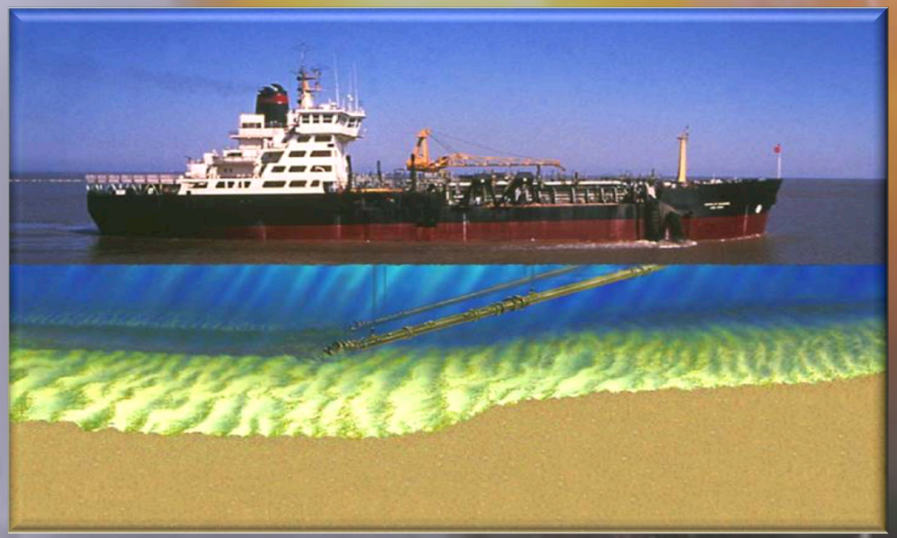
Responsible/Safe Shoreline Recovery and Dredging Operations



US Army Corps of Engineers
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US Army Corps of Engineers
Headquarters, CESO
Washington, DC

DISCUSSION TOPICS

- Origin of the Problem
- Lessons Learned
- Proven Solution
- Success Stories and Current Status

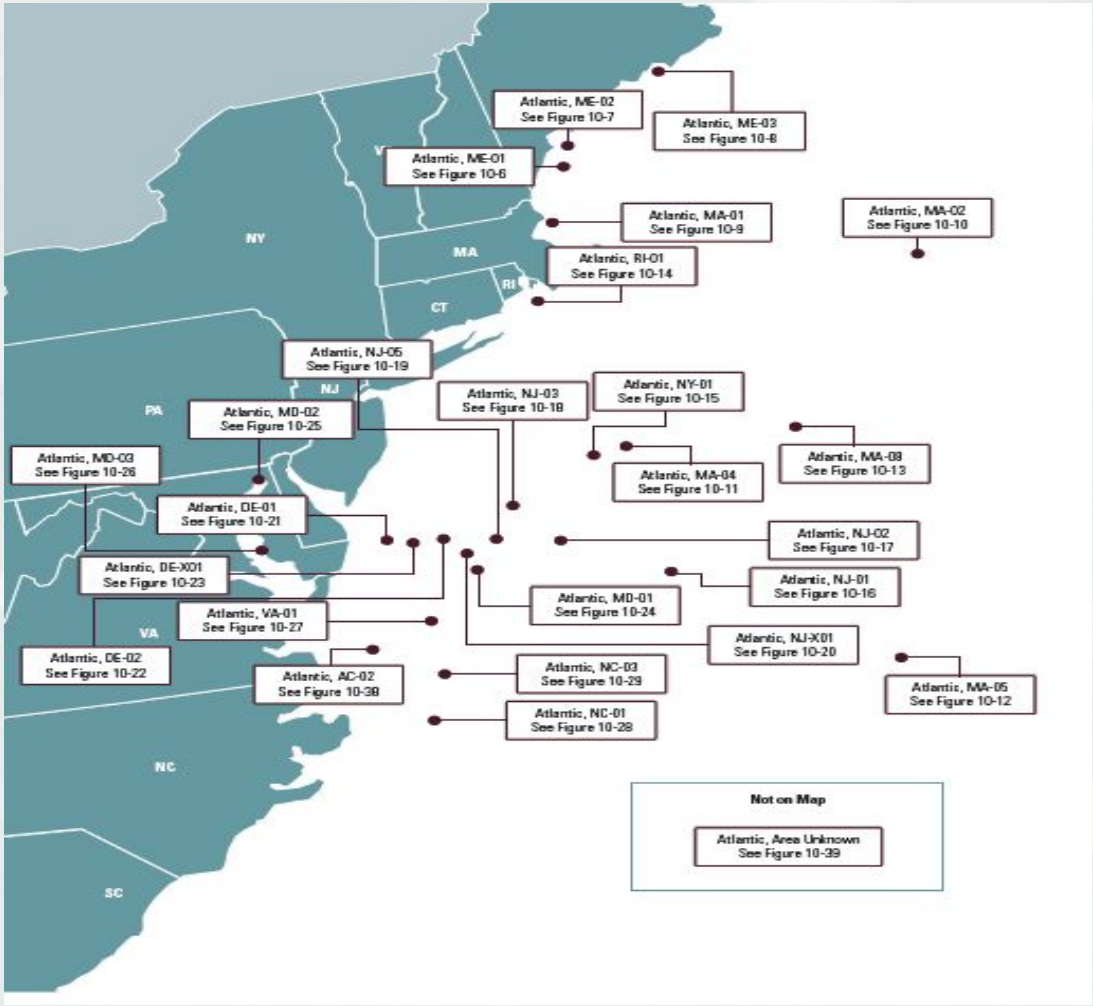
ACRONYMS

- MEC: Munitions and Explosives of Concern
- MPPEH: Material Potentially Presenting an Explosive Hazard
- MDEH: Material Documented as an Explosive Hazard
- MDAS: Material Documented as Safe

Origin of the Problem

- The Department of Defense routinely disposed of excess, obsolete, unserviceable, and captured enemy munitions in the waters off the shores of the United States until prohibited in1970.
- Hundreds of thousands of MEC was disposed of by dumping as reported
- This is what we know. Many unknowns

Identified East Coast Dump Sites



Lessons Learned

- Buckroe Beach, VA. 1991-2003 a total of 6 Time Critical Removal Actions (TCRA) for MEC were required post replenishment activities. Average cost of each TCRA was approximate $500K. In 2005 a beach replenishment operation was conducted utilizing interdiction/prevention techniques consisting of intake and discharge screens. Size of screens utilized were 2” at the intake and 1.5” at the discharge. Screens were effective in preventing a total of 16 MEC items (37mm and larger) from being placed on the beach.

Lessons Learned

- Surf City, NJ: the first phase (1.6 miles) of a Coastal Storm Damage Reduction Project (CSDRP) was completed in the spring of 2007 2 days after completion of this phase a MEC item was discovered by a beach patron. In order to allow the beach to re-open by Memorial Day a TCRA to 24” was required. Cost of TCRA and subsequent standby support of NAB Ordnance and Explosive Safety Staff (OESS) was approximately $3M. During the winter of 2009 a final MEC removal/sifting project was completed at the cost of approximately $15M. Cost of the CSDRP phase one was approximately $6M. Total cost to remove the MEC was approximately $18M

Lessons Learned

- Lessons learned from numerous projects including the ones previously listed indicated that the key to preventing MEC/MPPEH from entering the dredge plant and subsequent spoils is an aggressive MEC/MPPEH interdiction/prevention program consisting of screening and inspection. Numerous post Surf City dredging projects (over 45) utilizing these screening and inspection techniques have been 100% successful in preventing MEC/MPPEH from being introduced to placed sand and/or dredging spoils.

Planning

Archive searches

MEC Detection and Discrimination

General Considerations

- Hazard Analysis
- Removal vs avoidance
- Production rates
  - **COSTS**

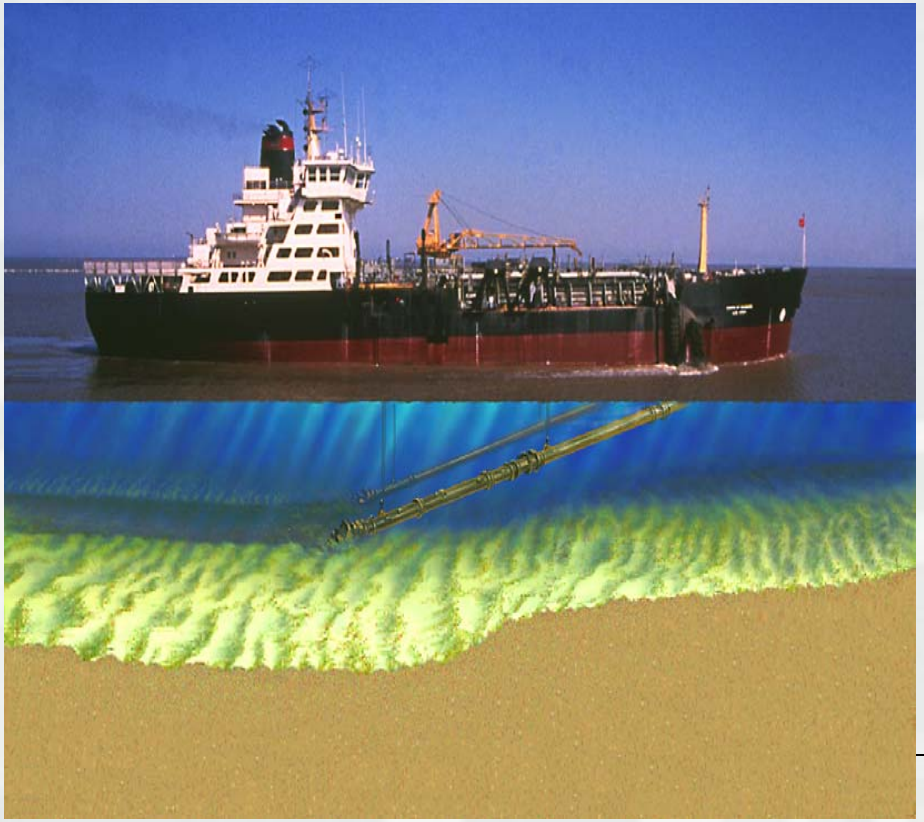
IT IS CHEAPER TO SCREEN AND PREVENT RATHER THAN CONDUCT A POST REPLENISHMENT MEC REMOVAL ACTION

MEC Prevention Measures for Dredging

- 1.25 inch screens on hopper dredge intakes (37mm about 1.4” diameter)
- .75 inch screens on outflow basket
- MEC training for dredge and beach crews
- MEC training for USACE personnel

Dredging Operations at SEA

- Intakes on Dredging Operations



Dredging Operations on shore

Screens on Shore

Initial Success Stories

Sandbridge VA, Beach Replenishment via Hopper Dredge:
Borrow area in known USN firing range (large projectiles 5”)
Screen on draghead – No MEC (completed 07’)

Ocean City MD, Beach Replenishment via Hopper Dredge:
Borrow area within range fan of FT Miles coastal shore batteries
Screen on draghead – No MEC (completed 06’)

Bethany Beach DE, Beach Replenishment Via Hopper Dredge:
Borrow area within range fan of (former) Ft Miles coastal shore batteries.
Draghead Screen, outflow screen
12 MEC captured in outflow basket on beach (completed 08’)

Current Success Stories

- 2013 and 2014 Hurricane Sandy Recovery Projects:
  - Approximately 17.8 million CU of sand placed in DE, MD. and NJ
  - Screening and Safety Oversight Employed
  - 224 MEC Items Recovered and Disposed of Safely
  - No MEC Place on the Beaches

Ongoing Efforts

- EM 385-1-1 Errata
- EM 385-1-97 Change
- Engineering Construction Bulletin

QUESTIONS