



International Hydrographic Organization



e-Navigation Progress and trends: the IHO perspective

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Director, IHO

International Hydrographic Organization

- Intergovernmental consultative and technical Organization whose origins date back to 1921
- 85 Member States
- 43 Observer organizations
- Ensure that all the world's seas, oceans and navigable waters are surveyed and charted through...
 - providing the relevant international standards and guidelines
 - coordinating the delivery of **hydrographic services** worldwide
 - capacity building



Core objectives of e-Navigation related to hydrographic services (1/2)

- facilitate safe and secure navigation of vessels having regard to **hydrographic**, meteorological and navigational information and risks;
- facilitate **communications**, including **data exchange**, among ship to ship, ship to shore, shore to ship, shore to shore and other users;
- **integrate and present information** on board and ashore through a human-machine interface which maximizes navigational safety benefits and minimizes any risks of confusion or misinterpretation on the part of the user;



Core objectives of e-Navigation related to hydrographic services (2/2)

- **integrate and present information** onboard and ashore to manage the workload of the users, while also motivating and engaging the user and supporting decision-making;
- **facilitate global coverage**, consistent standards and arrangements, and mutual compatibility and **interoperability** of equipment, systems, symbology and operational procedures, so as to avoid potential conflicts between users;
- support **scalability**, to facilitate use by all potential maritime users.



In short ...

- e-Navigation = the “ **maritime intranet** ”
- (digital) **hydrographic services**, (radio)**communications** and their **interaction** form key elements of e-navigation
 - ↳ development and implementation of the concept of **Maritime Service Portfolios (MSPs)**
 - ↳ need to **coordinate** the implementation of **e-navigation** and the **modernization of the GMDSS**



What the IHO has done ...

- Commitment to IMO to provide adequate coverage of ENC's (key strategy element)
- Development and promotion of S-100 (baseline for developing the Common Maritime Data Structure)
 - ↳ **S-100: the underpinning of e-Navigation** (Julia Powell)
- Re-structuring of the IHO technical committee (Hydrographic Services and Standards Committee – HSSC)
 - S-100 WG
 - Nautical Information Provision WG



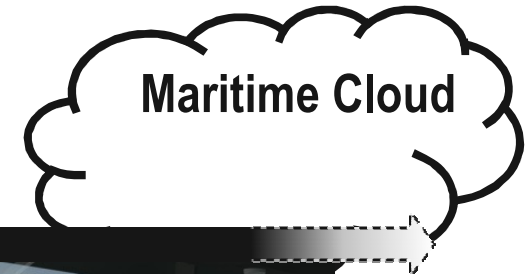
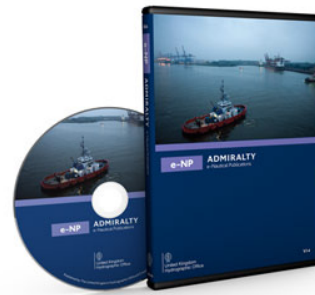
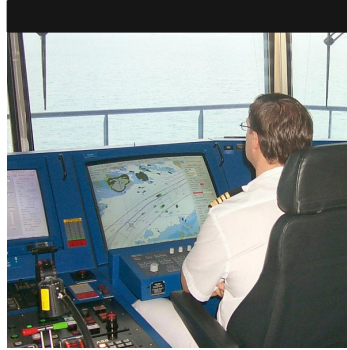
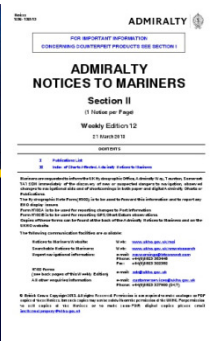
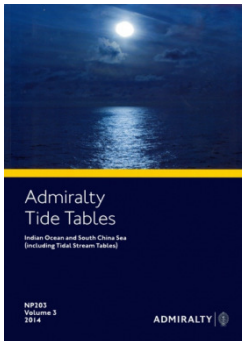
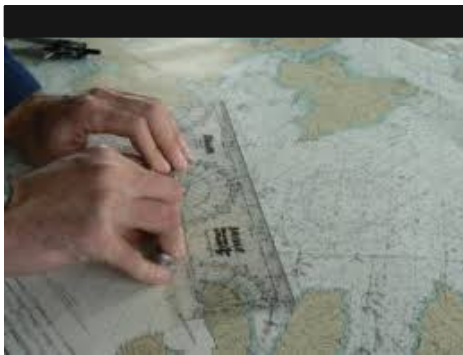
What the IHO is doing ...

- Develop a vision of its future Maritime Service Portfolio(s)
 - Yesterday: paper products (push mode)
 - Nautical Charts
 - Nautical Publications
 - Notices to Mariners
 - Navigational Warnings
 - Today: combination of paper and digital products (push/pull mode)
 - ENCs (EN and ER profiles)
 - E-books
 - Notices to Mariners
 - Navigational Warnings
 - To-morrow: integrated maritime information systems (pull mode)?
 - Maritime cloud?
 - Enter once / use many times
 - Continuous update

Assumption that an appropriate communication infrastructure providing sufficient bandwidth for ship shore interaction will be permanently available



SOLAS Regulation V/27: Nautical charts and nautical publications, such as sailing directions, lists of lights, notices to mariners, tide tables and all other nautical publications necessary for the intended voyage, shall be adequate and up to date.



Yesterday

Today

To-morrow

A practical example



ENGLAND, SOUTH COAST. Isle of Wight.
Fairway light-buoy, **fog signal permanently changed.**

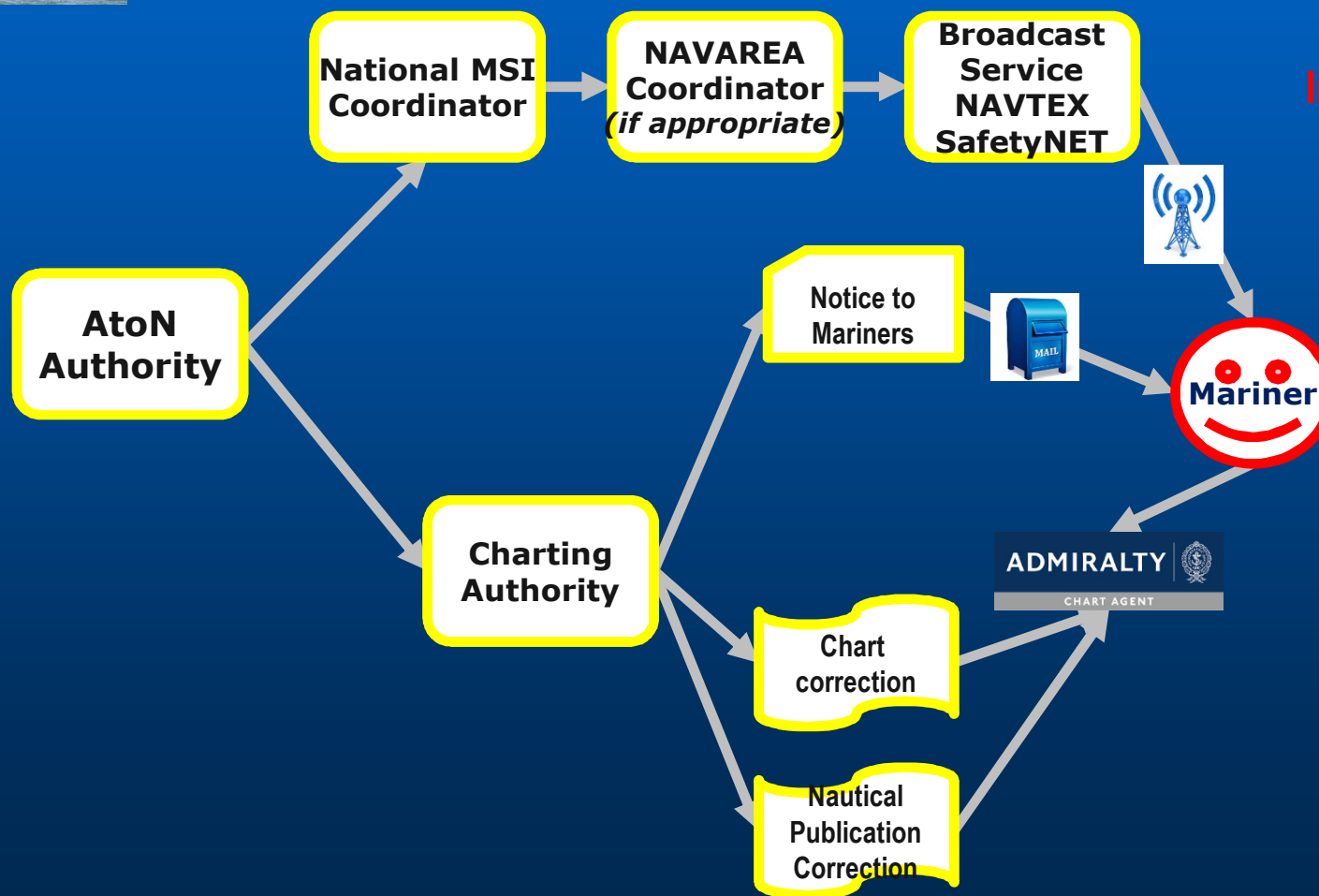
Timeline



Immediate

Weekly

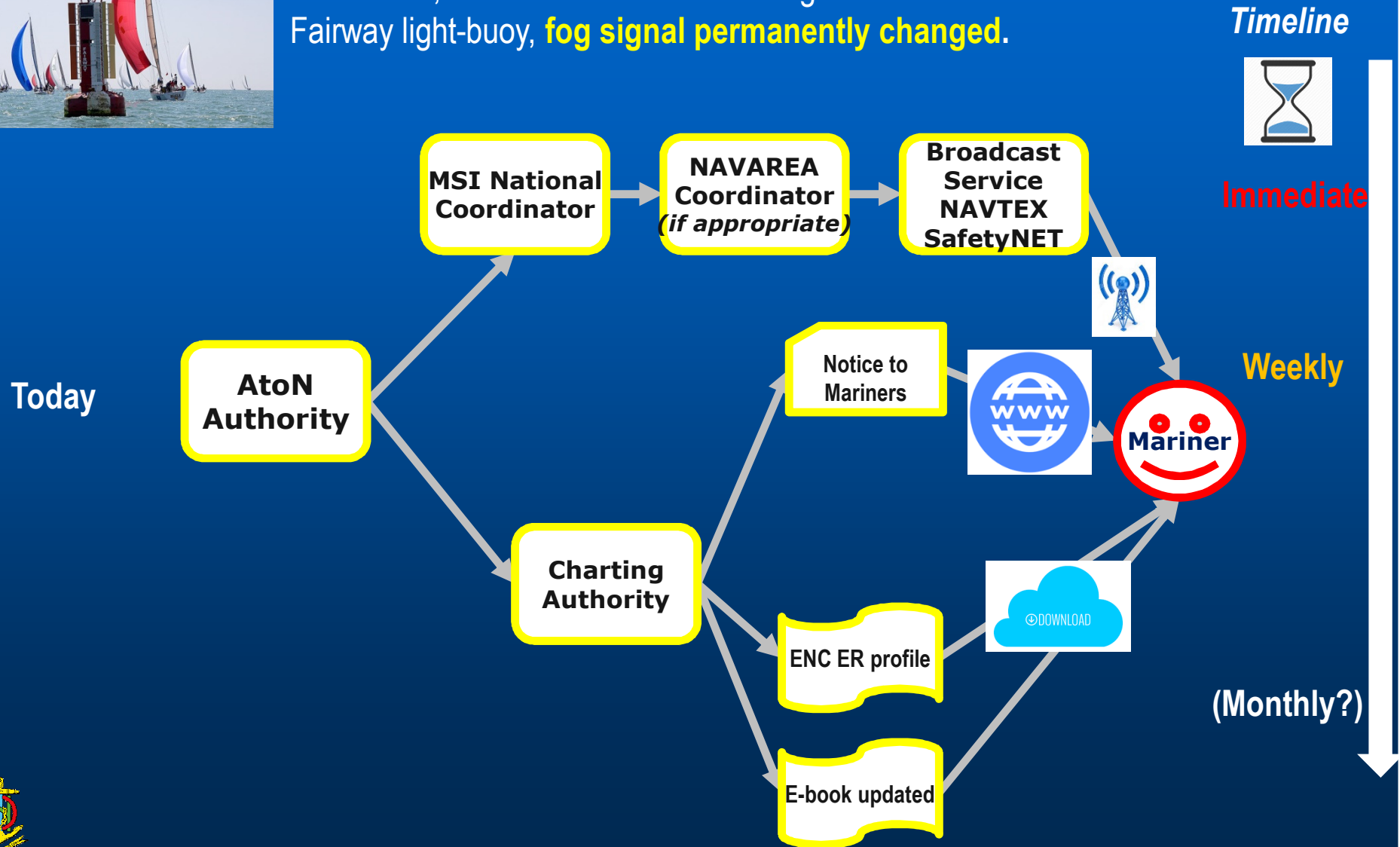
Yesterday



A practical example



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A practical example



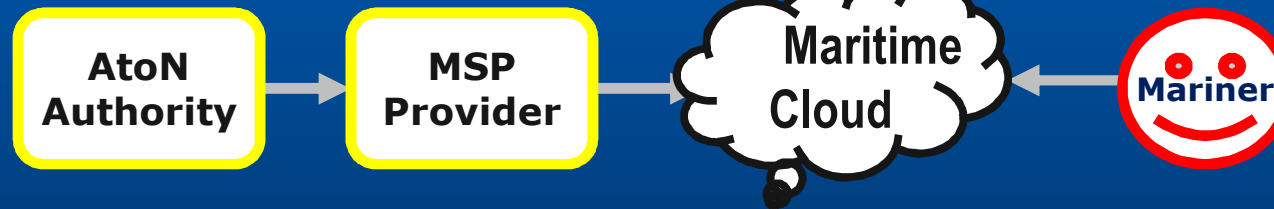
ENGLAND, SOUTH COAST. Isle of Wight.
Fairway light-buoy, **fog signal permanently changed.**

Timeline



Will anybody care about fog signals?

To-morrow
???



~ Immediate
(continuous
update)



Maritime Service Portfolios (MSPs)

Proposed list

No	Identified Services	Identified Service Provider
MSP1	VTS Information Service (IS)	VTS Authority
MSP2	Navigational Assistance Service (NAS)	National Competent VTS Authority/Coastal or Port Authority
MSP3	Traffic Organisation Service (TOS)	National Competent VTS Authority/Coastal or Port Authority
MSP4	Local Port Service (LPS)	Local Port/Harbour Operator
MSP5	Maritime Safety Information Service (MSI)	National Competent Authority
MSP6	Pilotage Service	Pilot Authority/Organization
MSP7	Tugs Service	Port/Commercial Tug Organization
MSP8	Vessel Shore Reporting	National Competent Authority, Shipowner/Operator/Master
MSP9	Tele Medical Assistance Service (TMAS)	National/Dedicated Health Organization
MSP10	Maritime Assistance Service (MAS)	Coastal or Port Authority/Organization
MSP11	Nautical Chart Service	National Hydrographic Authority/Organization
MSP12	Nautical Publications Service	National Hydrographic Authority/Organization
MSP13	Ice Navigation Service	National Competent Authority/Organization
MSP14	Meteorological Information Service	National Meteorological Authority /WMO/Public Institutions
MSP15	Real Time Hydrographic and environmental information service	National Hydrographic and Meteorological Authorities
MSP16	Search and Rescue Service (SAR)	National Competent Authority/Organization
MSP...



IHO Views on Maritime Service Portfolios

- MSPs 5/11/12/13/15 reflect the traditional methods of promulgating nautical information based on paper products (nautical charts and publications)
 - These arrangements do not take advantage of the flexibility offered by digital products and electronic display and information systems in the context of e-Navigation
- ↪ *The current list of 16 MSPs requires further refinement and should not be seen as the definitive/ finalized list of MSPs*



IHO Views on Maritime Service Portfolios

- The IHO recommends that the MSPs be reorganized in order to ensure that the mariner is supported by integrated real-time situational awareness:
 - merge proposed MSP11 and 12 and the hydrographic component of MSP15 into a single MSP called “Hydrographic Services” in accordance with the definition of SOLAS regulation V/9
 - ... the collection and compilation of hydrographic data and the publication, dissemination and keeping up to date of all nautical information necessary for safe navigation*
 - delete MSP5 (MSI Service) and assign the functionalities of MSP5 as the "update" component of the basic services concerned
 - Example: include the provision of navigational warnings and chart correction data in MSP “Hydrographic Services”



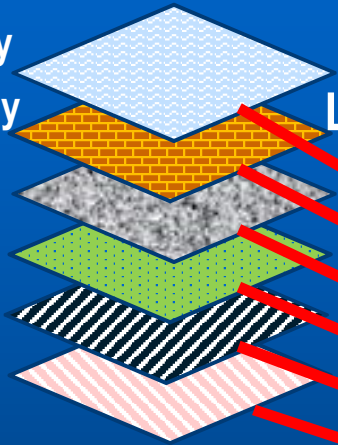
IMO/IHO Harmonization Group on Data Modelling (HGDM)

Standards
S-100
S-xxx

Regulations

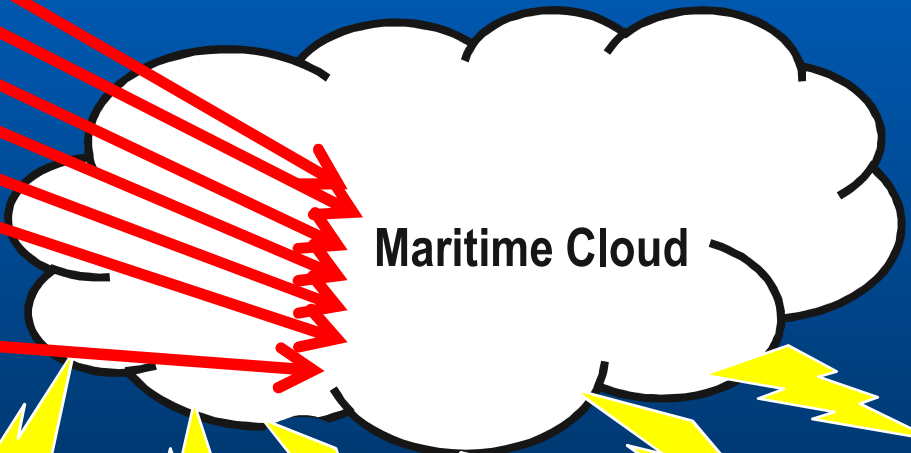
Competent Authorities

- Bathymetry
- Topography
- Port infra.
- AtoNs
- MPAs
- VTS
- Meteo
- Etc.

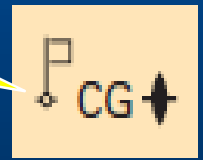


Layer = Owner / Update mechanism / Selectability / Scalability

ENC



Composite product = Owner / Update mechanism



Users



IHO Views on Maritime Service Portfolios

- Way forward: develop guidance on definition and harmonization of the format and structure of Maritime Service Portfolios (MSPs) as agreed by IMO/MSC 96
 - Refine the principles of MSPs and what they intend to deliver taking into account:
 - Existing services as defined by SOLAS
 - Stakeholders requirements
 - Technology developments
 - Transitional arrangements if /as required
 - Regulatory impact (including liability issues)
 - Progress of related outputs / activities / test beds



IHO Views on Maritime Service Portfolios

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 - Refine the principles of MSPs and what they intend to deliver taking into account:
 - ...
 - **Progress of related outputs / activities / test beds**
 - Development of the Common Maritime Data Structure
 - Draft Modernization Plan of the Global Maritime Distress and Safety System (GMDSS)
 - Additional modules to the Revised Performance Standards for Integrated Navigation Systems (INS) (resolution MSC.252(83)) relating to the harmonization of bridge design and display of information
 - Guidelines for the harmonized display of navigation information received via communications equipment
 - Revised Guidelines and criteria for ship reporting systems (resolution MSC.43(64))



IHO Views on Maritime Service Portfolios

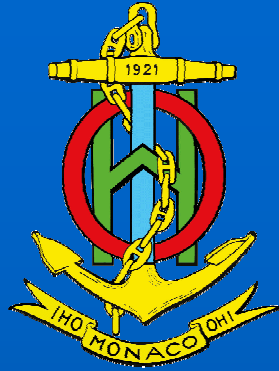
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 - *Stakeholders requirements*
 - *Technology developments*
 - *Transitional arrangements if /as required*
 - *Regulatory impact (including liability issues)*
 - *Progress of related outputs / activities / test beds*
 - **Develop guidelines to assist MSP providers in establishing MSPs in a coordinated and harmonized manner**



IHO Views on Maritime Service Portfolios

- Way forward: develop guidance on definition and harmonization of the format and structure of Maritime Service Portfolios (MSPs) as agreed by IMO/MSC 96
 - ↳ Activate the IMO-IHO Harmonization Group on Data Modelling (HGDM) to work on this output:
 - The terms of reference of the HGDM adopted by MSC 90 task the group to “consider matters related to the framework for data access and information services under the scope of SOLAS”
 - The membership is **all-inclusive** (“representatives of IMO and IHO Member States and Secretariats, and organizations with an official IMO/IHO observer status”)
 - For further information: see paper NCSR 4/27
 - Support at NCSR 4 and volunteers to chair/participate in the HGDM welcome!





Questions / Comments?

For more information: <http://www.iho.int>

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