Algal blooms: extent, intensity, evidence

Green water is a clue. It is not a toxicity test.



Landsat 5 view of western Lake Erie, 5 October 2011. Credit: NASA Earth Observatory, using USGS Landsat data.

Historical evidence. Better questions. Useful records.

Lake Erie examples show why bloom area, seasonal severity and water-safety decisions need separate records and sources.

What the records reveal

SCOPE AND METHOD

Three dated satellite examples and one published severity series. The series uses EPA's table available November 12, 2026, with a page update of August 3, 2026. Older published values may differ.

A COMPARISON WORTH MAKING

Do not combine bloom area, toxin concentration and a seasonal severity index on one unlabeled scale. A revised dataset also needs a version or retrieval date.

IMAGES AND UNCERTAINTY

Photographs and satellite views carry their original credits. Quantitative charts use cited values; conceptual diagrams are explicitly labeled and contain no invented measurements. AI assisted research and drafting; references were checked and limitations retained. A picture shows a place and moment; it does not prove an entire event boundary, impact or cause. This is a historical reference, not a live warning service.

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Lake Erie 2011: seeing the bloom from space

5 and 9 October 2011 | Western Lake Erie



Landsat 5 view of western Lake Erie, 5 October 2011. Credit: NASA Earth Observatory, using USGS Landsat data.

Images
Landsat 5 and Aqua MODIS

Feature
Visible bloom in the western basin

Important distinction
Color versus laboratory evidence

Record type
Historical satellite observations

WHAT HAPPENED

NASA’s October 2011 images documented a large bloom in western Lake Erie. The observations give spatial context for the event.

WHAT THE DATA REVEALS

Save image date, sensor and area coverage. A photograph or satellite view can locate visible features without measuring their toxin concentration.

READ WITH CARE

Do not infer drinking-water or recreation safety from color. Use official advisories and appropriately collected test results.

Source 1 >

Visual / data >

Lake Erie 2014: location changes the impact

1-3 August 2014 | Western Lake Erie and Toledo water-supply area



Aqua MODIS view of Lake Erie, 3 August 2014. Credit: NASA/Jeff Schmaltz, LANCE/EOSDIS MODIS Rapid Response Team.

Image dates

1 and 3 August 2014

Observed consequence

Toledo water-supply disruption

Relevant location

Bloom relative to water intakes

Record type

Historical event

WHAT HAPPENED

NASA documented the 2014 bloom during a period when Toledo's water supply was affected. Location and exposure mattered, not just the bloom's overall footprint.

WHAT THE DATA REVEALS

Keep the observation, the affected intake and the advisory in separate fields. Their dates and geographic areas may not match exactly.

READ WITH CARE

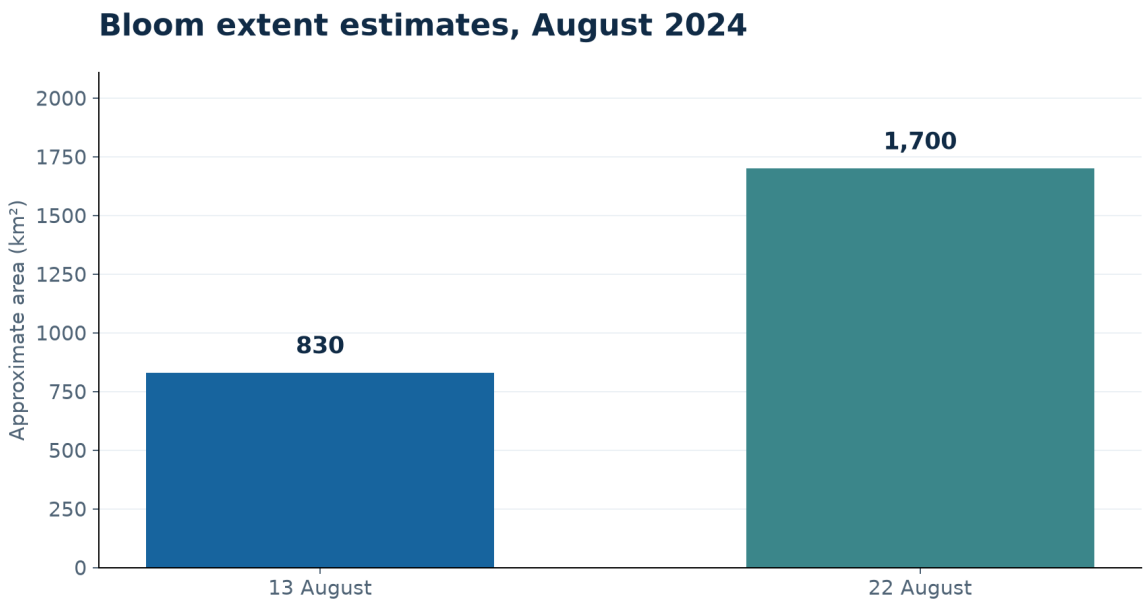
This historical example is not a current advisory. A visible bloom alone does not establish the toxin level at a particular intake.

Source 1 >

Visual / data >

Lake Erie 2024: a changing footprint

13 and 22 August 2024 | Western Lake Erie



Rounded areas reported by NASA from NOAA monitoring. Not toxin measurements. Credit: Dattle; original graphic from the cited reference.

13 August estimate

About 830 km²

22 August estimate

About 1,700 km²

Clear Landsat view

13 August

Later extent source

NOAA, as reported by NASA

WHAT HAPPENED

NASA reported approximately 830 km² of bloom on August 13 and a likely seasonal maximum near 1,700 km² on August 22. The latter was not another clear Landsat scene in the article.

WHAT THE DATA REVEALS

An area comparison needs both dates and measurement provenance. The latest photograph and the latest extent estimate may come from different observations.

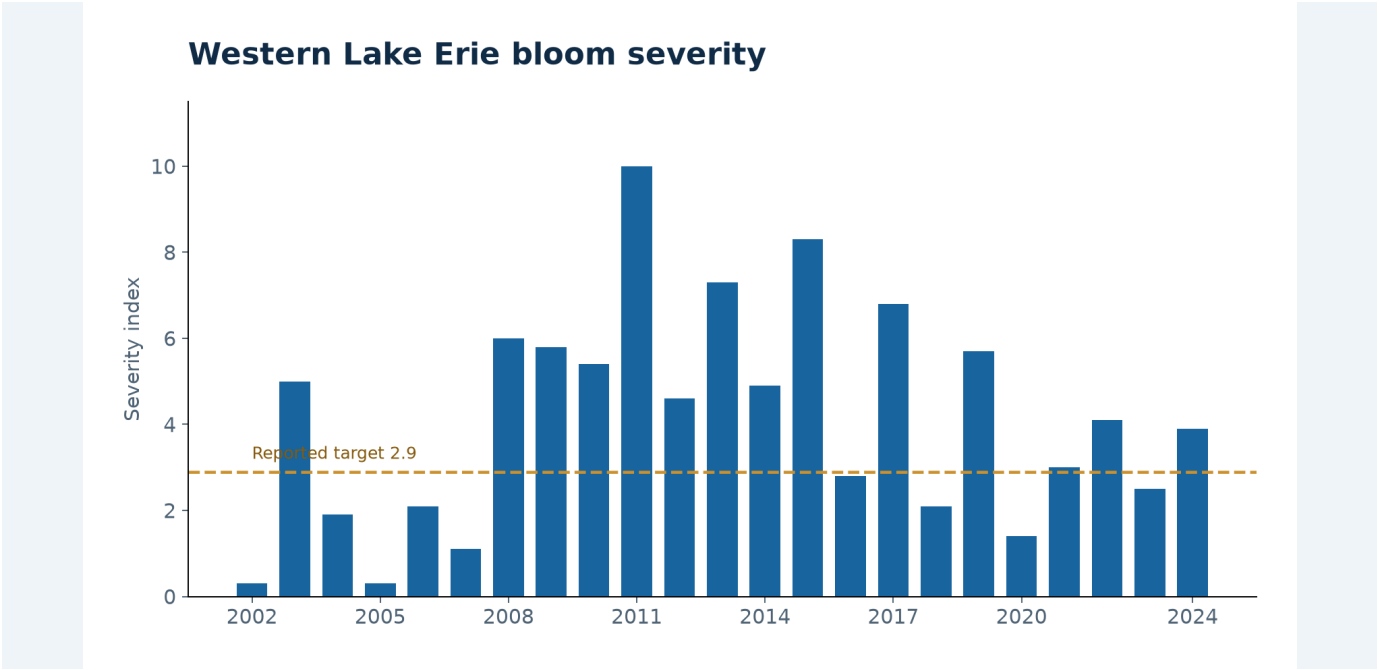
READ WITH CARE

Area does not measure toxicity. Rounded areas and the article's likely-maximum wording are retained.

Source 1 > **Visual / data >**

A severity series needs a version

Seasons 2002-2024; EPA page updated 3 August 2026 | Western Lake Erie



EPA table checked 12 November 2026 (page updated 3 August 2026). Dashed line: reported target 2.9. Credit: Dattle; original graphic from the cited reference.

Series	2011 value
EPA Lake Erie bloom severity	**10.0**
2015 value	2024 value
8.3	**3.9**

WHAT HAPPENED

EPA’s published table provides a seasonal bloom-severity series. The version checked for this report lists 2015 at 8.3 and 2024 at 3.9.

WHAT THE DATA REVEALS

Keep the table version with the values. Reusing a historical headline from a different calculation can silently mix incompatible versions.

READ WITH CARE

This is a severity index, not toxin concentration or the number of unsafe swimming days. Its 2.9 target line is the table’s target, not a public-safety threshold.

Source 1 >

Visual / data >

From examples to observations

A USEFUL RECORD KEEPS ITS EVIDENCE

Keep the time, place, measurement method, unit, source and uncertainty with every observation. Separate what you saw from an estimate or interpretation. Repeat observations consistently, and retain the original evidence when updating a record.

SUGGESTED DATTLE FIELDS

- Waterbody, coordinates and observation time
- Photo/satellite acquisition and cloud conditions
- Bloom area and method; measured or estimated
- Toxin test result, units and laboratory source
- Official advisory and its date
- Severity dataset/version and source URL

AI AS AN ACCELERATOR

Use this prompt to draft a collection structure, then review it. AI can organize the questions and fields; it cannot supply missing observations or replace source verification.

> Create a Dattle for algal blooms: extent, intensity, evidence. Include Waterbody, coordinates and observation time, Photo/satellite acquisition and cloud conditions, Bloom area and method; measured or estimated, Toxin test result, units and laboratory source, Official advisory and its date, Severity dataset/version and source URL. Start with an empty collection. Separate observations, estimates and interpretations. Do not invent measurements, dates, locations or sources. Retain units, uncertainty and source links; flag missing information for review.

Explore Dattle at dattle.com. Availability, features and plan limits are described on the website.

Sources and image credits

Primary references checked November 12, 2026. Records and estimates can be revised. Every case page links to its evidence; full addresses are retained here for reuse.

01. Lake Erie 2011: seeing the bloom from space - primary reference
https://science.nasa.gov/earth/earth-observatory/toxic-algae-bloom-in-lake-erie-76127/

02. Lake Erie 2014: location changes the impact - primary reference
https://science.nasa.gov/earth/earth-observatory/algae-bloom-on-lake-erie-84125/

03. Lake Erie 2024: a changing footprint - primary reference
https://science.nasa.gov/earth/earth-observatory/lake-erie-blooms-153282/

04. A severity series needs a version - primary reference
https://www.epa.gov/glwqa/lake-erie-bloom-severity-2002-2024