

EOLakeWatch: Satellite observations for lake monitoring

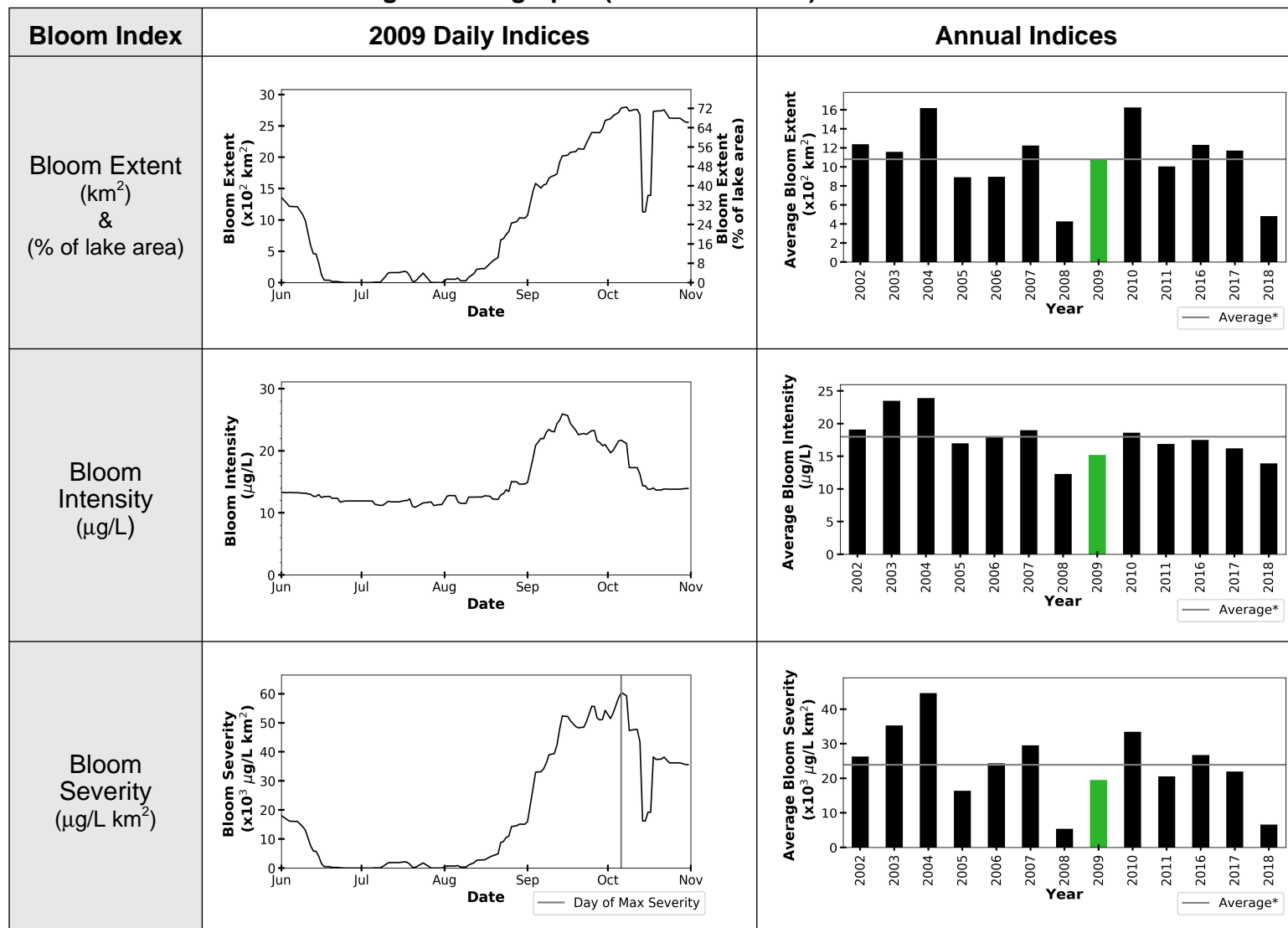
2009 Algal Bloom Report - Lake of the Woods

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
ec.EOLakeWatch-AttentionLacsOT.ec@canada.ca



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



*2002 to 2018 average. No data available from 2012 to 2015.

Recommended citation: Environment and Climate Change Canada (2019). *EOLakeWatch 2009 Algal Bloom Report - Lake of the Woods*.



EOLakeWatch: Satellite observations for lake monitoring

2009 Algal Bloom Report - Lake of the Woods

Table 2. Lake of the Woods bloom index map products (2009)

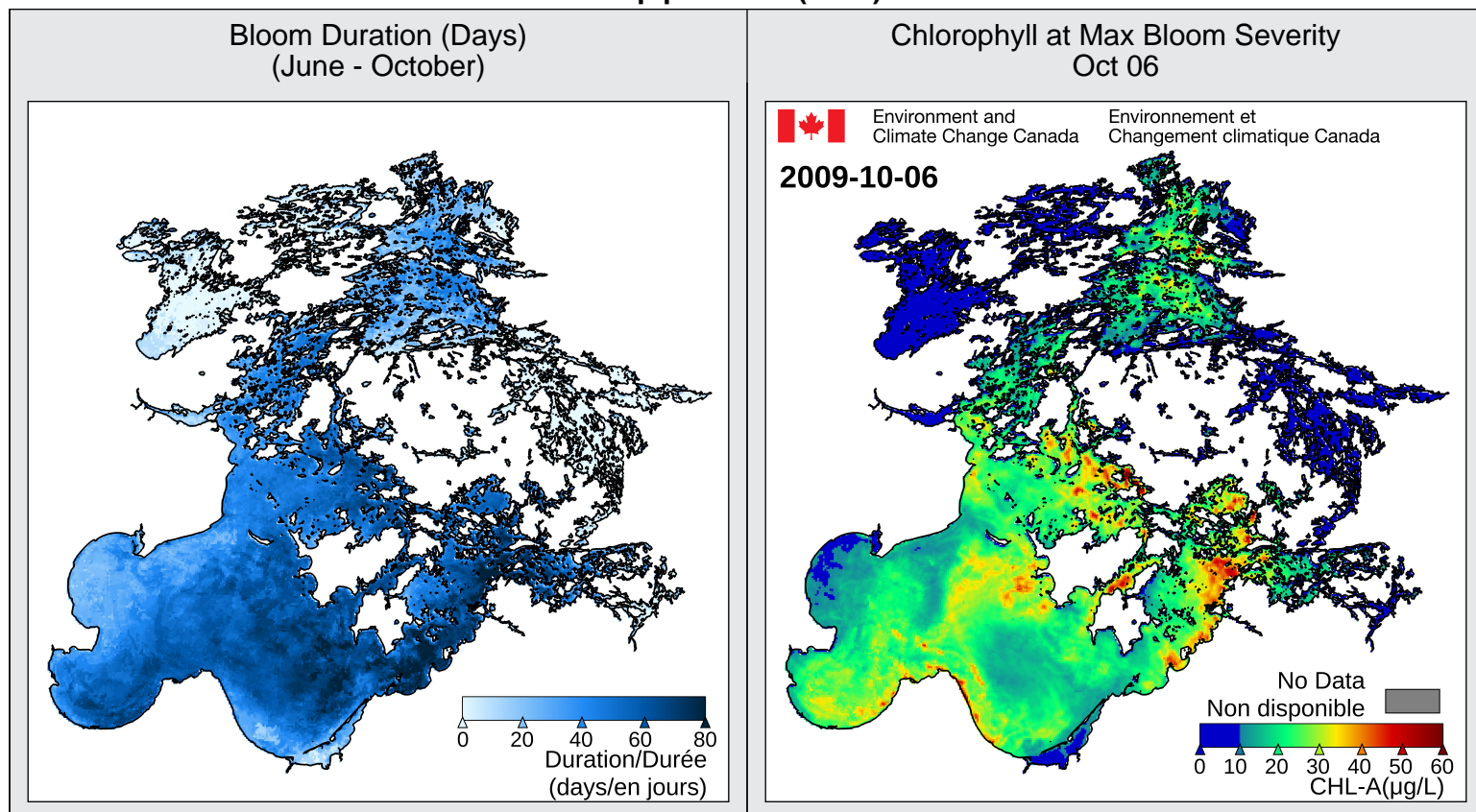


Table 3. Lake of the Woods 2009 bloom indices (June to October)

| 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 |
| 2009 | 1,077 (27.9) | 15.2 | 19.5 | 41 | 2,800 (72.5) | 25.9 | 60.4 | Oct 06 | 114 |
| Avg* | 1,080 (28.0) | 17.8 | 23.9 | 47 | 2,619 (67.8) | 30.7 | 74.0 | Sep 19 | 120 |

*2002 to 2018 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) |



EOLakeWatch: Satellite observations for lake monitoring

2009 Algal Bloom Report - Lake of the Woods

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 |
| Avg* | 1,080 (28.0) | 17.8 | 23.9 | 47 | 2,619 (67.8) | 30.7 | 74.0 | Sep 19 | 120 |

*2002 to 2018 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).

