

# Dredging & Maintaining Navigation Channels: Challenges & Opportunities

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US Army Corps of Engineers  
**BUILDING STRONG®**



# USACE CW's Economic Benefits & Revenues to the Treasury

(2010-2012 Average)

Each dollar spent on the USACE Civil Works program generated ~ \$16 in economic benefits and \$5 in revenues to the U.S. Treasury.

Program	NED Benefits (Billions of Dollars)	Net NED Benefits (Billions of Dollars)	U.S. Treasury Revenues (Billions of Dollars)
Flood Risk Management	\$59.47	\$58.84	\$18.90
Coastal Navigation	\$9.47	\$8.70	\$3.70
Inland Navigation	\$8.10	\$7.51	\$2.07
Water Supply	\$7.00	\$6.98	\$0.09
Hydropower	\$2.30	\$2.11	\$1.37
Recreation	\$3.20	\$2.91	\$1.13
Leases and Sales			\$0.03
<b>Total Annual NED</b>	<b>\$89.54</b>	<b>\$87.05</b>	<b>\$27.29</b>

Notes:



Net NED benefits are defined as NED benefits less the costs of operations, maintenance, and investigations. Since the costs associated with expenses and oversight by the Assistant Secretary of the Army (ASA) serve all Corps programs, including those we did not calculate benefits for in this report, this report does not account for those costs."

The Benefits and Revenues numbers are not additive.



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

# U.S. Port and Inland Waterways Modernization: Preparing for Post-Panamax Vessels



Institute for Water Resources

U.S. Army Corps of Engineers



US Army Corps  
of Engineers

June 20, 2012

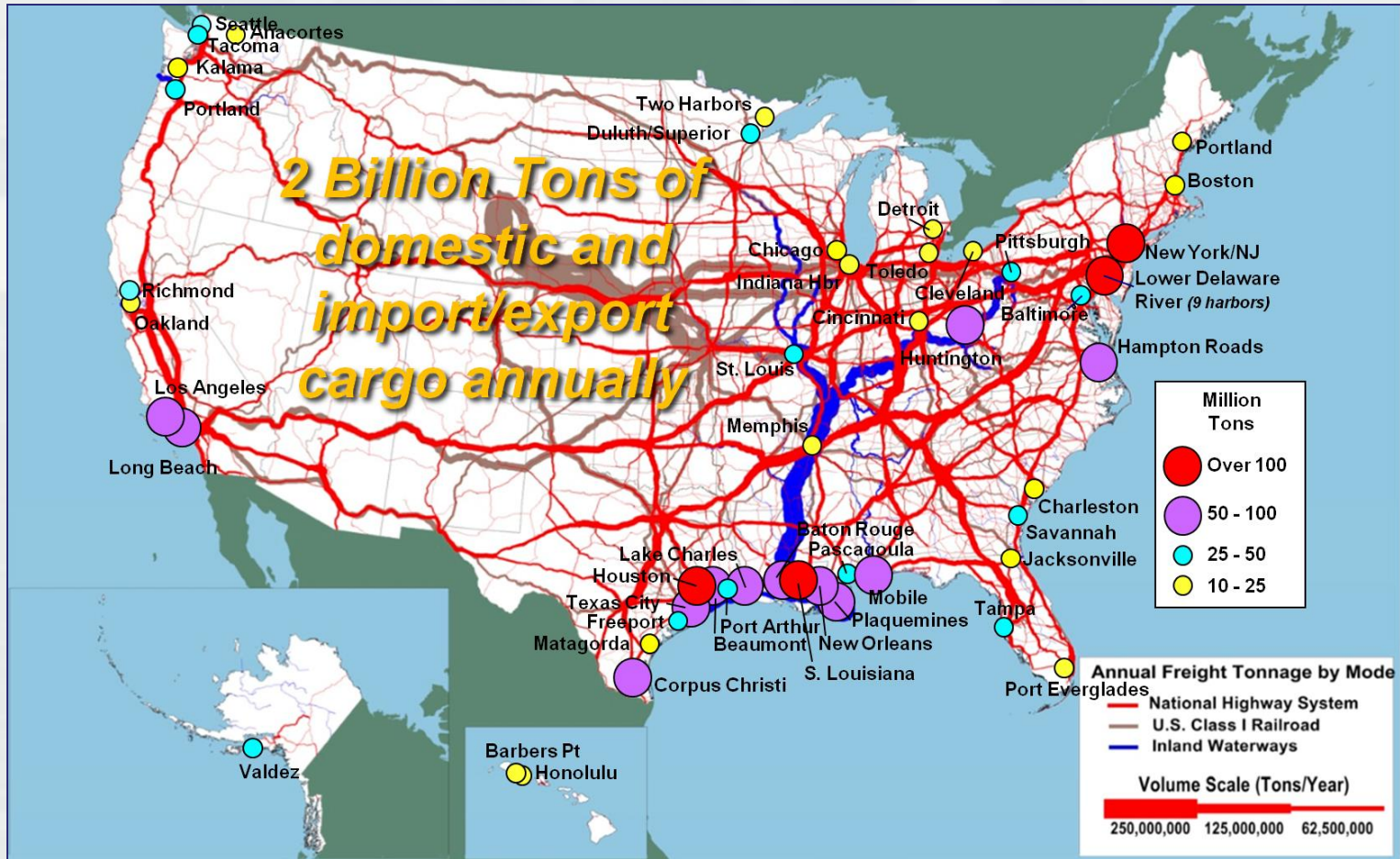


# ***U.S. Port and Inland Waterways Modernization Strategy***

- Focus: How Congress should address critical need for additional port and inland waterway modernization to accommodate post-Panamax vessels.
- Factors to address:
  - Costs associated with deepening and widening channels;
  - Ability of waterways and ports to enhance export initiatives benefitting the agricultural and manufacturing sectors;
  - Current and projected population trends that distinguish regional ports and ports that are immediately adjacent to population centers;
  - Inland intermodal access;
  - Environmental impacts resulting from modernization of inland waterways and deep-draft ports.



# U.S. Ports and Inland Waterways: Vital to our National Economy





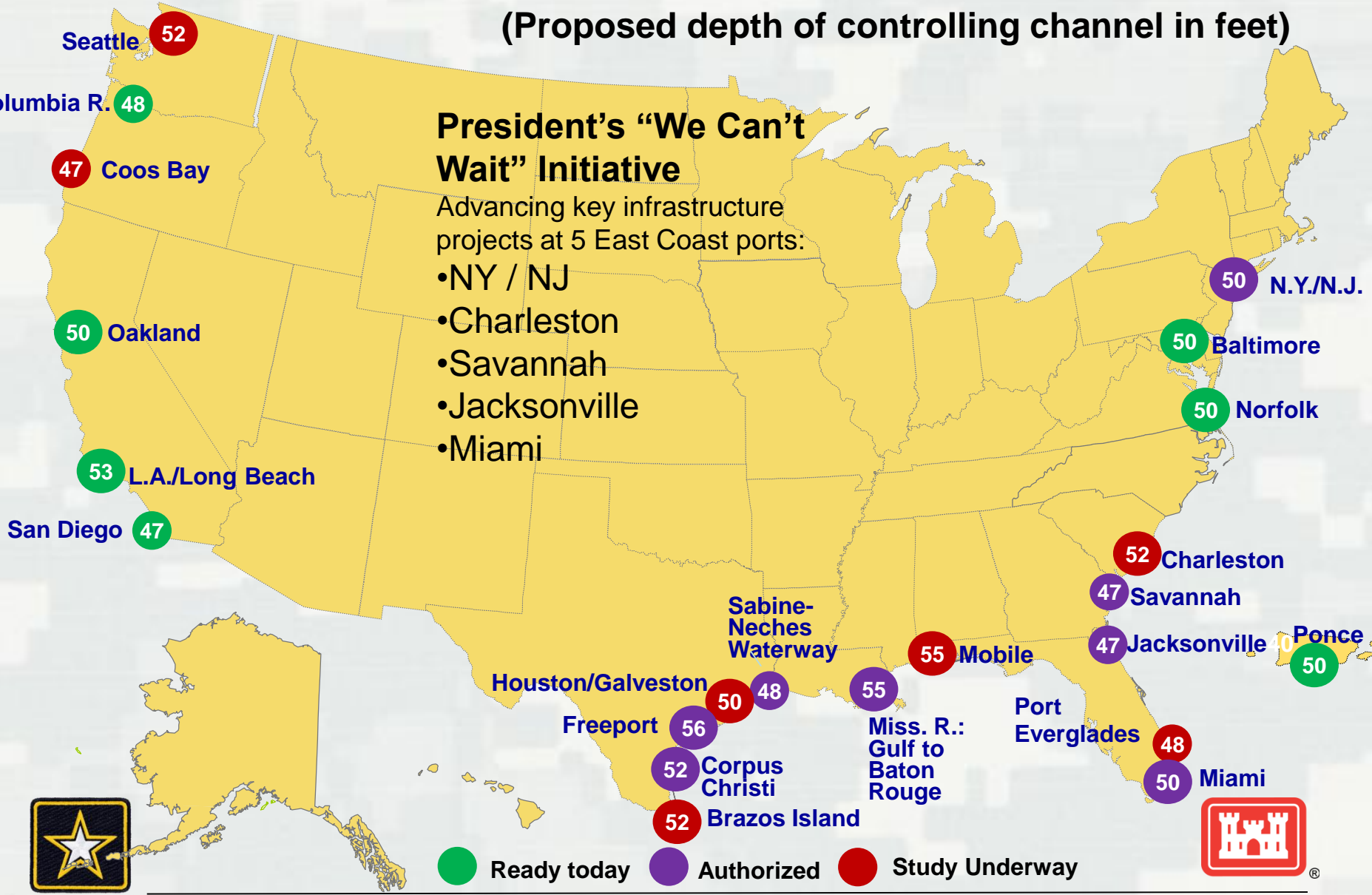
# Potential Post-Panamax Ports

(Proposed depth of controlling channel in feet)

## President's "We Can't Wait" Initiative

Advancing key infrastructure projects at 5 East Coast ports:

- NY / NJ
- Charleston
- Savannah
- Jacksonville
- Miami

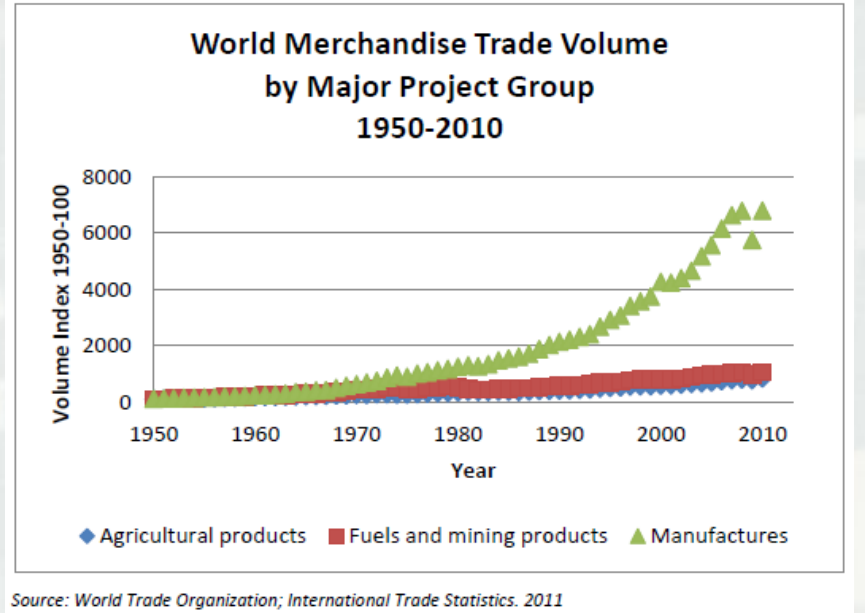
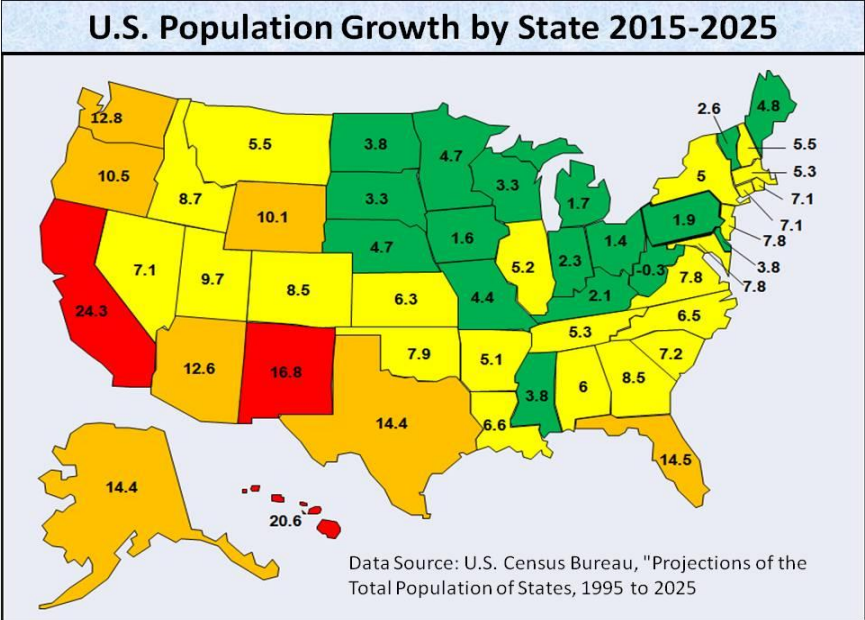


● Ready today   
 ● Authorized   
 ● Study Underway

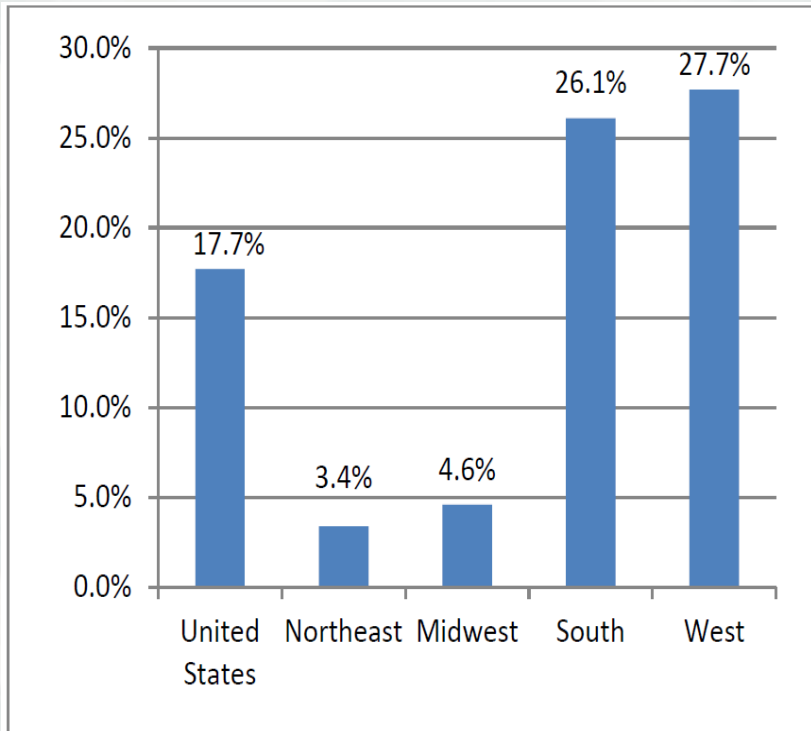


# Trends

- Population and incomes are growing worldwide and within the U.S.
- Trade follows growth in population and income. It has increased 100-fold since 1950

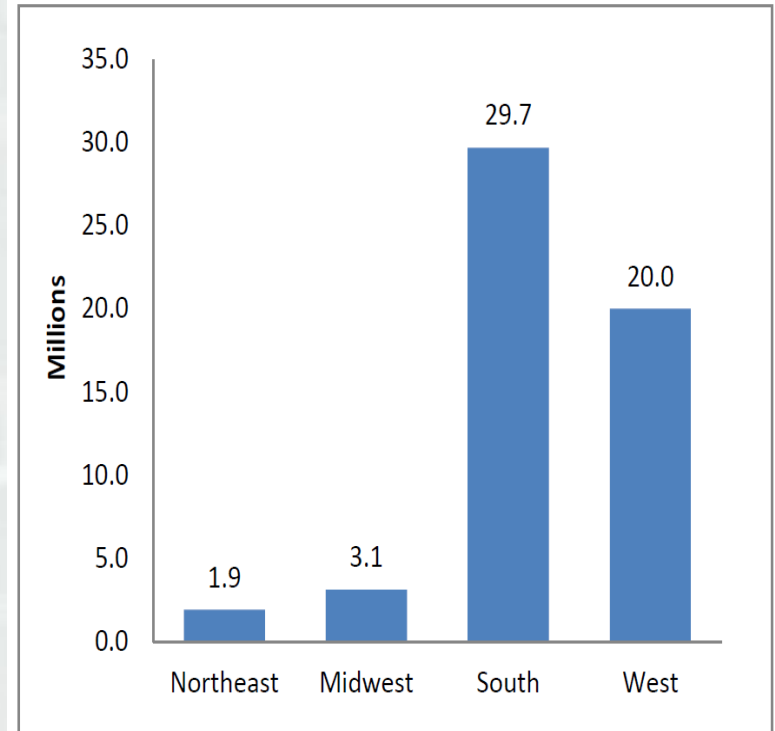


# U.S. Population Growth Expected to Be Greatest in the South and West



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

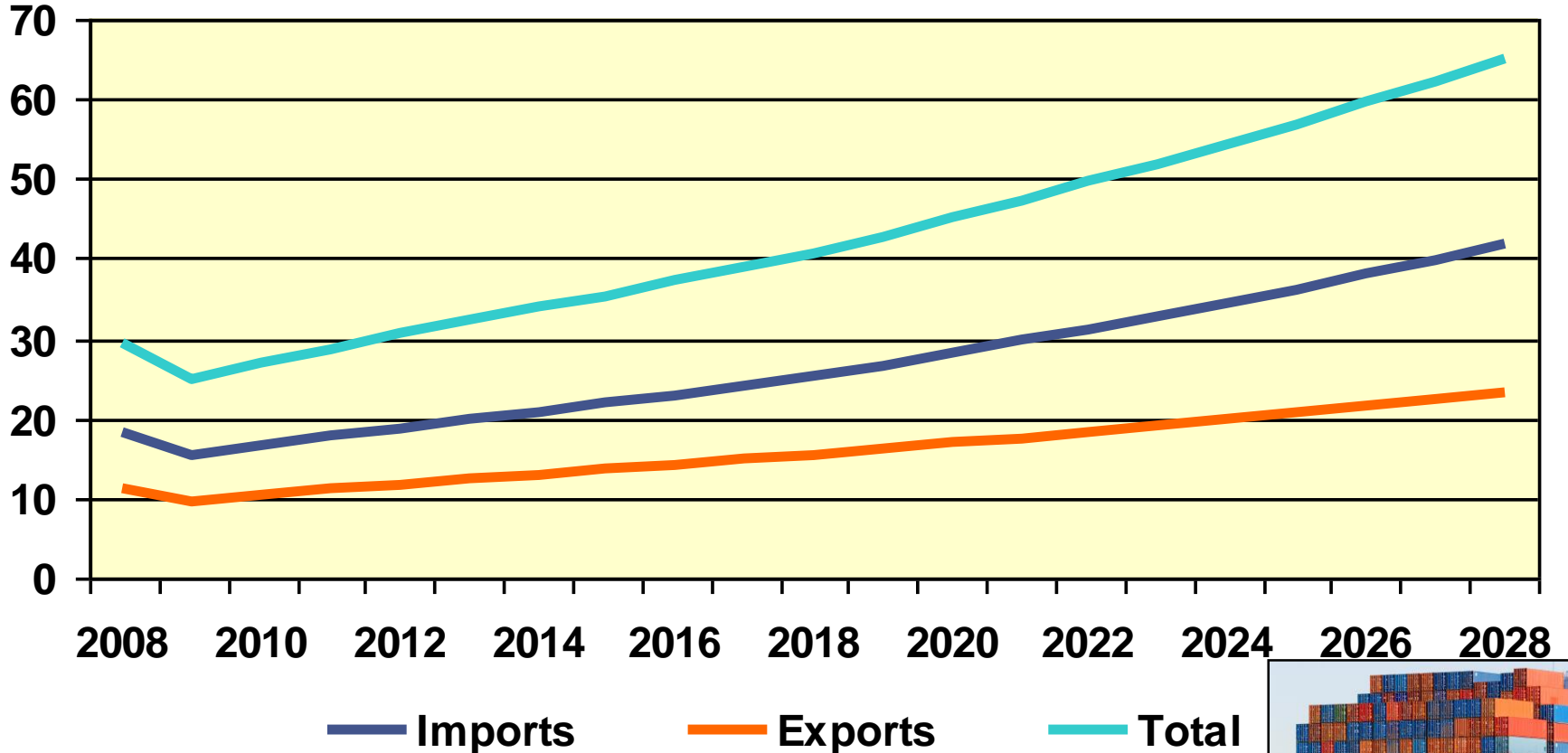




# U.S. Trade to More than Double

2008 - 2028

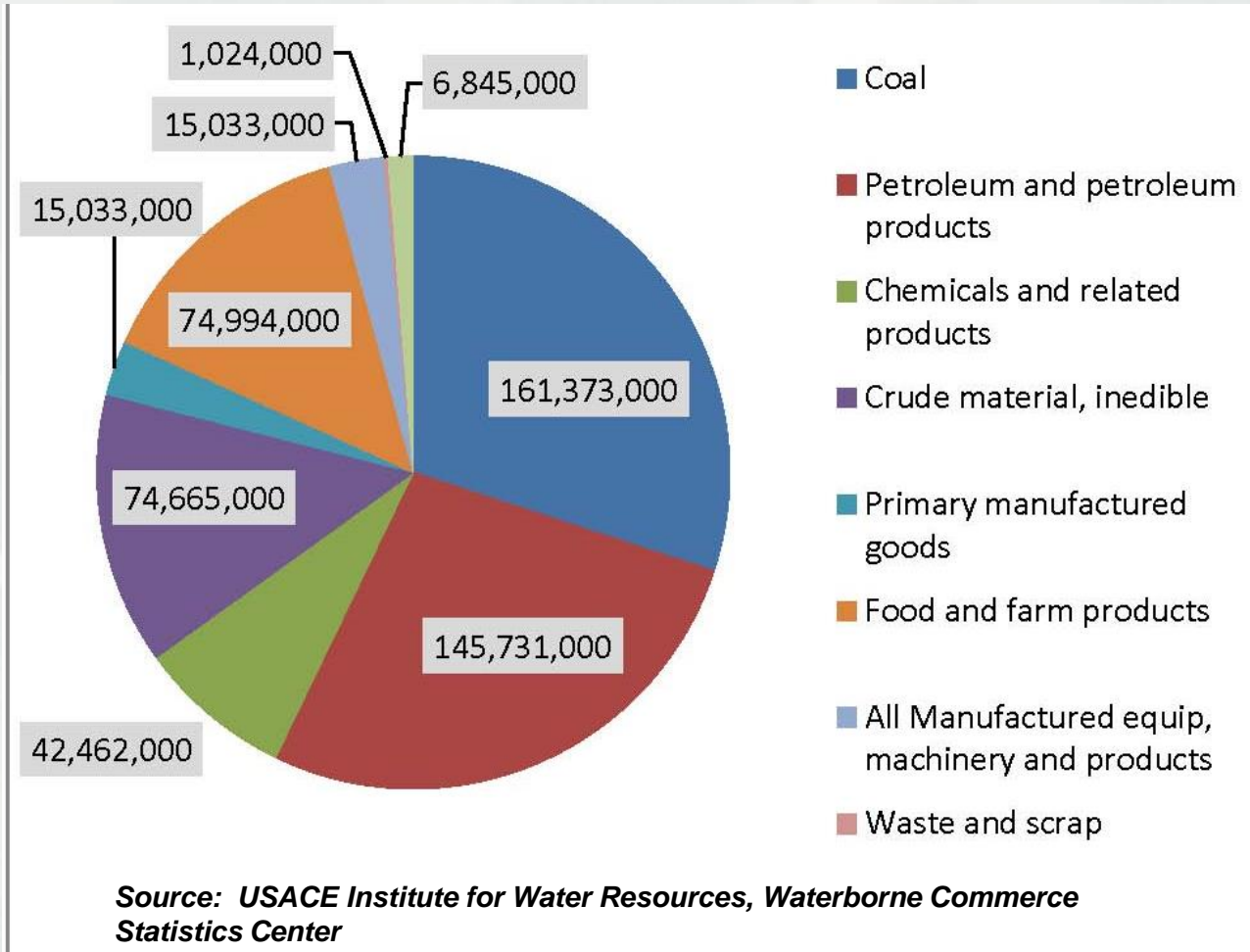
Millions of TEUs



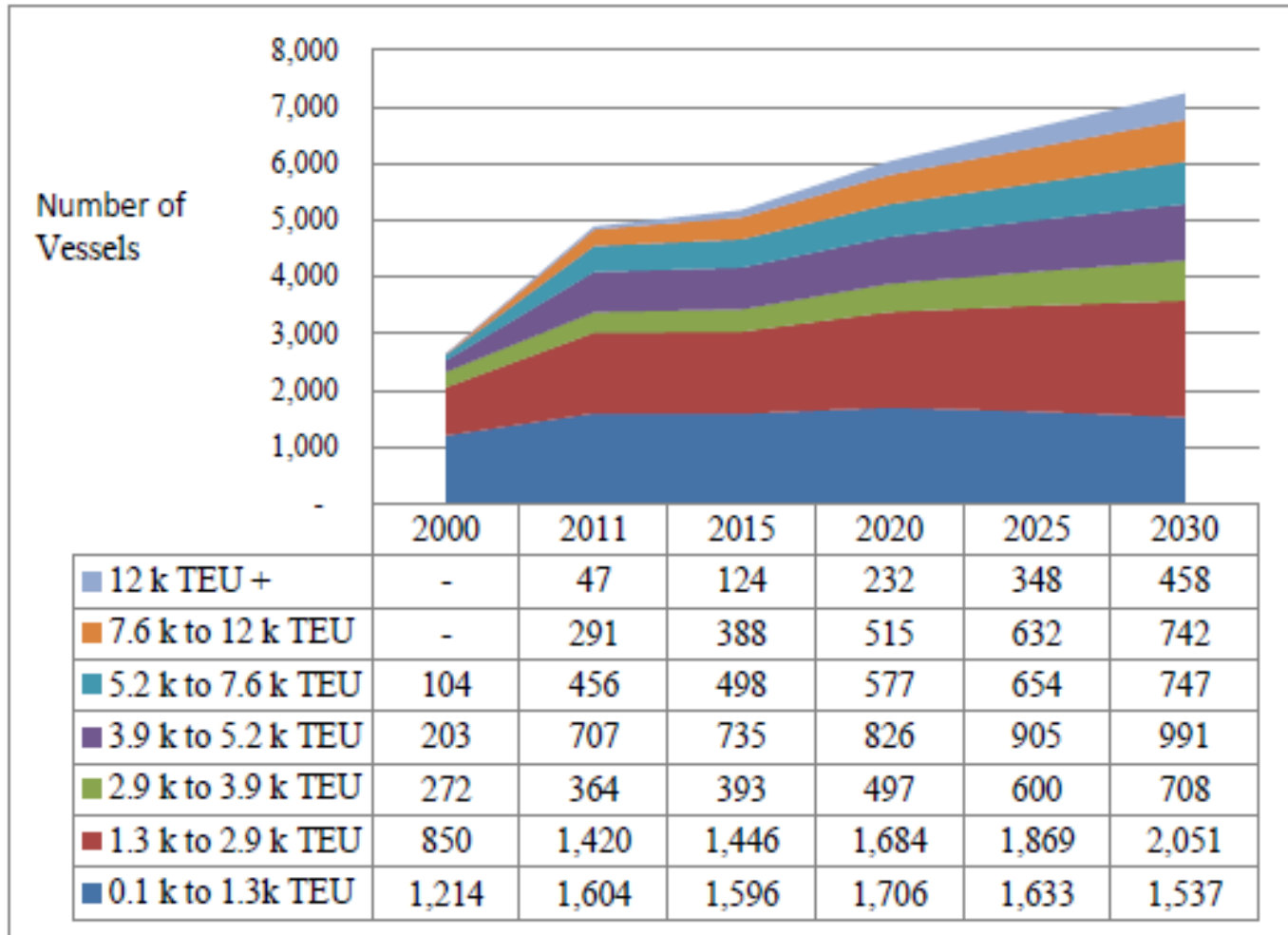
Source: I H S G I World Trade Service



# Total 2009 U.S. Internal Waterborne Traffic by Commodity (short tons)



# “Megaship” Fleet on the Rise



Source: MSI

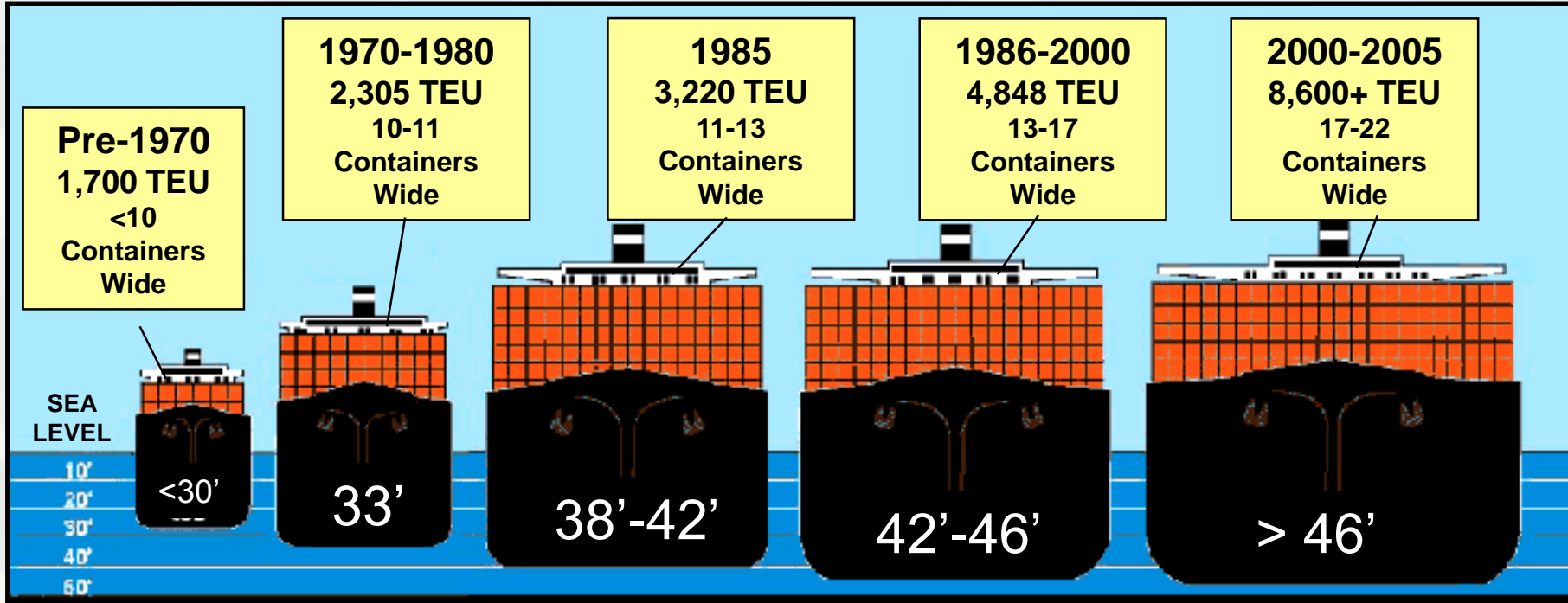
Figure 16: Historical and Forecast Fully Cellular Container by TEU Band 2000-2030





# Ever Larger Containerships

## Driving Need for Ever Larger Channels



# *Opportunities*

- Opportunities for economically justified port expansion expected to be greatest along U.S. Southeast and Gulf Coasts
  - U.S. Army Corps of Engineers conducting 17 port studies to identify expansion needs
- Increased grain exports from Gulf Coast ports can be expected as a result of transportation cost savings associated with use of larger vessels
  - Capacities of Inland Waterways to serve export market need must be maintained to take advantage of this opportunity



# Conclusions



- Despite uncertainty in market responses to deployment of *post-Panamax* vessels and expansion of the Panama Canal, investment opportunities for port expansion can be identified using established decision making under uncertainty techniques.
- Adaptive management techniques can be used to address uncertainty issues.
- Preliminary estimates indicate the total investment opportunities may be in the \$3-\$5 billion range.





# ***U.S. Port and Inland Waterways Modernization Strategy***

- **National Export Initiative** seeks to increase exports through trade missions, export credit and financing, effort to remove trade barriers, enforcing trade rules and promoting international policies that lead to balanced world growth.
- The Corps' Modernization Strategy needs to be in context with ongoing efforts and reflect a multimodal transportation system.



# Funding: The Primary Challenge

- The primary challenge with the current process to deliver navigation improvements is to ensure adequate and timely funding to take advantage of potential opportunities.
- The Report to Congress presents a notional list of financing options to initiate discussion of possible paths.
- A variety of options may be desirable, and in all cases individual project characteristics, including economic merits, would need to be considered in selecting optimal financing mechanisms.



# ***U.S. Harbor Deepening Challenges***

- ***Study Process:*** Difficult and lengthy from study to authorization
- ***Funding:*** Federal appropriation process uncertainties
- ***Dredging:*** Escalating costs, placement, environmental mitigation
- ***Handling Facilities and Space:*** Need expanded cargo handling facilities and improved intermodal connections





# *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.



# ***WRRDA 2014***

## **Navigation Provisions**

### **Harbor Maintenance Trust Fund (HMTF)**

- 67% of funds collected in 2014 actually go for harbor maintenance,
- Rate rises to 100% of funds collected in 2024.

### **Inland Waterways Trust Fund (IWTF)**

- Review of ways to increase revenue collections for inland waterways.  
(increased fuel taxes,  
user fees, construction bonds, etc.)

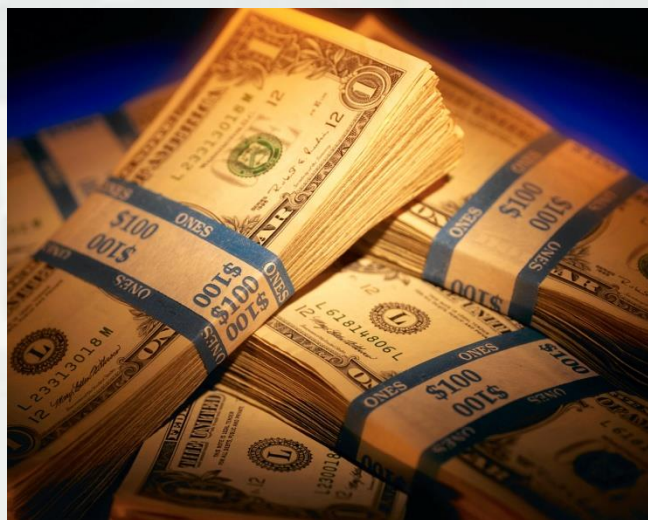


# WRRDA 2014

## Non-Federal Contributions

Non-federal entities can:

- Conduct projects authorized by Congress on their own
- Contribute funds for any study or project Corps deems in public interest
- Fund locks where Corps has proposed to reduce operations
- Receive assistance for drinking water, wastewater and other water infrastructure.
- Corps authorized to enter into agreements with non-federal interests, including private entities, to finance at least 15 water projects.



# ***Collaboration***

- **We cannot be successful at developing and managing our ports, or other infrastructure, unless we are successful at collaboration and relationship management.**
- **We must make learning collaborative techniques a priority.**
- **We must maintain focus on transparency and stakeholder engagement during plan formulation.**



# ***Our Long-Term Vision:***

**A resilient, reliable and sustainable 21<sup>st</sup> Century infrastructure that assures our national and economic security.**

## ***How Do We Get There?***

- **Legislation and Policy**
- **Leadership and National Will**
- **Education and Strategic Communication**
  - **Your Support**

# Questions/ Comments



# International Collaboration Through PIANC

- PIANC is the World Association for Waterborne Transport Infrastructure – U.S. a member since 1902
- A forum where professionals from around the world join forces to provide expert advice on cost-effective, reliable and sustainable infrastructure to facilitate the growth of waterborne transport.
- International Technical Working Groups address global navigation issues – such as Dredging.
- PIANC USA organizes conferences – next is **Dredging 2015** 22 to 25 October 2015 in Savannah, GA





# PIANC WG Reports on Dredging

- 120-2013 Injection Dredging
- 108-2010 Dredging and Port Construction Around Coral Reefs
- 104-2009 Dredged Material Beneficial Use Options and Constraints
- 100-2009 Best Management Practices Applied to Dredging and Dredged Material Disposal Projects for Protection of the Environment
- 109-2009 Long Term Management of Confined Disposal Facilities for Dredged Material

▷ All Available at [www.pianc.org](http://www.pianc.org)





# London Convention and Protocol

- Covers the deliberate disposal at sea of wastes or other matter from vessels, aircraft, platforms, and other man-made structures at sea. The London Convention has 80 parties and has been very successful in combating marine pollution from dumping. The US ratified the London Convention in 1975.
- In 1992, the Parties to the London Convention began a comprehensive review of the Convention, resulting in a new treaty called the 1996 Protocol. The United States was in the forefront of countries negotiating the Protocol. The United States signed the Protocol in 1998, but has not yet ratified it. The Protocol entered into force internationally on March 24, 2006.



# PIANC and the London Convention

- PIANC has been involved in the London Convention since the 1970's
- Most recently PIANC led a multinational WG which developed new 'Specific Guidelines for Assessment of Dredged Material' which were adopted by IMO in Oct 2013
- Updated guidelines identify the value of PIANC's Working with Nature philosophy and national examples of such approaches including USACE's Engineering with Nature program, intended to reduce the need for dredging.

