

# Grounded and Abandoned Vessel in Coral Reef Ecosystems

A diver in a purple shirt and dark shorts is swimming horizontally over a large, rusted metal structure, likely a shipwreck, on a coral reef. The water is clear and blue, and the structure is covered in coral and other marine life. The diver is wearing a mask and fins.

**Doug Helton**

**NOAA Office of Response and  
Restoration**

# Presentation Overview:

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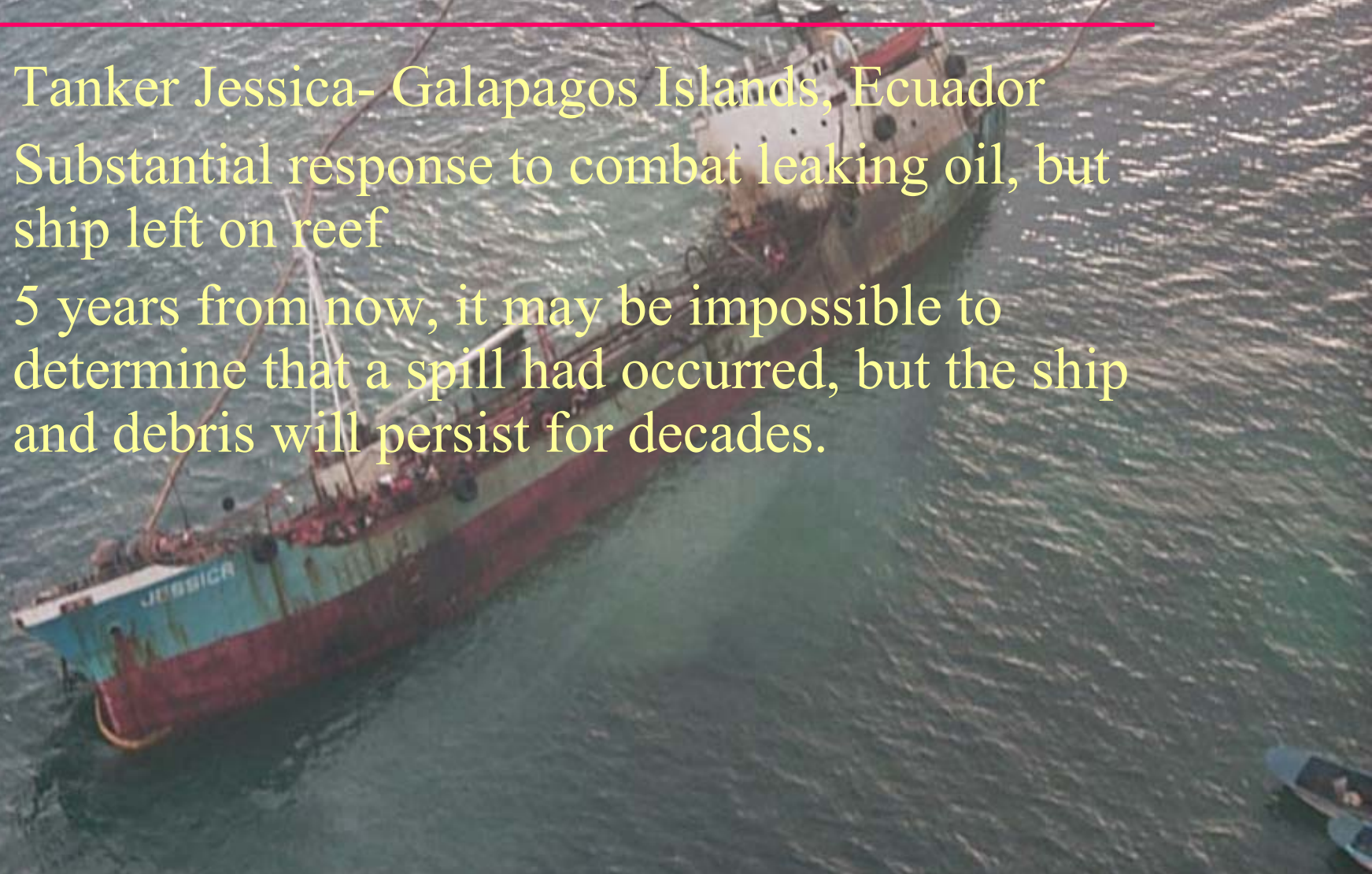
- **History of project**
- **Scope of the problem**
- **Database details**
- **Case examples**
- **Challenges**
- **Broadening the focus  
beyond corals**



# What is the real threat?

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- Tanker Jessica- Galapagos Islands, Ecuador
- Substantial response to combat leaking oil, but ship left on reef
- 5 years from now, it may be impossible to determine that a spill had occurred, but the ship and debris will persist for decades.



# Challenges

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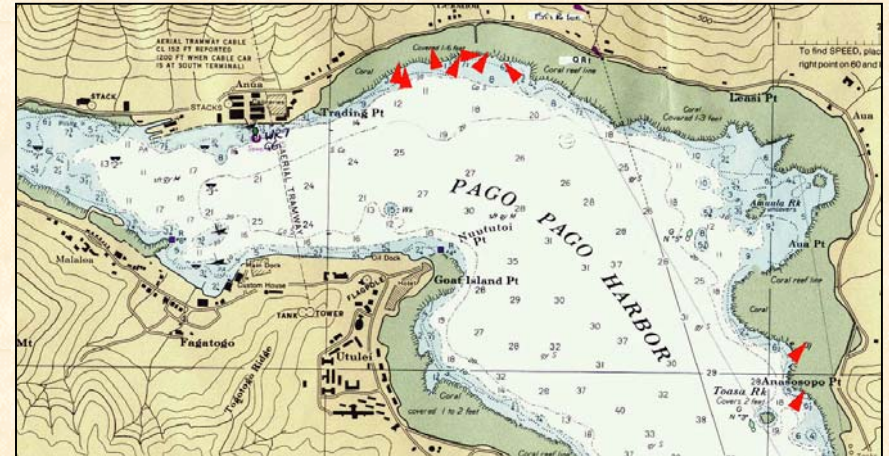


- **Legal**
  - Admiralty Law
  - Abandonment
- **Technical**
  - Engineering Feasibility
  - Disposal
- **Scientific**
  - Fate and effects
  - Recovery
- **Bureaucratic**
  - Agency roles and authorities
- **Financial**
  - Costs

# Background

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- **Pago Pago Longliner removal Project: 1999**
- **US Coral Reef Task Force Funding**
- **Database of abandoned vessels affecting corals**
- **Legal review**
- **White Paper**





**Pago Pago, American Samoa  
Transplantation of corals prior to vessel  
removal**

# Threats from Shipwrecks

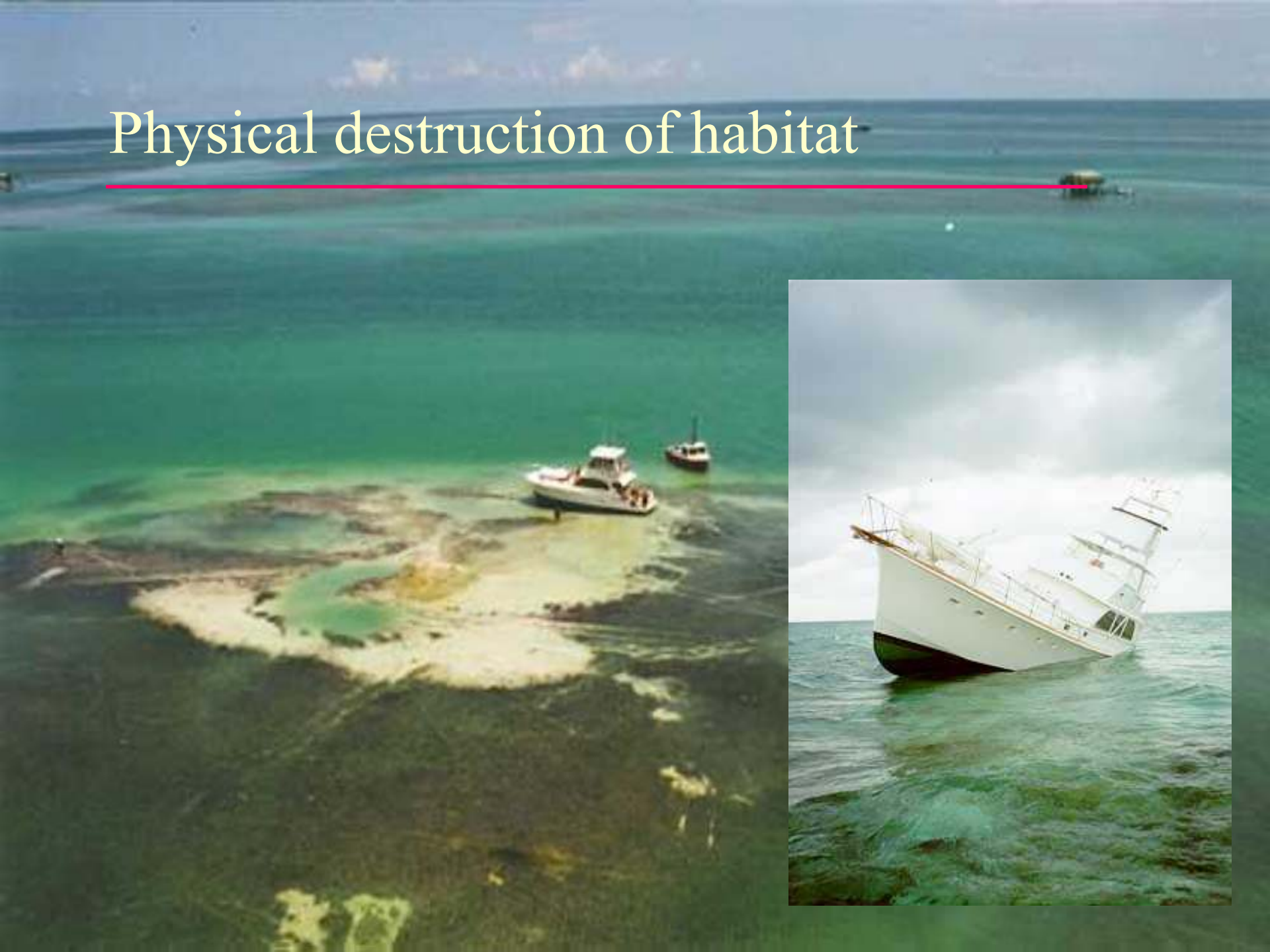
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- **Threat of oil spills and other pollutants**
- **Impediments to navigation**
- **Physical destruction of habitats**
- **Illegal dump site**
- **Nutrient enrichment**
- **Entrapment and Human Health and Safety Hazards**



# Physical destruction of habitat

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# Wildlife Entrapment

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- **F/V Paradise  
Queen, Kure Atoll,  
NWHI**
- **Entrapment of  
endangered monk  
seals**



# Illegal Dump Sites

- **M/V Kimton, Fajardo, Puerto Rico**
- **Vessel used for illegal dumping of waste oils and explosives**
  
- **Abandoned Barge, Louisiana. Potential dumping site**



# Nutrient Enrichment and Invasive Species

- **M/V Milos Reefer, St. Mathews Island, AK**
- **Concern about introduced rodents**
- **F/V Jin Shiang Fa, Rose Atoll, Samoa**
- **Concern about iron enrichment**



# Visual eyesore and loss of tourism

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- **F/V Van Loi, Kauai**
- **Oil, debris, and fishing gear spread along hotel beach**



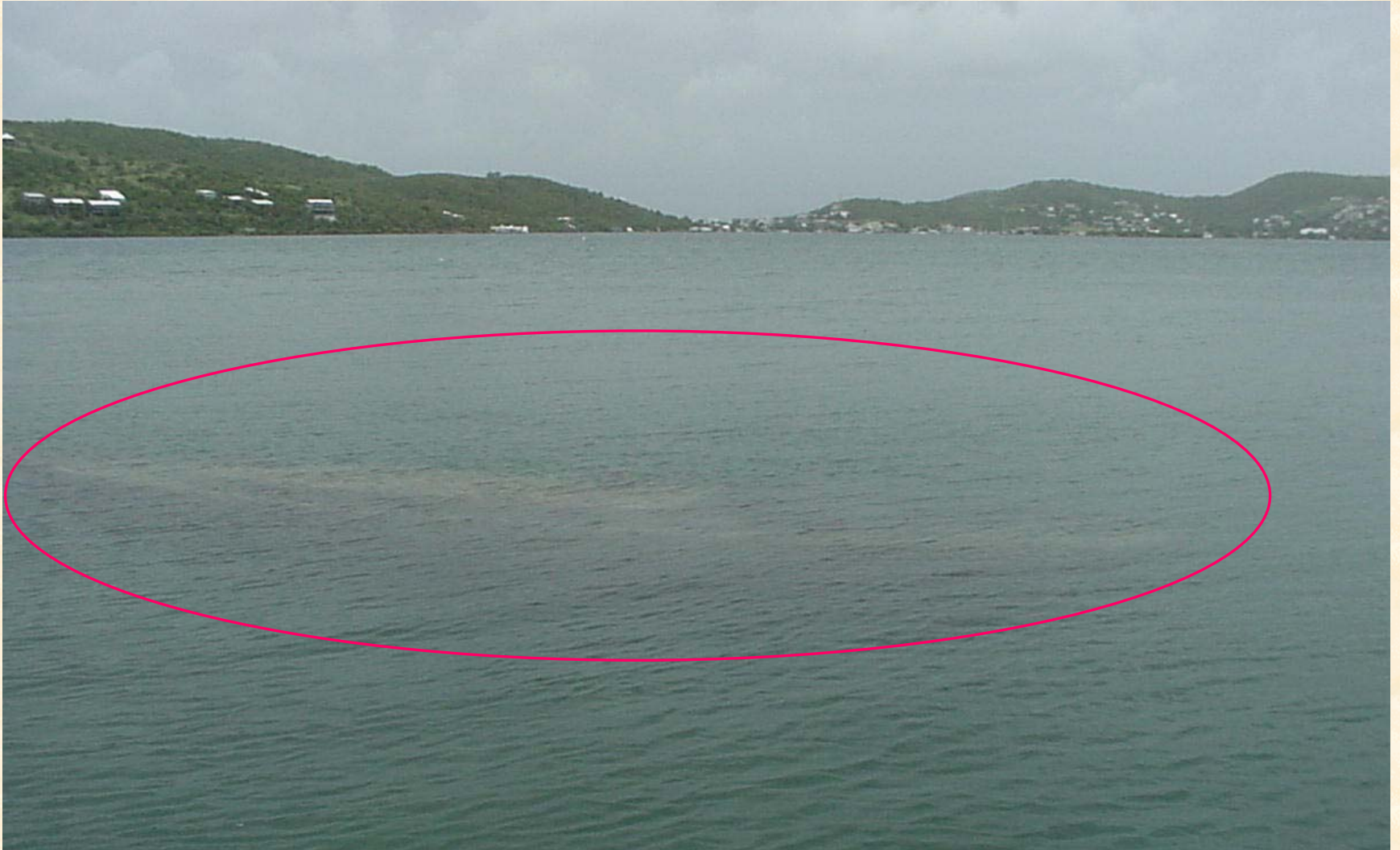
# Human Health and Safety

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# Navigation Hazards

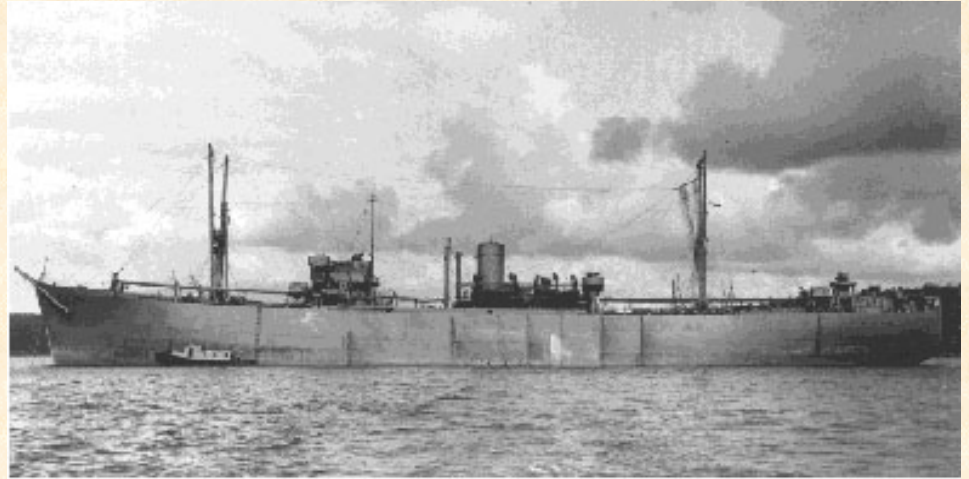
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# Hazardous Cargo:

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- 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



# US Coral Reef Task Force National Action Plan

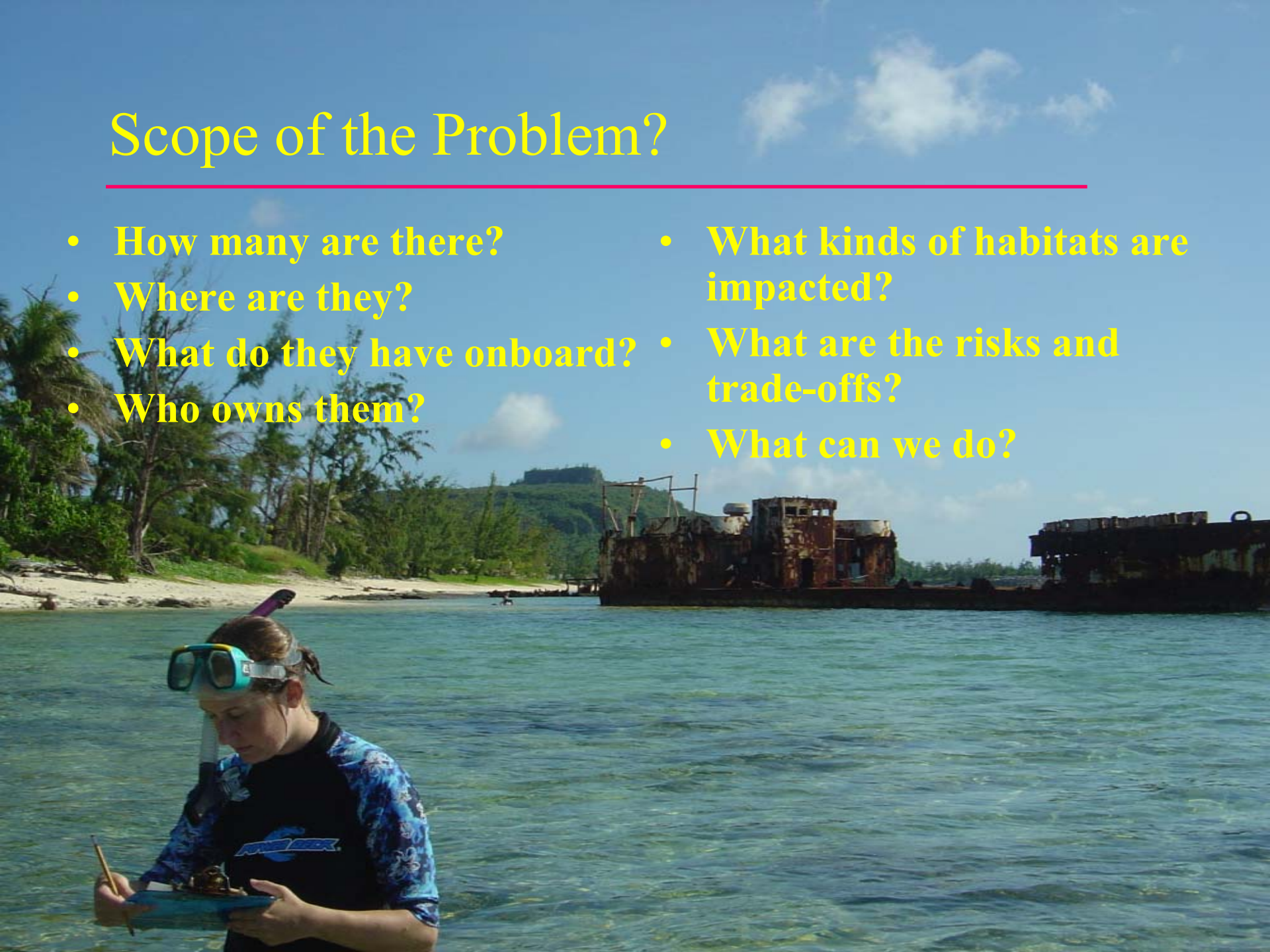




# Scope of the Problem?

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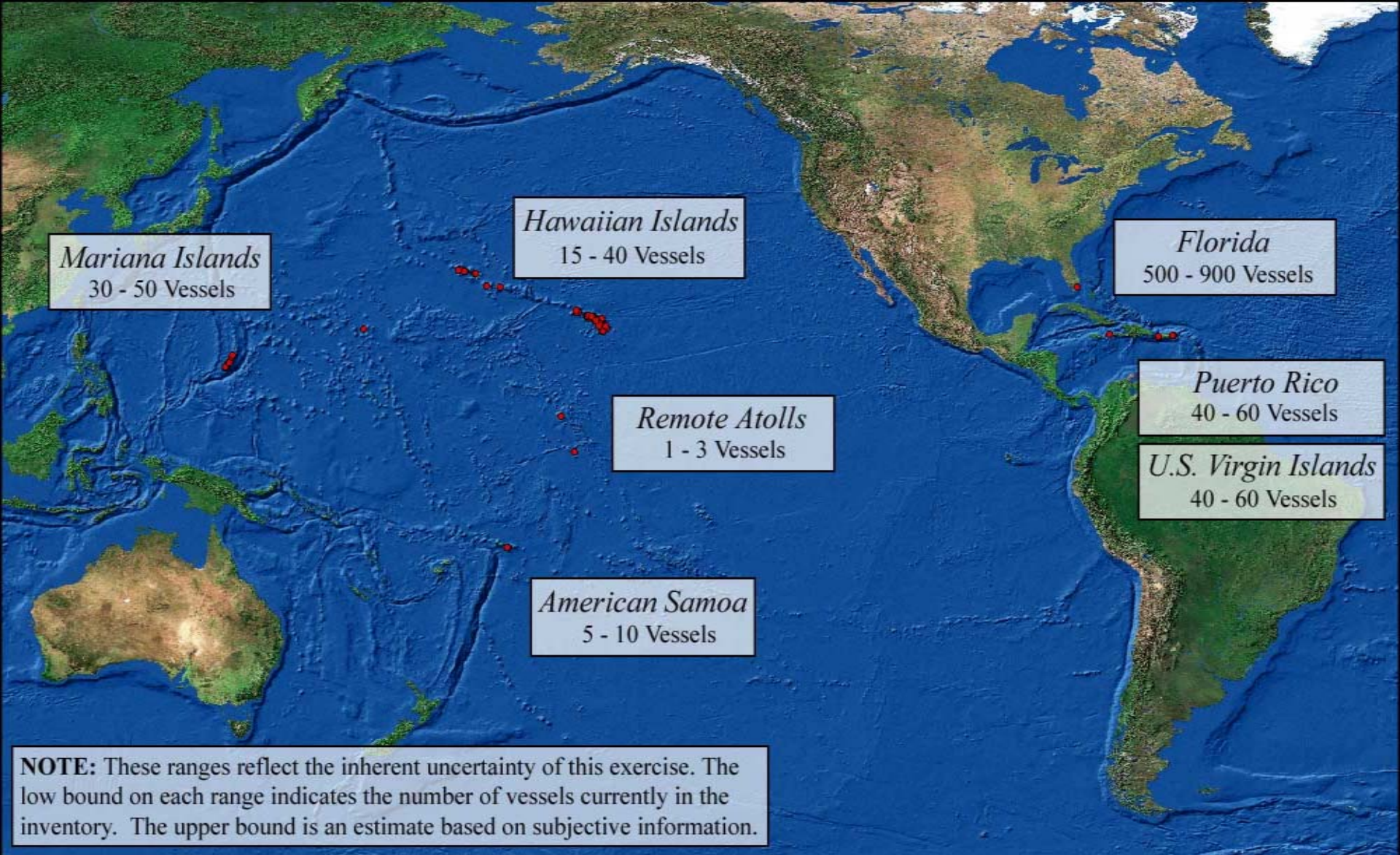
- How many are there?
- Where are they?
- What do they have onboard?
- Who owns them?
- What kinds of habitats are impacted?
- What are the risks and trade-offs?
- What can we do?



# Abandoned Vessel Project Tasks

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- **Development of a data management system**
- **Collection of data on abandoned vessels in regions with coral habitats**
- **Review of existing legal authorities**
- **Field efforts including vessel surveys, stakeholder workshops, and facilitation of vessel removals.**



# Abandoned Vessel Inventory: Overview of Contents

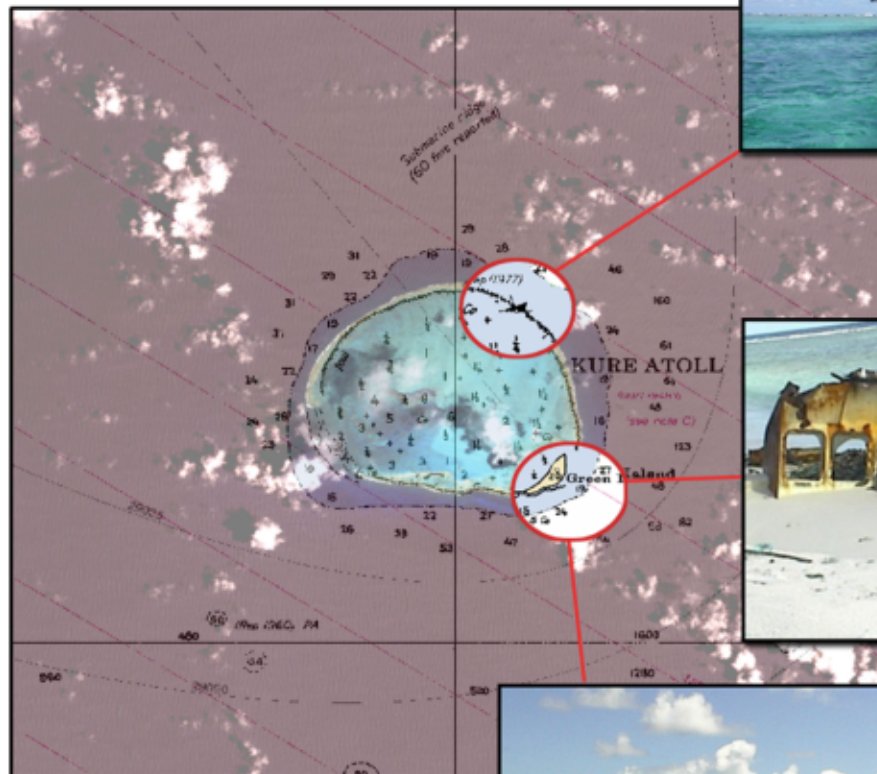


Abandoned Vessel Program  
NOAA - Damage Assessment Center  
**June, 2002**

Doug Helton, (206) 526-4563 / Andy Smith (206) 526-4599

# Kure Atoll

Northwestern Hawaiian Islands



*Unknown Vessel*  
reported in 1977,  
hull piece still on reef



*Paradise Queen II*  
ran aground in October, 1998,  
hull pieces and gear scattered  
on reef and shore

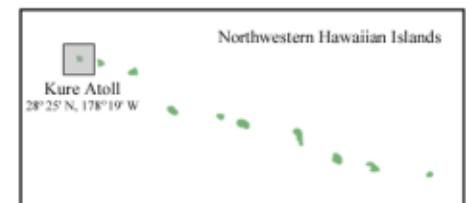


Abandoned Vessel Program  
NOAA - Damage Assessment Center  
December, 2001

Doug Helton, (206) 526-4563 / Andy Smith (206) 526-4599

**Image credits**

Center map: LANDSAT 7 image (courtesy of NOAA Sarcouris) overlaid with NOAA Chart 19480, 7th ed.  
*Unknown Vessel*: Photo taken by David Conry, used with permission of NOAA, NMFS, USFWS, and Hawaii's DLNR  
*Paradise Queen II*: NOWRAMP Expedition 2000 and Bernice P. Bishop Museum



# Database prioritization

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- **Vessel survey**
- **Habitat and site characterization**
- **Remote sensing**
- **Coral mapping**
- **ESI mapping**
- **Local concerns**

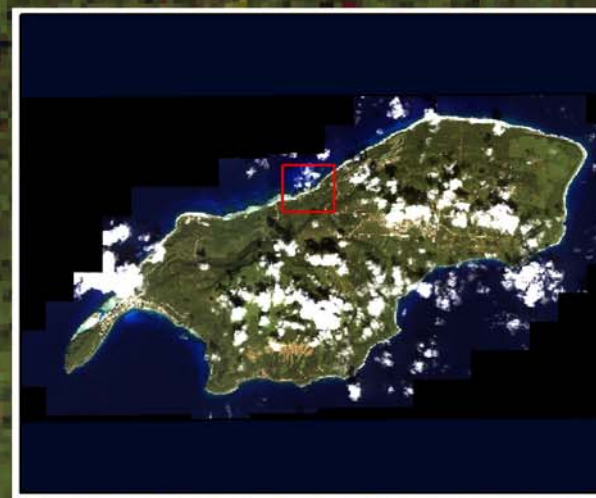


# Case Example

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- **Korean Fishing Vessel, Rota, CNMI**
- **Grounded due to navigational error**
- **Debris spread over large area of reef**











# Beyond Coral- a broader set of issues

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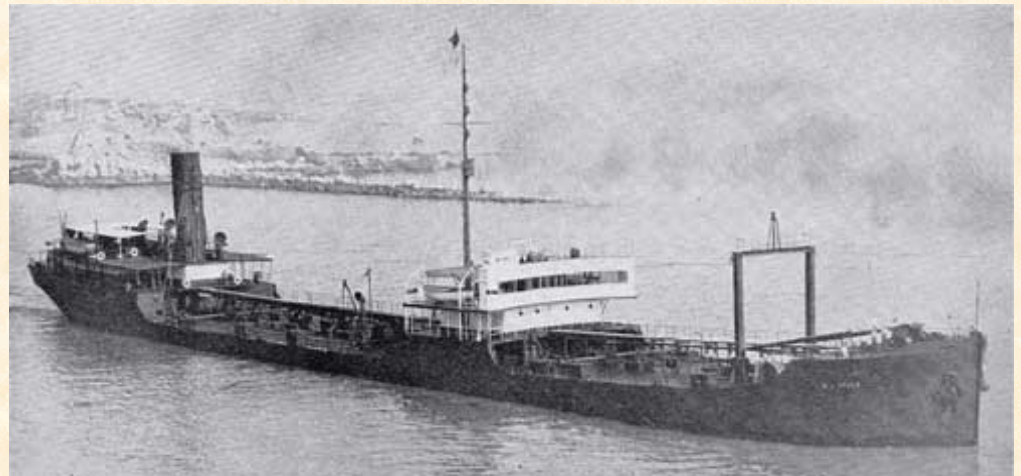
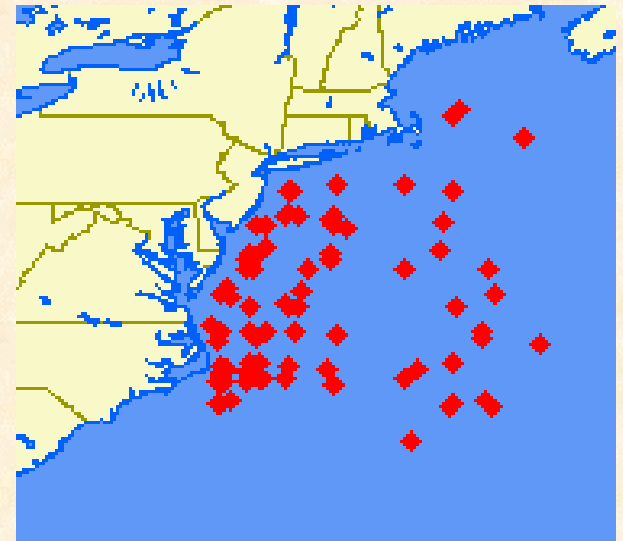
- Most urban ports have a problem with derelict vessels
- USCG Abandoned Vessel database has over 1300 vessels nationwide
- State programs have additional records



# WWII era vessels

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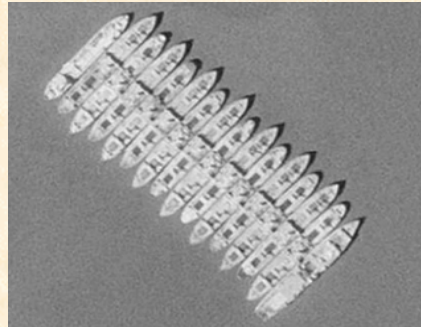
- Several thousand merchant marine and military vessels sunk in US waters during World War II
- Database of U-Boat merchant vessel sinkings: 89 vessels in US Mid-Atlantic, 2800 ships in database
- 1942: Tanker William L. Sneed, carrying 2.7 million gallons of crude, sunk by U-Boat off New Jersey



# Reserve Fleet Vessels

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



# Historic Wrecks

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- 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 shovels, ladles**

January 9, 1996  
Web posted at: 5:00 p.m. EST (2200 GMT)

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



(TV ASAHI)

# Intentionally Scuttled Vessels

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- 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



# Abandoned Barges

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- 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





# Accomplishments

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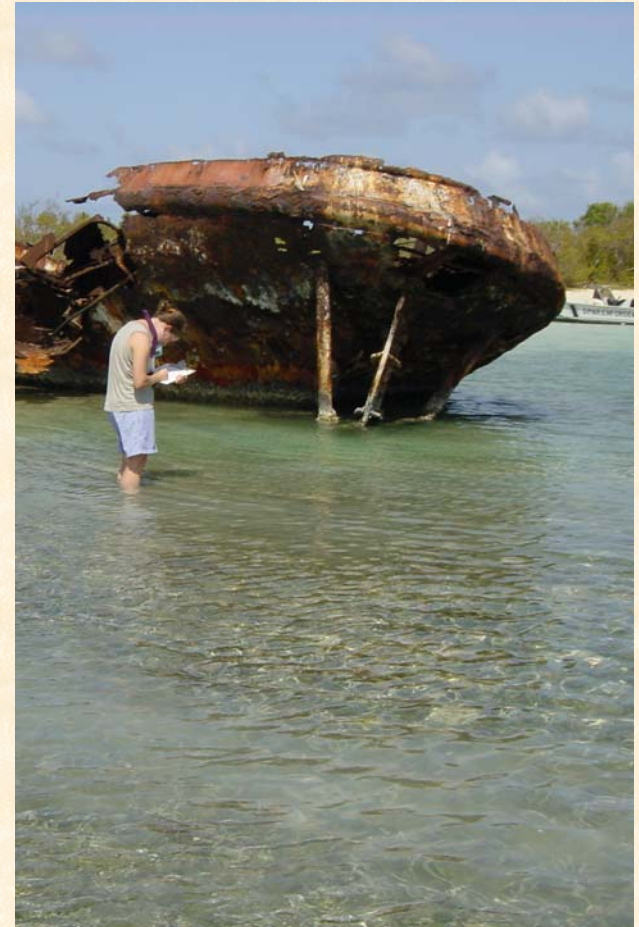
- USCG removal of 10 sunken vessels in Guam and removal of derelict vessels in Puerto Rico.
- NOAA Abandoned Vessel Inventory and ground surveys in the Caribbean and Pacific.
- NOAA and CNMI partnership and funding to assess and remove abandoned vessels.
- American Samoa developing local vessel grounding legislation.
- CNMI Coral Reef initiative to fund storm-preventative grounding measures.



# Next Steps

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- **Broader understanding of the scope of problem and vessel locations**
- **Fuel and Cargo impacts**
- **Nutrient Enrichment**
- **Fate and longevity of sites**
- **Salvage technology**
- **Disposal and ship-breaking issues**
- **Historic values**
- **Habitat creation vs. pollution risks**



An underwater photograph showing a diver in the center, surrounded by a large school of small, striped fish. The water is clear and blue, with sunlight filtering through from the surface, creating a shimmering effect. The diver is wearing a dark wetsuit and fins, and is holding a small object in their hands. The overall scene is vibrant and lively.

# Contacts

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<http://response.restoration.noaa.gov/dac/vessels>