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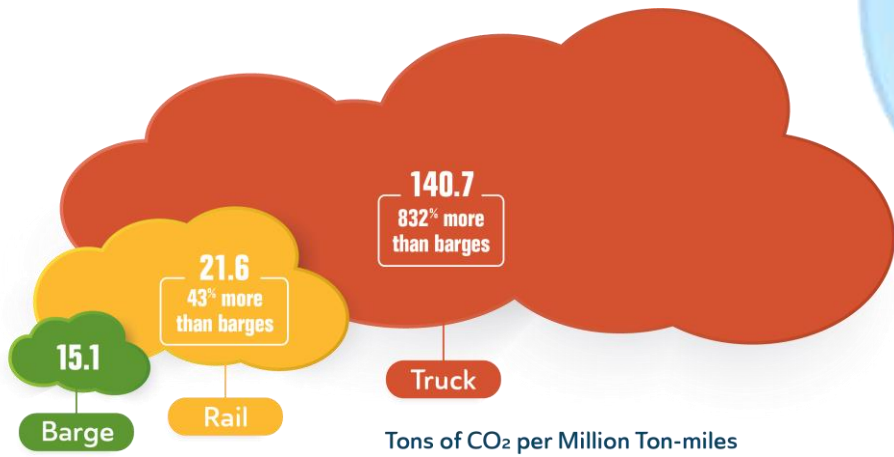
The World Association for Waterborne
Transport Infrastructure

Principles of Sustainable Dredging

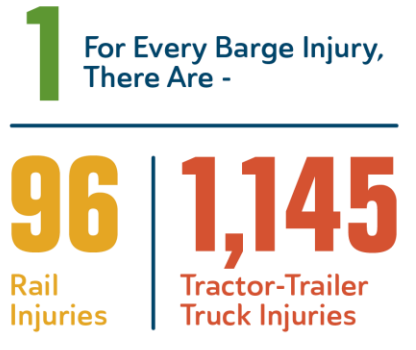
Presented by

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25 July 2023

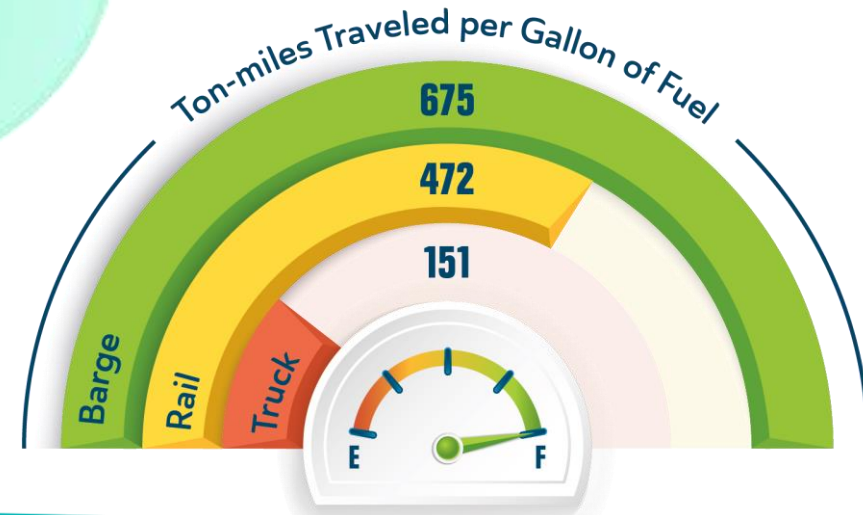
Sustainability of Waterborne Transport



Inland Waterways Transport has the **Lowest Injury Record** Compared to Rail or Truck



Ratio of Injuries in Freight Transportation



2021 CO₂ Emission Savings

**in comparison to the most likely alternative routes*



16 million tons
of CO₂ equivalent

● Total CO₂ Emission Savings in 2021

Asia ↔ US East Coast	3.5 million tons
US East Coast ↔ West Coast of South America	1.7 million tons
US East Coast ↔ West Coast of Central America	1.6 million tons
US West Coast ↔ US East Coast	985,599 tons
West Coast of South America ↔ Europe	955,867 tons



PIANC IS

A **worldwide network** of professionals,

Providing **expert advice**
on **cost-effective and sustainable**
waterborne infrastructure,

And the **leading partner**
for governments and the private sector
in the design, development and
maintenance of ports,
waterways and coastal areas

...

SINCE 1885!



WHAT PIANC DOES

- Deliver **high-quality technical reports** within our International Commissions and Working Groups
- Create a **worldwide network of the best international experts**, both public and private, on technical, economic and environmental issues pertaining to waterborne transport infrastructure
- Support **Young Professionals and Countries in Transition**
- Keep the network connected through **PIANC's international/regional/local events**

Remain
the leading
international source
of
waterborne transport-
related information
in the 21st century

OUR TECHNICAL REPORTS



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SUSTAINABLE INLAND WATERWAYS

A Guide for Inland Waterway Managers
on Social and Environmental Impacts



SOCIETY
Governance; Ethics;
Health; Education

EQUITY
Equitable


ECONOMY
Living
Conditions;
Welfare

ENVIRONMENT
Sustainable Energy;
Greenhouse Gases;
Biodiversity; Natural
Resources

LIABILITY
Livable


VIABILITY
Viable

InCom Working Group Report N° 203 – 2023




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BENEFICIAL USE FOR SUSTAINABLE WATERBORNE TRANSPORT INFRASTRUCTURE PROJECTS




EnviCom Working Group Report N° 214 – 2023



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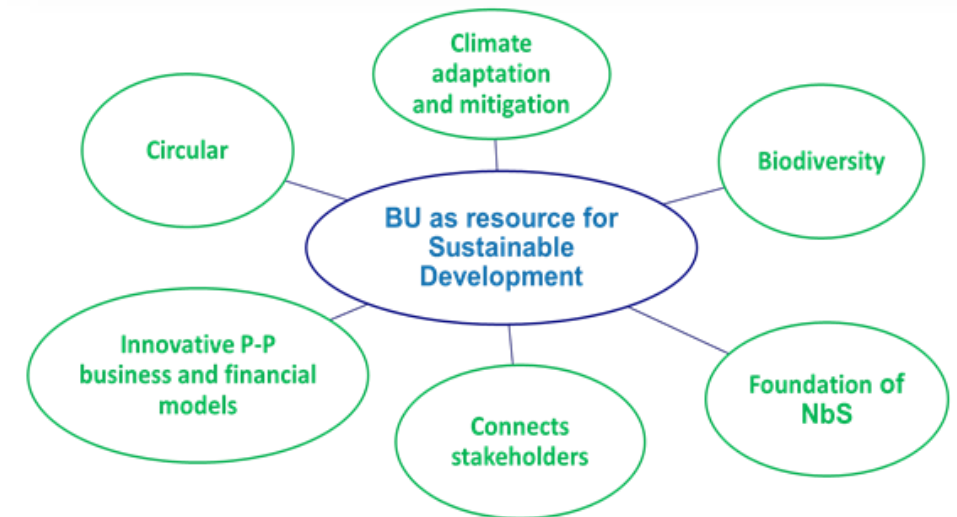
SUSTAINABLE MANAGEMENT OF THE NAVIGABILITY OF NATURAL RIVERS



InCom Working Group Report N° 236 – June 2024

Sustainable Dredging

- Specific to dredging, this includes:
 - **Beneficial Use of Sediments**
 - Climate Adaptation and Mitigation
 - Circular Economy
 - Nature Based Solutions
 - Biodiversity
 - Innovative Public-Private Partnership Business and Financial Models
 - Stakeholder Involvement
 - **Governance**



WG 214: Beneficial Use for Sustainable Waterborne Transport Infrastructure Projects

Working Group Report Goals

- Increase industry-wide Beneficial Use (BU) practices globally
- Develop strategies to overcome barriers to BU
- Advance circularity and sustainability goals by managing sediment as a resource



Coastal bird habitat created by beneficial use of dredged material
In Baptiste Collette Bayou, Louisiana, USA (Photo: PJ Hahn).

WG 214: Overall Approach

Create a framework for users to promote sediment as a beneficial resource

Build on existing documents

- CEDA, USACE, PIANC
- More focus on governance than technologies

Identify key barriers / catalysts

Understand regional differences

- Country / continent / region
- Learn from different regions and case studies

Collaborate: PIANC, WEDA, CEDA, SedNet



Seven Mile Island Innovation Laboratory (SMILL), New Jersey Coast, US: Transforming Practice from Dredged Material as Waste to Dredged Material as a Resource (Photo: Sarah Thorne)

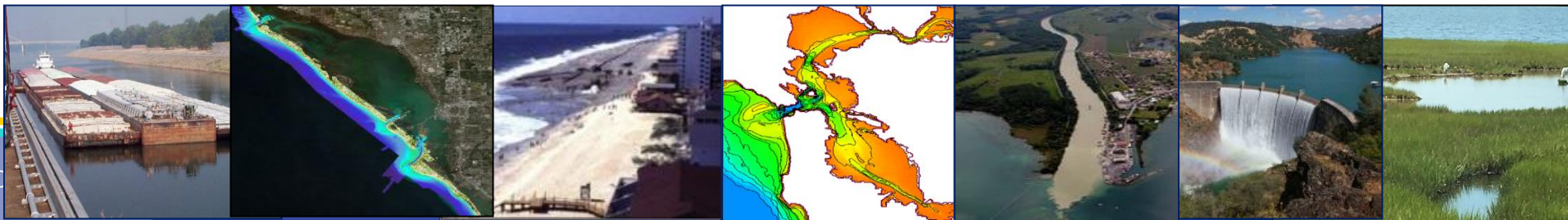
Regional Sediment Management



“A systems approach using best management practices for more efficient and effective use of sediments in coastal, estuarine, and inland environments for healthier and more resilient systems.”

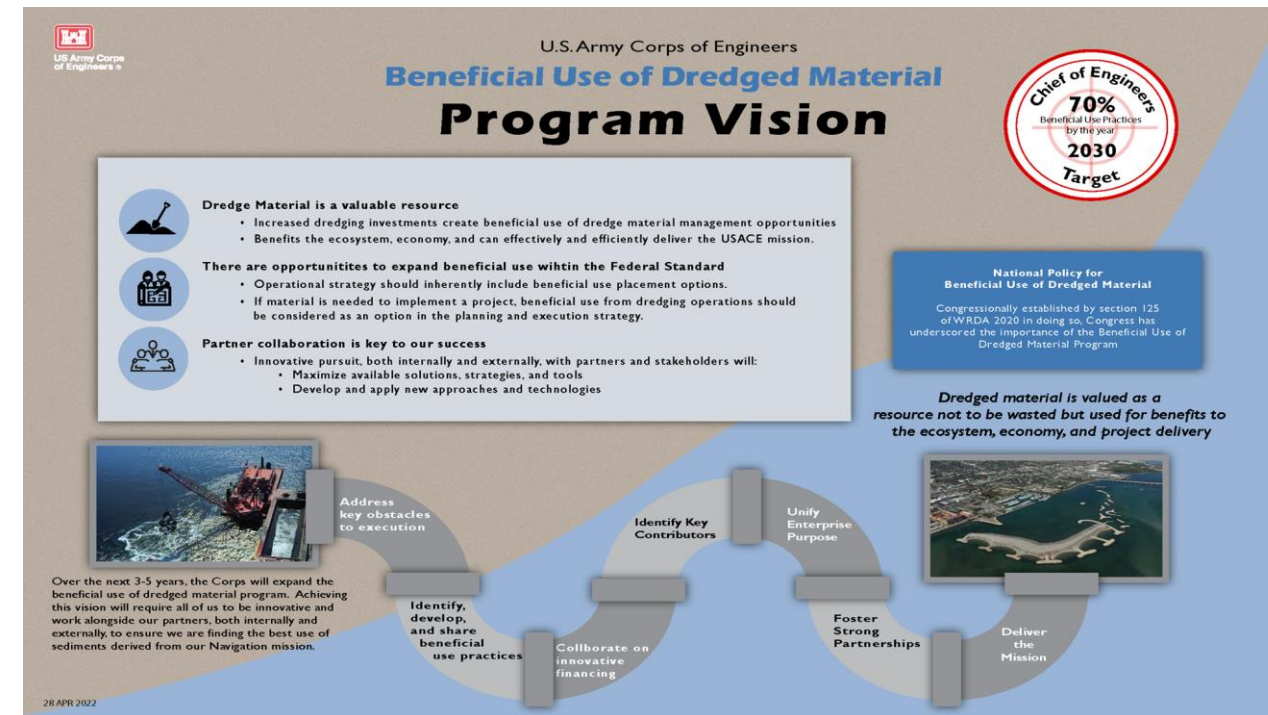
- Recognizes sediment as a valuable resource
- Work across business lines, projects, and authorities to create short and long-term economically viable and environmentally sustainable solutions
- Improve operational efficiencies and natural exchange of sediments
- Consider regional implications of project scale actions and benefits
- Apply/Enhance tools and technologies for regional approaches
- Share lessons learned, information, data, tools, and technologies
- Communicate and collaborate

<https://rsm.usace.army.mil/>



Expanding Beneficial Use of Dredged Material

- Dredged material as a valued natural resource
- Achieve multiple economic, social, and environmental benefits
- Current beneficial use: 30-40%
- Advance BUDM practice to 70% by the year 2030 “70/30 Goal”
- Pursue innovation collectively with USACE partners and stakeholders
- Aligns with two of four LTG Spellmon’s Key Priorities: Partnerships & Innovate



Climate Change Adaptation & Mitigation

Sediment BU >> SDG #13 Climate Action

Modify dredging equipment with high-efficiency engines or dual fuel engines

Reduce offshore disposal transport distances

Create or restore carbon sinks such as salt marshes and mangrove forests

Climate adaptation BU projects include:

- Restore ecosystems
- Maintain and restore barrier islands to improve community resiliency (e.g., Cat & Ship Islands on Mississippi coast; EWN Atlas V2*)
- Use ripened sediments to reinforce dikes (e.g., Kleirijperij EWN Atlas V2*)



Dredged sediment is being used to raise agricultural land in The Netherlands. For example, in the Clay Ripener study, Kleirijperij dredged sediment is being used for this purpose.

[*https://ewn.erdcdren.mil/?page_id=4174](https://ewn.erdcdren.mil/?page_id=4174)



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