

# Transforming Waterways for Global Trade



Waterways around the world need upgrades to accommodate expanding cargo vessel sizes and increasing traffic volumes

This need has highlighted the research areas of waterway engineering and sediment management

Waterway upgrades involve expanding and dredging channels in order to enhance resilience, improve safety, and protect coastal environments



This ASCE Special Collection discusses strategies to modernize existing waterways

## Building resilient and safer waterways



Robust flexible pintle designs for lock gates



Jetty designs to reduce sedimentation and tidal impact

## Optimizing dredging operations



Dredged sediment as protective berms and mounds

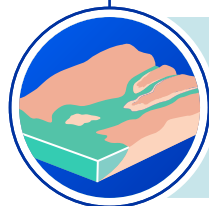


Prioritizing dredging operations



Cost-effective dredging decisions

## Increasing waterway sustainability



Impact on coastal landscapes and natural water flow



Wetland restoration with dredged sediment

## Improving navigation and waterway management with data



Ship automatic identification system (AIS)



Water quality data



Ship simulations

## Waterway-upgrade measures seek to:

- ✓ Increase capacity
- ✓ Enhance navigational safety
- ✓ Improve operational efficiency
- ✓ Protect surrounding environments

Measures to modernize and expand waterway infrastructure are required to ensure efficient and safe movement of goods across oceans