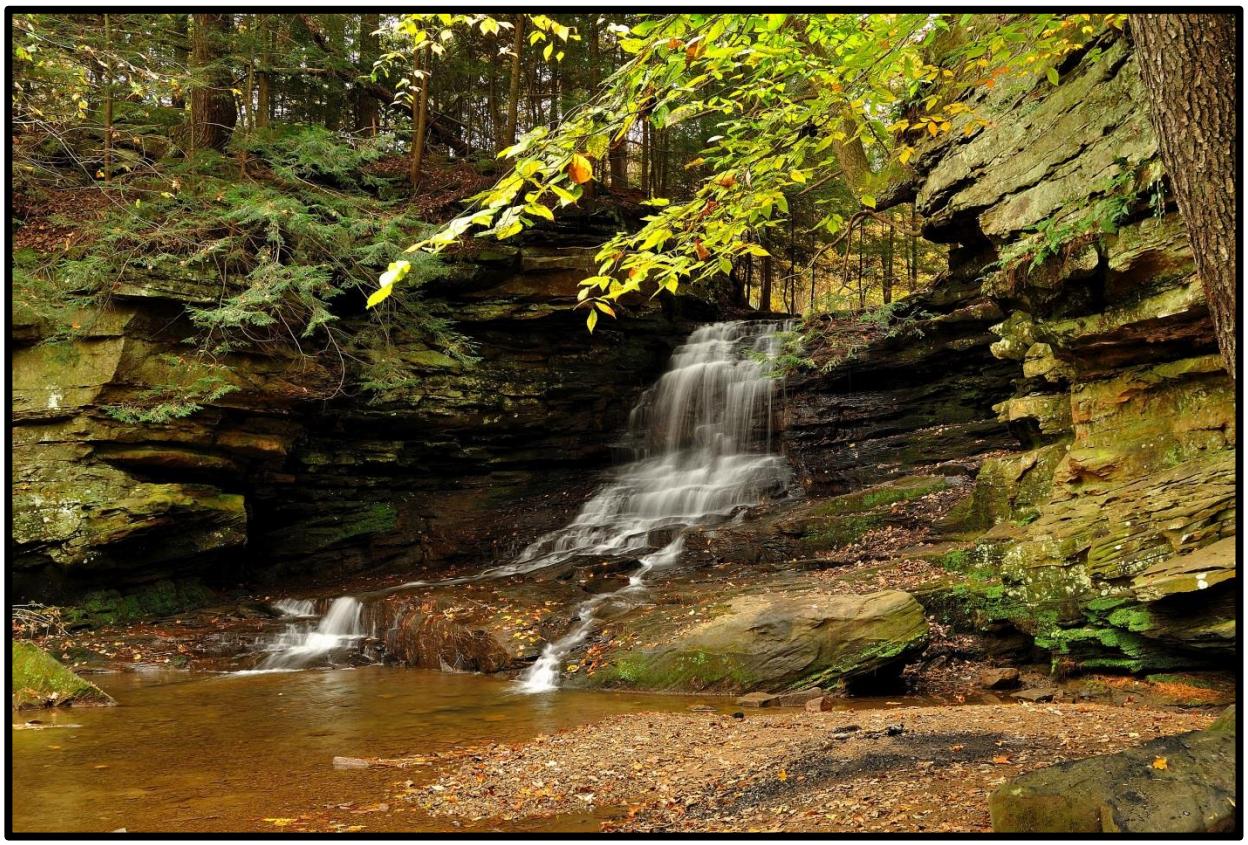
Ohio Environmental Protection Agency

Ohio 2016 Integrated Water Quality Monitoring and Assessment Report



Division of Surface Water
Draft Report

July 2016

Cover photo: Honey Run Falls in Knox County.

Honey Run is a tributary to the Kokosing River, located in assessment unit 05040003 04 03.

Photo by Russell Gibson

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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
AU	assessment unit
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^2	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
NEORSD	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 RETtrieval (a U.S. EPA water quality database)
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
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 2016 Integrated Water Quality Monitoring and Assessment Report* summarizes water quality conditions in the State of Ohio. The report satisfies Ohio's water quality reporting requirements under Sections 303(d), 305(b) and 314 of the Clean Water Act. The report was last updated in 2014. **Analysis and listing changes are based on data collected during 2013 and 2014 for all uses; recreation and public drinking water supplies uses also included data from 2015, therefore impairment listings may not reflect current conditions**.

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.

The 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 three Lake Erie shoreline units (including waters within 500 yards of public drinking water intakes). Additional information on streams draining between 20 and 500 square miles is presented as this subset of waterbodies is used to calculate and track progress of Ohio's 80 percent full attainment by 2020 goal for wading and principal streams and rivers.

Ohio's large rivers reflected a small decline in percent of monitored miles in full attainment compared to the same statistic reported in the 2014 IR. The "100% full attainment by 2020" aquatic life goal statistic for Ohio's largest rivers now stands at 87.4 percent, down 1.8 percent from the 2014 report. Conversely, smaller streams continue to improve with the average watershed score increasing from 64.2 percent to 66.1 percent of monitored sites in full aquatic life use attainment. The top reasons for aquatic life impairment continue to be sediment, nutrients, habitat modification, hydromodification and organic enrichment.

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

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 123 public drinking water supply assessment units, 19 are now listed as impaired by algae, with another 19 on the watch list for algae (more than double the 2014 report).

The recreation 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 1.3 percent to over 60

percent. Generally, beaches located near population centers have the most problems. Results are also reported for streams and inland lakes.

Of the 6,316 possible category assignments, the 2016 303(d) list includes changes in 463, with 132 delistings and 331 new listings. Most 303(d) removals and new listings are due to new data.

Changes since the 2014 Integrated Report

Changes made between the 2014 Integrated Report and the 2016 Integrated Report are as follows:

- The Harmful Algal Bloom (HAB) information has been moved from Section I to Section C7.
- The report contains a new section dedicated to Ohio's 303(d)/TMDL Program Vision (Section C8).
- Information was added to the end of Section H regarding an error that was discovered in the 2014 list pertaining to improperly listed PDWS use waters.
- A description of "Near Term Priorities for Ohio EPA" has been added to Section J2.
- The report contains a new subsection discussing Ohio's approach to addressing nutrients in Lake Erie (Section J3), and Lake Erie information has been added or moved to Sections C1 and D3.
- Section L5 (Monitoring and TMDL Schedules for Ohio's Watershed and Large River Assessment Units) was removed from the report; consequently, previous Section "L6" was re-numbered/labeled.