait until the very last moment for the existing fleet, since Safety Policy, Equipment, Training,... needs to be changed.
- If S-100 introduction does not look convincing to shipping industry (incl. low cost, not much training, not much hassle, reliable etc) not much enthusiasm can be expected.
- Presentation library 4.0 experience showed, how time-consuming the roll-out was.
Revision of ECDIS PS

- Necessary normative standard changes for Dual Fuel ECDIS need to be completed, specifically a **combination** of:
  - MSC 232.(82) revision
  - IEC 61174 Testing standard revision
  - S-98 and other S-100 IHO standards

- According to Roadmap for the S-100 Implementation Decade (2020 – 2030), Annex 1, the revised ECDIS PS will be in force 1. July 2025

- Therefore, that would mean, no significant commercial market usage **before 2030 on SOLAS ships** (due to transition period)
# Proposed interim step

<table>
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<th>Current ECDIS</th>
<th>interim DF ECDIS</th>
<th>DF S-100 ECDIS</th>
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<tr>
<td>MSC 232.(82)</td>
<td>MSC 232.(82)</td>
<td>New IMO Res.</td>
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<td>S-52 6.1.1</td>
<td>S-52 Annex</td>
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<td>S-64 3.0.3</td>
<td>(Option for S-102)</td>
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<td>S-57 / S-63</td>
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<td>S-102, S-104, S-124...</td>
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<td>S-102</td>
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Proposal

- Enabling an interim Dual Fuel ECDIS by **amending the S-52 standard** and allow to **use S-102 data in combination with S-57**

- With this, the current ECDIS Performance standard (IEC 61174) **can stay as is** and the industry would have the possibility to use a type approved ECDIS but also using the value-added information sooner than currently scheduled

- This **interim step** will create market acceptance and confidence of the new S-100 services early and will provide safety benefits during Voyage Planning and execution where data is already available
Amendments covered by S-52 Annex

• Allow ENCs to be overlaid/interlaced/displaced by bathymetric data.
  
  *Modify all paragraphs preventing other data than ENC to be used.*

• As a minimum, only grid cell coloring is required. Generation of depth contours and soundings is optional.
  
  *Define new symbology for grids (e.g. grid cell coloring).*

• Automatic safety contour generation required for display only (not for anti-grounding).
  
  *Define simple algorithm for contour creation.*

• Contours and spot sounding from ENCs must be suppressed within S-102 coverage.
  
  *Define combined display of ENCs and S-102 (e.g. display layers, priorities).*

• Specify precedence of data.
  
  *Define rules for pick report, anti-grounding, depth alarms.*

  *Define which dataset to use in case of overlapping data sets (what data is “best”).*
Amendments covered by S-64 Annex

• Create test data sets (S-57 and S-102).

• Create test specifications for S-102 import.

• Create test specifications for combined (S-57 & S-102) portrayal, pick reports, alert generation.

• Create screensdumps (plots) for combined (S-57 & S-102) portrayal tests.
Action Required of S-100 WG

• discuss this proposal

• endorse this proposal in order for it to be formally submitted to HSSC

• seek HSSC approval for this proposal

• note SevenCs’ willingness to get involved in the activities of such a work item