



# Ohio 2020 Integrated Water Quality Monitoring and Assessment Report



*Cuyahoga River*

Division of Surface Water  
Final Report

May 2020

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## List of Acronyms and Abbreviations

AmphIBI	amphibian index of biotic integrity
AMP	Atrazine monitoring program
AOC	Area of Concern (as identified under the Great Lakes Water Quality Agreement)
ARRA	American Recovery and Reinvestment Act of 2009
ATTAINS	Assessment, Total Maximum Daily Load (TMDL) Tracking and Implementation System
AU	assessment unit
BAV	beach action value
BEACH	Beaches Environmental Assessment and Coastal Health (Act)
BMP	best management practice
BNR	biological nutrient removal
BUI	Beneficial Use Impairment (as described in the Great Lakes Water Quality Agreement)
CABB	Center for Applied Bioassessment and Biocriteria
CAFO	Concentrated Animal Feeding Operations
CDBG	Community Development Block Grant
CDC	Center for Disease Control
cfu	colony forming unit
Corps	U.S. Army Corps of Engineers
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CSO	combined sewer overflow
CSP	Conservation Stewardship Program
CWH	coldwater habitat
CWA	Clean Water Act
DDAGW	Division of Drinking and Ground Waters
DDT	dichlorodiphenyltrichloroethane
DEFA	Division of Environmental and Financial Assistance
DES	Division of Environmental Services
DLG	digital line graph
DRG	digital raster graphic
DSW	Division of Surface Water
EAG	External Advisory Group
EPA	Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
EWH	exceptional warmwater habitat
FCA	fish consumption advisory
FFY	federal fiscal year
FSA	Farm Service Agency
FWPCA	Federal Water Pollution Control Act
GIS	Geographic Information System
GLLA	Great Lakes Legacy Act
GLRC	Great Lakes Regional Collaboration
GLRI	Great Lakes Restoration Initiative
GLSM	Grand Lake St. Marys
GLWQA	Great Lakes Water Quality Agreement
GRP	Grassland Reserve Program
GRTS	Generalized Random Tessellation Stratified (survey design)
HAB	harmful algal bloom
HSD	honest significant difference

HUC	hydrologic unit code
IBI	index of biotic integrity
ICI	invertebrate community index
IDP	indirect discharge permit
IR	Integrated Report
kg	kilogram
L	liter
LA	load allocation
LAMP	lakewide action and management plan
LCI	Lake Condition Index
LDI	Landscape Development Intensity
LEAU	Lake Erie assessment unit
LEC	(Ohio) Lake Erie Commission
LENT	Lake Erie nutrient targets
LEPF	(Ohio) Lake Erie Protection Fund
LH	lake habitat
LHD	local health district
LRAU	large river assessment unit
LRW	limited resource water
LTCP	long-term control plan
MBI	Midwest Biodiversity Institute
MF	membrane filter
mg	milligram
mi <sup>2</sup>	square miles
mL	milliliter
MIwb	modified index of well-being
MOR	monthly operating data
MPN	most probable number
MRBI	Mississippi River Basin Initiative
MS4	municipal separate storm sewer systems
MWH	modified warmwater habitat
NARS	National Aquatic Resource Survey
NCCA	National Coastal Condition Assessment
NCWQR	National Center for Water Quality Research
NEORS	Northeast Ohio Regional Sewer District
ng	nanogram
NHD	National Hydrography Dataset
NLCD	National Land Cover Dataset
NOAA	National Oceanic and Atmospheric Administration
NOI	notice of intent
NPDES	National Pollutant Discharge Elimination System
NPS	nonpoint source
NRCS	Natural Resources Conservation Service
NSMP	Nonpoint Source Management Plan
NSSP	National Shellfish Sanitation Program
NWI	National Wetland Inventory
NWQI	National Water Quality Initiative
OAC	Ohio Administrative Code
ODH	Ohio Department of Health
ODNR	Ohio Department of Natural Resources

OMZA	outside mixing zone average
ORC	Ohio Revised Code
ORSANCO	Ohio River Valley Water Sanitation Commission
OSIP	Ohio Statewide Imagery Program
OTMP	Ohio Tributary Monitoring Program
OWDA	Ohio Water Development Authority
OWRC	Ohio Water Resources Council
PAHs	polyaromatic hydrocarbons
PHA	public health advisory
ppb	parts per billion
PCB	polychlorinated biphenyls
PCR	primary contact recreation
PDWS	public drinking water supply
POTW	publicly owned treatment works
PS	point source
PTI	permit to install
PTO	permit to operate
PWS	public water supply
QA	quality assurance
QC	quality control
QDC	qualified data collector
QSC	Quicksilver Caucus
RAP	Remedial Action Plan
RAS	return activated sludge
RF3	Reach File Version 3
RM	river mile
SDWA	Safe Drinking Water Act
SDWIS	Safe Drinking Water Information System
SFY	state fiscal year (July 1 to June 30)
SIU	significant industrial user
sq mi	square miles
SSM	single-sample maximum
STORET	STORage and RETrieval (a U.S. EPA water quality database)
STV	statistical threshold value
SWIF	Surface Water Improvement Fund
SWIMS	Surface Water Information Management System
TDS	total dissolve solids
TMDL	total maximum daily load
TNTC	too numerous to count
TOC	total organic carbon
µg	microgram
USDA	United States Department of Agriculture
U.S. EPA	United States Environmental Protection Agency
USC	United States Code
USGS	U.S. Geological Survey
UV	ultraviolet
VIBI	vegetation index of biotic integrity
VIBI-FQ	VIBI – floristic quality
WAS	waste activated sludge
WAUs	watershed assessment unit

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WBLE	western basin of Lake Erie
WEG	(Ohio EPA's) wetland ecology group
WHIP	Wildlife Habitat Incentives Program
WHO	World Health Organization
WLA	wasteload allocation
WPCLF	Water Pollution Control Loan Fund
WQ	water quality
WQC	Water Quality Certification (Section 401)
WQM	Water Quality Management (plan)
WQPSD	Water Quality Permit Support Document
WQS	water quality standards
WRP	Wetlands Reserve Program
WRRSP	Water Resource Restoration Sponsor Program
WSRLA	Water Supply Revolving Loan Account
WWH	warmwater habitat
WWTP	wastewater treatment plant

## Executive Summary

The *Ohio Integrated Water Quality Monitoring and Assessment Report* (IR) summarizes water quality conditions in the State of Ohio. This report satisfies Ohio's water quality reporting requirements under Sections 303(d), 305(b) and 314 of the federal Clean Water Act. This report was last updated in 2018. Analysis and listing changes are based on data collected during 2017 and 2018 for aquatic life and human health (fish tissue) uses and 2018 and 2019 for drinking water supply and recreation uses.

Using methods devised to determine the suitability of waters for four specific uses—aquatic life (fish and aquatic insects), recreation (such as boating and swimming), human health (related to fish tissue contamination) and public drinking water supplies—available data were compared with water quality goals. The results indicate which waters are meeting goals and which are not. Waters not meeting the goals for one or more of the four types of uses are referred to as *impaired*. The waters found to be impaired are prioritized and scheduled for further study and restoration.

This report describes the methods used to judge impairment of each type of use and have evolved in each reporting cycle as the Agency gains access to more data and develops better ways to interpret them. Results are reported for 1,538 watershed units, 38 large river units (in Ohio's 23 rivers that drain more than 500 square miles) and seven Lake Erie units.

The 2020 (IR) is one of transition. The 2020 IR will likely be the final report of the current style. The 2020 IR, however, is the first report utilizing U.S. EPA's Assessment, Total Maximum Daily Load (TMDL) Tracking and Implementation System (ATTAINS) database for report preparation and submittal. The style of the IR, contents, and methods to present water quality data and analyze trends will likely be revised in the 2022 IR as we continue to adapt to the ATTAINS database and U.S. EPA's How's My Waterway app (coming soon at [epa.gov/waterdata/how-my-waterway](https://epa.gov/waterdata/how-my-waterway)).

### Highlights of Beneficial Use Sections

For the human health use (fish tissue), polychlorinated biphenyl (PCB) contamination in fish is the cause of most of the human health impairments in Ohio. Mercury is the second leading cause.

The recreation (bacteria) use analysis focuses on the number of bacteria in the water. For Lake Erie public beaches, the frequency of swimming advisories varies widely, ranging from 0.4 percent to 44.3 percent. Generally, beaches located near population centers have the most problems. Results are also reported for streams and inland lakes.

The recreation use has also been assessed for algae impacts in Lake Erie. The western basin shoreline, the islands shoreline and the western basin open water assessment units are all listed as impaired by algae. The Sandusky basin and central basin open water units and central basin shoreline are in attainment. There is currently insufficient information to determine the attainment status of Sandusky basin shoreline (including Sandusky Bay).

The top reasons for aquatic life impairment continue to be habitat modification, nutrient enrichment, hydromodification, sedimentation/siltation and organic enrichment for large rivers and watersheds.

The chemicals of concern causing impairment of the public drinking water supply use include nitrate, atrazine and cyanotoxin (due to certain algae). The primary source of the chemicals is nonpoint source runoff from agricultural land use. Additional sources of nitrate include home and commercial fertilizer application, failing septic systems, unsewered areas and wastewater treatment plant discharges. Of the 118 public drinking water supply assessment units, 39 are now listed as impaired by algae, with another 25 on the watch list for algae.

## Major Changes since the 2018 Integrated Report

Changes made between the 2018 Integrated Report and the 2020 Integrated Report are as follows:

- This is the first report prepared and submitted using U.S. EPA's new database system called ATTAINS. Once final, Ohio EPA's data will now be available to the public through U.S. EPA's application called "How's My Waterway".
- Ohio EPA is assigning a high priority to Lake Erie's western shoreline, western open water, and islands shoreline assessment units for impairments of public drinking water supply (algae) and recreation (algae), and committing to develop a TMDL over the next two to three years.
- New assessment methodologies and results are included for recreation (algae) for Lake Erie's Sandusky Bay shoreline and open water and central basin shoreline and open water units.
- Ohio EPA removed or delisted a total of 152 parameters (or causes of impairment) out of a total of 342 delistings because water quality standards are now in attainment based upon new sampling data or restoration activities.
- Ohio EPA was able to close out two plans (Category 4Bs) to address water quality impairments from the Georgetown and Pickerington wastewater treatment plants because implemented controls have resulted in improved water quality for the parameters of concern in Town Run and Sycamore Creek, respectively.