



Eastern Chapter

Fall 2019 Conference

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# BENEFICIAL USE OF DREDGED ENVIRONMENTAL SEDIMENT

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# Agenda

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Beneficial Use (BU) Basics

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BU Considerations

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Case Studies



# Beneficial Use Basics



# What is Beneficial Use?

- Reclassification of material from solid waste to usable material
- Requires defined end purpose (not another means of disposal)
- Requires information on:
  - Source
  - Chemical/physical properties
  - Quantities
  - End use
  - Sampling plan
  - Handling plan
  - Controls required for use
  - ...and much more

# Navigational vs. Environmental Beneficial Use

Navigational (NAV) BU	Environmental (ENV) BU
Dredged for navigation needs or beach replenishment	Sediment removed to meet required cleanup goals for aquatic habitat
BU is common and often pursued practice	BU is not often used due to constituent of concern (COC) levels
Requires state or federal approval of BU application	Requires state approval of BU application and remedial design
No public comment period unless project is subject to NEPA and local permits	May have public comment period for Agency approval of remedial action
Often acceptable for in-water placement such as habitat creation	Not acceptable for in-water placement

# Beneficial Use Considerations





# General Considerations

- Start process early
- Use in situ characterization as initial guideline
- Characteristics may vary between unprocessed and processed dredged materials
- Bench scale testing can support design of optimal stabilization mix
- Compliance testing performed on processed material



# State-Specific Processes

- NY: Beneficial Use Determination
  - Separate forms for NAV and other materials
- NJ: Site Remediation Program
  - Like-on-Like Requirement
  - 75th Percentile Requirement
- PA: Residual Waste Beneficial Use General Permits
  - Various permits based on end use (use as fill, road construction, mine reclamation, etc.)



***Each State Has Its Own Process***



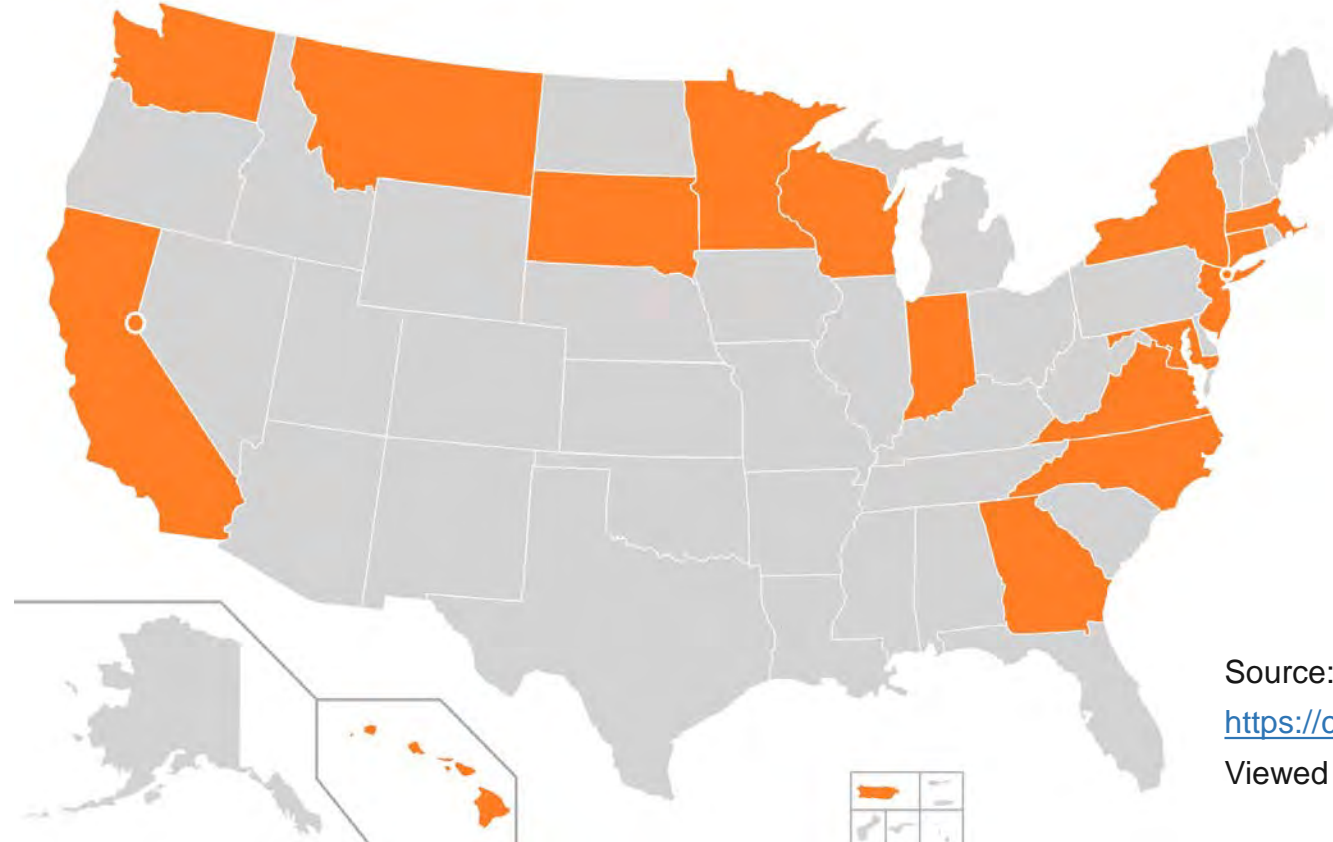
# State-Specific Processes

- MD: 2001 Dredged Material Management Act
  - Focus on increasing shoreline and resiliency
  - Material must be suitable to MDE
  - Innovative vs. beneficial use
- DE: 2001 Statewide Dredging Policy
  - Focus on beach nourishment
  - Heavily dependent on grain size, not just COCs

***Each State Has Its Own Process***

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# Jurisdictions with NEPA-Like Requirements



Source:

<https://ceq.doe.gov/laws-regulations/states.html>

Viewed 10/9/2019

***Each State Has Its Own Process***

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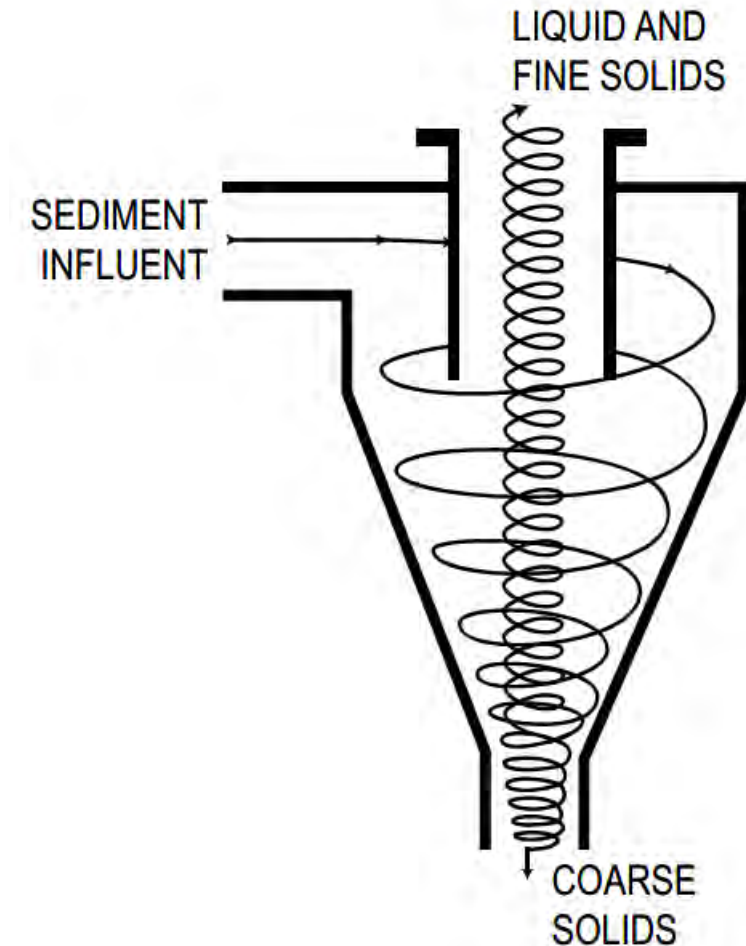
# Potential Beneficial Use Material Users

- Subgrade fill for upland work
- Daily cover for landfill
- Processing facility
- Concrete/asphalt/road construction
- Work with regulator to find remediation project
- Consider transport method and processing location
  - Barge material directly to receptor?
  - Hydraulic transport to receptor?



# Investigation/Design Needs

- Determine COC concentrations beyond site-related COCs
- COCs typically bound to fines
- Sand separation may be viable approach
  - Use hydrocyclone – expensive but may be needed for dewatering
  - Conduct bench and pilot tests
  - Analyze COCs in separated sand fraction



# Case Studies



# Facility on Hudson River

- Dredging/BU placement complete
- Former manufacturing facility
- COCs were metals in river and storm sewers
- Sediment dredging and storm sewer cleanout
- Allowed to use dredged materials and storm sewer sediment as grade fill under final cover
- Stabilized material required to meet TCLP limits
- Over 5,300 cy sediment stabilized onsite
- At least \$680,000 avoided on sediment T&D





# Wisconsin Embayment

- In design
- Combined NAV and ENV dredging
  - Placing NAV materials in CDF
  - Placing ENV materials in city landfill and offsite disposal
- Landfill requires final cover
  - Topsoil scarce and expensive
  - WDNR approved use of certain ENV materials as cover soil
  - Stabilization required for ENV materials raises pH too high for vegetation growth



# Wisconsin Embayment

- Agencies coordinating approval of reusing previous NAV materials from CDF for landfill cover
  - USEPA
  - USACE
  - WDNR
  - MDNR
- Over 15,000 cy CDF material to be used
- Over \$560,000 savings on imported topsoil



Image from Google Earth, 9/14/19

# Conclusion



- BU of ENV material can lead to cost efficiencies
- Process varies by state
- Start early and work closely with regulators
- Plan pilot studies

# Your Presenter



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