WORKING WEEK 2025
AND Locate25 THE NATIONAL GEOSPATIAL CONFERENCE
Collaboration, Innovation and Resilience: Championing a Digital Generation
FIG Geospatial Council of Australia
Brisbane, Australia 6–10 April

Open for interpretation: the role of open standards in maximising the accuracy, consistency and utility of bathymetric data.

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Chair FIG Working Group 4.1 (Hydrographic Standards and Guidelines)

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Introduction

- S-102 Bathymetric Surface – trusted, certified, continuous surfaces, based on an open data model (HDF5)
- Product Specification – operational release December 2024
- An open format product for surface data (at least for navigation)
- Trusted surface data: more important than ever to feed these products

- But how open is the path from “ping-to-chart”?
- What do we risk/lose by relying on proprietary/closed formats?
- What are the opportunities?

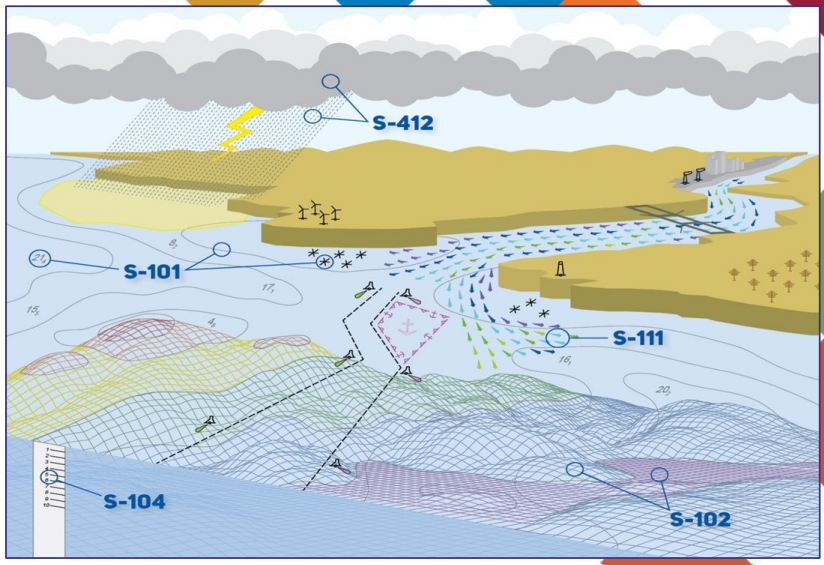
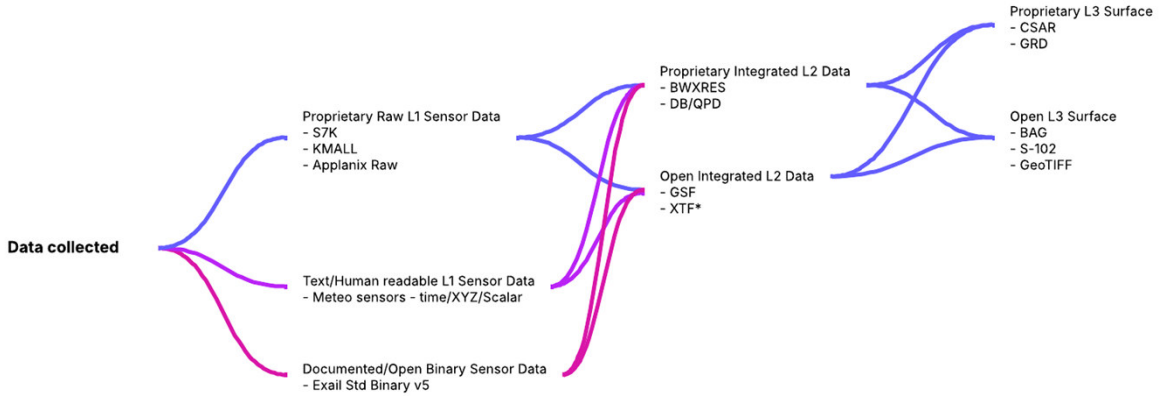


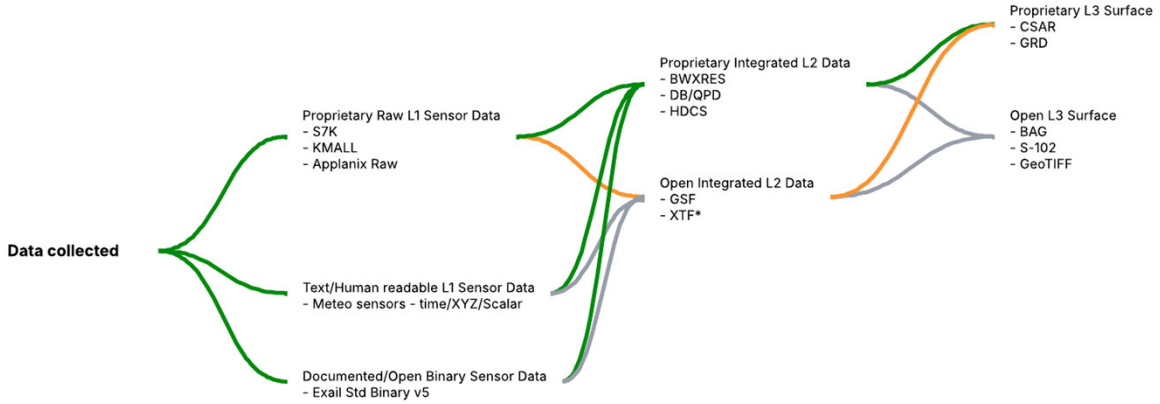
Image: NOAA 2025

Getting to the surface

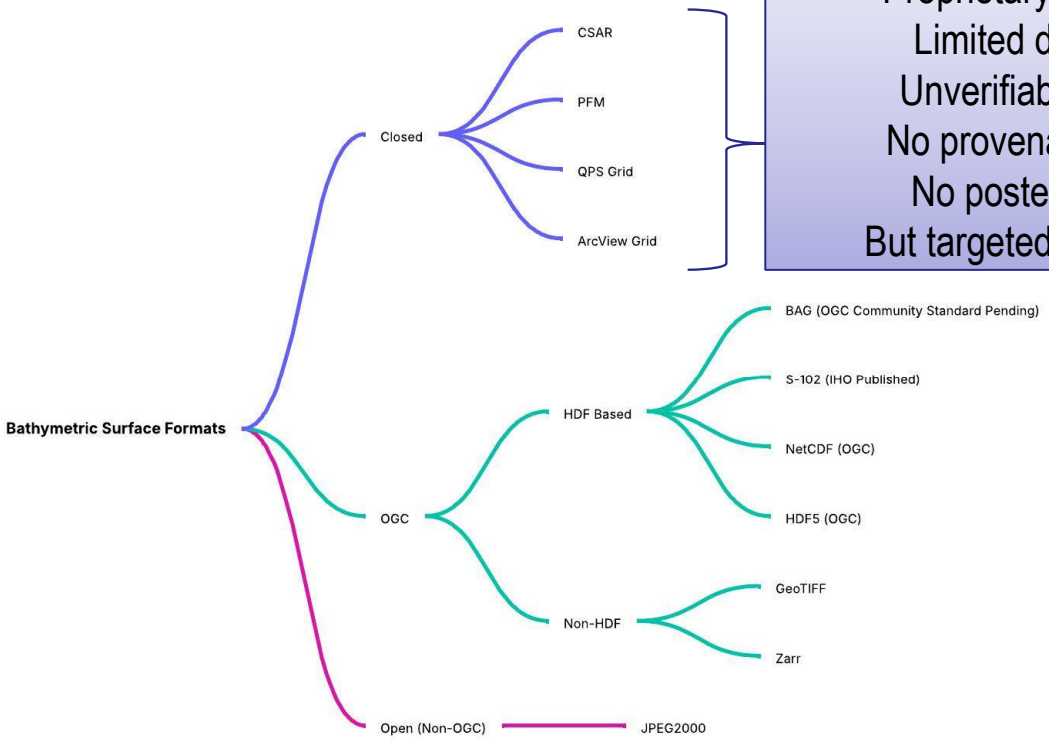
- At the point of collection, there are some options, multiple paths between open and closed formats.
- In reality, workflows consolidate, and often proprietary sources take precedence
- May be due to software vendor support limitations
- Sometimes due to customer requirements (but this is generally vendor support related)

Example >>>



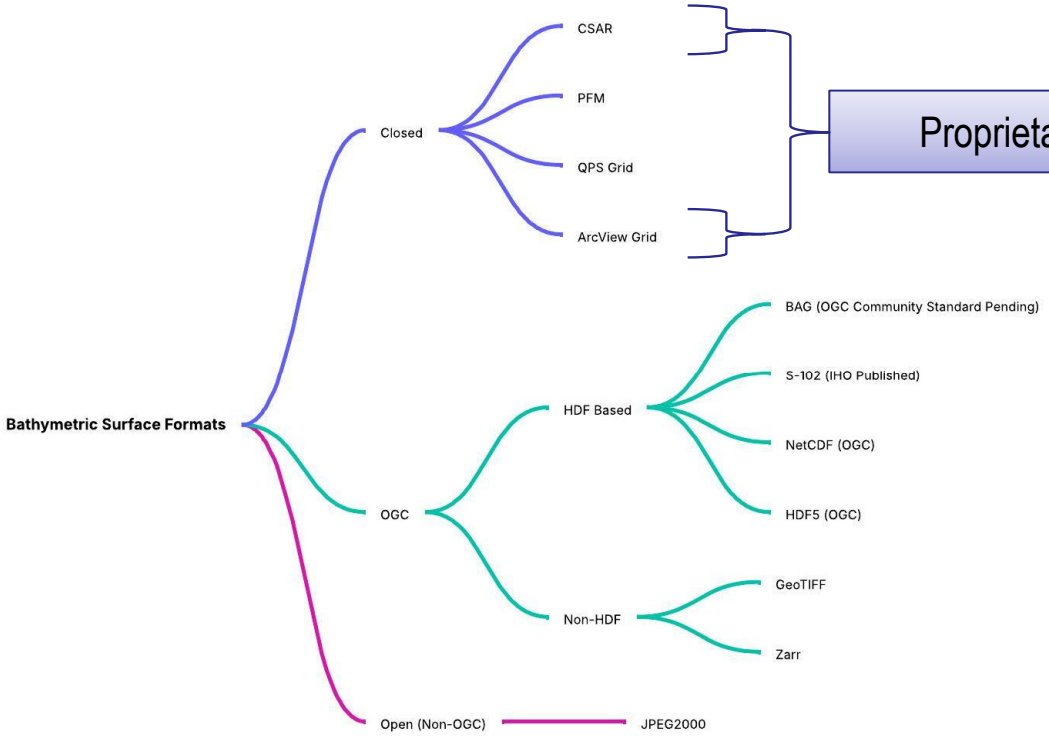


The surface landscape

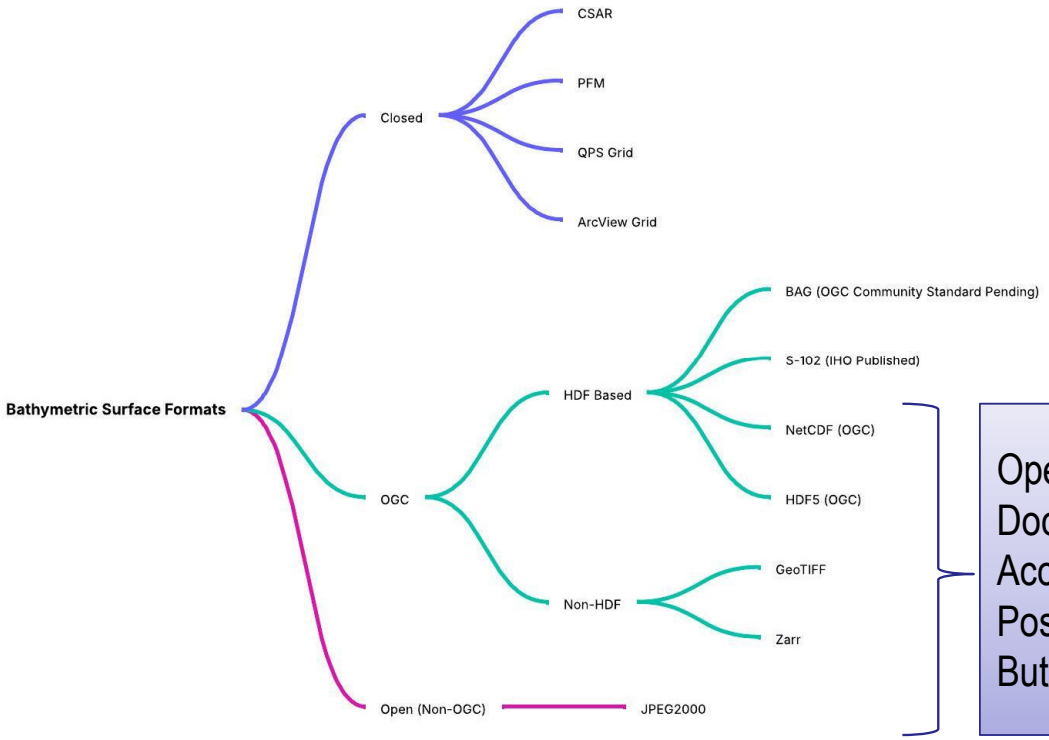


Proprietary, closed formats
Limited documentation
Unverifiable conversions
No provenance assurance
No posterity assurance
But targeted for the use-case

The surface landscape



The surface landscape



Open
Documented
Accessible
Posterity assured
But… missing key bathymetric specifications

The surface landscape

Open
Documented
Bathymetry aware
Provenance assured
Posterity Assured

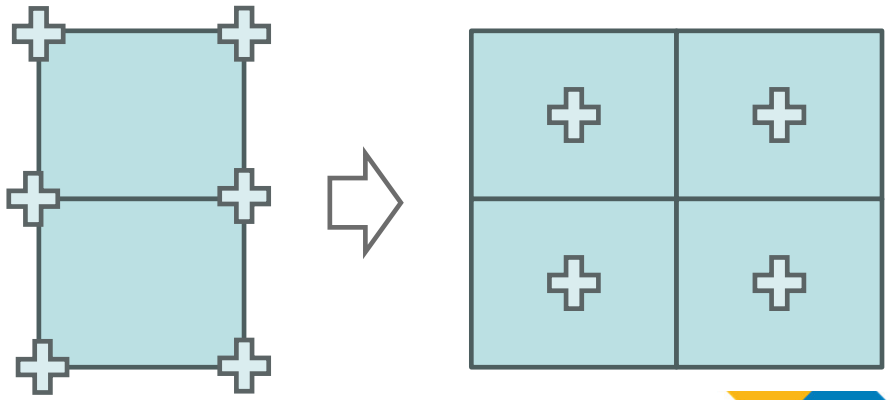
The surface landscape

Open International Standards

Risks of adopting proprietary "de facto" standards?

- Limitation of access
  - Commercial limitation of use
  - Company support wanes or company restructured
  - Cost of software to access the data
  - Export control / licensing
  - No community access / opportunity
- Lack of provenance
  - No signing
  - Encryption only for licensing
- Vendor lock-in / inability to use with new 3rd party technology including AI

- Conversion risks
  - Different conventions – loss of fidelity
  - Poor/no documentation – errors
  - Reluctance of vendors to support conversion to open formats (vendor lock-in) – missing features



Opportunities in adopting open bathymetric standards (BAG > IHO S-102)

- Freedom of access and use
  - Open data schemes
    - AusSeabed
    - Seabed 2030
    - AWS OpenData
  - Innovate faster
    - Build on open access libraries (GDAL) to deploy new technology faster
    - Bespoke solutions
    - AI learning and inference
  - Encourage academic use
- Long-term posterity – open formats with open-source libraries remain accessible
- Verifiable provenance
  - Signing schemes built-in
  - Change cannot go un-noticed
  - Protect the liability of the surveyor

But we as customers must demand open format support from our vendors!

Because …

Open bathymetric surface formats support these SDGs...

1st relevant SDG

2nd relevant SDG

3rd relevant SDG

SUSTAINABLE DEVELOPMENT GOALS

International Federation of Surveyors supports the Sustainable Development Goals