

US Department of Transportation  
Maritime Administration  
Office of Environment

Ballast Water  
& Hull Fouling Research

# CAPE WASHINGTON - Baltimore



# Hookup Between Ship and Technology – Bulkhead between Cargo Space and E.R.



# The Work Area



# Mesocosm Tanks



## #6 Port

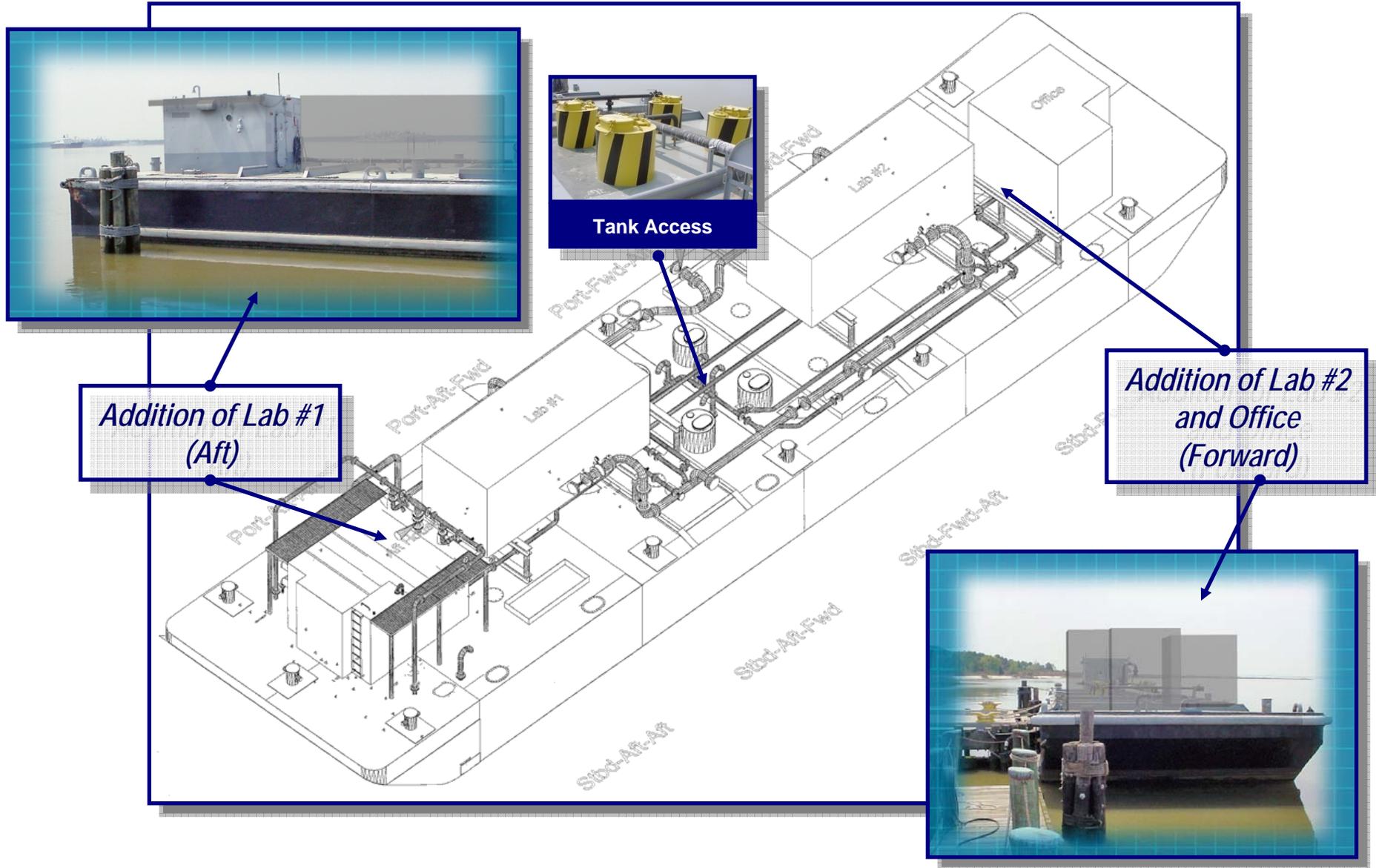


# Chesapeake-Based Barge future implementation

- Design and engineering services to be provided by MARAD in-house engineers and naval architects in consultation with scientists
- Will serve as mobile test platform



# Possible Barge Layout

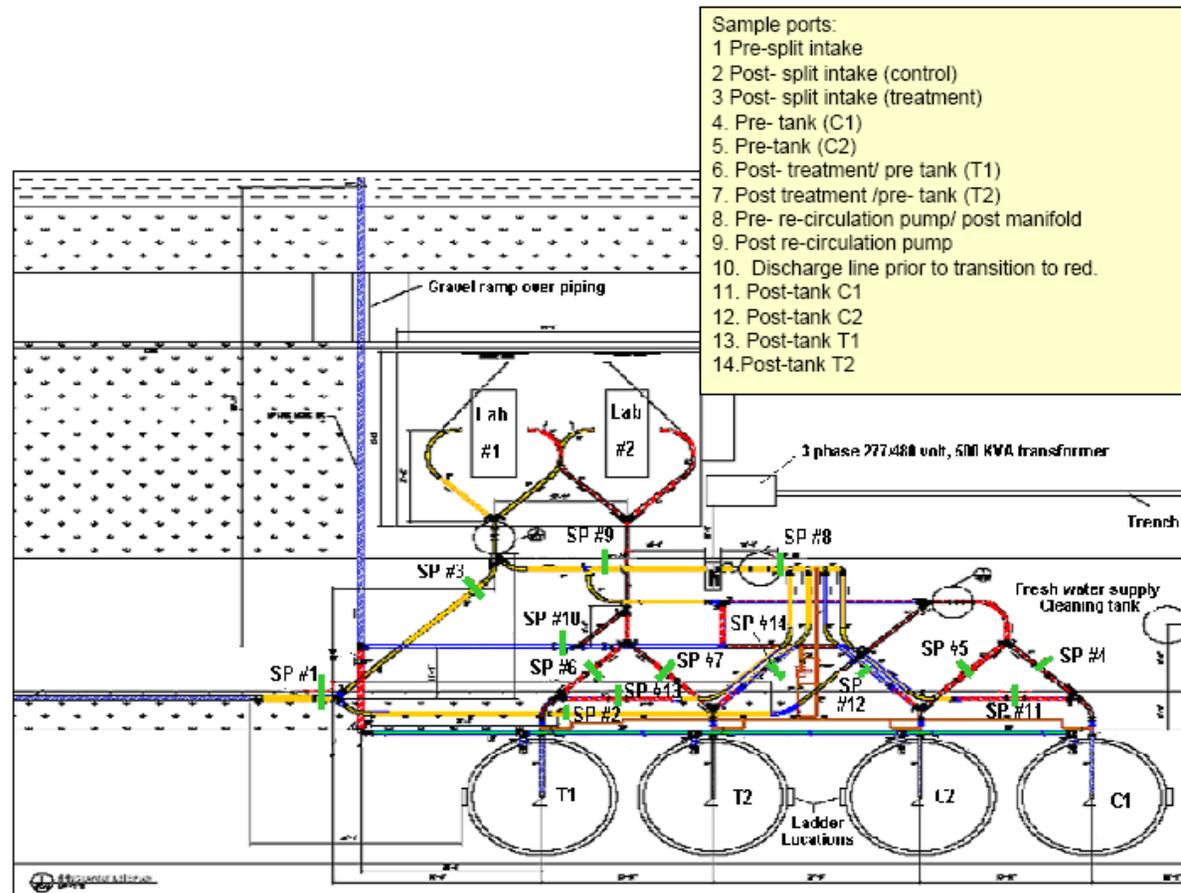


# Great Lakes Land-Based Facility

Provided design services and funding



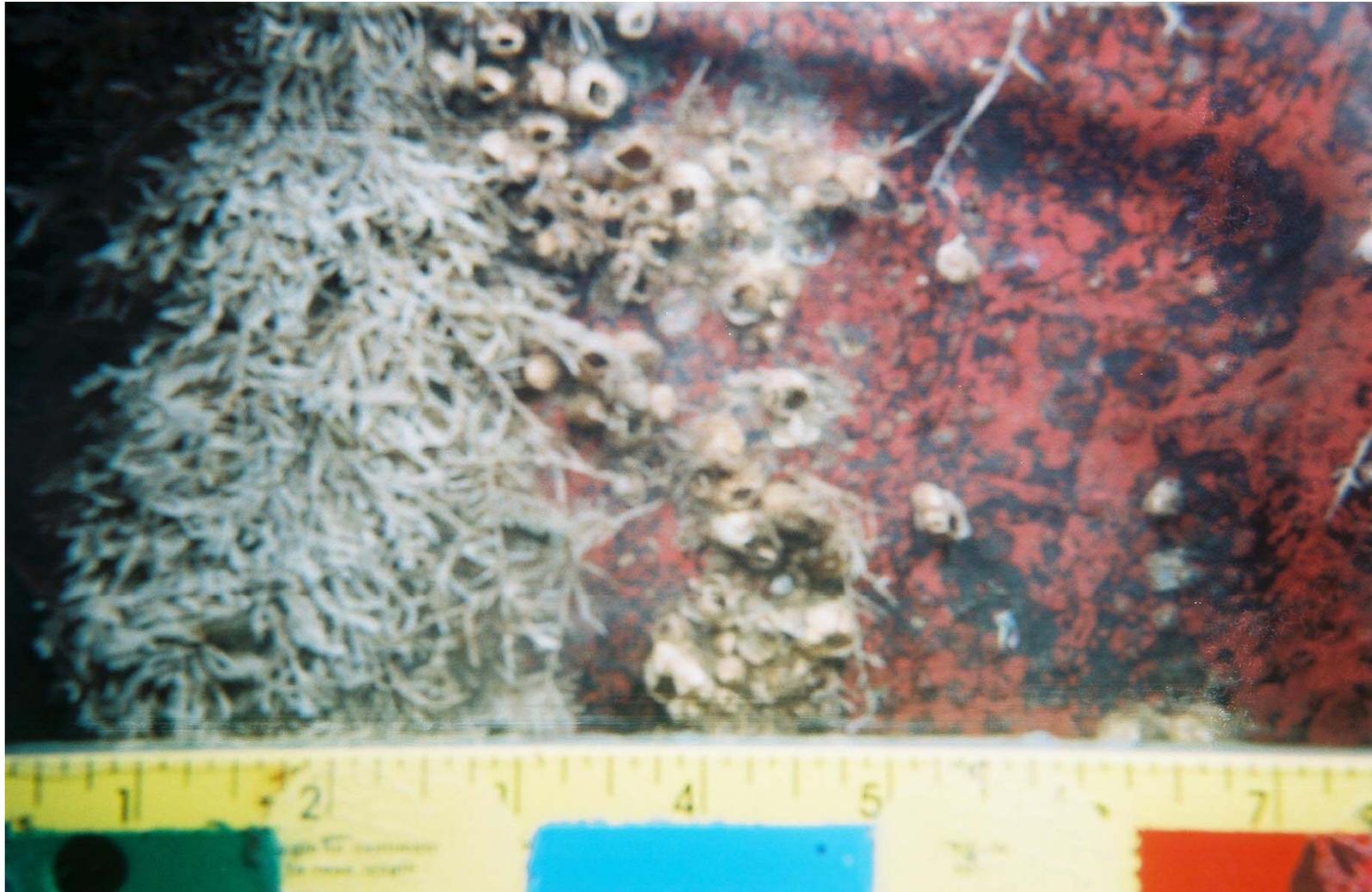
# Shore-Based Test Facility Design



**GOLDEN BEAR – Vallejo, CA  
can accommodate the volume of water needed to  
adequately test technologies. Vessel mods scheduled  
for 2009.**



# Bio-Fouling



# Niche Area Fouling



# Maritime Administration Recycling Program

- Since 1949, the Maritime Administration has been the recycling agent of U.S. government owned, merchant-type ships >1,500 gross tons
- The majority of obsolete ships are former U.S. Navy auxiliary, non-combatant ships and non-retention MARAD Ready Reserve Force Ships
- Ships awaiting recycling are moored at fleet sites in the James River, VA, Beaumont, TX and Suisun Bay in Benicia, CA



# **ISSUE**

- **U.S. Coast Guard Requirements for Vessel Removal from Fleets**
- **U.S. Coast Guard Regulations for Keeping Vessels in Class**

# Maritime Administration's Vessels Dismantled in Drag-Up Slips



# **Solution to Hull Cleaning Requirement**

- NISA – requirement to clean hulls on regular basis
- **SOLUTION**
  - In-Water Cleaning
  - Drydocking

# Maritime Administration's Hull Cleaning Requirements

- Environmentally safe equipment
- Federal, State and Local regulations/requirement
- Pre/Post cleaning inspections
- Documentation
- Hull inspection data/report

# Typical Hull Cleaning Equipment



# Typical Hull Cleaning Equipment



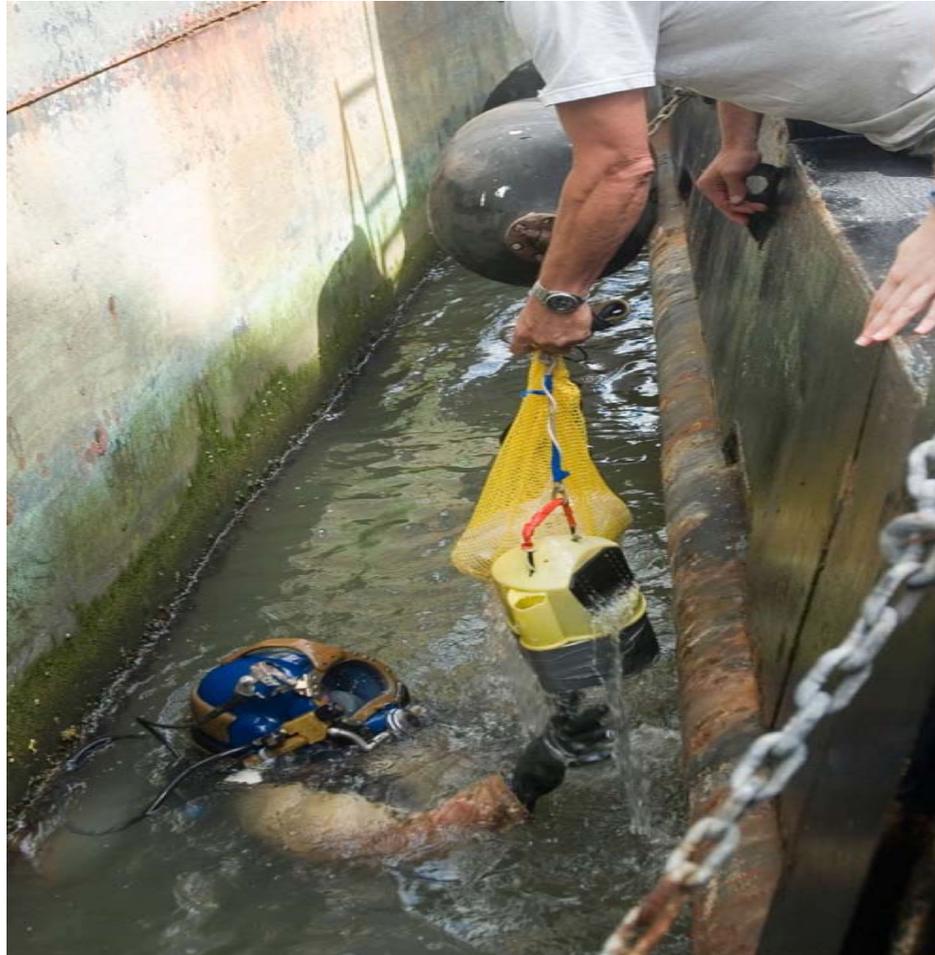
# Typical Hull Cleaning Equipment



# Pre-Cleaning Hull Status (frame 14 on hull)



# Biological Surveys of Hull Fouling



# Samples Taken Before Cleaning





# Post-Cleaning (Frame 14)



# Pre-Cleaning Hull Status (frame 14 on hull)



# Challenges for Obsolete Vessel Removal

- Scamping practice questioned
  - California Regional Water Quality Control Board

# Testing of a Capture System





# Questions?

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