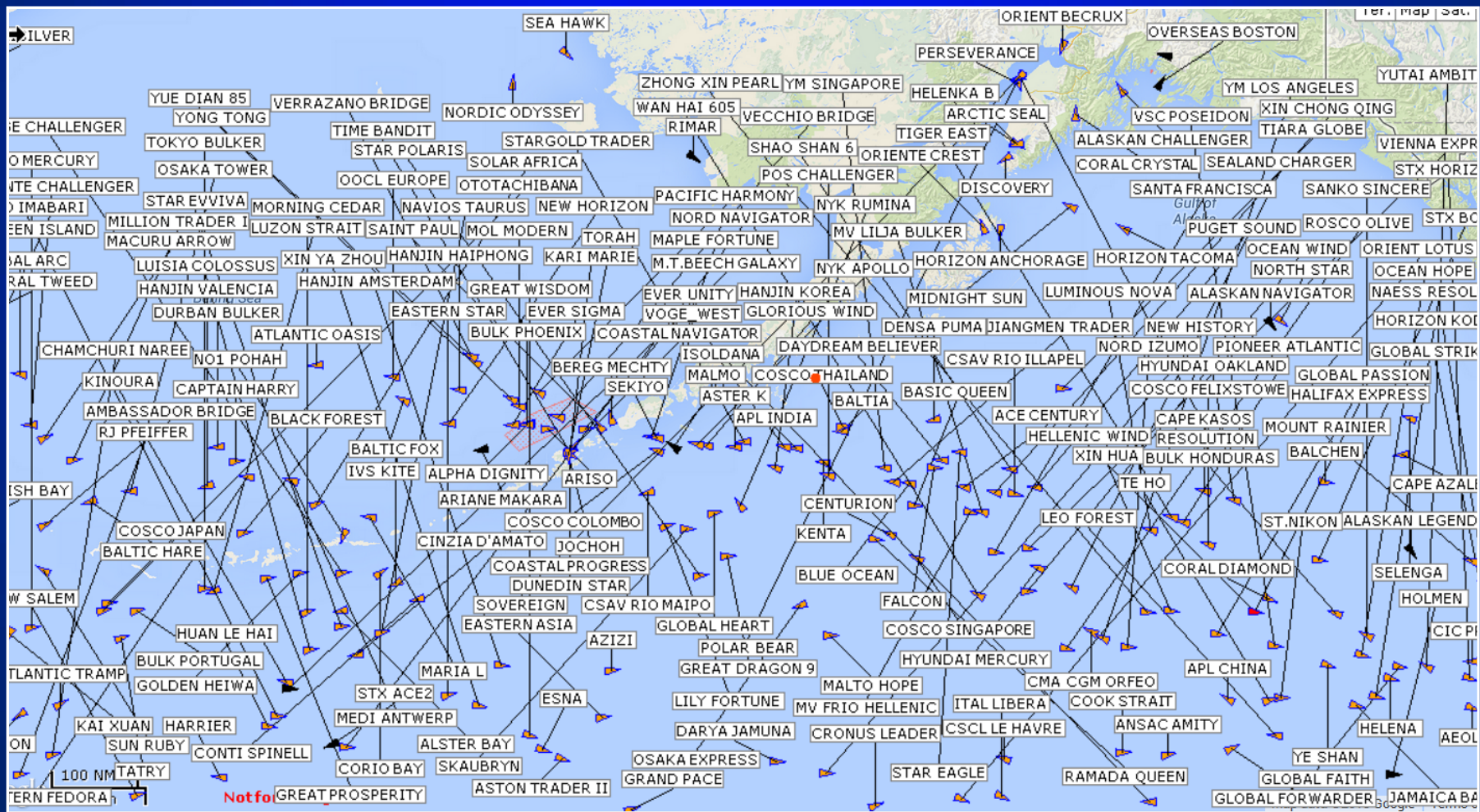


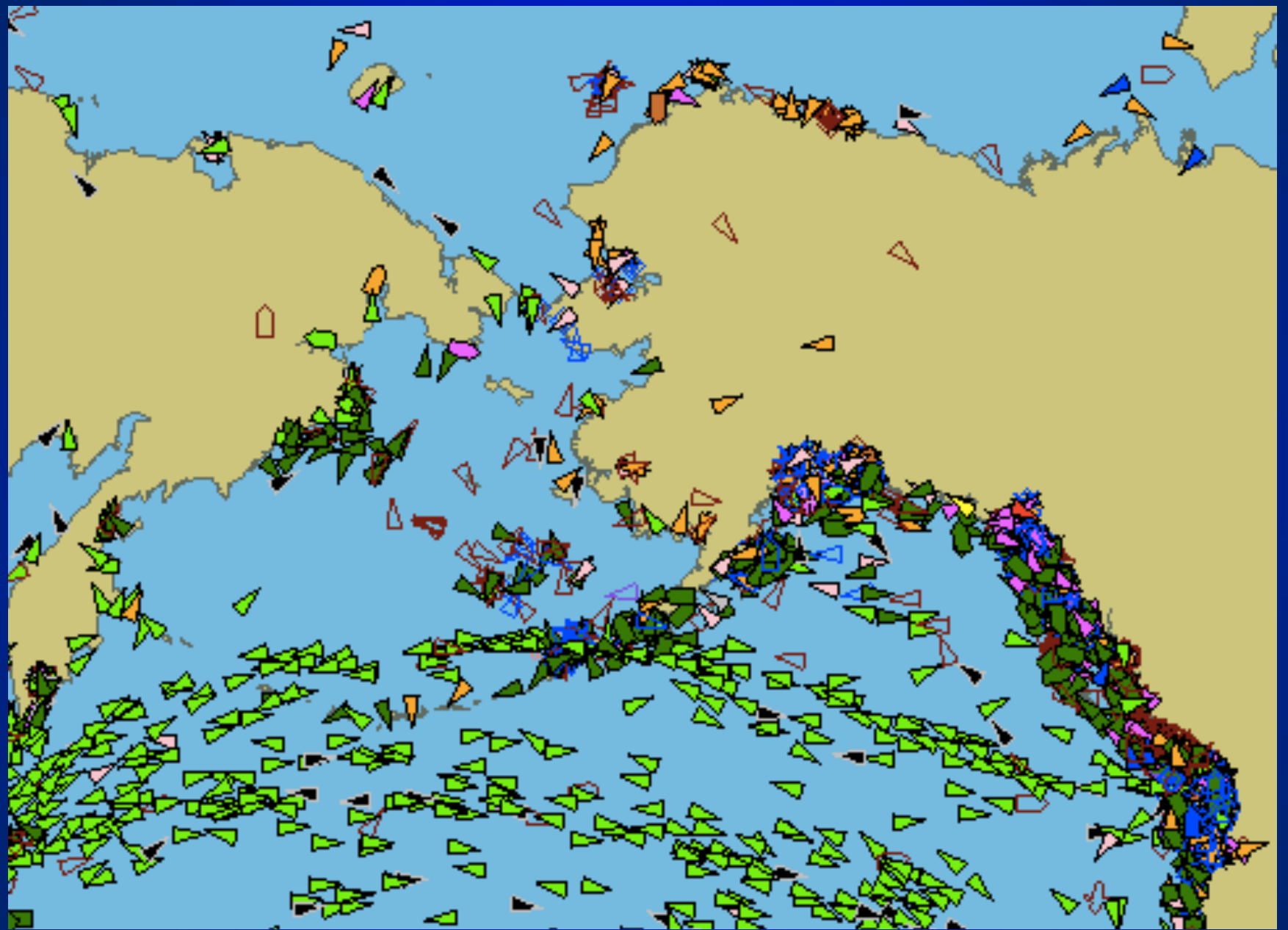


Aiding Safe and Environmentally Sound Navigation in Alaska

Captain Ed Page, U.S. Coast Guard Retired
President, Alaska Maritime Prevention and Response Network
Executive Director of the Marine Exchange of Alaska

Managing Alaska Arctic and Sub Arctic Maritime Traffic Today





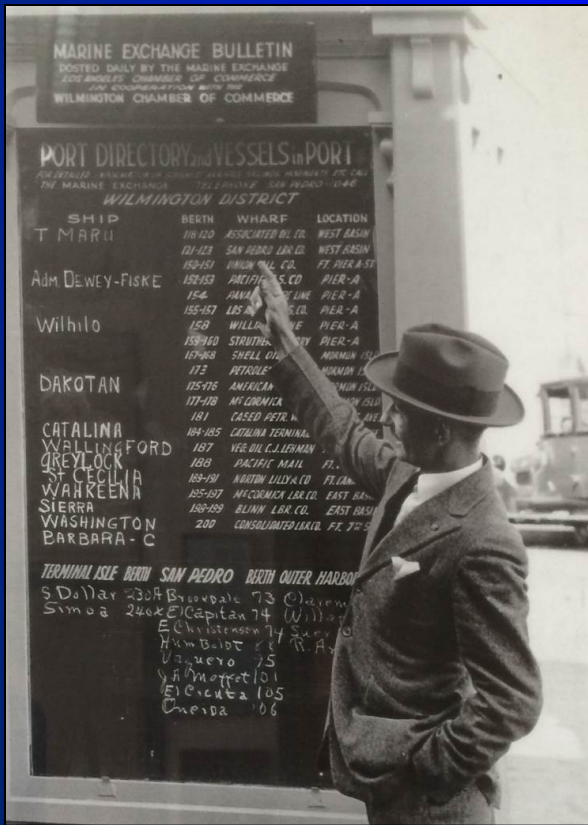
Marine
Exchange
of Alaska



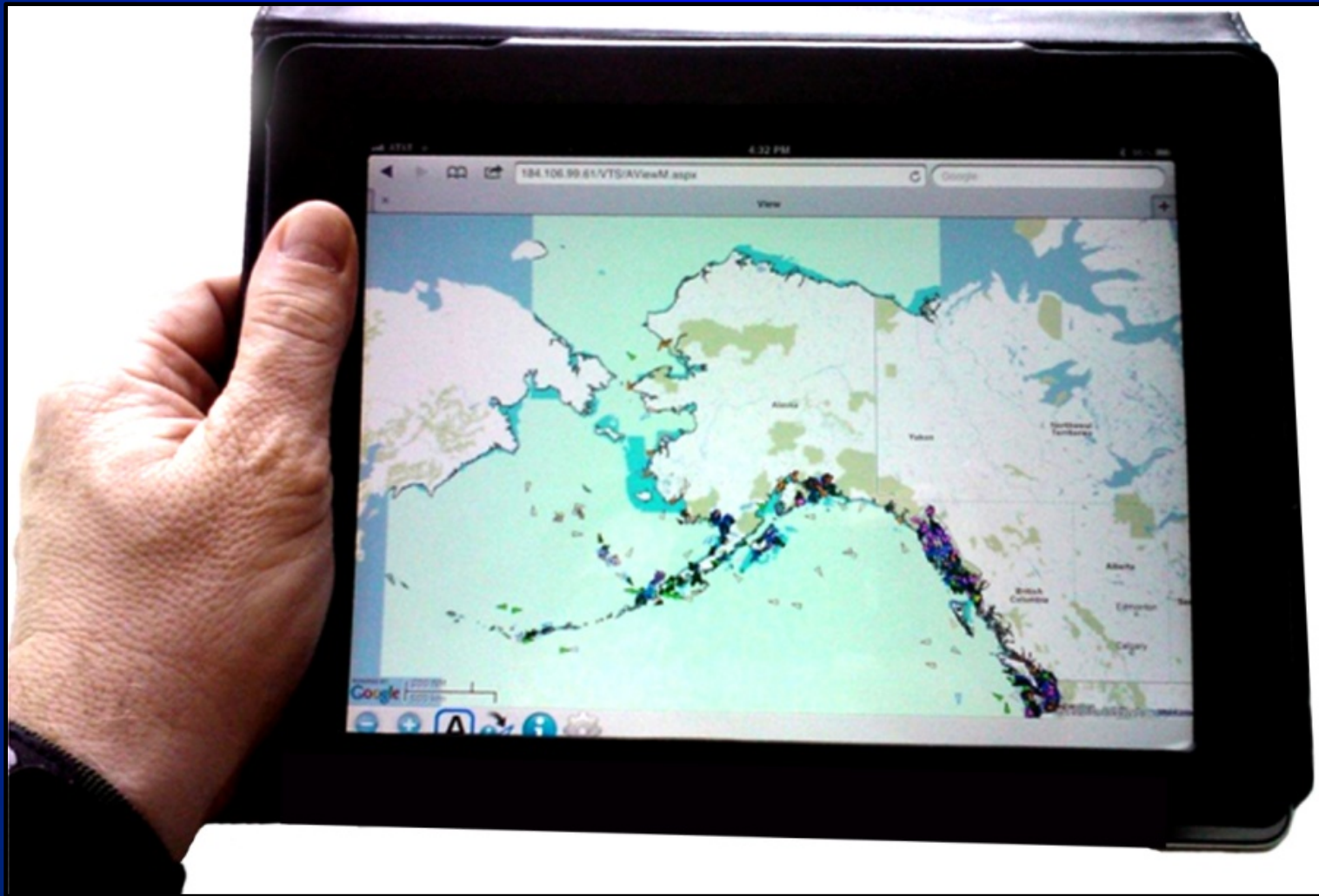
www.mxak.org

Marine Exchange circa 1900

“Exchanging” information to aid commercial shipping operations



Today....Information Disseminated by Internet, Smart Phones, PDAs, etc.



M/V Selendang Ayu

**Loss of Life, Vessel & Cargo and Major Oil Spill
Impetus for Change**



99.99% Success

Public Outrage



Alaska Domain



Alaska Domain Awareness



No Maritime Domain Awareness and No Maritime Domain Management



Maritime Domain Awareness No Maritime Domain Management



**Maritime Domain
Awareness**



**Maritime Domain
Management**

Tracking Vessels With New Technologies

AIS: Automatic Identification System

- Terrestrial Based Stations (real time – tactical)
- Satellite AIS receivers (delayed and intermittent – strategic)

Satellite Transponders

- Intermittent, regular intervals

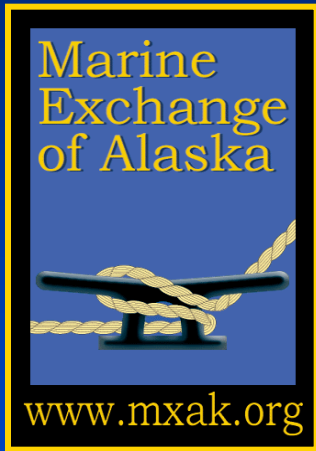


Why Track Vessels?

- Safety Net
- Risk Assessments
- Environmental Protection
- Validate Compliance
- Emergency Response
- Improve Efficiency
- Maritime Security



Safe, Secure, Efficient and Environmentally Sound Maritime Operations



Shared Marine Industry, Government and NGO's Commitment



Safe, Secure, Efficient and Environmentally Sound Maritime Operations



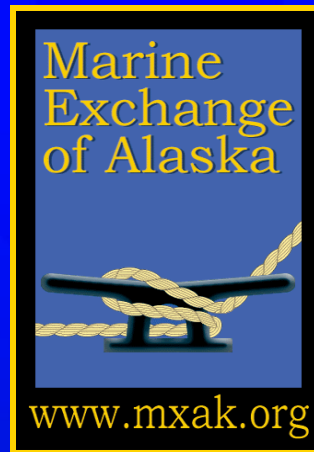
Marine Exchange of Alaska
 AIS and Environmental Stations
 130+ Locations in Alaska

Vessel Tracking Support

Alaska Maritime Community Support of AIS Network



- Lighthouse Associations
- Pilot Stations
- Harbor Offices
- Fish Hatcheries
- Tug Offices
- Shipping Companies
- Fish Processing Plants
- Tribal Offices
- Oil Facilities
- Science Centers
- Oil Spill Response Organizations





Remote – Self Supported AIS Sites



U.S. Coast Guard Pollution Prevention Regulations

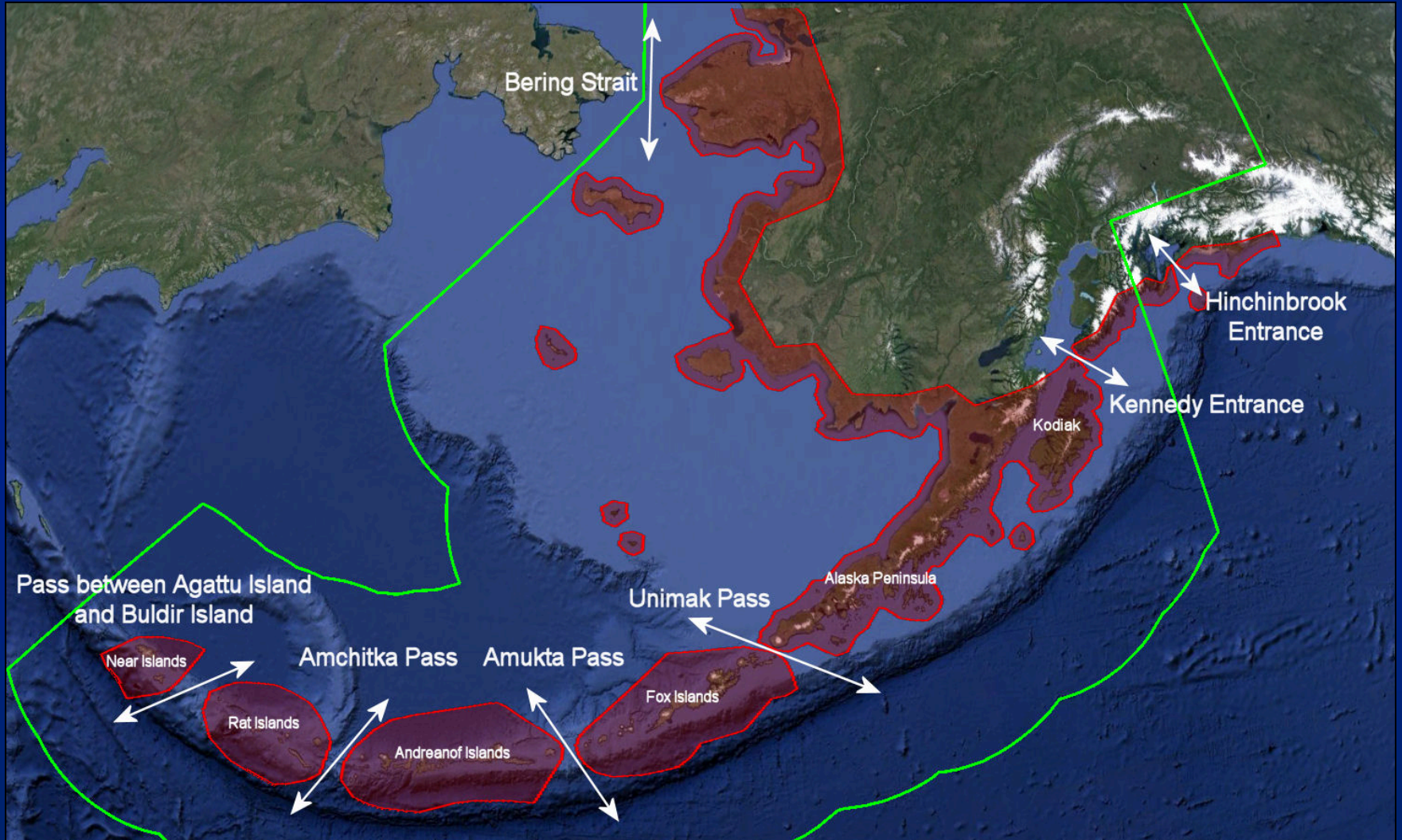
Alternative Planning Criteria

- “In remote areas, where response resources are not available, or the available commercial resources do not meet the national planning criteria, the owner or operator may request acceptance of alternative planning criteria by the Coast Guard.”

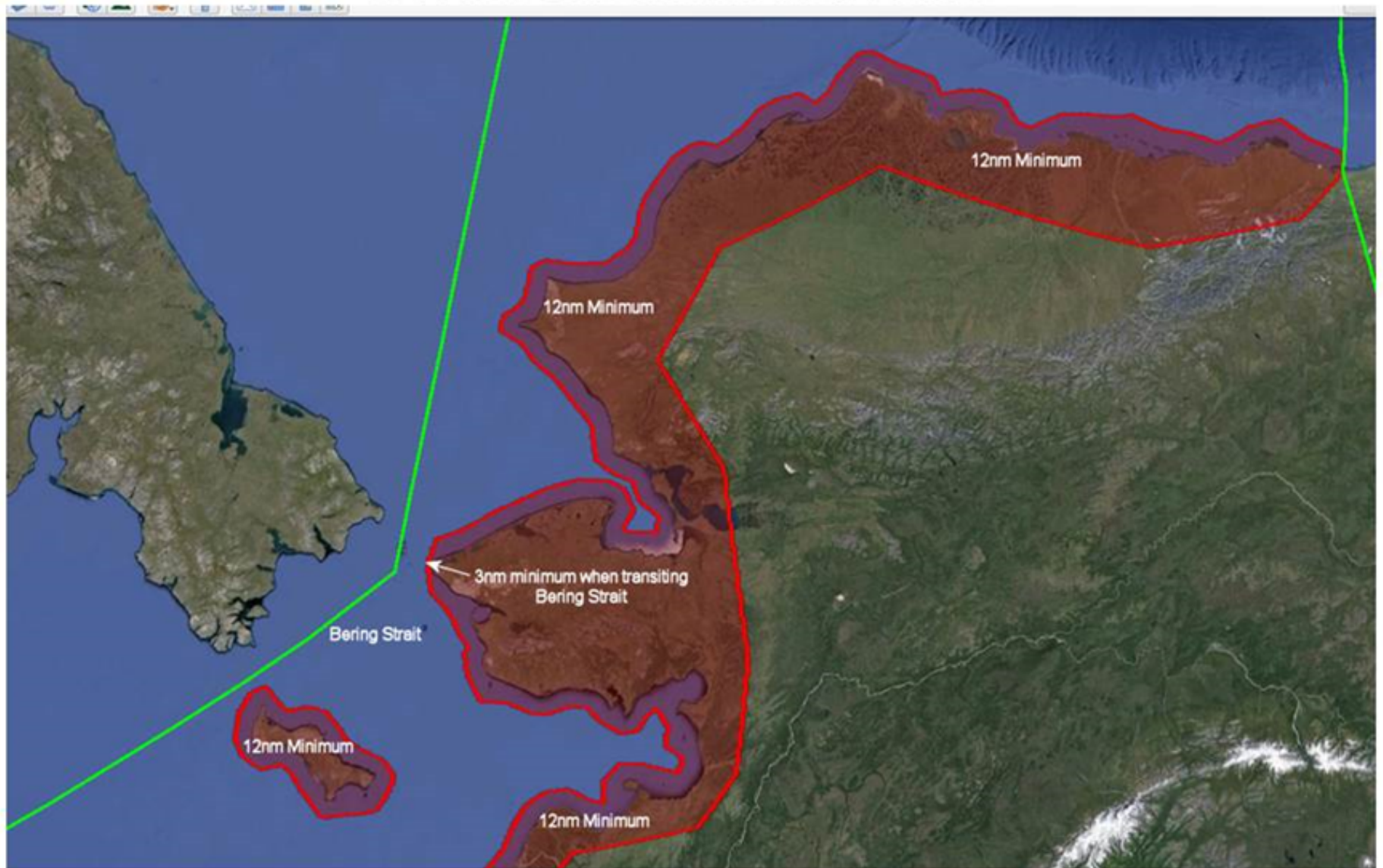


Risk Mitigating Routes in Aleutians

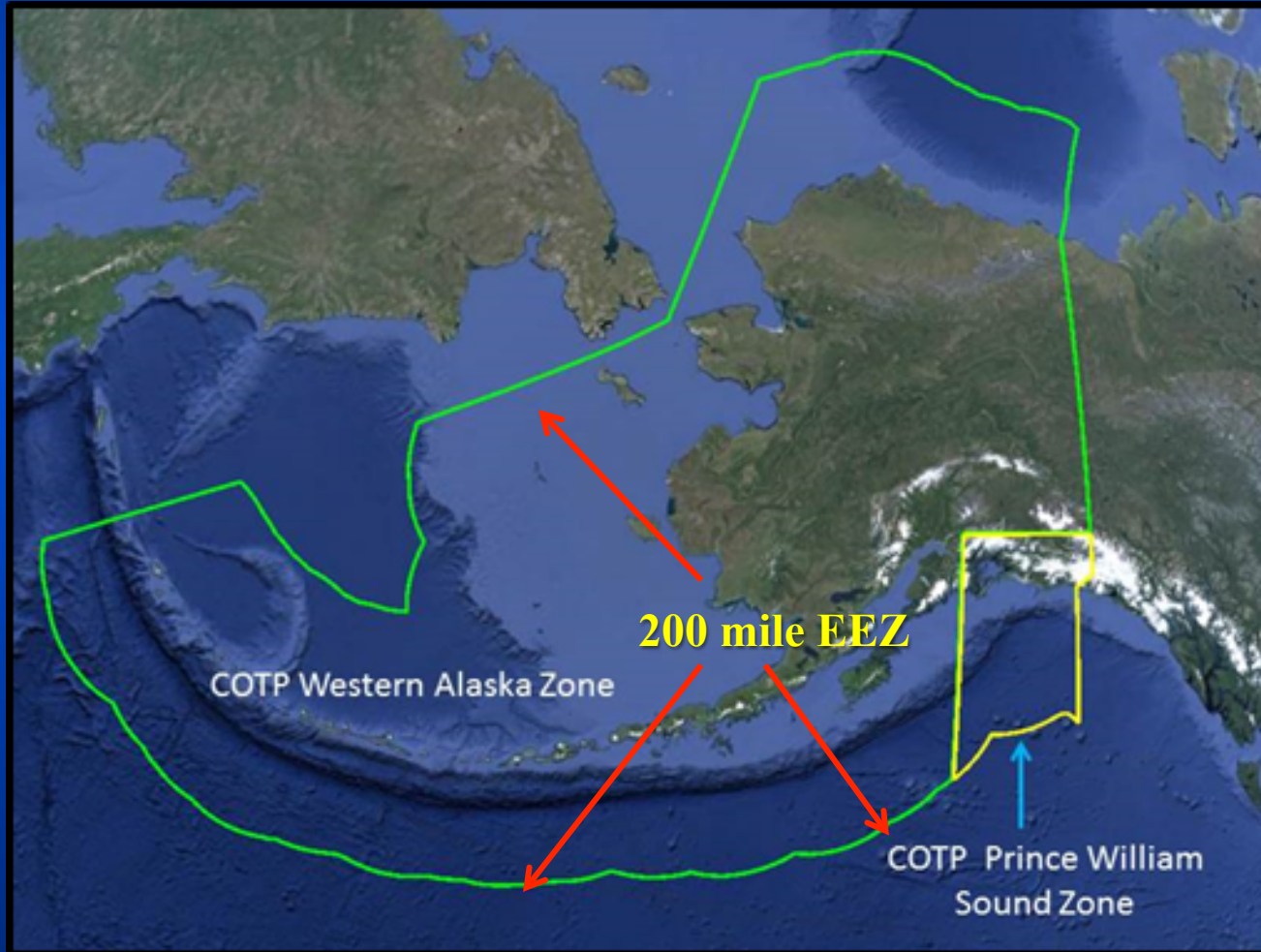
Aleutians Routing Adopted as ATBAs by IMO



Offshore Risk Mitigating Routes Northwest Alaska and Arctic



Vessel Compliance Monitoring and Response System Over 1.2 million square miles



APC

Alternative Planning Criteria

- Focus on Prevention
- Implement Risk Mitigating Operating Procedures – Standards of Care
- Implement Maritime Domain Management
- Enhance “Response” capabilities
 - Oil Spill Prevention
 - Oil Spill Removal



Tanker and Nontank Vessel Alternative Planning Criteria (APC's) for Alaska



Non-profit organizations providing vessels operating in Alaska best management practices and capabilities that exceed environmental regulations.

2,000 Vessels Engaged in International Trade Enrolled in Network



Vessels agree to comply with risk mitigating measures

Enrollment fees fund:

- 7x24 Vessel Compliance Monitoring and Response System
- Oil Spill Response Equipment
- Enhanced Prevention Capabilities – Ship Arrestor

BEFORE

High Risk Transit Before APC



AFTER

Reduced Risk Transit

Bering Sea

British Bay

ALASKA

Gulf of Alaska



THE
NETWORK



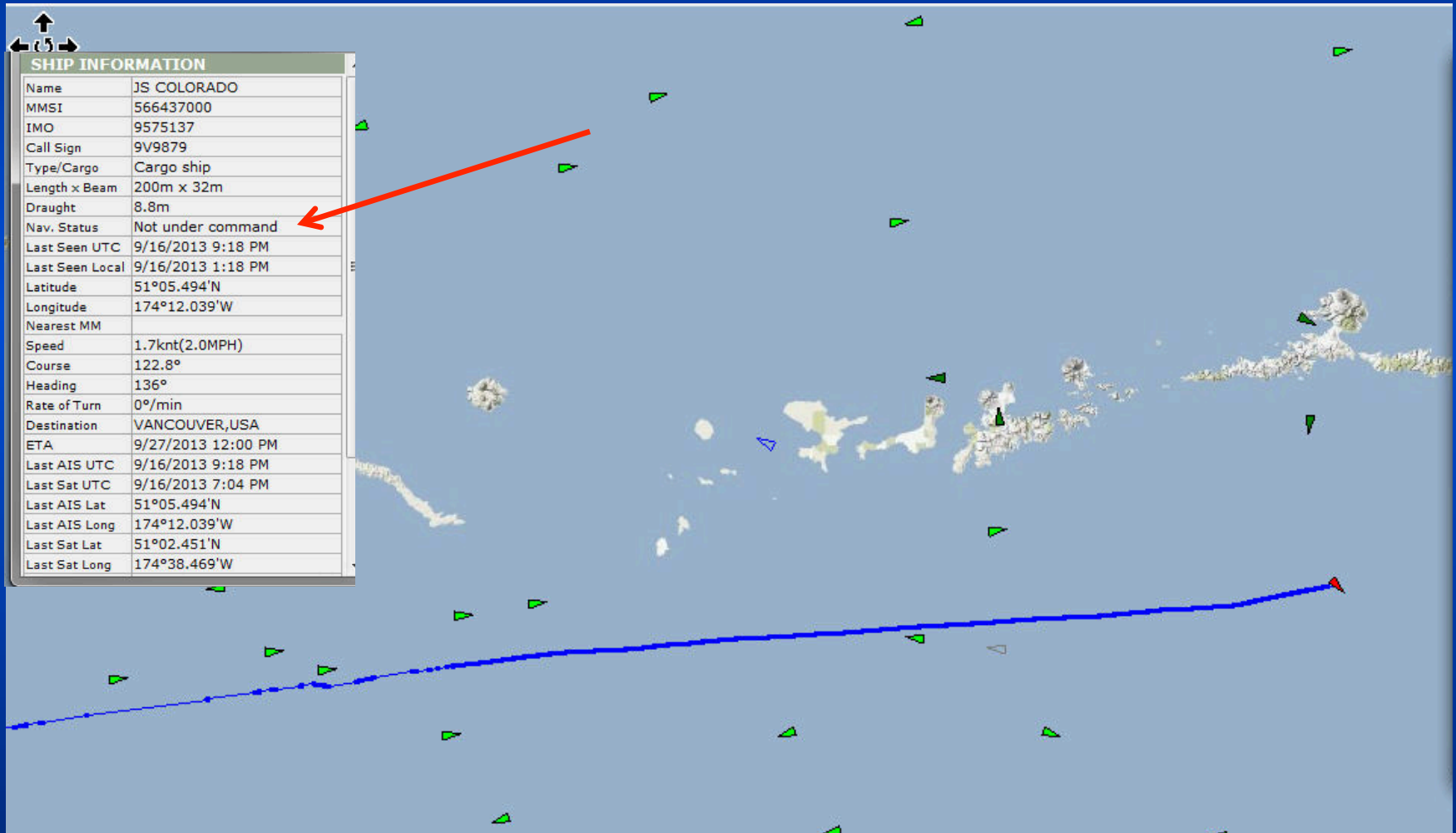
Detection of Disabled Vessels

880 foot Container Vessel Disabled in Unimak Pass



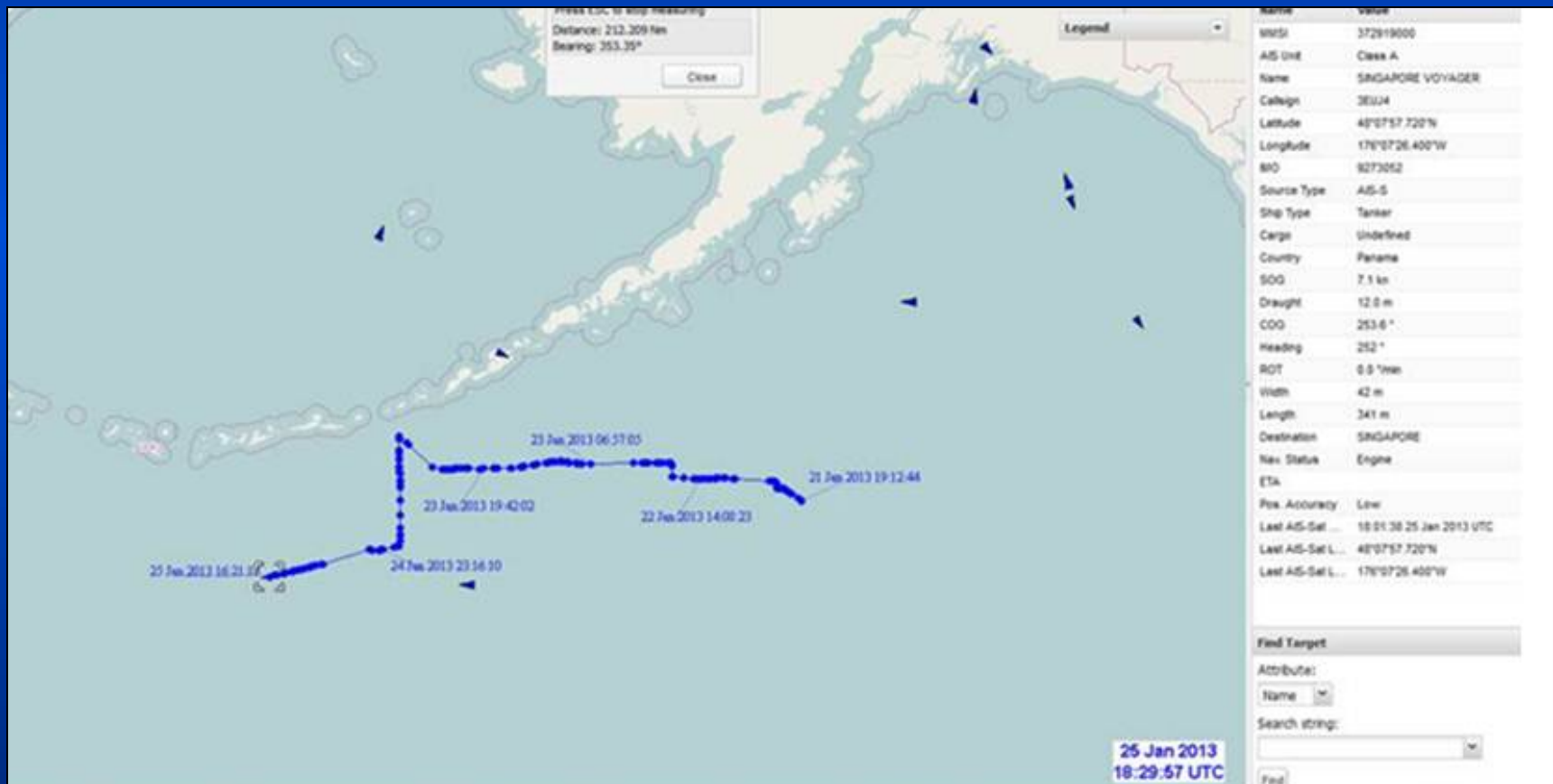


APC Detection of Vessel Not Under Command





Non OPA-90 Compliant Tanker Detected by Network Entering Western Alaska Waters

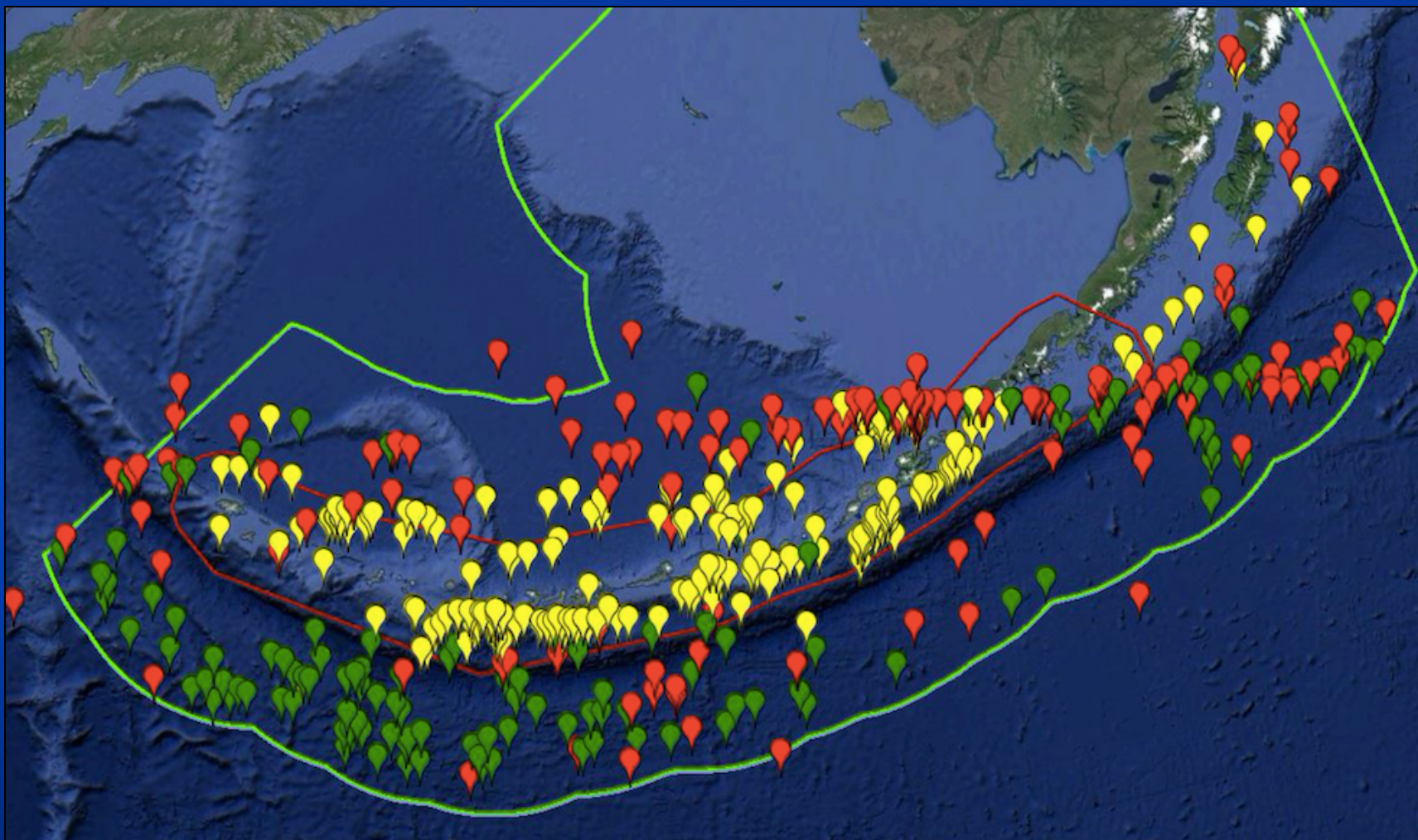




Detected Vessel Transiting High Risk Pass

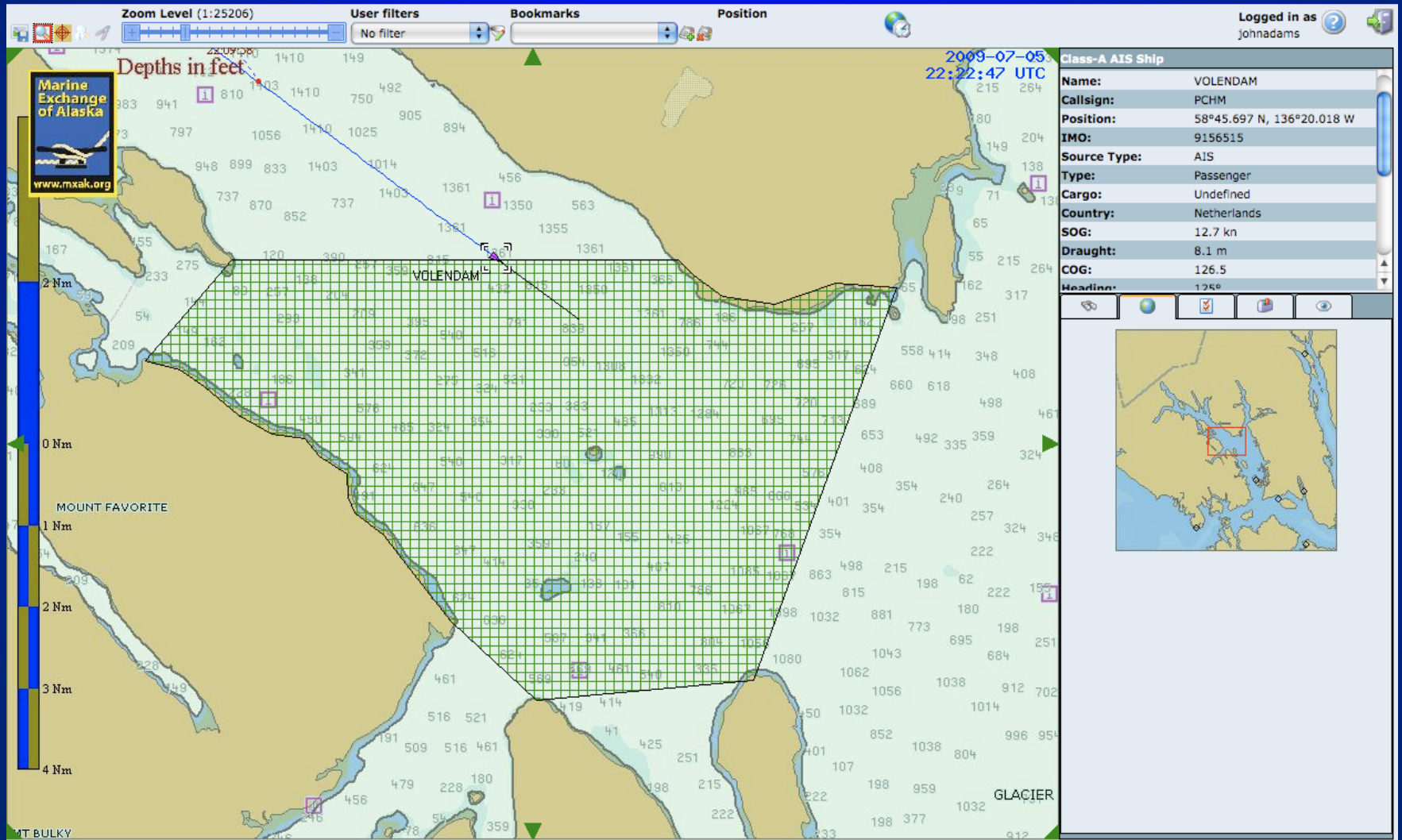


APC Events

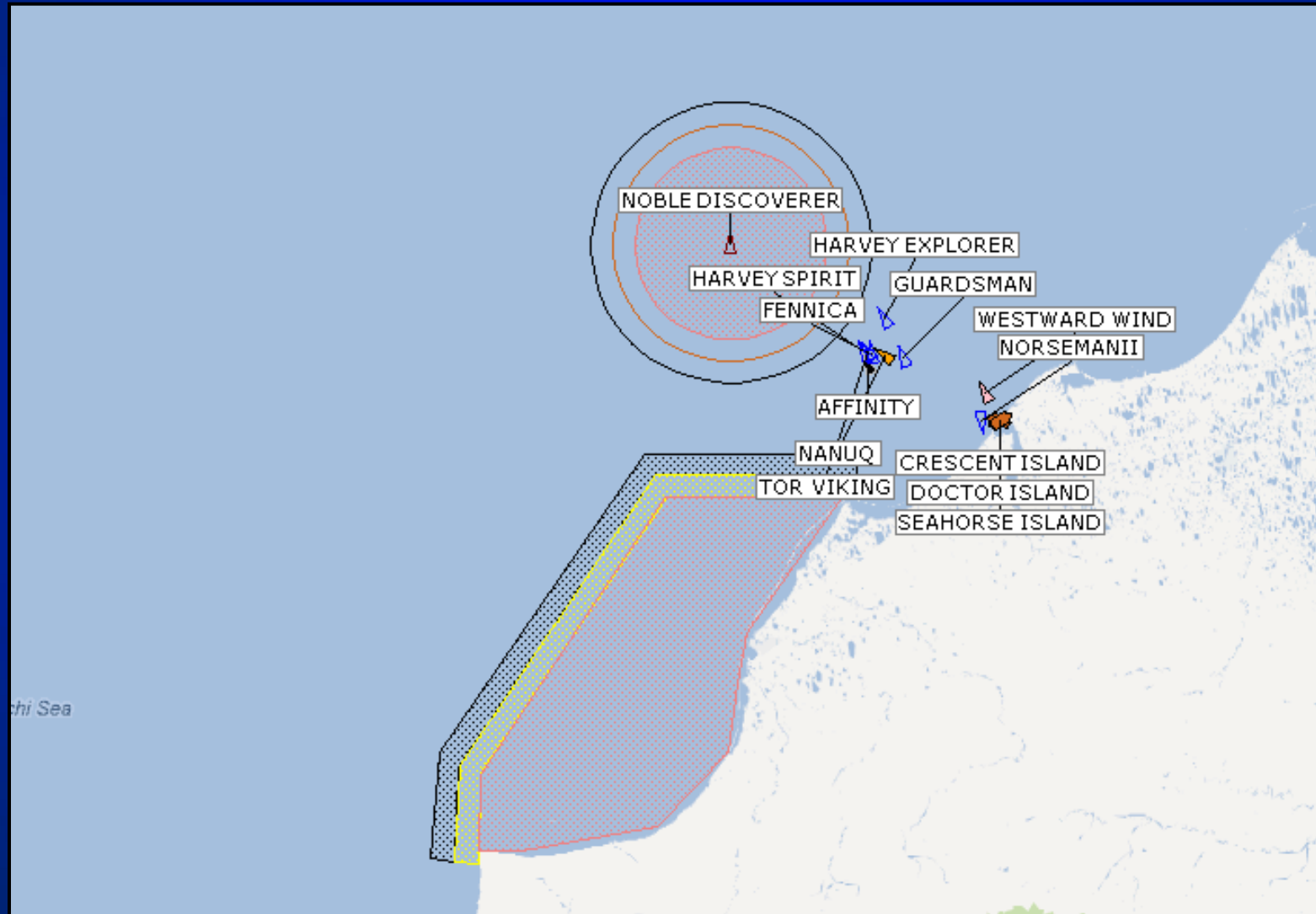


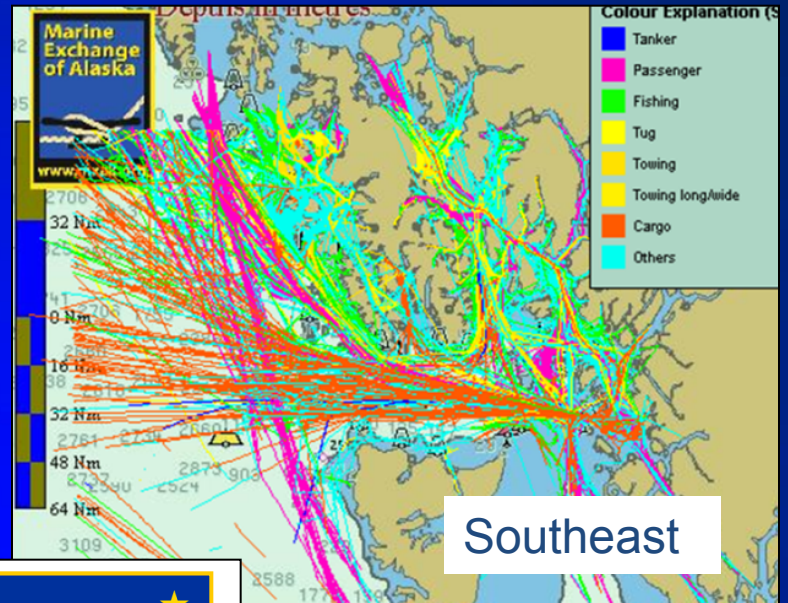
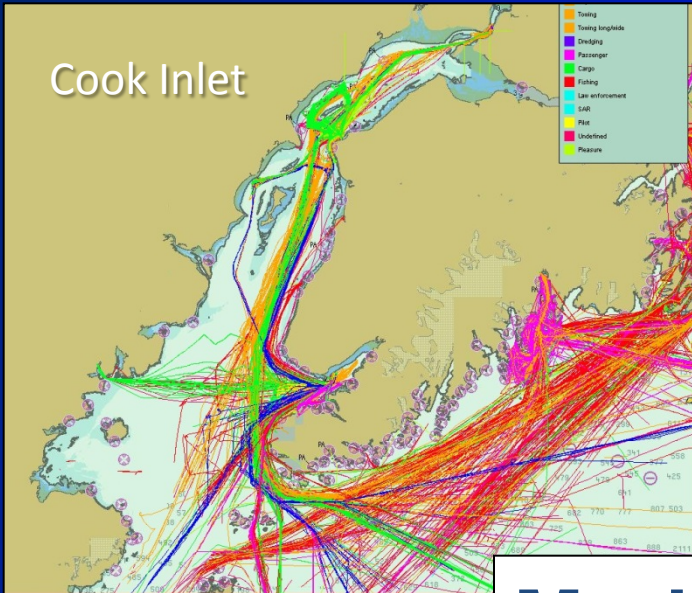
Cruise ships Transiting Whale Waters

Automatic generation of e-mail and text msg alerts

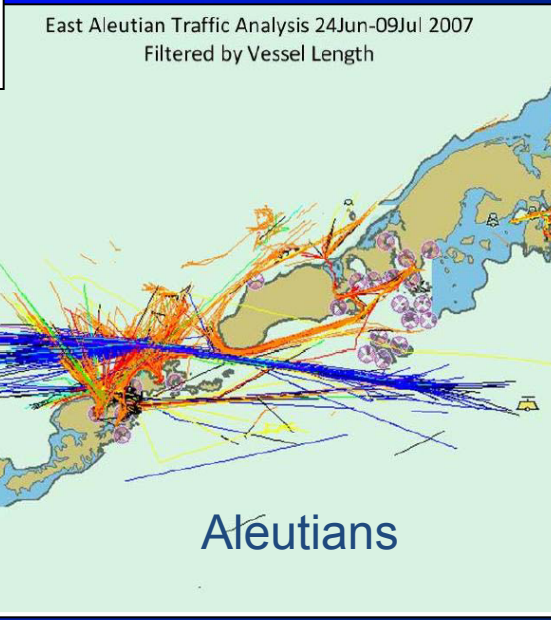
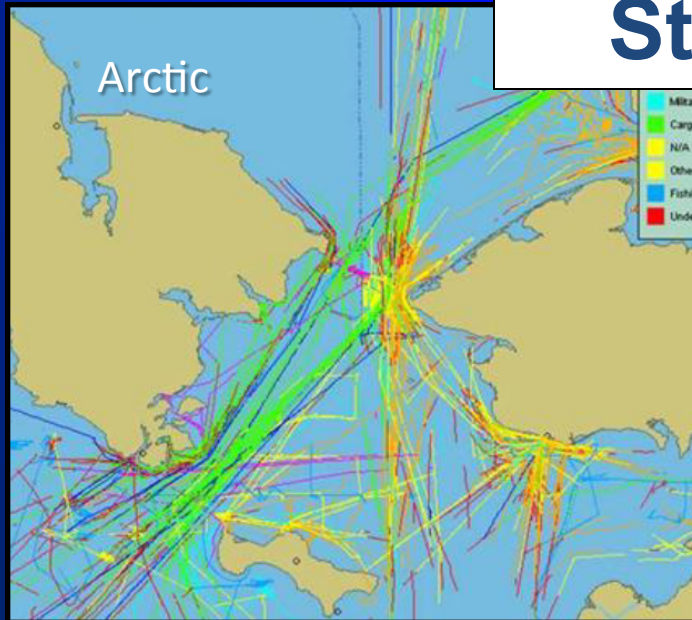


Shell Exploration Fleet Monitoring

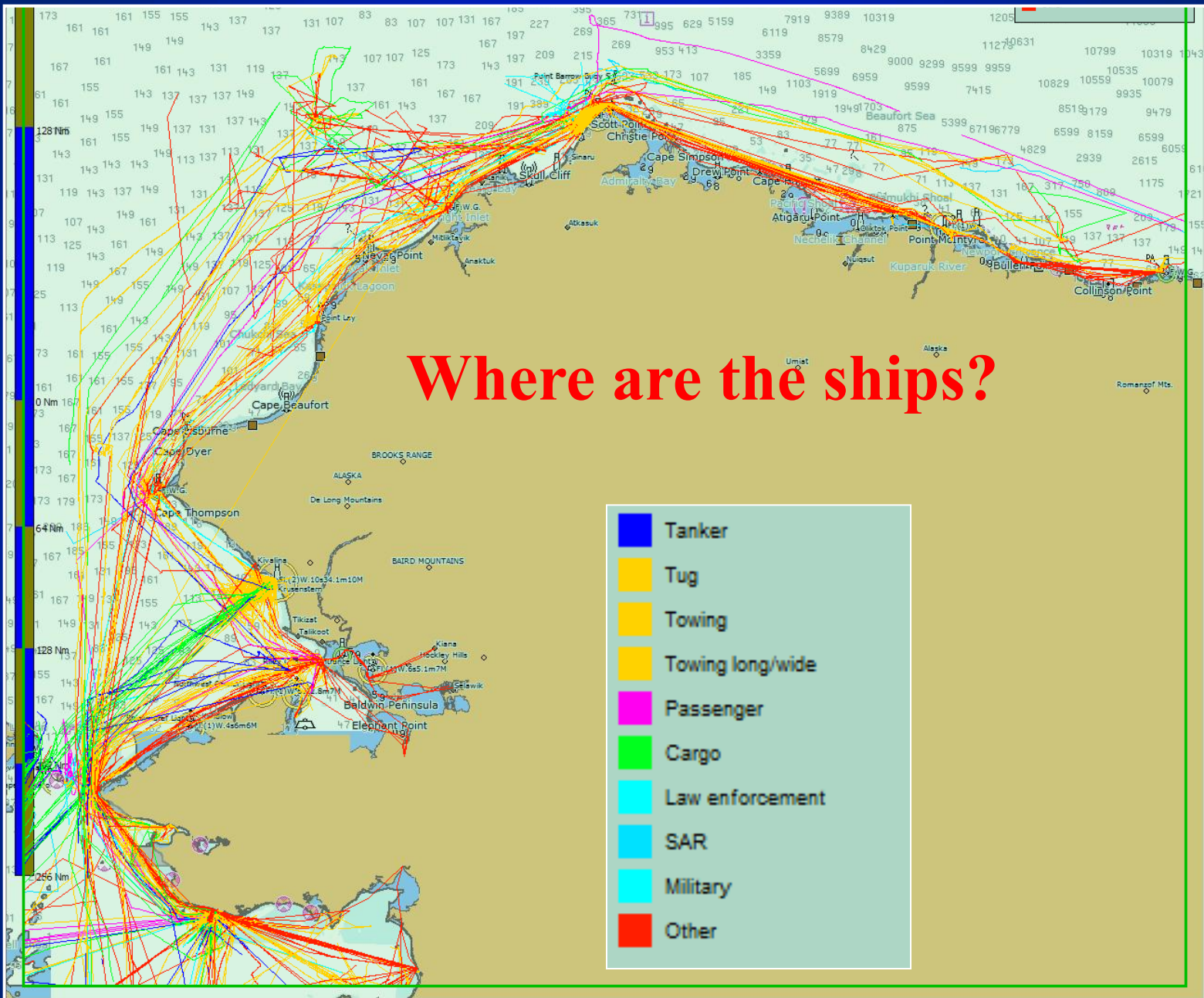




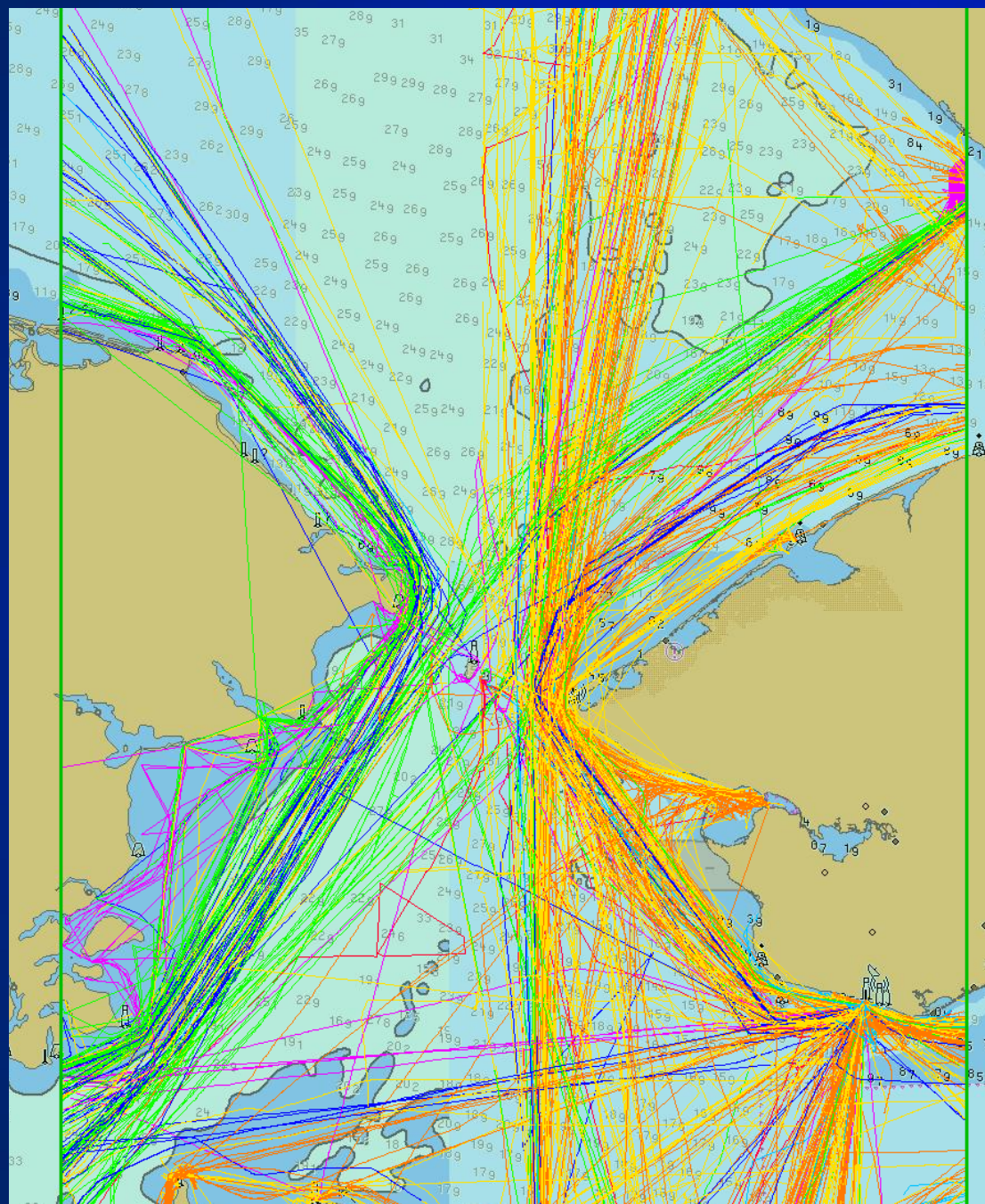
Maritime State



Where are the ships?

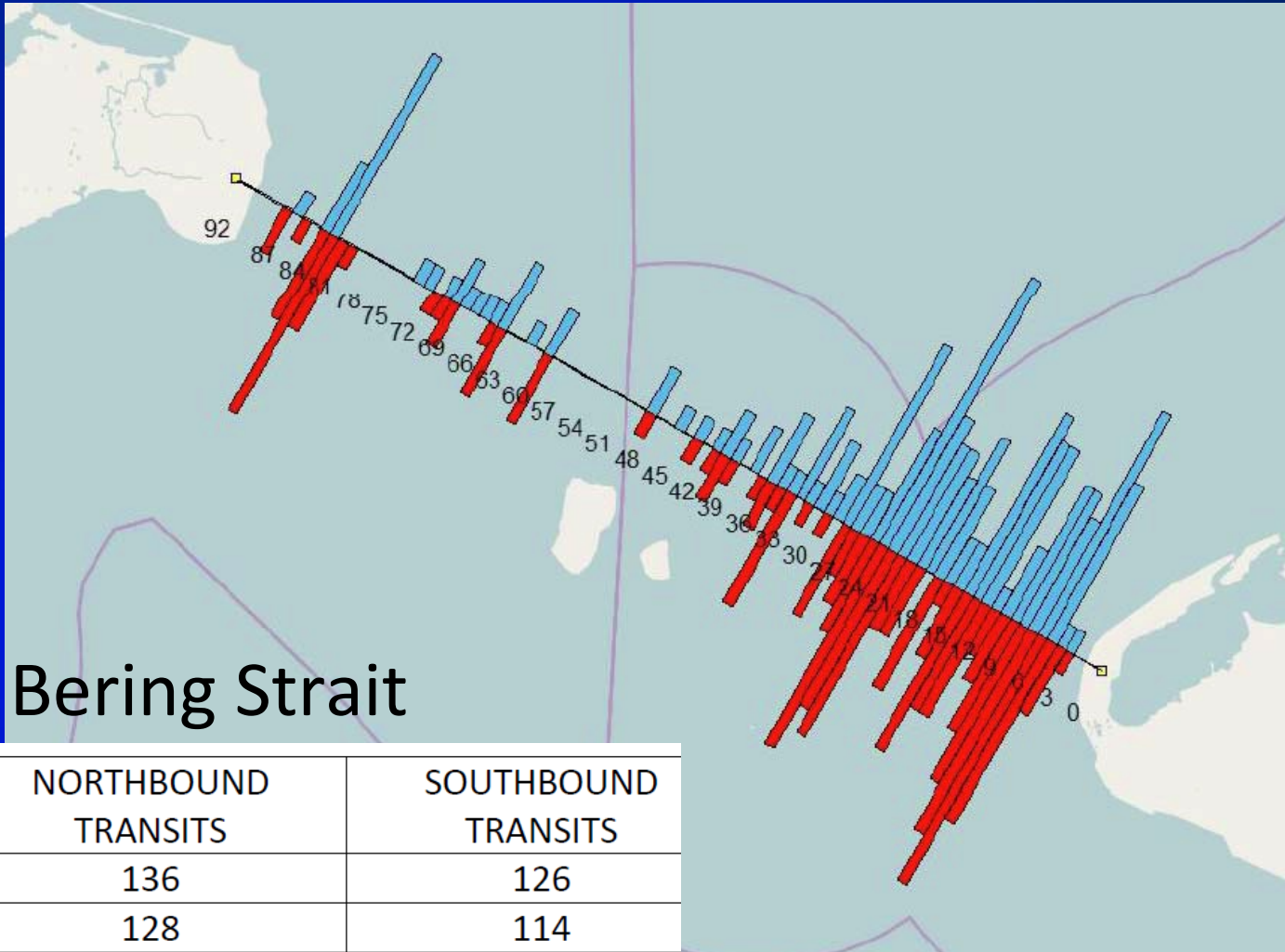


Risk Assessments



Colour Explanation (SHIP_TYPE)

- Tanker
- Cargo
- Tug
- Towing
- Towing long/wide
- Passenger
- Fishing
- SAR
- Military
- Law enforcement
- Others



Bering Strait

YEAR	NORTHBOUND TRANSITS	SOUTHBOUND TRANSITS
2009	136	126
2010	128	114
2011	124	115
2012	154	162
2013	171	173
2014	128*	112*



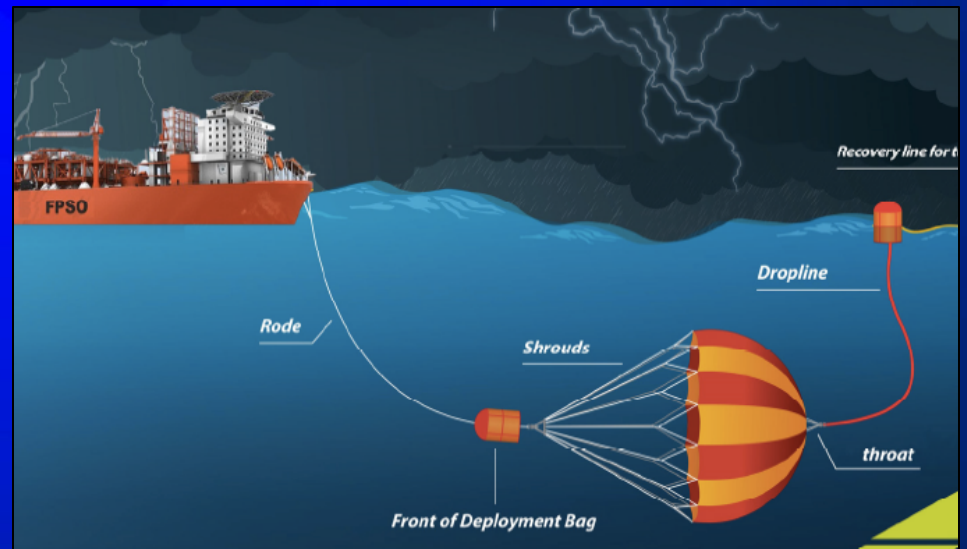
Arctic Safety Net Project

Sponsors: Pew, IUCN, Oak Foundation and Arctic Council

MONITORING COMPELS COMPLIANCE WITH RISK MITIGATING MEASURES

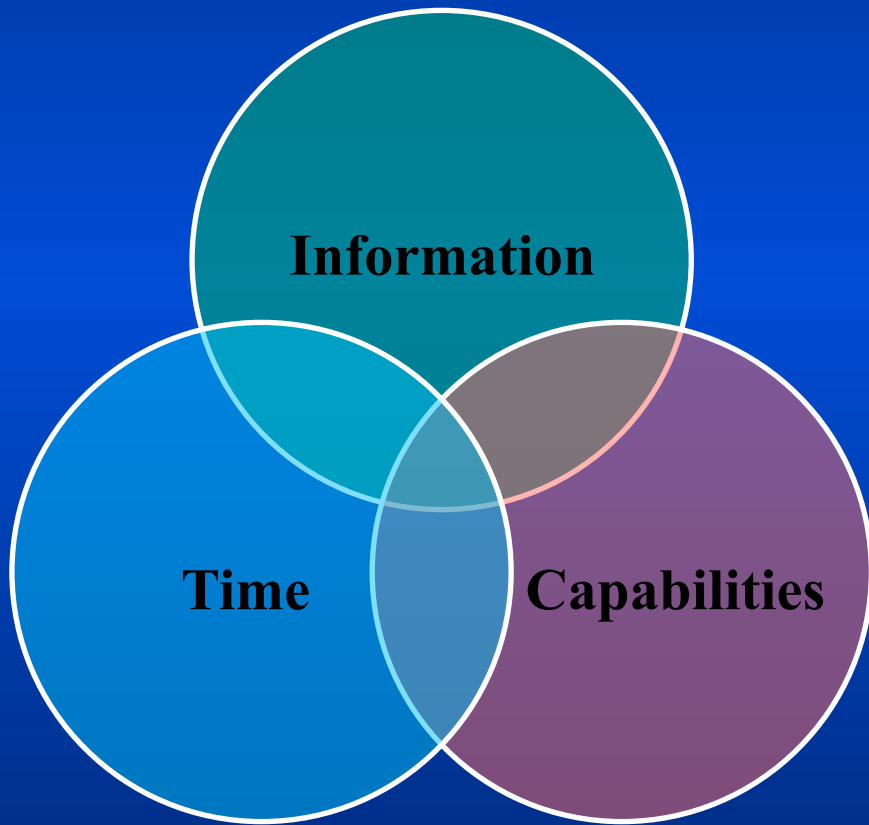


Ship Arrestor





ALASKA MARITIME PREVENTION & RESPONSE **NETWORK**



INFORMATION

Notice of Incident, Location of vessels in distress, Location of assist vessels.

TIME

Distance offshore provides time for assist vessels to arrive
Early detection and immediate location of assist resource buys more time

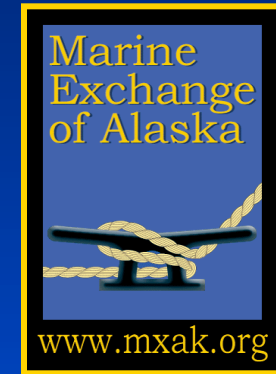
CAPABILITIES

Monitoring locations of Assist vessels, Emergency Towing Systems, Vessels of Opportunity, Oil Spill Response Resources



USCG-MXAK CRADA

(Cooperative Research and
Development Agreement)



“Arctic Next Generation Navigational Safety Information System”



AIS transmission tests
conducted in summer
of 2014 with Coast
Guard cutter Healy

Marine
Exchange
of Alaska



www.mxak.org

Arctic Next Generation Navigational Safety Information System



Builds upon AOOS AIS/WX project to communicate information to vessels via AIS;

- Virtual aids to Navigation (i.e. buoys)
- Locations of whalers
- Environmental Data (i.e. weather and ice)
- Locations of whales
- Vessels in distress, etc.
- Notify vessels in “Areas to be Avoided” or exceeding speed restrictions



Selendang Ayu

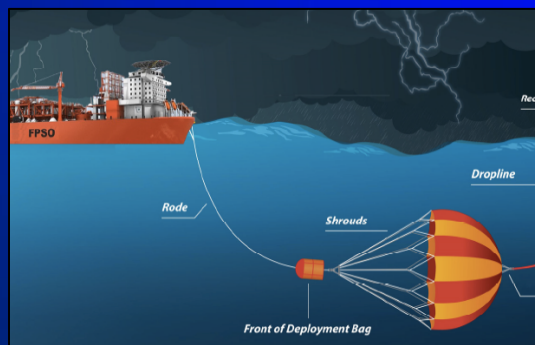
Pre-Selendang

- No Maritime Domain Awareness
- No Maritime Domain Management
- No Risk Mitigating Protocols
- No capabilities to prevent grounding



Post-Selendang

- Maritime Domain Awareness
- Maritime Domain Management
- Risk Mitigating Protocols
- New capabilities to prevent groundings



Safe, Efficient and Environmentally Sound Maritime Operations

