

EOLakeWatch: Satellite observations for lake monitoring

2021 Algal Bloom Report - Lake of the Woods

Satellite-derived algal bloom indices for Lake of the Woods have been estimated using data from the European Space Agency's OLCI (Ocean Land Colour Instrument) for 2016 to present, and MERIS (Medium Resolution Imaging Spectrometer) for 2002 to 2011. Daily bloom indices are derived from 14-day rolling-average satellite data products. Annual bloom indices are reported as the averages and maxima over the June to October monitoring period.



For further details, contact us at EOLakeWatch@ec.gc.ca

Table 1. Lake of the Woods algal bloom graphs (June to October)

Bloom Index	2021 Daily Indices	Annual Indices
Bloom Extent (km ²) & (% of lake area)		
Bloom Intensity (µg/L)		
Bloom Severity (µg/L km ²)		

*2002 to 2020 average. No data available from 2012 to 2015.

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Table 2. Lake of the Woods bloom index map products (2021)

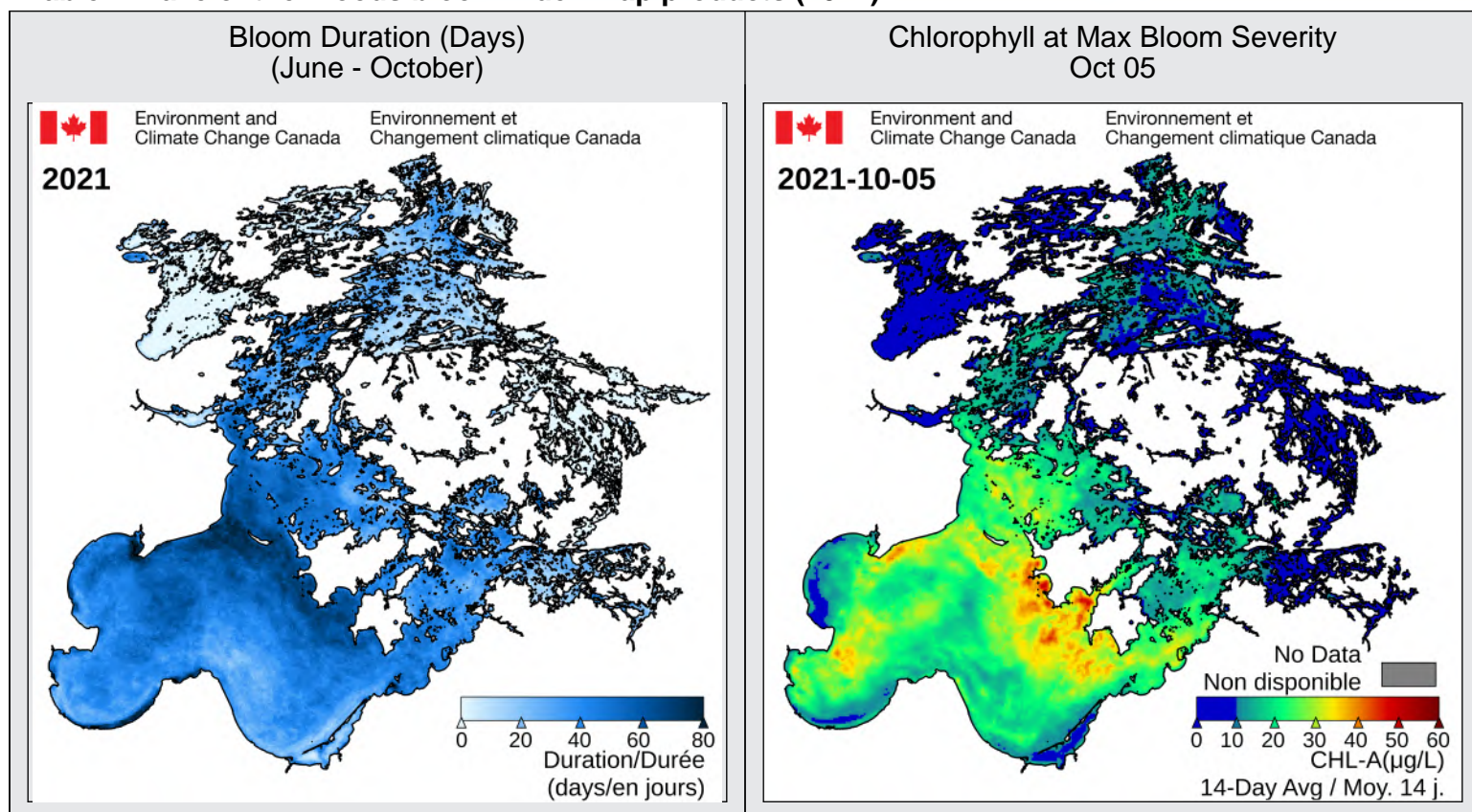


Table 3. Lake of the Woods 2021 bloom indices (June to October)

Bloom Indices									
Year	Average				Maximum				
	Extent km ² (% of lake area)	Intensity µg/L	Severity x10 ³ µg/L km ²	Duration days	Extent km ² (% of lake area)	Intensity µg/L	Severity x10 ³ µg/L km ²	Day of Max Severity	Duration days
2021	853 (22.1)	13.8	13.9	35	2,635 (68.3)	20.3	53.5	Oct 05	116
Avg*	1,029 (26.7)	17.3	22.2	45	2,548 (66.0)	29.2	69.3	Sep 21	121

*2002 to 2020 average. No data available from 2012 to 2015.

Table 4. Terminology

Bloom Index	Description
Bloom Flag	A per pixel bloom flag is raised when Chlorophyll > 10 µg/L
Bloom Extent	Total area of pixels flagged as bloom (km ² or % of lake area)
Bloom Intensity	Average chlorophyll concentration within area flagged as bloom (µg/L)
Bloom Severity	Bloom Intensity x Bloom Extent (µg/L km ²)
Bloom Duration	Number of days a pixel is flagged in bloom (days)

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Appendix. Annual average and maximum bloom indices (June to October)

Bloom Indices									
Year	Average				Maximum				
	Extent km ² (% of lake area)	Intensity µg/L	Severity x10 ³ µg/L km ²	Duration days	Extent km ² (% of lake area)	Intensity µg/L	Severity x10 ³ µg/L km ²	Day of Max Severity	Duration days
2002	1,239 (32.1)	19.1	26.3	46	3,062 (79.3)	27.6	69.4	Sep 25	108
2003	1,157 (30.0)	23.5	35.2	61	2,512 (65.1)	48.0	111.1	Aug 30	140
2004	1,618 (41.9)	23.9	44.7	55	2,776 (71.9)	49.5	125.1	Aug 29	129
2005	891 (23.1)	17.0	16.4	44	2,596 (67.2)	26.3	68.2	Sep 11	114
2006	896 (23.2)	18.0	24.4	48	3,070 (79.5)	35.3	108.2	Sep 03	134
2007	1,224 (31.7)	19.0	29.6	56	2,764 (71.6)	37.7	86.1	Sep 05	128
2008	427 (11.1)	12.3	5.4	26	1,966 (50.9)	14.3	23.4	Oct 17	96
2009	1,077 (27.9)	15.2	19.5	41	2,800 (72.5)	25.9	60.4	Oct 06	114
2010	1,624 (42.1)	18.6	33.4	60	2,816 (73.0)	29.1	80.4	Sep 12	122
2011	1,005 (26.0)	16.9	20.6	46	2,475 (64.1)	28.4	63.1	Sep 26	123
2016	1,232 (31.9)	17.5	26.7	51	2,629 (68.1)	30.1	74.3	Sep 07	114
2017	1,172 (30.4)	16.2	21.9	48	2,566 (66.5)	25.6	61.8	Oct 05	121
2018	483 (12.5)	13.9	6.6	27	2,015 (52.2)	21.1	29.9	Oct 14	118
2019	251 (6.5)	12.5	3.2	17	1,354 (35.1)	16.5	17.5	Oct 12	118
2020	1,138 (29.5)	15.2	19.8	46	2,813 (72.9)	22.6	60.9	Oct 05	138
2021	853 (22.1)	13.8	13.9	35	2,635 (68.3)	20.3	53.5	Oct 05	116
Avg*	1,029 (26.7)	17.3	22.2	45	2,548 (66.0)	29.2	69.3	Sep 21	121

*2002 to 2020 average. No data available from 2012 to 2015.

ECCC EOLakeWatch algal bloom indices are produced using remote sensing data from the Envisat MERIS and Copernicus Sentinel-3 OLCI missions. Data made available by the European Space Agency (ESA).

