

# Dredging in Salem Sound

Salem Sound Coastwatch 25th Anniversary Symposium

*“Finding Solutions to Our Coastal Challenges”*

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# What is dredging?

- **310 CMR 9.02** “Dredging means the removal of materials including, but not limited to, rocks, bottom sediments, debris, sand, refuse, plant or animal matter, in any excavating, cleaning, deepening, widening or lengthening, either permanently or temporarily, of any flowed tidelands, rivers, streams, ponds or other waters of the Commonwealth. Dredging shall include improvement dredging, maintenance dredging, excavating and backfilling or other dredging and subsequent refilling.”
- **310 CMR 10.04** “Dredge means to deepen, widen or excavate, either temporarily or permanently, land below the mean high tide line in coastal waters and below the high water mark for inland waters.”
- **314 CMR 9.02** “The removal or repositioning of sediment or other material from below the mean high tide line for coastal waters and below the high water mark for inland waters. Dredging shall not include activities in bordering or isolated vegetated wetlands.”

# Why is dredging done?

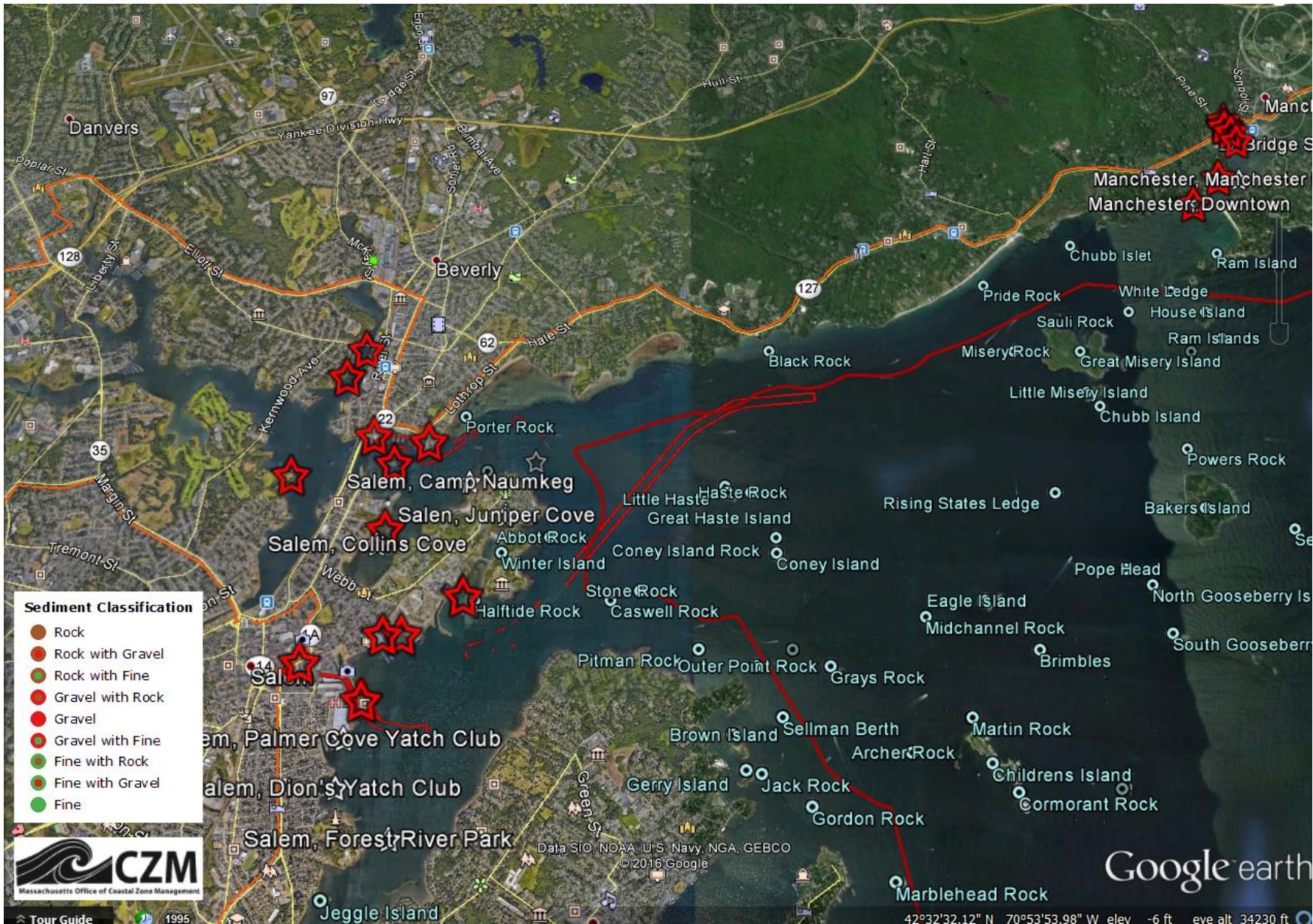
- Maintaining or increasing the depth of navigation channels, anchorages, or berthing areas to ensure the safe passage of boats and ships
- Reduce the exposure of fish, wildlife, and people to contaminants and to prevent the spread of contaminants to other areas of the water body

# Dredging in Massachusetts

- Massachusetts harbormasters have identified over 200 public areas in coastal harbors needing dredging
- Estimated cost for this over the next ten years is approximately \$360 million
- Current funding is far below this requirement (approximately \$7.4 million per year excluding Boston Harbor and New Bedford Harbor)
- In 2012, state and coastal communities collected an estimated \$238 million from taxes and fees related to the use of coastal waterways (slip and mooring fees, boat excise taxes)

# Where has dredging been done in and around Salem Sound?

- Since 2006, more than 20 sites in and around Salem Sound have been or are in the process of being dredged





# How is dredging done?

- Hydraulic and mechanical methods





USACE Currituck  
Trailing Suction Hopper Dredge





Clamshell Dredge and Scow







Environmental Bucket Dredge and Scow



Mechanical Excavator



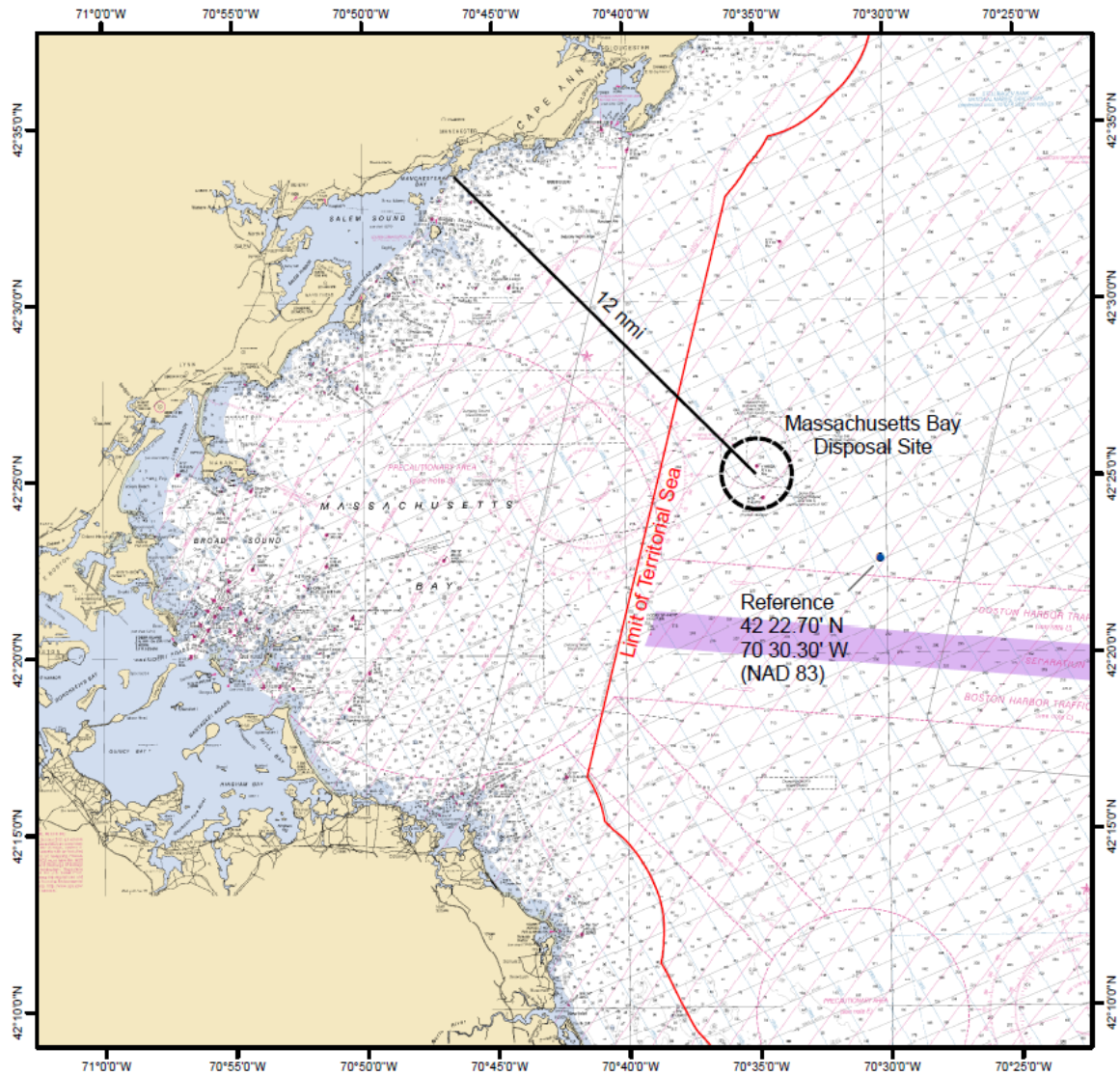
Cutter Head Hydraulic Dredge

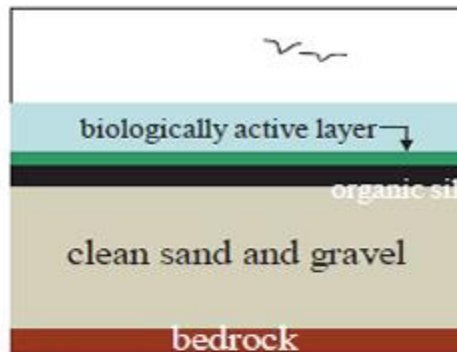




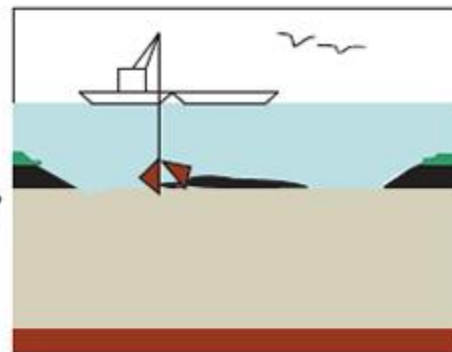
# Where does it go?

- Most often to the Massachusetts Bay Disposal Site (MBDS) for suitable material
- Upland or Confined Aquatic Disposal (CAD) Cell for unsuitable material
- Beneficial reuse

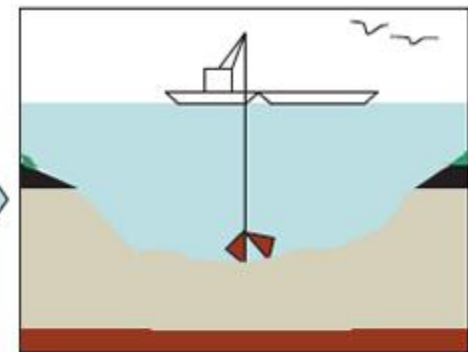




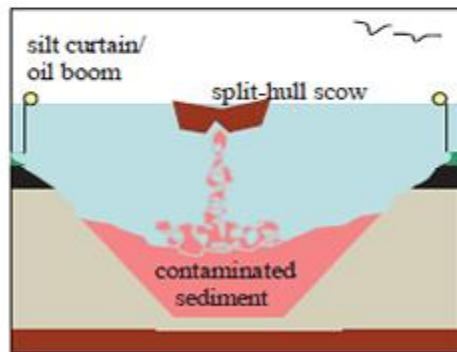
**1.** Harbor bottom as is



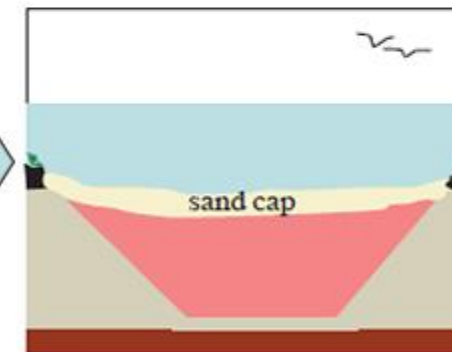
**2.** Excavation of top silts



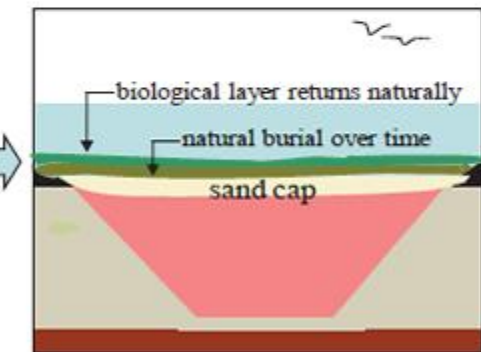
**3.** Excavation of clean sand



**4.** Placement of sediments



**5.** Placement of initial cap



**6.** Surface fills in over time

## Confined Aquatic Disposal (CAD) Cell



Beach Renourishment

# Steps to successful permitting

- Pre-App, pre-app, pre-app! Coordinate through CZM to get all appropriate state and federal agencies in the room at the same time before you go into permitting.
- Who is involved? Con Comm, CZM, DEP, DMF, NHESP, USACE, NMFS, USEPA
- More information upfront is ALWAYS best
- Best case scenario – 1 year for permitting

# Start the process

- File Notice of Intent with Conservation Commission, USACE, DEP Wetlands Regional Office
- If applicable, file ENF with MEPA Office. If in doubt, contact MEPA for written request of applicability.

# MEPA Thresholds (301 CMR 11.00)

## (3) Wetlands, Waterways and Tidelands.

### (a) ENF and Mandatory EIR.

1. Provided that a Permit is required:

b. alteration of ten or more acres of any other wetlands.

2. Alteration requiring a variance in accordance with the Wetlands Protection Act.

### (b) ENF and Other MEPA Review if the Secretary So Requires.

1. Provided that a Permit is required:

f. alteration of one half or more acres of any other wetlands.

3. Dredging of 10,000 or more cy of material.

4. Disposal of 10,000 or more cy of dredged material, unless at a designated in-water disposal site.

# Once final MEPA certificate is issued

- Apply concurrently to:
  - MassDEP Chapter 91
  - MassDEP 401 WQC – If >100 cubic yards
  - USACE GP or IP (review thresholds under GP 5)
  - CZM Federal Consistency Review



# USACE GP 5

1. New dredging and disposal with:
  - a.  $\leq 1/2$  acre and  $< 10,000$  CY in MA; or
  - b.  $\leq 1,000$  SF of impacts to intertidal areas,  $\leq 1,000$  SF of impacts to tidal SAS excluding vegetated shallows, or  $\leq 100$  SF of impacts to vegetated shallows; or
2. Maintenance dredging and disposal with/when:
  - a. Dredge area  $> 1/2$  acre; or
  - b.  $\leq 1/2$  acre of impacts to tidal SAS or intertidal areas; or
  - c. In addition to the TOY restrictions in GC 18, dredging between Mar 16 and Oct 31 in tidal waters, the Connecticut River from the MA/CT border to the Turners Falls Dam, Merrimack River to the Essex Dam, or Taunton River. Dredge methods used other than mechanical or cutterhead; or
  - d. Dredging or disposal occurs within 100 feet of vegetated shallows or shellfish beds.

# CZM Federal Consistency Review

- CZM's mission is to balance the impacts of human activity with the protection of coastal and marine resources
- Federal consistency review is required for any listed federal license or permit activity (e.g. USACE permit) or federal agency action
- Upon completion of final MEPA review the project proponent submits federal consistency certification, copy of USACE application, copies of state applications, necessary data and information
- CZM has six months to complete (includes 21-day public comment period)
- State permits and licenses must be issued in order to complete review

# Typical information required

- Detailed project description
- Site description
- History and permits related to prior dredging
- Sediment testing, including physical (grain size analysis), chemical, and biological testing (contact both MassDEP and USACE first)
- Area in both square feet and volume of material to be dredged
- Existing and proposed water depths
- Resource areas potentially impacted
- Limits of dredging and impacts on detailed map
- Location of disposal site
- Potential EFH impacts
- Robust alternatives analysis
- Mitigation plan

# Marine Resources

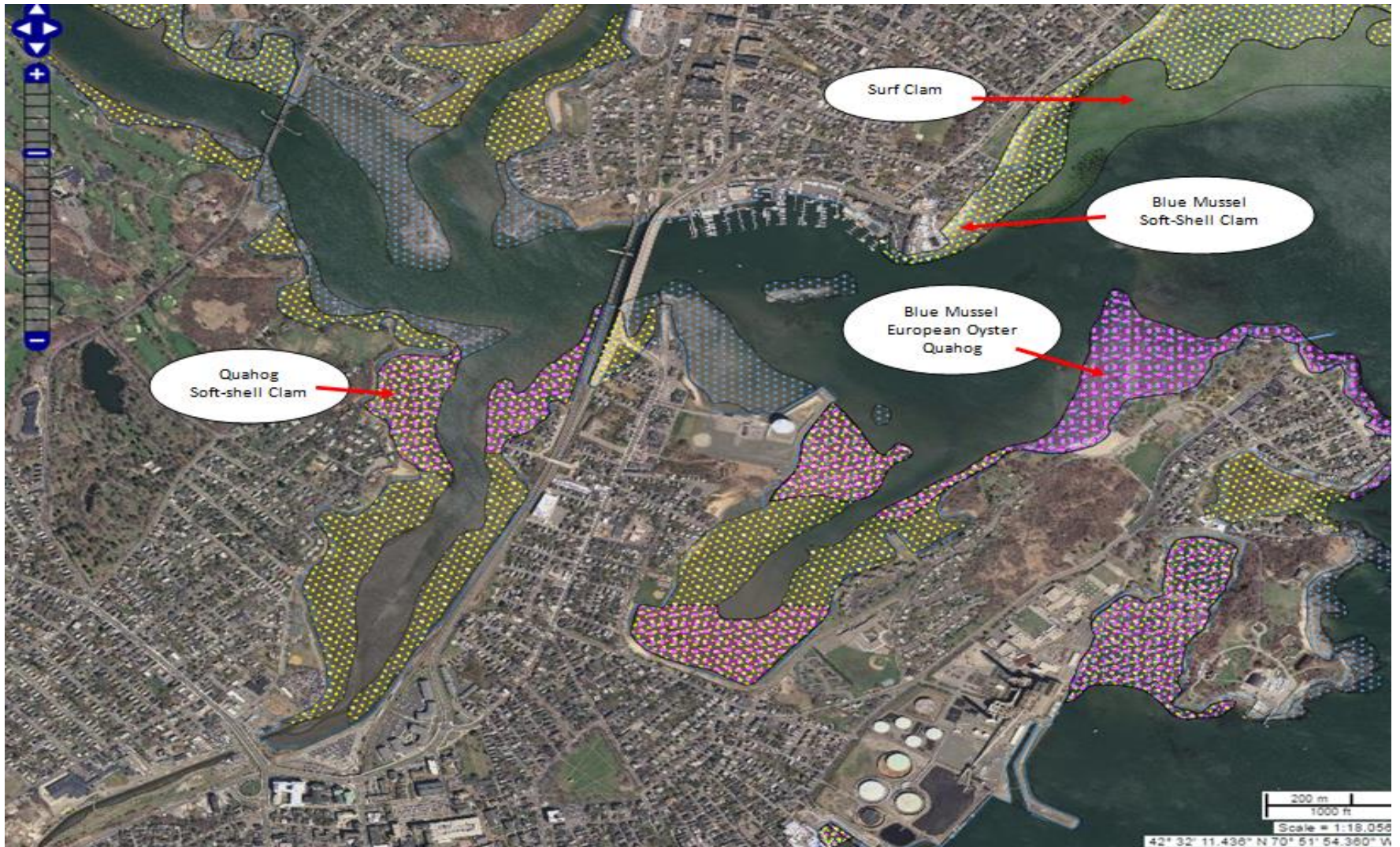
- Avoid, minimize, mitigate
- Delineate all resources. Remember, eelgrass surveys are best conducted in June and July
- Must look at changes to potential sediment transport and water circulation changes
- Lots of information available on MORIS

# DEP Mapped Eelgrass



42° 30' 43.560"

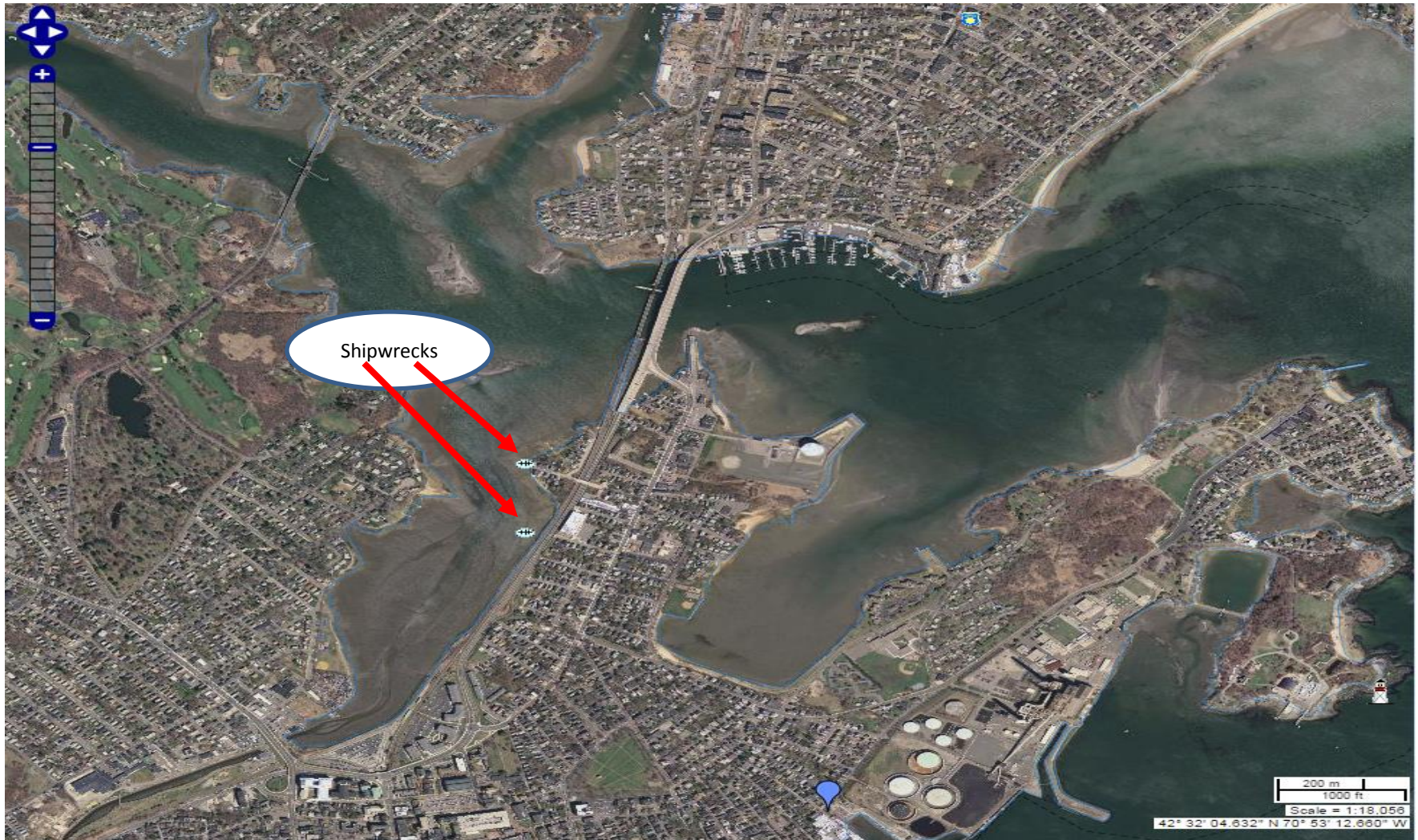
# Shellfish Suitability



# Wetland Resources



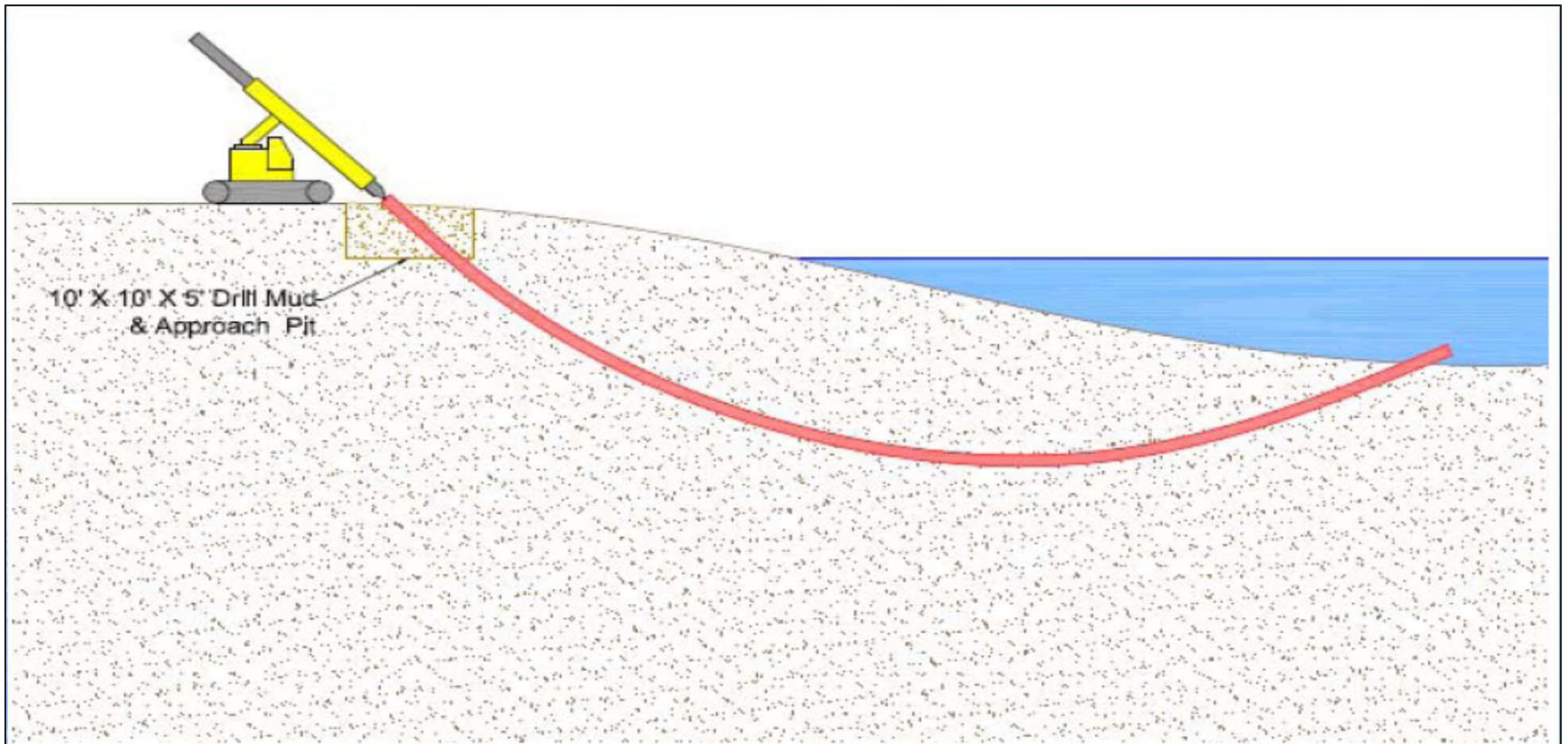
# Underwater Archaeological Resources



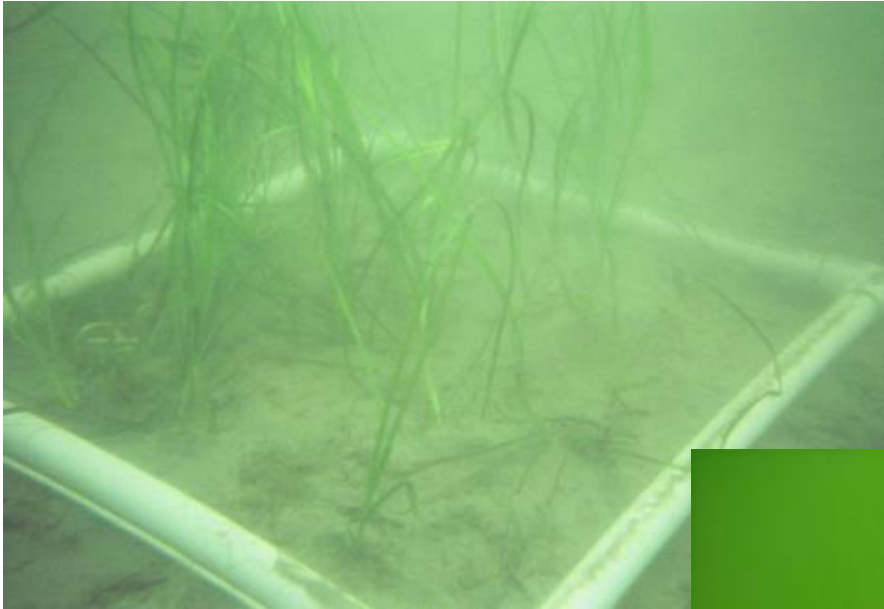


# Potential mitigation measures

- Dredging outside of DMF Time of Year (TOY) restrictions
- Using closed environmental bucket
- Using silt curtains in appropriate environments
- Dredging within a cofferdam
- Using Horizontal Directional Drilling (HDD) to avoid resource areas
- Maintaining minimum buffer zones from eelgrass, salt marsh, intertidal
- Stormwater sediment input reductions
- Eelgrass restoration
- Shellfish relays
- Beneficial reuse of dredged sediments (beach nourishment, capping)
- Compensatory mitigation
- USACE/DMF In Lieu Fee Program



Horizontal Directional Drilling (HDD)



Eelgrass planting and monitoring



Dredging and HDD within a cofferdam

# Remember

- We first look to AVOID impacts
- Mitigation follows for unavoidable impacts
- Mitigation should focus on in-kind in-place options first
- Mitigation can be very expensive (eelgrass restoration and monitoring can cost \$100K to \$300K per acre) and success is not guaranteed

Questions?