South West Pacific Hydrographic Commission S-100 Workshop

National Impacts of S-100

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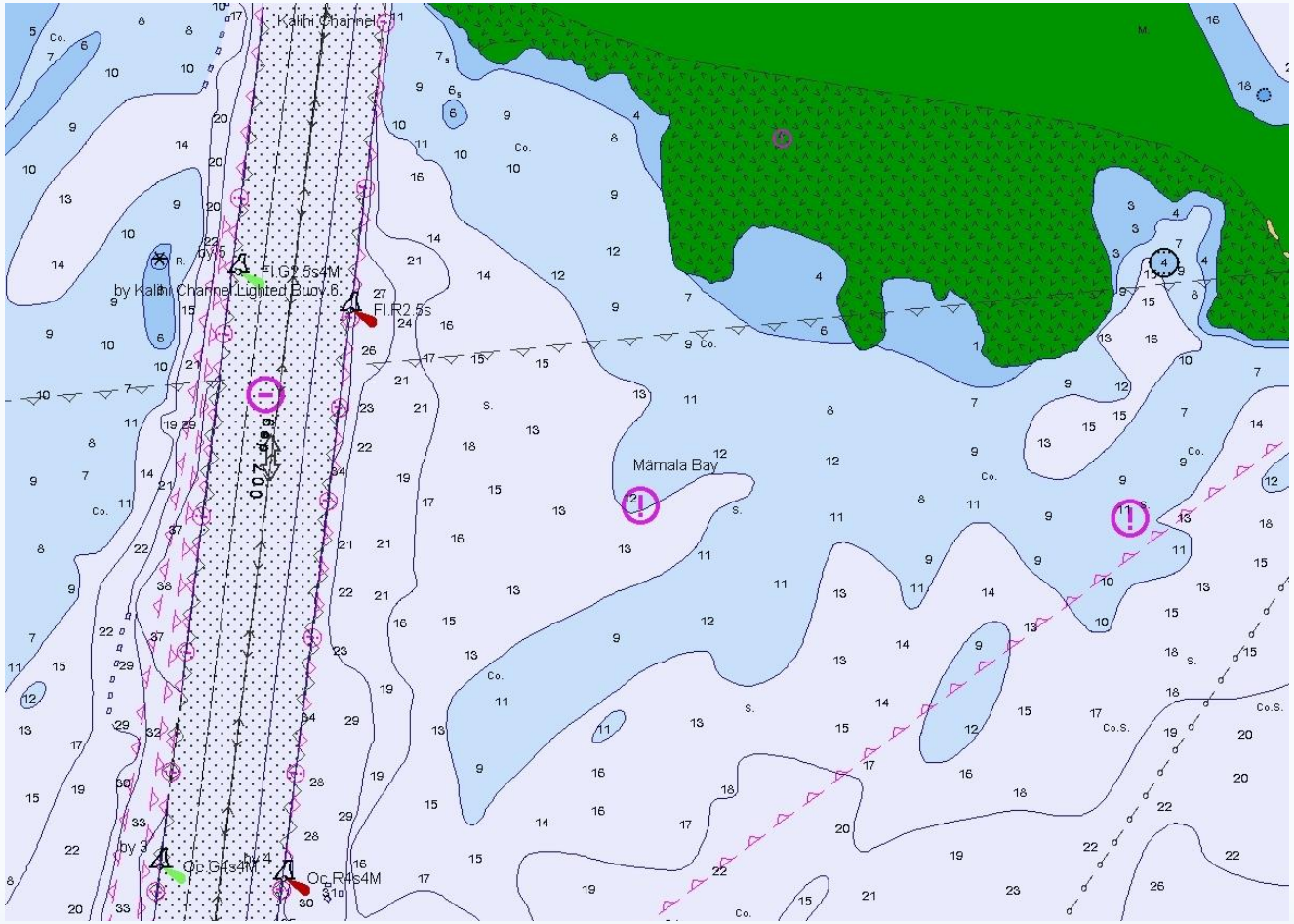
SOLAS – Ch V Regulation 9 Hydrographic Services



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https://nauticalcharts.noaa.gov/updates/enc-ten-year-anniversary/

REGULATION 9 – Hydrographic services
Contracting Governments undertake to ***arrange*** for the collection and compilation of hydrographic data and the publication, dissemination and **keeping up to date** of all nautical information necessary for safe navigation.

Substantial governance challenge by all nations to make safety of navigation data available to meet SOLAS and broader use cases.

Considerable return on investment to the nation.

How a nation fulfills it's SOLAS requirements is very flexible.

SOLAS – Ch V Regulation 9 Hydrographic Services

Importance of accurate and up-to-date nautical information

- Risk reduction
- Modern charting
- Confidence in charts and publications
- Cost benefits
- Increase in trade & tourism
- Heightened profile
- Safety of navigation

SOLAS – Ch V Regulation 9 Hydrographic Services

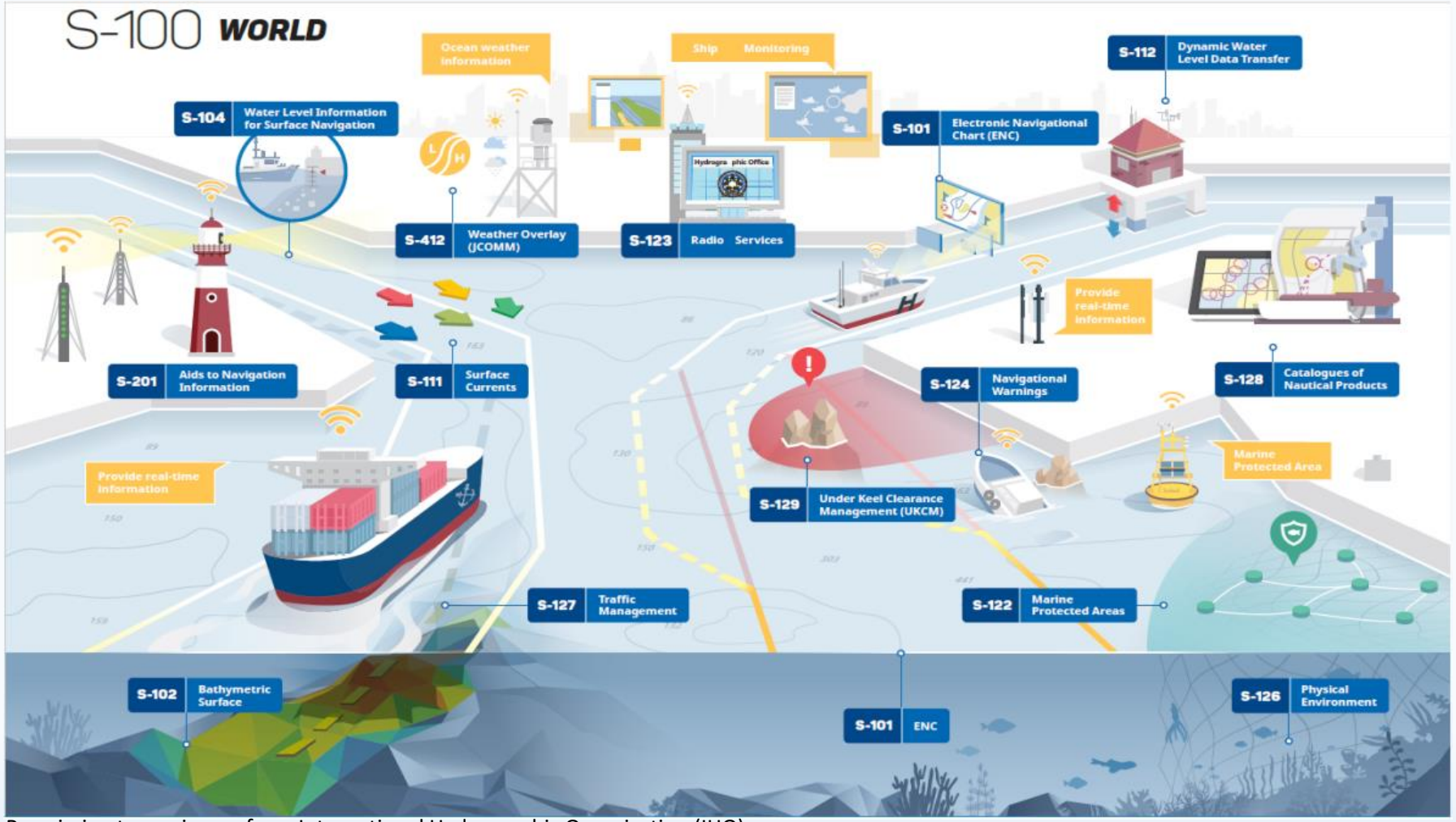
Consequences for inactivity

- Risk of accidents increased
- Shipping loses confidence in ports
- International trade declines
- Economic stagnation
- Environmental impact
- Liability and litigation

Traditional Hydrographic Office, **circa 1926**

1) Have Authority – can be more than one (every nation different)
   - U.S. has 4 recognized HO's
2) Obtain data – Self collect; partner with other Nation or industry
   - MSI, survey systems, tide and current observations, etc
3) Build products – In house; partner with other nation or industry
   - Paper Nautical Chart, ENC, Publications, tide tables etc
4) Distribute products – In house; partner with other nation or industry
   - Nationally, internationally, partners, via RENC, etc
5) Users consume products – traditional users are SoN focused
   - Pay for use

S-100 Suite of Digital Safety of Navigation Products



Permission to use image from International Hydrographic Organization (IHO)
http://s100.iho.int/home/s100-introduction

S-100 Suite of Digital Safety of Navigation Products

International Hydrographic Organization (IHO) (S-101 to S-199)
S-101 Electronic Navigational Chart (ENC)
S-102 Bathymetric Surface
S-103 Sub-surface Navigation
S-104 Water Level Information for Surface Navigation
S-111 Surface Currents
S-121 Maritime Limits and Boundaries
S-122 Marine Protected Areas
S-123 Marine Radio Services
S-124 Navigational Warnings
S-125 Marine Navigational Services
S-126 Marine Physical Environment
S-127 Marine Traffic Management
S-128 Catalogue of Nautical Products
S-129 Under Keel Clearance Management (UKCM)
S-130 Polygonal Demarcations of Global Sea Areas
S-131 Marine Harbour Infrastructure
S-164 IHO Test Data Sets for S-100 ECDIS

International Association of Light Authorities (IALA) (S-201 to S-299)
S-201 Aids to Navigation Information
S-210 Inter-VTS Exchange Format
S-211 Port Call Message Format
S-212 Port Call Message Format
S-230 Application Specific Messages
S-240 DGNSS Station Almanac
S-245 eLoran ASF Data
S-246 eLoran Station Almanac
S-247 Differential eLoran Reference Station Almanac

Intergovernmental Oceanographic Commission (IOC) (S-301 to S-399)
(None yet)

Inland ENC Harmonization Group (IEHG) (S-401 to S-402)
S-401 IEHG Inland ENC
S-402 IEHG Bathymetric Inland ENC

Joint Technical Commission for Oceanography and Marine Meteorology (WMO/IOC JCOMM) (S-411 to S412)
S-411 JCOMM Ice Information
S-412 JCOMM Weather Overlay
S-413 Weather and Wave Conditions
S-414 Weather and Wave Observations

International Electrotechnical Commission - Technical Committee 80 (IEC-TC80) Numbers (S-421 to S-430)
S-421 Route Plan

NATO Geospatial Maritime Working Group (GMWG) for Additional Military Layers (AML) Numbers (S-501 to 525)
(In initial design stage)

Critical Framework – S-100 Universal Hydrographic Data Model

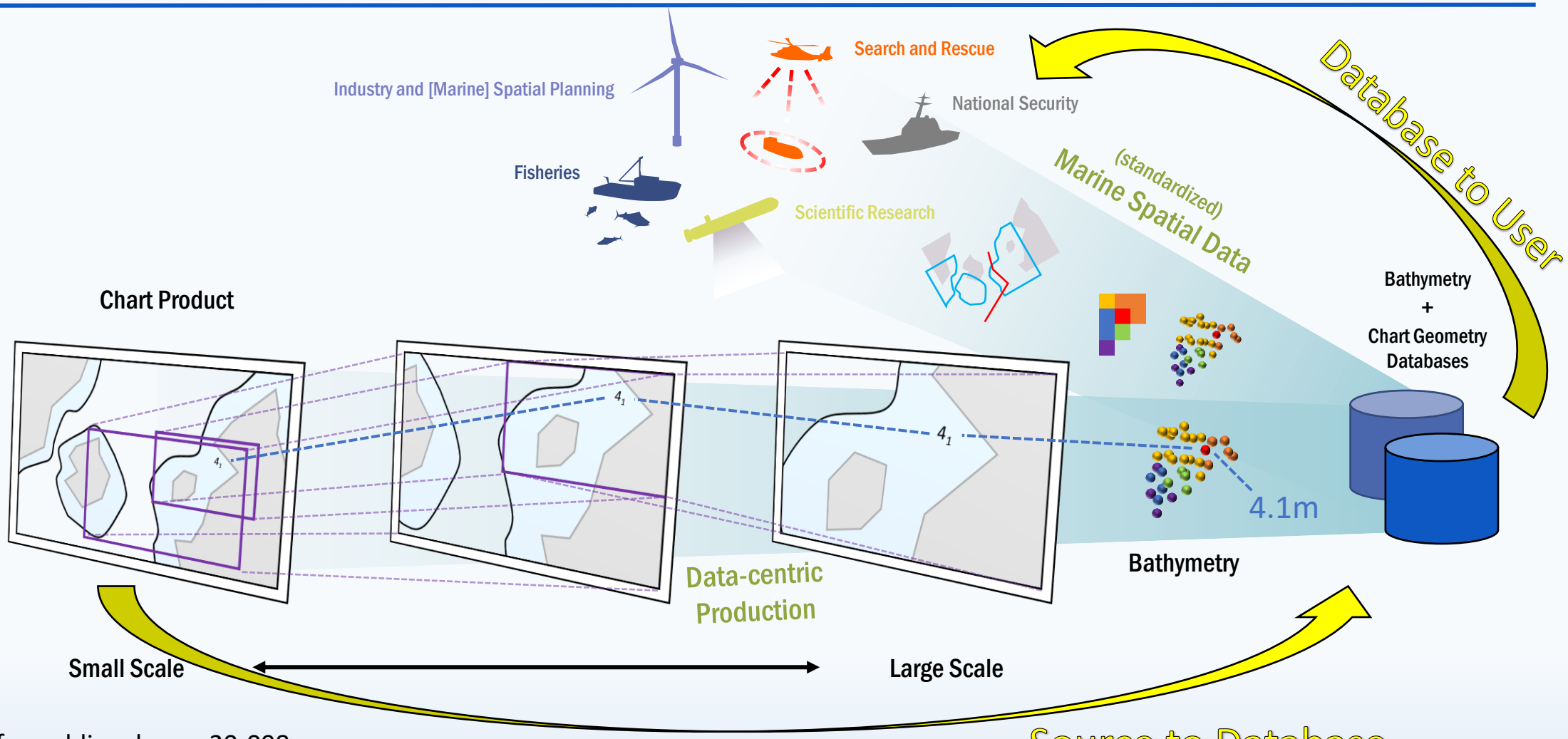
IHO Geospatial Information Registry
S-98 Interoperability Specification
S-128 Catalogue of Nautical Products
S-164 Test Data Set for S-100 and ECDIS Type Approval

S-100 Ocean to customer - For every Product!

- The building blocks from the deep blue sea to multiple users of marine geospatial data

- What is exactly the same with different S-100 product specifications?
- GOVERNANCE!

Data-Centric Production and MSDI



- Approved for public release, 20-098

Future Hydrographic Office, circa 2023

1) Have Authority – can be more than one (every nation different)
   - Many others are involved, have data, build products for many purposes,
   - HOs may have limited authority
2) Obtain data – Self collect; partner with other Nation or industry
   - Industry is becoming a large part of the geospatial data business
3) Build products – In house; partner with other nation or industry
   - Move away from building to approving (QA/QC, oversite based on liability)
4) Distribute products – In house; partner with other nation or industry
   - New products will require new ways to distribute data
5) Users consume products – Acknowledge users beyond SoN
   - Open data is the future – maximizing national value

Conclusion – and RHC's can help!

- **Governance** is key
  - Understand your nations view of geospatial data
- **Arrange** for – you do not need to go alone
- **Know** your data providers
  - Cross Agency
  - Port Authorities, MET Offices, funding agencies etc.
  - NGO's, Industry, academia, etc.
- **Work with** you Primary Chart Authority
  - The role of the PCA is to assist
  - **Coordinate, coordinate, coordinate**

Back Up Slides

Phase 1 - IHO Capacity Building Process (2014)

Collection and circulation of nautical information, necessary to maintain existing charts and publications up to date

- Form National Authority (NA) and/or National Hydrographic Coordinating Committee (NHCC).
- Create/improve current infrastructure to collect and circulate information
- Strengthen links with charting authority to enable updating of charts and publications
- Minimal training needed
- Strengthen links with NAVAREA
- Coordinator to enable the promulgation of safety information

Phase 2 - IHO Capacity Building Process (2014)

Creation of a surveying capability to conduct: Coastal projects and then Offshore projects

- Establish capacity to enable surveys of ports and their approaches
- Maintain adequate aids to navigation
- Build capacity to enable surveys in support of coastal and offshore areas
- Build capacity to set up hydrographic databases to support the work of the NA/NHCC
- Provide basic geospatial data via MSDI
- Requires funding for training, advising & equipment or contract survey

Phase 3 - IHO Capacity Building Process (2014)

Produce paper charts, ENC and publications independently

- The need shall be thoroughly assessed. Requires investment for production, distribution and updating
- Alternatively, bi-lateral agreements for charting can provide easier solutions in production and distribution (of ENC through RENCs) and rewards.
- Further development of MSDI