

# Maritime Standards

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<https://geonet.esri.com/groups/arccgis-for-maritime>

# The International Hydrographic Organization



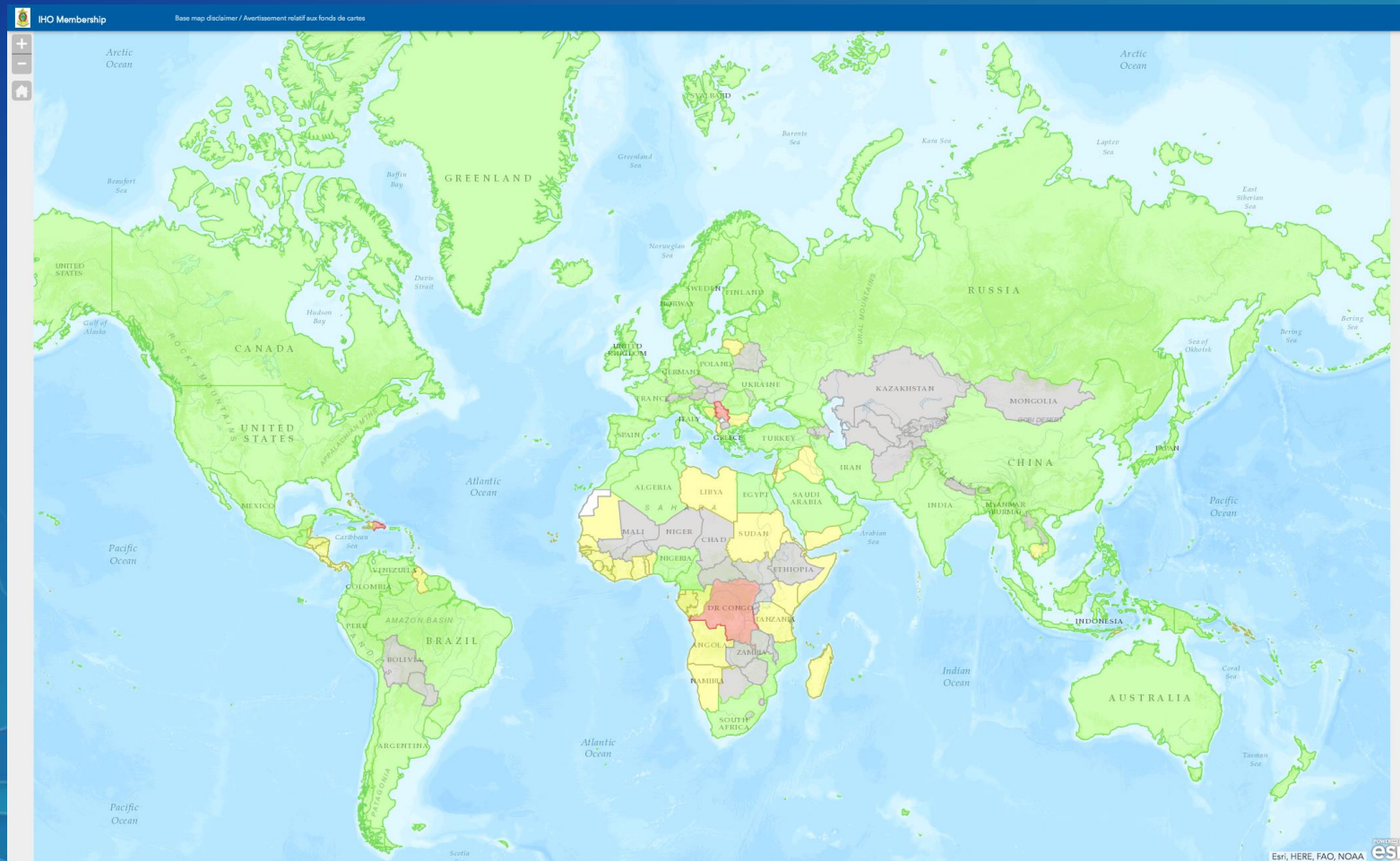
Prince Albert I of Monaco

- Founded in 1921 as an intergovernmental consultative and technical organization to support safety of navigation and the protection of the marine environment with 18 members
- Main Objectives:
  - The coordination of the activities of national hydrographic offices
  - The greatest possible uniformity in nautical charts and documents
  - The adoption of reliable and efficient methods of carrying out and exploiting hydrographic surveys
  - The development of the sciences in the field of hydrography and the techniques employed in descriptive oceanography
- It creates all the hydrographic standards that are the basis for all hydrographic activities

# The International Hydrographic Organization



- Today there are 81 members



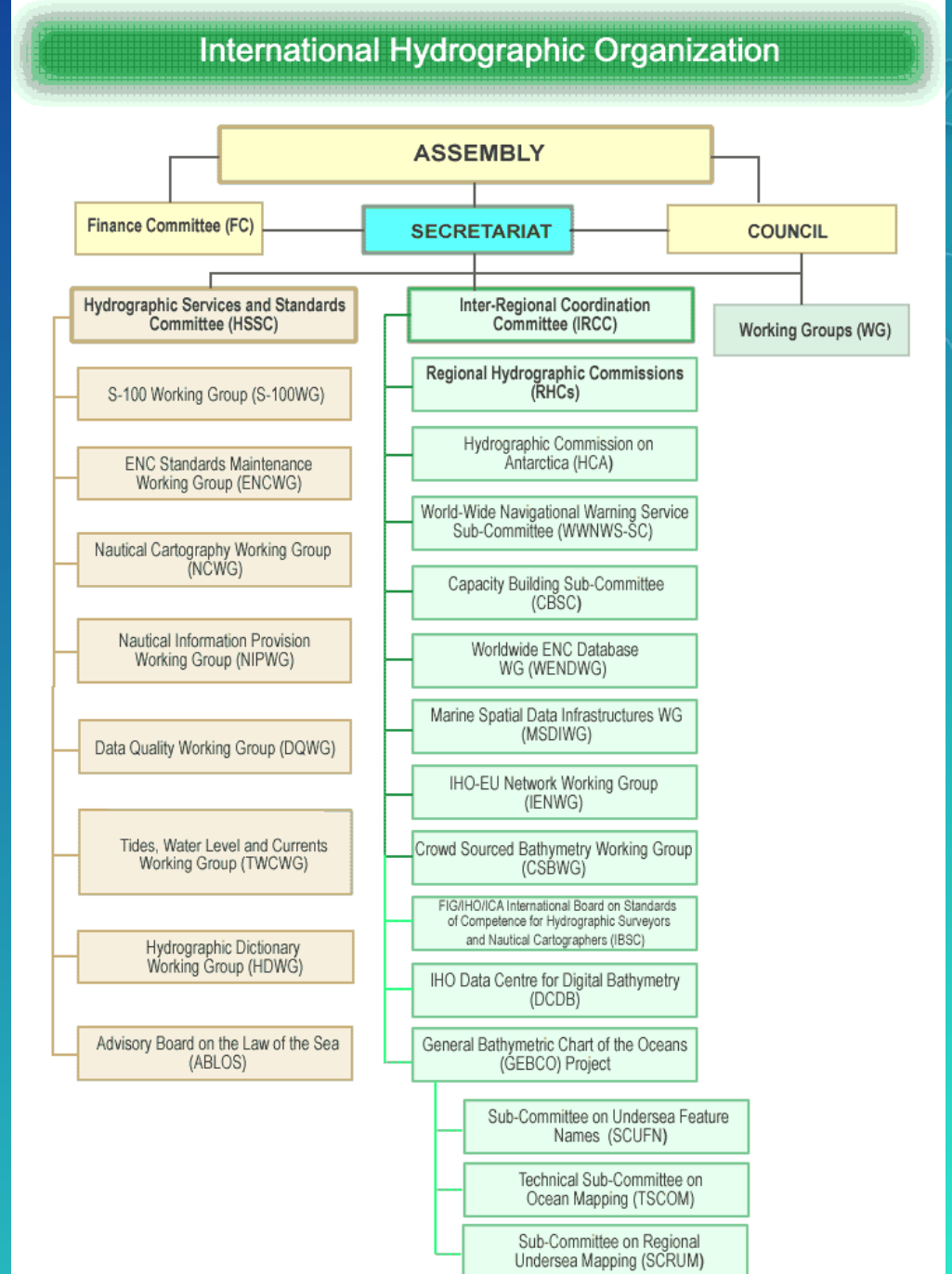
# The International Hydrographic Organization



- The **IHO** enjoys observer status at the United Nations (UN ) and is the competent international authority regarding hydrography and nautical charting
- It creates all the hydrographic standards that are the basis for all hydrographic activities
- IHO cooperates with other international organizations:
  - International Maritime Organization (IMO)
  - Intergovernmental Oceanographic Commission of UNESCO (IOC)
  - Group on Earth Observations (GEO)
  - International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA)
  - Federation Internationale des Geometres (FIG)
  - International cartographic Association (ICA)
  - International Organization for Standardization (ISO)
  - Open Geospatial Consortium (OGC)
  - Comité International Radio-Maritime (CIRM)

# IHO Committees and Working Groups

- 3 committees
- 11 working groups
- 5 sub-committees
- 2 advisory boards
- The GEBCO project
- The Hydrographic Commission on Antarctica
- 15 regional hydrographic commissions



# Esri is member of the following

- HSSC: Hydrographic Services and Standards Committee
  - To promote and coordinate the development of standards, specifications and guidelines for official products and services
- S-100 WG
  - To maintain and develop S-100 (including the Geospatial Registry); S-99
- ENCWG: ENC Standards Maintenance Working Group
  - To maintain S-57 and ENC standards
- NCWG: Nautical Cartography Working Group
  - To develop standards for all nautical publications and provide expertise on the basic concepts of charting
- MSDIWG: Marine Spatial Data infrastructure Working Group
  - Identify the Hydrographic Community inputs to National Spatial Data Infrastructures (NSDI)
- GMWG: Geospatial Maritime Working Group
  - To maintain and develop S-57 based AML and S-100 based AML + standards
- IEHG: Inland ENC Harmonization Group
  - To maintain and develop S-57 based IENC and S-401

# How Esri technology supports IHO

- First S-57 to S-101 Converter
- Implementing standards based technology
- Contributing to publications (C-17 edition 2 on MSDI)



Sperry Marine VisionMaster FT ECDIS

Safety of Navigation  
GPS, ENC, Radar, AIS  
Information for immediate action  
“Type approved” system



S-57 and S-101 data

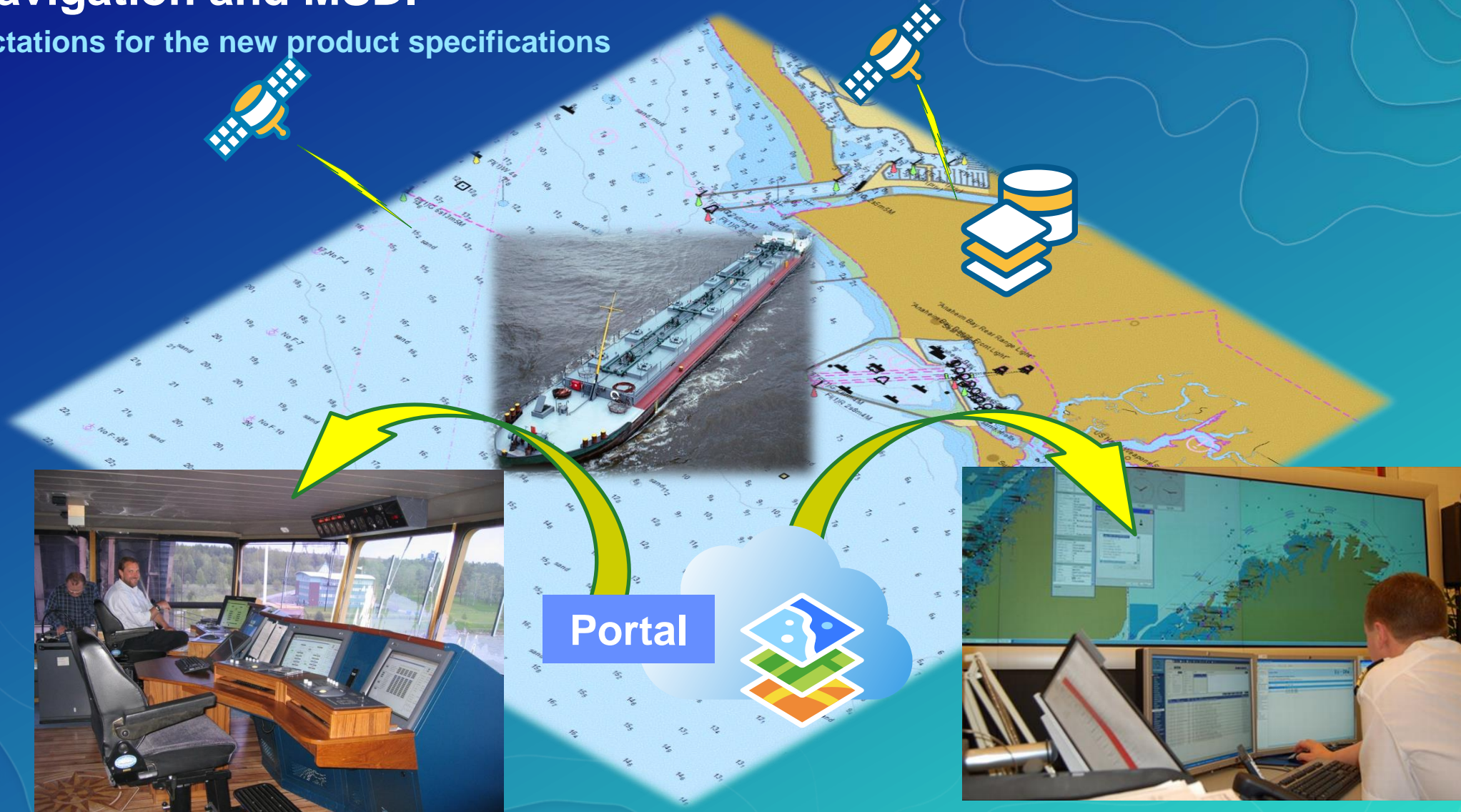
S-Xxx and GIS data



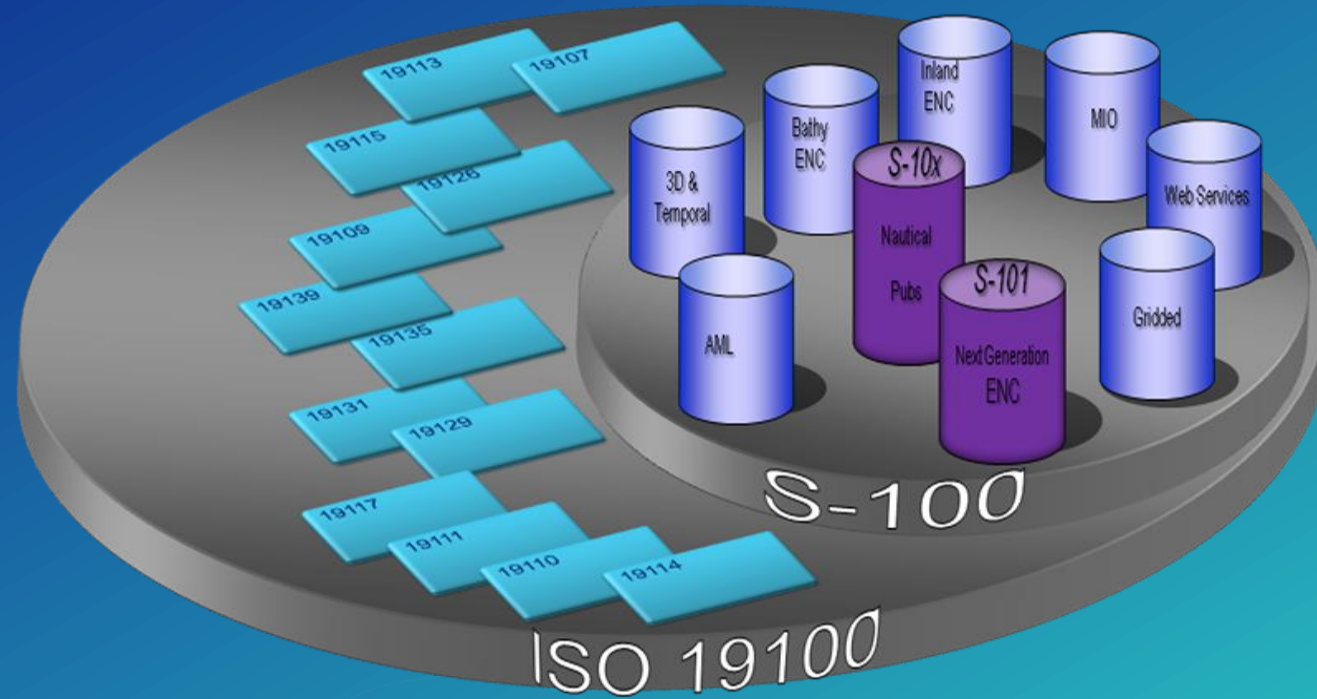
Planning  
Information for a posteriori decision making  
Supplemental information  
Marine GIS  
Geo-processing analysis  
Sharing information  
Maritime Internet

# E-Navigation and MSDI

Expectations for the new product specifications



# The Universal Hydrographic Data Model S-100



# Preliminary list of S-100 Product Specifications



S-100



S-101 ENC



S-102 Bathymetric Surface



S-103 Sub-surface Navigation



S-10x Tidal Product for Surface Navigation

- IHO: S-101 to S-199 (17 so far)
- IALA: S-201 to S-299 (4 so far)
- IOC: S-301 to S-399 (none yet)
- Various: S-401 to ...
  - IEHG S-401 Inland ENC
  - JCOMM S-411 Sea Ice
  - JCOMM S-412 Met-ocean forecast

Full List: [https://www.iho.int/mtg\\_docs/enc/S-100/S-100\\_PS.htm](https://www.iho.int/mtg_docs/enc/S-100/S-100_PS.htm)

# Esri Roadmap

- IHO working groups
- Development
- Projects



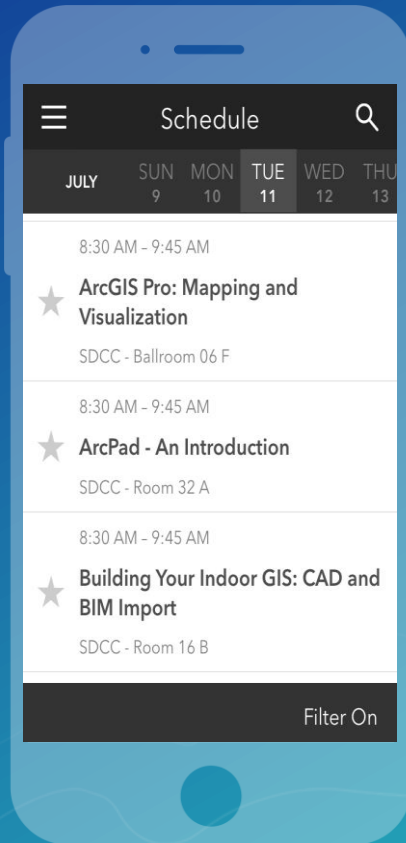
**Thank you!**

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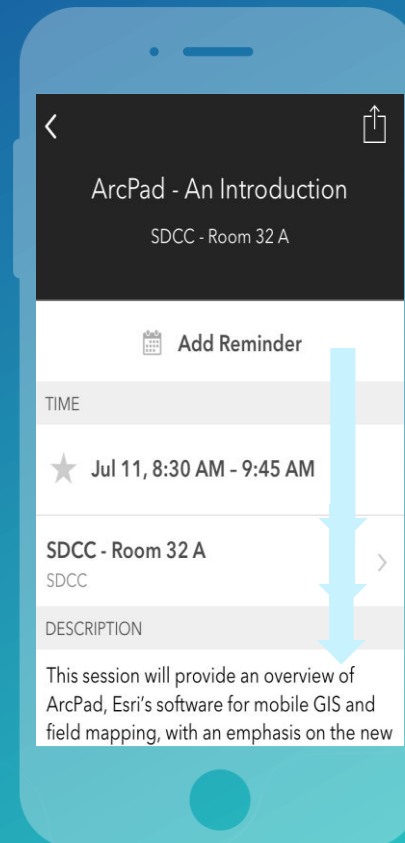
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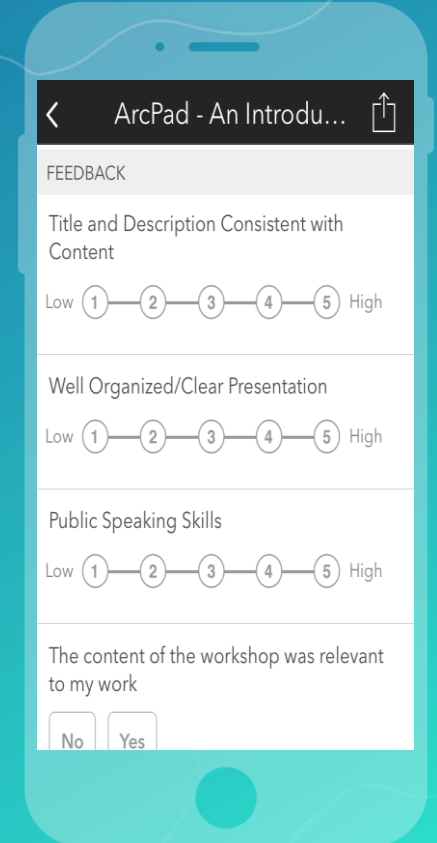
**Select the session you attended**



**Scroll down to find the survey**



**Complete Answers and Select "Submit"**





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