

# Navigating a Changing Climate: the role of sediment management in climate change mitigation and adaptation

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**Introduction:** Navigating a Changing Climate<sup>1</sup> is an initiative, set up by the PIANC-led Think Climate coalition<sup>2</sup> under the transport theme of the Global Climate Action Agenda, covering all types of inland and maritime waterborne transport infrastructure. Navigating a Changing Climate aims to provide a one-stop-shop for climate change matters for the navigation infrastructure sector. To this end, an Action Plan<sup>3</sup> has been developed that describes the measures being undertaken by the Think Climate coalition partners to reduce emissions and switch to low carbon infrastructure, and to strengthen resilience and adapt to climate change.

**Role of sediment management:** Effective and innovative sediment management solutions can play an important role in both climate change mitigation and adaptation. Working with Nature and in particular ‘blue carbon’ initiatives can help to offset emissions (mitigate) by creating carbon sinks. Sediment can also be used to supplement the role of beaches, intertidal and riparian areas as buffers, directly by absorbing wave energy or indirectly by supporting vegetation establishment, in both cases facilitating adaptation by reducing vulnerability to storms, erosion and flooding.

<sup>1</sup> <http://navclimate.pianc.org/>

<sup>2</sup> The partner associations in the Think Climate coalition comprise:

- The World Association for Waterborne Transport Infrastructure (PIANC)
- International Association of Ports and Harbors (IAPH)
- International Harbour Masters’ Association
- International Maritime Pilots’ Association
- International Bulk Terminals Association (IBTA)
- European Dredging Association (EuDA)
- Smart Freight Centre (SFC)
- European Sea Ports Organisation (ESPO)
- Institute of Marine Engineering, Science & Technology (IMarEST)
- Inland Waterways International (IWI)

<sup>3</sup> <http://navclimate.pianc.org/about/action-plan>

**Integrated solutions:** Some projects generate multiple benefits that extend beyond their initial objectives, a good example being the USACE’s Horseshoe Bend Engineering with Nature project on the Atchafalaya River in the state of Louisiana, USA. The aim of this ‘beneficial use of dredged material’ project was to create a predator-free habitat for birds, but many other benefits have become apparent as the island has evolved. The now-established vegetation is promoting carbon sequestration, helping to offset the emissions associated with dredging. Further, the island itself has formed a natural training wall facilitating self-scour in the navigation channel, and therefore reducing both local dredging requirements and related carbon emissions.

**Overview:** This paper will use this and other case study examples to highlight the many potential opportunities for sediment management in finding sustainable solutions to climate change challenges.



**Fig. 1:** Established habitat at Horseshoe Bend, a sediment management solution with a win-win for climate change mitigation and adaptation.