

US EPA ARCHIVE DOCUMENT

EPA / ERT Diving Technologies used in Freshwater (Submerged Oil): the Athos I and Pyramid Lake Oil Spills



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U.S. EPA / ERT

Athos I Oil Spill - 265,000 gallons Venezuelan Crude:

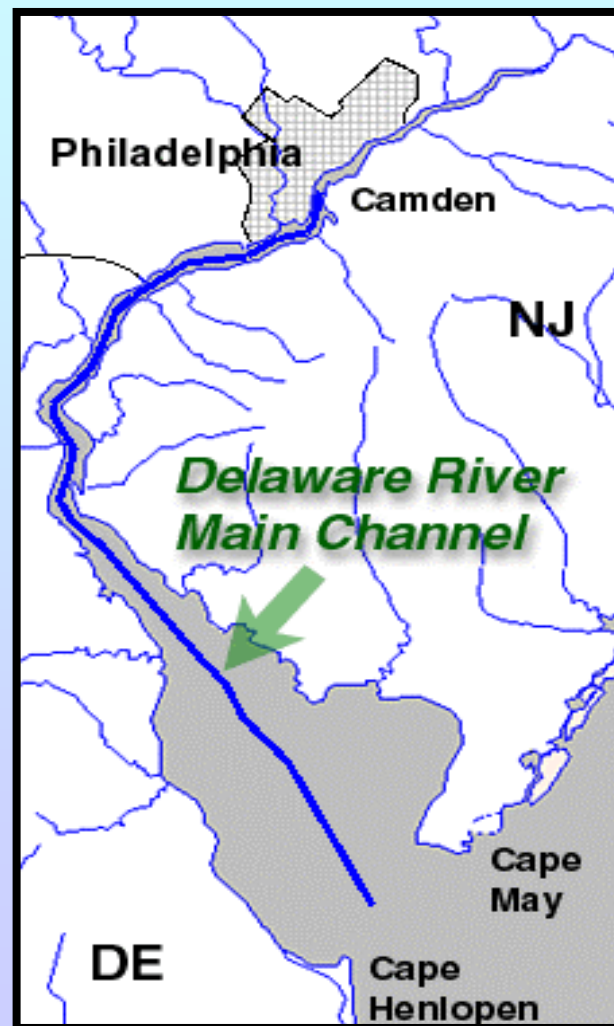
Impact on the Tri-State Area

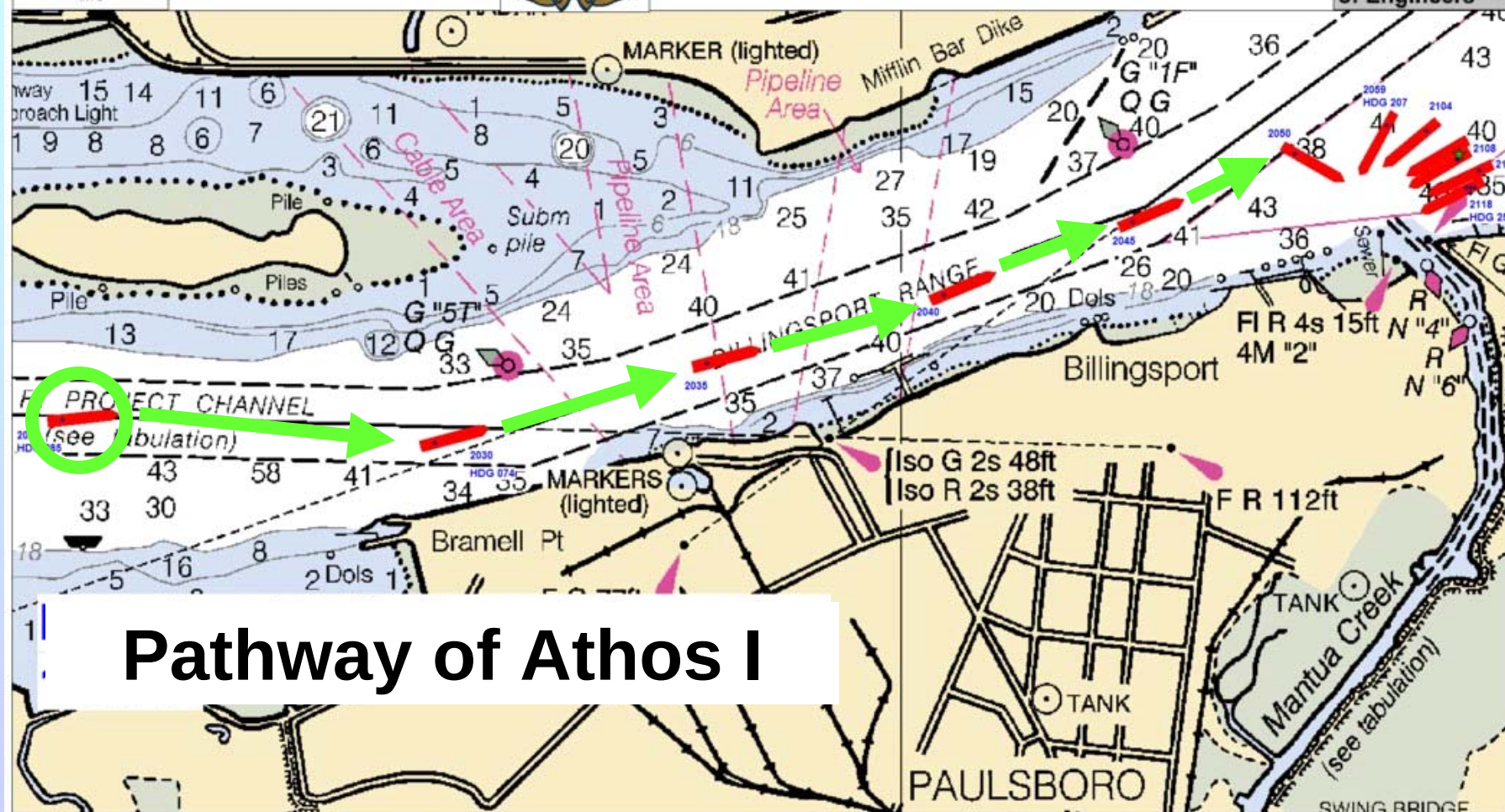
COTP Philadelphia Statistics

- ◆ Approx 3,000 vessel arrivals/year
- ◆ 3rd largest petrochemical port in the nation (largest for crude oil imports)
- ◆ Largest VLCC receiving port in nation
- ◆ 1 million barrels of crude oil imported daily
- ◆ Largest North American port for steel, paper, and meat imports
- ◆ Largest cocoa bean and fruit import port on east coast
- ◆ Port system generates \$19 billion in annual revenue

Home to:

- ◆ Five of the largest east coast refineries
- ◆ Six nuclear power plants
- ◆ Three states and two federal regions
- ◆ One of the 14 national strategic ports
- ◆ Numerous coal fired power plants





Pathway of Athos I

Oil Properties



- 💧 Slightly buoyant
- 💧 Very viscous (thick)
- 💧 Needs heat to move it
- 💧 Very sticky
- 💧 High asphaltene content
- 💧 Weathers slowly
- 💧 Forms tar balls



ERT Assessment Technology



Submerged Oil Characterization





Diver Assessment of Trench Oil



Post-Dive Cleanup



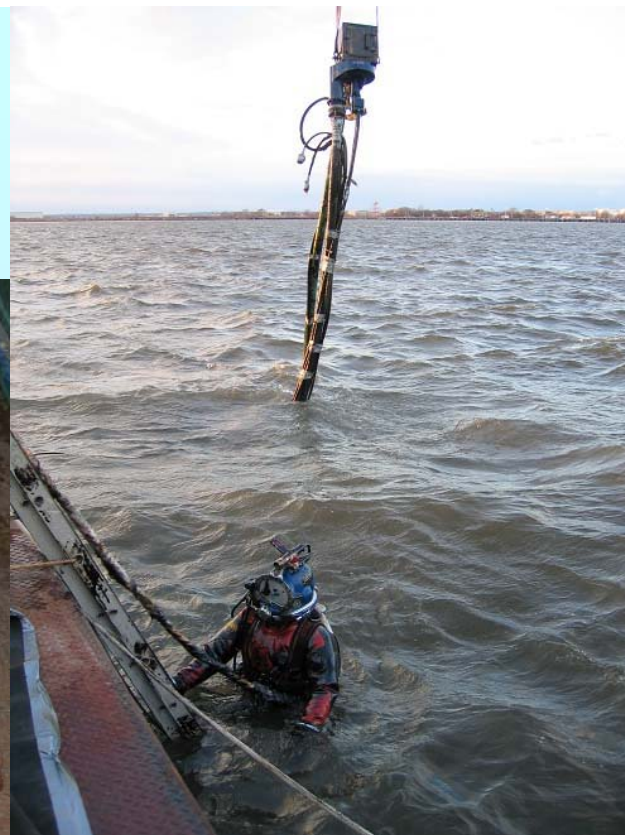
On-Shore Diver Decontamination



Submerged Oil Recovery and Skimming Operations



Diver Assisted Trench Oil Recovery





Oil-Water Separation Activities



Diver Returning to Vessel



Initial Decontamination Process



Full Decontamination Procedure



Pyramid Lake Oil Spill



- 126,000 gallon crude oil pipeline spill



- 1297 Acre Drinking Water Reservoir

Preparing Divers for Entry into Water



Surface-supplied Diving Operations





Posey Cove



Dive Barge

Diver Video System





Video System Hardware



Diver Collected Samples

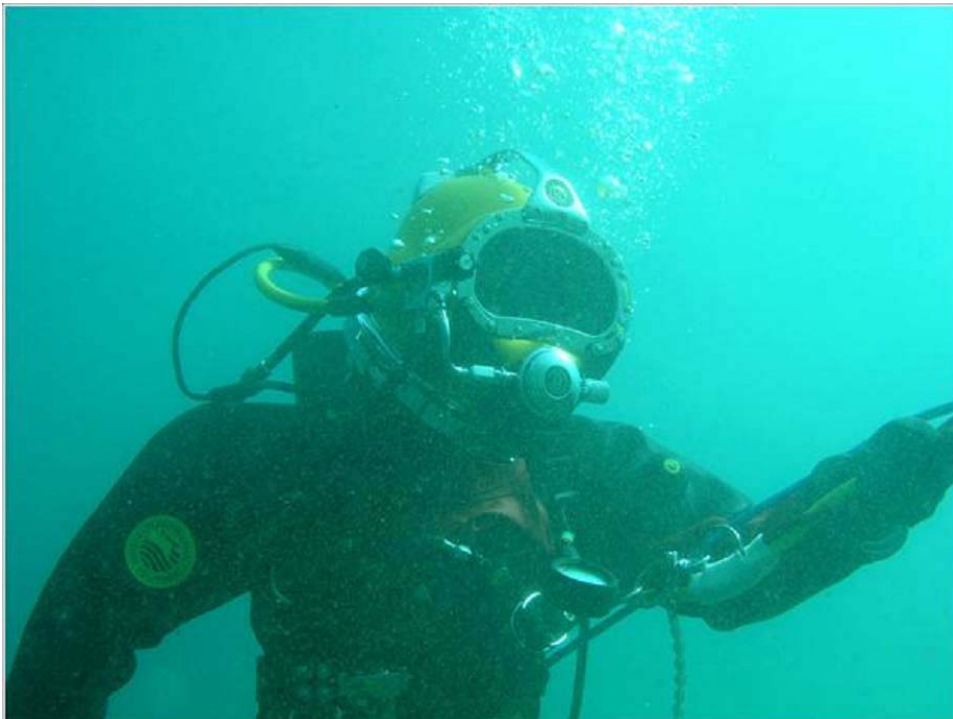




Diver Decontamination

Columbia Space Shuttle Recovery Operations



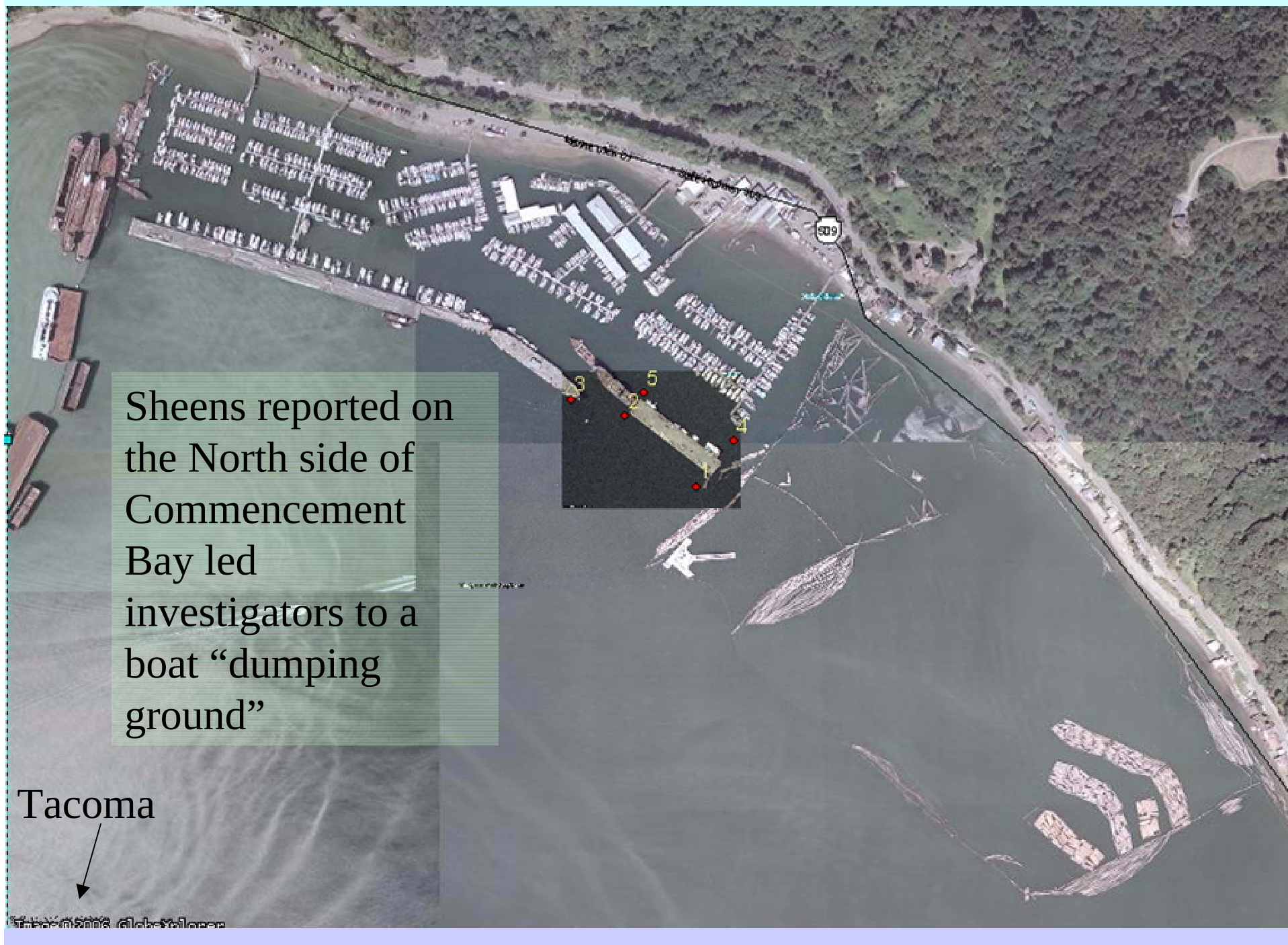


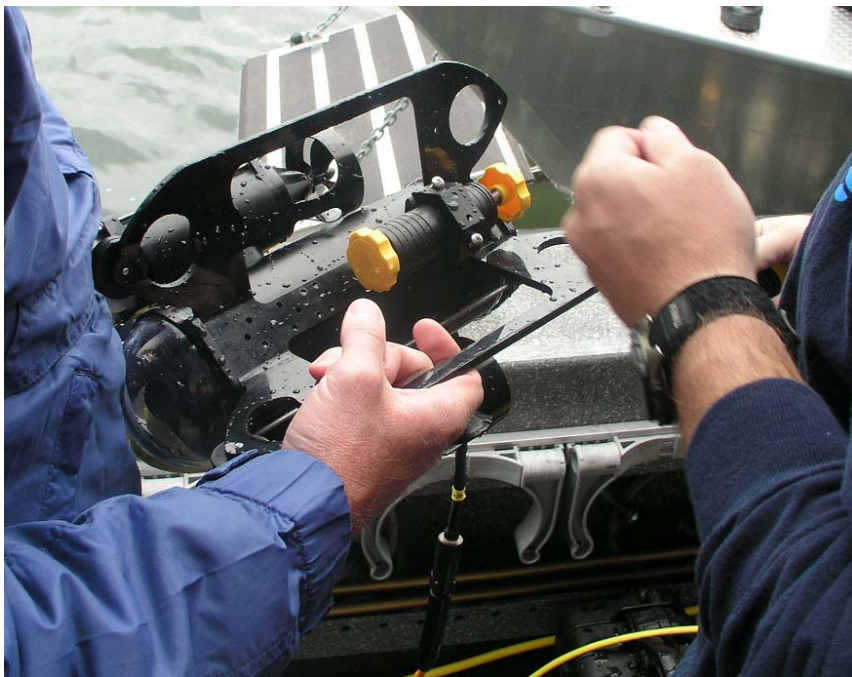
ERT Diver Training



*Submerged Vessel Oil
Release Investigation -
Crow's Nest, Region 10 and
ERT Dive Teams;
Wyckoff Region 10 Dive
Team NAPL investigation*







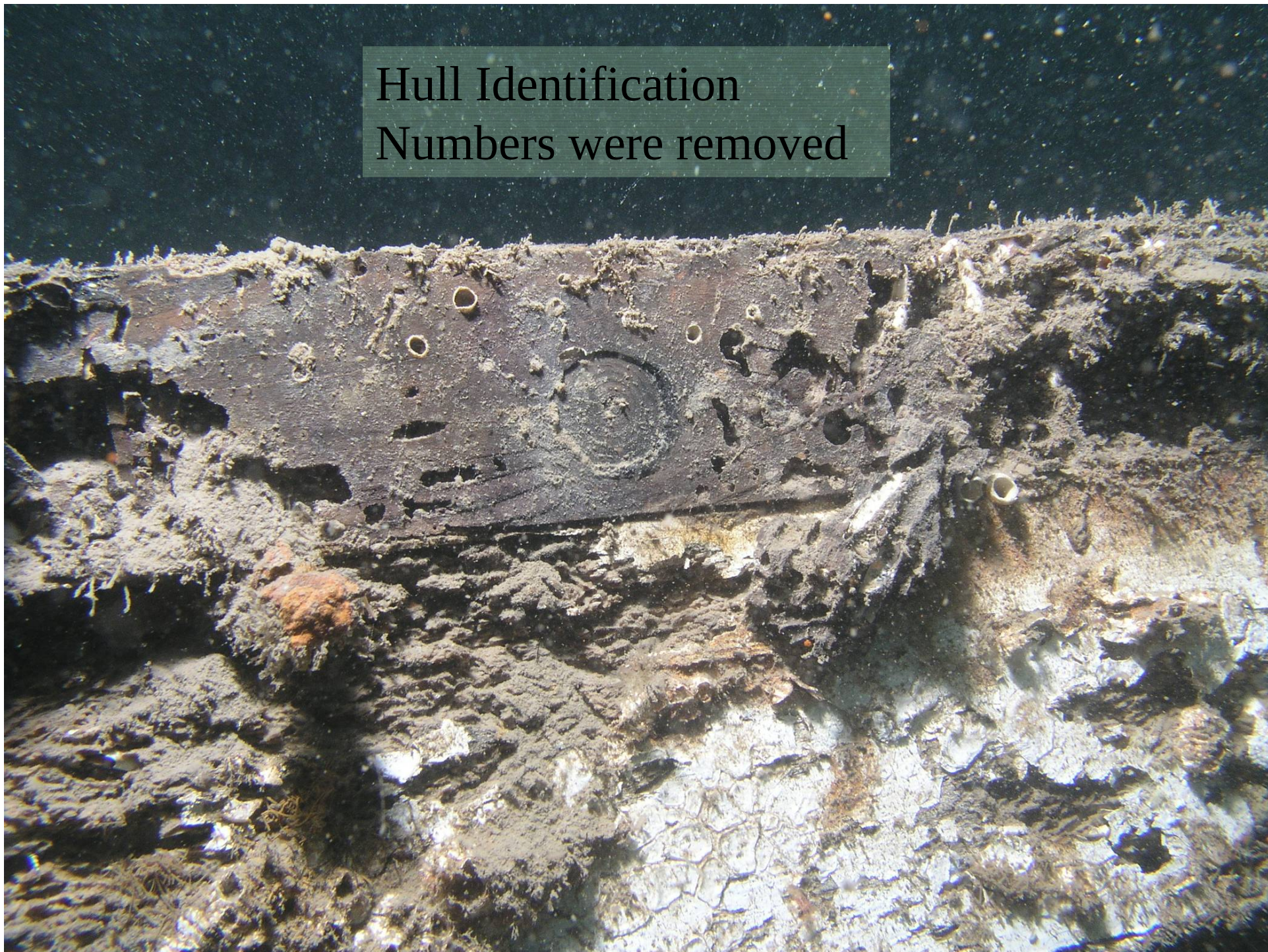
Partnership of EPA and ERT dive units helped to maximize dive time on the wrecks to be investigated. Sector scan sonar and ROV ensured dive time was spent on worthwhile target areas.



Vessels were in a state
of advanced decay

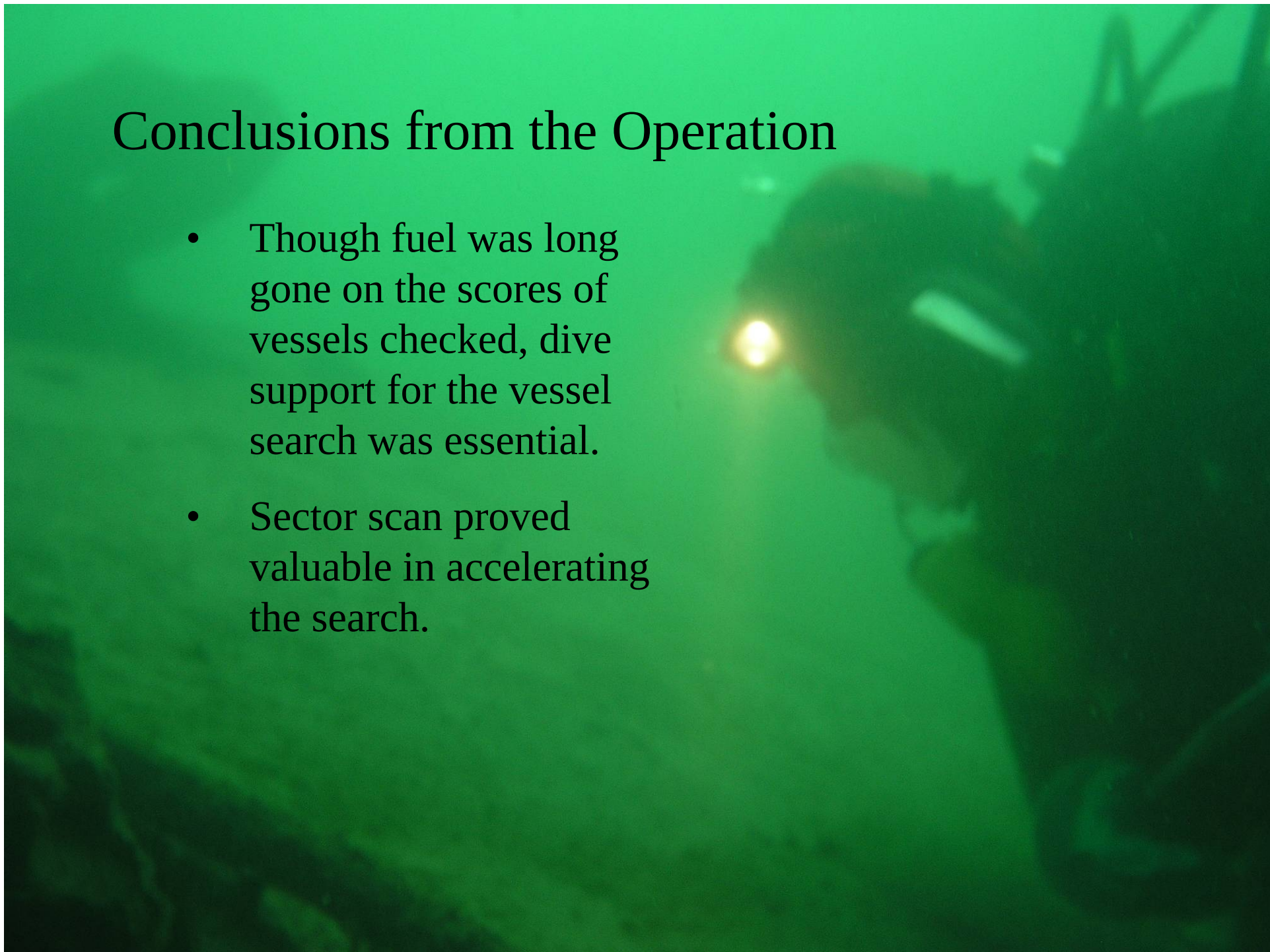


Hull Identification
Numbers were removed



Conclusions from the Operation

- Though fuel was long gone on the scores of vessels checked, dive support for the vessel search was essential.
- Sector scan proved valuable in accelerating the search.



What if the oil phase
sinks instead of floats?

Region 10 divers
mapped creosote off the
Wyckoff/Eagle Harbor
Creosote Plant for
removal action;

See the video at

[http://yosemite.epa.gov/R10/OEA.NSF/
webpage/Dive+Team](http://yosemite.epa.gov/R10/OEA.NSF/webpage/Dive+Team)



How To Contact the EPA Dive Team and For More Information

- On the web
- Region 10: <http://yosemite.epa.gov/R10/OEA.NSF/webpage/Dive+Team>
Via email: sheldrake.sean@epa.gov
- ERT: <http://www.ert.org/mainContent.asp?section=Dive&subsection=About>
Via e-mail: humphrey.alan@epa.gov

