

U.S. Department of
Homeland Security
**United States
Coast Guard**



21ST CENTURY WATERWAYS



Marine Transportation Systems CG-5PW

Office of Navigation Systems (CG-NAV)



United States Visual Aids to Navigation System (USATONS)

“The primary objective of the USATONS is to mitigate transit risks to promote the safe, economic, and efficient movement of military, commercial, and other vessels by assisting navigators with determining their position, determining a safe course, and warning them of dangers and obstructions.”



The Role of e-Navigation

A photograph of a ship's bridge with two white seats facing a console of multiple electronic displays. The displays show various navigation data, including radar, charts, and system status. The bridge has large windows on the sides showing a blue sky and sea.

“The U.S. vision for e-Navigation is to establish a framework that enables the transfer of data between and among ships and shore facilities, and that integrates and transforms that data into decision and action information.”

“The ultimate goal of e-Navigation efforts in the U.S. is to use timely and reliable information to make the U.S. Marine Transportation System operate better.”



MTS at a Glance

Infrastructure

- 25,000 miles of navigable waterways
- Over 350 ports
- 3,700 marine terminals
- 238 lock chambers
- 1,400 intermodal connections
- 92,000 aids to navigation

Traffic

- 68,000 vessel calls at US Ports
- 640 ferry vessels – 147 million passengers
- 110+ cruise ships – 10.1 million passengers
- 12 million recreational boats – 74 million persons





Impact of the U.S. MTS

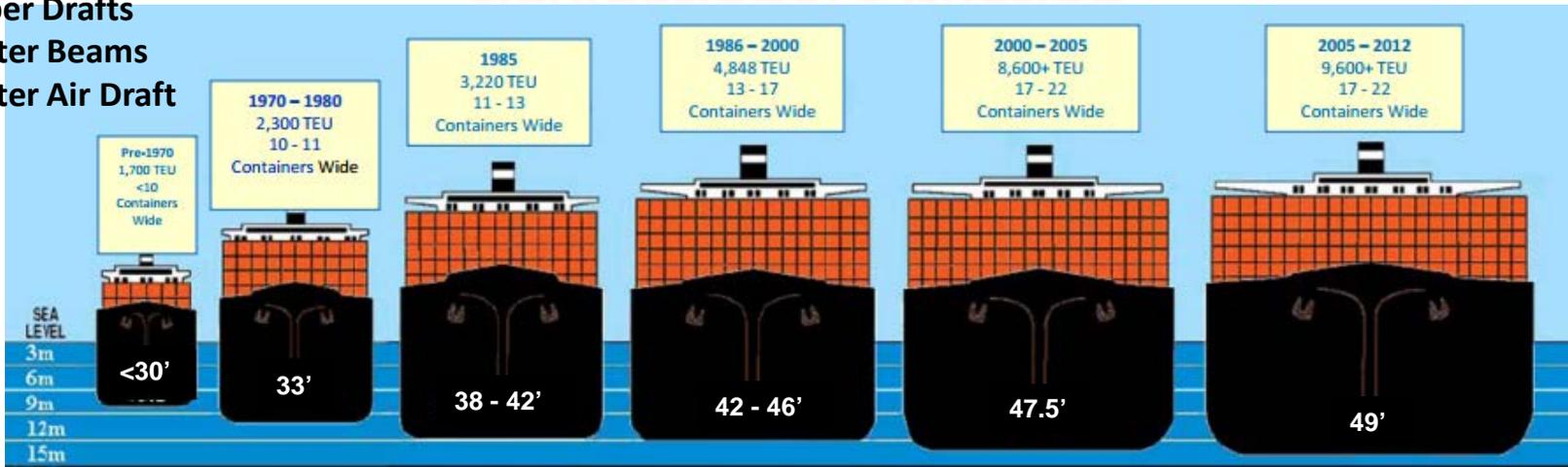
- More than 13 million seaport related jobs accounting for \$649 billion of US GDP
- \$1.3 trillion value, (64.1%) & 99.4% by weight of overseas cargo annually
- \$3.8 billion value of goods moving through U.S. seaports each day
- MTS International trade accounts for 32% of GDP; 37% expected next year
- \$42 billion & 356K jobs – economic impact of cruise line industry
- \$121.5 million & 338K jobs – economic impact of recreational boating





Larger Ships
Deeper Drafts
Greater Beams
Greater Air Draft

Navigational Situation



Channel
Dimensions have
remained fairly
constant



21ST CENTURY WATERWAYS



e-Charts

PORTS
RNCs
Hydrographic Survey

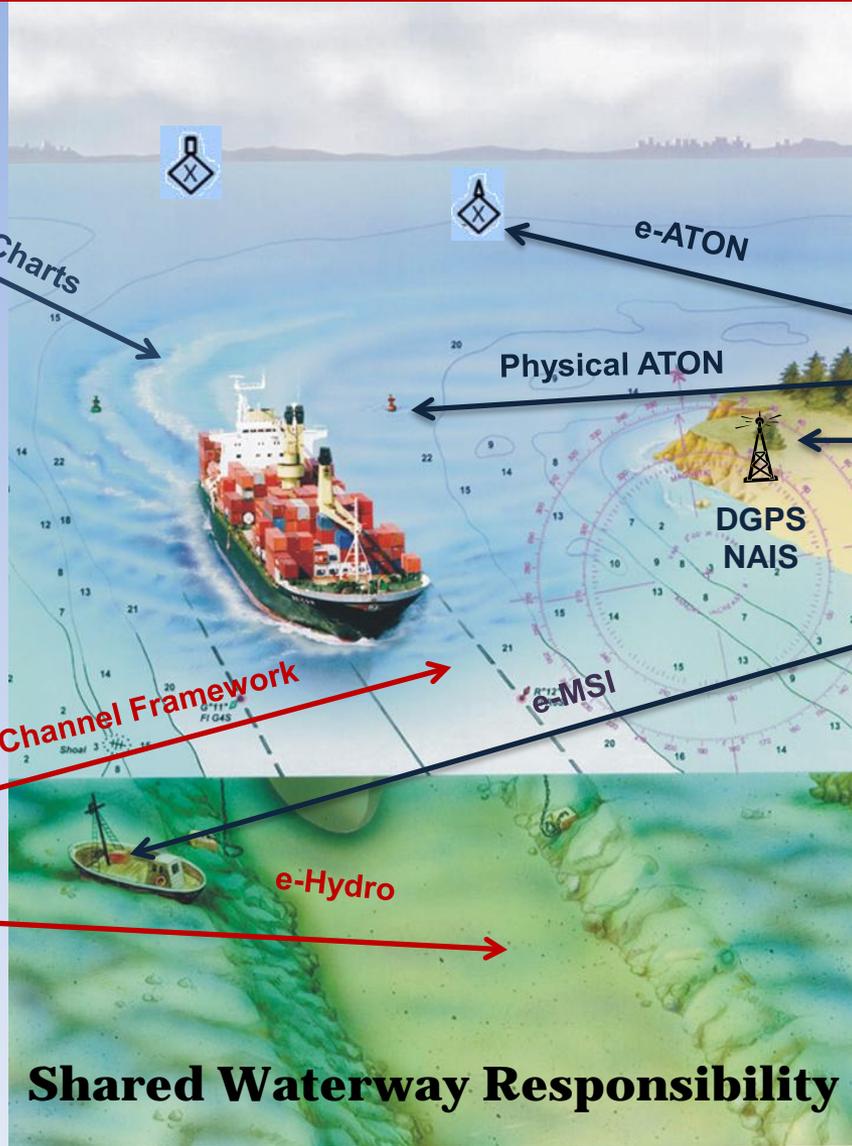


US Army Corps
of Engineers®

IENC
Chart Booklets

Channel Framework

Shared Waterway Responsibility



e-ATON

Physical ATON



DGPS
NAIS

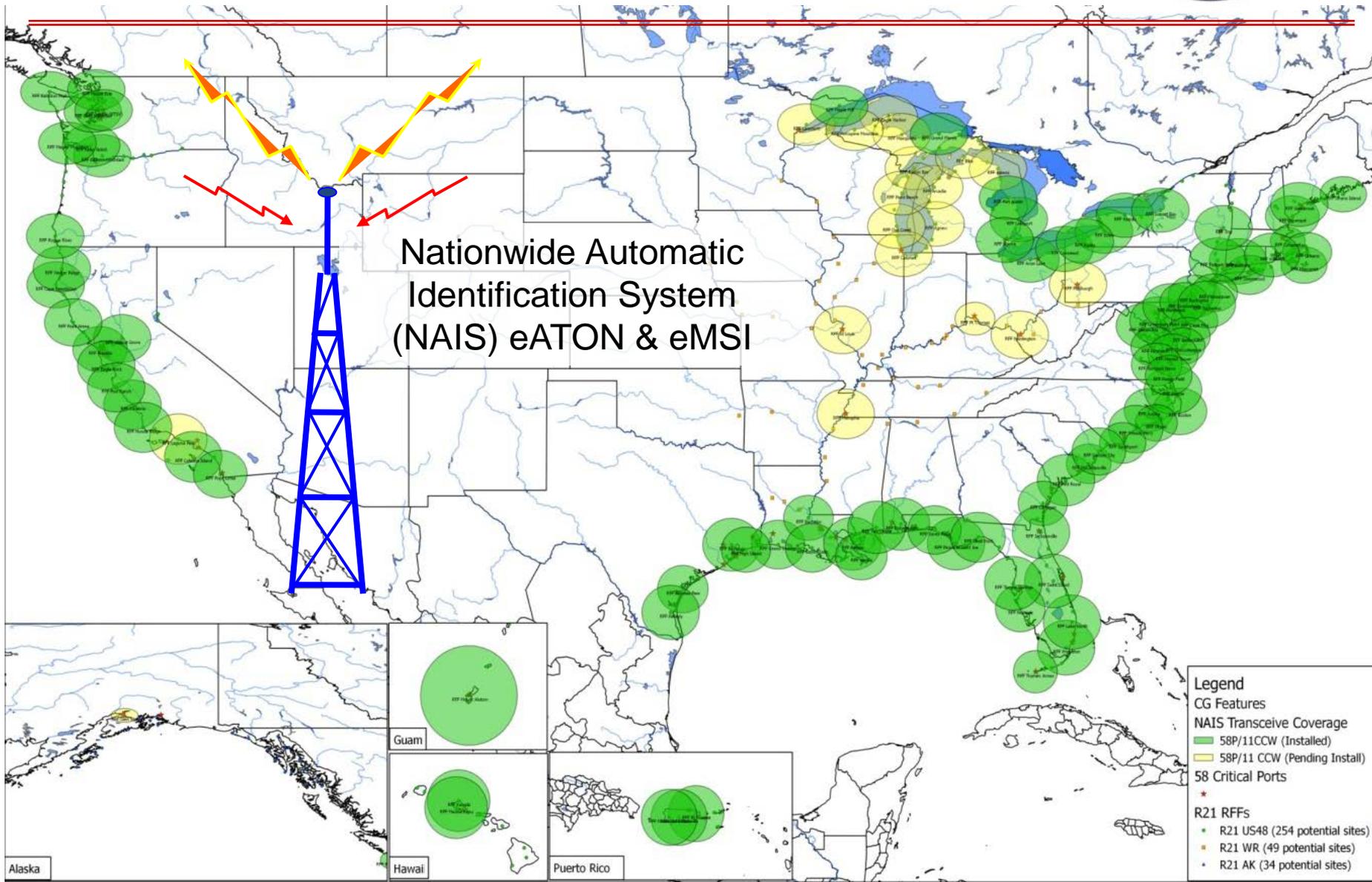
e-MSI

e-Hydro



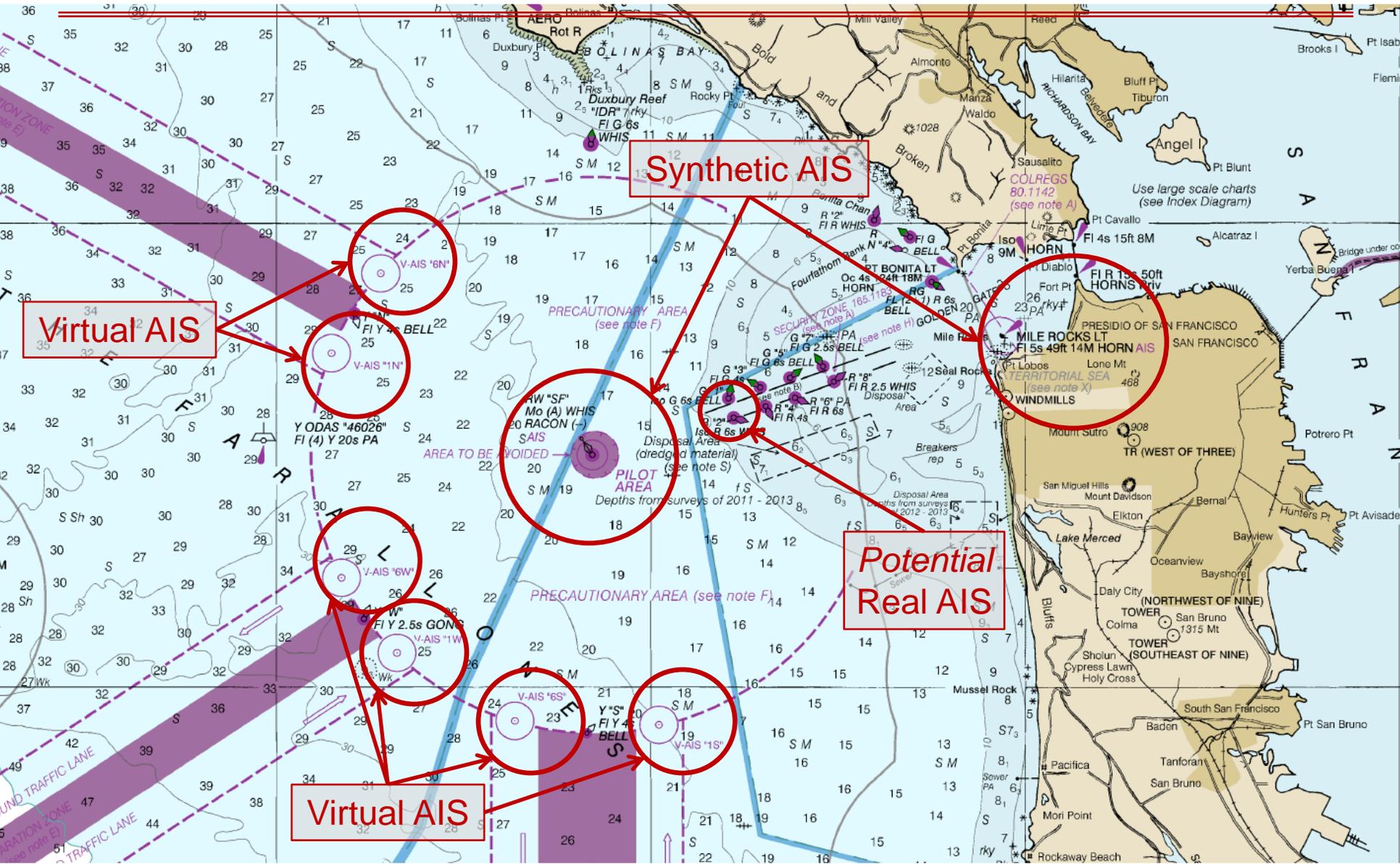


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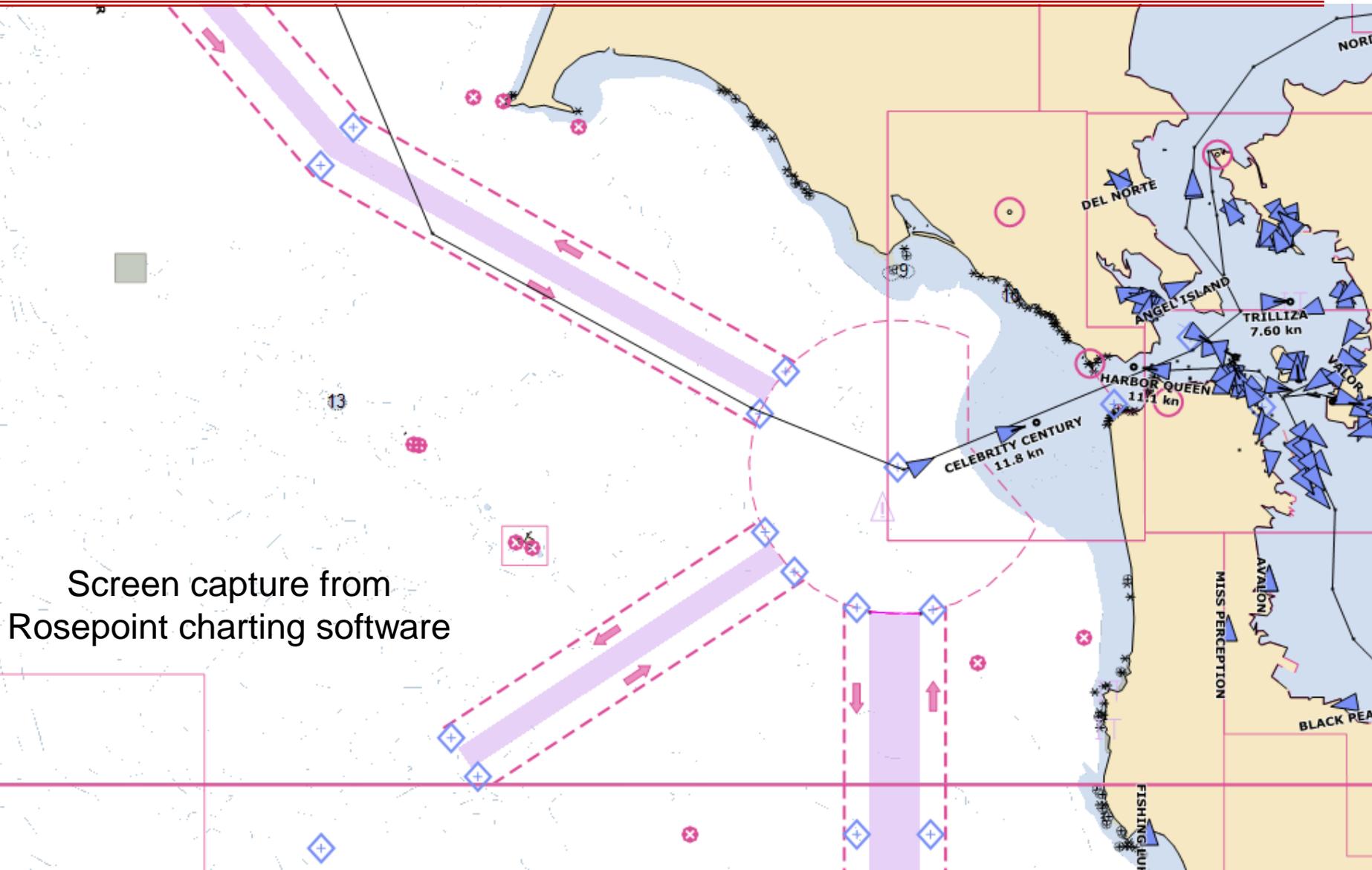


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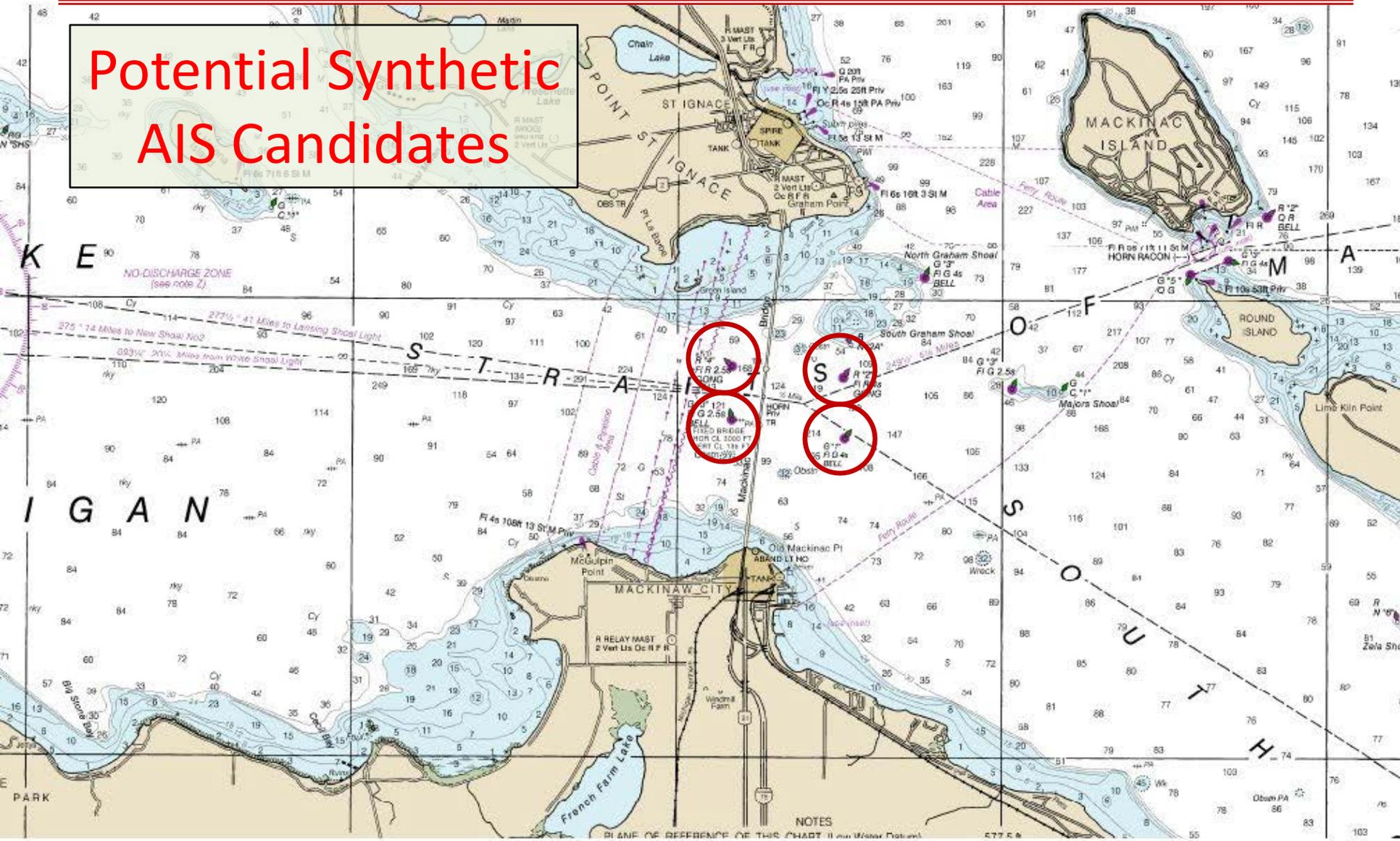
Screen capture from
Rosepoint charting software



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Potential Synthetic
AIS Candidates





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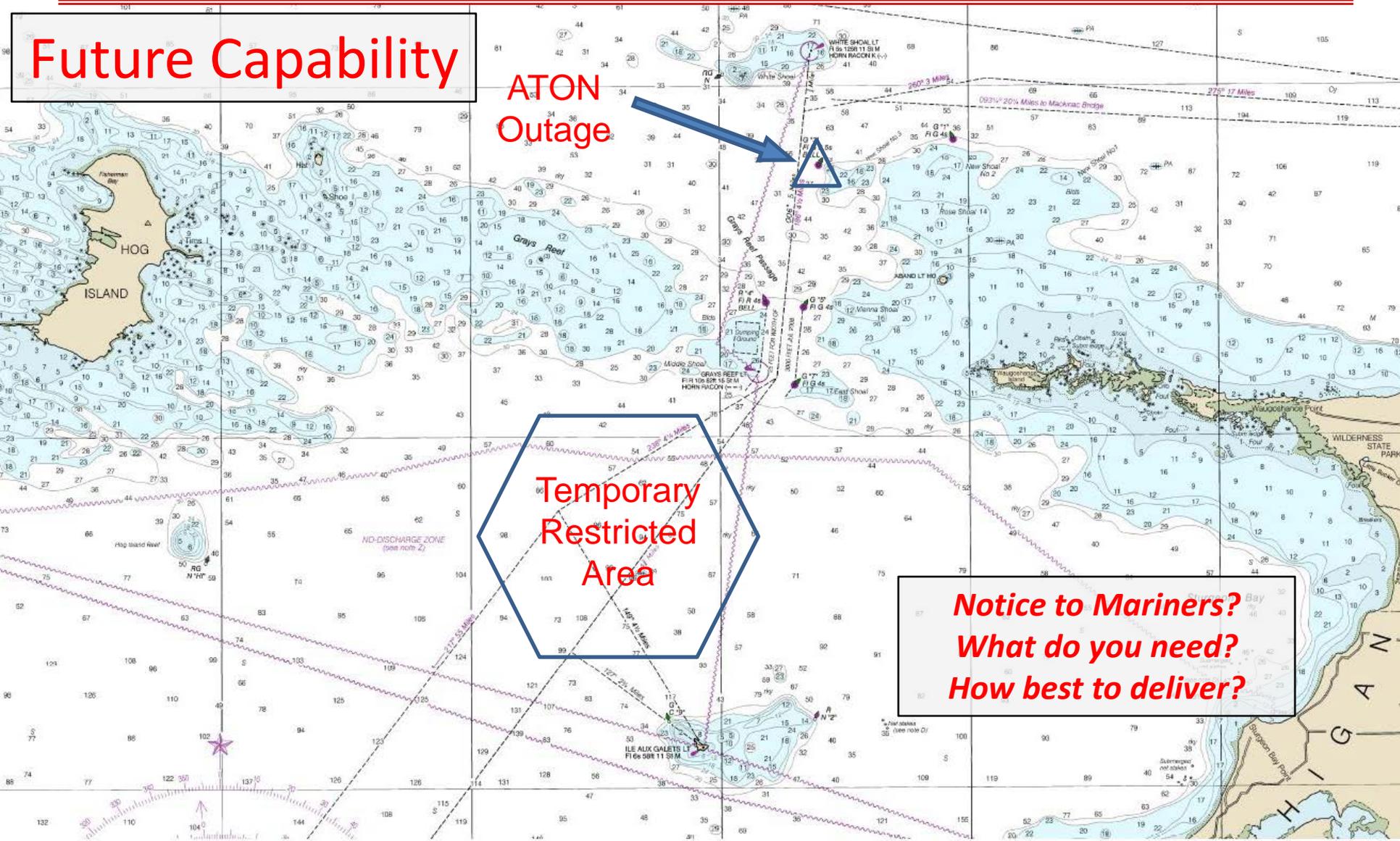


Future Capability

**ATON
Outage**

**Temporary
Restricted
Area**

**Notice to Mariners?
What do you need?
How best to deliver?**





21ST CENTURY WATERWAYS



Integrated Navigation
System with Radar,
Echo Sounder, & AIS



Smart  **Chart**
AIS

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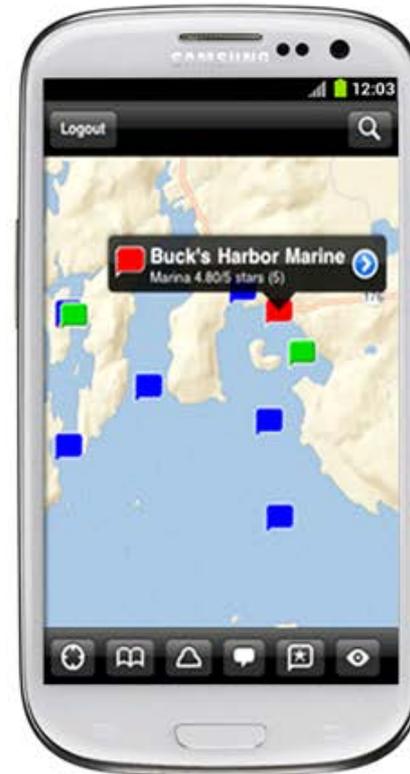
Android App now available!!

FEATURES

It's easy to know exactly where you are and what other vessels are around you. You can also chat with friends on other boats, find the best fuel and dockage prices, see your way in low visibility, and much more.

Smart Chart AIS gives you:

- Electronic Charts
- AIS (Automatic Identification System) via cellular networks
- Augmented Reality (see your way into the harbor or anchorage even in the fog or dark)
- Social Networking
- **All on your Smartphone or Tablet. And it's completely free!**





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Identify & Mitigate Transit Risks

Waterway User Input!





Questions?





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Real AIS ATON