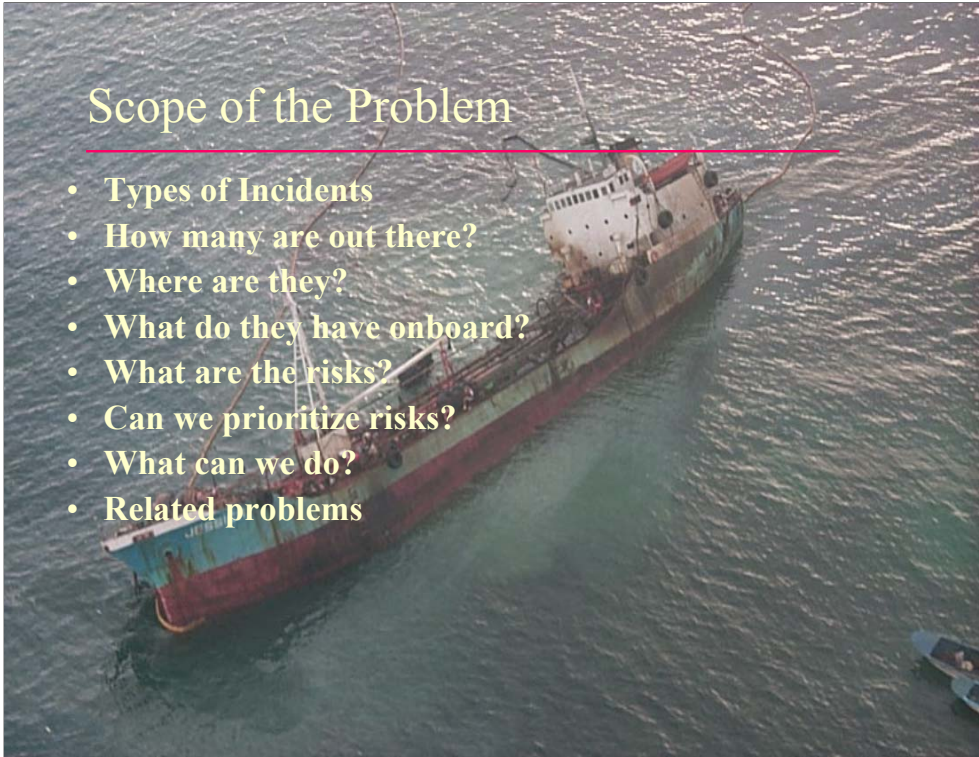


Understanding the Nature of the Threat
Submerged Vessels Planning Meeting

Doug Helton
National Oceanic and Atmospheric Administration

Scope of the Problem

- Types of Incidents
- How many are out there?
- Where are they?
- What do they have onboard?
- What are the risks?
- Can we prioritize risks?
- What can we do?
- Related problems



Caveats on numbers and data quality

Threat from Shipwrecks

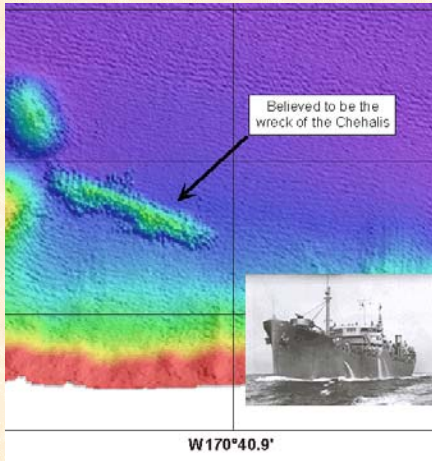
- Threat of oil spills and other pollutants
- Impediment to navigation
- Physical destruction of habitats
- Illegal dump site
- Nutrient enrichment
- Entrapment and Human Health and Safety
- Threat to historic and archaeological resources



Vessels may affect historic resources- vessel groundings at fort jefferson in the dry tortugas

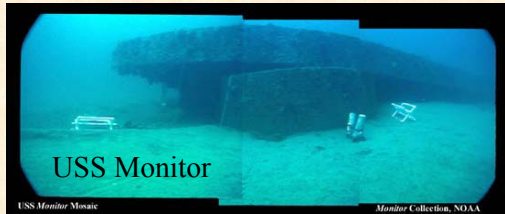
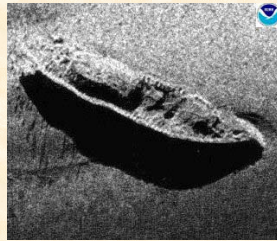
Types of Incidents

- Submerged vessels might broadly include:
 - Archaeological Sites
 - Grounded and Abandoned Vessels
 - Derelict Vessels
 - Reserve Fleet Vessels
 - Historic Wrecks
 - Contemporary Wrecks
 - Intentionally Scuttled Vessels
 - Abandoned Barges
 - Lost Containers
 - Hazardous Cargoes



NOAA has a broad interest in shipwrecks

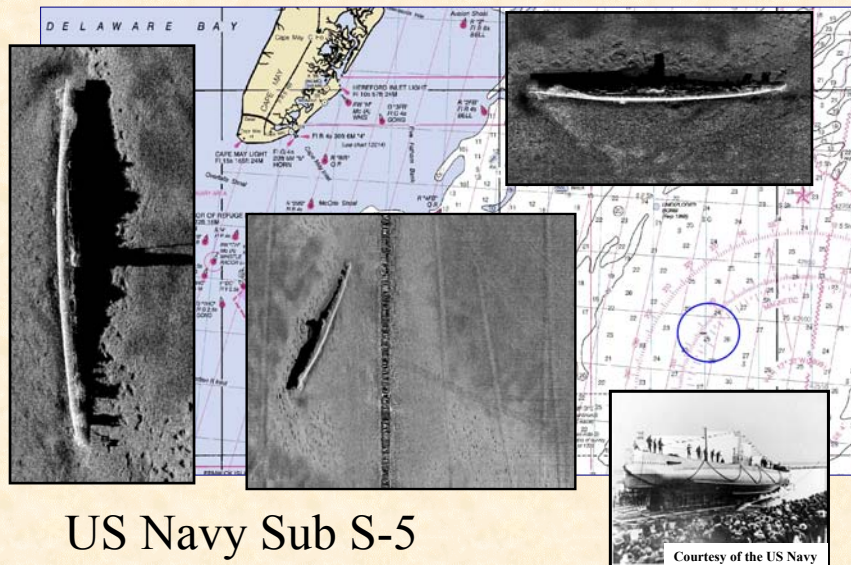
- National Marine Sanctuary Program
- Office of Coast Survey
- Office of Ocean Exploration
- Office of Response and Restoration



Response and restoration for pollution threats
Threats to sanctuaries and NOAA trust resources
Protection of cultural and historic resources
Ocean Exploration
Charting and Safe Navigation
Fisheries and Coastal Management
Permitting and regulatory issues

NOAA Automated Wreck and Obstruction Information System (AWOIS) has 10,315 records nationwide.

Archaeological Sites



US Navy Sub S-5

The US Navy Sub S-5 sank off the coast of Cape May, NJ during a test dive in 1920. Battling low oxygen levels, deadly chlorine gas, and rising water levels, the crew were able to ballast the boat so that here stern section rose several feet out of the water. They drilled a small hole in through the hull, enabling them to flag down a passing freighter, who provided assistance. Miraculously all crew members survived.

Despite a salvage attempt by the Navy, the sub was lost, and her exact location remained a mystery until recently discovered by local divers. Many dives were made on the sub, and some items were taken, but the coordinates were not released.

In 2001 NOAA Ship WHITING and OE located the sub using Klein 5500 side scan sonar technology, and provided the US Submarine Museum with these images and exact location.

Aside from munitions that may still be on board, the wreck hold the same environmental impact as any other modern steel wreck, although these impacts have never been considered.

PCMAS Database

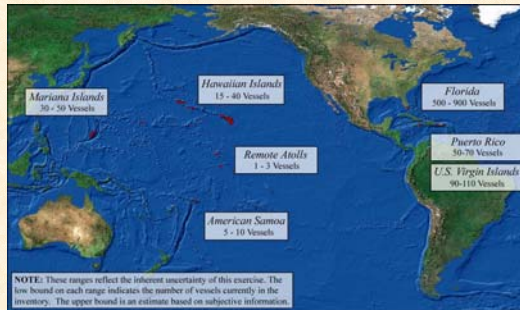
- Pacific Coast Maritime Archaeological Summary
- Santa Barbara Maritime Museum and NOAA working with other federal and state agencies to compile all of the region's shipwreck databases
- Over 10,000 different vessels are archived
- 240 are potential environmental threats due to their cargo
- Prototype of a National Database



Not all are “submerged”

Grounded and Abandoned Vessels

- Pago Pago Longliner removal project: 1999
- Database of abandoned vessels affecting corals
- Database includes over 2000 vessels in US waters



Currently we have 2000+ records

location, vessel condition, field survey information, contacts, images (~450), related documents, websites etc.

The inventory currently focuses in 6 major areas – this slide gives you a sense of how many we have and how they are distributed

Most are intertidal and nearshore. Most are physical hazards. Of the 40 vessels recently surveyed in Puerto Rico, 3-4 were considered pollution risks

Derelict Vessels

- Most urban ports have a problem with derelict vessels
- USCG Abandoned Vessel database has over 1300 vessels nationwide
- State programs have additional records



This is a picture of the Victoria M and the Cactus in Tacoma, WA

These vessels are also interfering with use of the intertidal - Both happened to be moored in what is to become a NMFS restoration site.

In addition the vessel in the background (ex USCG buoy tender) is also an illegal waste storage facility and is loaded with hazardous materials.

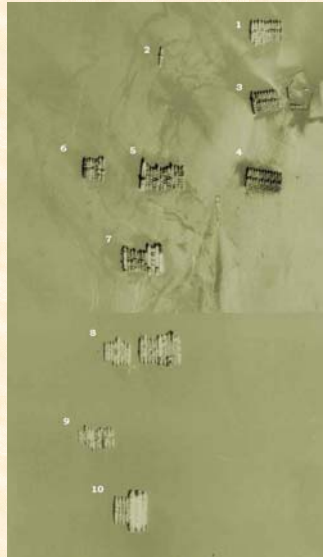
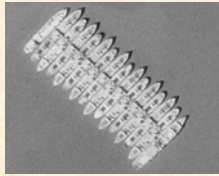
So, you can see Abandoned and Grounded vessels pose both ecological and human risk.

Foreground vessel – Wooden hulled Victoria M is tied up to it

Background vessel - 180' former buoy tender in WA has been repeatedly filled with hazardous materials

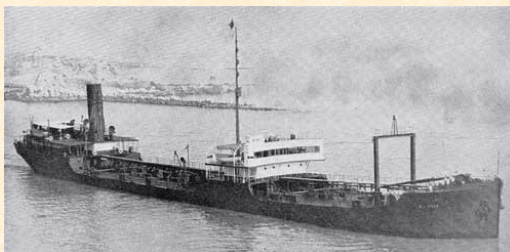
Reserve Fleet Vessels

- Reserve vessels in California, Texas, and Virginia may pose similar problems



Historic Wrecks

- Several thousand merchant marine and military vessels sunk in US waters during World War II
- Database of U-Boat merchant vessel sinkings: 89 vessels in US Mid-Atlantic, 2800 ships in database
- 1942: Tanker William L. Sneed, carrying 2.7 million gallons of crude, sunk by U-Boat off New Jersey



Historic Wrecks

- 1953: The 468-foot freighter SS Jacob Luckenbach near entrance to Golden Gate, CA. Recent response efforts removed 85,000 gallons of bunker fuel.
- 1941: The 440-foot tanker Montebello off the coast of San Luis Obispo, CA. The Montebello was carrying more than 75,000 barrels of crude oil



Contemporary Wrecks

- Large events are rare, but have high visibility.
 - 1996, Tanker Nakhodka, Mikuni, Japan
 - 1999, Tanker Erika, Brittany, France
 - 2002, Tanker Prestige, Spain



WORLD NEWS STORY PAGE

'The oil keeps coming'

Japan coastal residents
fight spill with spades,
ladles

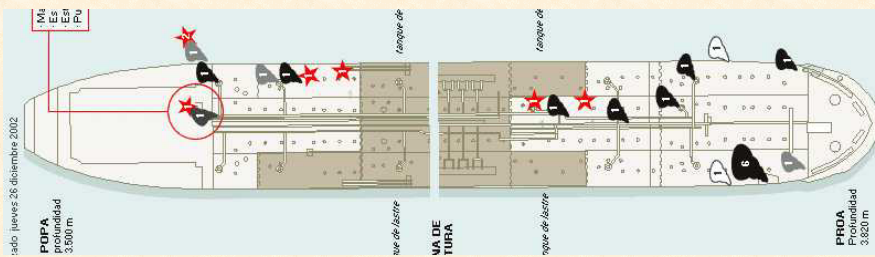
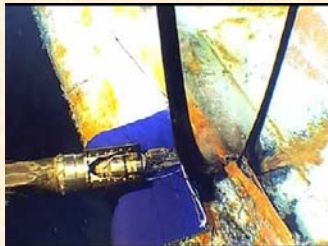
January 9, 1996
Web posted at: 5:00 p.m. EST (2:00 GMT)

[MIKUNI, Japan](#) (CNN) -- Oil
from a ~~sunken~~ Russian tanker



(TV ASAH)

Prestige seeps



USCG Marine Safety Management Database

- Approximately 2100 grounding accidents annually
- Approximately 440 vessel sinkings annually
- Many are small vessels that are refloated or removed



Intentionally Scuttled Vessels

- 1994: T/B Morris J. Berman scuttled near San Juan, PR, with approximately 200,000 gallons of #6 fuel onboard
- 1999: M/V New Carissa scuttled off Oregon- unknown amount of fuel onboard
- Operational sinkings also include artificial reefs and ocean disposal of derelicts



F/V Swordman I



- Pearl and Hermes Reef, NWHI
- June 5, 2000
- 10,000 gallons of diesel, 70 miles of longline gear
- Removed and scuttled in 6,000 feet of water

Abandoned Barges

- Over 800 abandoned barges litter the inland and coastal waters of the US
- Many of these barges were abandoned with petroleum products and chemicals onboard
- Abandoned barges often become illegal dump sites for other hazardous materials



Threats to Navigation

- Japanese fishing vessel “Genei Maru” drifts 1500 miles in 5 months and comes ashore on Kodiak Island, AK
- Freighter “White Seal” currently adrift in North Atlantic
- Car Carrier “Tricolor” awash at low tide in English Channel



Lost Containers

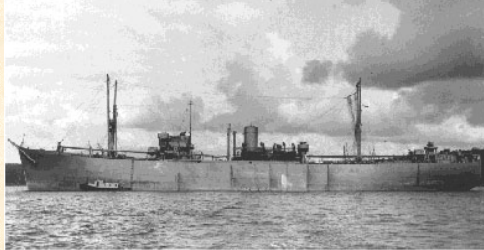
- 1998: APL China lost 388 containers overboard in Gulf of Alaska
- 1992: Santa Clara I lost 21 containers near Cape May, NJ, including 94 barrels of arsenic trioxide



Curtis Ebbesmeyer: 10,000 containers lost annually

Hazardous Cargo:

- 1944: the M/V Empire Knight ran aground on Boon Island Ledge, ME. The vessel was carrying a mixed cargo, including mercury
- 1987: The Pac Baroness sank off Pt Conception, CA. The vessel was carrying 280,000 gallons of fuel and 21,000 tons of powdered copper concentrate



Some mercury and mercury-contaminated debris was recovered
An estimated 16,000 pounds of mercury remains unaccounted for

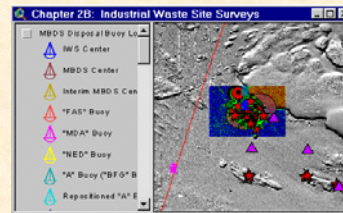
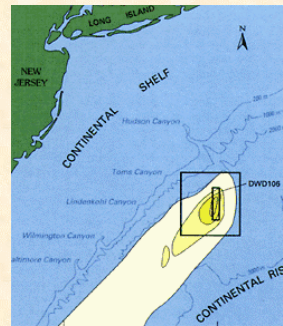
Research Needs

- Improve national shipwreck and underwater hazards inventory
- Fuel and cargo impacts
- Fate and longevity of sunken vessels
- Salvage technology and alternative approaches, including disposal and ship-breaking issues
- Historic and archaeological values
- Technologies for exploration
- Habitat creation vs. pollution risks
- Nutrient enrichment
- Other



Related Problems

- Ocean dumping sites
- Aging infrastructure of coastal and underwater facilities
- Natural Seeps



14,000 miles of oil and gas pipelines in the Gulf of Mexico