



US Army Corps
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North Central Division

Great Lakes Update

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The Port of Cleveland

The Port of Cleveland is the largest port on Lake Erie and the third largest on the Great Lakes. It is about 175 miles southwest of Buffalo, New York and 95 miles east of Toledo, Ohio. Cleveland is a major industrial center on Lake Erie and Ohio's largest metropolitan center. Specifically, the port is comprised of the following: a breakwater-protected outer harbor area, which is 5 miles long and varies from 1,600 to 2,400 feet wide; a main harbor entrance, which is 700 feet wide between breakwaters; and an inner harbor made up of improved (dredged) channels in the lower 5.8 miles of the Cuyahoga River and the lower mile of the Old River. The Old River joins the Cuyahoga River a short distance (0.4 mile) above the mouth of the Cuyahoga River. An overview of the east port facility is shown in Figure 1.

The City of Cleveland's location, within 600 miles of 60 percent of all American households and 79 percent of the top 500 U.S. corporate headquarters, contributes to the city's reputation as a major hub of domestic and international

trade for the midwest. The city is serviced by several rail lines and has excellent highway connections. Major international and domestic airlines serve the Cleveland-Hopkins International Airport, located in the southwest section of the city, and the Burke Lakefront Airport, located on the south side of the outer harbor. The headquarters of eight U.S. domestic Great Lakes fleets are located in Cleveland, as is the Lake Carriers' Association which represents U.S. vessel operators.

The Ninth Coast Guard District headquarters is located at Cleveland, and the city also serves as a customs port of entry.

Harbor Origins and Growth

The harbor's origin dates back to 1796 with the founding of the City of Cleveland. The port facility enjoys a long history of maritime commerce on the Great Lakes dating back as far as 1808. The first significant step in establishing a port at Cleveland came



Figure 1. Overview of east portion of port facilities. (Courtesy Port of Cleveland).

in 1825, when the federal government appropriated \$5,000 to construct parallel jetties in Lake Erie at the mouth of the Cuyahoga River. Dock facilities were located along the riverbanks. These harbor improvements were completed in 1831 and ship traffic rapidly increased. In 1838, 2,400 vessels came through the Port of Cleveland with receipts and shipments valued at \$20 million. By the mid-1840's, Cleveland was a dominant Great Lakes port, joining Buffalo and Detroit. Cleveland rapidly developed, in the late 1800's, as a result of its strategic location on key railroad routes giving access to two major mineral resources of the United States, iron ore and bituminous coal. This combination of minerals made the City of Cleveland a major iron and steel producing center. Shipping traffic continued to grow; materials handling technology continued to evolve; and physical improvements, such as harbor dredging, improved the port's performance and marketability. By 1900, iron ore tonnage was in the millions.

A steady growth in the Great Lakes maritime industry led to the opening of the St. Lawrence Seaway in 1959. As the largest port on Lake Erie, and one of the primary industrial and transportation hubs in the midwest, the Port of Cleveland gained an international position in the Great Lakes/St. Lawrence River Seaway System with the opening of the Seaway. As such, it is a major economic asset to the region. The Seaway has also enhanced Cleveland's influence

by bringing the Port closer to Europe than many of the East Coast ports (Figure 2).

While the Port of Cleveland operates on a 12-month schedule, the shipping season generally runs from March 30 to December 30. There are more than one million square feet of paved piers and five deep-water docks. The port also provides for all types of above- and below-waterline repairs to vessels. Port facilities include: 11 berths with an average depth of 27 feet; 417,050 square feet of covered warehouse space; 59.81 acres of open storage area; and, rail connections with Conrail, Norfolk Southern, and CSX. Available equipment includes: one 150 short-ton capacity stiff-leg crane; 9 crawler cranes with capacities of 136 - 272 metric tons; 65 lift trucks; dry and liquid bulk cargo handling equipment; and, a full range of steel and general cargo handling equipment. Most of the port's terminals have rail connections and are equipped for trans-shipment of all types of bulk commodities.

The port continues to be developed and expanded. Construction of an additional 100,000 square feet of warehouse space is proposed to enhance the port's long term storage and distribution facilities. In 1993, an innovative container incentive program, offering free handling, generated a significant increase in the movement of containers over that of 1992. The port handled a ten fold increase in containers in 1993 as compared to 1992. Port officials plan to continue working

to promote increased container traffic in the Great Lakes. To further stimulate international trade, port officials activated Foreign-Trade Zone programs whereby industries benefit by having decreased or deferred tariffs and taxes.

Foreign Trade Zone

The Port Authority operates Foreign Trade Zone (FTZ) No. 40. A FTZ is a site within the United States where merchandise is considered outside the United States' Customs territory. The FTZ was created by federal law in 1934, and recently was given new life, due to changing conditions in the world economy and in trade practices.

The primary advantage of a FTZ is that products may be brought into a zone warehouse for storage, testing, sampling, repackaging, display, or processing (combined with other items, foreign or domestic) prior to customs entry and duty payment. Should the final product be exported, no U.S. Customs duties or excise taxes are assessed. If the final product is sold within the U.S., duties and taxes are levied only when the commodities are physically removed from the FTZ. A modern computerized inventory control system that satisfies U.S. Customs requirements is used to track products at the FTZ. Since the examinations administered by the U.S. Customs Service can be performed within the zone site, costly unloading at a designated Customs examination station has been eliminated.

The Cleveland-Cuyahoga County Port Authority has available over 1.5 million square feet of approved Foreign Trade Zone space, including a public warehouse of 144,000 square feet containing two 30-ton overhead cranes. Both inside and outside storage is available. The capability exists to receive and unload all types of cargo, including containers, allowing for complete cargo handling and distribution services and transportation to and from the Zone.

Cargo Diversification

In keeping with its FTZ designation, commerce through the Port of Cleveland is international in scope (Figure 2). The major commodities handled include iron, steel, and aluminum products; limestone, iron ore, sand, stone, salt, and other minerals (Figure 3); petroleum products and other liquid bulk cargo; and, general and containerized cargo.

The year 1994 was the best to date at the Port of Cleveland. Some 124 ships called, delivering cargo totaling 906,495 short tons. This represents increases of 36% and 18%, respectively, from the 1993 totals of 91 ships and 766,484 short tons of cargo. 1994 steel tonnage was 865,547 short tons, up 14% from 760,150 short tons in 1993. Most of the steel is used in the Cleveland area for automobile manufacturing. Inter-lake bulk material traffic during 1994 was about 11,950,000 short tons, a 7% increase over 1993. Primarily, bulk commodities of iron ore and limestone are being shipped to

The Great Lakes/St. Lawrence System

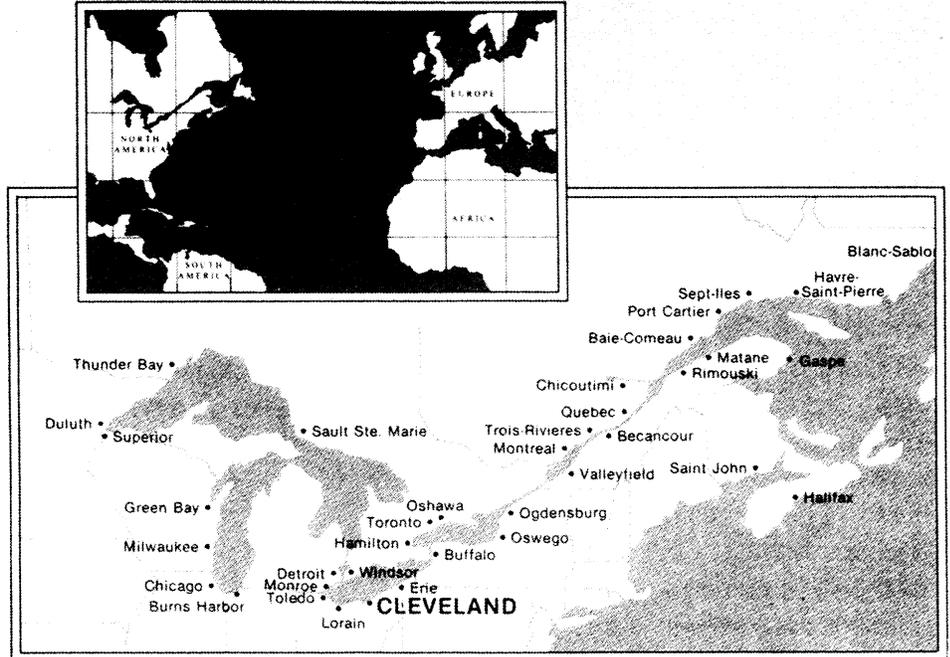


Figure 2. Cleveland - An International Seaport. (Courtesy, Port of Cleveland & Seaway Review Magazine).

off-loading points along the Cuyahoga River.

Cleveland-Cuyahoga County Port Authority

The Cleveland-Cuyahoga County Port Authority, established in 1968, is responsible for the operation and maintenance of the Port of Cleveland. It is a non-profit quasi-governmental organization. The Port Authority has a nine-member Board of Directors. Six members are appointed by the Mayor of Cleveland, with City Council approval, and three are appointed by the Cuyahoga County Board of Commissioners. Members are appointed for a four-year term. The basic mandate of the Port Authority is to support economic growth in the greater Cleveland area through the preservation of existing jobs and the generation of new jobs.

An economic study (published in April 1991) found that nearly 3,000 area jobs are dependent upon the cargoes moved by way of the port and that port activities contribute about \$39 million in personal income to the greater

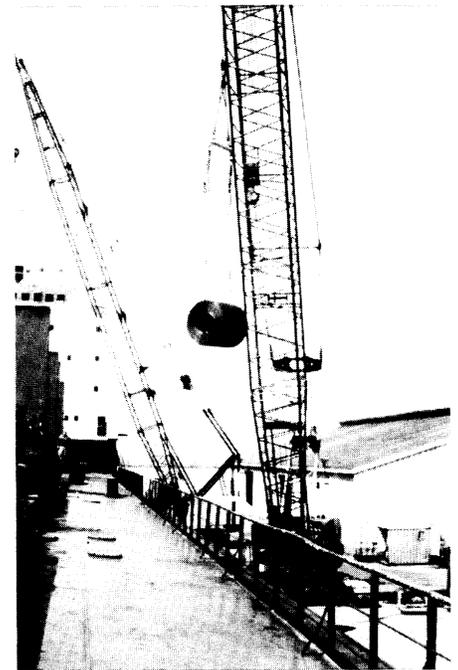


Figure 3. Off-loading sheet steel rolls. (Courtesy Port of Cleveland).

Cleveland economy. According to the study, cargo shipped through the Port of Cleveland, including the Port Authority's FTZ, directly saved area businesses over \$9 million in shipping costs annually and generated over \$300 million in revenues throughout the area served by the port. The study revealed that for every dollar of tax assistance received, the port generated more than two dollars in state and local taxes. As such, the port is a vital part of the area's economy. Local business will be further helped by the Port Authority's continuing efforts to promote the Foreign Trade Zone.

New Developments

The Port Authority, focusing its efforts on making the Port of Cleveland competitive with other Great Lakes ports, works with the North Coast Development Corporation (NCDC), a non-profit organization established in 1985, to ensure maximum utilization of the city's lakefront resources. NCDC, renamed North Coast Harbor, Inc. in 1988, is spearheading a project named "North Coast Harbor". When it is completed, the Cleveland waterfront will be a blend of museums and parks surrounding the port facilities (Figure 4).

The "North Coast Harbor" master plan encompasses 176 acres of the City of Cleveland's waterfront. The project location is bound by Lake Erie on the north, the Cuyahoga River on the west, the Burke Lakefront Airport on the east, and the Conrail right-of-way and Shoreway on the south.

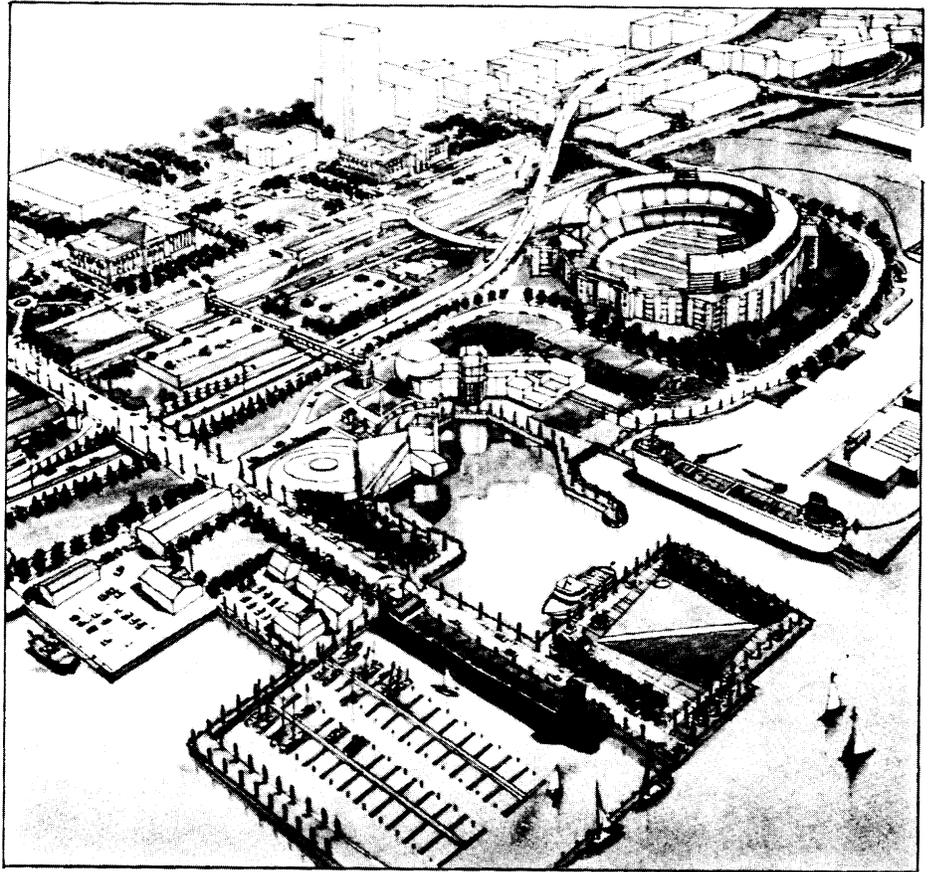


Figure 4. Conceptual overview of Cleveland's waterfront development. (Courtesy Port of Cleveland & Seaway Review Magazine).

The Port of Cleveland and the Cleveland Municipal Stadium are located in the northern center of the site. The first phase of the "North Coast Harbor" project was completed in 1988, consisting of a 7.6 acre harbor, a 21-acre festival park, landscaped promenade, and mooring locations for transient docking. North Coast Harbor, Inc., operates and maintains, in the interest of the public, existing facilities and oversees the master plan for the development of the City's waterfront.

Four museums are integrated into the North Coast Harbor's lakefront master plan. The steamer William G. Mather, a 618-foot long ore carrier and once the flagship of the Cleveland-Cliffs

Company's fleet, was opened May 1991, as the first of these museums. Now under construction and scheduled to open in June 1995, is the "Rock and Roll Hall of Fame and Museum", located at the southeast corner of the harbor. For the first time since it was established, the Port Authority utilized its bonding powers to issue \$39 million in revenue bonds to finance construction of the Rock and Roll Hall of Fame Museum. The bonds are to be repaid through admission fees at the museum and by a tax on lodging in area hotels and motels.

Construction has started for an adjacent Great Lakes Museum of Science, Environment and Technology, to be located on t.

southwest corner of the harbor. Completion is scheduled to coincide with the 1996 City of Cleveland's bicentennial. Also planned for construction on the lakefront at the mouth of the Cuyahoga River (east of its eastern bank and just west of the Port Authority facilities), is the Great Waters Aquarium project. Infrastructure improvements will tie the whole lakefront together, including a marina on the west side of the Cuyahoga River.

New development also has sprung up along the banks of the Cuyahoga River, which was once dominated by heavy industry and later by abandoned buildings. This development encompasses restaurants, entertainment clubs, picnic facilities, an amphitheater, and office and retail space, as well as riverfront dock spaces. Visitors to the area are given the opportunity of seeing commerce in action as the Great Lakes bulk carriers move up the Cuyahoga with cargoes of iron ore, stone and coal.

Acknowledgments

Many thanks to the following for the information used in preparing this article:

Cleveland-Cuyahoga County Port Authority.

North Coast Harbor, Inc.

The Innovative Port of Cleveland; Special Supplement to *Seaway Review Magazine*, Vol. 22, No. 4; April-June, 1994.

Cleveland; Special Supplement to *Seaway Review Magazine*, Vol. 20, No. 1; July-September, 1991.

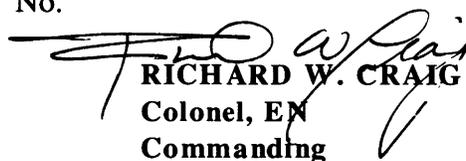
The New Port of Cleveland; Special Supplement to *Seaway Review Magazine*, Vol. 17, No. 1; Spring, 1988.

Do You Know?

From time to time this space will be used to test your knowledge and present facts about the Great Lakes. For instance, do you know how long the combined United States and Canadian Great Lakes shoreline (including islands) is?

- (a) 3,000 miles
- (b) 8,000 miles
- (c) 12,000 miles

The answer will be provided in the next Update.


RICHARD W. CRAIG
Colonel, EM
Commanding



Benjamin G. DeCooke
1927 - 1995

Mr. Benjamin G. DeCooke passed away on January 11, 1995. He retired in 1985 after 40 years of service to the federal government, the last 20 years as Chief, Great Lakes Hydraulics and Hydrology Branch, U.S. Army Corps of Engineers, Detroit District. He served with the U. S. Navy in the Pacific during WWII.

Mr. DeCooke was known for his knowledge of Great Lakes hydraulics and hydrology. He was one of the originators of six-month forecasts of lake levels and the publication of the attached "Monthly Bulletin of Lake Levels for the Great Lakes", which was initiated at the former U.S. Lake Survey District in 1958. After retirement, Mr. DeCooke was active professionally, as a consultant to the IJC's Great Lakes Levels Reference Study in connection with developing methods to mitigate problems associated with Great Lakes level fluctuations.

Table 1

**Possible Storm Induced Rises (in feet) at Key Locations on the Great Lakes
February 1995**

	Degrees of Possibility				
	20%	10%	3%	2%	1%
LAKE SUPERIOR					
Duluth	0.6	0.7	0.8	0.8	0.9
Grand Marais	0.5	0.5	0.6	0.6	0.7
Marquette	0.5	0.7	1.1	1.4	1.8
Ontonagon	0.3	0.4	0.5	0.6	0.7
Point Iroquois	0.8	0.9	1.0	1.1	1.2
Two Harbors	0.6	0.7	0.8	0.9	1.0
LAKE MICHIGAN					
Calumet Harbor	1.5	1.7	2.0	2.2	2.4
Green Bay	1.1	1.3	1.5	1.7	1.9
Holland	0.8	1.0	1.1	1.3	1.4
Kewaunee	0.6	0.7	0.8	0.9	1.0
Ludington	0.6	0.7	0.8	0.9	0.9
Milwaukee	0.9	1.0	1.2	1.3	1.4
Port Inland	0.9	1.0	1.3	1.4	1.6
Sturgeon Bay	0.6	0.9	1.3	1.7	2.1
LAKE HURON					
Detour Village	0.5	0.5	0.6	0.7	0.7
Essexville	1.1	1.4	1.7	2.0	2.3
Harbor Beach	0.5	0.6	0.9	1.2	1.5
Harrisville	0.4	0.5	0.6	0.7	0.7
Lakeport	1.1	1.5	2.0	2.4	2.9
Mackinaw City	0.7	0.8	0.9	1.0	1.1
LAKE ST. CLAIR					
St. Clair Shores	0.6	0.7	0.9	1.0	1.1
LAKE ERIE *					
Barcelona	1.8	2.5	3.4	4.1	4.8
Buffalo	3.2	4.0	5.0	5.9	6.7
Cleveland	1.0	1.3	1.7	2.0	2.3
Erie	1.5	2.0	2.7	3.3	3.8
Fairport	0.7	1.1	1.6	2.0	2.4
Fermi Power Plant	1.8	2.2	2.6	3.0	3.3
Marblehead	1.5	1.7	1.9	2.1	2.2
Sturgeon Point	2.6	3.1	3.8	4.3	4.7
Toledo	2.2	2.7	3.2	3.6	4.0
LAKE ONTARIO					
Cape Vincent	0.8	1.0	1.2	1.4	1.6
Olcott	0.4	0.5	0.7	0.8	0.9
Oswego	0.7	0.8	1.0	1.1	1.2
Rochester	0.5	0.6	0.8	1.0	1.2

* The water surface of Lake Erie has the potential to tilt in strong winds, producing large differentials between the ends of the lake.

Note: The rises shown above, should they occur, would be in addition to the still water levels indicated on the Monthly Bulletin. Values of wave runup are not provided in this table.

Great Lakes Basin Hydrology

During the month of January precipitation on each Great Lakes basin was above average, with the exception of the Lake Superior basin which was below average. For the year to date, precipitation is about 18% above average for the entire Great Lakes basin. The net supply of water to each of the Great Lakes in January was above average except for the Lake Superior which was below average. Table 2 lists January precipitation and water supply information for all of the Great Lakes.

In comparison to their long-term (1918-1994) averages, the January monthly mean water level of Lake Superior was 1 inch below average, Lakes Michigan-Huron, St. Clair and Erie were 7, 15 and 10 inches above average respectively, while Lake Ontario was at its long-term average. Shoreline residents are cautioned to be alert whenever adverse weather conditions exist, as these could cause rapid short-term rises in water levels. Should the lakes approach critically high levels, further information and advice will be provided by the Corps of Engineers.

**TABLE 2
GREAT LAKES HYDROLOGY¹**

PRECIPITATION (INCHES)								
BASIN	JANUARY				YEAR-TO-DATE			
	1995 ²	Average (1900-1991)	Diff.	% of Average	1995 ²	Average (1900-1991)	Diff.	% of Average
Superior	1.6	2.0	-0.4	80	1.6	2.0	-0.4	80
Michigan-Huron	2.5	2.1	0.4	119	2.5	2.1	0.4	119
Erie	3.8	2.4	1.4	158	3.8	2.4	1.4	158
Ontario	3.8	2.6	1.2	146	3.8	2.6	1.2	146
Great Lakes	2.6	2.2	0.4	118	2.6	2.2	0.4	118

LAKE	JANUARY WATER SUPPLIES ³ (CFS)		JANUARY OUTFLOW ⁴ (CFS)	
	1995 ²	Average (1900-1989)	1995 ²	Average (1900-1989)
Superior	-39,000	-13,000	77,000	69,000
Michigan-Huron	104,000	53,000	178,000 ⁵	158,000
Erie	60,000	25,000	222,000 ⁵	192,000
Ontario	35,000	32,000	230,000	221,000

¹Values (excluding averages) are based on preliminary computations.

²Estimated.

³Negative water supply denotes evaporation from lake exceeded runoff from local basin.

⁴Does not include diversions.

⁵Reflects effects of ice/weed retardation in the connecting channels.

CFS = cubic feet per second.

For Great Lakes basin technical assistance or information, please contact one of the following Corps of Engineers District Offices:

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