

An aerial photograph of a white motorboat on a body of water. The water is heavily covered with a bright green algae bloom, which is swirling around the boat. The boat has a cabin and a solar panel on top. A person is visible on the deck. The text 'GREAT LAKES OUTREACH MEDIA' is overlaid in the top left corner.

**GREAT
LAKES**
OUTREACH MEDIA

The Erie Situation: Documentary in Progress

Edward Verhamme, Environmental Engineer, LimnoTech, Ann Arbor, MI

David Ruck, President/Producer, Great Lakes Outreach Media, Muskegon, MI

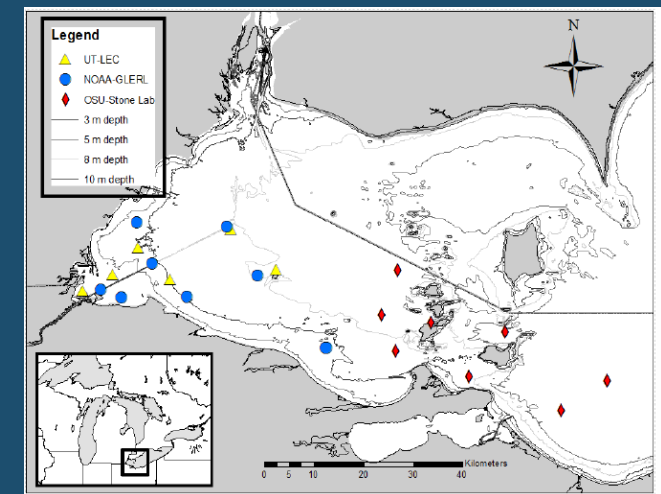
NOAA ECOHAB Research Project

Linking process models and field experiments to forecast algal bloom toxicity in Lake Erie

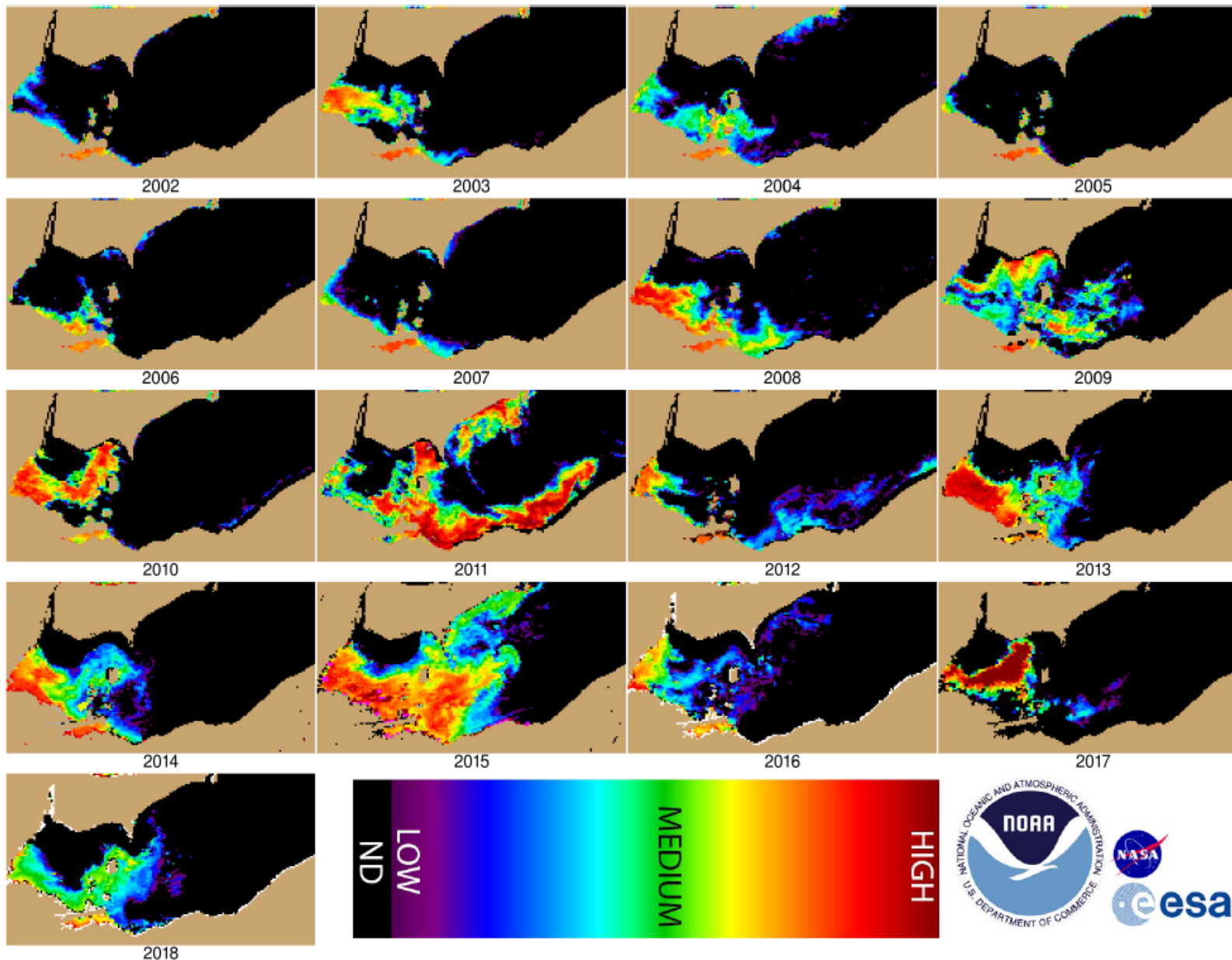
J. Chaffin, T. Bridgeman, E. Verhamme, T. Davis, P. Xue, J. Westrick



1. **Gather** existing toxin & environmental data
 2. **Collect** new HABs & toxin data ('18 & '19)
 3. **Model** toxin movement & variability
 4. **Transition** results to managers/researchers
- 3yr, \$800k project... started in October 2017



Peak of each bloom 2002-2018



City of Toledo Sensors

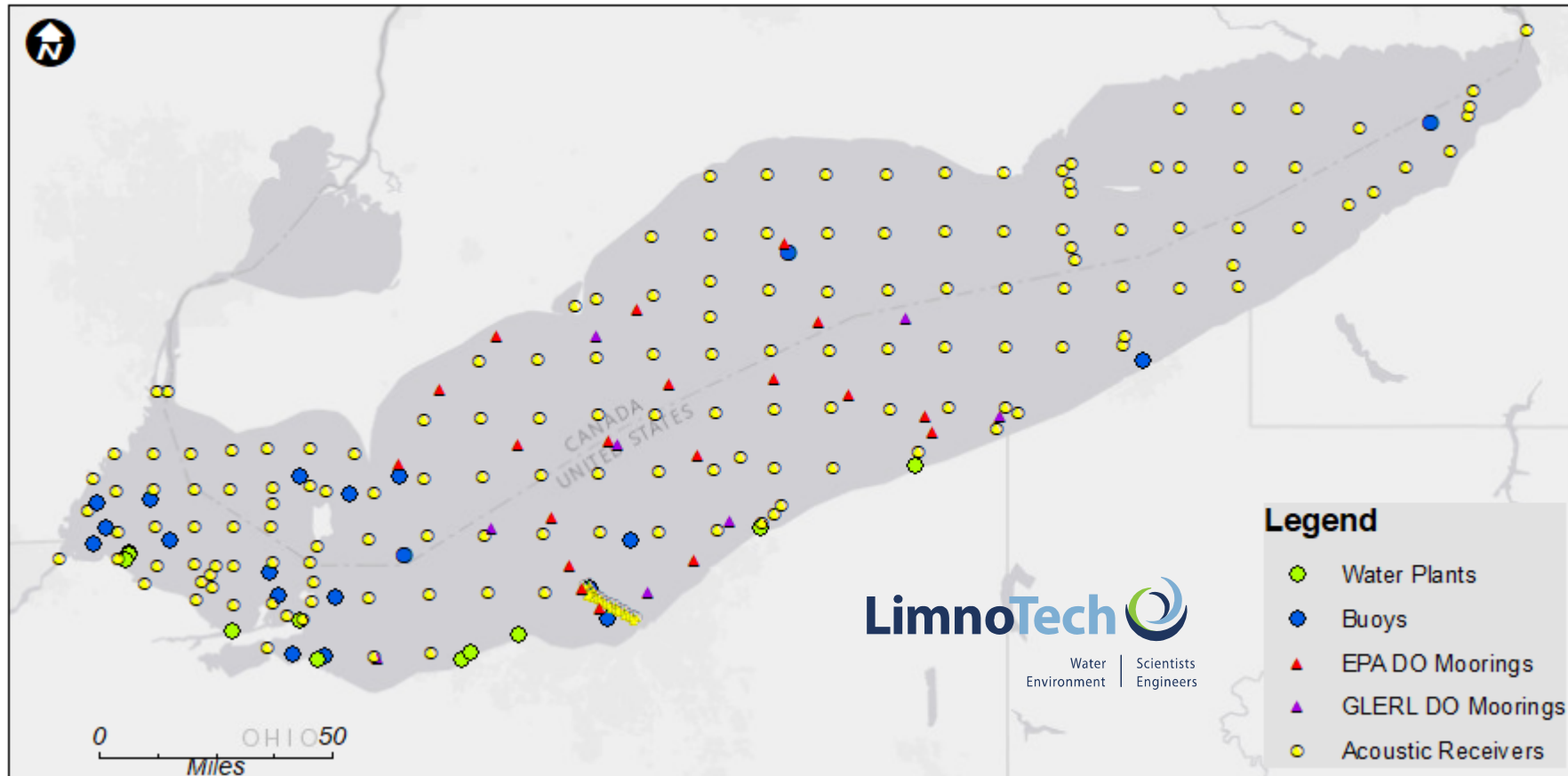
Crib Buoy – wind, waves, current, YSI, webcam

Crib Sensor – YSI & webcam

Pump Station - YSI



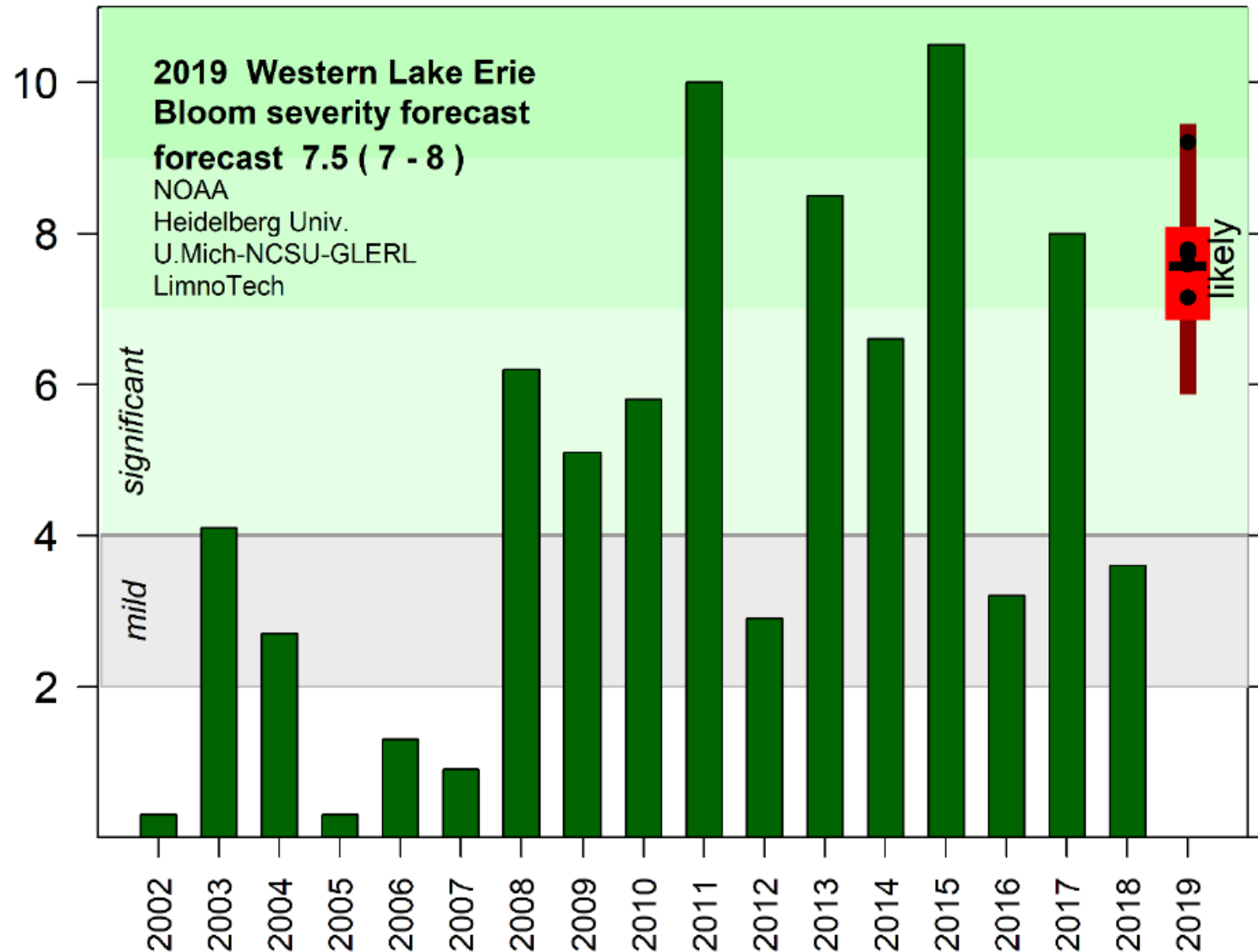
Lake Erie Environmental Sensors: 2019



300+ stations.... 7 years ago there were only 4.... Not all are real-time... but exponential growth is happening given significant advances in technology accessibility for scientists

Western Lake Erie 2019 Bloom Forecast

severity of 7.5 with uncertainty of 6-9



Tracking a Toxic Bloom



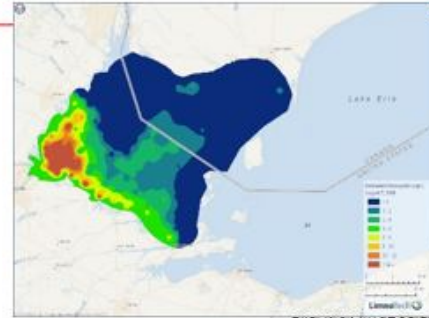
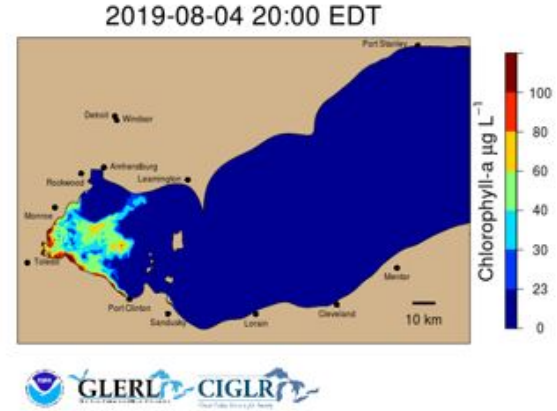
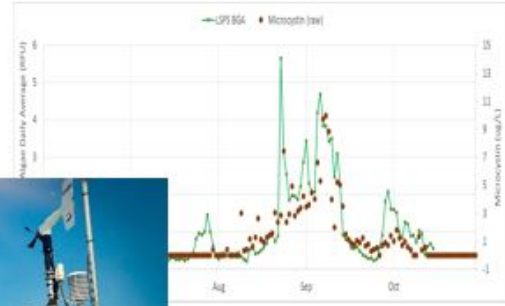
Time



D. Ruck, Great Lakes Outreach Media



D. Ruck, Great Lakes Outreach Media



Space

HABs Grab 2019 – Research Team



University of Windsor
GREAT LAKES INSTITUTE FOR ENVIRONMENTAL RESEARCH

Environment and Climate Change Canada
Fisheries and Oceans Canada

WAYNE STATE UNIVERSITY
GLERL
Great Lakes Environmental Research Laboratory

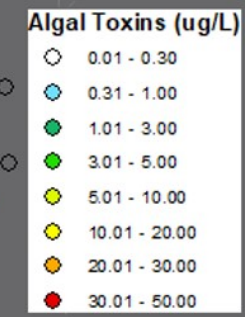
UNIVERSITY OF MICHIGAN

Canada
NRC-CRC

Cooperative Institute for Great Lakes Research
CIGLR
Great Lakes Science for Society

GREAT LAKES
OUTREACH MEDIA

LimnoTech
Water Environment | Scientists Engineers



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THE UNIVERSITY OF TOLEDO
1872

lec
Lake Erie Center

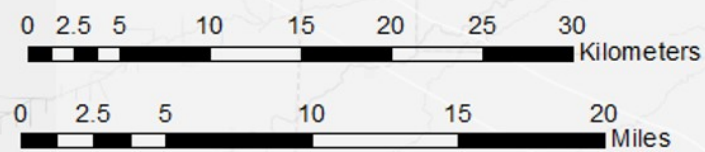
THE OHIO STATE UNIVERSITY

Sea Grant
Stone Laboratory

PRELIMINARY DATA
Aug 7 (Toxin data)
Aug 5 (Satellite)

Department of Biological Sciences
BGSU
KENT STATE UNIVERSITY

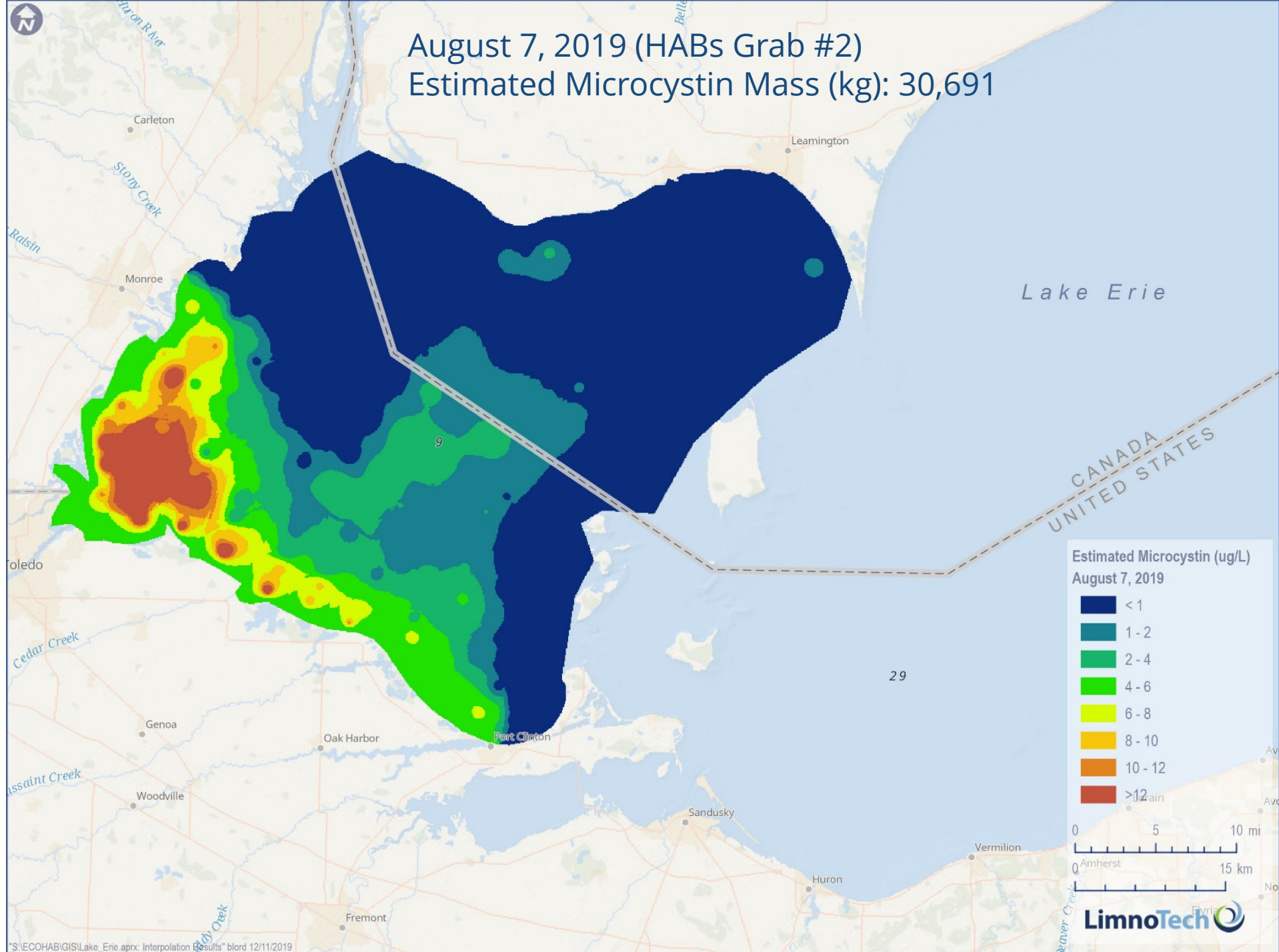
great lakes observing system



Funded in part by NOAA ECOHAB

NOAA NCCOS NATIONAL CENTERS FOR COASTAL OCEAN SCIENCE

August 7, 2019 (HABs Grab #2) Estimated Microcystin Mass (kg): 30,691



"S:\ECHOHAB\GIS\Lake_Erie.aprx: Interpolation Results" blord 12/11/2019

The Erie Situation

Telling the Story of Harmful Algal Blooms in Lake Erie





David Ruck

- First ever filmmaker to premiere a film in space.
- NOAA Diver, Videographer & Underwater Cinematographer.
- Master of Fine Arts in Film & Electronic Media.
- Master of Science in Communication.
- International experience as a documentary filmmaker.
- Numerous awards for films.
- Images featured internationally with over 40,000,000 media impressions.

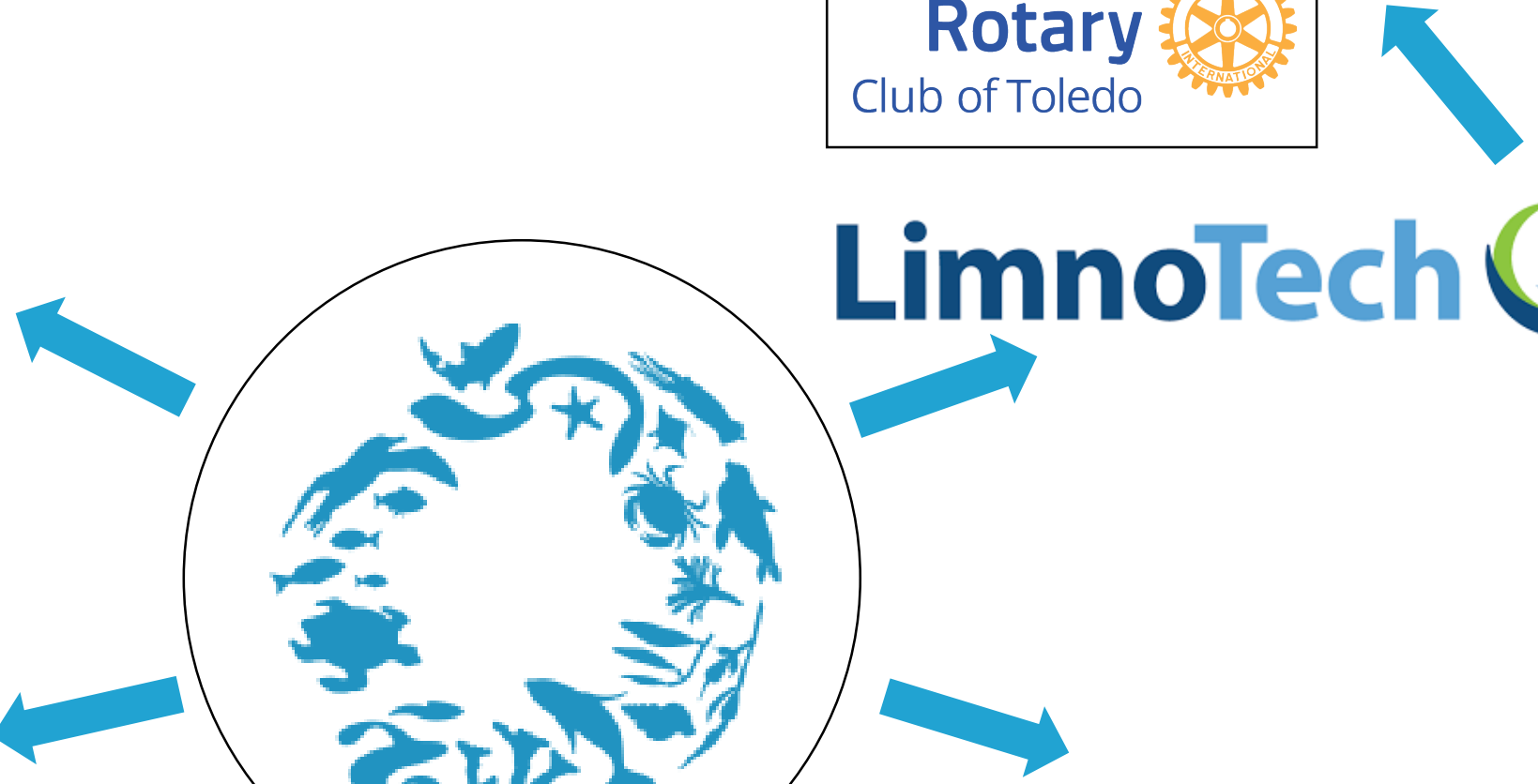
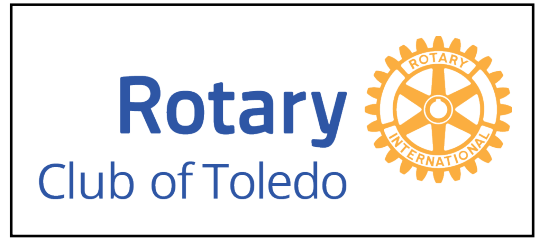
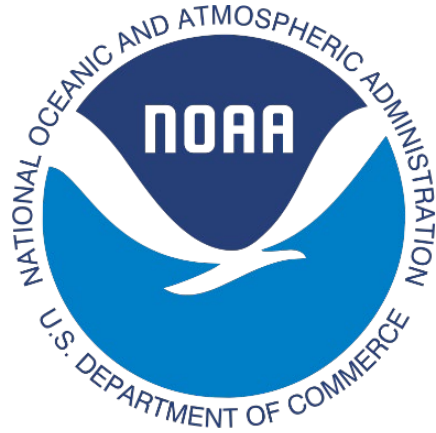




Everything started with a partnership.



The Ocean Conservancy produced a video on how data from buoys in the Great Lakes ensure safe drinking water. NOAA and partners team up to prevent future Great Lakes drinking water crisis A new video SMART BUOYS: Preventing a Great Lakes Drinking Water Crisis released by Ocean Conservancy describes how NOAA forecast models provide advance warnings to Lake Erie drinking water plant managers to avoid shutdowns due to poor water quality.





Investigation



- Scientific Community
- Data Management
- Agriculture Industry
- Organic Farmers
- Nutrient Loading
- Drivers of Blooms
- Community & Citizens
- Healthcare Industry
- Environmental Law and Policy Center (ELPC)



LUCAS STEPHENS

Senior Research Analyst
Environmental Law and Policy Center

Play (k)



0:07 / 2:14







The Why

A woman with blonde hair and bangs, wearing a red hoodie, looks directly at the camera with a neutral expression. She is in a cluttered room with a blue wall. In the background, a man in a white lab coat is working at a desk. The text "The Why" is overlaid in white on the left side of the image.



Environmental Justice



Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.



Politician

FARM
BUREAU

ANIMAL
FACTORY
OWNER

D
A



"The Erie Situation" (working title) is projected to launch June 2020.

Our project is supported by GLOS, LimnoTech and Toledo Rotary.

**THANK YOU FOR
LISTENING
ANY QUESTIONS?**





David Ruck
Great Lakes Media Outreach

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