Hydrographic Services and Standards Committee

Report of the RTCM

Special Committee 133 Data Exchange for Navigation-Related Internet Connected Applications

New RTCM Standard for Internet-based Automatic Identification System Services (AIS-i)

Objectives of the new standard

- Support of small vessel operations through enhanced identification and tracking capabilities
- In line with the Small Vessel Security Strategy https://www.dhs.gov/small-vessel-security-strategy
- Enhance maritime security and safety based on a coherent framework with a layered, innovative approach;
- Develop and leverage a strong partnership with the small vessel community and public and private sectors in order to enhance maritime domain awareness;
- Leverage technology to enhance the ability to detect, infer intent, and when necessary, interdict small vessels that pose a maritime security threat; and
- Enhance cooperation among international, federal, state, and local partners and the private sector (e.g., marinas, shipyards, small vessel and facility operators), and, in coordination with the relevant government departments and agencies, and international partners.

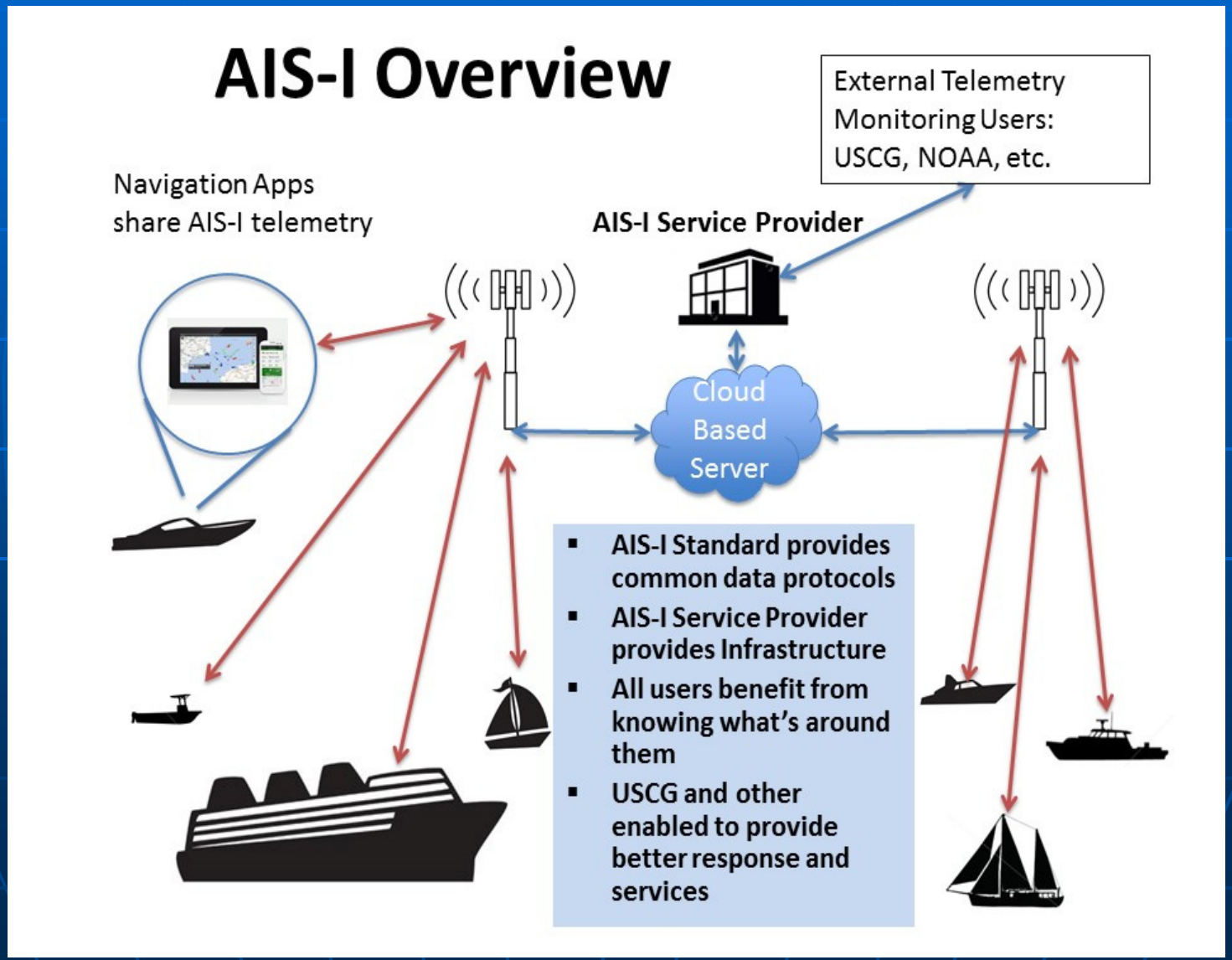
Considerations to develop this new standard

- Applications that can access the Internet continue to improve in quality and availability;
- There is a growing number of navigation-related applications available for mariners which run on mobile devices;
- Applications for mobile devices have the potential to provide useful maritime information;
- Quality and timeliness of data used in these applications is important in applications that may affect navigational safety; and
- There are presently no known regional or international standards for data used in navigation-related internet connected applications;

Shortfalls of current systems

- MMSI numbers are intended to be used to configure VHF devices including Digital Selective Calling (DSC) enabled VHF radios, and AIS transceivers, but not wireless computing devices such as smart phones or tablets.
- AIS Class A & B transmission is based on VHF TDMA. AIS time slots and RF frequencies used are already near bandwidth saturation in busy ports, and can't sustain the traffic that adding the recreational community would bring.
- If all recreational boaters would start using AIS Class B transceivers, the overall functionality of AIS would degrade to unacceptable levels in busy settings (where the greatest benefits of AIS- like capabilities may be found).

RTCM Standard for Internet-Based AIS Services (AIS-i)



Scope of this standard

- Defines terms for AIS-i technical elements, data elements, and user / vessel profiles;
- establishes the general architecture for AIS-i;
- specifies protocols for data transfer between AIS-i systems; and
- provides guidelines for implementation of AIS-i into systems.
- This Standard is applicable to all systems that intend to participate in AIS-i services.

Portrayal of AIS-i information using a symbol crafted out of the IEC 62288 AIS symbology (multiple isosceles triangles… to form a [Star Trek] arrowhead).

Applications should color code for latency;

Figure 2 – Accuracy of 10 m or less and no older than 30 seconds

Figure 3 – Accuracy of 11 – 30 m or 31 – 59 seconds old

Figure 4 – Accuracy of 31 – 50 m or 60 – 119 seconds old

Figure 5 – Accuracy of 50+ m or 120+ seconds old = outline, or no location shown on the chart

AIS-i.com

AIS-i

Register ▶ Account ▶ Support About AIS-i Apps

Home

User: Login

Welcome to the AIS-i Home Page!

AIS-i provides vessel Automatic Identification System (AIS) like services for the unregulated maritime community over the Internet.

- Gives you unparalleled emergency safety thanks to Instant Position Reporting
- Provides clear identification of other vessels: type, size, speed, heading, etc.
- Operates over cellular networks

To become an AIS-i User requires 3 easy steps:

1) Register as an AIS-i User
2) Associate an AIS-i Vessel with your User
3) Log into any AIS-i capable system using your UserName and Password and select a Vessel.

AIS-i should not be confused with AIS Class A or AIS Class B, which are VHF based capabilities overseen by IEC (International Electrotechnical Commission) standards, and in some cases mandated by IMO (International Maritime Organization). AIS Class A & B services and AIS-i services are fully independent of each other, require seperate registrations and operate in different communications domains. For further information on AIS Class A & B, see http://www.navcen.uscg.gov/?pageName=AISFAQ

REGISTER

DOWNLOAD

Possible uses of AIS-i

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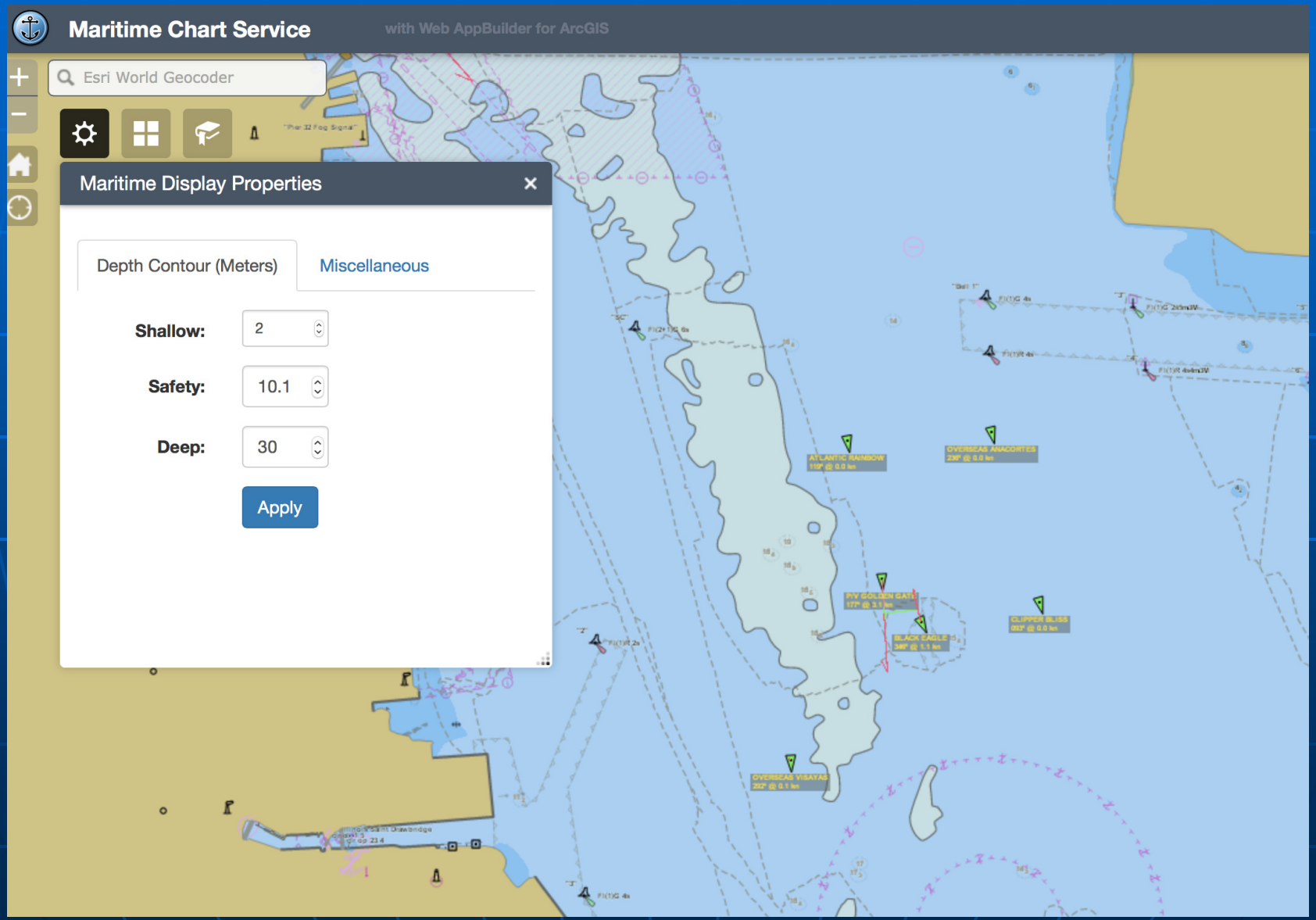
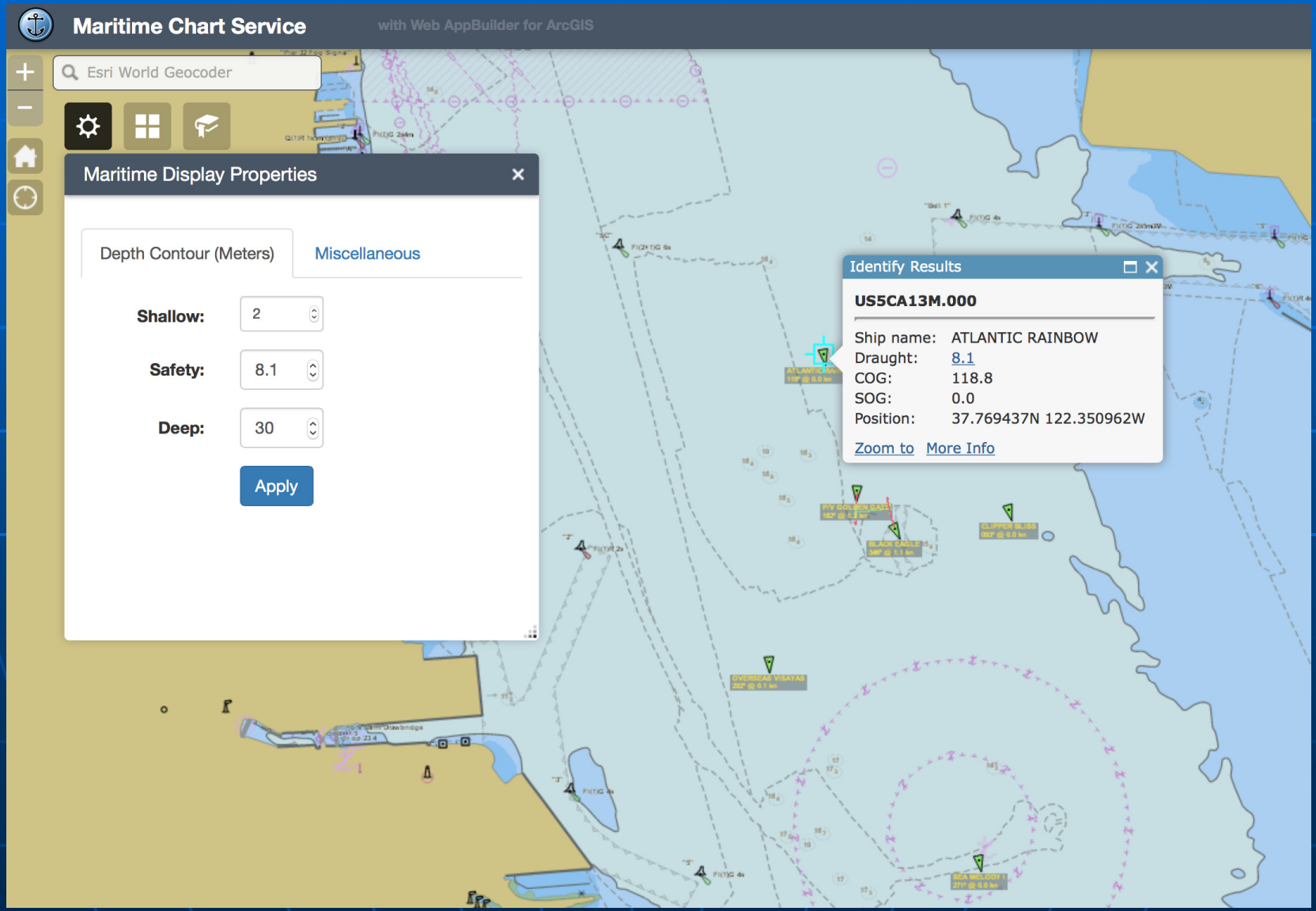
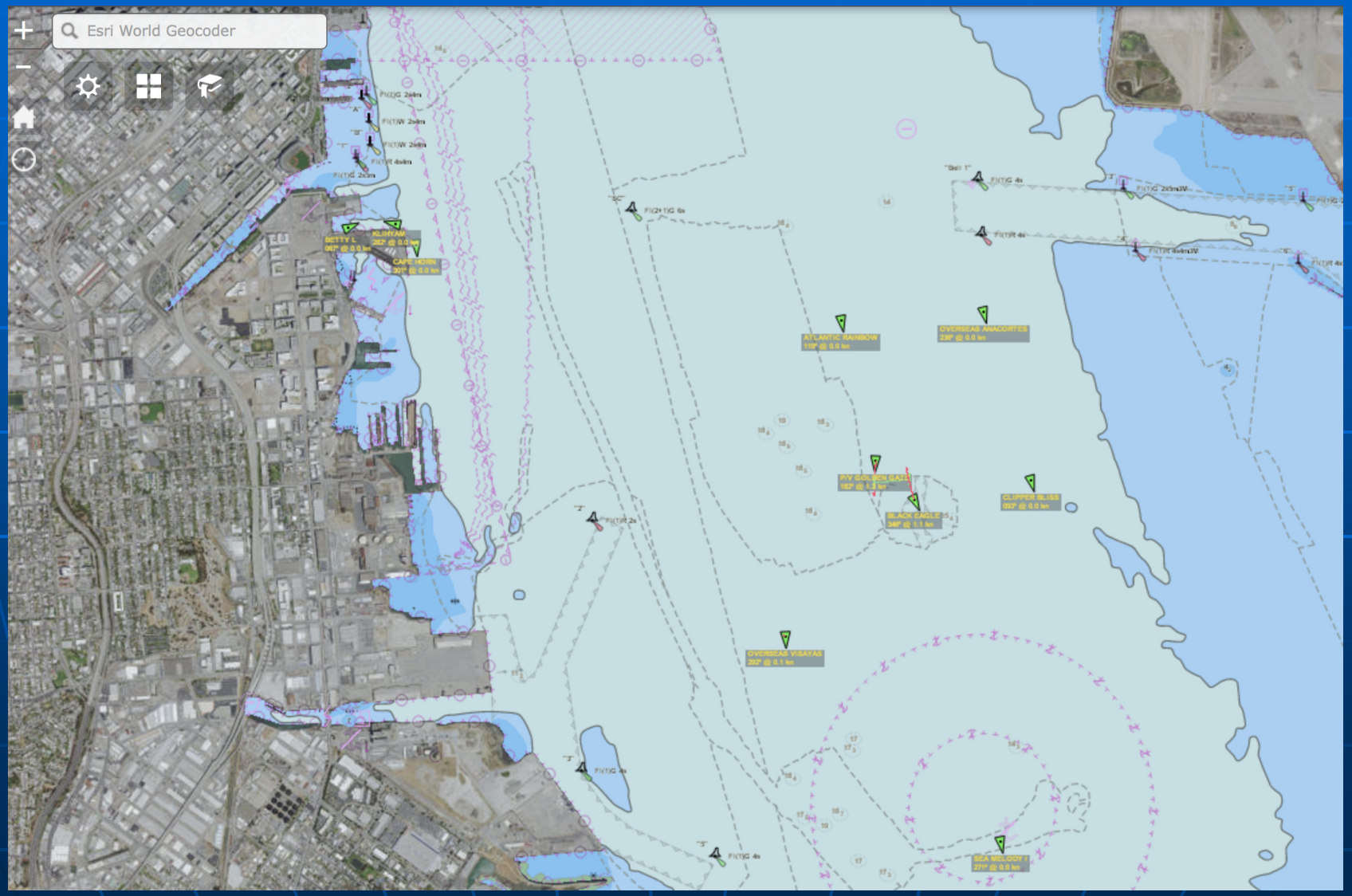


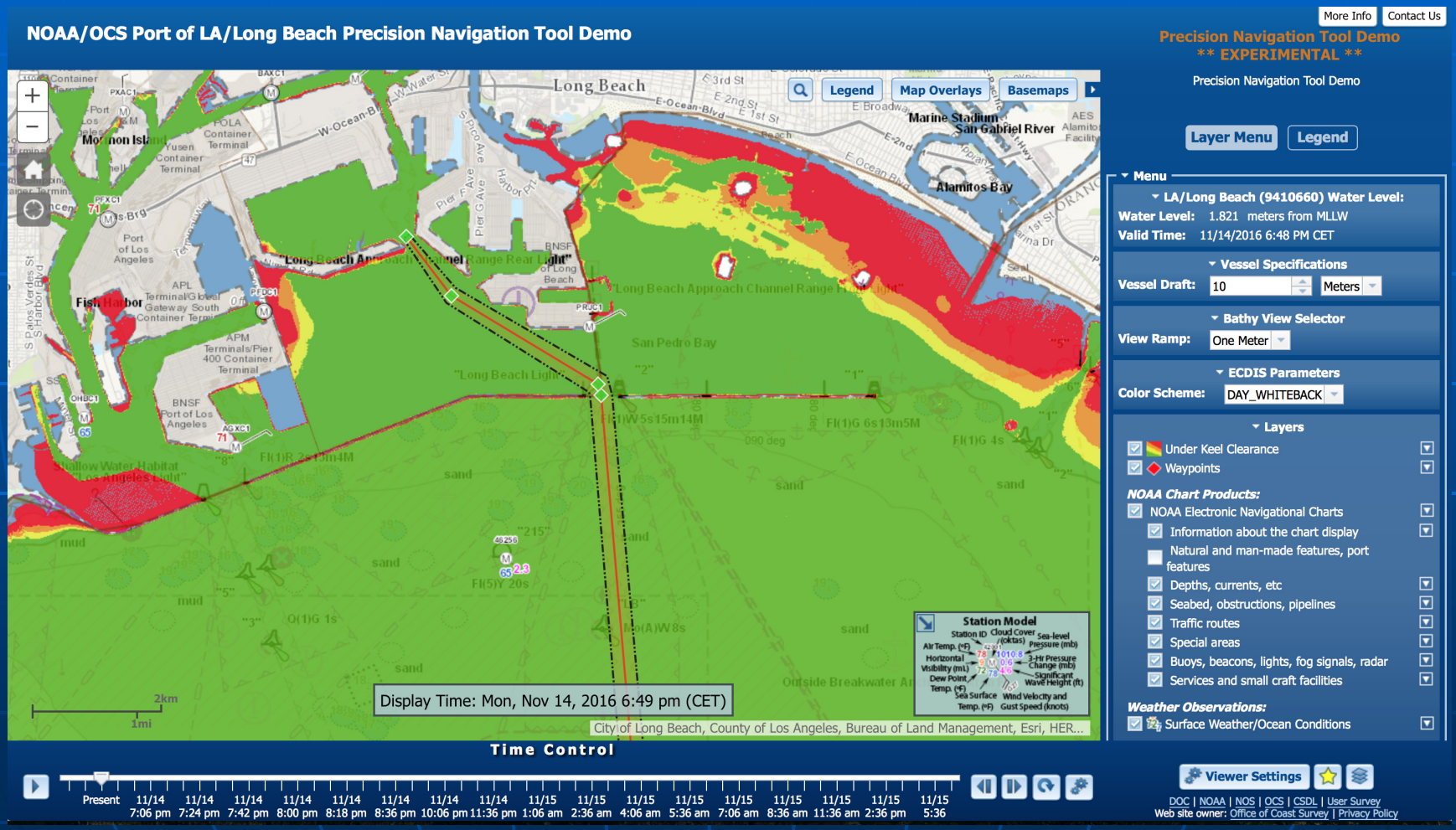
Possible uses of AIS-i



Possible uses of AIS-i



Precision Navigation Tool (NOAA) – *that could be used with AIS-i*



Future work

- Draft standard being discussed through correspondence by SC-133
- No defined approval deadline established yet

Action requested of HSSC

- HSSC is requested to take note of this new standard for Internet-based AIS services being developed by RTCM and one more way to potential further use of hydrographic data (navigational and non-navigational) on Web (Cloud) Services.
- Any other action that HSSC consider necessary

Thank you

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