

Great Lakes Navigation System

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Great Lakes Navigation
Business Line Manager

Great Lakes Waterways Conference

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US Army Corps of Engineers
BUILDING STRONG®



Meeting Agenda

Welcome; Introductory Remarks

LTC Derosier

Great Lakes Navigation Program

Mike O'Bryan

- 2010 Program Accomplishments
- 2011 Expected Navigation Program
- 2012 President's Budget
- Dredging Backlog Update
- Soo Locks Reliability
- Dredged Material Management Strategy
- Breakwater Risk Communication

**District Operations Chiefs
– Key Project Updates**

**Shamel Abou El-Seoud
Josh Feldmann
Wayne Schloop**

Stakeholder Update

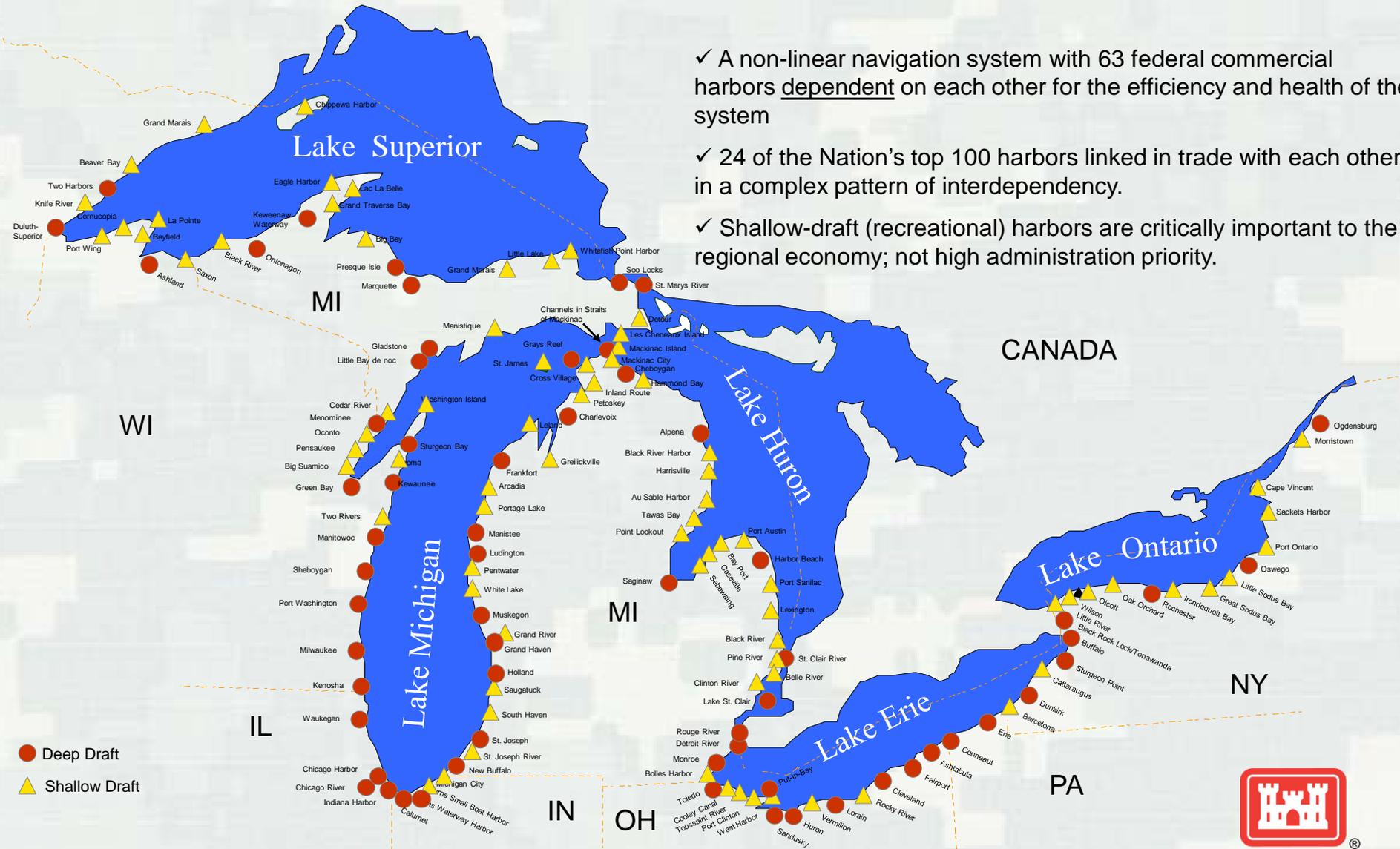
Jim Weakley

Stakeholder Feedback—Open Discussion

All



Federal Harbors on the Great Lakes



✓ A non-linear navigation system with 63 federal commercial harbors dependent on each other for the efficiency and health of the system

✓ 24 of the Nation's top 100 harbors linked in trade with each other in a complex pattern of interdependency.

✓ Shallow-draft (recreational) harbors are critically important to the regional economy; not high administration priority.

FY10 Dredging Contracts



Harbors Eligible for \$6M Regional Dredging Fund FY10

- ALPENA, MI
- **ARCADIA, MI**
- **AU SABLE, MI**
- **BAY PORT, MI**
- BIG BAY, MI
- BLACK RIVER (GOGEBIC), MI
- **BOLLES HARBOR, MI**
- CLINTON RIVER, MI
- EAGLE HARBOR, MI
- FRANKFORT, MI
- GRAND MARAIS, MI
- INLAND ROUTE, MI
- LAC LA BELLE, MI
- **LELAND, MI**
- LES CHENEUX ISLAND CHANNELS, MI
- **LEXINGTON, MI**
- **LITTLE LAKE, MI**
- LUDINGTON, MI
- MANISTEE, MI
- **MANISTIQUE, MI**
- MARQUETTE, MI
- MENOMINEE, MI
- **NEW BUFFALO, MI**
- **PENTWATER, MI**
- POINT LOOKOUT, MI
- **PORT AUSTIN, MI**
- **PORT SANILAC, MI**
- **PORTAGE LAKE, MI**
- ROUGE RIVER, MI
- **SAUGATUCK, MI**
- SOUTH HAVEN, MI
- **WHITE LAKE, MI**
- **WHITEFISH POINT, MI**



Omnibus Bill

Regional Dredging Provisions

FY08 Commercial Dredging (\$6.544M)

- Transportation Cost Savings
- Relationship Among Harbors
- Coordinate with Stakeholders

FY08 Lake Superior Small Harbor Dredging (\$1.564M)

FY08 Michigan Reprogramming Provision

FY09 \$5M Michigan Provision (30 Eligible Harbors)

FY10 \$6M Michigan Provision (32 Eligible Harbors)

FY10 Lake Superior Small Harbor O&M (\$1.9M)



FY09/10 Construction Projects



FY11 Anticipated Construction Projects



FY11 Corps Funding Status

- Congress has not passed an appropriations bill for FY11.
- The Corps is operating under a Continuing Resolution Authority (CRA), with funding levels no greater than FY10.
- Projects that did not receive funding in FY10 are not eligible for funding under the CRA.
- It is possible that we will have a year-long CRA in FY11.



FY 12 President's Budget Great Lakes Navigation

\$80.0M in Operations & Maintenance

\$22.4M in Dredging (1.65M cubic yards)

\$11.9M in Dredged Material Management

\$2.5M in Soo Asset Renewal



Great Lakes Navigation System Historical Funding FY07-FY12 – All Appropriations



Major System Requirements

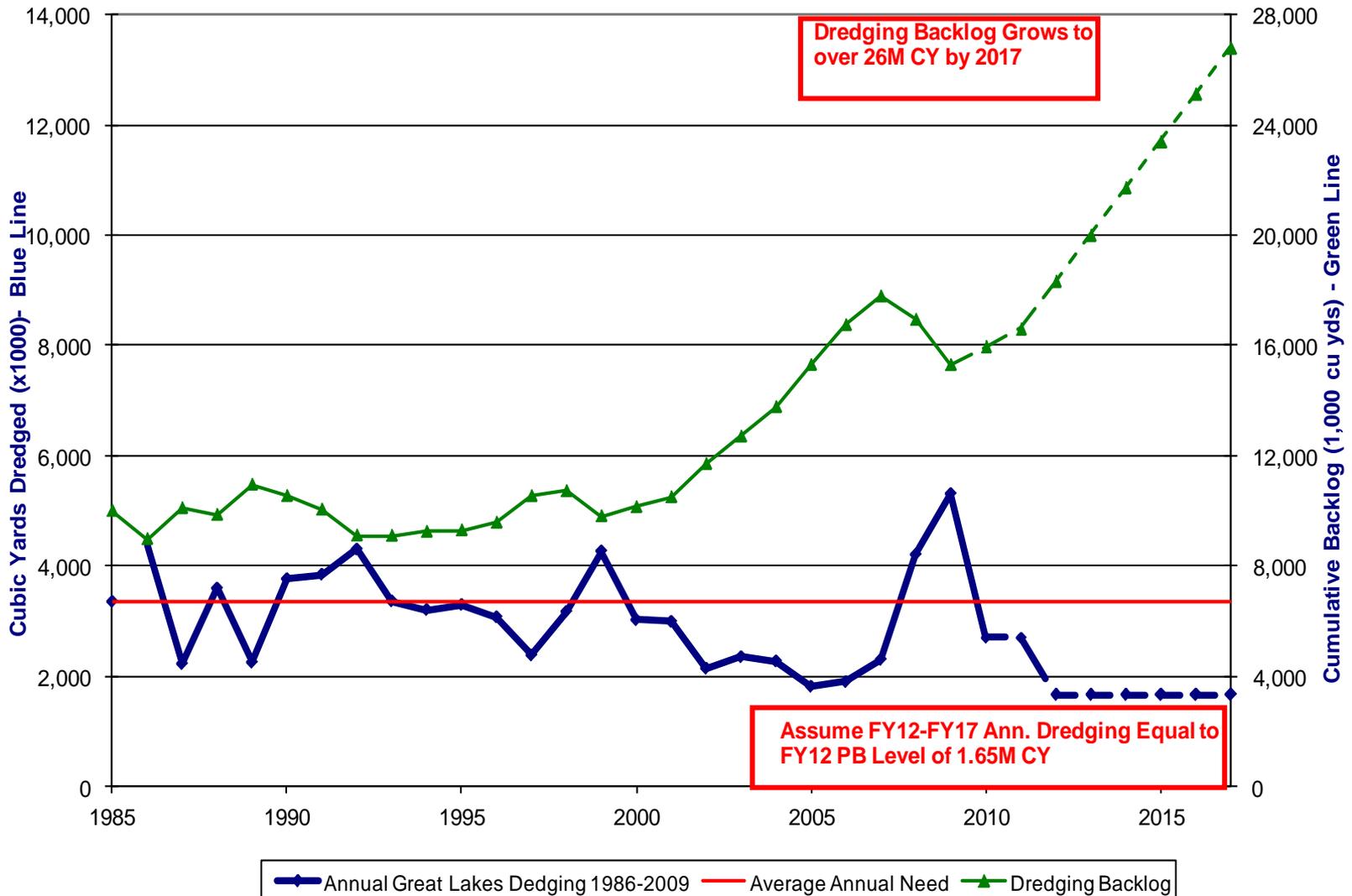
- Reducing/eliminating dredging backlog
- Soo Locks Reliability
- Dredged material management
- Maintaining system infrastructure
 - Breakwater risk communication



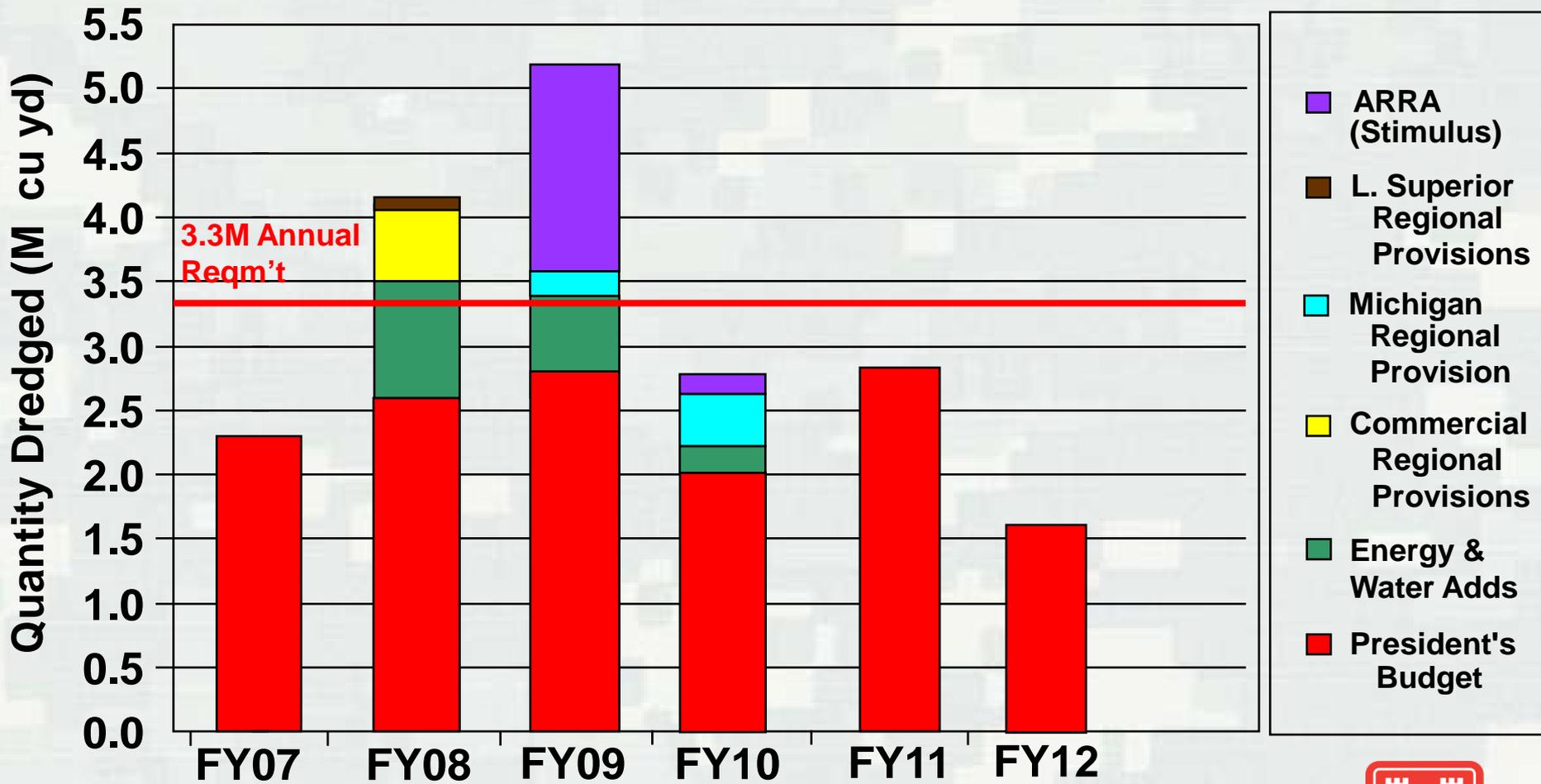
Reducing Dredging Backlog



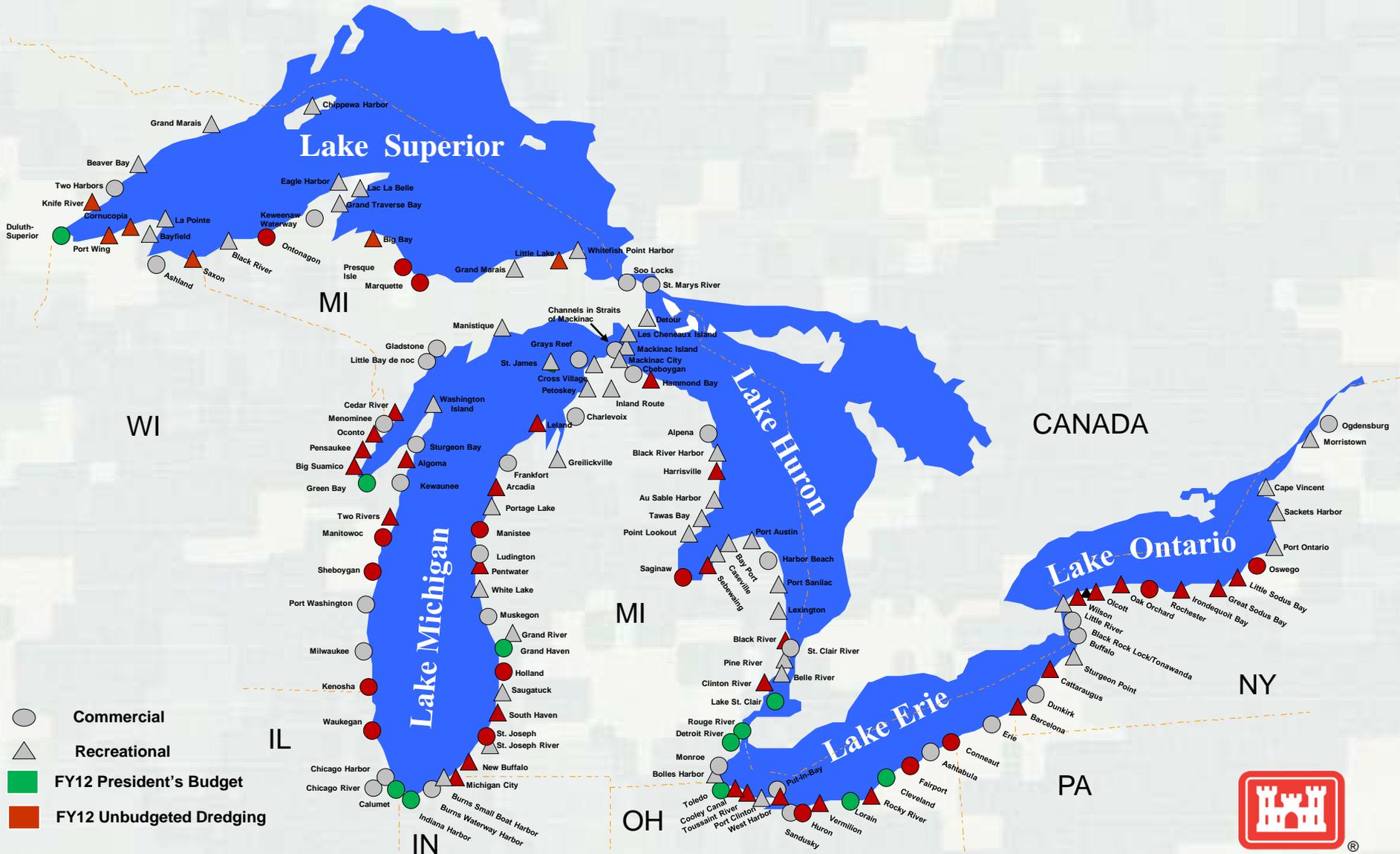
Backlog Growth Under Constrained Dredging Funding 2012-2017



Dredging Funding Trends 2007 - 2012



FY12 Dredging Plan



Soo Locks Reliability



The Soo Locks

A Lynch Pin of the Great Lakes Navigation System

- 70% of the commercial commodities transiting the Soo Locks are limited by size to the Poe Lock
 - Security concerns - foreign crews in vessels are capable of seriously damaging or destroying locks
 - There is currently no redundancy for the Poe Lock

- The economic impact of a 30-day unscheduled closure of the Soo Locks = \$160M
- Two major efforts are underway to improve reliability of the Soo Locks
 1. Maintain existing infrastructure through Asset Renewal Plan
 2. Add redundancy by constructing a new replacement lock with the same dimensions as the Poe Lock



Soo Locks Asset Renewal Long-Term Plan

Asset Renewal Plan will maximize reliability and reduce risk through 2035

- Full funding required \$100 million over 6 years
 - \$25.1 M funded to date through FY10
 - ✓ new hydraulics, stop logs, utilities
 - ✓ Crib Dam construction
 - ✓ Compressed Air System design
 - ✓ Mac Lock modernization design



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Soo Locks Asset Renewal

Major Remaining Deficiencies

Undersized Compressed Air System
Nearing End of Useful Life – critical for ice control to operate gates Dec - May
Estimated Cost: \$5.2M
Failure would cause 14-day outage of Poe and Mac Locks - Impact: \$60M



Poe Hydraulics - includes installation of interlocks; risk is loss of gate
Estimated Cost: \$100K installation
Failure would cause 75-day outage of Poe Locks - Impact: \$320M



MacArthur Lock Interlocks & Automation
Risk is loss of Mac gate
Estimated Cost: \$6.3M
Failure would cause 75-day outage of Mac Lock
Significant shipping delays due to reliance on Poe and eliminates life safety risk



Miter Gate Anchorages: Poe and MacArthur
Risk is loss of gate
Estimated Cost: \$1.6M
Failure would cause 75-day outage of Poe or Mac Locks
Impact – up to \$320M



New Replacement Lock



- Inconsistent with Administration policy due to BCR of 0.73
- WRDA 2007: Construction at 100% federal expense
- Other Considerations: Security, rail/infrastructure capacity, impacts of extended closure



Soo Locks Construction

Full Funded Total Project Cost Estimate: \$580.3 M

Current BCR: .73

Funds Expended Through FY10: \$29.5 M

Completed Construction Contracts :

- **Coffer Dam: \$3.2 M**
- **Down Stream Approach Channel Excavation: \$7.1 M**

FY11 Budget and Potential Construction Information:

- **FY11 President's Budget = \$0**
- **House Mark-Up = \$12,000,000**
- **Senate Mark-Up = \$1,000,000**
- **FY11 Capability = \$125,000,000**
 - **Increment 1 - \$12 M Continue Design & Up Stream Approach Wall at RR Bridge**
 - **Increment 2 - \$28 M Down Stream Approach Walls**
 - **Increment 3 - \$41 M Up Stream Channel Excavation**
 - **Increment 4 - \$44 M Up Stream Approach Walls**



Way Ahead, as funding allows

- **Complete Design**
- **Any funds received will be used for two purposes**
 - **Move forward with new lock design and construction**
 - **Provide long term stabilization of construction sites if full funding will not be received**

80 Million tons of cargo transits the locks annually

30 day unscheduled outage = \$160M

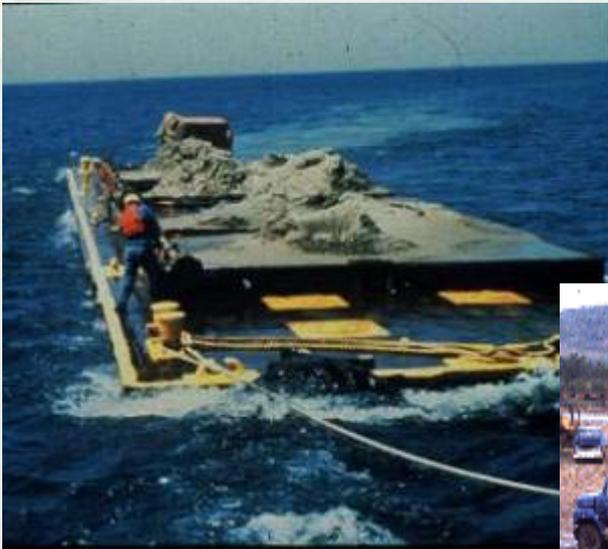
Without the Poe Lock, America's Steel Industry would be severed from its major source of iron ore

Over 90% of the U.S. Iron Ore passes through the locks

~8,000 vessels traverse the locks annually



Dredged Material Management



DMM Historical Perspective

Dredged material nearly exclusively disposed via open water placement

1960

1970

45 Great Lakes CDFs constructed and/or operated by USACE at a cost of \$900M (2009 dollars)

1980

1990

2000

Execute sustainable DMM solutions

1970 - River and Harbor Act and Flood Control Act of 1970 (PL 91-611) passed

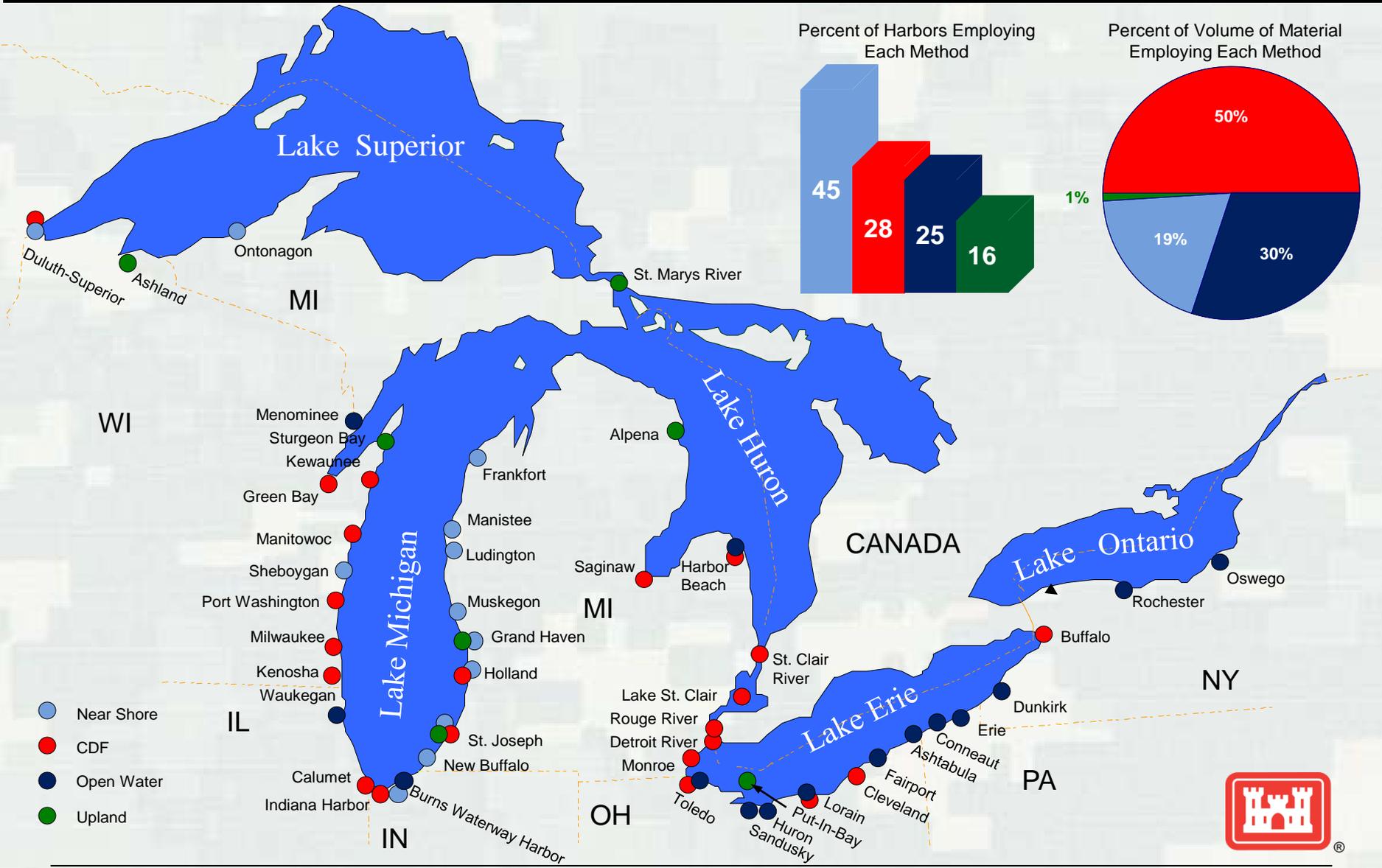
1988 - Federal Standard defined

1996 - Section 201 of the 1996 WRDA requires cost-sharing

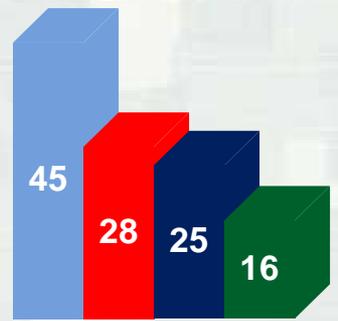
Current CRITICAL situation. DMM strategies must be developed.



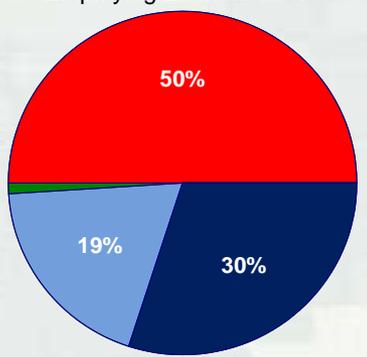
Current Dredged Material Placement Methods



Percent of Harbors Employing Each Method



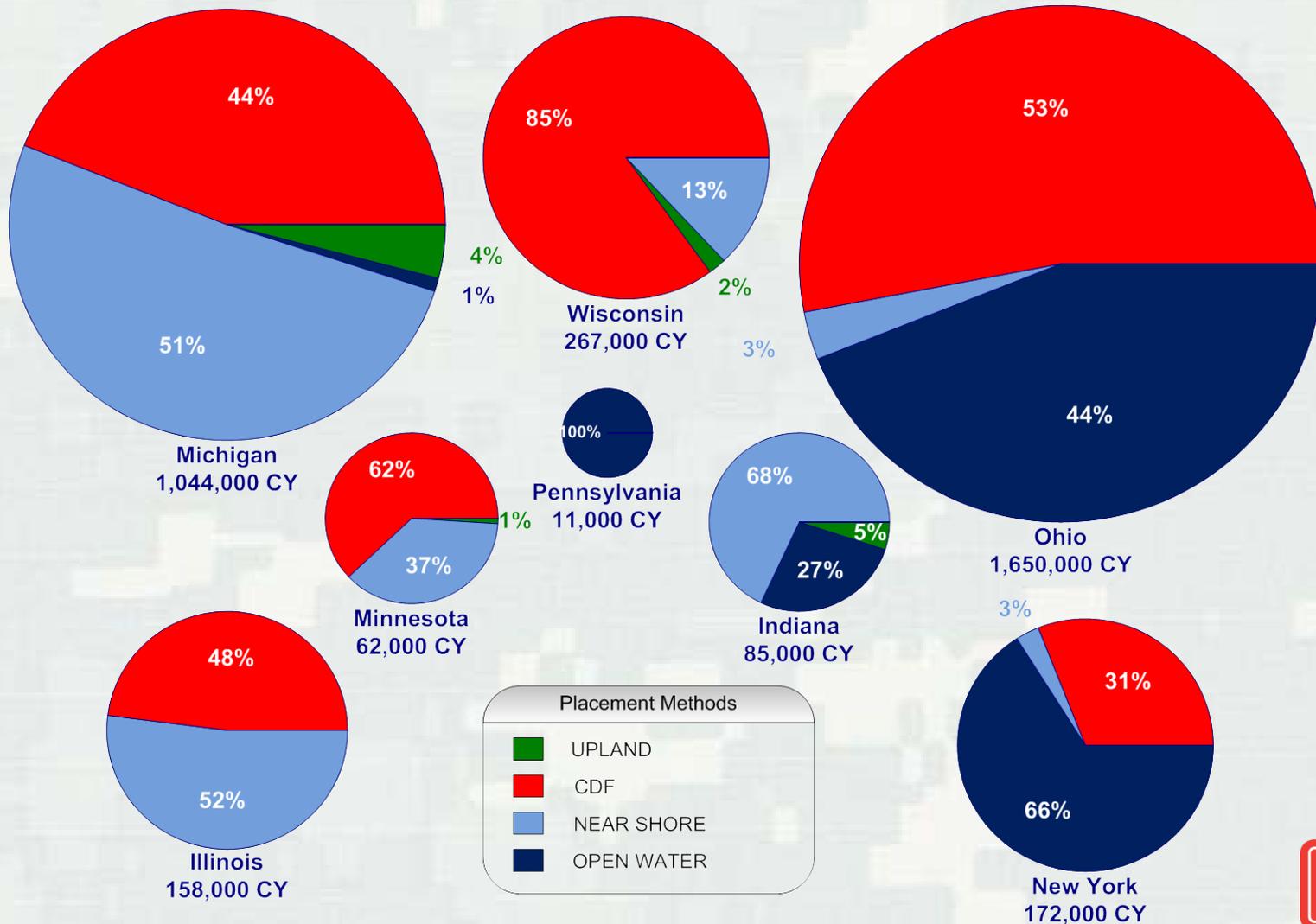
Percent of Volume of Material Employing Each Method



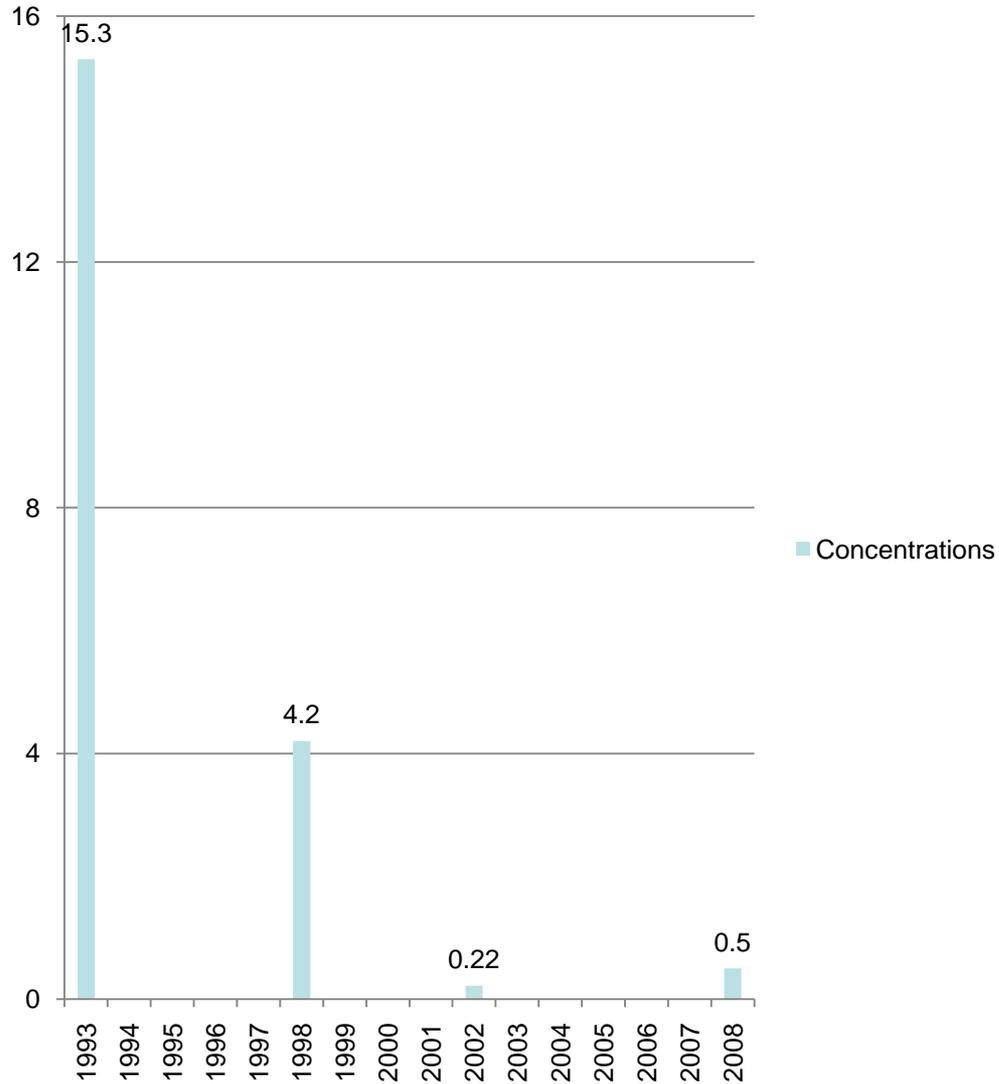
- Near Shore
- CDF
- Open Water
- Upland



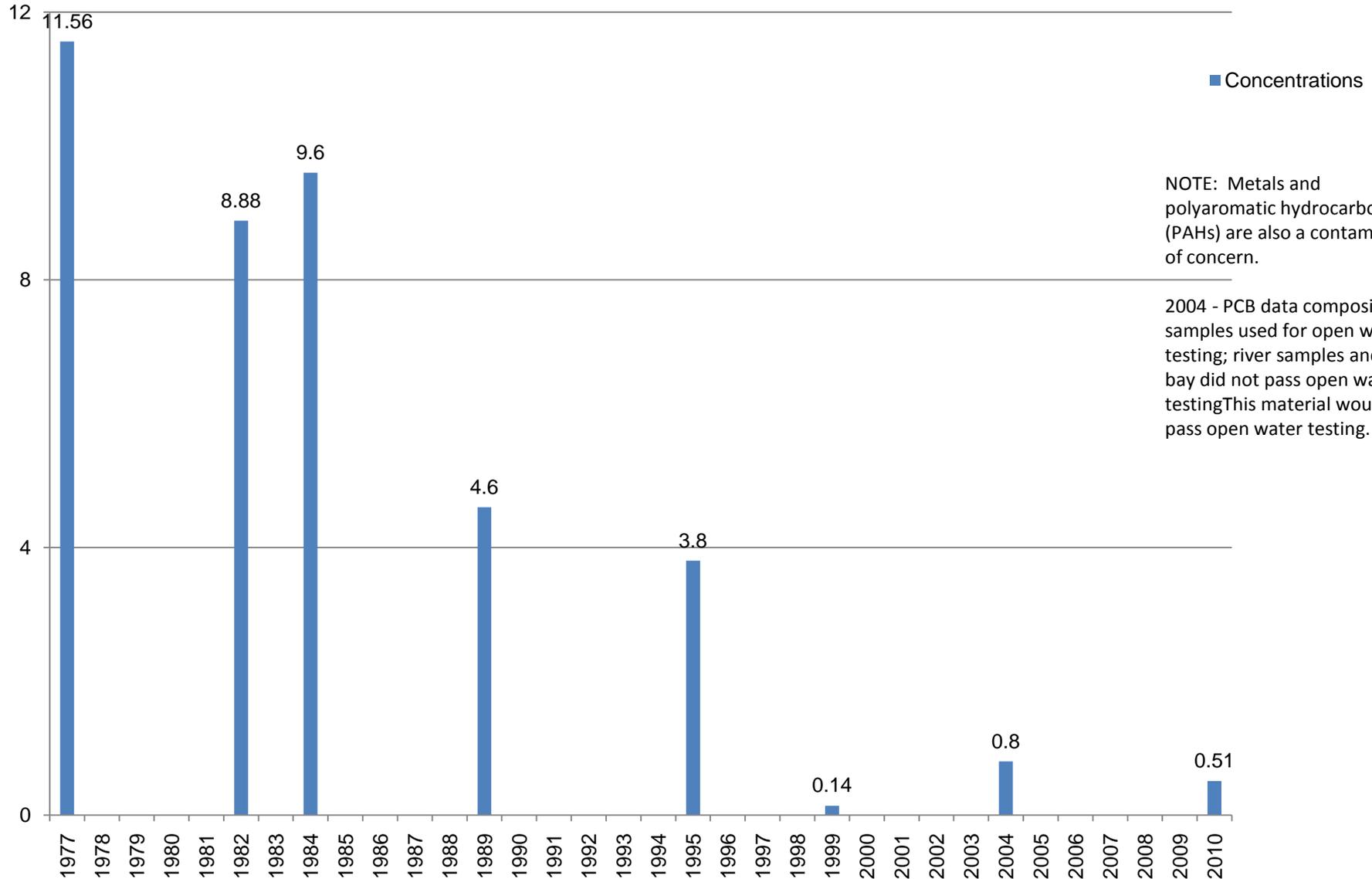
Current Dredged Material Placement Methods by State



Cleveland Maximum Concentrations of PCBs in mg/kg



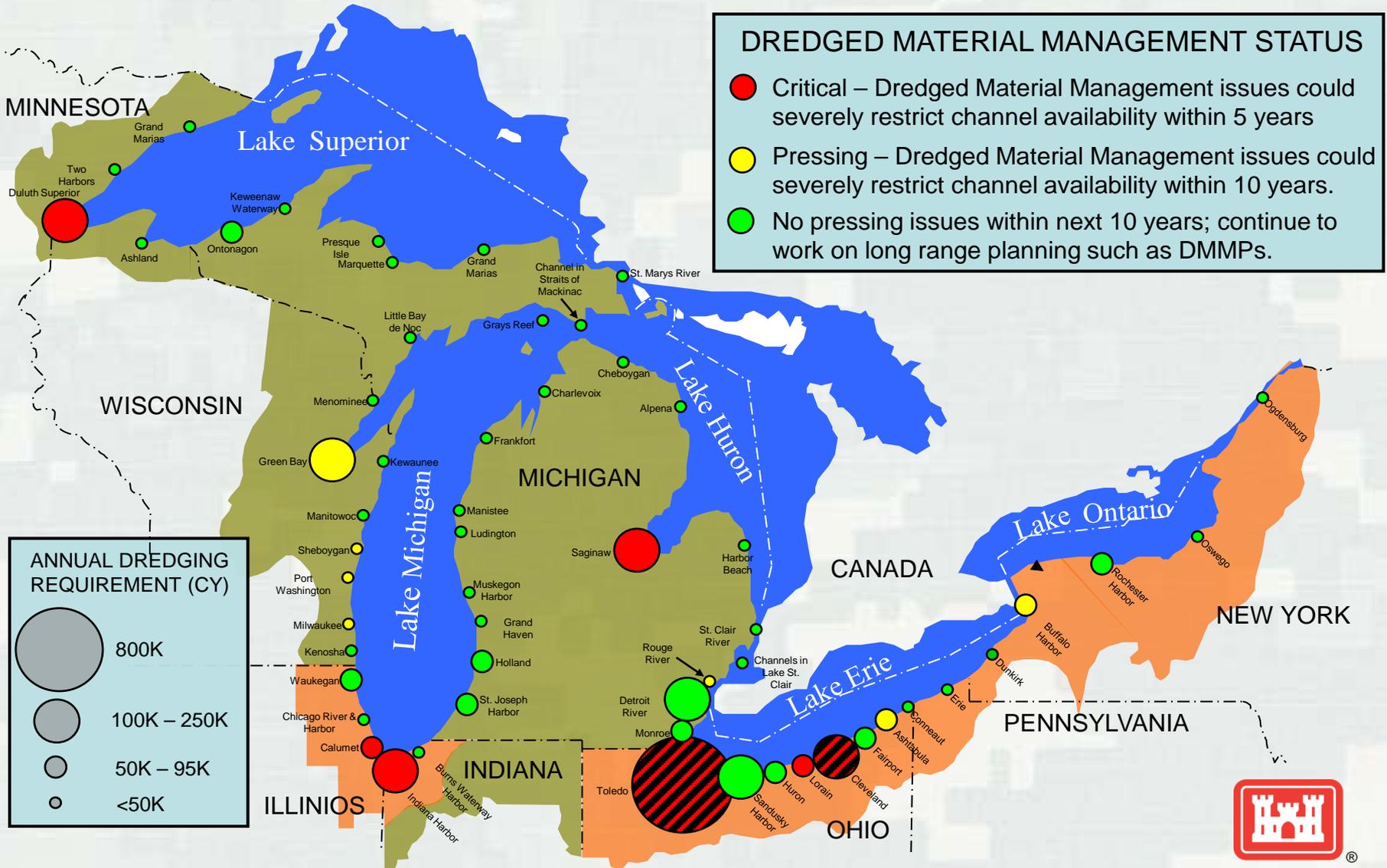
Green Bay Maximum Concentrations of PCBs in mg/kg



NOTE: Metals and polyaromatic hydrocarbons (PAHs) are also a contaminant of concern.

2004 - PCB data composited samples used for open water testing; river samples and near bay did not pass open water testing. This material would not pass open water testing.

Current Dredged Material Management Conditions



Beneficial Reuse

- Removing 300K cubic yards of material from Cleveland CDF in 2010 for brownfield restoration.
- Lorain CDF will be full in 2012; newly dredged material will be used to restore brownfield site for the City at no cost to the Corps.
- Duluth CDF is nearing capacity; the CDF site is currently used as recycling facility “washing” all dredged material received to recover granular material for commercial uses; this has extended the CDF life.
- Material from Duluth will also be removed in 2010 for beneficial reuse to restore an abandoned mine site.



Breakwater Repair and Maintenance



Breakwater Condition and Consequences



Duluth, MN

- 104 miles of breakwaters within the Great Lakes Nav. System
- 80% are over 50 years old, 50% are 90+ years old
- Many structures now provide storm damage reduction to infrastructure that developed behind the breakwater

- 50+ year design life, much of the system requires significant repairs
- Underinvested in the last 10+ years
- Cost \$15-20M or more per mile to repair



Cleveland, OH

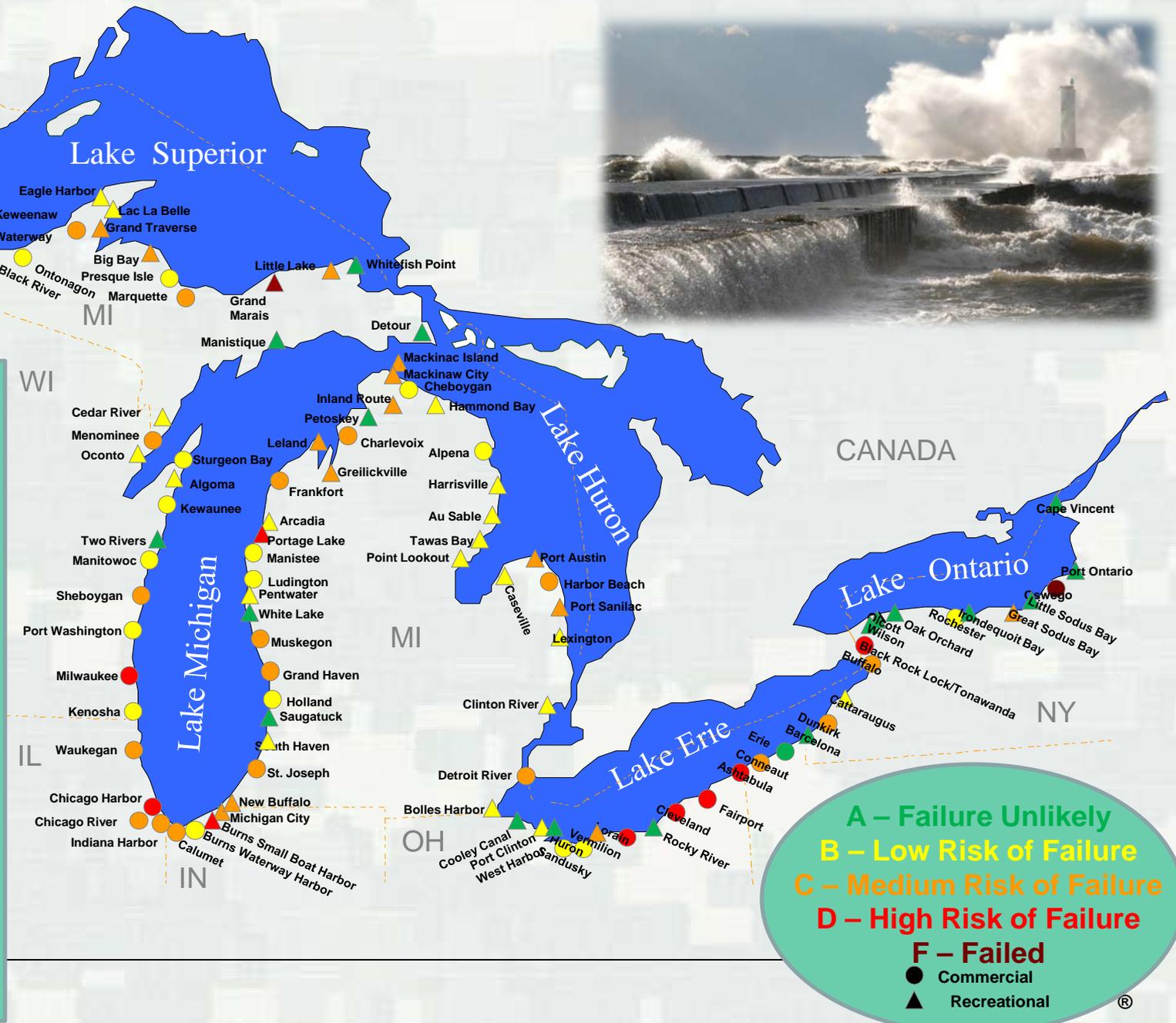


Harbor Structure Condition Assessments



Cost to Restore Most Critical Harbors to Acceptable Level of Risk:

- Ashtabula Harbor \$39.0M
- Chicago Harbor \$23.6M
- Cleveland Harbor \$44.0M
- Fairport Harbor \$28.0M
- Lorain Harbor \$14.0M
- Milwaukee Harbor \$33.0M



A – Failure Unlikely
B – Low Risk of Failure
C – Medium Risk of Failure
D – High Risk of Failure
F – Failed

● Commercial
 ▲ Recreational

Harbor Infrastructure Strategic Risk Communication

PROCESS

1. Working regionally with GL Nav Team and LRD, prepare document that conveys the current condition of the harbor infrastructure as well as the risk involved in the event of failure
2. Inform RIT, HQ, Congressionals
3. Share with stakeholders
4. Conduct 10 regional meetings
 - ✓ Convey condition of structures and risk to protected local infrastructure
 - ✓ Discuss specifics on each harbor
 - ✓ Layout resources needed for repair
 - ✓ Discuss potential non-federal options

Milwaukee Harbor



Cleveland Harbor



Chicago Harbor



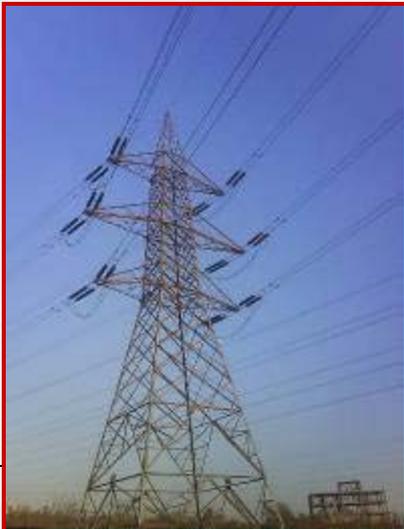
Summary - Great Lakes Navigation System

The Great Lakes Navigation System's
Transporting Rates Savings

- ✓ More competitive American steel
- ✓ Lower cost energy
- ✓ Lower cost concrete (construction)

➔ **\$3.6 Billion/year**

- ✓ More competitive Grain for Export
- ✓ Less fuel consumption and greenhouse gas emissions
- ✓ Less congested highways/rails



Communication

- New Great Lakes Brochure
- Regional Provisions Paper
- Web Site:
www.lre.usace.army.mil/greatlakes/navigation
 - ▶ Fact Sheets
 - ▶ Presentations
- Mailing Lists – send information to
glnavigation @usace.army.mil



Key Great Lakes Contacts

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www.lre.usace.army.mil/greatlakes/navigation



Questions

