

Product/Service Description Document
Lake Erie Harmful Algal Bloom (HAB) Webpage

Part I - Mission Connection

- a. Product/Service Description - The National Weather Service (NWS) Weather Forecast Office (WFO) Cleveland Harmful Algal Bloom (HAB) Webpage provides a suite of pertinent Harmful Algal Bloom information and hydrometeorological analyses and short to medium-range forecast information for the Lake Erie region in support of National Oceanic and Atmospheric Administration (NOAA)/National Ocean Service (NOS) HAB monitoring and forecasting activities and beach and lake recreational activities. The URL for WFO Cleveland's experimental Lake Erie HAB webpage is <https://www.weather.gov/cle/LakeErieHAB>.

This webpage, hosted by WFO Cleveland, is a service delivery outlet to assist NOS dissemination of the Lake Erie HAB Forecast and Early Season Projections to a broader network of users. The webpage provides environmental information serving as a one stop for Lakeshore communities, recreational users, boaters, beach goers, emergency managers, etc., to gain access to harmful algal bloom conditions and projections on the lake and easy access to weather and marine forecasts for planning beach and lake activities.

In addition, the webpage provides a wide range of water monitoring information from partner agencies such as Great Lakes Environmental Research Laboratory, US Geological Survey, Ohio Sea Grant, Ohio Environmental Protection Agency, Ohio Department of Health, Great Lakes Observing System, and the City of Toledo.

The webpage is routinely updated during the Lake Erie HAB season, generally July through October each year. The webpage is not available during the offseason.

- b. Product Type - Operational
- c. Purpose - NOAA provides forecasts of blue-green algae, or cyanobacteria, blooms in Lake Erie through an interactive website that provides an estimate of daily Microcystis bloom location and 5-day forecast for bloom movement. Not all algae are harmful; however, some cyanobacteria blooms

can grow rapidly and produce toxins that cause harm to humans and animal life. The NOAA forecast provides analysis of the location of HAB, as well as 5-day forecasts of transport, mixing, scum formation, and bloom decline. Lakeshore communities and recreational users can use this webpage as a decision making tool.

- d. Audience - The target audience for this webpage includes emergency managers, recreational users, local community leaders, federal and state partners, and the general public.
- e. Presentation Format - The product will be in the form of a public-facing webpage directly accessible through the hyperlink "*Latest Information on Lake Erie Harmful Algal Blooms*" on the Cleveland Weather Forecast Office main webpage in the News Headlines (during the HAB season, generally July - October): <https://www.weather.gov/cle/>



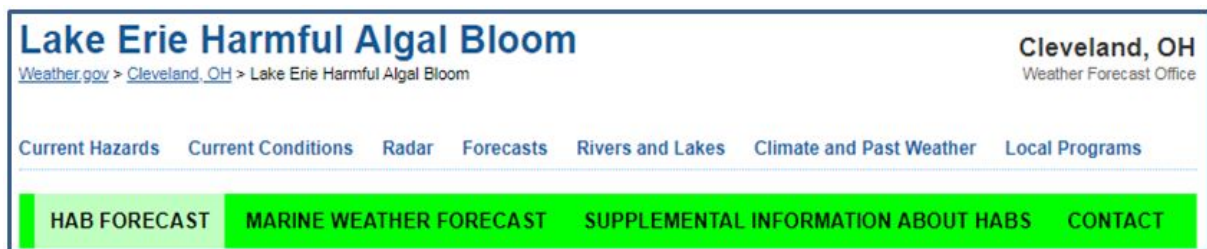
- f. Feedback Method - Comments about the webpage and content may be provided via email to: nwscle@noaa.gov

Part II - Technical Description

- a. Format and Science Basis - Harmful algal blooms of the cyanobacteria *Microcystis* occur nearly every year in Lake Erie and cause potential public health, economic and ecological impacts. NOAA supports a broad product suite that provides information for decision-makers and Lakeshore communities dealing with Lake Erie HAB issues. Additional information is available from the National Ocean Service at: <https://tidesandcurrents.noaa.gov/hab/lakeerie.html>

b. Availability - The Lake Erie HAB webpage will be available during the Lake Erie HAB season which typically runs from July through October. The webpage will be updated in real-time as new analyses and forecast information are made available through the standard NWS communications services supporting web dissemination. Future additions and/or changes to the webpage content will be accomplished collaboratively with NOS.

c. Additional Information -



The image shows the header and navigation menu of the "Lake Erie Harmful Algal Bloom" webpage. The title "Lake Erie Harmful Algal Bloom" is in blue. Below it is the breadcrumb "Weather.gov > Cleveland, OH > Lake Erie Harmful Algal Bloom". On the right, it says "Cleveland, OH Weather Forecast Office". The navigation menu includes "Current Hazards", "Current Conditions", "Radar", "Forecasts", "Rivers and Lakes", "Climate and Past Weather", and "Local Programs". Below this is a green bar with four tabs: "HAB FORECAST", "MARINE WEATHER FORECAST", "SUPPLEMENTAL INFORMATION ABOUT HABS", and "CONTACT".

HAB Forecast Tab - NOAA provides forecasts of blue-green algae, or cyanobacteria blooms in Lake Erie through an interactive website that provides an estimate of daily *Microcystis* bloom location and 5-day forecast for bloom movement. (July - October each year). NOAA forecast analysis provides HAB location information, as well as 5-day forecasts of the potential for vertical mixing & transport. Click on the image to see the website. There is a link available to sign up to receive alerts of the updated analysis via email (click [here](#)).

Archived forecasts are available at NOS Center for Operational Oceanographic Products and Services (CO-OPS). For access to archived forecasts or other information about HAB visit CO-OPS (click [here](#)). Additional information about the forecast is available in the Lake Erie HAB Forecast Guide (click [here](#))

NOAA and its research partners provide Harmful Algal Bloom rolling seasonal projections prior to the Lake Erie HAB season. These are normally released in May through early July. The seasonal forecasts include a prediction of the bloom severity index. The severity index is based on a bloom's biomass, i.e., the amount of harmful algae over a sustained period. The size of a bloom is not necessarily an

indication of how toxic it is. The toxins in a large bloom may not be as concentrated as in a smaller bloom.

The seasonal forecasts also include nutrient load data. Nutrient load data for the forecast came from Heidelberg University. The forecast models are run by NOAA's National Centers for Coastal Ocean Science, the University of Michigan, North Carolina State University, Limno Tech, Stanford University, and the Carnegie Institution for Science, with additional input from NOAA's Ohio River Forecast Center.

Additional information is available at:

<https://coastalscience.noaa.gov/research/stressor-impacts-mitigation/hab-forecasts/>

Marine Weather Forecast Tab - NOAA provides National Digital Forecast Database (NDFD) Graphical Forecasts (temperature, precipitation, weather, hazards, wind, sky cover, wave height, etc.). The forecasts are centered on a point in the Western Basin of Lake Erie (41.71°N 83.23°W). In addition, NOAA provides forecast products which include:

- Hourly Weather Graph
- Tabular Hourly Forecast
- Surf Forecast
- Nearshore Forecast
- Threshold-based Forecast
- Hazardous Weather Outlook
- Area Forecast Discussion

Supplemental Information About HABS Tab - Multiple partner agencies provide Lake Erie water monitoring information. This includes:

- Great Lakes Environmental Research Laboratory experimental archived real-time measurements, experimental Cleveland hypoxia warning system, weekly and archived Microcystin sampling data, and experimental HAB tracker
- US Geological Survey Nowcast Beach Status
- Ohio Sea Grant buoy and water quality data
- Ohio Environmental Protection Agency public water system monitoring, information for public water systems, and information for recreational waters

- Ohio Department of Health BeachGuard Beach Advisories
- Great Lakes Observing System data portal
- City of Toledo water quality information

Archived information of the rolling seasonal projections and the HAB forecasts are available from NCCOS and CO-OPS. Links to the archived information are available at the bottom of the Supplemental Information About HABS Tab.

Contact Tab - Contact information for NOAA National Ocean Service and National Weather Service. A link to this Product Description Document is provided.

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