DEVELOPMENT OF A NEW PIANC STANDARD FOR THE BENEFICIAL USE OF DREDGED MATERIAL

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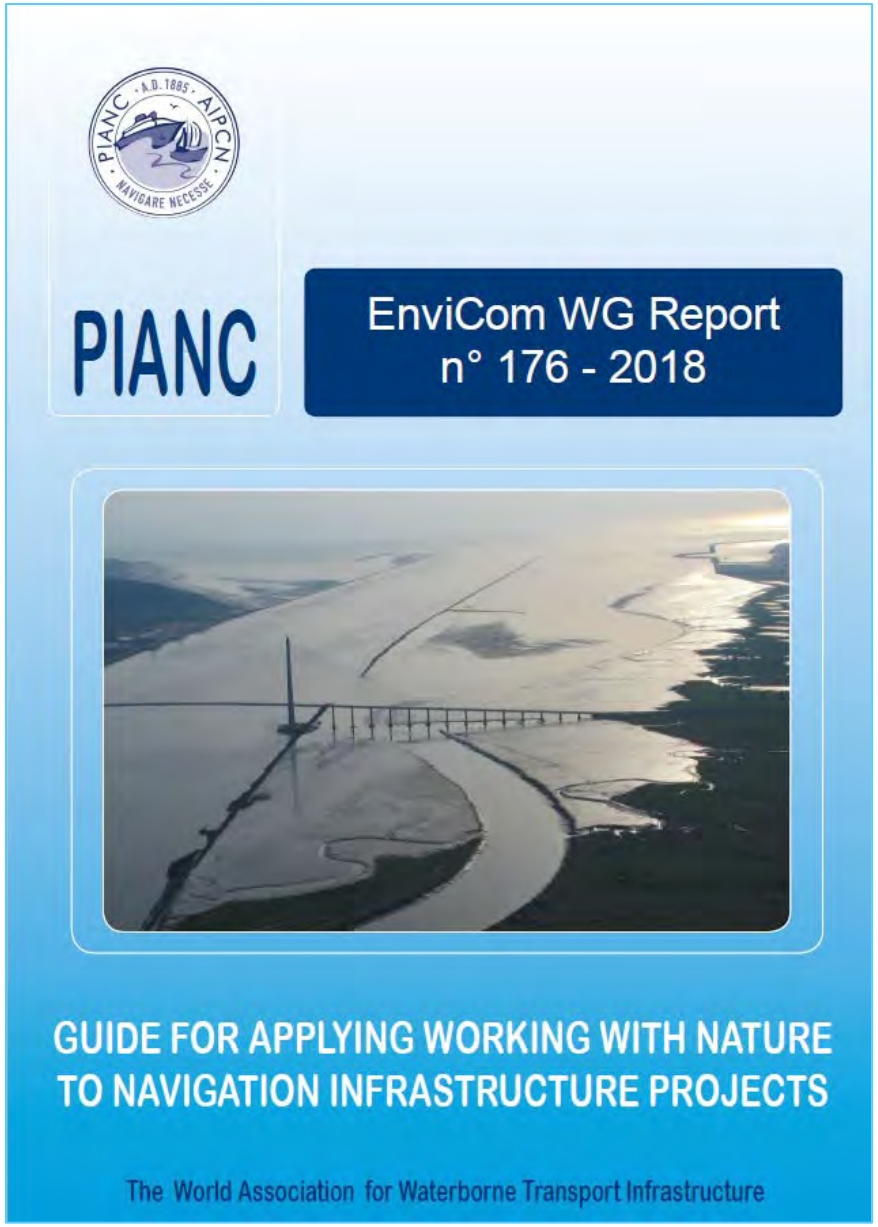
SEDIMENT BENEFICIAL USE

- Facilitates environmentally sustainable goals
- Well established practice for clean sediments
- USACE advocates 100% BU as part of USACE dredging programs (by 2030)
- Many US states have BU guidelines and regulations
- Increasing value of sediment in aquatic environments

- Common examples
  - Wetlands creation and restoration
  - Flood control and coastal resiliency
  - Brownfields redevelopment
- Contaminated sediments can be amended for alternative uses

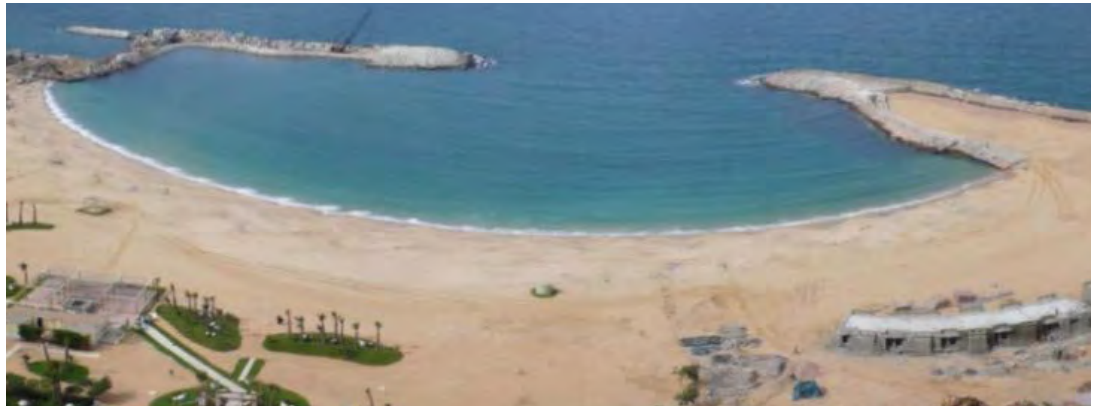
PIANC WwN GUIDE (2018)

1. **Provide technical information** regarding the WwN approach for navigation infrastructure projects
2. **Give guidance** on how to integrate WwN into navigational infrastructure projects
3. **Describe relationships** between various "With Nature" initiatives (EwN and BwN)
4. **Provide case studies** that highlight the WwN approach
5. Help drive **innovation and investment** in nature, while managing navigational infrastructure goals and help create **new habitat opportunities**



SHIFT IN FOCUS

- Stop having a technical design first, and then an EA to mitigate or limit damages
- Address environmental protection **in parallel** with project development
- Identify **win-win solutions** that respect nature and are acceptable to project proponents and stakeholders
- Facilitate adaptation of projects to **climate change** (reduce vulnerability and improve resilience)



ENGINEERED DEVELOPMENT IN EGYPT

NATURAL BEACH IN PORTUGAL

BENEFICIAL USE AND SUSTAINABLE SOLUTIONS

- Cost savings
- Energy savings
- Reduce landfill space requirements
- Reduce off-shore disposal and environmental impacts
- Win-win opportunity to benefit ecosystem services

- Perception management
  - "Contaminated"
  - "Not in my backyard"
- Site management
  - Operations and maintenance
  - Cost sharing (savings)

PORT OF OAKLAND MIDDLE HARBOR 1993 TO TODAY

Ellen Joslin Johnck, RPA Consulting Oakland, California USA

MIDDLE HARBOR BASIN PROJECT DESIGN & TARGET HABITATS

- Cost to Construct: approx $66.8M
- MHEA (180 acre/72 ha)
  - Shallow-water habitat
  - Eelgrass
  - Salt marsh bird roosts
  - Fish habitat
  - Coves
- MHSP (38 acre/15 ha)
  - Public access
  - Bike/walk paths
  - Education
  - Bay views and viewing platforms
  - Picnicking and BBQ

MHEA = Middle Harbor Enhancement Area
MHSP = Middle Harbor Shoreline Park

ATLANTIC WOOD INDUSTRIES SUPERFUND SITE, PORTSMOUTH, VA

Dredged Sediment Volume (cy)	350,000
Total Cost (million USD)	$82
Unit Cost (USD)	$230

Notable Features

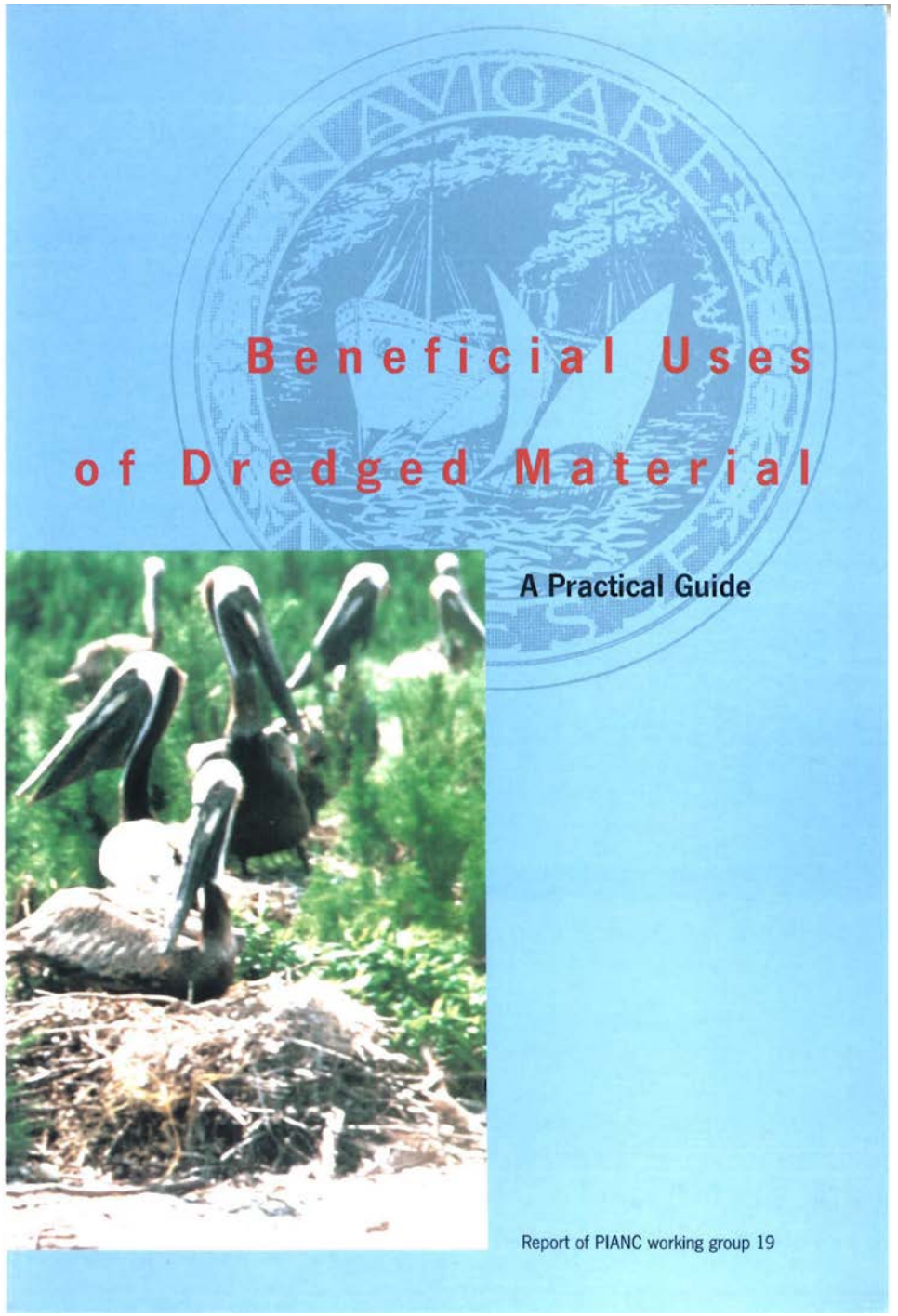
- On-site sediment consolidation
- Used dredged sediment to cap six acres contaminated sediment
- Capped sediment to create new water-front industrial property
- Rest of sediment in landfill underneath operating facility

EXISTING GUIDANCE

Environmental Evaluation and Management of Dredged Material for Beneficial Use: A Regional Manual for the Great Lakes

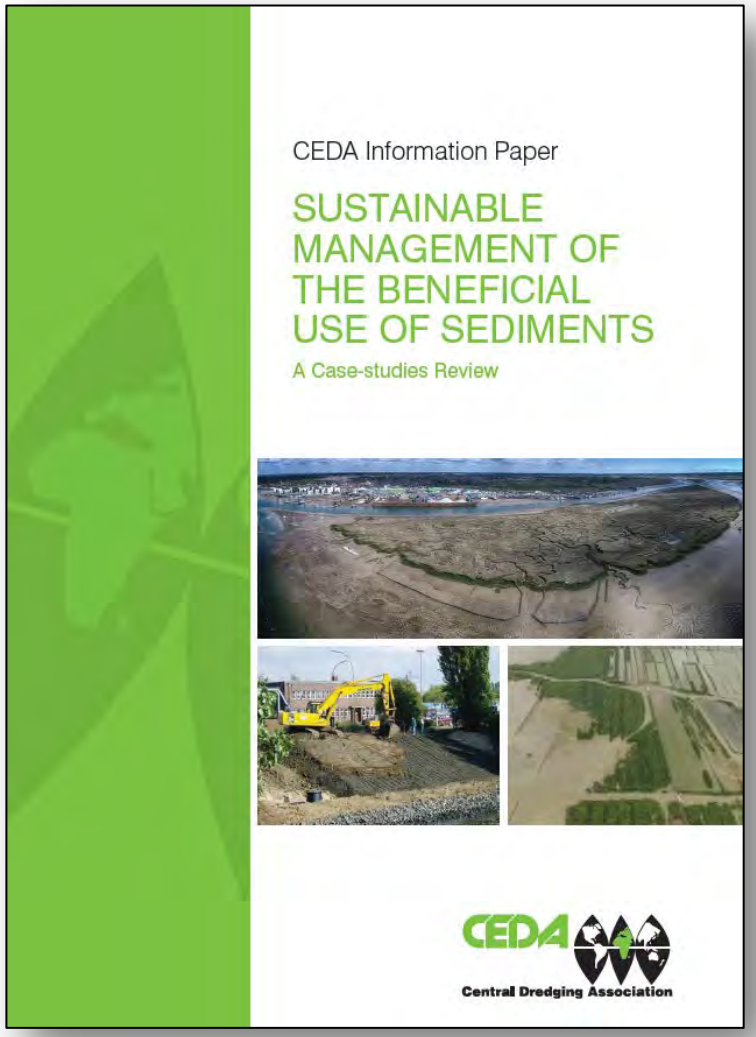
Resource document providing technical guidance for evaluating the suitability of Great Lakes dredged material for beneficial use in aquatic and terrestrial environments in the Great Lakes region

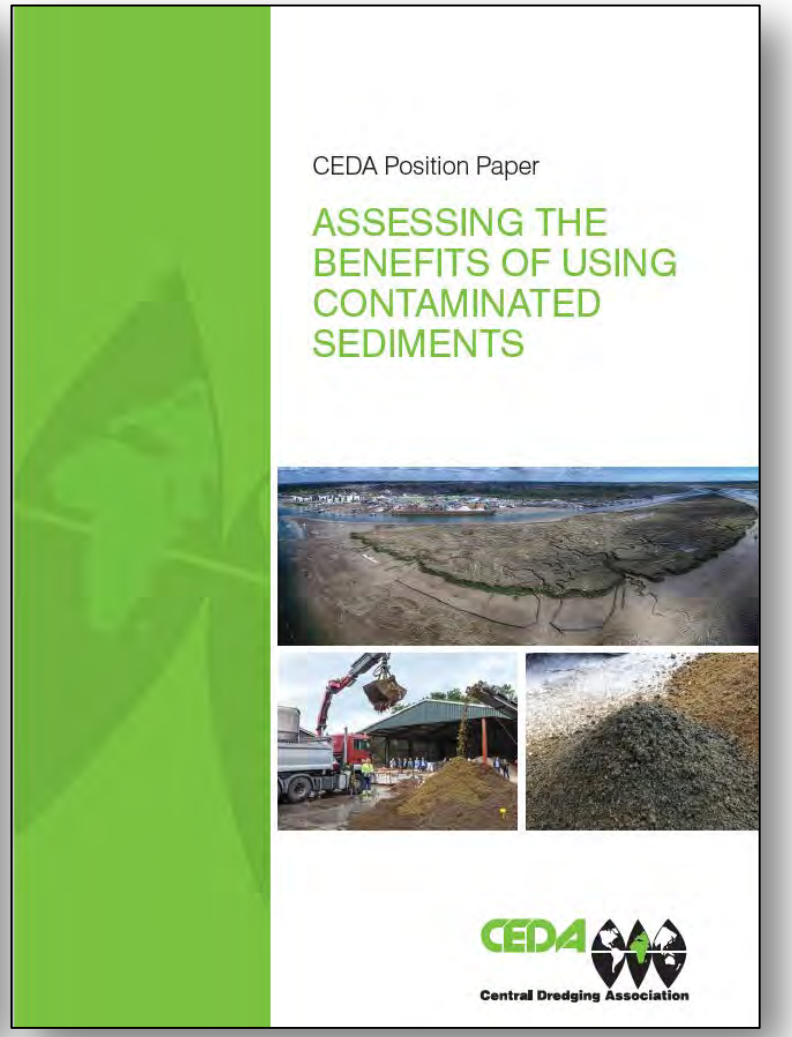
https://greatlakesdredging.net/priorities/dredged-material-management/



www.pianc.org (2009)

CEDA BENEFICIAL SEDIMENT USE PAPERS





"the use of dredged or natural sediment in applications that are beneficial and in harmony to human and natural development"

- Collected 38 Case Studies, 11 Countries
- Clean and contaminated

OPPORTUNITIES AND CHALLENGES

Common Challenges

- Liability
- Permitting and "waste" designations
- COST $$$
- Perception / NIMBY / Stigma
- Limited demand compared to volumes
- Fine grained sediment (everyone loves sand)
- Stakeholder buy-in
- Overly restrictive contamination requirements

Opportunities

- Increasingly limited volumes remaining in CDFs
- Cost of dredging and disposal
- Sustainability / circular economy / public interest
- Redefine sediment as a resource
- Public / stakeholder engagement and education
- Brownfields applications using stabilized sediment
- Sea level rise and coastal resilliance

VISION

Create a framework for planners, engineers and the public to promote sediment as a beneficial resource

- Build on existing documents
  - CEDA, USACE, PIANC
  - Less focus on technologies and more focus on governance
- Identify key constraints / lessons learned
- Understand regional differences
  - Country / continent / region
  - US regions (NE, Mid Atlantic, SE, NW, SW, Great Lakes, Gulf)
  - Learn from different regions and case studies
- Join forces: PIANC, WEDA, CEDA, SedNet

Port of Helsinki Contaminated Sediment Reuse for Geotechnical Foundations

Increasing demands on natural resources to require creative efforts to conserve and create new habitat

THANK YOU!

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