

# Preventing Oil Spills in the Strait of Juan de Fuca Today and Tomorrow

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Captain Joe Raymond  
Coast Guard Sector Puget Sound

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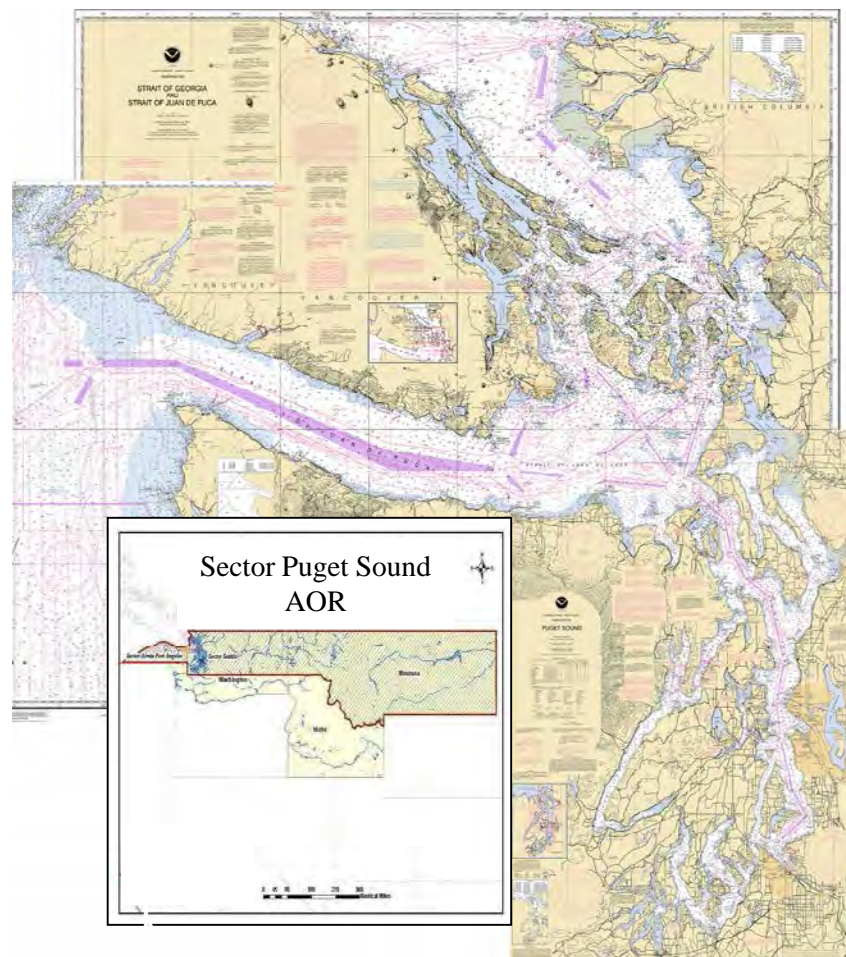


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# Overview

- “The Voyage of a Vessel”
- How are we doing?
- 3 Potential Spill Scenarios



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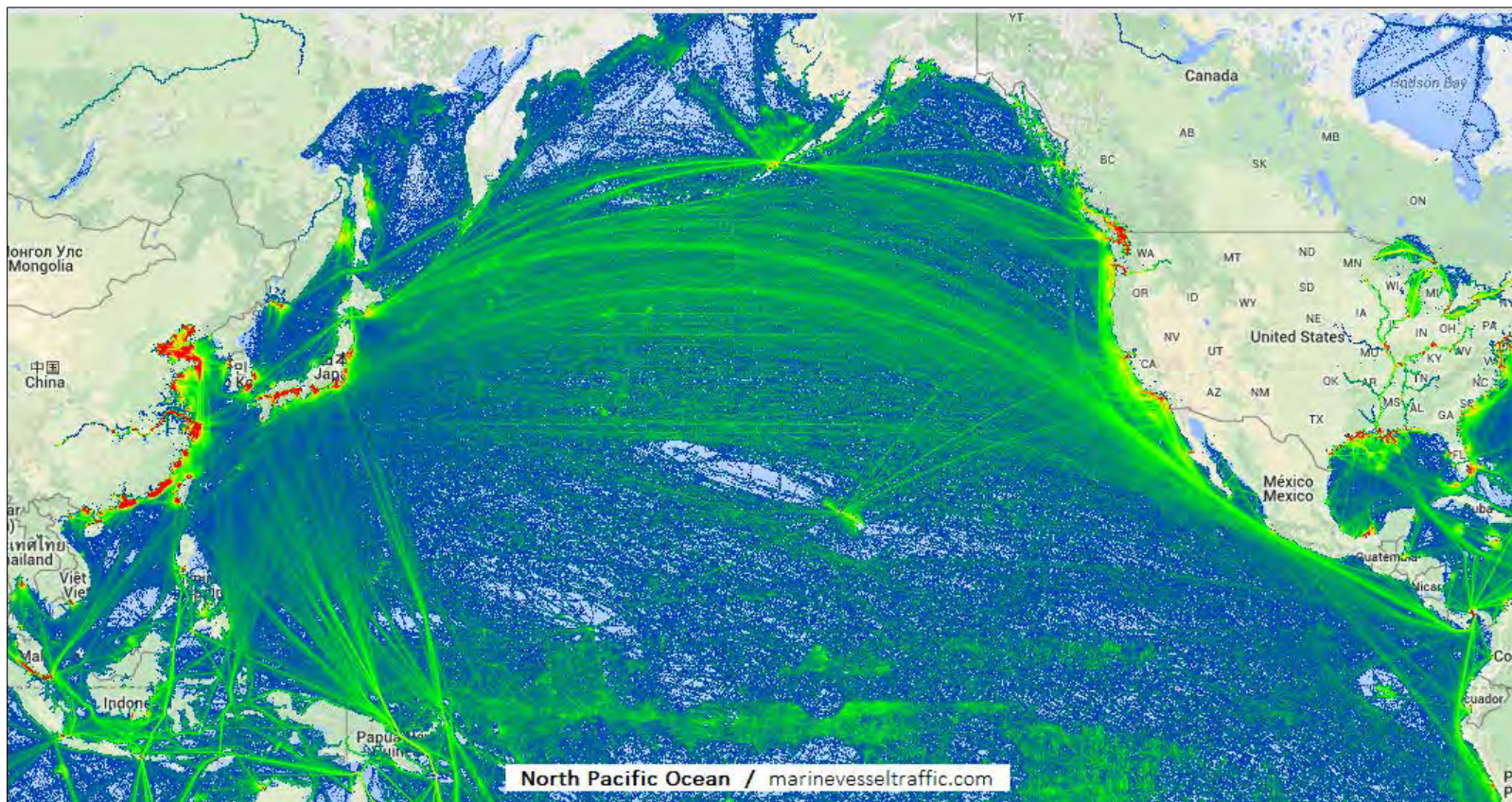
# The Voyage of a Vessel



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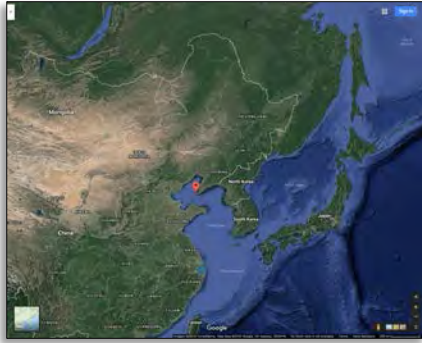






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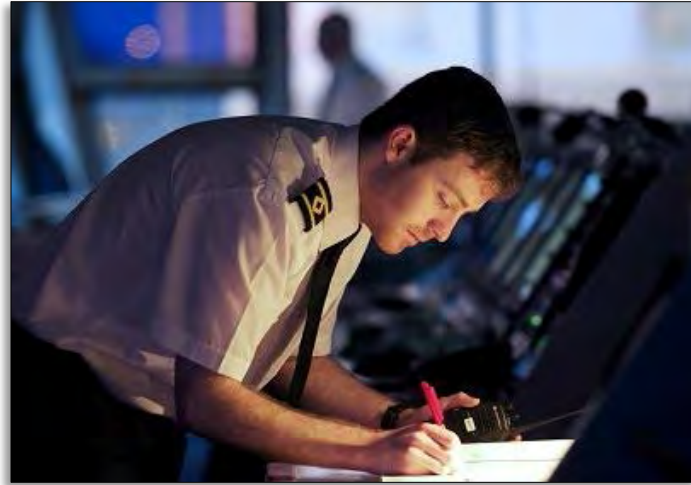
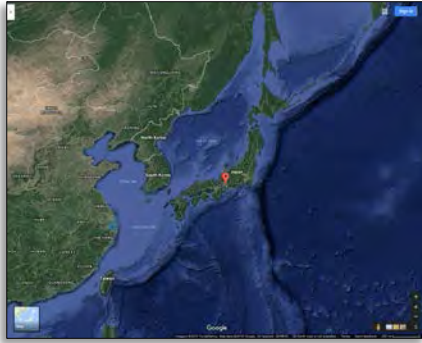
## Vessel Construction Standards

- Comprehensive vessel construction standards from International Maritime Organization (IMO) and Classification Societies (e.g. ABS, DNV-GL, etc.)
  - Structure, stability, engineering arrangements, and fire protection, detection, and extinction
  - Class Society shipyard oversight
- Continuous enhancement
  - Independent fuel tanks phase-in
  - International Gas-Fueled Ships (IGF) Code



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## STCW Training

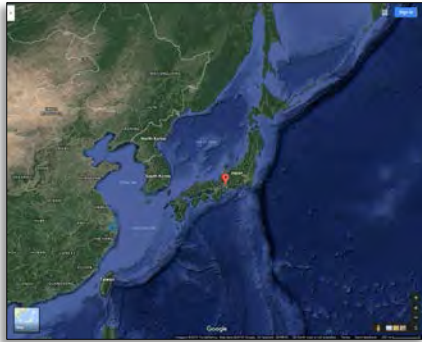
- STCW = Standards of Training, Certification and Watchkeeping
- Standardized stringent training and testing requirements for each vessel crewmember
- SOLAS Chapter V, Reg. 14 requires Flag State to establish Minimum Safe Manning levels for each vessel
- Generally, a vessel may not operate if its crew is not properly trained for the position they are listed to fill.



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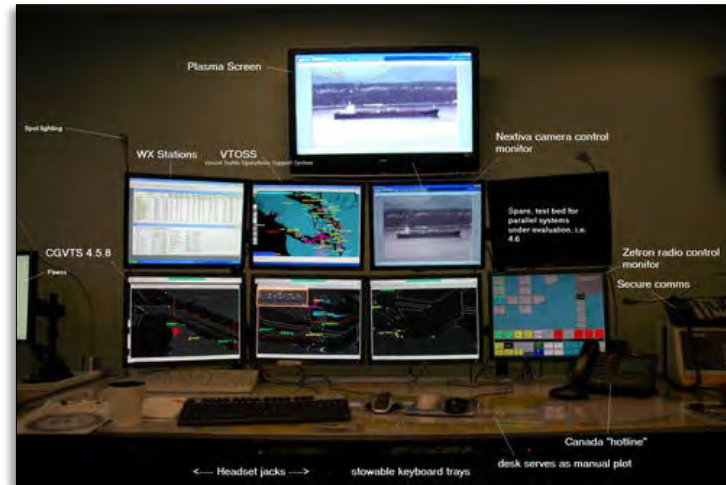
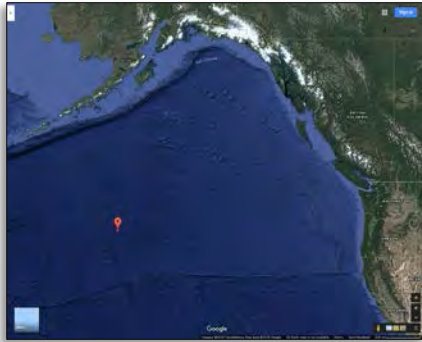
## Safety Management System (SMS)

- International Safety Management Code
- Ensures the safe management and operations of vessels through company-wide procedures and designated support ashore
- Validated via internal and external audits
- Akin to ISO 9001 compliance



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## Advance Notice of Arrival

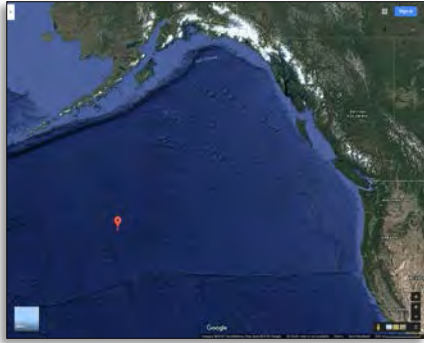
- At least 96 hours prior to arrival to pier
- 33 CFR 160: Regulations to ensure Maritime Domain Awareness
- Vessel condition, crew composition & cargo transported
- Enable multiple Fed agencies to evaluate risk of vessel/crew/cargo entering U.S. waters prior to arrival



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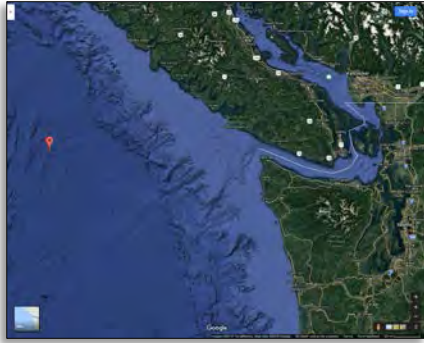
## Defects, Deficiency Reports, and Other Notifications

- Vessels are required to immediately report marine casualties (as defined in 46 CFR 4)
- Letters of Deviation and Captain of the Port (COTP) Orders
- Unresolved materiel condition deficiencies
- Sick/diseased crew members
- SOLAS Chapter I, Reg. 11(c)
- MARPOL Annex I, Reg. 6.4.3



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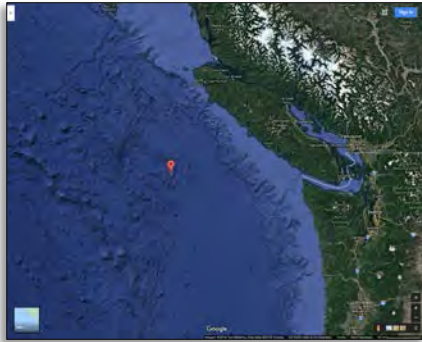
## Ballast Water Management

- U.S. regulation (33 CFR 151 Subpart D) to prevent introduction of nonindigenous species to enter U.S. waters
- 4 means to handle ballast water:
  - Exchange more than 200 nautical miles away from US
  - Treat chemically or mechanically
  - Discharge to shore, or
  - Retain onboard



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## North American Emissions Control Area (ECA)

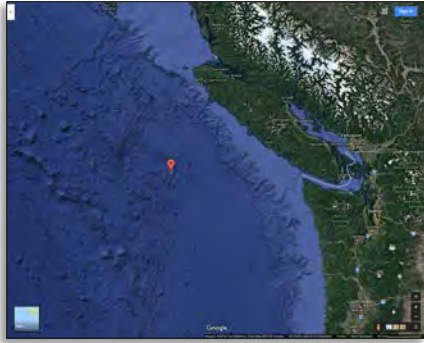
- MARPOL Annex VI – Air Pollution
- Enforced within U.S. Exclusive Economic Zone (EEZ): 200 nautical miles
- Strict requirements to minimize release of NO<sub>x</sub> (Tier III Engine) and SO<sub>x</sub> (0.1% m/m sulfur content of fuel oil)
- Protect human health and environmental impact



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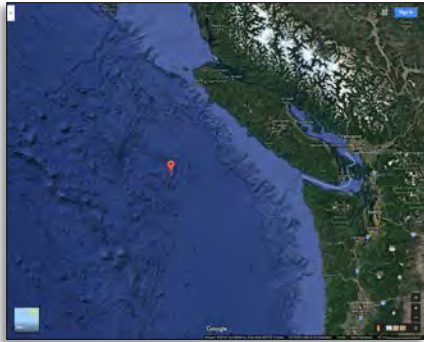
## Oil Pollution Prevention/Response

- Ensure Operator funding, capability, and resources to respond to oil spill
- Certificate of Financial Responsibility
- Both tank and non-tank Vessel Response Plans (VRP) reviewed/approved by Coast Guard – 33 CFR 155
- Established Oil Spill Response Organizations with pre-positioned equipment
- Shipboard Oil Pollution Emergency Plan (SOPEP)



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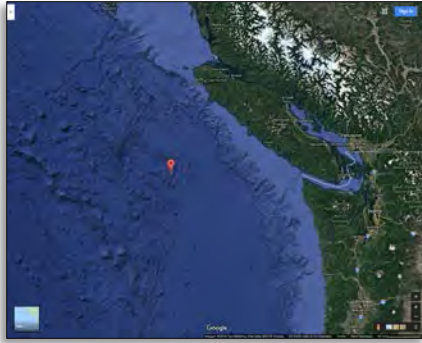
## Salvage and Marine Firefighting

- Part of the vessel response plan (VRP) for both tank and non-tank vessels
- Regulations require: salvage assessment and survey, salvage stabilization services, specialized salvage operations, and marine firefighting and fire suppression
- Full verification started in 2016



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## Maritime Transportation Security Act

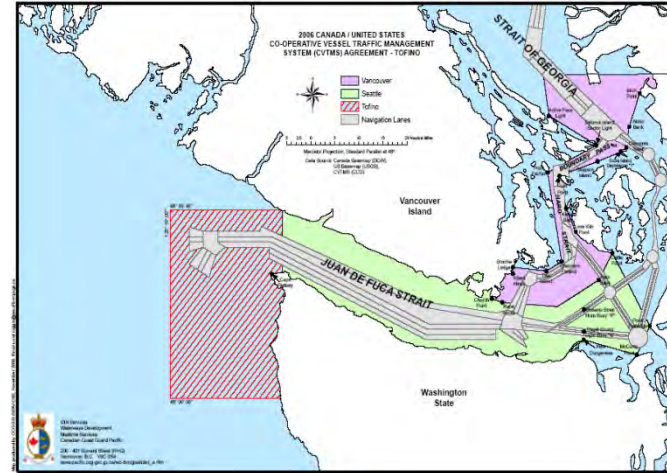
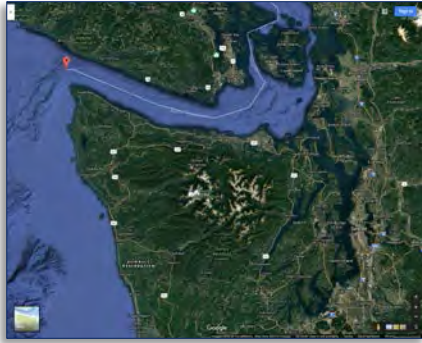
- International Ship and Port Facility Code and 33 CFR 104 Maritime Transportation Security Act
- Strong U.S. direction for ISPS Code creation
- Measures to enhance security for all U.S. and foreign vessel & facilities internationally
- Vessel Security Plans address vulnerabilities and means to combat



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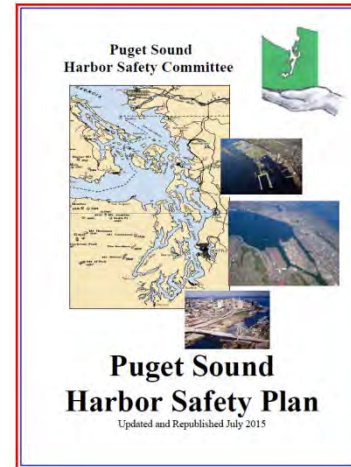
## U.S. – Canada Cooperative Vessel Traffic Service (VTS)

- Only bi-national VTS in the world
- Complete oversight of vessel movement along major traffic lanes
- Guidance and intervention ensure safe vessel movement by:
  - reducing potential for collisions, allisions, and groundings
  - loss of life and property associated with these incidents



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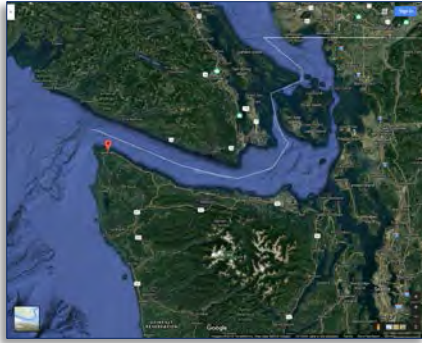
## Puget Sound Harbor Safety Plan

- Promulgated by Puget Sound Harbor Safety Committee (PSHSC), Industry Advisory Forum
- Industry-supported safety guidelines specific to Puget Sound, includes various Standards of Care
  - Loss of Propulsion
  - Dead Ship Tow, etc.
- [http://pshsc.org/about/harbor\\_safety\\_plan](http://pshsc.org/about/harbor_safety_plan)



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## Emergency Response Towing Vessel

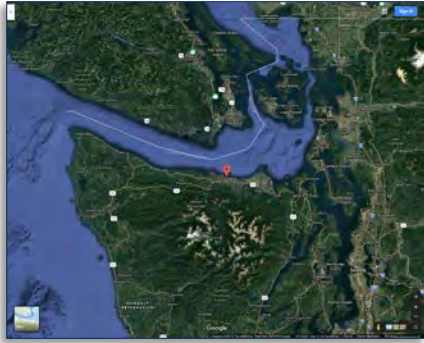
- Stationed at Neah Bay, available year-round and with sufficient bollard pull to respond to vessel casualties to mitigate emergent situations
- Industry-funded, contracted by Marine Exchange Program
- Since 1999, deployed to standby or directly assist 54 vessels



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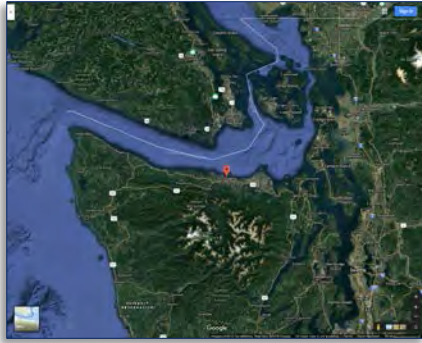
## U.S. Coast Guard Security Boarding

- Vessels screened based on size, cargo, operations, last ports of call, and intelligence reports
- Prevention of human or environmental casualty due to intentional damage through sabotage, subversion, or terrorism



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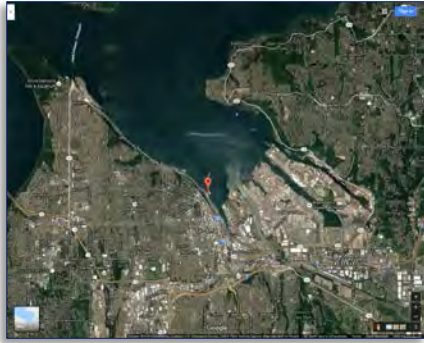
## Puget Sound Pilots

- Washington State requires Pilots to take control of foreign vessels to navigate them in Puget Sound and adjacent waters
- Pilots embark/disembark at the Port Angeles Pilot Station
- Provide deep knowledge of vessel traffic patterns, traffic lanes, port layout and communication capabilities
- Minimum of 24 hours notice



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## Port State Control Examination

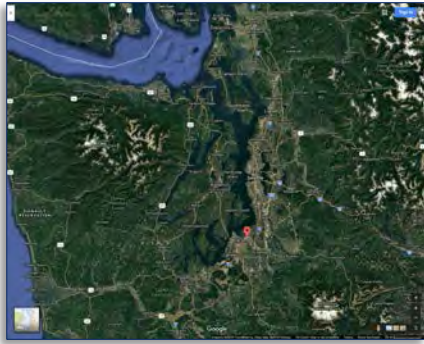
- Vessels targeted based on age, ship type, flag state, classification society, and vessel and company history
- Verify compliance with all applicable conventions, laws, and regulations, including many mentioned earlier
- Can detain vessels in port for deficiencies
- Identify and eliminate substandard ships from U.S. waters



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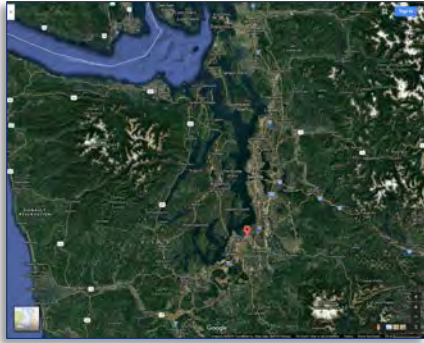
## Facility Security Plan

- Requirements are found in 33 CFR 105
- Developed by facility to ensure security measures to protect facility and vessels serviced
- Outlines facility's security responsibilities
- Describes differences in procedures facility will implement in case of MARSEC level increase
- Outlines implementation of TWIC Program set forth by TSA



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## Facility Safety – Cargo Transfer

- Coast Guard regulations to govern the safe interface between vessel and facility - transfer of cargo to/from vessel
  - 33 CFR 126 – Packaged cargo (e.g. containers)
  - 33 CFR 127 – Liquefied Gas
  - 33 CFR 154 – Oil or Hazardous Material



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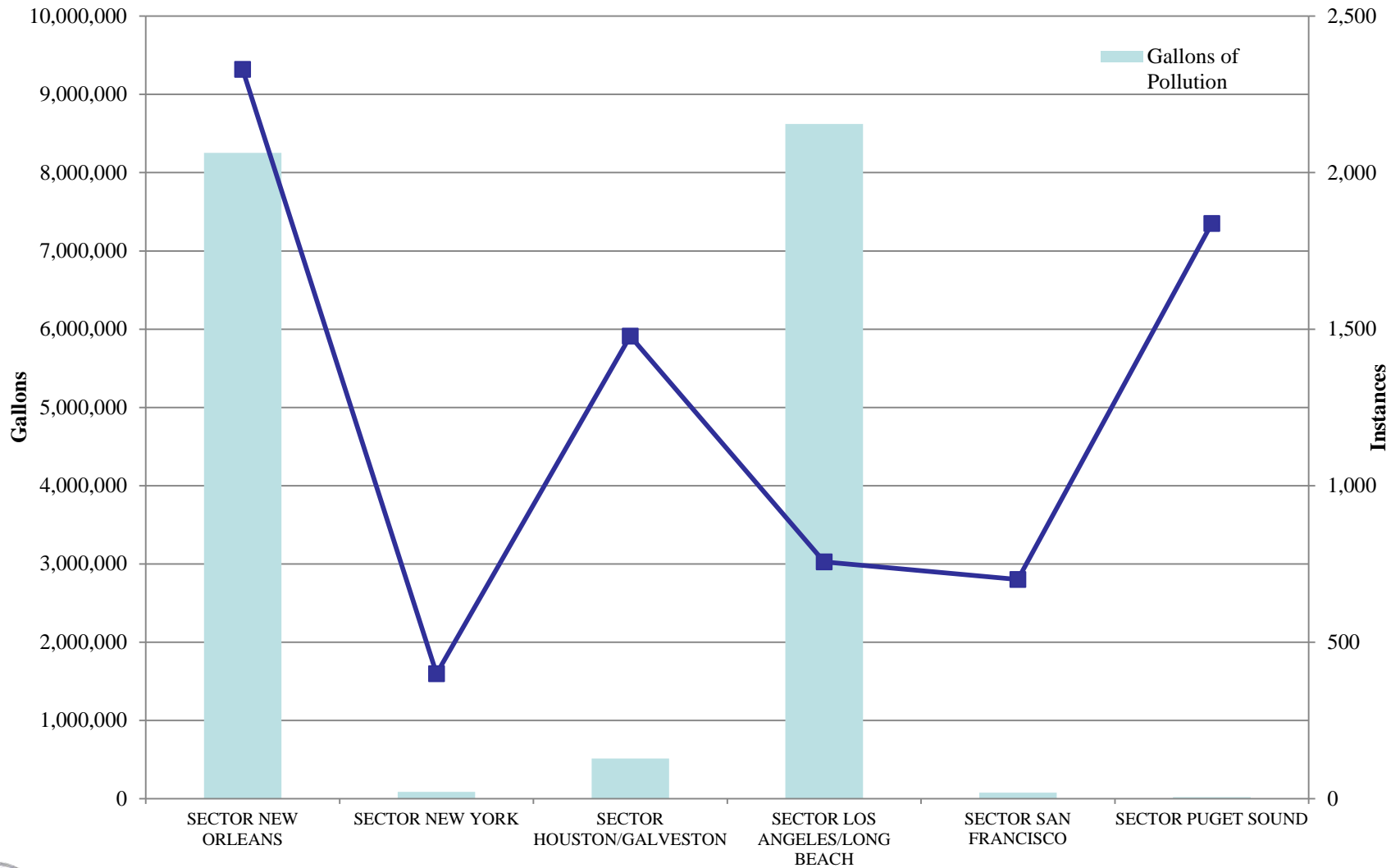
So . . . how are we doing?



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## Gallons and Instances of Pollution 2005-2015

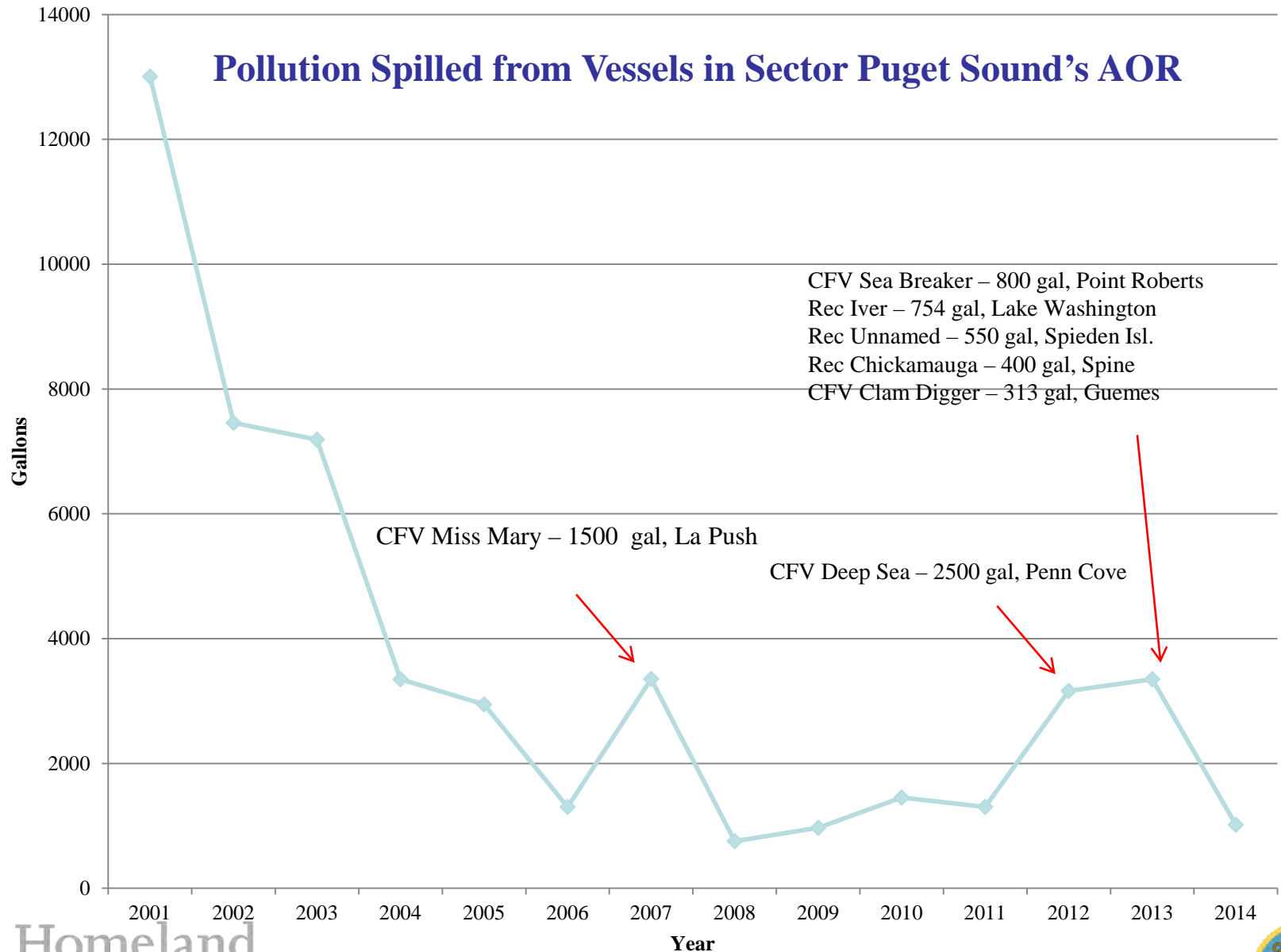


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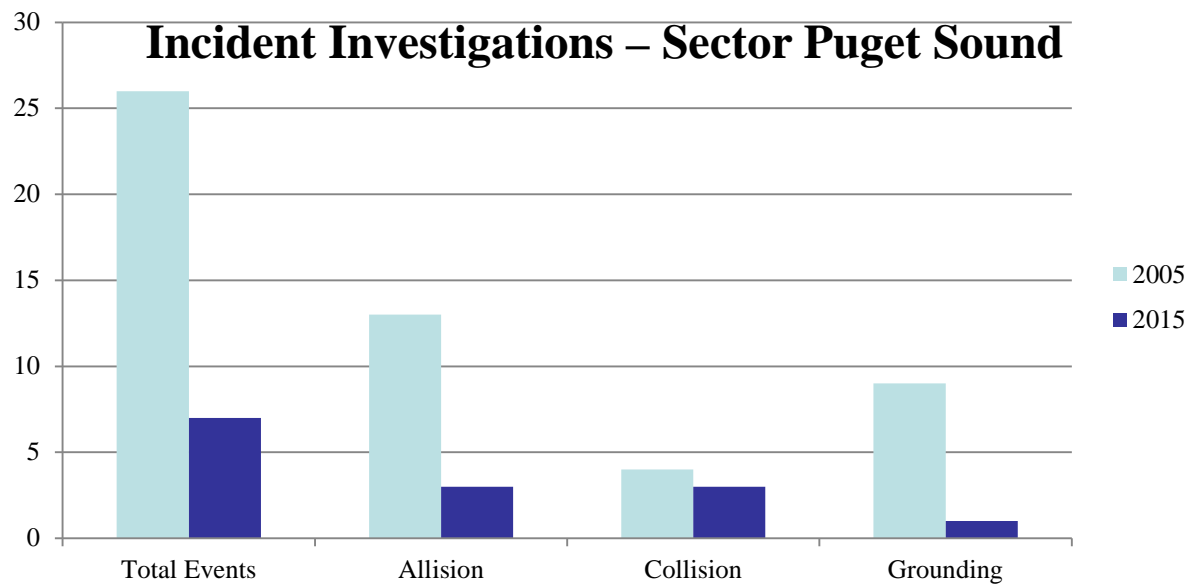
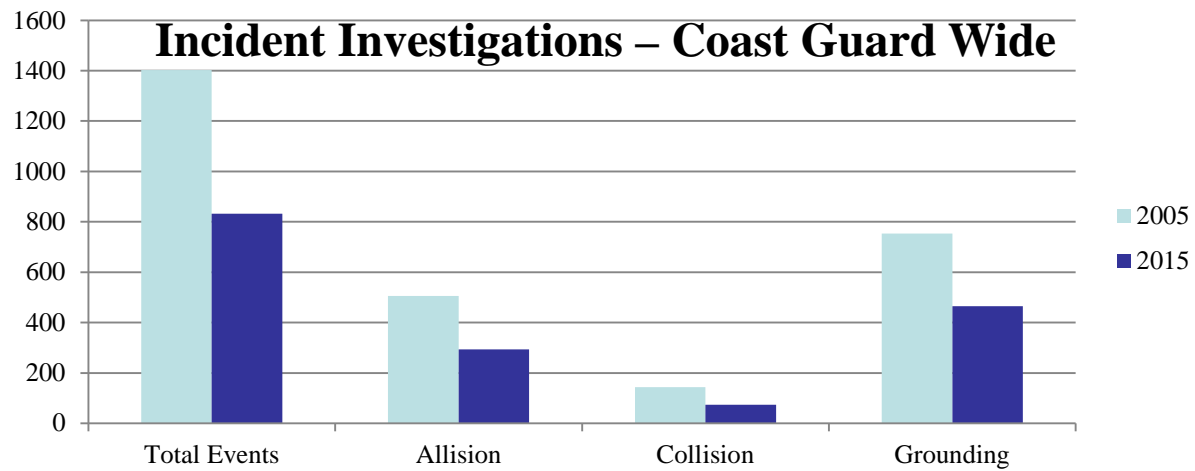


## Pollution Spilled from Vessels in Sector Puget Sound's AOR



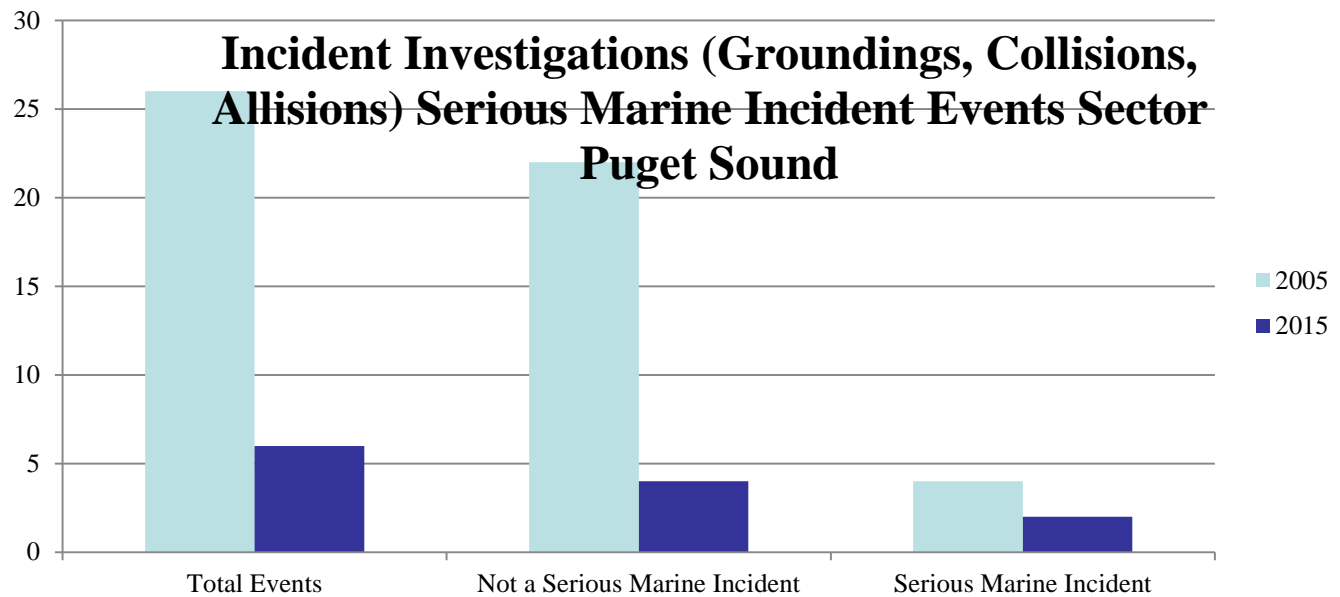
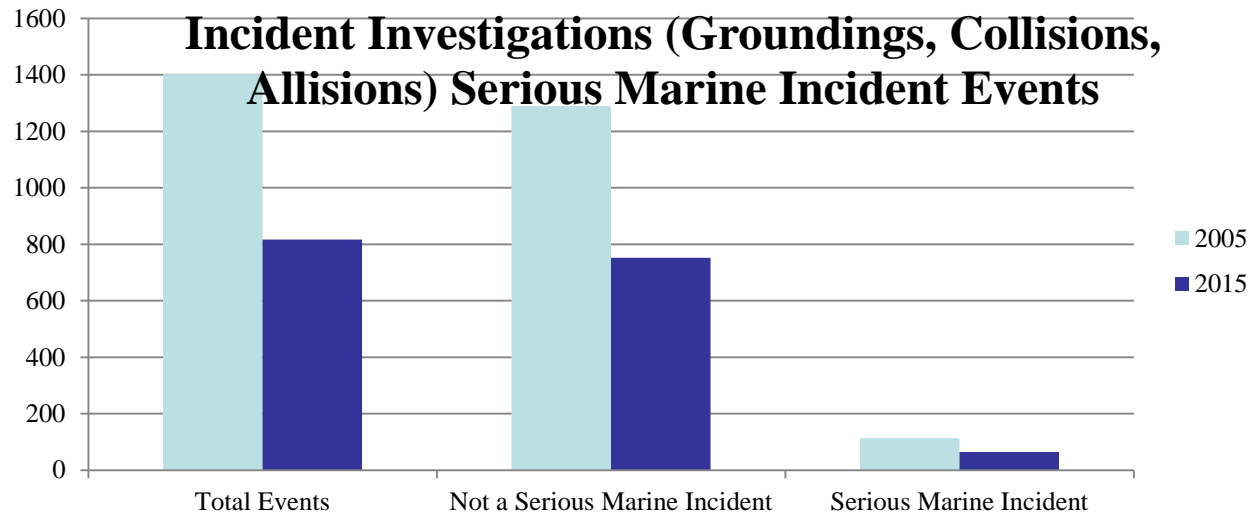
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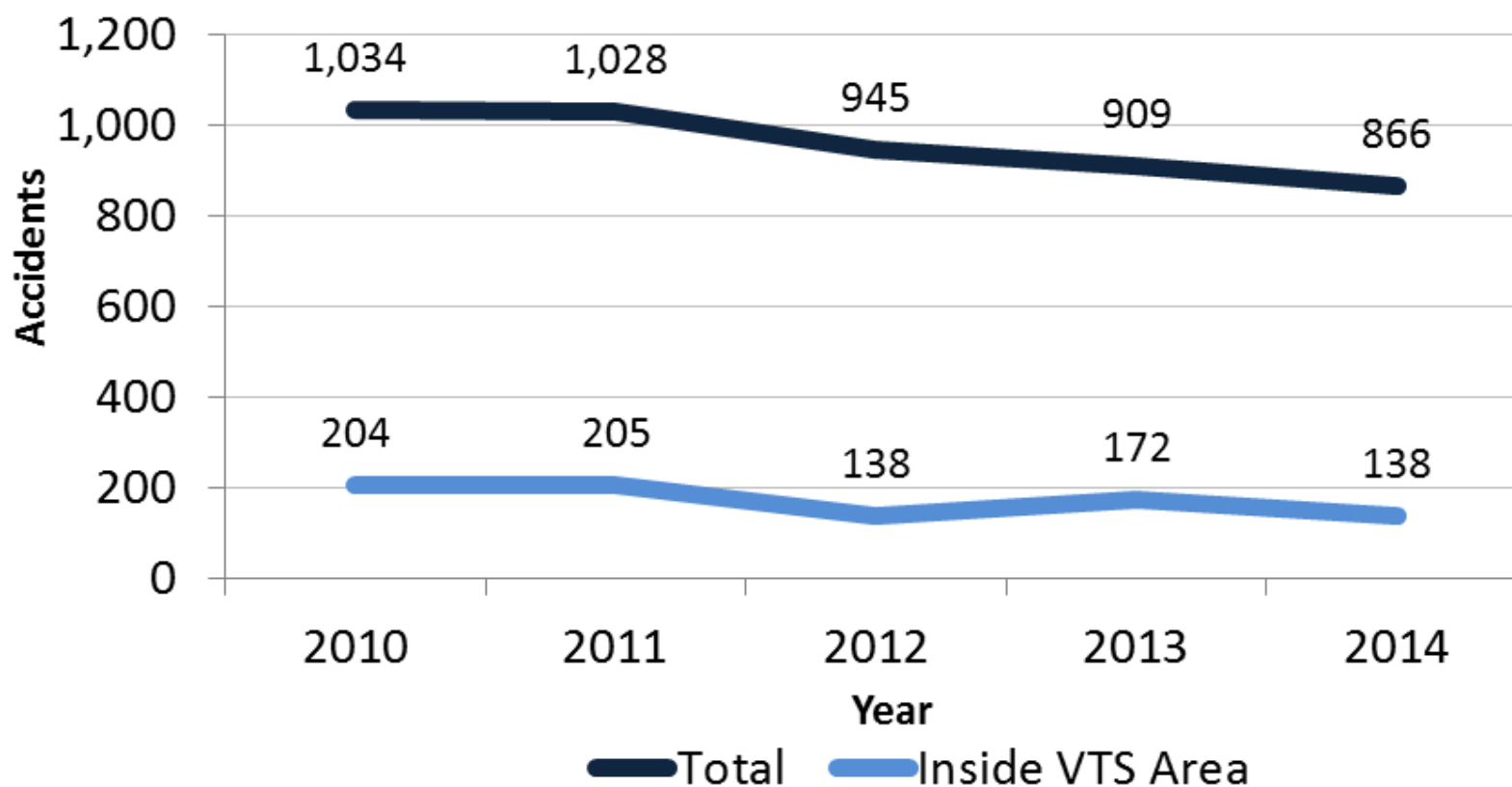




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## Collisions, Allisions, and Groundings Involving Vessels Meeting the Requirements of a VTS User, 2010-2014



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**Table 4. VTS area collision, allision, and grounding incident rate per 1,000 transits calculated annually from available VTS monthly activity report data, 2010-2014**

VTS Area	2010	2011	2012	2013	2014
Berwick Bay	incomplete <sup>a</sup>	0.11	0.11	0.11	0.08
Houston-Galveston	0.21	0.21	0.19	0.15	0.12
Los Angeles-Long Beach	Rate could not be calculated <sup>b</sup>				
Louisville	1.83	0.83	1.71	0.00	0.00
Lower Mississippi River	0.21	0.36	0.27	0.42	0.31
New York City	0.04	0.08	0.06	0.05	0.05
Port Arthur	0.47	0.23	0.48	0.26	0.51
Prince William Sound	0.09	0.08	0.00	0.00	0.00
Puget Sound	0.02	0.03	0.01	0.04	0.02
San Francisco	incomplete <sup>a</sup>	0.06	0.02	0.08	0.02
St. Mary's River	0.15	0.15	0.11	0.03	0.10
Tampa	Rate could not be calculated <sup>b</sup>				

<sup>a</sup> The incident data from 2010 were incomplete for VTS Berwick Bay and VTS San Francisco.

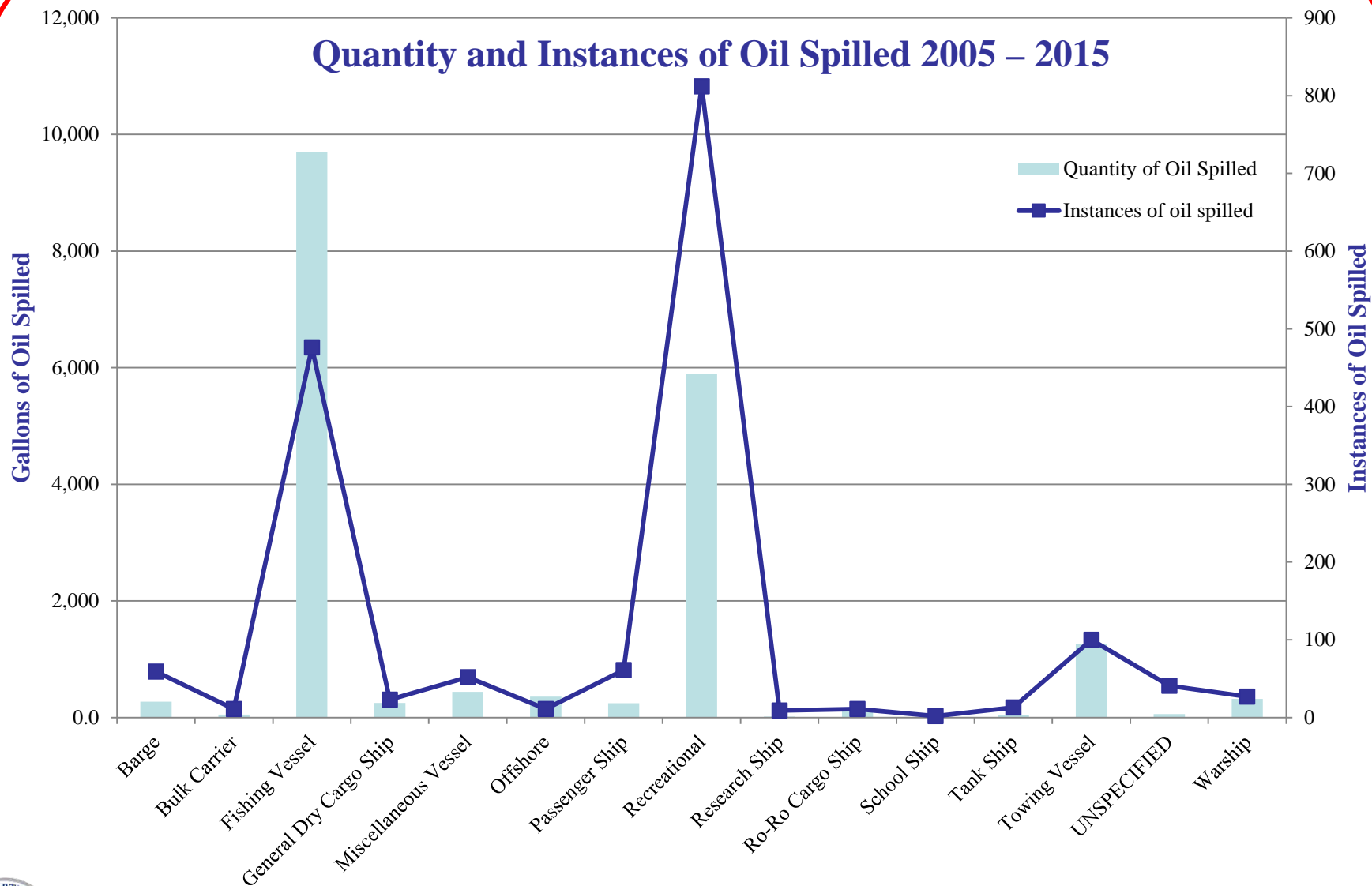
<sup>b</sup> Rates could not be calculated due to missing incident data.



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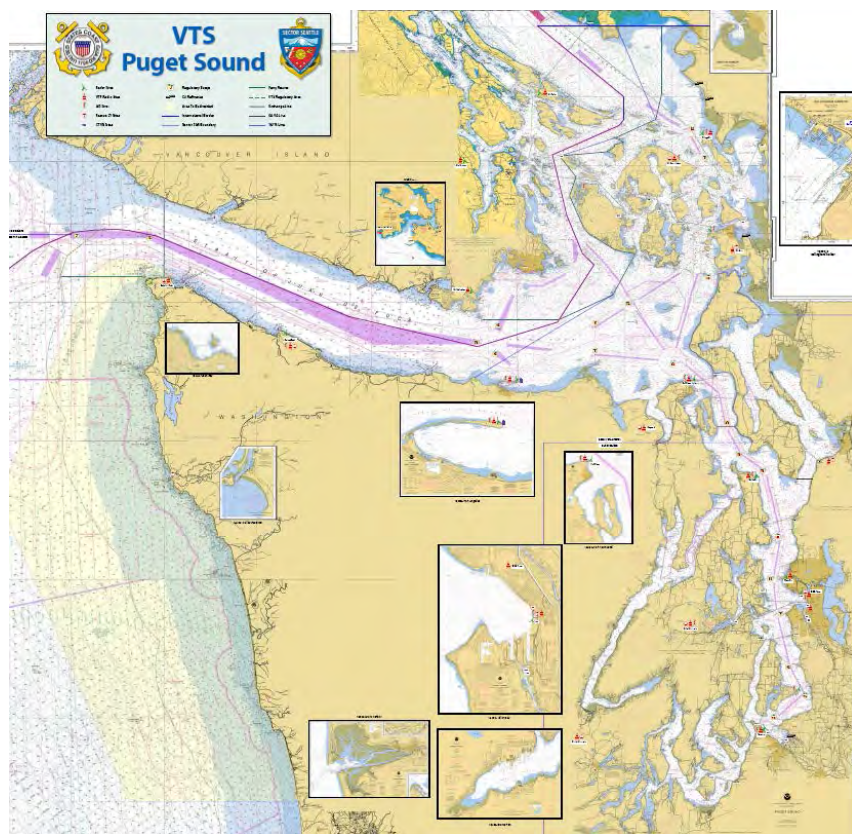
## Quantity and Instances of Oil Spilled 2005 – 2015



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# Three Potential Spill Scenarios



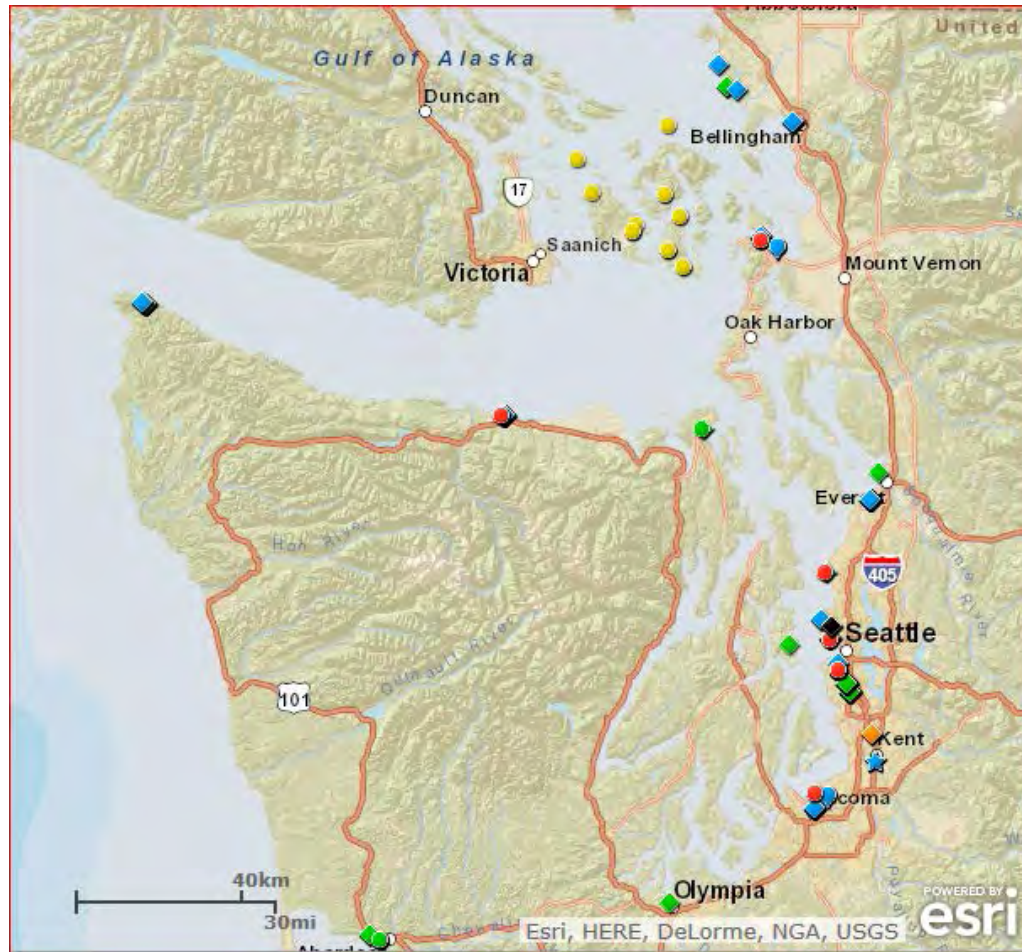
- Buoy J location at the western entrance to the Strait
- Spill in Haro Strait between U.S. and Canada
- Spill in the vicinity of Admiralty Inlet



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# Primary Response Contractor Equipment Locations



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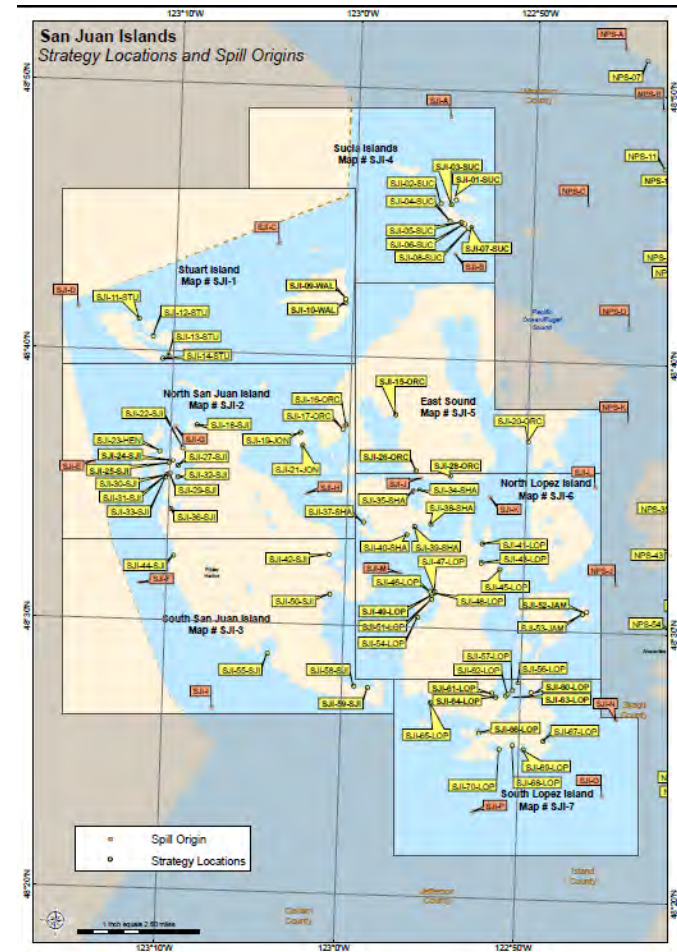
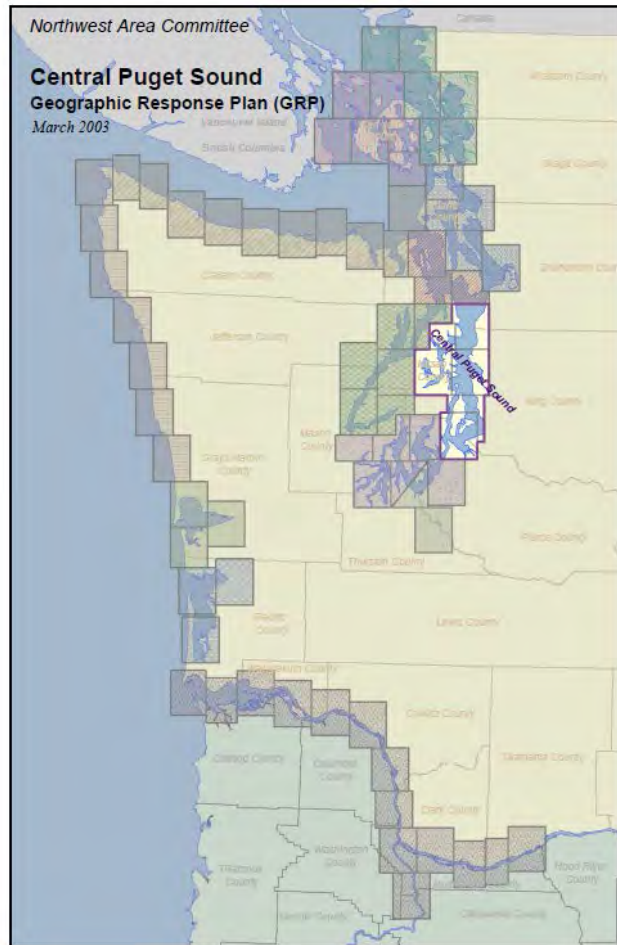
# Western Canada Marine Response Corporation (WCMRC)



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# Geographic Response Plans (GRPs)



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# Questions?



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