Ohio 2014 Integrated Water Quality Monitoring and Assessment Report

Division of Surface Water
Draft for Public Review
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Cover photo: Tawawa Creek at Tawawa Civic Park in Sidney, Ohio.

Tawawa Creek is a tributary to the Great Miami River, located in assessment unit 05080001 07 02.

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List of Acronyms and Abbreviations

AmphIBI	amphibian index of biotic integrity
AOC	Area of Concern (as identified under the Great Lakes Water Quality Agreement)
AU	assessment unit
BEACH	Beaches Environmental Assessment and Coastal Health (Act)
BMP	best management practice
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
Corps	U.S. Army Corps of Engineers
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CSO	combined sewer overflow
CSP	Conservation Security 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
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
FWPCA	Federal Water Pollution Control Act
GLRI	Great Lakes Restoration Initiative
GRP	Grassland Reserve Program
HAB	harmful algal bloom
HUC	hydrologic unit code
IR	Integrated Report
kg	kilogram
L	liter
LA	load allocation
LaMP	Lakewide Management Plan
LCI	Lake Condition Index
LEC	(Ohio) Lake Erie Commission
LEPF	(Ohio) Lake Erie Protection Fund
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
MOR	monthly operating data
MPN	most probable number
MS4	municipal separate storm sewer systems
MWH	modified warmwater habitat
NEORSD	Northeast Ohio Regional Sewer District
ng	nanogram
NHD	National Hydrography 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
NSSP	National Shellfish Sanitation Program
OAC	Ohio Administrative Code
ODH	Ohio Department of Health
ODNR	Ohio Department of Natural Resources
ORC	Ohio Revised Code
ORSANCO	Ohio River Valley Water Sanitation Commission
OTMP	Ohio Tributary Monitoring Program
OWDA	Ohio Water Development Authority
OWRC	Ohio Water Resources Council
PAHs	polyaromatic hydrocarbons
ppb	parts per billion
PCB	polychlorinated biphenyls
PDWS	public drinking water supply
PS	point source
PTI	permit to install
PTO	permit to operate
PWS	public water supply
QA	quality assurance
QC	quality control
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)
sq mi	square miles
SSM	single-sample maximum
STORET	STOrage and RETtrieval (a U.S. EPA water quality database)
SWIMS	Surface Water Information Management System
TMDL	total maximum daily load
TOC	total organic carbon
U.S. EPA	United States Environmental Protection Agency
µg	microgram
USC	United States Code
USGS	U.S. Geological Survey
VIBI	vegetation index of biotic integrity

WAUs	watershed assessment unit
WHIP	Wildlife Habitat Incentives Program
WLA	wasteload allocation
WPCLF	Water Pollution Control Loan Fund
WQ	water quality
WQC	Water Quality Certification (Section 401)
WQMP	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 2014 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 2010.

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 impacts 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 also includes the monitoring schedule that Ohio EPA plans to follow for the next several years.

The report describes the methods used to judge impairment of each type of use. The methods 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 3 Lake Erie nearshore units. Additional information on streams draining between 50 and 500 square miles is presented. General information on Ohio's water quality is also reported in the form of statistics and progress toward Ohio's "2020 goals."

Ohio's large rivers continue to show improvement as tracked over the last 20 years. The "100% full attainment by 2020" aquatic life goal statistic remains steady at 89.2% full attainment and smaller streams continue to improve. The Maumee and Tiffin Rivers in particular show dramatic improvement since last studied in the early- to mid-1990s. The top reasons for aquatic life impairment continue to be sediment, nutrients, habitat modification, hydromodification, and organic enrichment. Most aquatic life impairment is related to land disturbances related to agriculture activities and urban development.

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 and atrazine, and for the first time in 2014, cyanotoxin (due to certain algae). The primary source of the chemicals is nonpoint source runoff from agricultural land use. Additional major sources for nitrate include home and commercial fertilizer application, failing septic systems, unsewered areas and wastewater plant discharges. Over half of the water systems with impaired source waters due to algae draw water from the western basin of Lake Erie.

The recreation use analysis focuses on the amount of bacteria in the water. For Lake Erie public beaches, the frequency of swimming advisories varies widely, ranging from 0% to over 40%. Generally, beaches located near population centers have the most problems. Results are also reported for inland streams and lakes.

Of the 6,316 possible category assignments, the 2012 303(d) list includes changes in 459, with 282 delistings and 177 new listings. Most 303(d) removals are due to TMDL approvals; most new listings are due to new data.

Changes Since the 2012 Integrated Report

Changes made between the 2012 Integrated Report and the 2014 Integrated Report are as follows:

- Analysis and listings are based on recent data (collected over the past two years).
- For the aquatic life use, the transition that began in 2010 of translating data evaluated at the 11-digit hydrologic unit (HU) size to the smaller 12-digit HU size continued. The few remaining relic categories will be dealt with as those areas are monitored again (see Section G).
- The assessment methodology for the public drinking water supply (PDWS) beneficial use was revised to include a new core indicator based on algae and associated cyanotoxins. The original 2006 PDWS assessment methodology identified algae as a possible supplemental indicator, but assessment units were not listed as impaired due to algae until now (see Section H).
- The report contains a new section on Lake Erie monitoring and assessment (see Section I5).
- The report contains an expanded discussion of wetlands in Ohio (see Section I2).
- As Ohio EPA returns to watersheds that already have approved TMDLs, two new subcategories are being defined to aid reporting the status of assessment units relative to approved TMDLs and data availability. One ("t") is used for those assessment units (AUs) that were included in an older TMDL approved at the 11-digit hydrologic unit (HU) scale; the other ("d") is used to indicate that new data have been collected in an AU for which there is an approved TMDL. The new data indicate either that the AU is not impaired (category 1d) or that it is impaired (5d) and that the new data indicate new cause(s) of impairment.