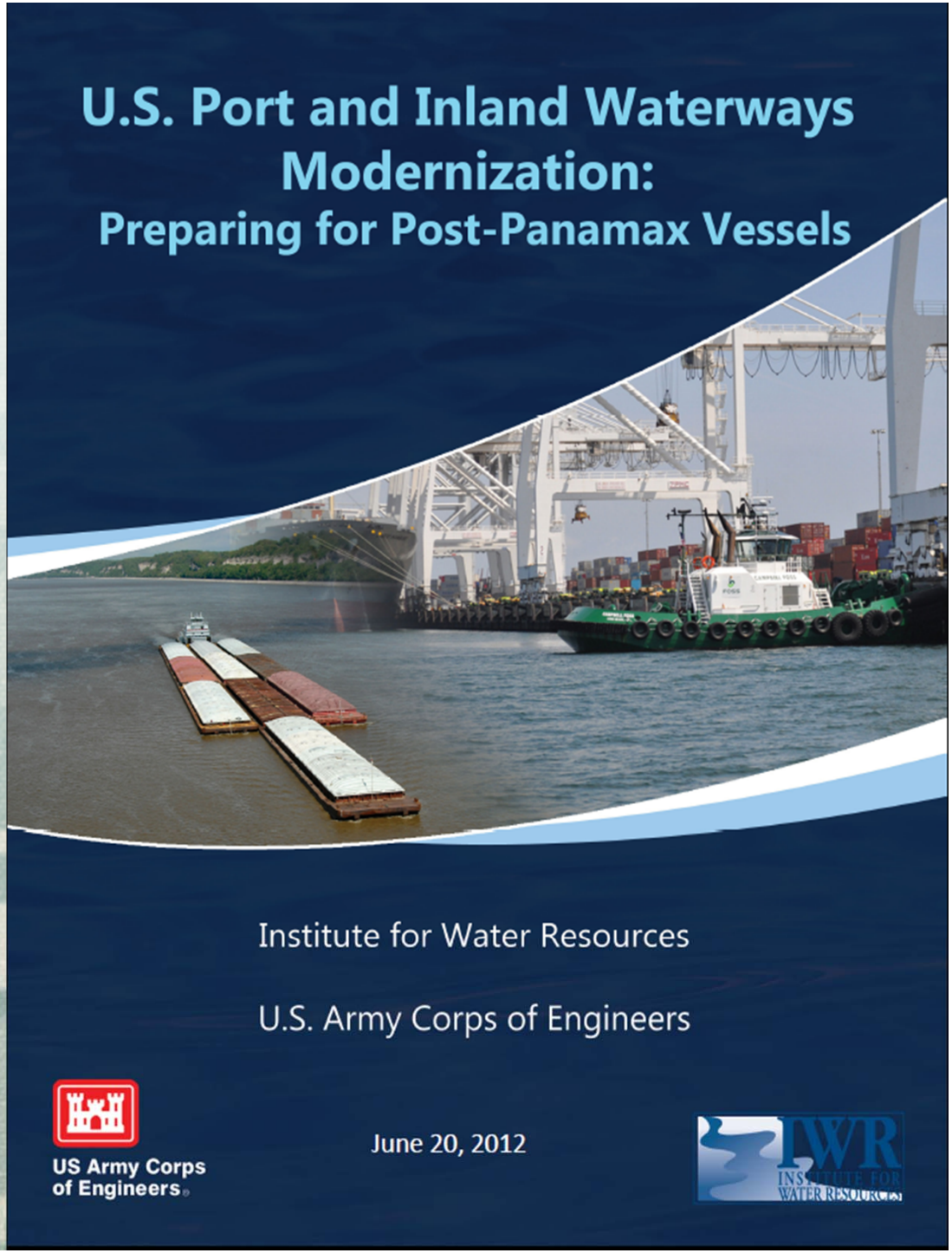
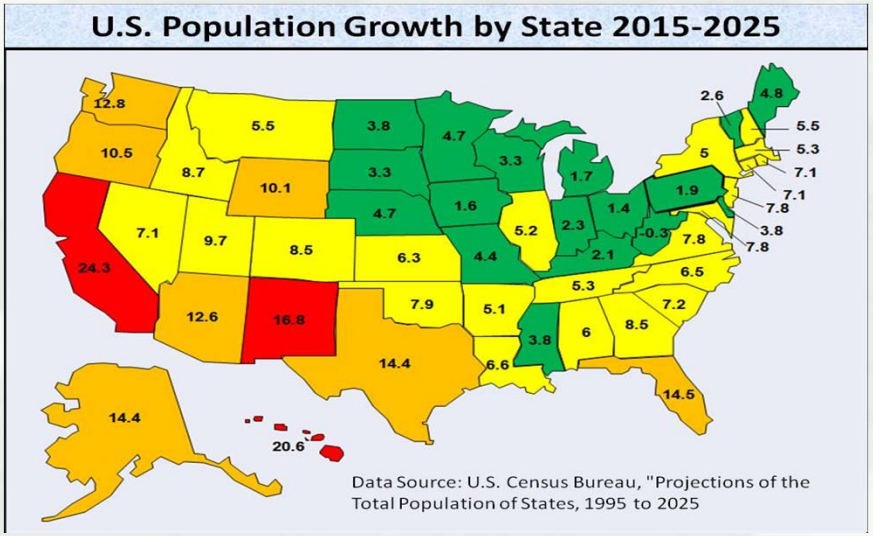
A Report to Congress Addressing “the Critical Need for Additional Port and Inland Waterway Modernization to Accommodate Post-Panamax Vessels”

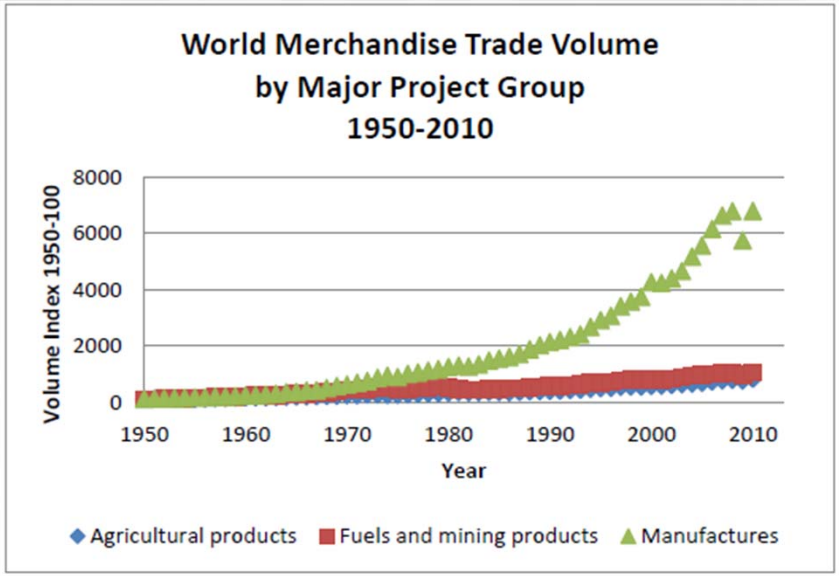


Bottom Line Up Front

- U.S. population growth increasing 100 million within 30 years
- U.S. imports and exports projected to increase significantly
- Worldwide numbers of post-Panamax vessels increasing
- Opportunities for economically justified port expansion are expected to be greatest along the Southeast and Gulf coasts
  - Corps is conducting 17 port specific studies to identify expansion needs
- Increased grain exports through the Gulf can be expected as a result of transportation cost savings associated with the use of larger vessels
  - The capacities of the Inland Waterways serving the export market needs to be maintained to take advantage of this opportunity

- Population and incomes are growing worldwide and within the U.S. (32% increase within 30 years).
- Trade follows growth in population and income. It has increased 100-fold since 1950.
- Imports expected to grow more than fourfold and exports expected to grow more than sevenfold over 30 years.





Source: World Trade Organization; International Trade Statistics. 2011

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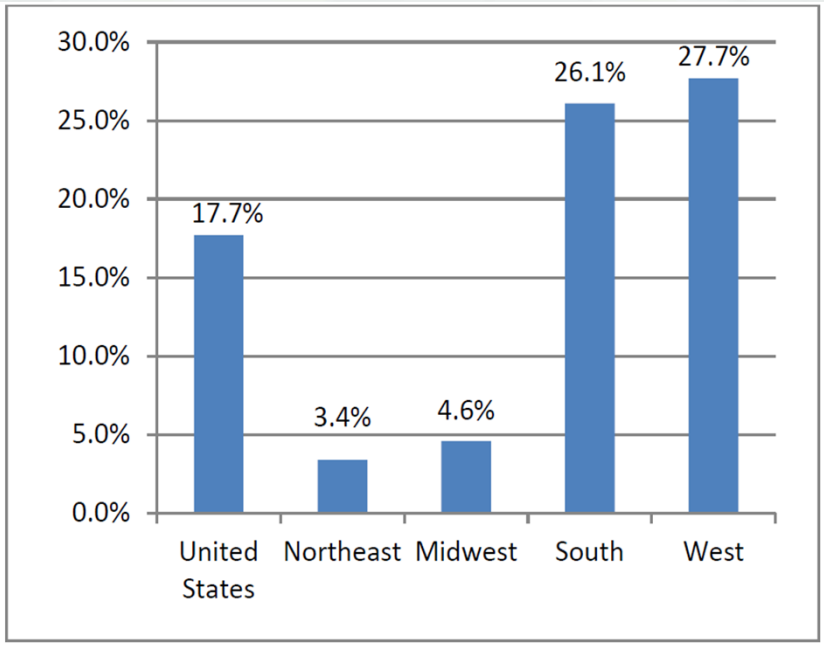
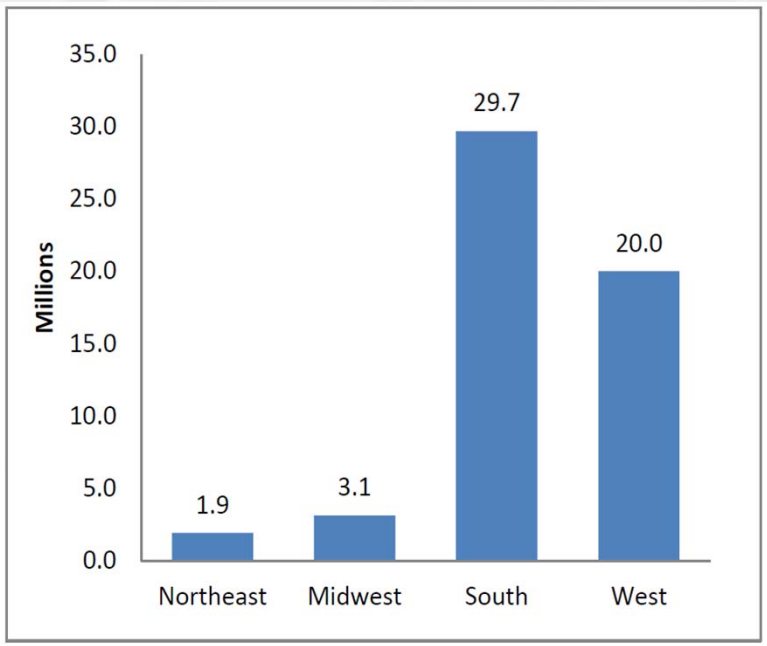
In the U.S. population growth is expected to be greatest in the South and West.



Source: U.S. Census Bureau, Population Division; 2005 Interim State Population Projections

Figure 5: Percent Change in Population by Region of U.S. 2010-2030



Source: U.S. Census Bureau, Population Division; 2005 Interim State Population Projections

Figure 6: Change in Population by U.S. Region 2010-2030

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Table 1: Unconstrained Forecast of TEU Capacity as a Percent of Total by TEU Band 2012-2030

Vessel Size	2012	2015	2020	2025	2030
0.1 k TEU to 1.3k TEU	8%	6%	6%	5%	4%
1.3 k to 2.9 k TEU	18%	15%	14%	13%	12%
c 2.9 k to 3.9 k TEU	7%	6%	6%	7%	7%
d 3.9 k to 5.2 k TEU	21%	19%	17%	15%	14%
e 5.2 k to 7.6 k TEU	19%	18%	17%	16%	15%
f 7.6 k to 12 k TEU	17%	20%	20%	21%	21%
g 12 k TEU +	9%	15%	20%	24%	26%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Note: post-Panamax vessel bands shaded in gray

Source: MSI

Post Panamax vessels will increase by 59% by 2030

Reserve Container Port Capacity by Coast

Metric	N. Atlantic Ports	S. Atlantic Ports	Gulf Ports	West Coast Ports
2010 TEU	8,239,000	6,687,000	2,409,000	18,960,000
Reserve CY Capacity-TEU	10,612,402	13,869,035	2,669,003	10,484,996
Reserve Crane Capacity – TEU	20,895,164	12,501,742	4,423,466	37,237,002
Reserve Berth Capacity – Vessel Calls	9,964	4,013	1,105	13,923
Reserve Berth Capacity – Avg. Vessel Basis	11,832,298	1,922,907	2,799,609	53,031,819

Source: USACE Institute for Water Resources

PRELIMINARY RESULTS OF AAPA U.S. PORT AUTHORITY INFRASTRUCTURE SPENDING SURVEY - 2012-2016

Port's Projected Capital Expenditures 2012-2016	Projected Private Sector Capital Expenditures at ports 2012-2016	Port's Local Share of Security Expenditures Since 9-11	Port's % of Annual Budget for Security
$16,218,000,000	$21,418,000,000	$1,429,000,000	10.3% (average)

Source: American Association of Port Authorities

- The Ports along the U.S. Southeast and Gulf coast (where the population growth is expected) are likely candidates for investment to deepen to be "post-Panamax“ or "cascade" ready.

West Coast Post Panamax Ready Ports

*Seattle
* Oakland
* Los Angeles/Long Beach

Source: USACE Institute for Water Resources

Figure 21: Main Channel Depths at Selected Ports

East Coast Post Panamax Ready Ports

* New York/New Jersey
* Baltimore
* Norfolk
* Charleston

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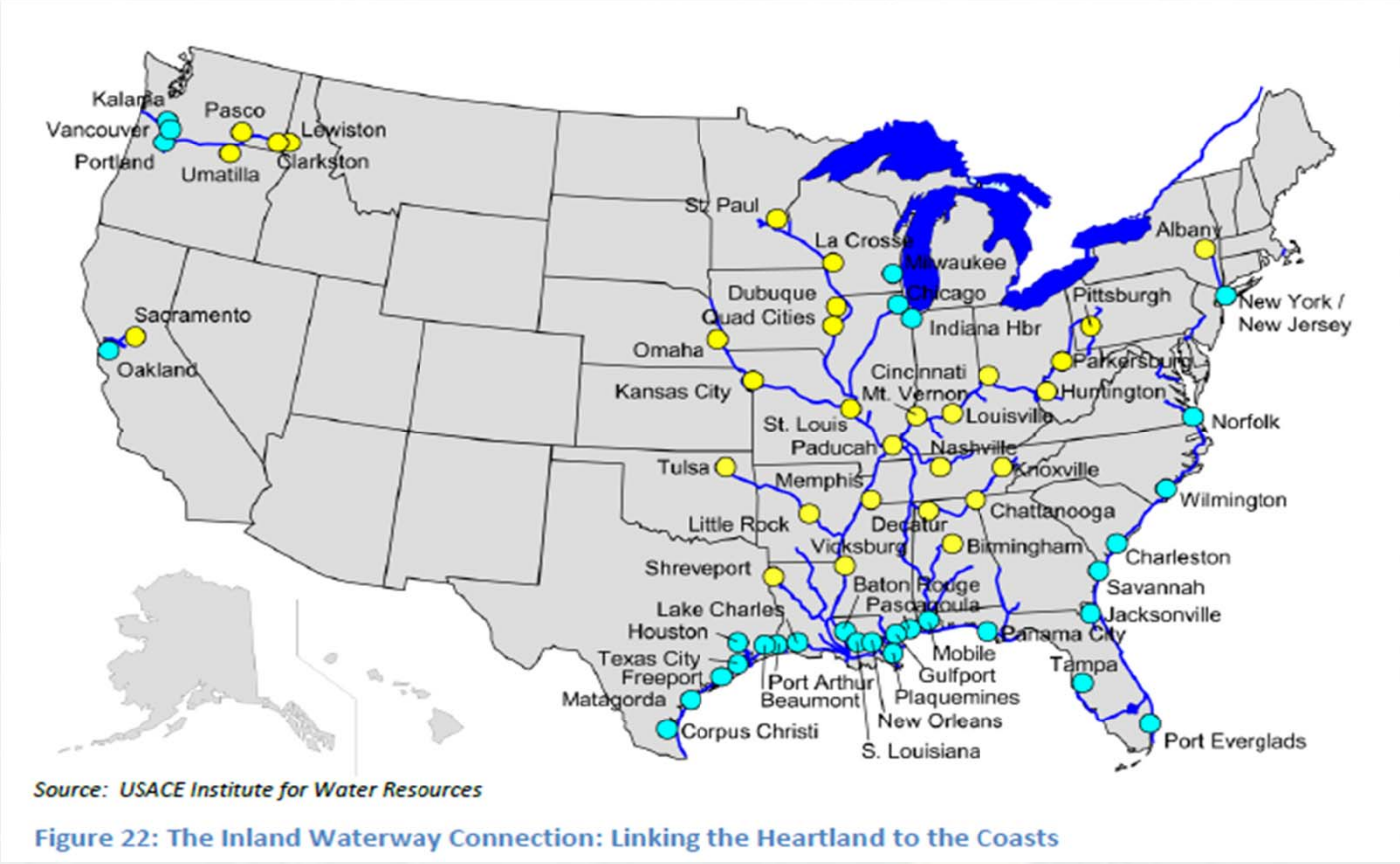
The inland waterways need to be maintained (both channel depth and reliability) to service the opportunities for growth in agricultural exports.



Source: USACE Institute for Water Resources

Figure 22: The Inland Waterway Connection: Linking the Heartland to the Coasts

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Last decade average annual expenditures $1.5B-$2.0B

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ENVIRONMENTAL IMPACTS

The navigation system and port expansion have environmental impacts. Negative impacts must be mitigated. If not fully mitigated, impacts could include:

- •degraded air and water quality that threatens human health and safety, especially of low income and minority groups;
- •loss of important natural and cultural heritage found in parks, refuges, wetlands and scarce species; and
- •loss of recreation, commercial and other economically important resources.

Those mitigation costs can be significant and will play an important role in investment decisions.

(Zebra Mussels)

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- Despite the uncertainty in market responses to the deployment of *post-Panamax* vessels and the expansion of the Panama Canal, individual investment opportunities for port expansion can be identified using established decision making under uncertainty techniques.

- Adaptive management techniques can also be used to address uncertainty issues.

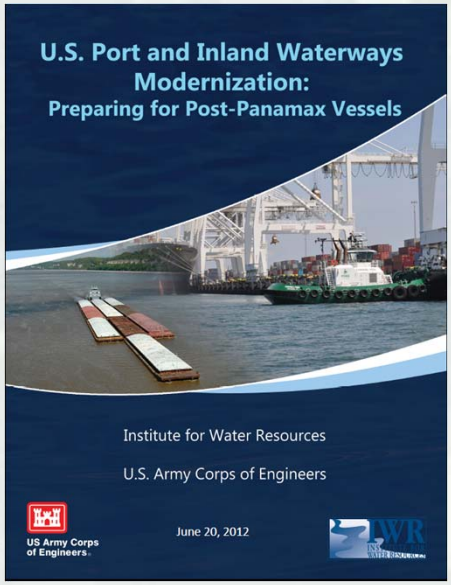
- Preliminary estimates indicate the total investment opportunities may be in the $3-$5 billion range.

- The primary challenge with the current process to deliver navigation improvements is to ensure adequate and timely funding to take advantage of potential opportunities.

  - o A notional list of financing options is presented to initiate discussion of possible paths to meet this challenge

  - o It is anticipated that a variety of options may be desirable, and in all cases individual project characteristics, including its economic merits, would need to be considered in selecting the optimal financing mechanisms.

Questions and Comments?



Contact the team:

Portandwaterways@usace.army.mil

Website

http://www.iwr.usace.army.mil/index.php/us-port-and-inland-waterways-modernization-strategy

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