US Army Corps
of Engineers
Great Lakes &
Ohio River Division

Steering Committee on Water Transportation

Great Lakes & St. Lawrence Seaway

Overview of the Corps' Navigation Mission

Water Levels & Impacts on Navigation

Recap of 2007/8 Navigation Seasons

Navigation System Funding & Trends

Replacement Lock

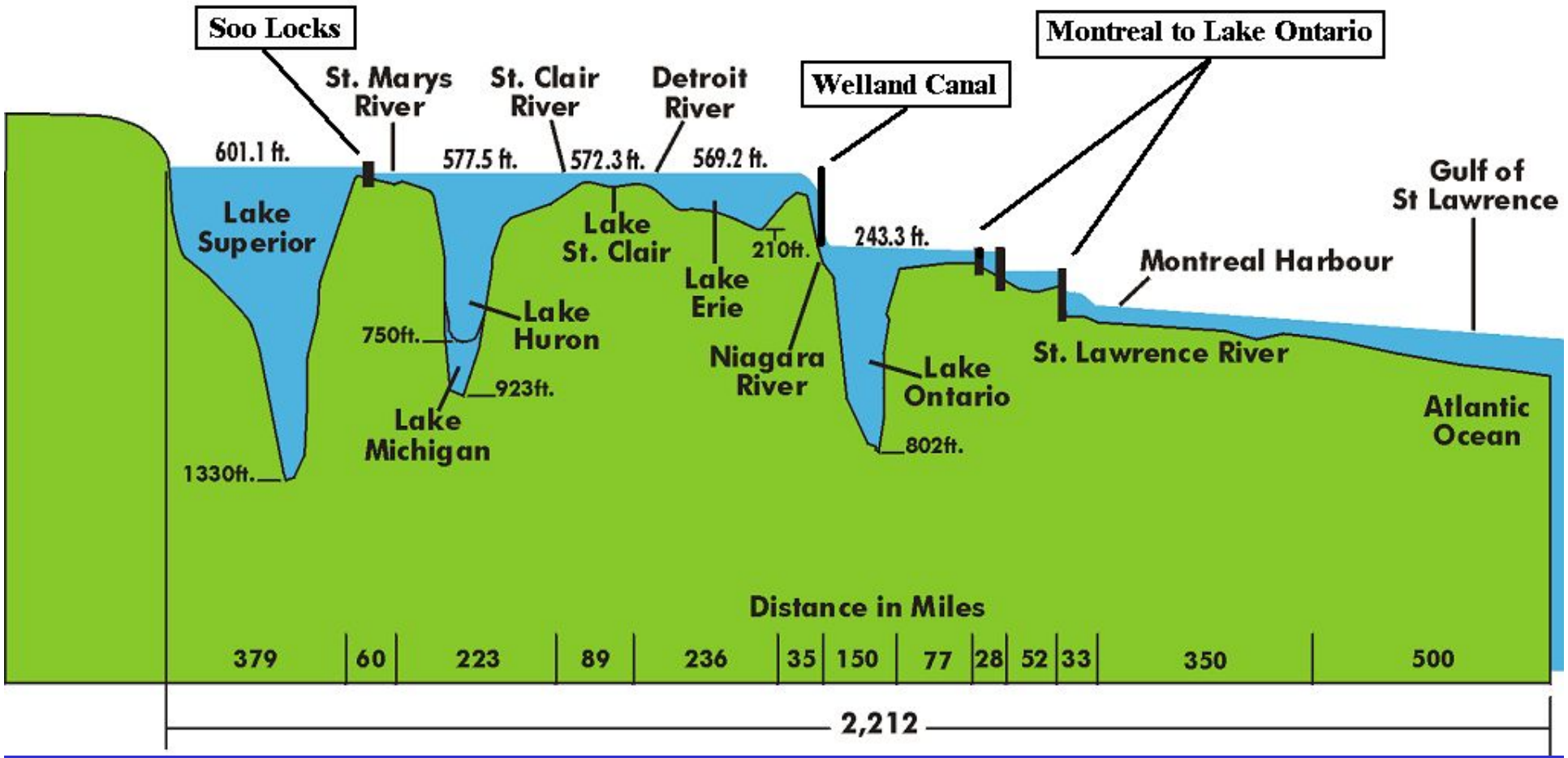
Wayne Schloop, PE
Chief, Operations
Detroit District

Great Lakes & St. Lawrence Seaway

Lake Superior
Lake Huron
Gulf of
St. Lawrence
Lake Ontario
Lake Michigan
Lake Erie
North Atlantic

US Army Corps
of Engineers
Great Lakes &
Ohio River Division

Great Lakes/St. Lawrence Seaway Profile



US Army Corps
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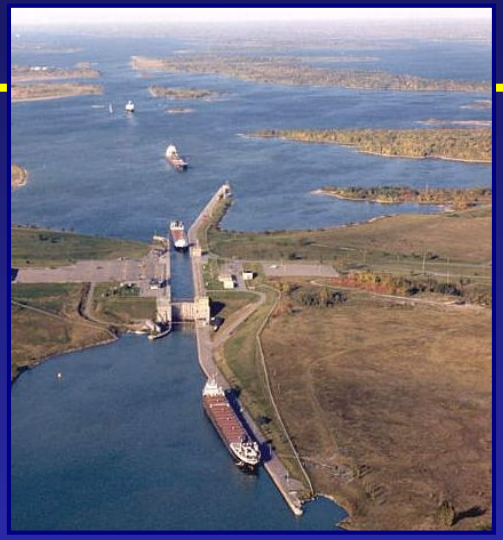
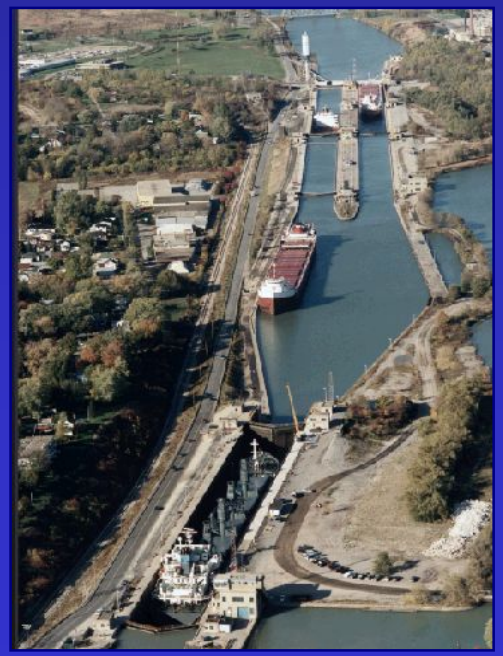
Great Lakes &
Ohio River Division

Great Lakes/Seaway Lock System





- 17 Locks Operational

  - 13 Canadian – 4 U.S.

  - Montreal to Lake Ontario

    St. Lambert
    Cote St. Catherine
    Upper & Lower Beauharnois
    Snell
    Eisenhower
    Iroquois

  - Lake Ontario – Lake Erie

    Welland Canal – 8 locks

  - St. Marys River - Soo Locks

    Poe
    Mac Arthur

US Army Corps
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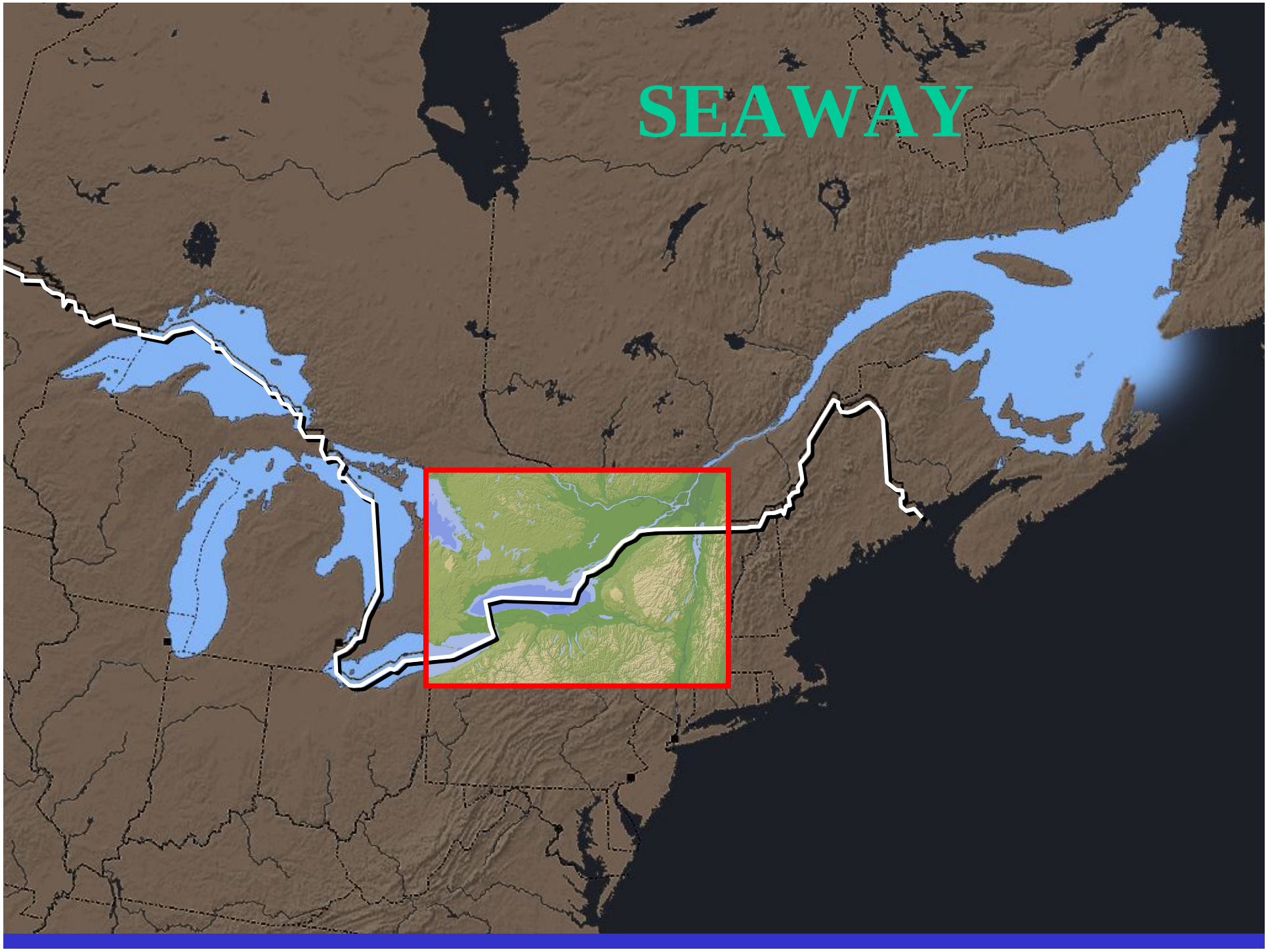
Great Lakes &
Ohio River Division

Connecting Channels

Connecting Channel	Length	Depth	O&M responsibility
St. Lawrence River	189 miles	28-29 feet	SLSDC/SLSMC
Welland Canal	24 miles	28-29 feet	SLSMC
Detroit River	31 miles	27.5-29.5 feet	USACE/CCG
Lake St. Clair	18 miles	27.5 feet	USACE/CCG
St. Clair River	40 miles	27-30 feet	USACE/CCG
St. Marys River	63 miles	27-30 feet	USACE/CCG


SEAWAY

Lake Huron
Lake Ontario
Lake Erie
Lake Champlain

Lake Huron
Montreal
Lake Champlain
Lake Ontario
Lake Erie

Lake Huron
Montreal
Valleyfield
Lake Champlain
Lake Ontario
Lake Erie

Lake Huron
Montreal
Valleyfield
Cornwall
Lake Champlain
Lake Ontario
Lake Erie

Lake Huron
Montreal
Valleyfield
Cornwall
Massena
Lake Champlain
Lake Ontario
Lake Erie

Lake Huron
Montreal
Valleyfield
Cornwall
Massena
Ogdensburg
Lake Champlain
Lake Ontario
Lake Erie

Lake Huron
Montreal
Valleyfield
Cornwall
Massena
Prescott
Ogdensburg
Lake Champlain
Lake Ontario
Lake Erie

Lake Huron
Montreal
Valleyfield
Cornwall
Massena
Prescott
Ogdensburg
Lake Champlain
Lake Ontario
Oswego
Lake Erie

Lake Huron
Montreal
Valleyfield
Cornwall
Massena
Prescott
Ogdensburg
Lake Champlain
Oshawa
Lake Ontario
Oswego
Lake Erie

Lake Huron
Montreal
Valleyfield
Cornwall
Massena
Prescott
Ogdensburg
Lake Champlain
Oshawa
Toronto
Lake Ontario
Oswego

Lake Huron
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Valleyfield
Cornwall
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Prescott
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Oshawa
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Oswego
Buffalo
Lake Erie
Erie

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Oshawa
Toronto
Hamilton
Lake Ontario
Oswego
Buffalo
Lake Erie
Erie

Overview of the Corps' Navigation Mission

US Army Corps
of Engineers
Great Lakes &
Ohio River Division

Harbors & Channels

US Army Corps
of Engineers
Great Lakes &
Ohio River Division

Dredging

Great Lakes Navigation

US Army Corps
of Engineers
Great Lakes &
Ohio River Division

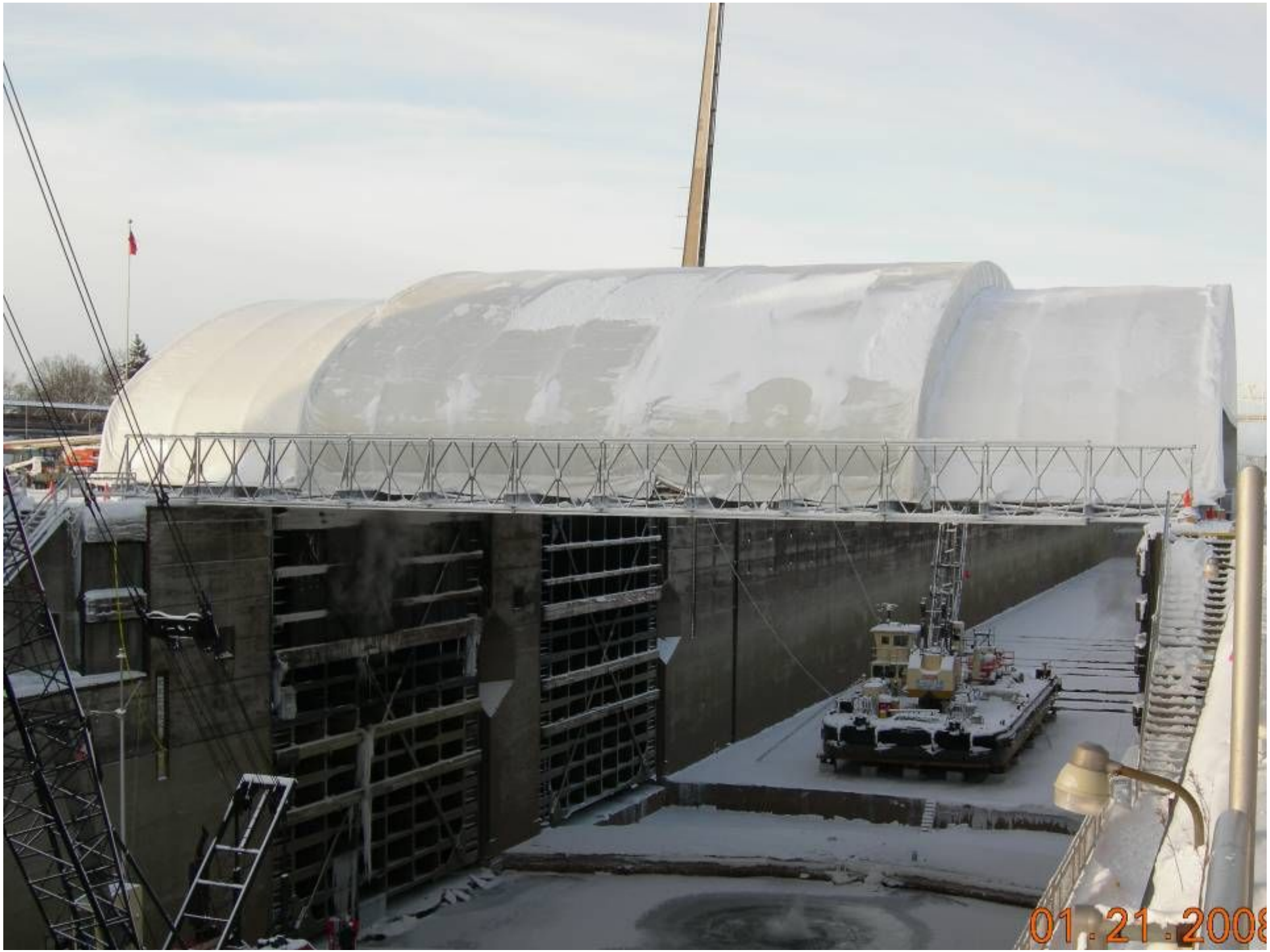
Breakwaters

Great Lakes Navigation

- 160+ miles of breakwaters on the Great Lakes
- Most built between 1860 and 1940
- Timber crib construction (typical)
- Low Lake water levels are accelerating deterioration

US Army Corps
of Engineers
Great Lakes &
Ohio River Division

Soo Locks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02.01.2008

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03.14.2008 09:12

Water Levels & Impacts on Navigation

US Army Corps
of Engineers
Great Lakes &
Ohio River Division

Soo Locks - Draft

Cargo Carriers Maximum Draft Comparison

	2007 Season			2008 Season			Difference	
		Draft			Draft		Draft	
	Vessel Name	Feet	Inches	Vessel Name	Feet	Inches	Feet	Inches
March	CANADIAN PROVIDER	26	3	FRONTENAC	26	0		-3
April	CSL ASSINIBOINE	26	6	FEDERAL RHINE	26	7		1
May	AMERICAN INTEGRITY	26	6	INDIANA HARBOR	26	10		4
June	AMERICAN FORTITUDE	26	7	MESABI MINER	27	5		10
July	INDIANA HARBOR	26	9	MESABI MINER	27	7		10
August	INDIANA HARBOR	26	10	AMERICAN MARINER	27	8		10
September	AMERICAN INTEGRITY	26	6	STEWART J CORT	27	7	1	1
October	EDWARD L RYERSON	26	7					
November	FEDERAL SHIMANTO	26	4					
December	YPERMACHOS	26	4					
January	CHARLES M BEEGHLY	25	9					

US Army Corps
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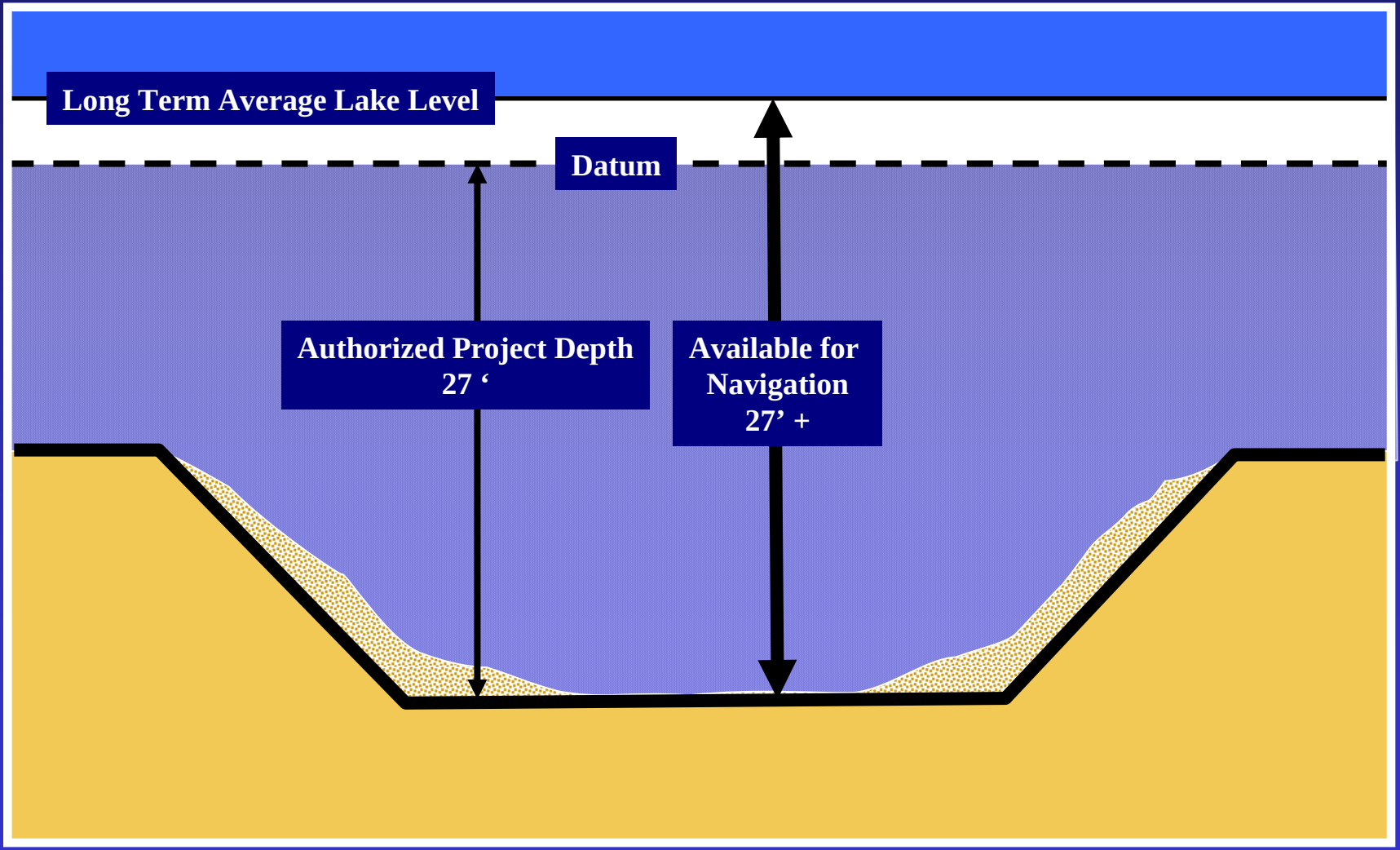
Great Lakes &
Ohio River Division

Historical Water Levels "Normal" Conditions



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Great Lakes &
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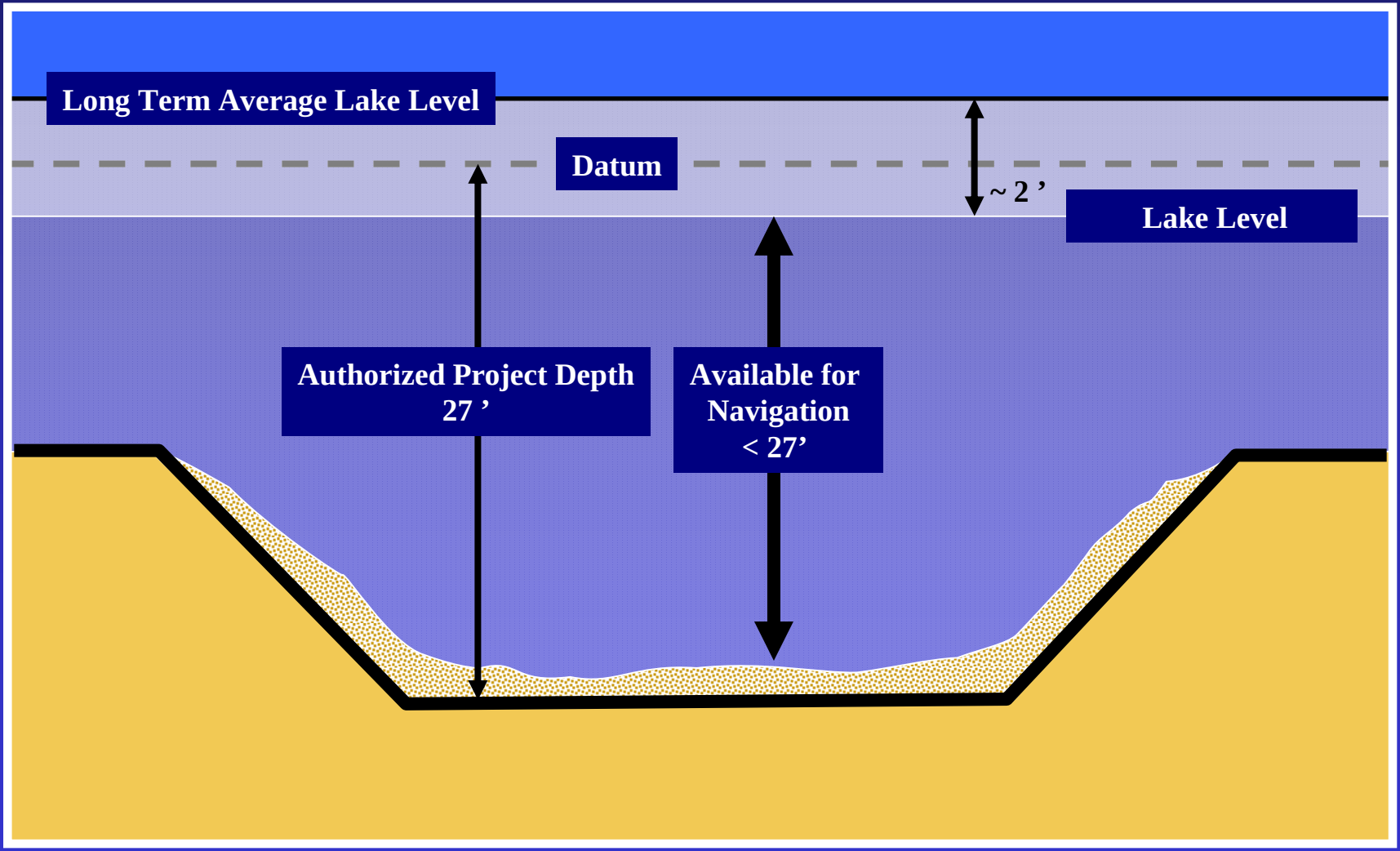
Conditions: 1999 to 2003
Water Level Below Datum



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Great Lakes &
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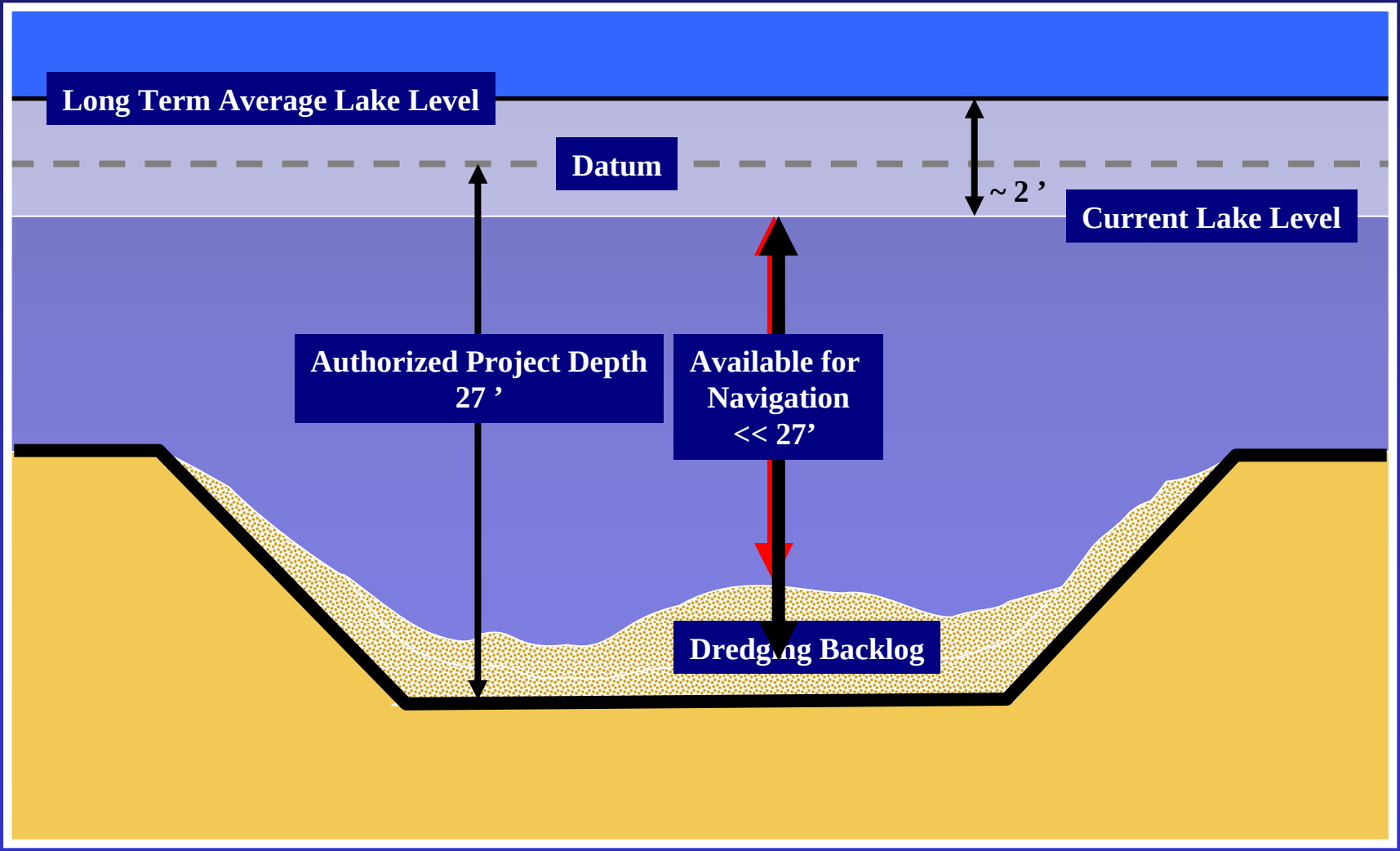
Current Condition
Below Datum w/Dredging Backlog



Recap of 2007/8 Navigation Seasons

US Army Corps
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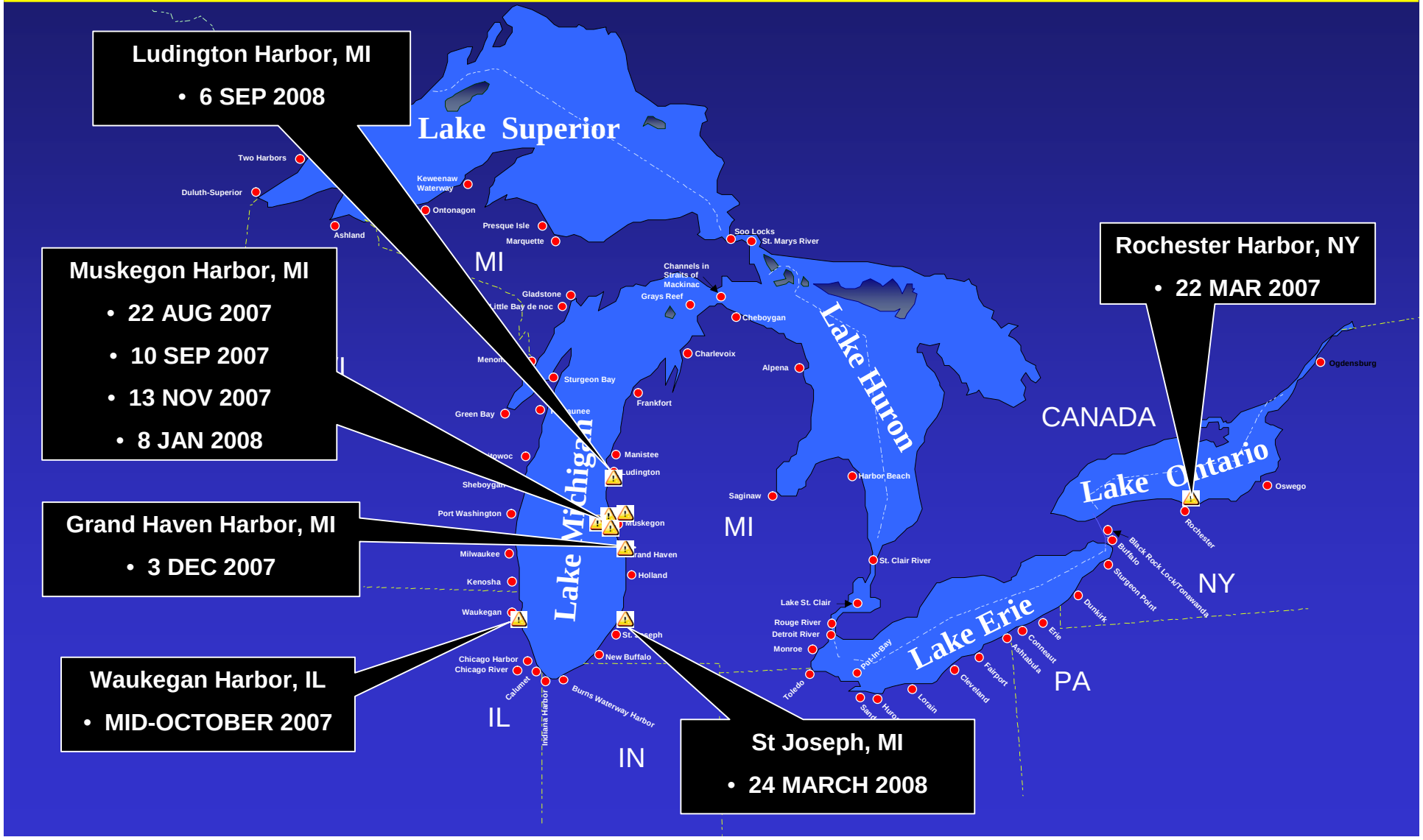
Great Lakes &
Ohio River Division

2007-2008 "Groundings" on the Great Lakes



US Army Corps
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Ohio River Division

Muskegon Harbor

US Army Corps
of Engineers
Great Lakes &
Ohio River Division

Muskegon Harbor

Muskegon Harbor

American Integrity
September 10, 2007

Monroe Harbor

Monroe Harbor

Monroe Harbor

Prior to Dredging

After Dredging

Navigation System Funding & Trends

US Army Corps
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Great Lakes &
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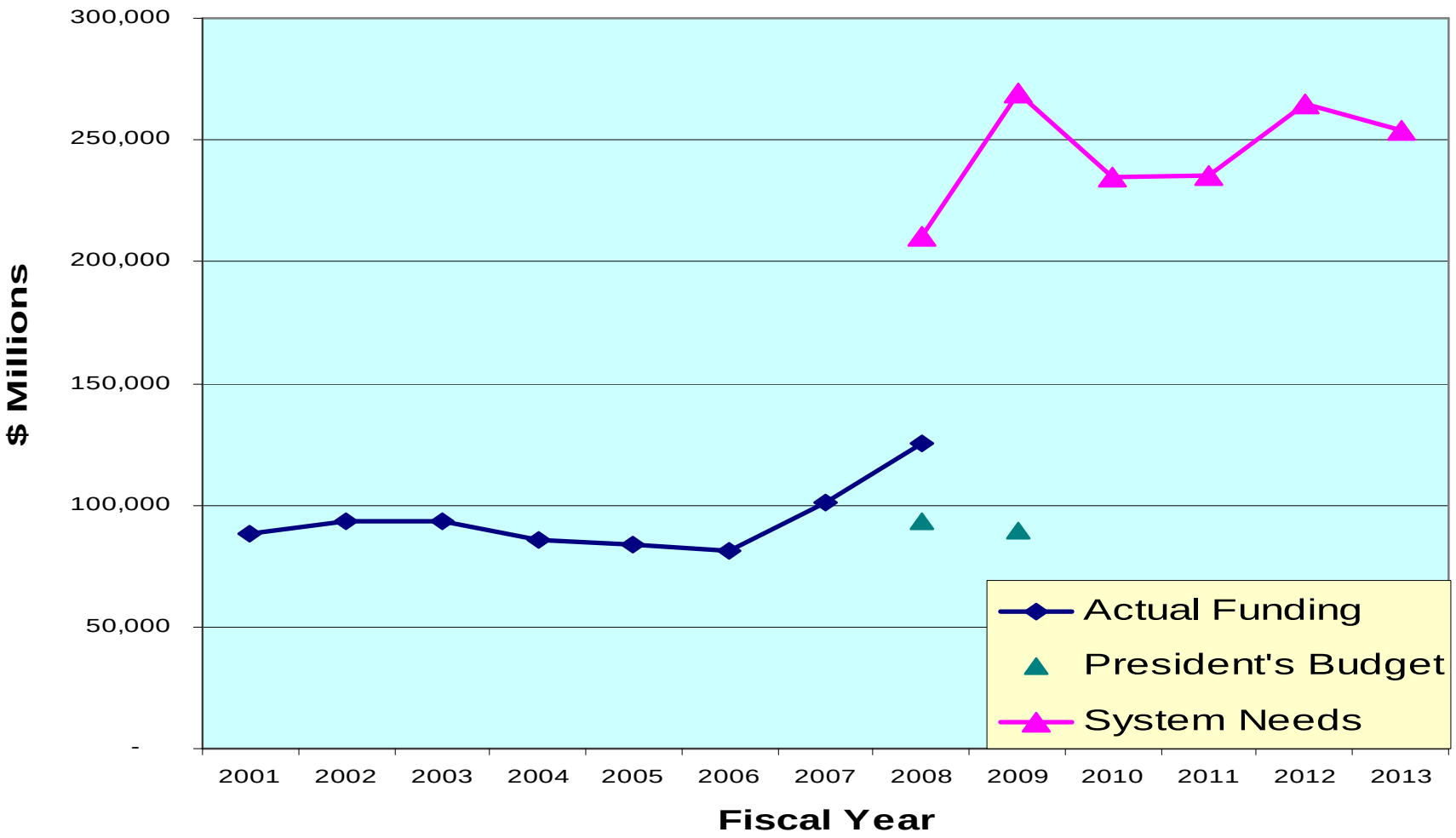
Great Lakes Navigation Funding



US Army Corps
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Great Lakes &
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Great Lakes Navigation FY08 Dredging Program

	FY07	FY08 PB	FY08 Omnibus
Maintenance Dredging	20 projects 2.3M cubic yards	22 projects 2.6M cubic yards	53 projects 4.3M cubic yards

US Army Corps
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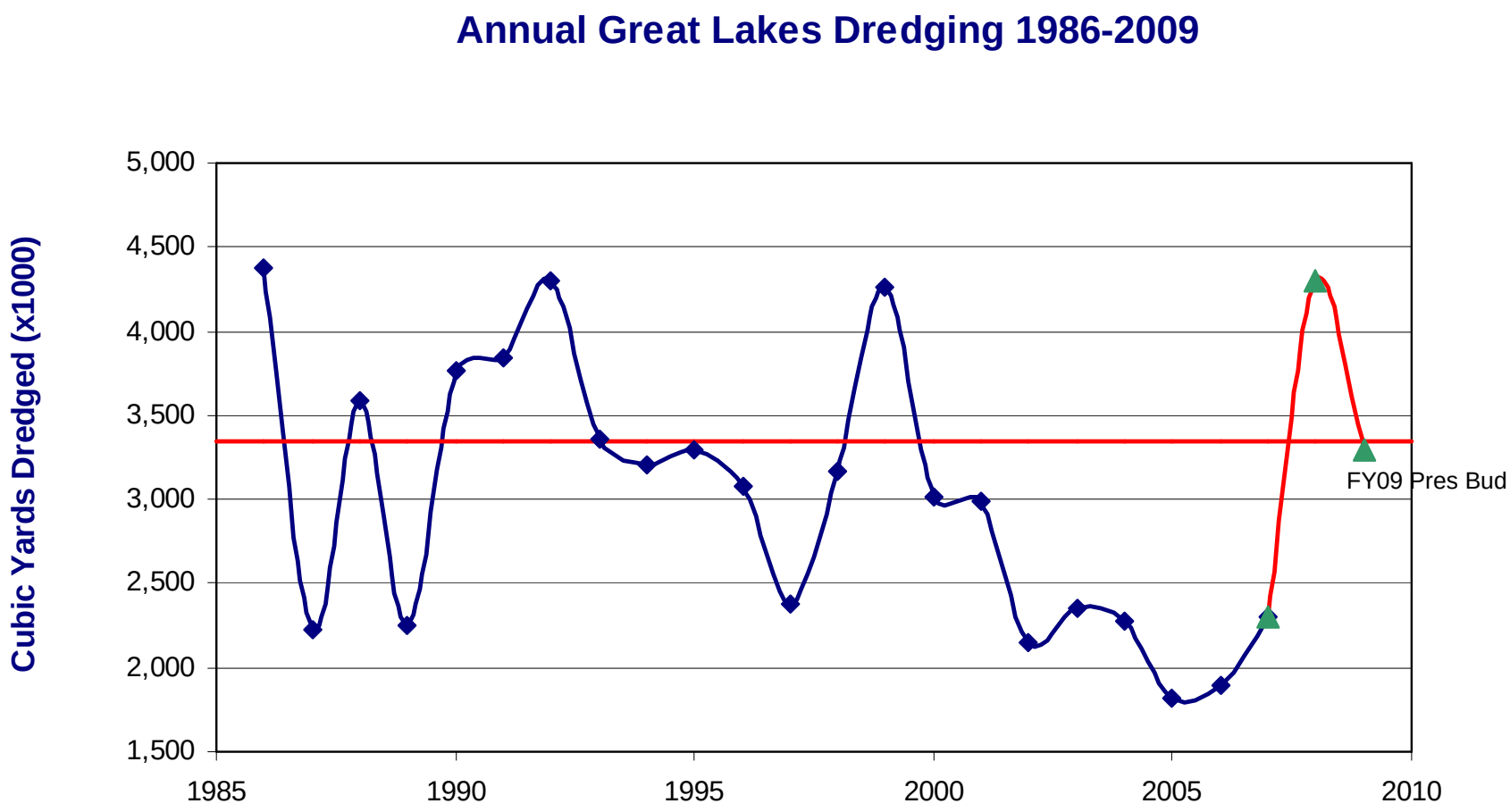
Great Lakes &
Ohio River Division

Great Lakes Dredging Trends



Impact of Dredging on Per-Trip Carrying Capacity

Major Great Lakes Vessel Classes	Vessel Length (feet)	Per-Trip Carrying Capacity	Capacity Per Inch Of Draft*
	1,000	69,664	267
	806	34,720	146
	767	28,336	127
	730	27,558	115
	635	22,064	107
	501	13,776	71

*Capacity per inch of draft reflects the incremental tonnage carried at normal loaded draft.

EVERY INCH COUNTS !

When inadequate dredging forces the 63 U.S.-Flag Lakers enrolled in Lake Carriers' Association to reduce their draft by **just 1 inch**, the fleet forfeits more than 8,000 tons of cargo each trip.

8,000 TONS IS ENOUGH …

IRON ORE.....to produce steel for .....6,000 Automobiles

COAL.....to provide.....3 Hours of Electricity for Greater Detroit

LIMESTONE.....to build.....24 Homes

Let's do the math …. **just one** of the 13 1,000-foot vessels:

8,000 LOST TONS/TRIP X 50 TRIPS/YEAR = 400,000 LOST TONS/YEAR

Our region and our national economy cannot afford this inefficiency !

Replacement Lock

US Army Corps
of Engineers
Great Lakes &
Ohio River Division

The Soo Locks – Today and Tomorrow

A View Today . . .

A View into the Future!

US Army Corps
of Engineers
Great Lakes &
Ohio River Division

FY 09 Funding

- Presidents Budget: $0
- House Appropriations Mark Up: $17.0 M
- Senate Appropriations Markup: $2.0 M
- Conference Amount: ??

$2 Million	$8 Million	$17 Million
Continue Design	Continue Design Award a Reduced Coffer Dam Contract	Continue Design Award Full Coffer Dam Contract

US Army Corps
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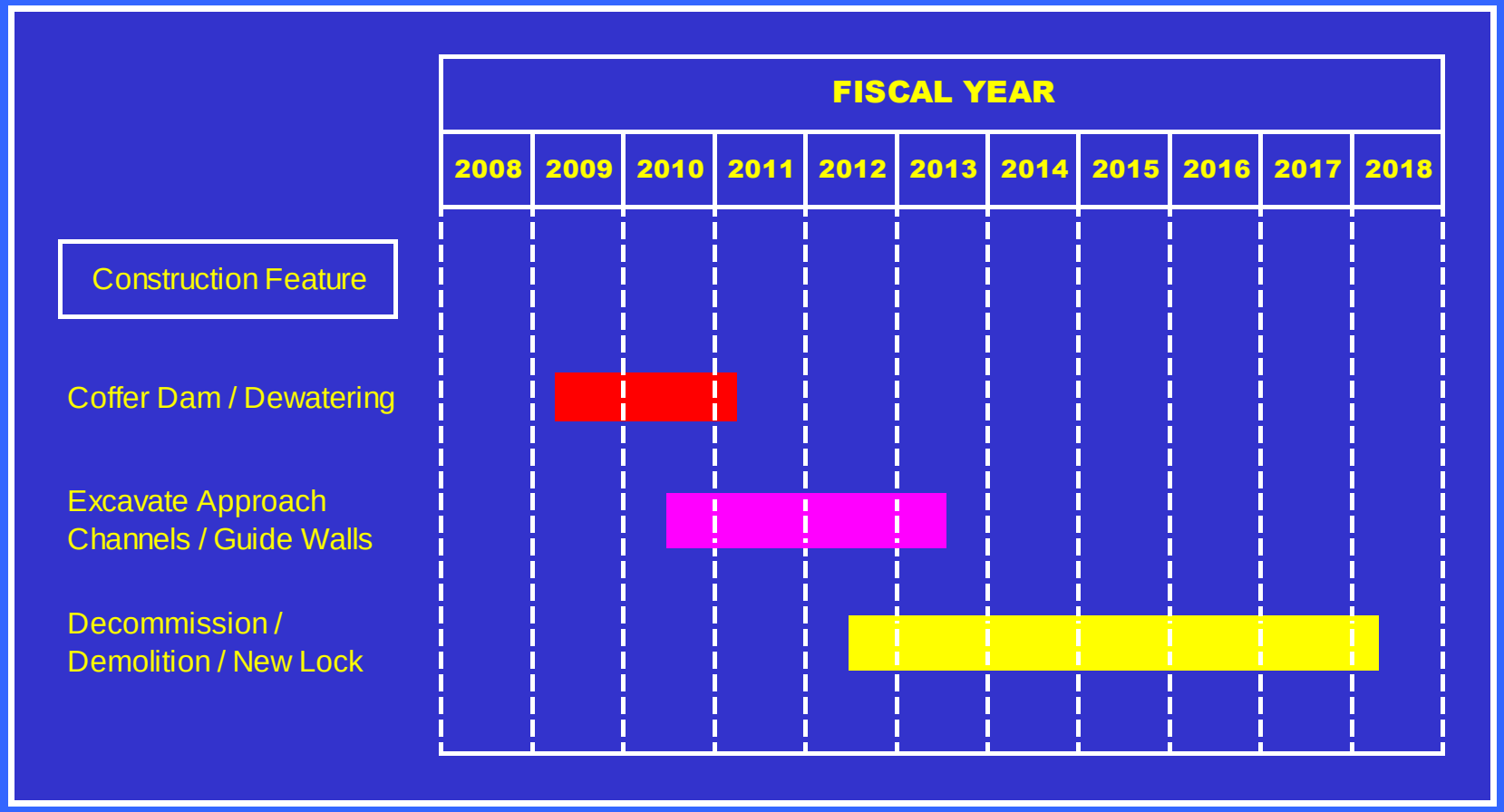
Great Lakes &
Ohio River Division

Construction Schedule



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Rendition of Future Poe Size Lock

US Army Corps
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Great Lakes &
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Soo Locks
Tonnage Statement

RPT21 - Tonnage Statement

River-SM Lock-1 Ch-All

Current Month: September 2008

Dates: 09-01-08 00:00 to 09-30-08 23:59

Tonnage	Sep 2007	Sep 2008	Change	Percent +/-
American	6,147,779	6,490,193	342,414	5.57%
Canadian	1,747,950	1,963,845	215,895	12.35%
Foreign	681,879	215,016	-466,863	-68.47%
	8,577,608	**8,669,054**	**91,446**	**1.07%**

Year to Date

Dates: 02-01-08 00:00 to 09-30-08 23:59

Tonnage	Feb 2007 to Sep 2007	Feb 2008 to Sep 2008	Change	Percent +/-
American	39,430,561	41,818,449	2,387,888	6.06%
Canadian	13,163,400	12,535,546	-627,854	-4.77%
Foreign	2,650,699	1,394,815	-1,255,884	-47.38%
	55,244,660	**55,748,810**	**504,150**	**0.91%**

Wayne.Schloop@us.army.mil

(313) 226-5013