

# Management of Contaminated Sediments: Sustainable Alternatives

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Environmental  
Solutions



Property  
Redevelopment



Design/Build  
Construction



Green  
Buildings



Clean  
Energy



*The Trusted Integrator for Sustainable Solutions*

# Current Dredged Material Management Challenges

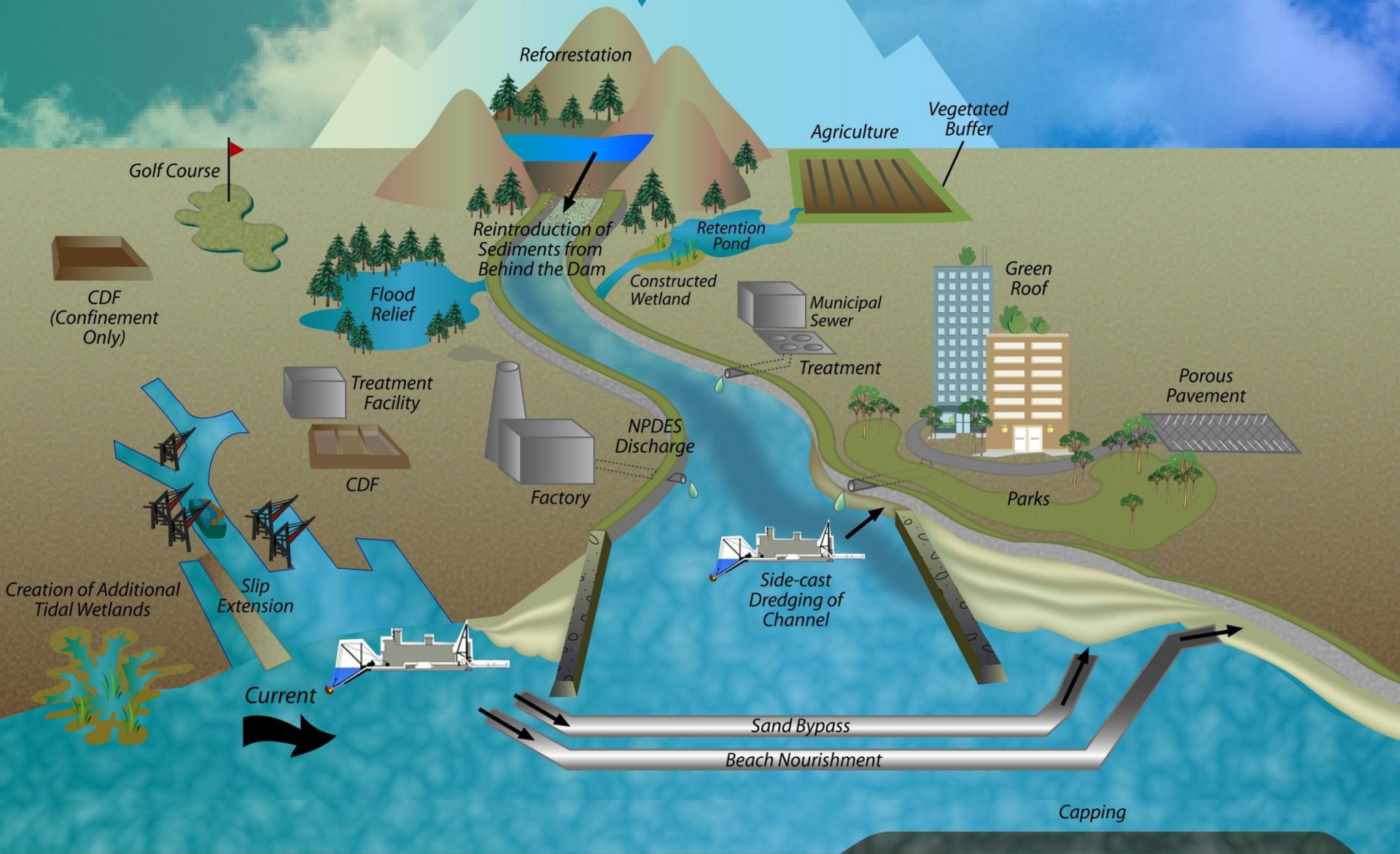
- Not enough sediment where we want it (e.g., ecosystems, beaches, wetlands, etc.)
- Too much sediment where we don't want it (e.g., harbors, ports, marinas, etc.)
- 250 M-yd<sup>3</sup> of sediment dredged annually to support US navigation program (\$\$)
- Uncoordinated regulatory programs
- Insufficient science and engineering to develop better management strategies and technologies

# Sustainable Sediment Management

*Comprehensive approach for addressing the long-term management and conservation of sediments within a watershed to maintain current and future beneficial uses while addressing regional environmental, economic, and social objectives.*

**Sediment is a resource not a waste!?**

# Integrated Sustainable Sediment Management



# Comprehensive Management Program

## Design requirements:

- Watershed level focus, long-term goals
- Use of Regional Sediment Management principles
- Source controls!!!!!!!
- Commitment to beneficial use, conservation, and reclamation
- “Green Remediation” - reducing carbon footprint/impacts considered during management (e.g., GHG emissions, water usage, material consumption, waste generation and energy usage)
- Creative solutions for management of contaminated materials
  - ❖ Removal of contaminated materials may not be the best option
- Integrated, cross-programmatic coordination and cooperation
- Ecosystem services and sensitive habitat complexities in remedy selection and implementation

# Beneficial Uses of Contaminated Dredged Material

- **Habitat Restoration/Enhancement (wetland, upland, island, and aquatic)**
- **Aquaculture**
- **Parks and Recreation (commercial and non-commercial)**
- **Agriculture/Horticulture/Forestry**
- **Mine and Quarry Reclamation**
- **Landfill Cover for Solid Waste Management**
- **Beach Nourishment/Shoreline Stabilization**
- **Industrial and Commercial Use**
- **Material Transfer (fill, dikes, roads, etc.)**
- **Construction Material**
- **Multipurpose/Sequential/Innovative Land-use Concepts**

# Considerations in Remedy Selection

- **Extent & Magnitude of Contamination**
- **Identification/isolation of source**
- **Stability of the Site**
- **Proximity of sensitive receptors**
- **Engineering Feasibility**
- **Cost**
- **Societal/ Cultural concerns**
- **Risk/Uncertainty**
- **Permanence**
- **Fate chemistry**
- **Weather**
- **Hydrology, tides, water temperature**
- **Geomorphology**
- **Equipment availability & mobilization**
- **Residuals**
- **Post-treatment of water and air**
- **Available onsite footprint**
- **Disposal options and availability**
- **Monitoring requirements**
- **Contaminated media**
- **Neighbors/work restrictions**





# Dames Point Container Terminal – Jacksonville, FL



**1.5-M yd<sup>3</sup> of dredge material**

# Philadelphia International Airport Runway Expansion – Philadelphia, PA

- **Construct a 5,000-ft commuter runway at the abandoned Enterprise Avenue Landfill site, a former Superfund site.**
- **Constructed to allow aircraft to clear structures at the nearby Navy Yard.**
- **WESTON saved the City ~ \$5 million by using 1-M yd<sup>3</sup> of sediment dredged from the Delaware River to construct the runway to the proper height.**
- **Completed on time and within budget.**

# Questions??



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