Data from Sandusky Bay, Lake Erie from surveys conducted via Ohio Dept of Natural Resources watercraft from June to September 2019

Website: https://www.bco-dmo.org/dataset/814593
Data Type: Cruise Results
Version: 1
Version Date: 2020-06-09

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

Contributors	Affiliation	Role
Bullerjahn, George S.	Bowling Green State University (BGSU)	Principal Investigator
McKay, Robert Michael	Bowling Green State University (BGSU)	Co-Principal Investigator
Rauch, Shannon	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

Abstract
Data from Sandusky Bay, Lake Erie from surveys conducted via Ohio Dept of Natural Resources watercraft from June to September 2019.

Table of Contents

Coverage

Spatial Extent: **N**:41.479817 **E**:-82.739783 **S**:41.453333 **W**:-82.960767
Temporal Extent: 2019-06-10 - 2019-09-23

Dataset Description

Survey data from Sandusky Bay, Lake Erie, collected in 2019.

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 um), 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 at the Ohio State University Stone Laboratory (Gibralter Island, 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.

Data Processing Description

BCO-DMO Processing:
- modified parameter names.

[table of contents | back to top]

Data Files

File
Sandusky_Bay_Surveys_2019.csv (Comma Separated Values (.csv), 4.55 KB) MD5:6bd394814566c60c9d0f2b1075a5f6e4 Primary data file for dataset ID 814593

[table of contents | back to top]

Related Publications

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
Methods

[table of contents | back to top]

Parameters

Parameter	Description	Units
Deployment	Deployment identifier	unitless
Station	Station name	unitless
Time	Time of survey (UTC); format: hh:mm:ss	unitless
ISO_DateTime_UTC	Date and time of survey (UTC) formatted to ISO8601 standard: YYYY-MM-DDThh:mmZ	unitless
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
Sample_DO	Dissolved oxygen	milligrams per liter (mg L-1)
Cond	Conductivity	milli siemens per centimeter (mS cm-1)
pH	pH	unitless (pH scale)
chlorophyll_a	Chlorophyll a	micrograms per liter (ug L-1)
microcystin	Microcystins	micrograms per liter (ug L-1)
Ammonium	Ammonium	micromoles per liter (umol L-1)
NO3_NO2	NO3 + NO2	micromoles per liter (umol L-1)
NO2	NO2	micromoles per liter (umol L-1)
DRP	Dissolved reactive phosphorus	micromoles per liter (umol L-1)
Silicate	Silicate	micromoles per liter (umol L-1)
Nitrate	Nitrate	micromoles per liter (umol L-1)
TP	Total Phosphorus	micromoles per liter (umol L-1)
TKN	Total Kjeldahl Nitrogen	micromoles per liter (umol L-1)
TN	Total Nitrogen	micromoles per liter (umol L-1)
TN_TP_ratio	TN:TP ratio	molar ratio

[table of contents | back to top]

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 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
Dataset-specific Description	YSI 600QS sonde (YSI Inc., Yellow Springs, OH, USA) – factory calibrated April 2018
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.

[table of contents | back to top]

Deployments

SB-2019-01

Website	https://www.bco-dmo.org/deployment/814603
Platform	ODNR Watercraft
Start Date	2019-06-10
End Date	2019-06-10

SB-2019-02

Website	https://www.bco-dmo.org/deployment/814606
Platform	ODNR Watercraft
Start Date	2019-06-17
End Date	2019-06-17

SB-2019-03

Website	https://www.bco-dmo.org/deployment/814609
Platform	ODNR Watercraft
Start Date	2019-07-08
End Date	2019-07-08

SB-2019-04

Website	https://www.bco-dmo.org/deployment/814615
Platform	ODNR Watercraft
Start Date	2019-08-05
End Date	2019-08-05

SB-2019-05

Website	https://www.bco-dmo.org/deployment/814619
Platform	ODNR Watercraft
Start Date	2019-08-05
End Date	2019-08-05

SB-2019-06

Website	https://www.bco-dmo.org/deployment/814622
Platform	ODNR Watercraft
Start Date	2019-09-09
End Date	2019-09-09

SB-2019-07

Website	https://www.bco-dmo.org/deployment/814625
Platform	ODNR Watercraft
Start Date	2019-09-23
End Date	2019-09-23

[table of contents | back to top]

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.

[table of contents | back to top]

Funding

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

[table of contents | back to top]