WORKING WEEK 2025
AND Locate25
THE NATIONAL GEOSPATIAL CONFERENCE
FIG Geospatial Council of Australia
Collaboration, Innovation and Resilience: Championing a Digital Generation
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Commission 4 Working Group 1: Hydrographic Standards and Guidelines

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Introduction

- FIG Commission 4 (Hydrography) operates several working groups
- Working group 1 is the longest in operation and provides feedback and support for standards supporting Hydrography
- Focus on standards from the surveyor's perspective, rather than product vendors or customers
- Standards of interest fall into two main areas:
  - Procedural (IHO S-44, C-13 etc.)
  - Data interchange (IHO S-102, BAG etc.)

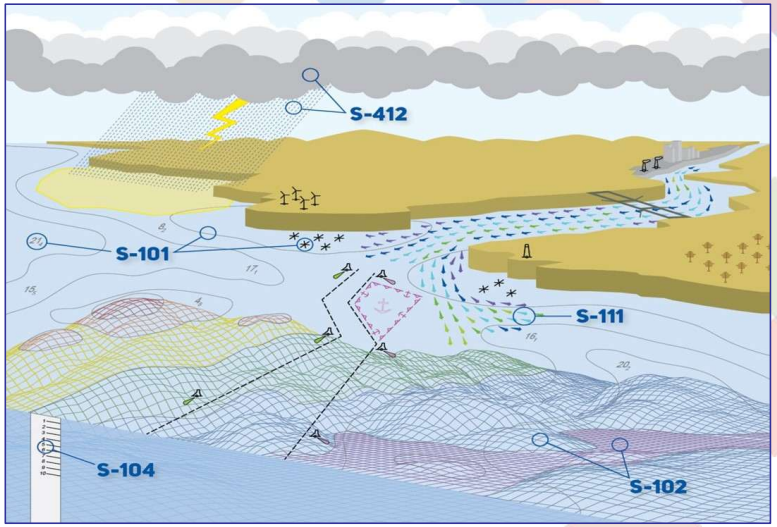

Image: NOAA 2025

Procedural Standards

- Good agreement on standards globally for characterising hydrographic survey data (at the high level)
- Policy guidance at a national level is fragmented, but IHO documents provide a good headmark
  - IHO S-44 Ed 6.1 (Oct 2022) *IHO Standards for Hydrographic Surveys* has been well adopted
  - IHO C-13 Ed 1 (corrected to Feb 2011) *IHO Manual on Hydrography* is occasionally used as a basis for other national publications or standards on hydrographic practice, but most nations will still implement their own. Technology is moving faster than this publication can change.
  - FIG/IHO/ICA collaboration on S-5 *Standards of Competence for Hydrographic Surveyors*
- Governments have procedural documentation that is broadly considered in other jurisdictions in the absence of other suitable international standards – these are co-evolving and converging, for example:
  - AHO SPEC_03_33 *Hydrographic Industry Partnership Programme Statement of Requirements 2023.2*
  - NOAA OCS *Hydrographic Survey Specifications and Deliverables 4/2021*

Procedural Standards

- Procedural standards related to hydrospatial data are also influenced by private or non-HO state-sponsored bodies, for example:
  - AUSSeabed *Australian Multi-beam Guidelines 2020*
  - GEOHAB Backscatter Working Group publications, i.e.:
    - *Backscatter Measurements by Seafloor-Mapping Sonars. Guidelines and Recommendations*
    - *Mapping the Seafloor for Habitat Characterisation*

- Aside from the IHO publications which provide high level standardisation for surveys used for nautical charting, the environment is fragmented
- A few key organisations are elevated in credibility, giving rise to de-facto standards that are well adopted.

Data transfer standards

- Highly fragmented:
  - Raw data – almost all proprietary, no significant standards adoption
  - Raw data risks are compounded by lack of vendor agreement on sensor data payloads
  - Innovation vs Standards
  - L1/2 processed data – almost all proprietary with a few notable exceptions
    - GSF – Generic Sensor Format – Open format maintained by Leidos (private) for NOAA/NAVO
    - XTF – Semi-open, but no longer supported by Triton Imaging (it's originator) and contains closed elements
  - L3 surface data – highly proprietary and prone to vendor lock-in, but with notable exceptions
    - IHO-S102 (open but IHO signed end-user navigation surface based on HDF5)
    - BAG (open navigation surface for surveyor based on HDF5)

Commission 4 standards message

- We as surveyors need to encourage our vendors to support open standards fully where they exist
- Acknowledge and support IHO as a headmark in the standardisation of the products and procedures in hydrography
- FIG has been advocating strongly for better implementation of open standards including BAG across a number of products to better support data transfer to HOs in preparation for S-102 product releases.
- Connecting end-users to working groups and to vendors to illustrate key requirements that are not being met.

Open hydrographic standards and guidelines support these SDGs...

1st relevant SDG

2nd relevant SDG

3rd relevant SDG

SUSTAINABLE DEVELOPMENT GOALS

International Federation of Surveyors supports the Sustainable Development Goals