



The Conowingo Dam

Pilot Program for
Beneficial Reuse of Dredged Sediment and Assessment of
Sustainable Long-Term Solutions



TODAY'S DISCUSSION

1

Data Gap Analysis

2

Proposed Core Locations

3

Modeling

4

Innovative Reuse and Beneficial Use Steps

5

Questions

FIGURE OF HISTORICAL SEDIMENT SAMPLING LOCATIONS

- Historical sampling results provide preliminary characterization; significant data gaps exist
- Maximum core depth approximately 4 meters - no cores at depth
- Limited analytical suite performed
- Evaluating applicability of using grain size as a surrogate for nutrient concentration

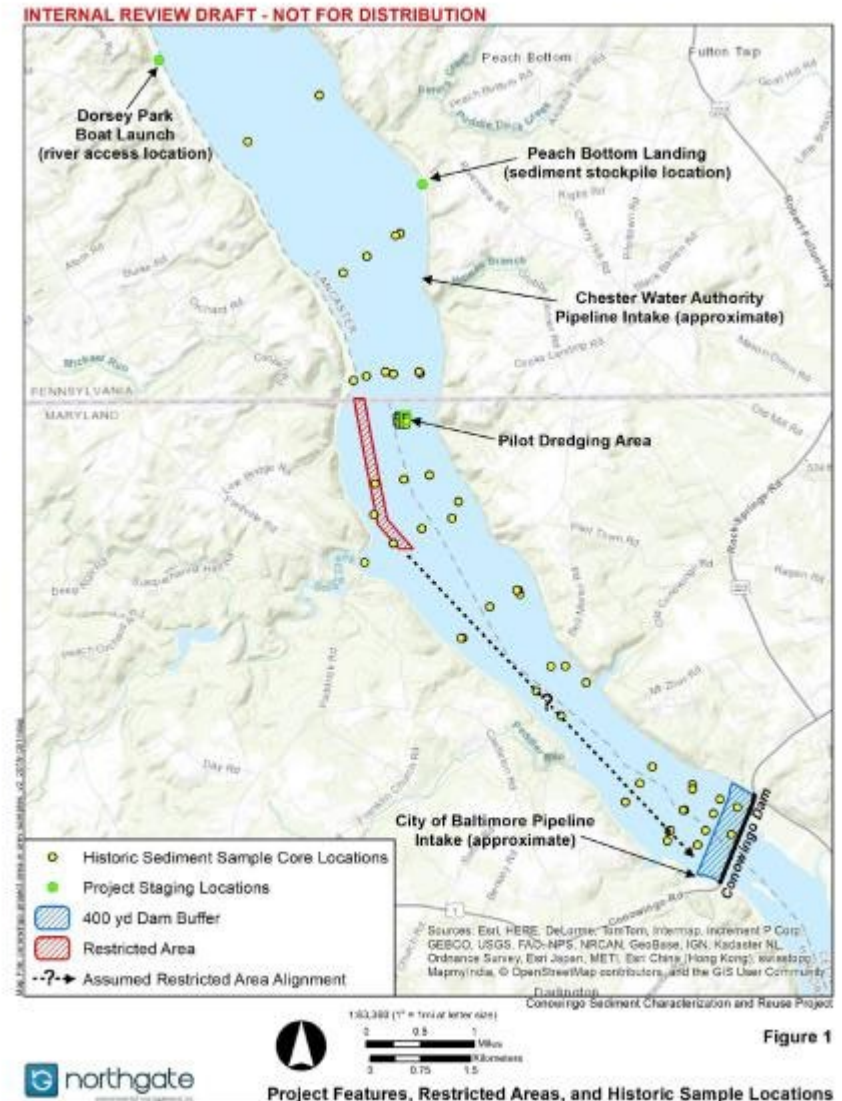
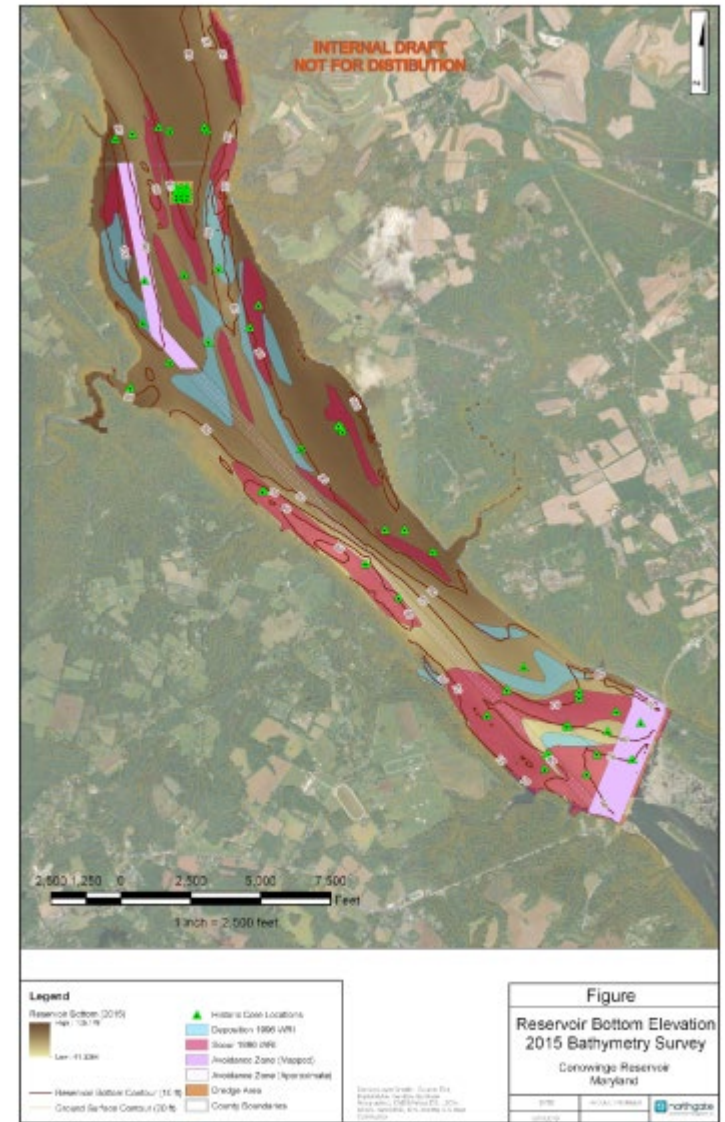


FIGURE OF SCOUR AND DEPOSITION

- Based on available information areas of deposition are concentrated in the northern portion of the reservoir while scour is more dispersed with two significant areas of scour in the southern portion of the reservoir
- Current bathymetry appears consistent with scour and deposition areas and the channel in the center of the reservoir



- Legend**

Core Locations

 - Active (A)
 - Depth of Water (D)
 - Rel. Sediment Thickness (T)

Alternate Boring Locations

 - Active (A)
 - Depth of Water (D)
 - Rel. Sediment Thickness (T)

Proposed Core Borehole Trajectories

No Drill Zone (Water Depth < 10ft)

Avoidance Zone (Shoal)

Avoidance Zone (Approximate)

Baltimore City Water Intake (Hypoxia Core is 100' Buffer)

Ground Surface Contour (20 ft)

County Boundaries

Reservoir Boundary (20 ft)

High Risk Area

Figure 11

Proposed Core Locations Sampling Plan

Conowingon Reservoir Maryland

| Core | Project Number | Date |
|------|----------------|------------|
| 1 | 1000000001 | 2010-01-01 |
| 2 | 1000000002 | 2010-01-01 |
| 3 | 1000000003 | 2010-01-01 |
| 4 | 1000000004 | 2010-01-01 |
| 5 | 1000000005 | 2010-01-01 |
| 6 | 1000000006 | 2010-01-01 |
| 7 | 1000000007 | 2010-01-01 |
| 8 | 1000000008 | 2010-01-01 |
| 9 | 1000000009 | 2010-01-01 |
| 10 | 1000000010 | 2010-01-01 |
| 11 | 1000000011 | 2010-01-01 |
| 12 | 1000000012 | 2010-01-01 |
| 13 | 1000000013 | 2010-01-01 |
| 14 | 1000000014 | 2010-01-01 |
| 15 | 1000000015 | 2010-01-01 |
| 16 | 1000000016 | 2010-01-01 |
| 17 | 1000000017 | 2010-01-01 |
| 18 | 1000000018 | 2010-01-01 |
| 19 | 1000000019 | 2010-01-01 |

Notes: Core locations shown that approximate location of water intake, hypoxia core is 100' buffer, and high risk area. Core locations are subject to change based on field observations and drilling conditions.

MODELING

1. **Model of Chesapeake Bay Watershed:**

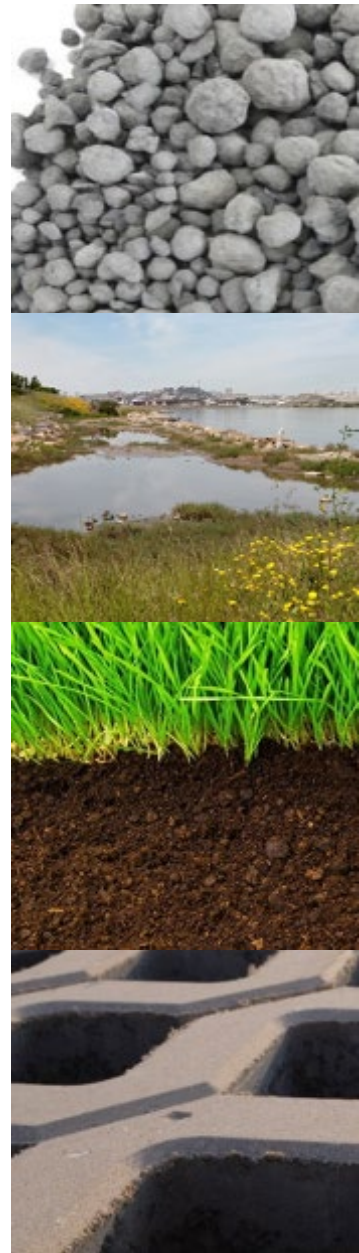
- a. HSPF model - owned and developed by the Chesapeake Bay Program: inputs to model of nutrient load from Conowingo Reservoir

2. **Models of Conowingo Reservoir:**

- a. ECOMSED 3-D model - owned by Exelon and developed by HDR - access requested.
- b. ADH 2-D model - owned and developed by the USACE - access requested.

INNOVATIVE REUSE/BENEFICIAL USE DEMONSTRATION PROJECT

- **1,000 cy of sediment to be dredged**
- **2 Phases of IR/BU Demonstration Project**
 - Stage 1 - Bench Scale Testing - will evaluate the suitability of material for intended use.
 - Stage 2 - Full Scale Testing - end uses that pass Stage 1 will be tested at full scale where manufactured projects will be produced and further tested.
- **Navigate Maryland's "Innovative Reuse and Beneficial Use of Dredged Material" regulatory pathway**
- **Economic analysis of potential cost offsets of manufactured products**
- **Economic assessment of market appetite for manufactured products**



Questions / Discussion

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