

Data from Sandusky Bay, Lake Erie from surveys conducted via Ohio Dept of Natural Resources watercraft from June to September 2018

Website: <https://www.bco-dmo.org/dataset/755348>

Data Type: Cruise Results

Version: 1

Version Date: 2019-02-07

Project

» [Lake Erie Center for Fresh Waters and Human Health](#) (Great Lakes Center)

Contributors	Affiliation	Role
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Abstract

Data from Sandusky Bay, Lake Erie from surveys conducted via Ohio Dept of Natural Resources watercraft from June to September 2018.

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Coverage

Spatial Extent: N:41.511667 E:-82.657967 S:41.453333 W:-83.007133

Temporal Extent: 2018-06-05 - 2018-09-11

Dataset Description

Survey data from Sandusky Bay, Lake Erie.

Methods & Sampling

Sampling and sample processing followed Salk et al., (2018).

Briefly, at each sampling location, water column physical and chemical parameters (pH, conductivity, temperature, dissolved oxygen) were measured using a YSI 600QS sonde (YSI Inc., Yellow Springs, OH, USA). Water samples were collected by Van Dorn bottle at 1m depth for the analysis of NO₃, NH₄, phosphate, TKN, TP, chl a concentrations, total microcystins and cell identification/biovolume enumeration. Samples for dissolved nutrient analysis were filtered immediately upon collection (0.2 µm), kept on ice, and frozen upon return to the lab. Unfiltered sample water was collected for TKN and TP analysis and also frozen. Total and

dissolved (<0.2 um) nutrient concentrations were determined following analysis of samples by the National Center for Water Quality Research at Heidelberg University (Tiffin, OH, USA). Samples for chl a analysis were concentrated on GFC filters whereas raw water samples for microcystins were frozen in new polycarbonate bottles with subsequent analysis of both parameters by Ohio EPA. Cell identification and biovolume assessment was conducted on samples preserved with Lugol's iodine.

Data Processing Description

BCO-DMO Processing:

- modified parameter names (replaced spaces and "." with underscores);
- changed positive longitude values to negative.

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Data Files

File
Sandusky_Bay_Surveys.csv (Comma Separated Values (.csv), 11.81 KB) MD5:98b00ae09f30f6c9f6c79aa54124cac9
Primary data file for dataset ID 755348

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Related Publications

Hampel, J. J., McCarthy, M. J., Neudeck, M., Bullerjahn, G. S., McKay, R. M. L., & Newell, S. E. (2019). Ammonium recycling supports toxic Planktothrix blooms in Sandusky Bay, Lake Erie: Evidence from stable isotope and metatranscriptome data. *Harmful Algae*, 81, 42–52. doi:[10.1016/j.hal.2018.11.011](https://doi.org/10.1016/j.hal.2018.11.011)
General

Salk, K. R., Bullerjahn, G. S., McKay, R. M. L., Chaffin, J. D., & Ostrom, N. E. (2018). Nitrogen cycling in Sandusky Bay, Lake Erie: oscillations between strong and weak export and implications for harmful algal blooms. *Biogeosciences*, 15(9), 2891–2907. doi:[10.5194/bg-15-2891-2018](https://doi.org/10.5194/bg-15-2891-2018)
Methods

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Parameters

Parameter	Description	Units
Station	Station name	unitless
Deployment	Deployment identifier	unitless
Date	Date of survey; format: mm/dd/yyyy	unitless
Time	Time of survey (UTC); format: HH:MM:SS	UTC

Date_time	Date and time of survey (UTC); format: yyyy-mm-ddTHH:MM	yyyy-mm-ddThh:mm
Lat	Latitude; positive values = North	decimal degrees
long	Longitude; positive values = East	decimal degrees
Max_Depth	Max. depth	meters (m)
Sample_Depth	Sample depth	meters (m)
Air_Temp	Air temperature	degrees Celsius
Water_Temp	Water temperature	degrees Celsius
DO	Dissolved oxygen	milligrams per liter (mg/L)
Cond	Conductivity	micros siemens per centimeter (uS/cm)
pH	pH	unitless (pH scale)
Chl_a	Chlorophyll a	micrograms per liter (ug L-1)
Microcystins	Microcystins	micrograms per liter (ug L-1)
NH3	Dissolved NH3	milligrams per liter (mg L-1)
CL	Dissolved chlorine (Cl)	milligrams per liter (mg L-1)
SO4	Dissolved SO4	milligrams per liter (mg L-1)
NO2	Dissolved NO2	milligrams per liter (mg L-1)
NO3	Dissolved NO3	milligrams per liter (mg L-1)
SIO2	Dissolved SiO2	milligrams per liter (mg L-1)
SRP	Soluble reactive phosphorus (SRP)	milligrams per liter (mg L-1)

Total_Phosphorus	Total particulate phosphorus (P)	milligrams per liter (mg L-1)
Total_Nitrogen	Total particulate nitrogen (N)	milligrams per liter (mg L-1)
Planktothrix_agardhii	Mean biovolume of Planktothrix agardhii	cubic micrometers per liter (um ³ L-1)
Cuspidothrix_spp	Mean biovolume of Cuspidothrix spp.	cubic micrometers per liter (um ³ L-1)
Planktolyngbya_spp	Mean biovolume of Planktolyngbya spp.	cubic micrometers per liter (um ³ L-1)
Planktolyngbya_spp_narrow	Mean biovolume of Planktolyngbya spp. narrow	cubic micrometers per liter (um ³ L-1)
Cylindrospermopsis_spp	Mean biovolume of Cylindrospermopsis spp.	cubic micrometers per liter (um ³ L-1)
Aphanizomenon_flos_aquae	Mean biovolume of Aphanizomenon flos-aquae	cells per liter (cells L-1)
Dolichospermum_spp	Mean biovolume of Dolichospermum spp.	cells per liter (cells L-1)

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Instruments

Dataset-specific Instrument Name	Van Dorn bottle
Generic Instrument Name	Van Dorn water sampler
Generic Instrument Description	A free-flushing water sample bottle comprising a cylinder (polycarbonate, acrylic or PVC) with a stopper at each end. The bottle is closed by means of a messenger from the surface releasing the tension on a latex band and thus pulling the two stoppers firmly into place. A thermometer can be mounted inside the bottle. One or more bottles can be lowered on a line to allow sampling at a single or multiple depth levels. Van Dorn samplers are suitable for physical (temperature), chemical and biological sampling in shallow to very deep water. Bottles are typically lowered vertically through the water column although a horizontal version is available for sampling near the seabed or at thermoclines or chemoclines. Because of the lack of metal parts the bottles are suitable for trace metal sampling, although the blue polyurethane seal used in the Alpha version may leach mercury. The Beta version uses white ASA plastic seals that do not leach mercury but are less durable.

Dataset-specific Instrument Name	YSI 600QS sonde
Generic Instrument Name	YSI Sonde 6-Series
Generic Instrument Description	YSI 6-Series water quality sondes and sensors are instruments for environmental monitoring and long-term deployments. YSI datasondes accept multiple water quality sensors (i.e., they are multiparameter sondes). Sondes can measure temperature, conductivity, dissolved oxygen, depth, turbidity, and other water quality parameters. The 6-Series includes several models. More from YSI.

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Deployments

SB-2018-01

Website	https://www.bco-dmo.org/deployment/755181
Platform	ODNR Watercraft
Start Date	2018-06-05
End Date	2018-06-05

SB-2018-02

Website	https://www.bco-dmo.org/deployment/755322
Platform	ODNR Watercraft
Start Date	2018-06-19
End Date	2018-06-19

SB-2018-03

Website	https://www.bco-dmo.org/deployment/755325
Platform	ODNR Watercraft
Start Date	2018-06-26
End Date	2018-06-26

SB-2018-04

Website	https://www.bco-dmo.org/deployment/755331
Platform	ODNR Watercraft
Start Date	2018-07-10
End Date	2018-07-10

SB-2018-05

Website	https://www.bco-dmo.org/deployment/755328
Platform	ODNR Watercraft
Start Date	2018-07-24
End Date	2018-07-24

SB-2018-06

Website	https://www.bco-dmo.org/deployment/755334
Platform	ODNR Watercraft
Start Date	2018-08-07
End Date	2018-08-07

SB-2018-07

Website	https://www.bco-dmo.org/deployment/755337
Platform	ODNR Watercraft
Start Date	2018-09-11
End Date	2018-09-11

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Project Information

Lake Erie Center for Fresh Waters and Human Health (Great Lakes Center)

Website: <https://www.bgsu.edu/great-lakes-center.html>

Coverage: Laurentian Great Lakes

NSF Award Abstract:

The Lake Erie Center for Fresh Waters and Human Health is a five-year, multi-institutional effort aimed at understanding the environmental factors and ongoing changes that influence the growth and toxicity of cyanobacterial harmful algal blooms (cHABs) in Lake Erie. The Center will support three research projects. Specifically these projects address the following aims: first, how environmental cues promote or constrain the proliferation of cHAB species in mixed populations; second, how environmental cues influence toxin production by cHAB species; third, how other member of the microbial assemblage influence cHAB growth and toxicity. The Center will provide a Community Engagement Core to lead outreach activities that will inform the general public on the effects of cHABs by efforts that include: (1) a community engaged scholarship training for scientists associated with the Center, (2) community-engaged scholarship training for practitioners or community members associated with the Center, and (3) a stakeholder needs assessment for Great Lakes and environmental health literacy to inform general outreach information needs. A citizen science engagement with charter boat captains will further develop a near real-time database on cHAB severity in Lake Erie, and the Facilities Core will provide metadata that not only serve the three stated research projects, but also yield a database available to all Great Lakes scientists. The outcomes are to involve community stakeholders and researchers in the Great Lakes on issues regarding human health, climate change and awareness of threats to our fresh water resources.

The Center is jointly supported by NSF and by the National Institute for Environmental Health Sciences (NIEHS).

This award reflects NSF's statutory mission and has been deemed worthy of support through evaluation using the Foundation's intellectual merit and broader impacts review criteria.

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1840715

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