

# NOAA's Remediation of Underwater Legacy Environmental Threats (RULET) Database & Wreck Oil Removal Program (WORP)

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# NOAA

NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION  
UNITED STATES DEPARTMENT OF COMMERCE



**Weather**



**Oceans**



**Fisheries**



**Charting**



**Satellites**



**Climate**



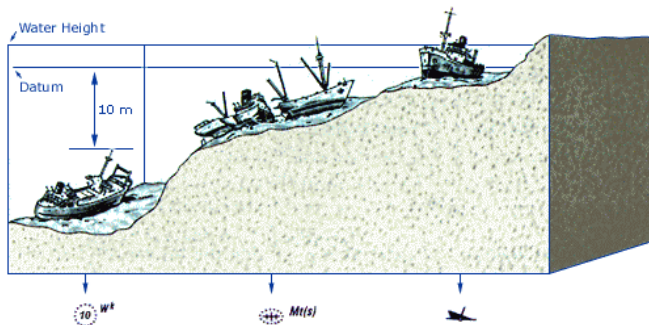
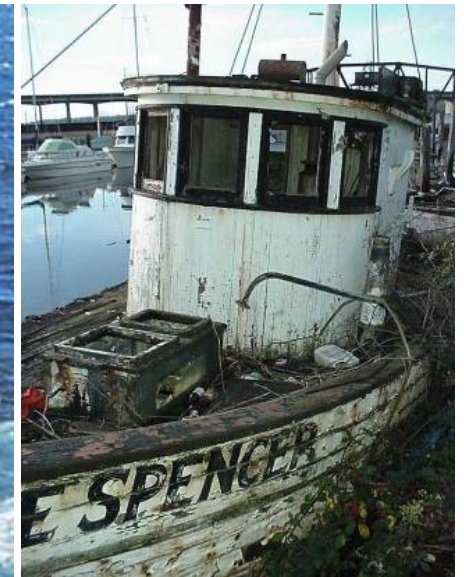
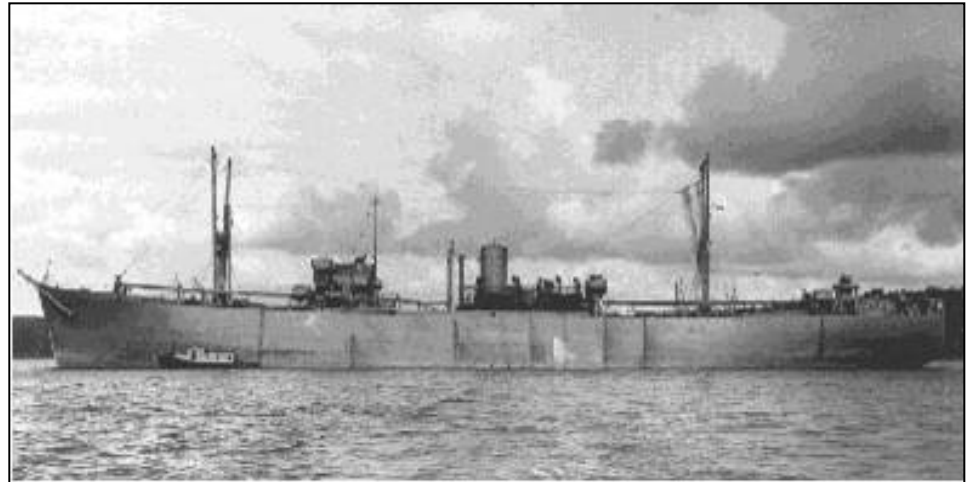
**Research**



**Coasts**

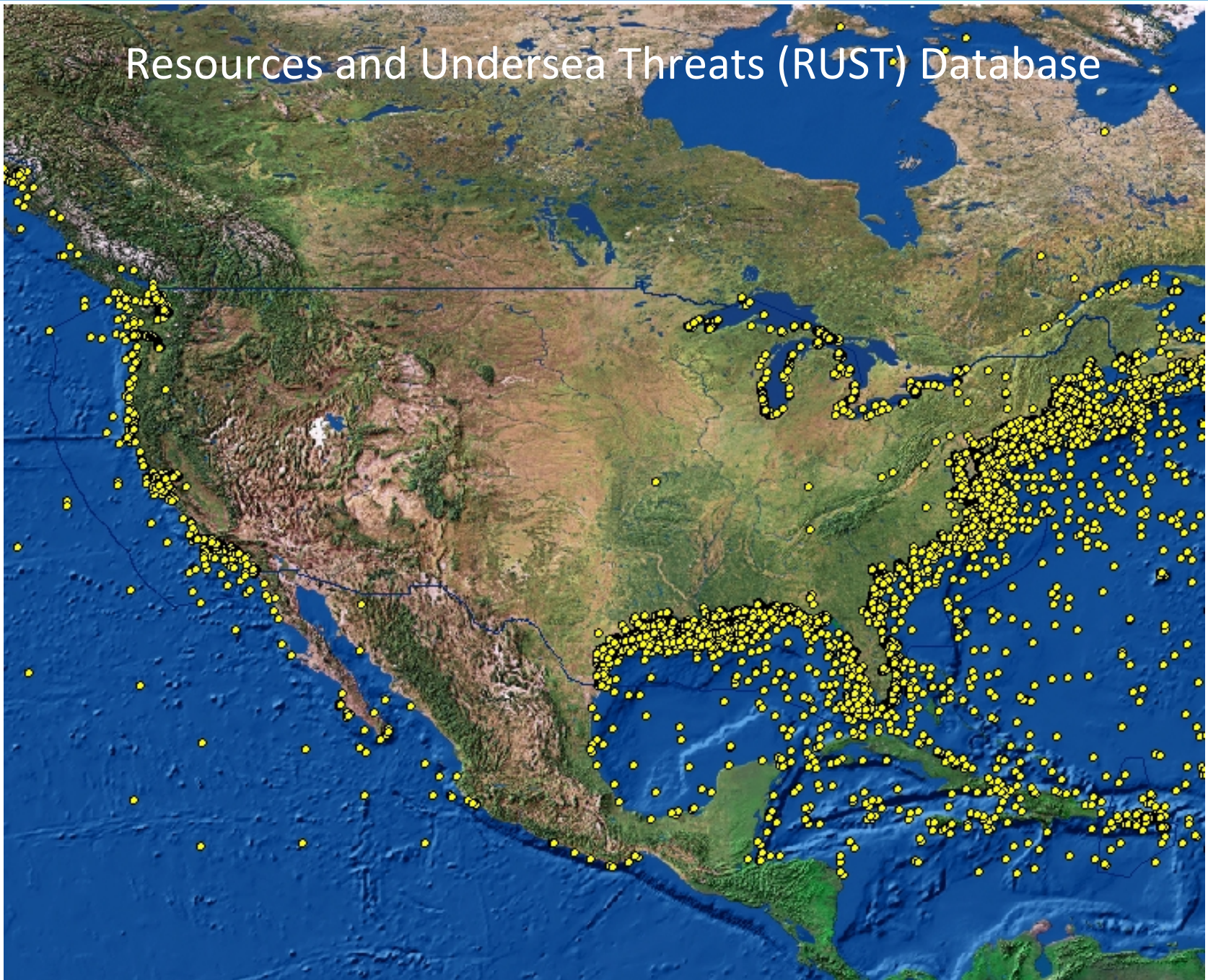
# NOAA interests in shipwrecks

- Shipwrecks are difficult to categorize but there are several types:
  - Historic Wrecks
  - Contemporary Wrecks
  - Derelict Vessels
- Navigation
- Pollution
- Historic Protection





# Resources and Undersea Threats (RUST) Database







## **Tanker Montebello, San Luis Obispo, California**

Loaded with three million gallons of crude oil when it was torpedoed and sunk on December 23, 1941. Investigation completed 2011

Determined to have no significant oil on board.



## **Leaking Liberty Ship off Sabine Pass, TX**

Vessel believed to be the SS William Beaumont, sunk 1971.  
Oil removed 2009.





## M/V Princess Kathleen

Grounded and later sank in SE Alaska on Sept. 7, 1952.  
Oil removed in 2010



## **Gasoline Tanker USS Chehalis**

Sunken 1949 in Pago Pago Harbor, American Samoa.

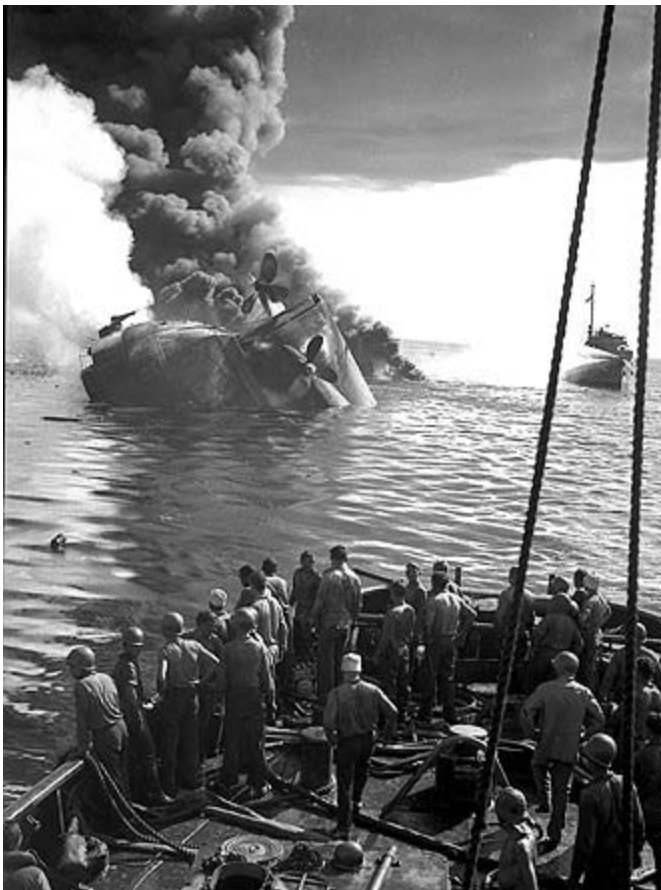
Oil Removed in 2010





## **S.S. Jacob Luckenbach**

Sank on July 14, 1953 off San Francisco. Oil removed in 2003



## **USS Mississinewa,**

November, 1944. Sunken in Ulithi Atoll in Federated States of Micronesia.  
Oil removed in 2003



# Prioritizing wrecks

Resources and Undersea  
Threats Database

Summary Report  
and follow-up  
recommendations

Modeling  
trajectory and fate  
and consequences



Initial Screening  
based on age,  
size, hull  
material, type  
and location

Secondary screening based on  
historical information on vessel  
and wreck site formation

# RULET Data Fields

## Vessel Particulars

- Name
- Owner and Flag State
- Vessel Type and Class
- Vessel Dimension and tonnages
- Builder
- Year Built
- Hull Material
- Construction Diagrams
- Cargo Type and Capacity
- Bunker Type and Capacity

## Incident Information

- Date lost
- Cause of Casualty
- Vessel contents
- Wreck location
- Distance to Shore
- Water Depth and Bottom Type
- Resources at risk
- Historical Significance
- Wreck Condition/Salvage
- Dangerous Cargo/Munitions



The background of the slide is a dark, sepia-toned photograph of a shipwreck underwater. The wreckage of the ship is visible, with various metal structures and debris scattered across the seabed. The lighting is dim, creating a somber and historical atmosphere.

# **RUST**



## **Remediation of Underwater Legacy Environmental Threats (RULET)**

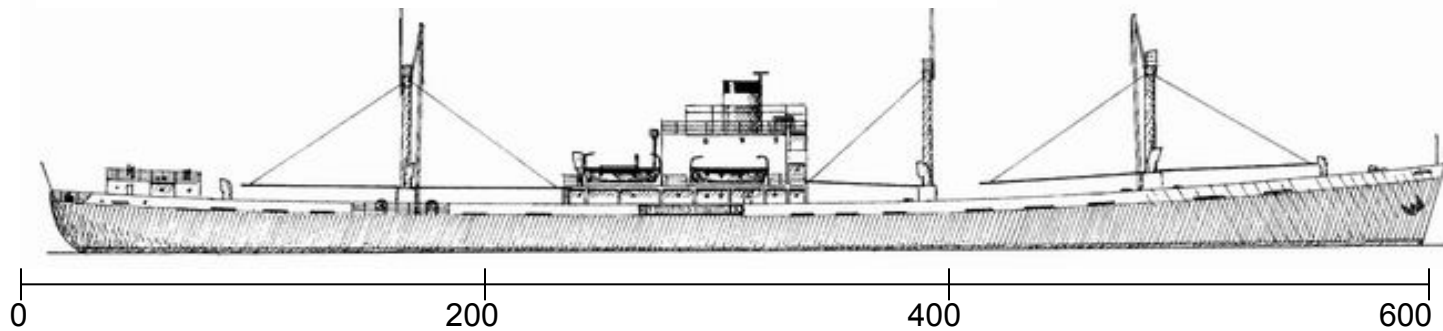
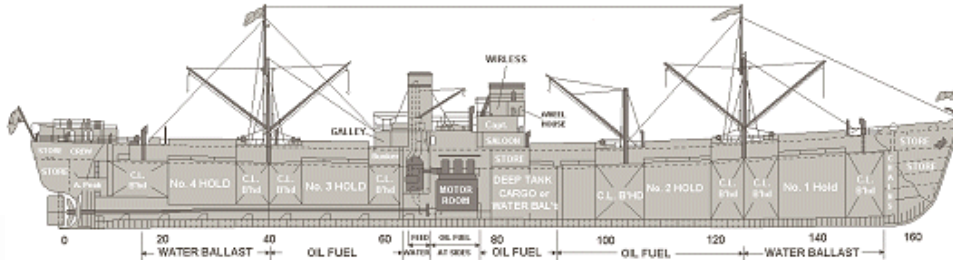
**Initial Narrowing Criteria: 30,000 to 573**

- Post 1891 (UK uses 1873)
- Steel Hull (as well as iron or concrete)
- Tanker/Tank Barge
- >200' or 1000GT

**RULET: 107**

**High Priority: 23**

**Reported to be leaking: 10**



Vessels over 1000 gross tons or 200 feet



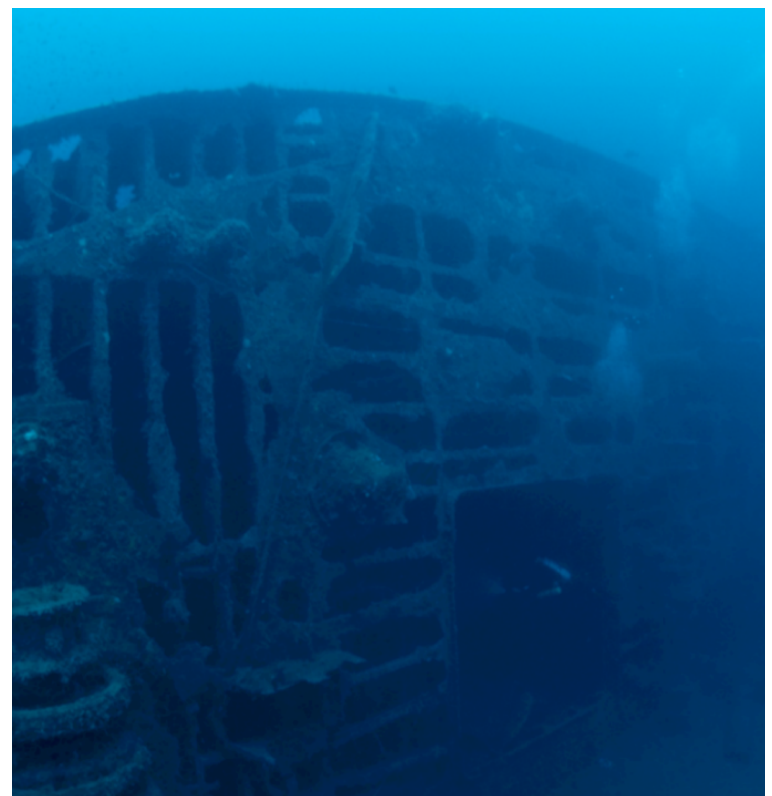
## Fuel Type

Stoking coal aboard the USS George Washington- circa 1918.

*U.S. Naval Historical Center Photograph.*



## Wreck Site Formation Condition/integrity









## **SS Catala**

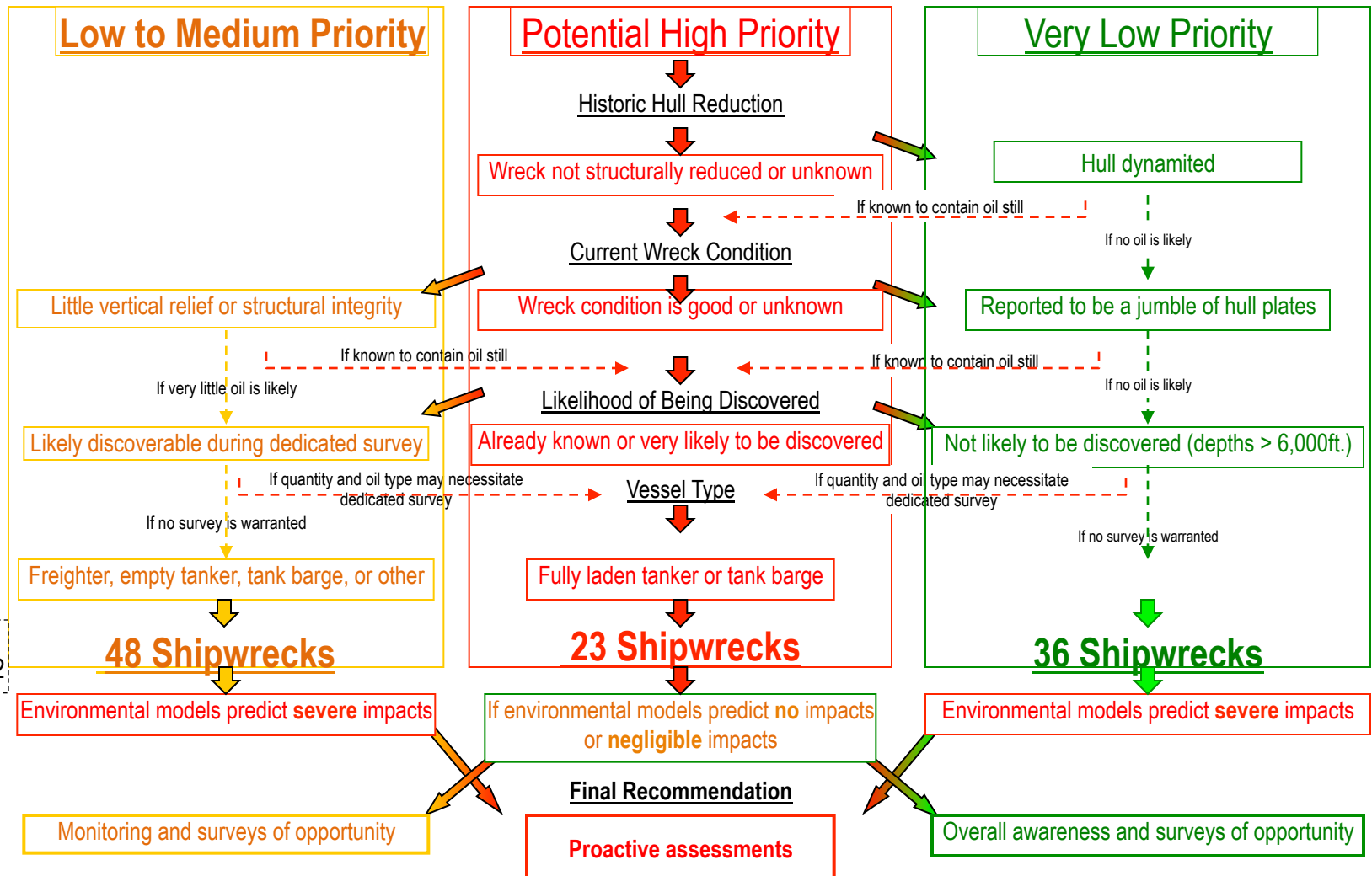
January 1, 1965. Abandoned after failed salvage, Ocean Shores, WA,  
Oil removed in 2006-2007.



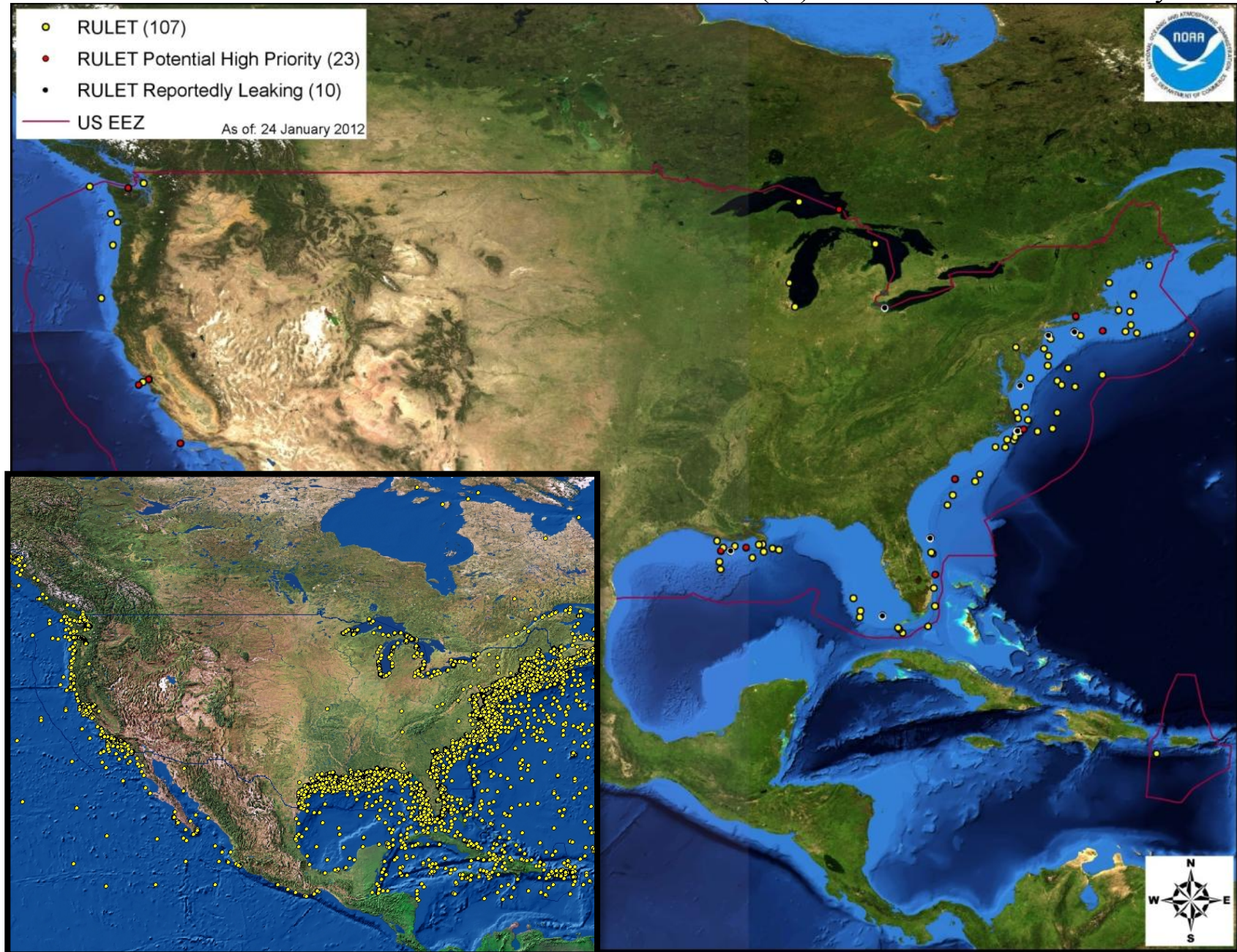
# RULET Initial Screening: (≈580 Shipwrecks)

**Over 1,000 gross tons or any tank vessel; Built post 1891; Steel, iron, or concrete hull**

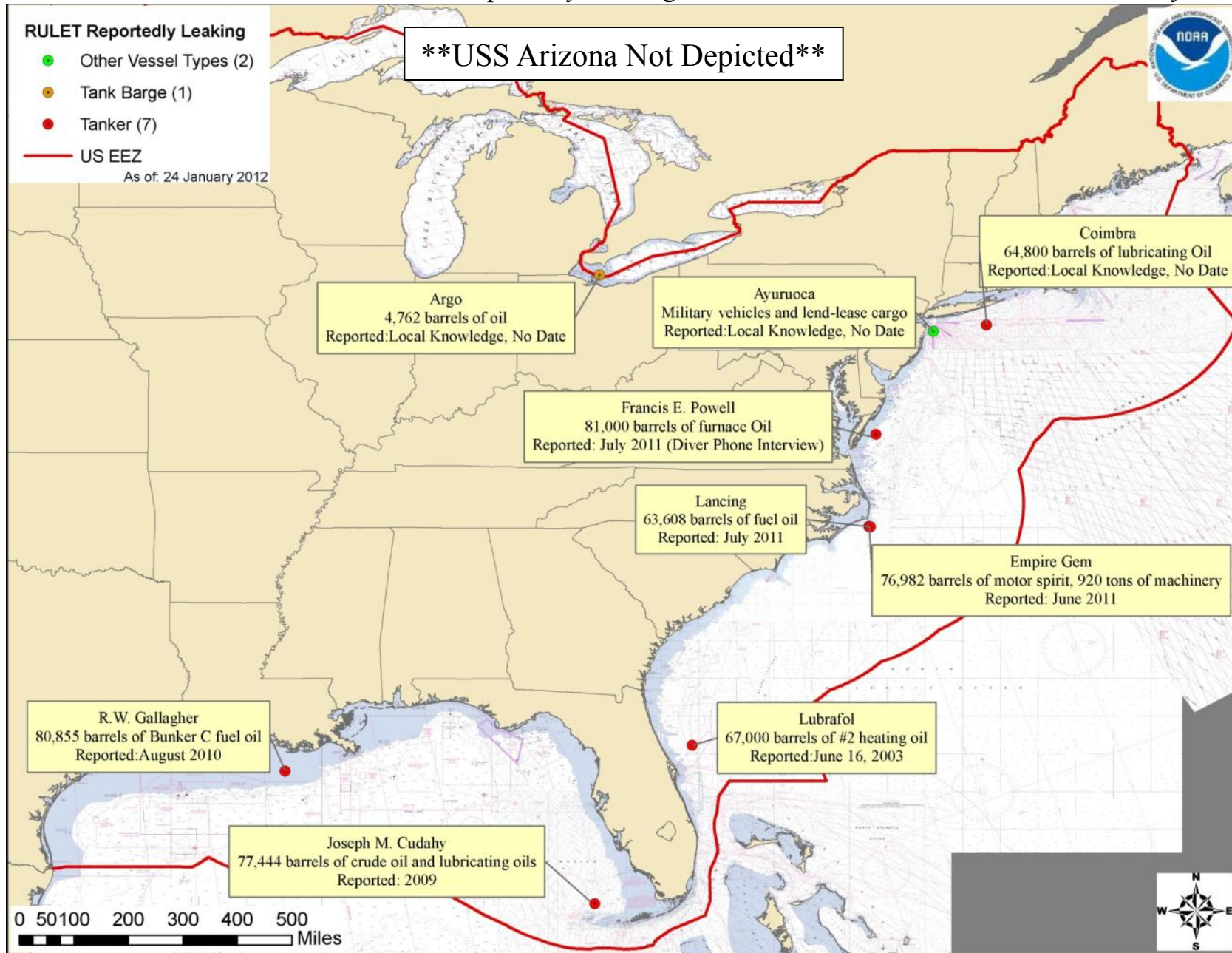
Removal of coal burning vessels, sailing vessels, or nonhazardous barges; Wrecks outside US EEZ; Vessels that were raised and scrapped; Ships that did not actually sink; Wrecks that NOAA has verified as demolished. (228 Shipwrecks (Aug 2011))



As of  
1/26/2012



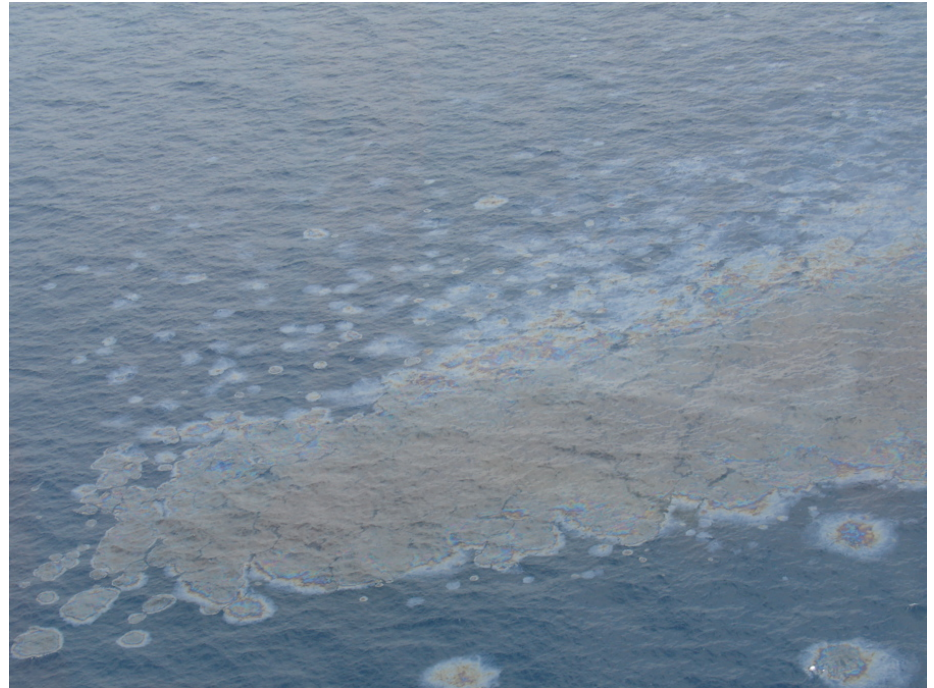






# Release Scenarios

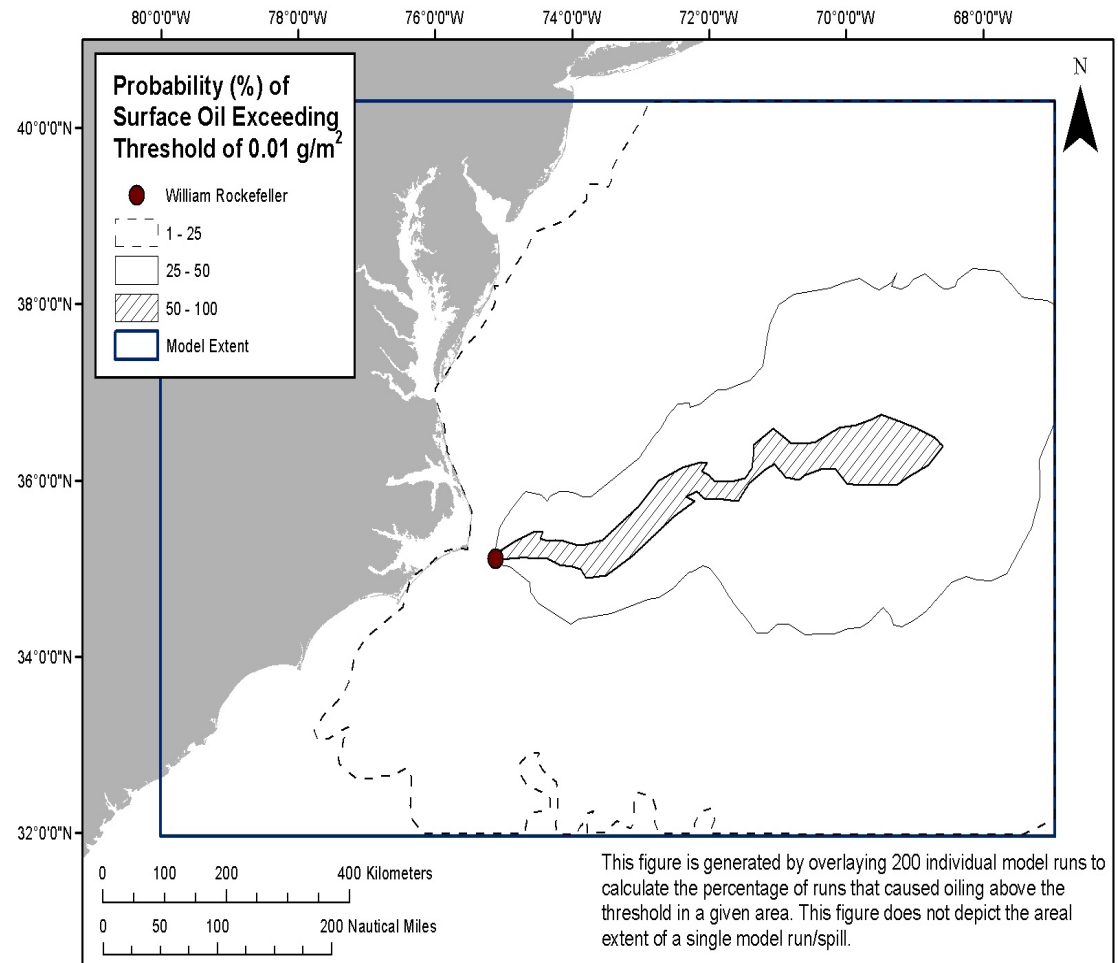
- Release duration of 12 hours
- Model simulations run for a 30 days.
- Releases assumed to be from a depth between 2 and 3 meters above the sea floor.
- Simplified oil types: e.g., South Louisiana light crude (representing crudes generally) and Medium aromatic fuel oil No. 2 (representing light fuels generally).



Sunken Tanker Solar 1, Philippines

# Modeling Assumptions

- Applied Science Associates (ASA) Spill Impact Map (SIMAP)
- Probabilistic mode
- Results based on running model two hundred times using four spill volumes.
- Randomly selected environmental information from a long-term wind and current database for the region.



# **Deliverables:**

**Overarching Document Provides National Context (similar to IOSC 2005 paper)**

**Vessel Specific Risk Assessments (High & Medium Priority only)**

**Executive Summary**

**Section 1: Vessel Background**

**Section 2: Environmental Impact Models**

**Section 3: Ecological Resources At Risk**

**Section 4: Socio-Economic Resources At Risk**

**Section 5: Overall Risk Assessment and Recommendations for Assessment, Monitoring or Remediation**

**Section 6: Appendices**