# – e-NAV –
# – IHO S-100 –

Captain Robert WARD
Director, IHB

# e-Navigation

- IMO is developing the e-Nav strategy
- a concept - not a piece of equipment
- harmonization of marine navigation systems and supporting shore services to meet identified user needs
- all relevant international organizations will be involved – including IHO
- a work in progress

# e-Navigation

- *… the harmonized collection, integration, exchange, presentation and analysis of marine information onboard and ashore by electronic means to enhance berth to berth navigation and related services for safety and security at sea and protection of the marine environment*

# Benefits

include:

- safer navigation
- improved traffic observation and management
- efficient communications and data exchange
- emergency response and SAR
- reduced workloads

# e-Nav Information

- wide variety of sources of digital information
- hydrographic information and MSI – an important element
- ENC – fundamental backdrop to most e-Nav applications

# – S-100 –

## *New Geospatial Standard for Marine Data and Information*

# S-100

S-57

- IHO Transfer Standard for Digital Hydrographic Data
- established 1992
- intended for wide use – not just ENCs

# S-57 - shortcomings

- content and carrier (ISO 8211) combined
- difficult to update / introduce new editions
- lacks flexibility and ease of extension
- used almost exclusively for ENCs
- no longer a contemporary standard
- requires  specific tools to use in GIS

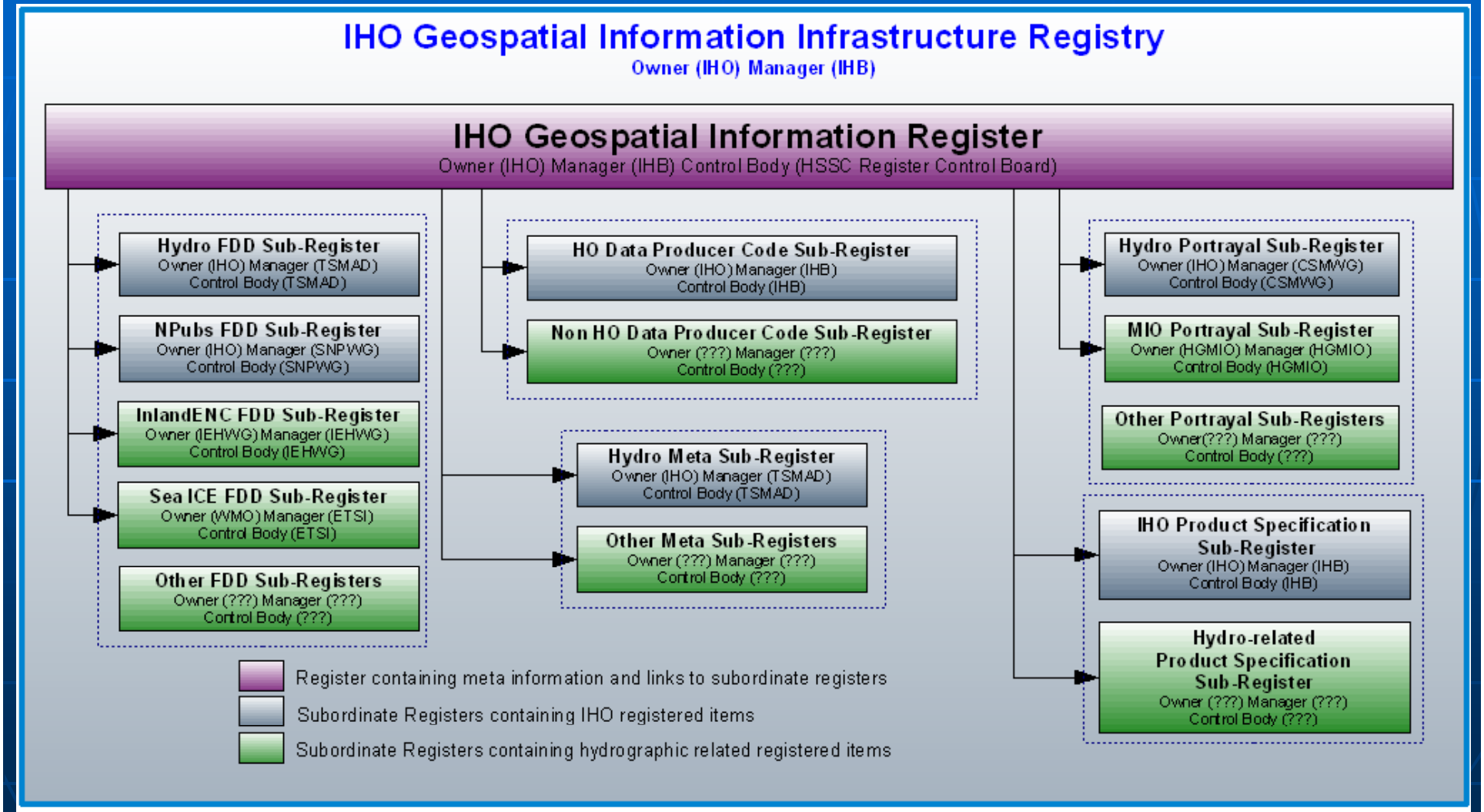
# S-100 - Geospatial Standard for Hydrographic Data

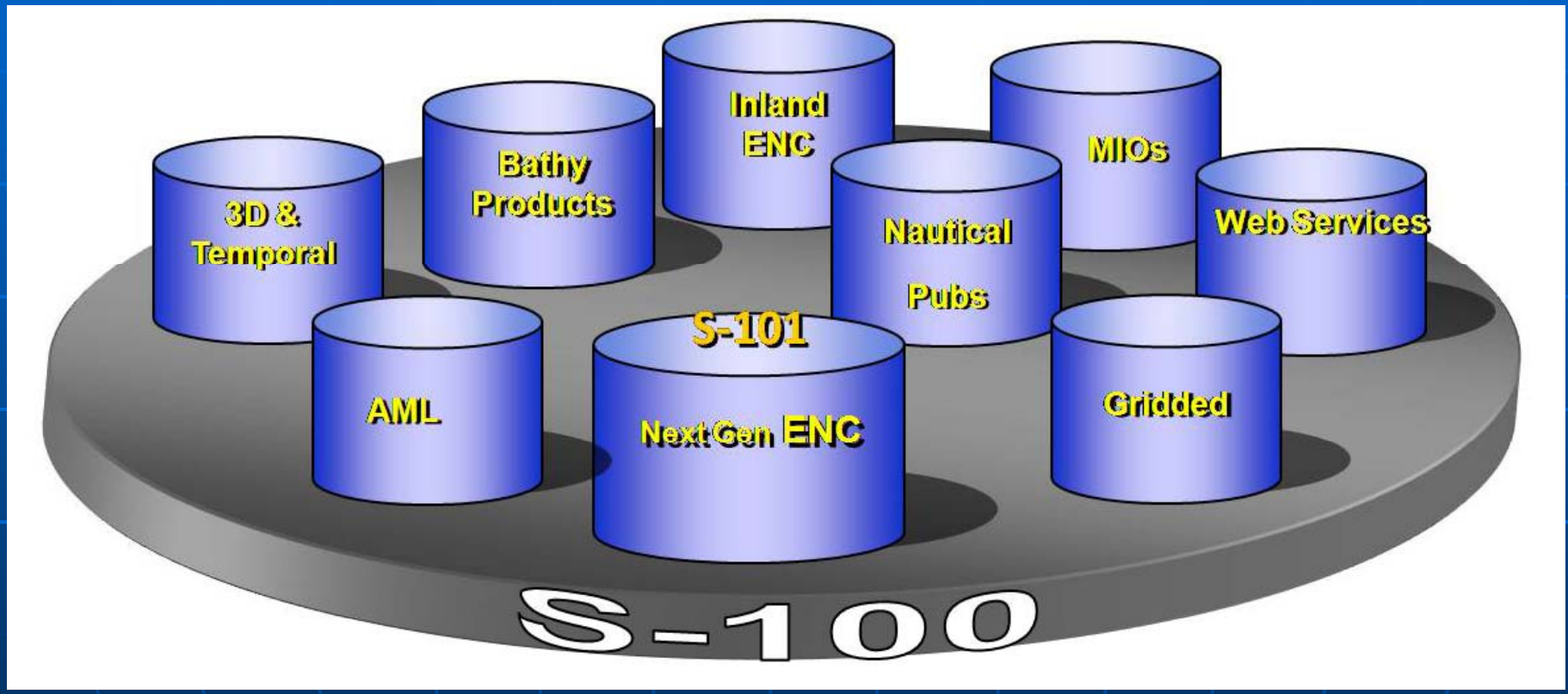
- need to develop and maintain  a contemporary standard
- wider user base
- compatible with ISO 19100 series of geographic information standards

# S-100 - Geospatial Standard for Hydrographic Data

- Data content separated from carrier
- Product specifications are a subset of S-100
- S-100 aligned with ISO 19100 series of standards
- Standard never “frozen”
- ISO 19100 … and S-100 data can be used together
- S-100 “*family*” developed and maintained via an ISO-conforming, web-based IHO Registry

# IHO Geospatial Information Infrastructure Registry




Inland ENC
MIOs
Bathy Products
3D & Temporal
Nautical Pubs
Web Services
S-101
AML
Next Gen ENC
Gridded
S-100

# IHO Register (of Sub-Registers)

- Web-based database
  - in use NOW
- Draft S-100 released; in force 09/10
- Open to IHO and non-IHO users/developers
- Sub-Registers moderated by relevant *subject-matter-expert* Managers or Groups

– IHO S-101 –

*New generation* ENC Product Specification

# S-101

- S-57 ENCs cannot easily support some advanced data and functions:
  - high density bathymetry
  - gridded data
  - plug and play updating
- S-57 ENC Prod Spec “frozen”

  = difficult to improve or upgrade
- S-101 compatible with many other geographic data standards (ISO 19100…)

# S-101

- intended for additional functionality and greater data interoperability
- forwards compatible with S-57
  - S-57 ENCs will work in an S-100 ECDIS
- no impact on current ECDIS or ENC
- not active before at least 2012

# – e-NAV –

# – IHO S-100 –