U. S. Port and Waterway Modernization Strategies: Environmental Impacts Section

Institute for Water Resources
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Maritime Trade Trends

International maritime trade is increasing, especially with Pacific Rim nations.

The fraction of container transport is increasing.

Vessel Size is increasing because of cost-effectiveness, including fuel efficiency.

Completed Panama Canal expansion by 2014.
Congressional Direction (Appropriations committees)

- IWR is to submit “a report on how the Congress should address the critical need for additional port and inland waterway modernization to accommodate post-Panamax vessels”
- “Factors for consideration should include:
  - costs associated with deepening and widening deep-draft harbors;
  - the ability of the waterways and ports to enhance the nation's export initiatives benefiting the agricultural and manufacturing sectors;
  - the current and projected population trends that distinguish regional ports and ports that are immediately adjacent to population centers;
  - the availability of inland intermodal access;
  - and the environmental impacts resulting from the modernization of inland waterways and deep-draft ports.”
Probable Report Attributes

• A programmatic overview—a vision of possibilities
• A brief main report
• A synthesis of existing information
• Backed up by extensive reference materials
Existing State of the Transport System
Most freight from Pacific Rim nations enters through ports on the Pacific Coast.
Other freight enters through ports on the Atlantic Coast, including the Gulf of Mexico.
Most large Pacific ports are post-Panamax ready. On the Atlantic Coast only northern ports are post-Panamax ready or near ready.
Intermodal Freight Transport System

Oceanic Vessels

Port Transfer

Railroads

Coastal Vessels

Highways

Inland waterway barges
Port, railroad and interstate highway network

Legend
- Port Cities
- Inland Cities
- Rail Lines Carrying At Least 20 MGT
- Interstate Highways

DOT/USACE
Average daily long haul truck traffic.
Railroad freight network
Coastal ports are linked to domestic coastal and inland waterways
Distribution of new construction and maintenance dredging by contractors (85% of total)
Environmental impact sources

Dredging & dredge material disposal

Air & water emissions

Accidents

Infrastructure

Invasive Species

Port Congestion
Future Trends & Possibilities
Panama Canal Enlargement

Vessels 40% longer, 64% wider, & 50 ft draft

Larger vessels from the Pacific Rim can travel directly to the Atlantic coast.
Population distribution and growth

Distribution of present population

DOT/USACE

Distribution of population growth
Possible direct transport to many Atlantic ports
Travel time comparison for Pacific and Atlantic Coast destinations
Competitive intermodal system adaptations

Railroads—container stacking, longer trains, better scheduling, & track improvements

Highways—more double and triple trailers
Possible direct transport to a few Atlantic ports and transfer to feeder vessels
Possible Caribbean port hub transfer to feeder vessels destined for U. S. ports
Possible increased traffic on the inland waterway and increased demand for improvements
Environmental Impacts Considerations

- Human health, safety & environmental justice
- Preservation of national heritage
- Beneficial uses of the environment
Environmental Impact Indicators

- Distribution of scarce species and ecosystems in the vicinity
- Distance of port facilities to deep water
- Width and depth of dredged channels & turnaround basins
- Operations sediment removal and disposal amounts
- Port sediment contamination
- Population size, density, & demographics in the vicinity
- Capacities of port, waterway, and intermodal facilities
- Size and age of vessels using ports & waterways
- Others
Questions and Comments?

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