



Agenda Item 5.1

HSSC

Report to IRCC16

Santa Cruz Island – Galapagos, Ecuador
10 – 12 June 2024

By Magnus Wallhagen (HSSC Chair)



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16th HSSC Meeting

Tokyo Japan, 27 - 31 May 2024

30 Member States, NGIOs IEC, IALA, CIRM, OGC, ICPC, RENC PRIMAR.

In total 90 participants.



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S-100 Developments

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Phase 1 Route Monitoring Mode

S-101 ENC
S-102 Bathymetry
S-104 Water Level
S-111 Surface Currents
S-124 Navigational Warnings
S-129 UKC Management

Critical Framework

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

- S-100 Edition 5.2.0 approved by IHO Members States.
- Core phase 1 Product Specifications in line with the S-100 timeline. IHO MS approval is assumed in December 2024. **Please advise MS to respond to the IHO CL in a timely manner to avoid delaying the approval process.**
- S-98 Interoperability PS and S-164 Tests datasets PS delayed. IHO MS approval is assumed August 2025 (agreed upon with IEC).
- S-411 Ice Information and S-412 Weather and Waves Warnings now part of Phase 2 PS. Will be included in the S-100 Timeline.

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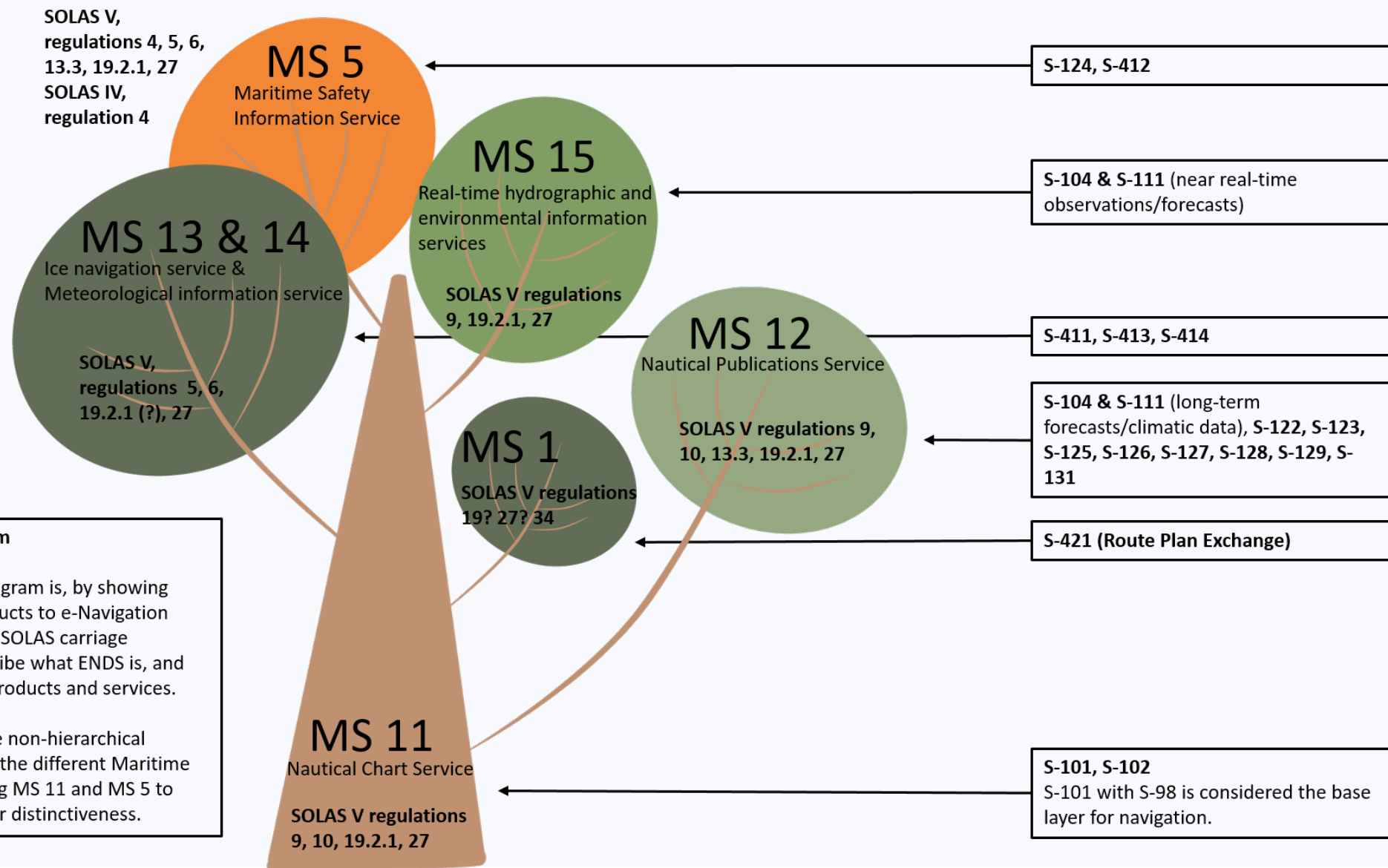
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ENDS Tree Diagram - S-100 relation to IMO e-navigation and SOLAS

International Hydrographic Organization



The ENDS Tree Diagram

The purpose of this diagram is, by showing how to link S-100 products to e-Navigation Maritime Services and SOLAS carriage requirements, to describe what ENDS is, and also to classify S-100 products and services.

The diagram shows the non-hierarchical relationships between the different Maritime Services, while allowing MS 11 and MS 5 to graphically convey their distinctiveness.

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IHO Infrastructure Centre (1/3)

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- HSSC endorsed the proposals and recommendations from the ICE-PT :
 - the name of the centre : “IHO Infrastructure Centre”.
 - Role : support the development, operation and management of IHO governed products and required IHO services with a common base infrastructure.
 - Initial focus will be to get S-100 operational with higher priority to 2 critical infrastructure components for the Centre
 - quality control and secure delivery of S-100 catalogues and S-164 test datasets
 - operative processes for the S-100 Part 15 security scheme
 - **IHO Infrastructure Centre should be an integral part of the IHO secretariat**
 - Republic of Korea is suggested as the host country.

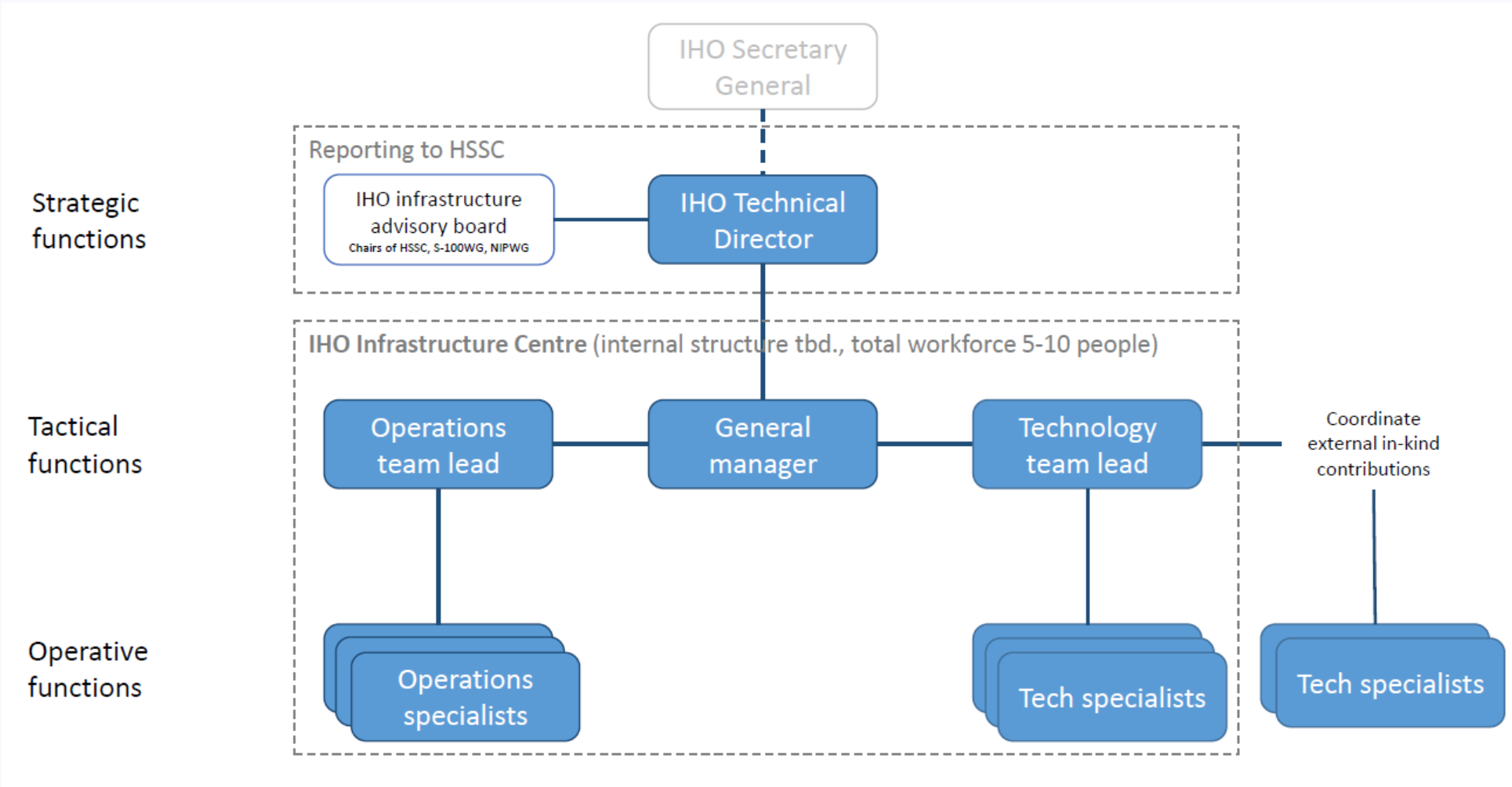


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IHO Infrastructure Centre (2/3)

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- Governance and composition



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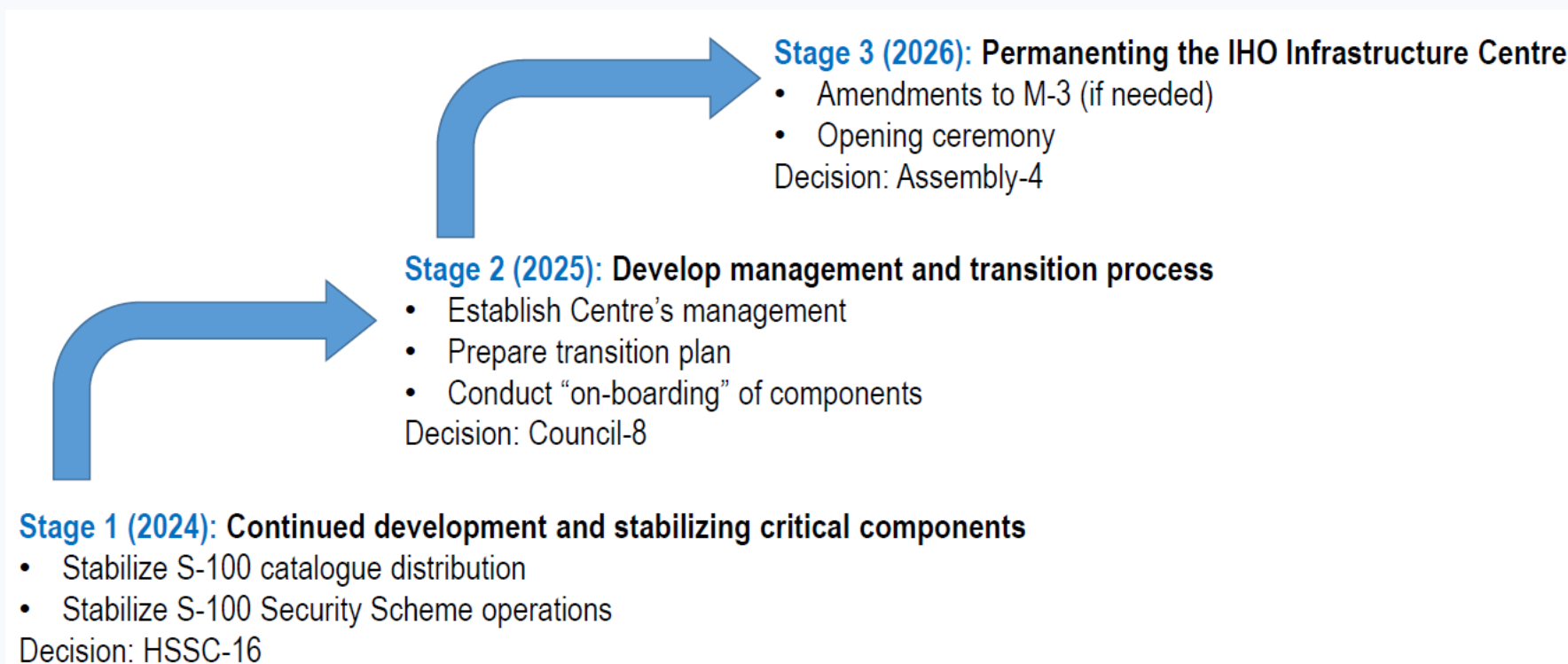
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IHO Infrastructure Centre (3/3)

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- **Proposal to the council will include :**

- approval for an interim status of the Centre at C-8, followed by permanent establishment
- task for the **ICE PT** in liaison with **HSSC** and the **IHO Secretariat** to supervise the establishment of the IHO Infrastructure Centre according to the PT Timeline :





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Security Scheme PT

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- **PT's main achievement :**

- Addition clause to existing OEM and Data Server agreements to limit duration and allow termination
- New draft S-63/S-100 OEM and data server agreements

- **Approval process :**

- Approval of the main process by HSSC Members by correspondence
- Signature of the acceptance of new agreements and implementation of the new process delegated to IHO Secretariat.

➔ Collaboration required with **S-100 ICE PT** and the **IHO Fund Generation PT**
(online payment function needed to collect administration fees via the IHO Portal)



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HSSC 16 – Items related to IRCC

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- **HSSC** endorsed the recommendation from the **WENDWG** to create S-11 Part C - *Guidelines for the Coordination and Management of the Development of S-100 Electronic Navigational Data Services (except S-101 ENC)s*).
- **HSSC** tasked **NIPWG (lead)/S-100WG** in liaison with **WWNWS** to consider the open questions raised by **Germany** on S-100 dissemination related to e-navigation affecting potential S-100 “real-time” products, including SECOM and to recommend a way forward at the next NIPWG meeting



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HSSC-16 – Items related to IRCC

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- **HSSC** endorse some specific recommendations from WENDWG and confirms its willingness to provide technical support to IRCC for addressing the recommended tasks as part of the S-100 Roadmap and IHO Work Programme 3 (Submission to be made by IRCC at C-8).
 - the importance to prepare an input covering S-100 data services and the global approach (S-101+ Phase I S-1xx) for updating the S-100.
 - The recommendation for the implementation of a cyber-secure pull-mode from different sources of information using the SECOM interface on the Maritime Connectivity Platform – while noting that this issue goes beyond the simple remit of the IHO.
 - ...which requires from the IHO and from now, a much more active effort on the S-100 communication strategy towards stakeholders



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HSSC-16 – Items related to IRCC

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- **HSSC** endorsed the proposals from the **WENDWG** to work in liaison with technical **HSSC WGs/PTs** to:
 - Identify and capture harmonization challenges and potential issues.
 - Initiate implementation in relevant S-100 Product Specifications.
 - Noting that further guidance should be included in applicable IHO publications such as S-65 (S-16x).



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Highlights HSSC 16 – SENC delivery

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- **HSSC** concluded that testing should focus on determining if S-100 Part15 is feasible for use for data distribution, ensuring that the digital signature is retained from the issuing data producer and verified in the end user system.
- **HSSC** tasked the **S-100WG** to report the testing result as guided by HSSC above (November 2024)



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Highlights from HSSC16

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- HSSC noted the request from CIRM that the IHO considers defining a retirement date for S-57 and inform the IMO of the outcome.
- ISO Cell has been tasked to secure a more structured testing and validation methods to meet end users needs (came from both MS and stakeholders)
- HSSC welcomed the offer from Canada and endorsed the proposal to designate the St-Lawrence River as an IHO Canada S-100 Sea Trial Area (2024-2025). To consider additional IHO Sea Trial Areas such as IHO Baltic Sea Trial Area, IHO UK-FR Channel Sea Trial Area.
- HSSC noted the documents MSC 108/12/04 (IHO) and MSC 108/12/05 (NZ) submitted for the MSC 108 meeting and invited Member States to consider future participation in national representation at IMO MSC and NCSR.



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Highlights from HSSC16

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- Hydrographic Dictionary WG has changed to a Correspondence Group
- MASS PT has been evolved to a working group – MASS WG
- HSSC endorsed Ed. 2.0.0 of **S-66** - *Facts about Electronic Charts and Carriage Requirements* – merging S-66 and S-67 into one publication
- HSSC endorsed the Ed. 4.4.0 of **S-57, Appendix B.1, Annex A - Use of the Object Catalogue (UOC) for ENC.**
- HSSC endorsed proposed Ed. 8.0.0 of **S-58** - *ENC Validation Checks.*
- HSSC endorsed the standard *Hydrographic Surveys*, **S-44** edition 6.2.0 was endorsed
- IHO CL will be issued for MS approval of the standards above.



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IHO Strategic Plan Votes at HSSC-16

International Hydrographic Organization

Each MS may place a check mark next to their top three items. Thank you

Goal 1: Enriching the hydrographic support for safety and efficiency of maritime navigation, undergoing profound transformation

- **General SP Comments**
 - Standardization is not well represented. More emphasis that we are a standards body
- Overall SPI review to make sure that they are easy to measure and understand
- More non-nautical standards and products in addition to navigation safety-related standards

There is a move to shore based support within the industry driven by automation

Include Sustainable Development Goals and UN GGM References - Update the UN Guiding Principles measure. We now have a UN endorsed IGF Hydro that would be better to reference - many IHO MS worked to put this together and it includes a significant chapter on standards

- **IHO supporting navigation**
 - Connect more to IMO Envis Strategy and the agreed upon S-100 implementation

Recognizing the S-100 ECCDIS will use both S-100 and S-57 data for an as yet undefined period there should be a SPI to reflect the current standards

- **IHO S-100 Infrastructure and Cyber Security**
 - Sustainable business model Management of the Security Scheme. Secure the security around the IHO S-100 Infrastructure, business continuity plan (hacker attacks can happen everywhere)

Challenge for HOIs to achieve a substantial coverage of first S-101 ENCs, but also the additional layers. Recognizing that it is the additional layers that creates added value to the shipping industry

- Consumer confidence in S-100 - need something to promote that in our process Phasing out of S-57 ENC and other existing products? (paper charts, NAVTEX, nautical publications) Alternatives for the users currently dependent on the existing products?
- Find a creative way to rework the MSC portal item (or to add something to 2.2) to help us measure S-100 implementation

New technologies

- New means of navigation: MASS, traffic management from shore, more automated navigation and route optimization

New survey technology and production methods: Autonomous Survey Vessels (USV, ASV, UAV), Production methods: AI post processing, automated cartography generalization, etc.

- Recognizing that modern standards will need modern data for them to realize their full potential

The capacity of IHO to take over and handle innovations in AI, digital twins, big data ... with a scope of standardization. The role of the IHO innovation lab?

Recognizing the S-100 ECCDIS will use both S-100 and S-57 data for an as yet undefined period there should be a SPI to reflect the current standards

S-100 Infrastructure Center is a key component to support S-100 implementation

Goal 2: Increasing the use of hydrographic data for the benefit of society

- **Environment and Climate change protection**
 - How could IHO contribute? Sea Level Rise, historic data, etc. Reduced environmental impact from shipping. Hydrographic data for marine environmental mapping, MSP, etc.
- Although digitalisation is covered and can be expanded decarbonisation as a key focus for IMO should be more prominent and our work related to it

Stakeholder Involvement - IHO is providing safe, efficient and modern navigation

- Enabling IMO e-navigation in accordance with their strategy: SOLAS chapter V connection

How can we obtain a more systematic stakeholders engagement? Predictable changes and phase-out of standards. Long term planning

Goal 3: Participating actively in international initiatives related to the knowledge and the sustainable use of the Ocean

- **Capacity Building**
 - Leave no one behind
- Training is covered in the plan in terms of CB to build the basic capabilities holding the profound transformation and need for more mature HOIs to develop should the plan also consider developing and maintaining broader skills including those within the groups themselves

The IHO should support HOIs to pass from the IMO mandatory Audit about the implementation of SOLAS Chapter V with a focus on the provision of all phase I S-100 products

Others???

Wifi		
ENTRY ID #	SSID	P/W
1 - 5	FS030W_P02325	17961306
6 - 10	FS030W_P21168	64552089
11 - 15	FS030W_P21309	53324553
16 - 18, 20 - 21	FS030W_P22000	72214252
22-26	FS030W_P20632	13796007
27 - 28, 30 - 31, 35	FS030W_P02887	03389760
36 - 40	FS030W_P95974	03443305
41 - 45	FS030W_P22091	22478895
46 - 50	FS030W_P61726	53046368
51 - 55	FS030W_P02267	08807161
56 - 59, 61	FS030W_P22786	39153731
62 - 66	FS030W_P03547	45991223
67 - 71	FS030W_P63599	02803060
72 - 76	FS030W_P21259	78034243
77 - 81	FS030W_P22471	30960898
82 - 84	FS030W_P02077	76343121
87 - 90	FS030W_P03562	41799079

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IHO Strategic Plan Votes Result

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Consumer
confidence in S-
100

Phasing out of existing
products (S-57 ENC,
paper charts, NAVTEX,
printed pub.) (8)

Connect more to the IMO
E-Navigation Strategy (21)

S-100 Infrastructure
Center is key to
support S-100 (8)

Leave no one behind
(8)

Enable IMO
E-Navigation in
accordance with
their strategy
(5)

New Survey
technology to include
AI post processing,
automated
cartography etc.
(7)

Include SDG Goals
and UNGGIM
references – updated
guiding principles
measure to reference
UNIGIF-Hydro
(7)

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Actions requested by IRCC-16

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IRCC is invited to :

- For RHCs to advise MS to respond to the IHO CL in a timely manner to avoid delaying the S-100 Phase 1 approval process.
- Note the proposal to establish the IHO Infrastructure Centre as an integral part of the IHO.
- Take into consideration that HSSC has endorsed the recommendations from WENDWG regarding the S-100 echo-system (see previous slides).
- Note the request from CIRM that the IHO considers defining a retirement date for S-57.
- Take any other action as deemed appropriate.