



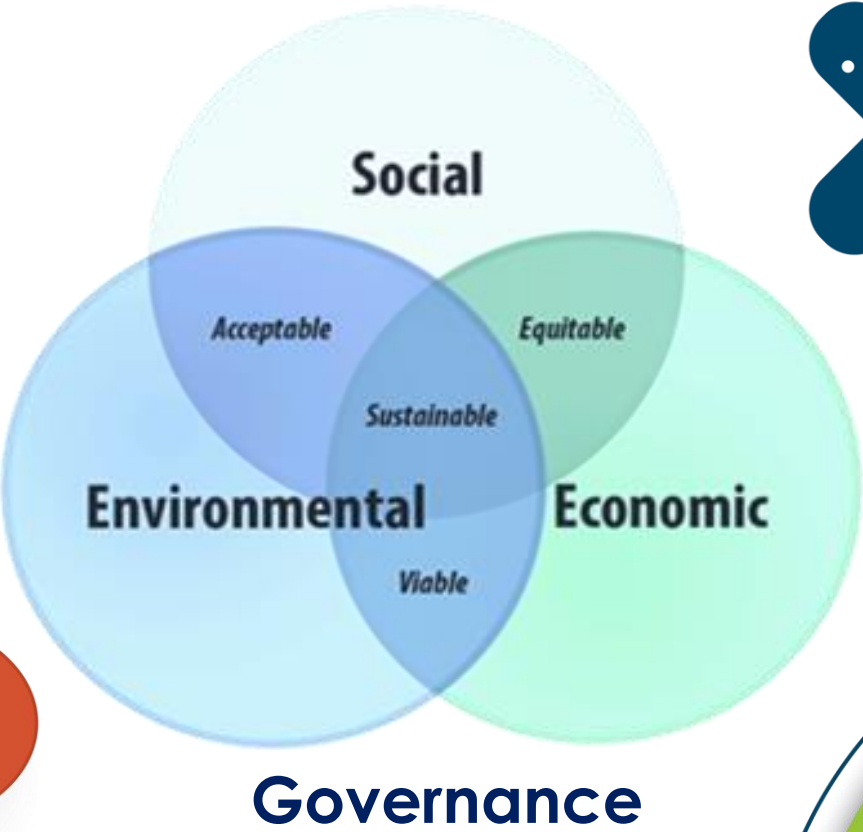
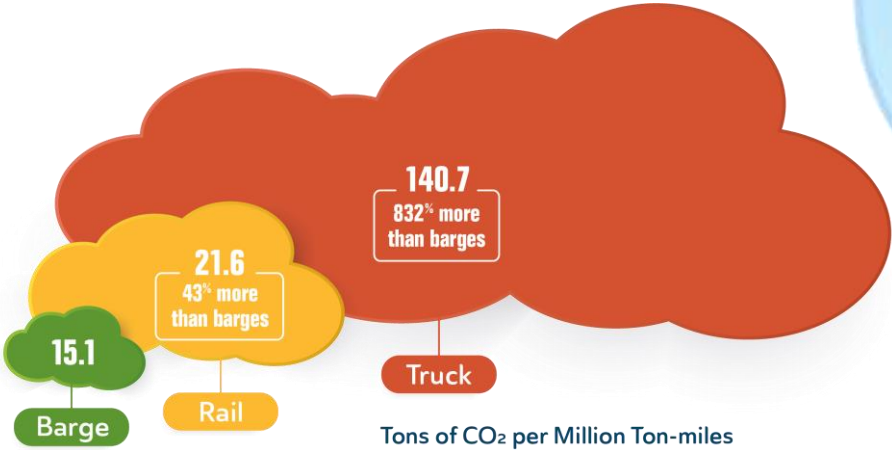
PIANC
The World Association for Waterborne
Transport Infrastructure

Principles of Sustainable Dredging

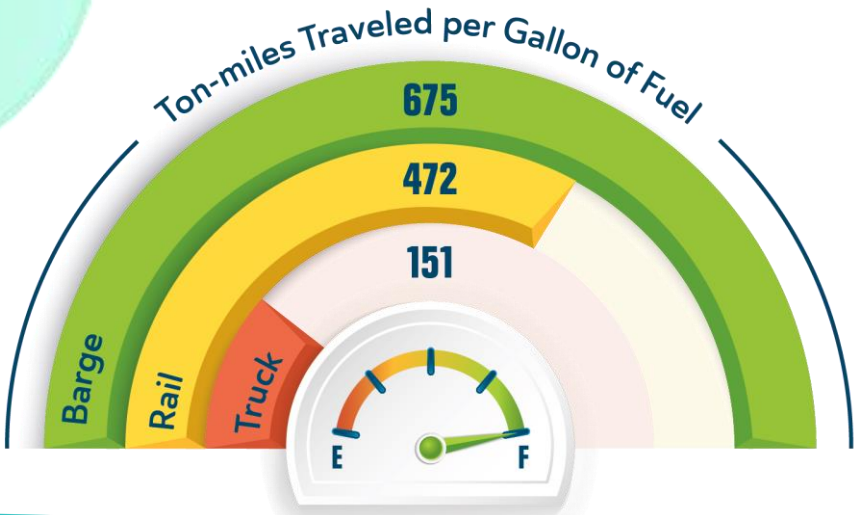
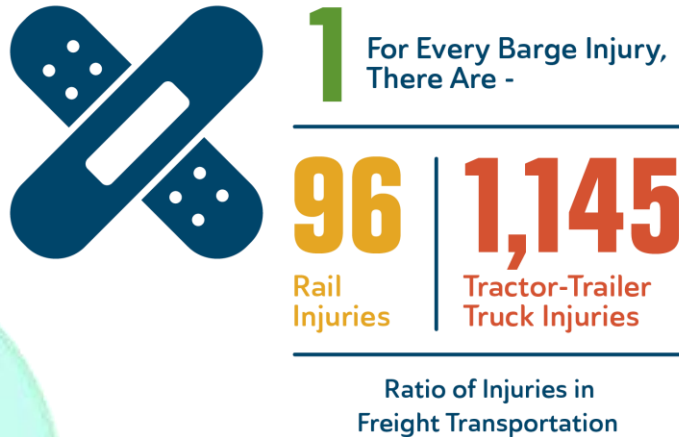
Presented by

Calvin Creech, PhD, PE
Vice President – PIANC
US Army Corps of Engineers
25 July 2023

Sustainability of Waterborne Transport



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



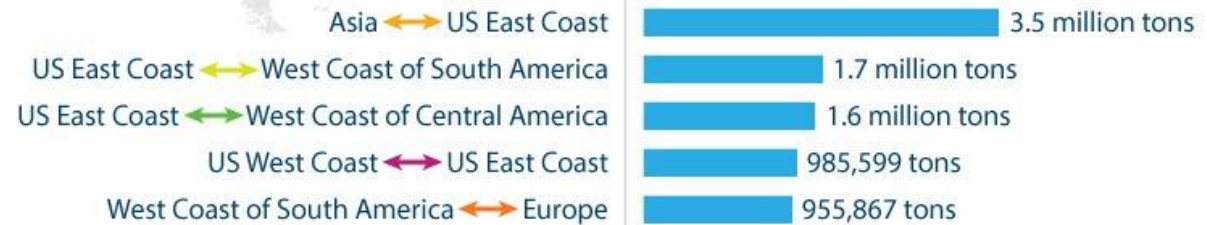
2021 CO₂ Emission Savings

**in comparison to the most likely alternative routes*



16 million tons
of CO₂ equivalent

● Total CO₂ Emission Savings in 2021



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!

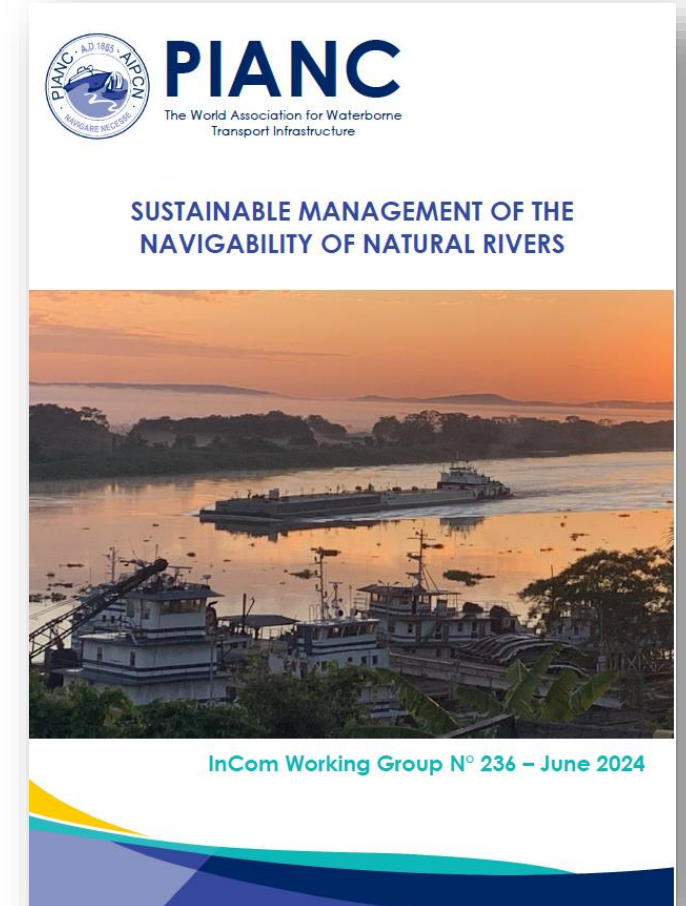
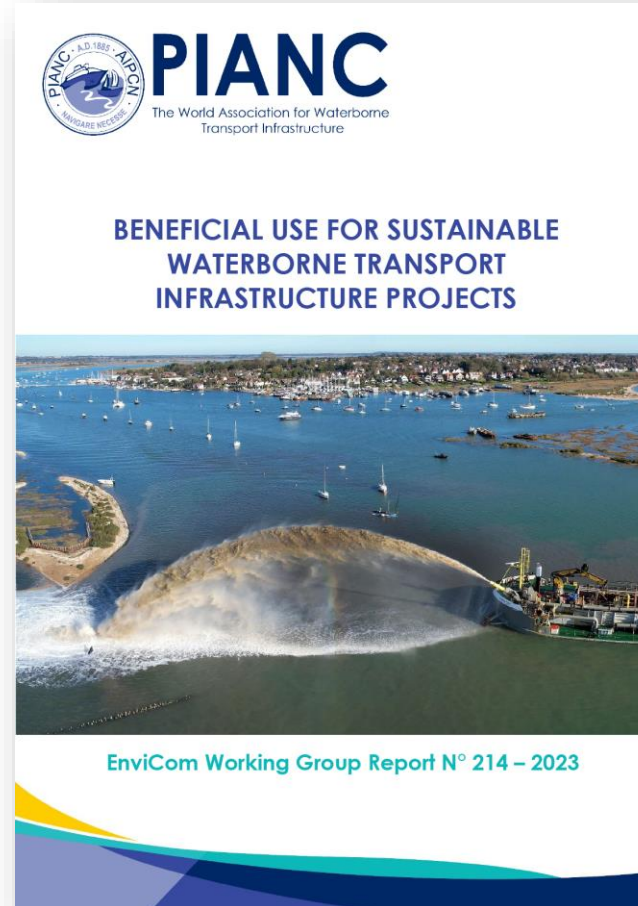
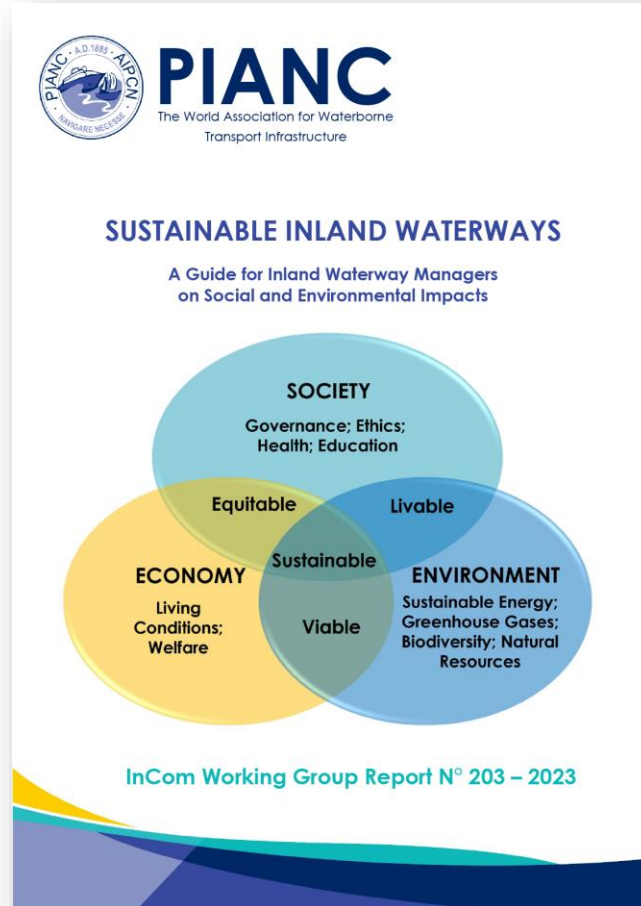


WHAT PIANC DOES

- 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**

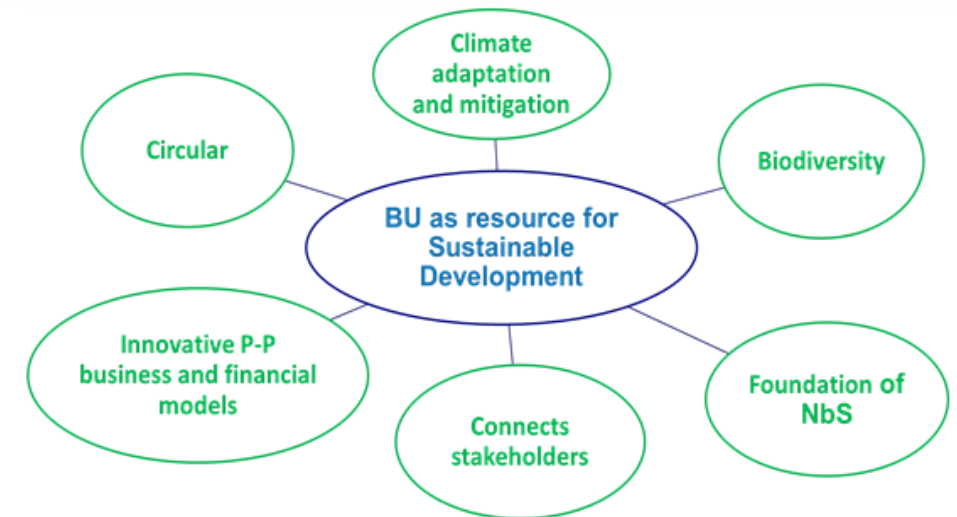
Remain
the leading
international source of
waterborne transport-
related information
in the 21st century

OUR TECHNICAL REPORTS



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).

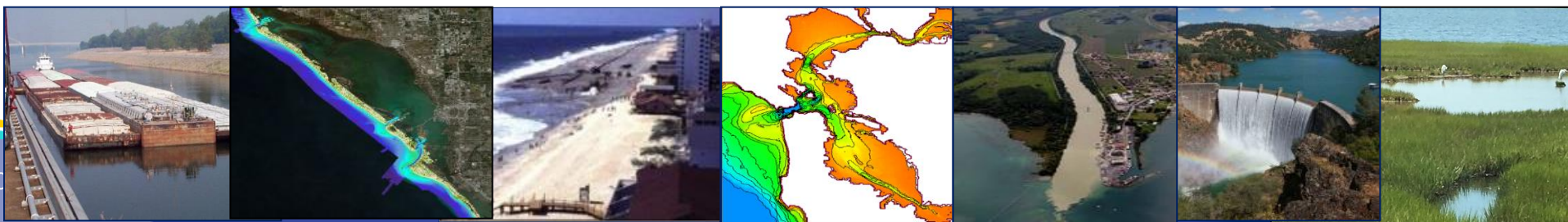
Regional Sediment Management



“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.”

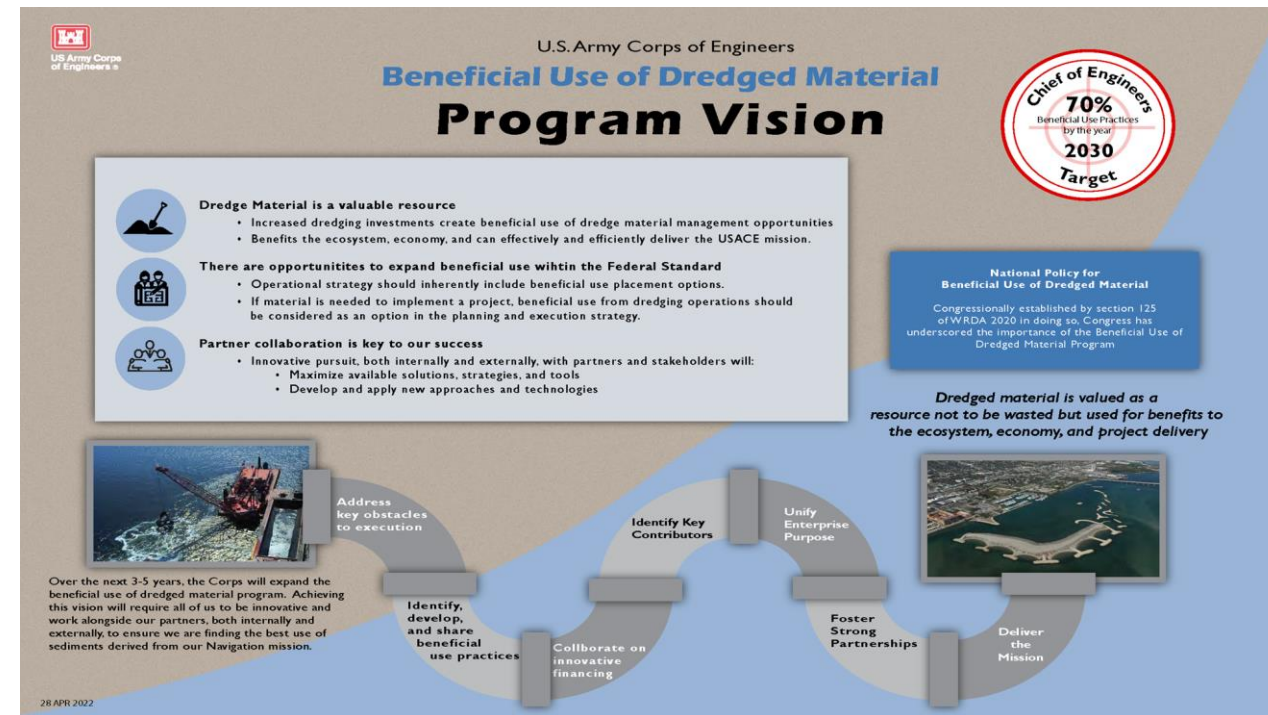
- Recognizes sediment as a valuable resource
- Work across business lines, projects, and authorities to create short and long-term economically viable and environmentally sustainable solutions
- Improve operational efficiencies and natural exchange of sediments
- Consider regional implications of project 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

- 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)



PIANC

The World Association for Waterborne
Transport Infrastructure

Thank you for your attention.

For more information visit us at

www.pianc.org

or join us on



YouTube