



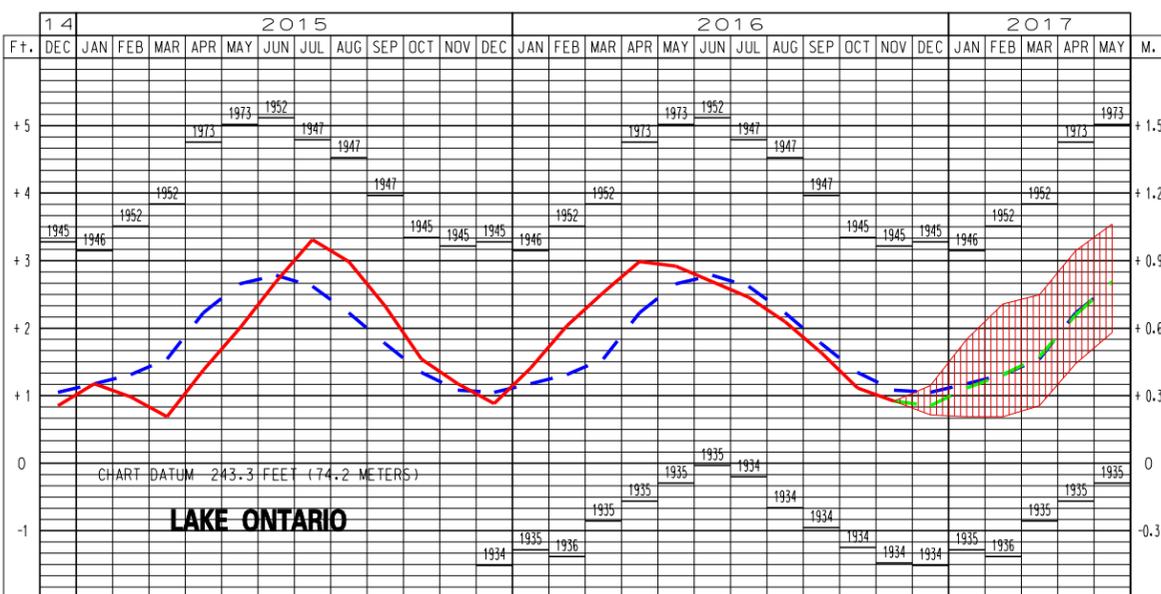
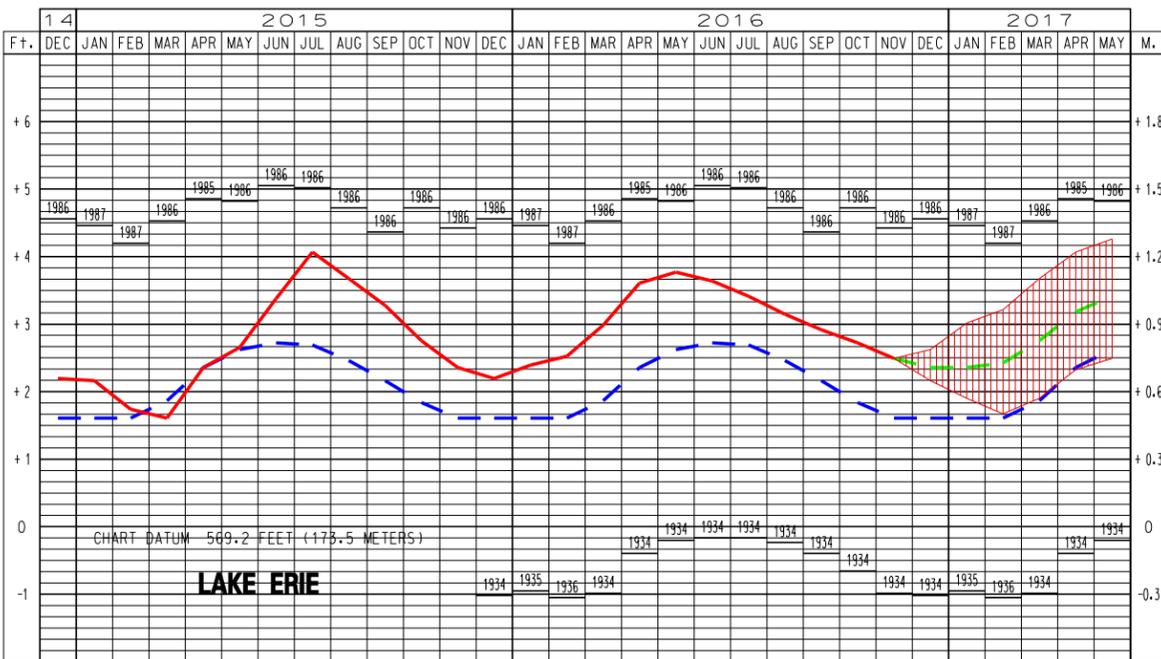
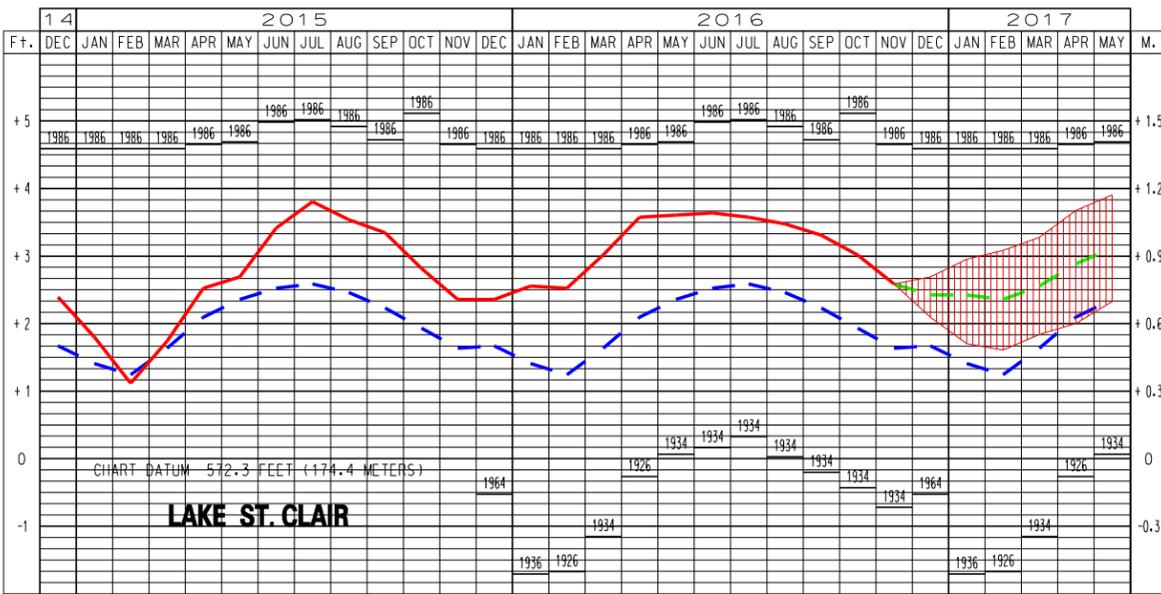
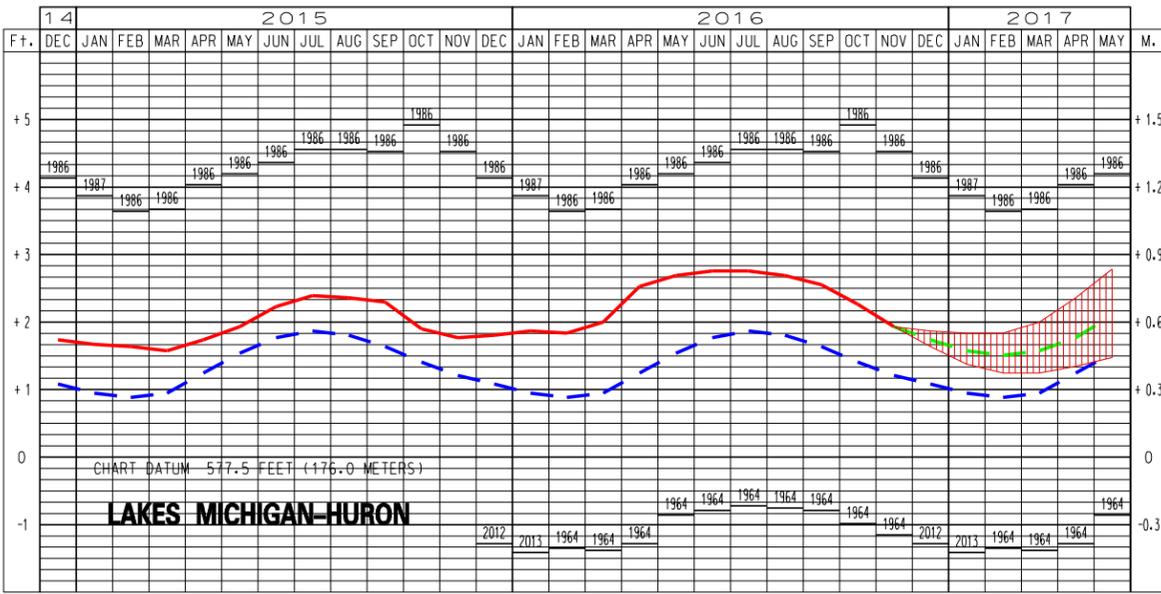
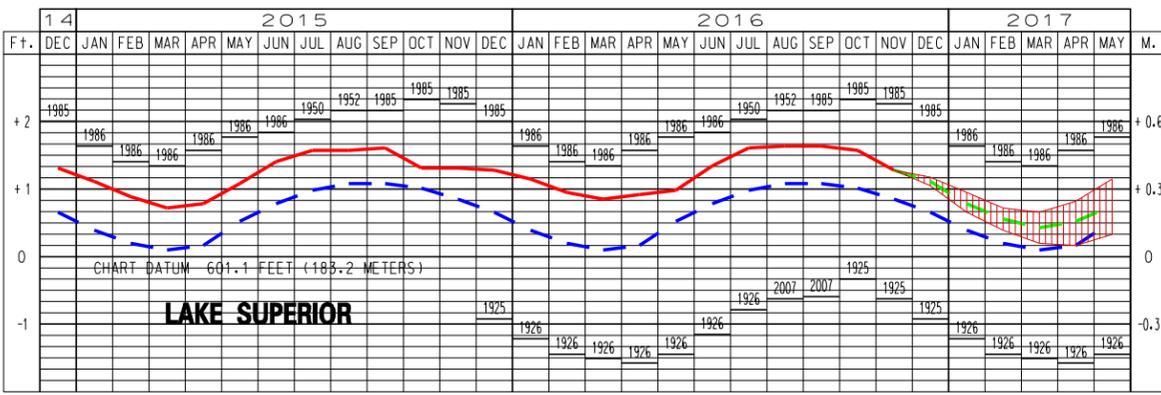
**US Army Corps  
of Engineers**  
Detroit District

**MONTHLY BULLETIN OF  
LAKE LEVELS FOR THE  
GREAT LAKES**

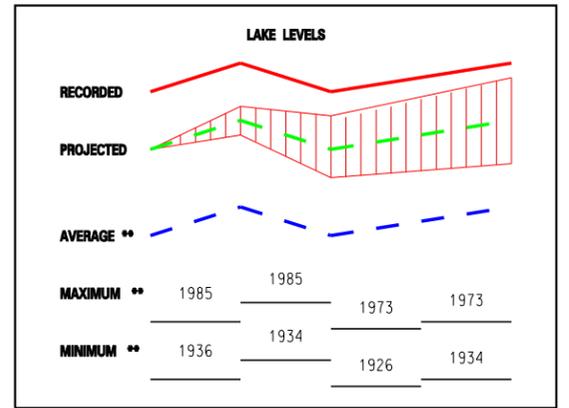
DECEMBER 2016

**Water levels for the previous year and the current year to date are shown as a solid line on the hydrographs. A projection for the next six months is given as a dashed line. This projection is based on the present condition of the lake basin and anticipated future weather. The shaded area shows a range of possible levels over the next six months dependent upon weather variations. Current and projected levels (solid and dashed lines) can be compared with the 1918–2015 average levels (dotted line) and extreme levels (shown as bars with their year of occurrence). The legend below further identifies the information on the hydrographs.**

ELEVATIONS REFERENCED TO THE CHART DATUM OF EACH RESPECTIVE LAKE



**LEGEND**



**The levels on the hydrographs are shown in both feet and meters above (+) or below (-) Chart Datum. Chart Datum, also known as Low Water Datum, is a reference plane on each lake to which water depth and Federal navigation improvement depths on navigation charts are referred.**

**All elevations and plots shown in this bulletin are referenced to International Great Lakes Datum 1985 (IGLD 1985). IGLD 1985 has its zero base at Rimouski, Quebec near the mouth of the St. Lawrence River (approximate sea level).**

**NOVEMBER MEAN LAKE LEVELS**

(IGLD 1985)

	Superior	Mich-Huron	St. Clair	Erie	Ontario
* 2016	Ft. 602.33	579.36	574.77	571.72	244.36
	M. 183.59	176.59	175.19	174.26	74.48
2015	Ft. 602.36	579.20	574.54	571.59	244.62
	M. 183.60	176.54	175.12	174.22	74.56
	Ft. 603.31	581.96	576.84	573.65	246.65
** MAX.	M. 183.89	177.38	175.82	174.85	75.18
	Yr. 1985	1986	1986	1986	1945
** MIN.	Ft. 600.43	576.28	571.46	568.24	241.96
	M. 183.01	175.65	174.18	173.20	73.75
	Yr. 1925	1964	1934	1934	1934
** AVG.	Ft. 601.90	578.64	573.82	570.83	244.52
	M. 183.46	176.37	174.90	173.99	74.53

\* provisional  
\*\* Average, Maximum and Minimum for period 1918–2015

## Information

Recorded water levels in this bulletin are derived from a representative network of water level gages on each lake (see cover map). Providers of these data are the U.S. Department of Commerce, NOAA, National Ocean Service, and Integrated Science Data Management, Department of Fisheries and Oceans, Canada. The Detroit District, Corps of Engineers and Environment Canada derive historic and projected lake levels under the auspices of the Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data.

This bulletin is produced monthly as a public service. The Corps also, on a weekly basis publishes online the *Great Lakes, Connecting Channels and St. Lawrence River Water Levels and Depths*, which provides a forecast of depths in the connecting rivers between the Great Lakes and the International Section of the St. Lawrence River. This *Monthly Bulletin of the Lake Levels for the Great Lakes* may be obtained free of charge by writing to the address shown on the front cover, by calling (313) 226-6442 or emailing [hphm@usace.army.mil](mailto:hphm@usace.army.mil). Notices of change of address should include the name of the publication. This information is available on the internet at <http://www.lre.usace.army.mil/Missions/GreatLakesInformation.aspx>.

### Great Lakes Basin Hydrology November 2016

According to preliminary estimates, precipitation over the Great Lakes basin during November was below average by 23%. Lake Superior just exceeded average precipitation, receiving 102% of average precipitation. The rest of the basin received below average precipitation in the month of November. Lake Erie received 62% of average precipitation, which was the lowest for the basin. Net basin supplies were below average in November for all of the Great Lakes except Superior, which received above average water supplies. Also, the outflows on all of the lakes were above average for November. The tables below list November precipitation and water supply information for the Great Lakes basin.

All of the lakes continued their seasonal decline in the month of November. Except for Lake Ontario, all of the lakes were above their long-term average (LTA) monthly November levels. Lakes Superior, Michigan-Huron, St. Clair, and Erie were 5, 9, 11, and 11 inches above their LTA November levels, respectively. Lake Ontario was 2 inches below its LTA level. In November, Lakes Michigan-Huron, St. Clair, and Erie, were all above their levels from last November by 2, 3, and 2 inches, respectively. Lake Superior was less than an inch above last year's level, while Lake Ontario was 3 inches below the level from last November.

PRELIMINARY PRECIPITATION (INCHES)								
BASIN	November				12-Month Comparison			
	2016	Average (1900-2013)	Diff.	% of Average	Last 12 months	Average (1900-2013)	Diff.	% of Average
Superior	2.53	2.48	0.05	102	33.41	30.52	2.89	109
Michigan-Huron	1.98	2.77	-0.79	71	34.48	32.57	1.91	106
Erie	1.77	2.86	-1.09	62	34.21	35.65	-1.44	96
Ontario	2.04	3.16	-1.12	65	32.58	35.87	-3.29	91
Great Lakes	2.11	2.75	-0.64	77	34.05	32.76	1.29	104

LAKE	November Net Basin Supplies <sup>1</sup> (cfs)		November Outflows <sup>2</sup> (cfs)	
	2016	Average (1900-2008)	2016	Average <sup>3</sup> (1900-2008)
Superior	42,000	17,000	91,000	78,000
Michigan-Huron	-12,000	40,000	202,000	190,000
Erie	-14,000	-2,000	216,000	201,000
Ontario	8,000	20,000	247,000	239,000

Notes: Values (excluding averages) are based on preliminary computations; cfs denotes cubic feet per second.

<sup>1</sup> Net basin supply is the net result of precipitation falling on the lake, runoff from precipitation falling on the land which flows to the lake, and evaporation from the lake. Negative net basin supply denotes evaporation exceeded runoff and precipitation. The net total supply can be found by adding the net basin supply and the outflow from the upstream lake.

<sup>2</sup> Does not include diversions.

<sup>3</sup> Lake Ontario average water supplies and average outflows are based on period of record 1900-2005