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and guide to what, where, and how to find things in this book.



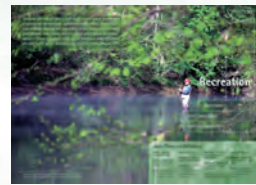
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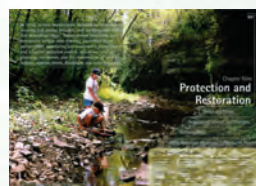
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Chapter and Section Number

This book is divided into 10 chapters and chapter sections. This number identifies the chapter and section you are in. It also serves as a double page number.

Chapter Section

All information pertaining to a chapter section will be contained in the white area of the page.

Section Heading

Section Introduction

Timeline

This timeline maps Ohio's stream related history independent of chapter sections. It begins during the prehistoric Paleozoic Era (page 1.1) and ends in the year 2000 (page 9.4). Here you will find important - and fascinating - information that helps explain the types of streams we have today and how they have changed through time.

The page features a central illustration of a large fish, likely a muskie, with various text boxes and maps. The main heading is 'Natural and Human Changes'. Text on the page includes: 'During the past two million years, Ohio streams have undergone several periods of major change: first by glaciers and more recently by Europeans with the settlement of the Ohio country. Human activities during the past 200 years have resulted in dramatic physical, chemical, and biological changes in many streams. Since the 1970s, however, there have been increasing efforts to understand, protect, and restore these valuable natural resources.' There are also maps showing 'Settlement of the Ohio Country' and 'Restoring the Ohio Country'. A 'Timeline' section at the bottom maps Ohio's stream related history from the Paleozoic Era to the year 2000.

"In Ohio Streams"

In this column you will find an illustration and facts about more than 100 kinds of fish, insects, mollusks, and other aquatic wildlife that live - or lived - in Ohio streams.

Watersheds are best viewed from high above - that's where precipitation, relief, principal streams, land use, flora, and fauna all become one. Since the first Ohioans arrived to the twenty-first century, streams and their watersheds continue to be an integral part of life for both humans and wildlife.

Chapter Ten

Major Ohio Watersheds

Lake Erie Basin

Maumee River

Sandusky River

Cuyahoga River

Grand River

Ohio River Basin

Great Miami River

Little Miami River

Scioto River

Hocking River

Muskingum River

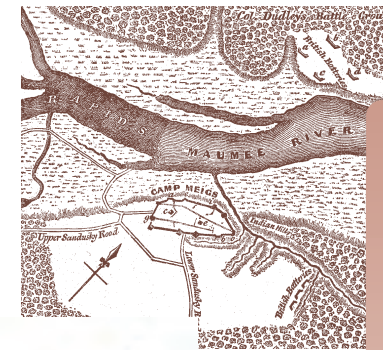
Mahoning River

View of the lower Scioto River valley near Portsmouth (Scioto County, Ohio, Photo by Tim Daniel).

Maumee River

State Scenic and Recreational River

After Europeans settled Marietta and Cincinnati, Ohio's last frontier was still almost entirely covered by unbroken forests and the Great Black Swamp - a huge wetland approximately 40 miles wide by 120 miles long. The Battle of Fallen Timbers in 1794 followed by the Treaty of Greenville the next year, however, would change the landscape forever. Although the Defiance Land Office did not open until 1848, Lima and Findlay became the world's largest producers of oil by 1900. With more than 16,000 miles of drainage ditches and few remaining forests today, the largest Great Lakes watershed is one of Ohio's most agriculturally productive and intensively farmed landscapes. Formed at the confluence of the St. Joseph and St. Marys rivers in Indiana, the Maumee River flows northeasterly into Maumee Bay and Lake Erie at Toledo.



Fort Meigs and its Environs.

Maumee River (in Ohio)

Watershed Facts

- Named Streams: 327
- Endangered Stream Species: 10
- Clean Water Act Goals (miles)
 - Meeting: 156 (21.6%)
 - Partially Meeting: 266 (36.9%)
 - Not Meeting: 299 (41.5%)
- Population Estimate
 - Total: 654,413
 - People/Square Mile: 134

Mainstem Facts

- Average Gradient: 1.3 feet/ mile
- Fish Species: 94
- Mussel Species: 42
- Aquatic Macroinvertebrate Taxa: 231
- State Scenic River Designations (miles)
 - Scenic River: 43
 - Recreational River: 53
- Stream Flow (cfs)
 - Maximum: 180,000
 - Average: 5,040
 - Minimum: 17
- Dams: 2
- Aquatic Life Use Designations (miles)
 - Warmwater Habitat: 105.4



View of the lower Maumee River (Wood County, Ohio).

Principal Streams

Stream Name	Length (miles)	Drainage Area (sq. mi.)
Maumee River (in OH)	105.4	4862
Auglaize River (in OH)	101.9	2337
St. Joseph River (in OH)	44.3	238
St. Marys River (in OH)	59.1	458
Tiffin River (in OH)	59.2	557
Blanchard River	91.0	771
Ottawa River	52.7	365
Little Auglaize River	45.5	405
Flatrock Creek (in OH)	34.0	98
Swan Creek	38.5	204
Beaver Creek	26.0	186
E. Br. St. Joseph (in OH)	5.8	25
S. Turkeyfoot Creek	20.9	149

Stream Habitat (in Ohio)

Throughout most of its length, the Maumee River flows slowly through large pools within an intensively farmed ancient lake bed with little relief and clay soils. Three long sections of the river are impounded by the backwaters of Lake Erie and two dams located at Grand Rapids and Independence. Free-flowing sections of river contain long pools interspersed by swifter flowing rocky riffles, runs, and rapids.

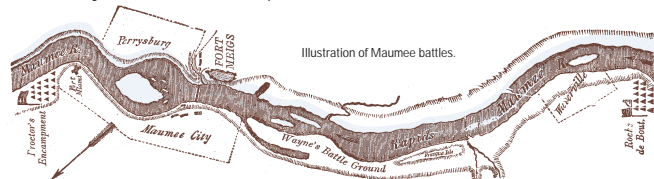


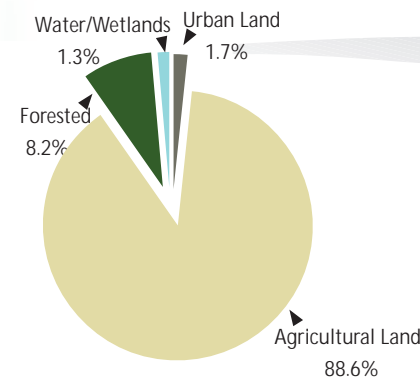
Illustration of Maumee battles.



white bass (Morone chrysops)



white cat paw (Epioblasma obliquata perobliqua)



View of Maumee River valley at Perrysburg in 1846 (Henry Howe).

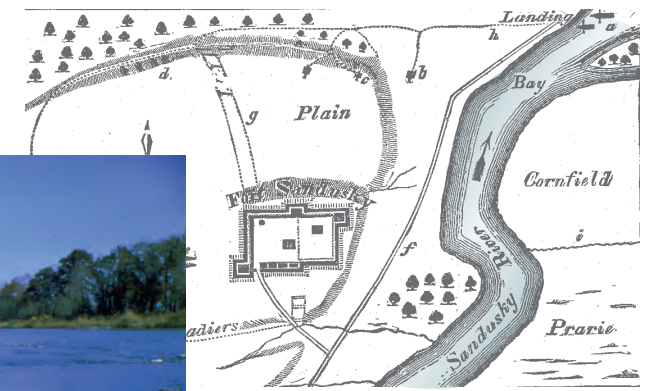
Sandusky River

State Scenic River

San,doos,tee “at the cold water”, Sa,un,dos,tee “water within water-pools”, and Po,ta,ke,sepe “a rapid river” are reported native American names and meanings for the Sandusky River. The watershed has a rich historical past that includes the Wyandots, early French fur trade, Fort Stephenson, and Ohio’s last native American reservation. Today, large spawning runs of Lake Erie fishes, all six species of Ohio redhorse, nesting bald eagles, and large flights of migrating waterfowl are but a few of the Sandusky’s natural features. The Sandusky River originates near Bucyrus, flows west to Upper Sandusky and then north through Tiffin and Fremont to its confluence with Sandusky Bay and Lake Erie. Water supply, sport fishing, canoeing, and wildlife viewing are but a few of the important attributes this State Scenic River has to offer.



Dolomite cliffs are common along the lower Sandusky River (Sandusky County, Ohio).



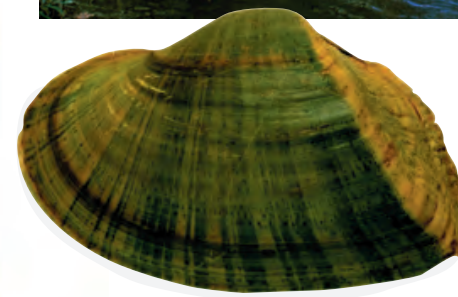
Fort Sandusky and environs (Henry Howe).

Stream Habitat

As it flows from its headwaters to Sandusky Bay, the Sandusky River changes from a small headwater stream into a large river. The stream contains an outstanding reach of natural fish spawning habitat downstream from Tiffin, but migratory walleye, white bass, and other lake-run fishes can not reach it due to a barrier dam located at Ballville. Like many agricultural streams, excessive levels of siltation can be found in many of its larger pools.

Principal Streams

Stream Name	Length (miles)	Drainage Area (sq. mi.)
Sandusky River	130.0	1421
Tymochtee Creek	54.8	299
Honey Creek	39.3	177
Wolf Creek	23.9	153
Broken Sword Creek	32.0	91
East Branch	18.2	83
Green Creek	22.9	83
Sycamore Creek	20.0	68



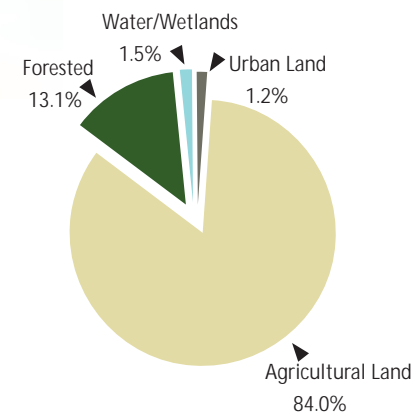
elktoe (Alasmidonta marginata)



bald eagle (Haliaeetus leucocephalus)



walleye (Stizostedion vitreum)



Sandusky River

Watershed Facts

- Named Streams: 105
- Endangered Stream Species: 5
- Clean Water Act Goals (miles)
 - Meeting: 10 (9.3%)
 - Partially Meeting: 22 (20.6%)
 - Not Meeting: 75 (70.1%)
- Population Estimate
 - Total: 135,722
 - People/Square Mile: 96

Mainstem Facts

- Average Gradient: 3.9 feet/ mile
- Fish Species: 85
- Mussel Species: 29
- Aquatic Macroinvertebrate Taxa: 228
- State Scenic River Designations (miles)
 - Scenic River: 65
- Stream Flow (cfs)
 - Maximum: 36,500
 - Average: 1,031
 - Minimum: 4.4
- Dams: 5
- Aquatic Life Use Designations (miles)
 - Warmwater Habitat: 130

Cuyahoga River

State Scenic River

Ya,sha,hia “the place at the wing” and “crooked” are two interpretations for its native American name. Although famous for its 1969 fire, the Cuyahoga’s pollution helped establish the nation’s first “earth day” a few years later. A national water quality goal “to restore the chemical, physical, and biological integrity of our nation’s surface water” was also established by the U.S. Congress. During the last 15 years, pollution controls have significantly improved the middle and lower reaches of the river. While it remains one of our most densely populated and industrialized watersheds, the upper Cuyahoga still contains some of Ohio’s highest quality stream habitat and aquatic assemblages. The scenic river - an important source for drinking water - flows through waterfalls, gorges, and Ohio’s only National Recreational Area.



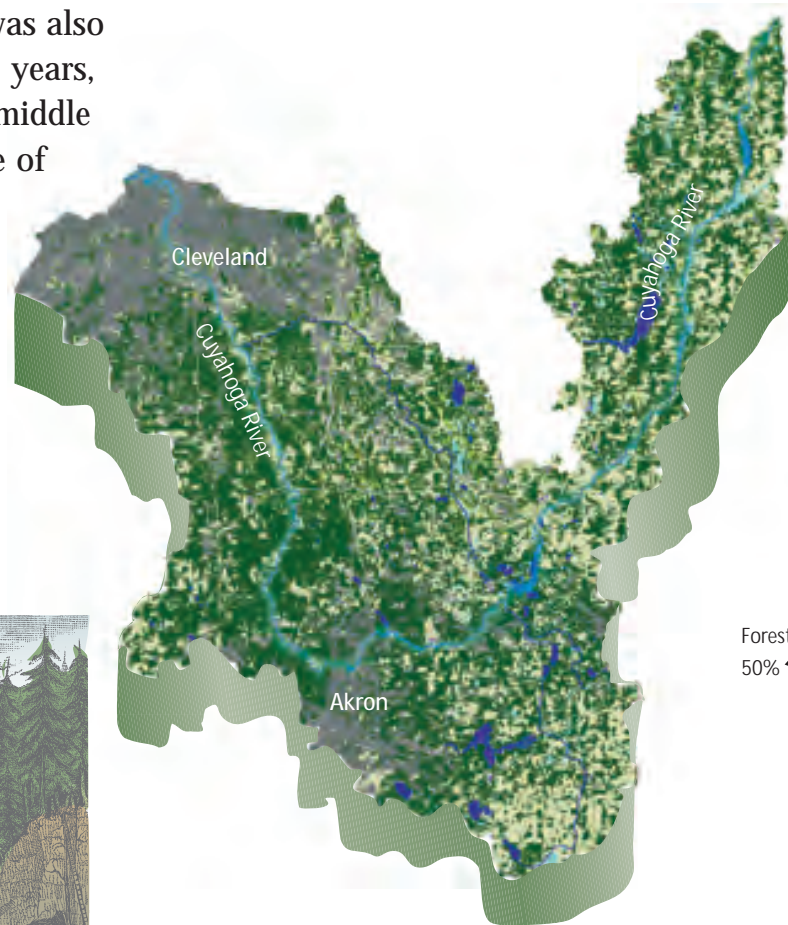
View of the upper Cuyahoga River near Mantua (Portage County, Ohio).



Stream Habitat

Aquatic habitats in the Cuyahoga River markedly change between its headwaters and Cleveland. The mainstem begins as slow flowing wetlands, but changes into more diverse stream habitats consisting of

alternating series of high gradient riffles, runs, and pools at Hiram Rapids. Downstream, sections of the mainstem are impounded by a series of dams. The lower river’s navigation channel contains poor quality habitats as the result of extensive hydro-modification and ongoing maintenance.

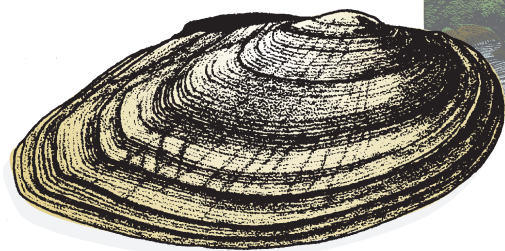


Ravine at Cuyahoga Falls (Summit County, Ohio, Henry Howe, 1846).

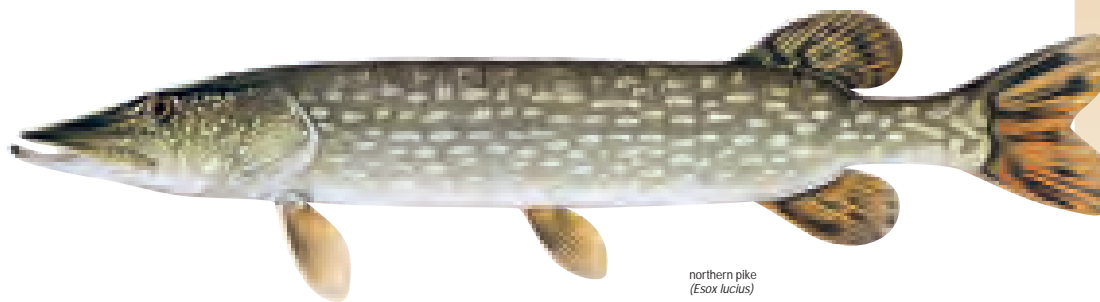


Principal Streams

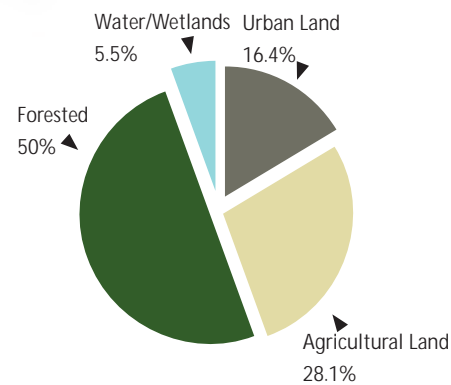
Stream Name	Length (miles)	Drainage Area (sq. mi.)
Cuyahoga River	101.1	813
Tinkers Creek	28.2	96
Congress Lake Outlet	26.4	79
Little Cuyahoga River	17.4	69



eastern pondmussel (*Ligumia nasuta*)



northern pike (*Esox lucius*)



Cuyahoga River

Watershed Facts

- Named Streams: 58
- Endangered Stream Species: 2
- Clean Water Act Goals (miles)
 - Meeting: 56 (22.3%)
 - Partially Meeting: 59 (23.5%)
 - Not Meeting: 136 (54.2%)
- Population Estimate
 - Total: 1,009,737
 - People/Square Mile: 1,248

Mainstem Facts

- Average Gradient: 7.1 feet/ mile
- Fish Species: 87
- Mussel Species: 12
- Aquatic Macroinvertebrate Taxa: 342
- State Scenic River Designations (miles)
 - Scenic River Miles: 25
- Stream Flow (cfs)
 - Maximum: 16,700
 - Average: 860
 - Minimum: 21
- Dams: 7
- Aquatic Life Use Designations (miles)
 - Exceptional Warmwater Habitat: 4.0
 - Warmwater Habitat: 91.5
 - Limited Resource Water: 5.6

Grand River

State Wild and Scenic River

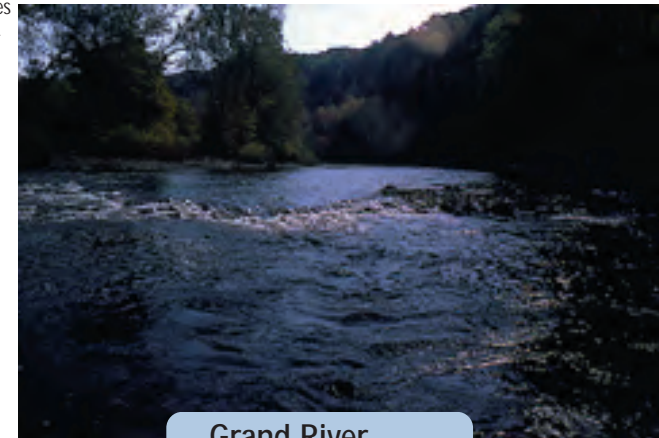
In native American language, it was called “Sheauga sepe” meaning the Raccoon River. And with large beaver swamps, northern brook lampreys, black bears, river otters, bald eagles, and wild turkeys present today, the Grand River watershed is one of Ohio's most wild and scenic regions. From its marshy headwaters in the Grand River Wildlife Area, the river meanders north through an ancient lake bed to Mechanicsville where it turns west and cascades through a deep and picturesque valley before entering Lake Erie. With urban sprawl occurring throughout much of northeastern Ohio, there are increasing partnership efforts to protect and restore the watershed's unique stream and riparian habitats, biological diversity, recreational opportunities, and rural qualities.



Stream Habitat

Habitats in the Grand River markedly change as it flows from its headwaters to its confluence with Lake Erie. Located in an ancient lake bed with extensive wetlands, the upper river flows slowly through long pools with soft sediments. The lower river has more diverse, high gradient rocky habitats comprised of alternating series of well-defined pools and riffle-run complexes. Because the Grand River is mostly underlain by a shallow, low yielding, shale bedrock aquifer, it typically experiences low flows in the late summer and early fall. The mainstem has many high quality tributaries.

View of the Grand River downstream from Harpersfield (Astabula County, Ohio).



Fishing for steelhead - lake-run rainbow trout - is becoming increasingly popular in the lower Grand River and tributaries (Photo courtesy of Dan Armitage).

Principal Streams

Stream Name	Length (miles)	Drainage Area (sq. mi.)
Grand River	102.7	712
Mill Creek	28.8	103
Rock Creek	18.4	71
Big Creek	15.6	50



rainbow trout (*Oncorhynchus mykiss*)



In 1986, the Ohio Division of Wildlife began reintroducing river otters (*Lutra canadensis*), a state endangered species, into the Grand River watershed.



salamander mussel (*Simpsonaias ambigua*)

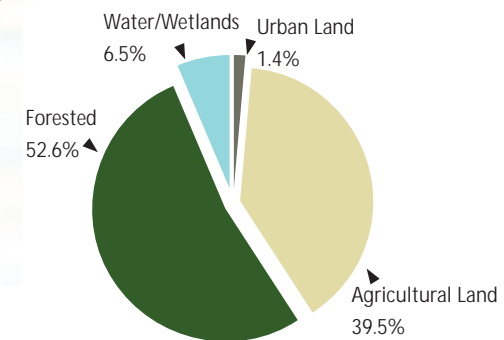


Illustration of an Ohio log cabin (Henry Howe).

Grand River

Watershed Facts

- Named Streams: 53
- Endangered Stream Species: 3
- Clean Water Act Goals (miles)
 - Meeting: 151 (84.8%)
 - Partially Meeting: 25 (14.0%)
 - Not Meeting: 2 (1.1%)
- Population Estimate
 - Total: 96,437
 - People/Square Mile: 137

Mainstem Facts

- Average Gradient: 5.6 feet/ mile
- Fish Species: 87
- Mussel Species: 26
- Aquatic Macroinvertebrate Taxa: 291
- State Scenic River Designations (miles)
 - Scenic River: 33
 - Wild River: 23
- Stream Flow (cfs)
 - Maximum: 18,700
 - Average: 1,047
 - Minimum: 5.1
- Dams: 1
- Aquatic Life Use Designations (miles)
 - Exceptional Habitat: 42.9
 - Warmwater Habitat: 55.6
 - Seasonal Salmonid Habitat: 30.9

Great Miami River

The name Miami was originally the designation of the tribe who bore the name of “Tewightewee.” In the Ottawa language, it signified “mother” and the Shawanoese called the river Shi,me,a,mee,sepe or “Big Miami River.” The settlers who constructed flatboats in Piqua knew the dangerously swift and crooked channels downstream from Troy as the “Ninety-nine Islands.” The Miami Valley was also known for its lush vegetation, abundant water resources, Ohio-Erie canal, and rich archeological past. Today, the valley is known for its water supply, recreation, industries, productive farmland, and high quality tributaries. Frequented by trout clubs and canoeists, the Mad River is Ohio’s longest coldwater stream. The Stillwater River supports an exceptional diversity of aquatic wildlife and great sport fishing. Originating upstream from Indian Lake, the Great Miami River flows southwest to its confluence with the Ohio River west of Cincinnati. The middle and upper mainstem contains some of Ohio’s best smallmouth bass fishing.



smallmouth bass (Micropterus dolomieu)

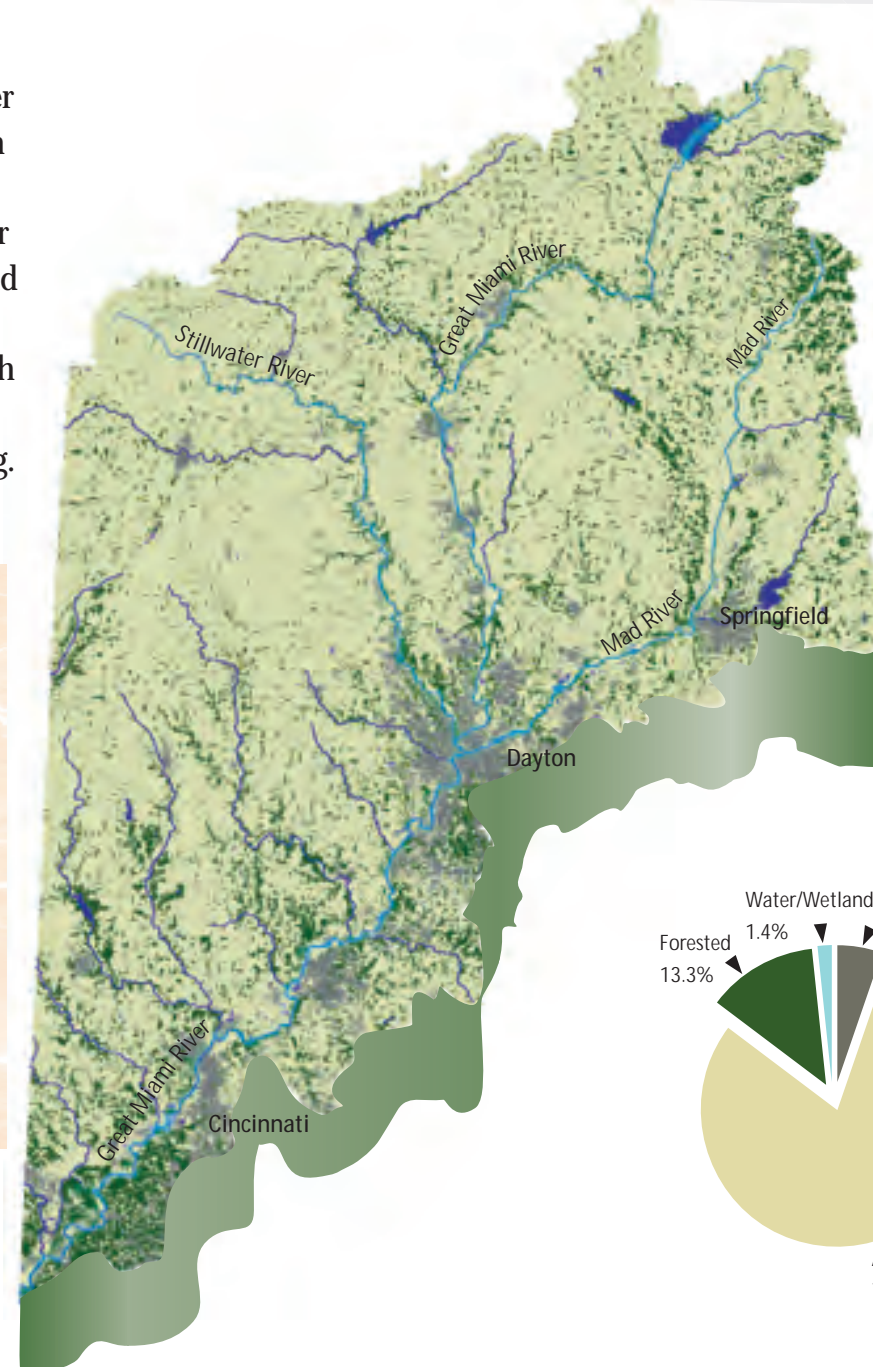
View of the Great Miami River upstream from Hamilton (Butler County, Ohio).



Stream Habitat

As a result of the watershed’s glacial deposits, the Great Miami River flows over a buried aquifer with thick deposits of sand, gravel, cobble, and boulders. Habitat modifications include channelization in the upper reach, numerous low-head dams, and some gravel

mining. Its large watershed and abundant groundwater helps to maintain good base flows throughout the year.



Principal Streams

Stream Name	Length (miles)	Drainage Area (sq. mi.)
Great Miami River	170.3	5385
Stillwater River (in OH)	67.2	644
Mad River	60.2	657
Fourmile Creek	38.2	297
Twin Creek	46.2	316
Loramie Creek	36.5	265
Greenville Creek (in OH)	40.5	201
Whitewater River (in OH)	7.3	145
Buck Creek	15.5	141
Sevenmile Creek	32.5	137
Indian Creek (in OH)	22.9	72



View of the Great Miami River at Piqua in 1886, Miami County, Ohio



fawnfoot (Truncilla donaciformis)

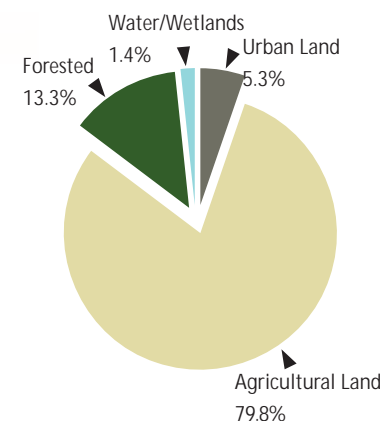
Great Miami River (in Ohio)

Watershed Facts

- Named Streams: 285
- Endangered Stream Species: 14
- Clean Water Act Goals (miles)
 - Meeting: 613 (58.8%)
 - Partially Meeting: 206 (19.8%)
 - Not Meeting: 223 (21.4%)
- Population Estimate
 - Total: 1,334,930
 - People/Square Mile: 338

Mainstem Facts

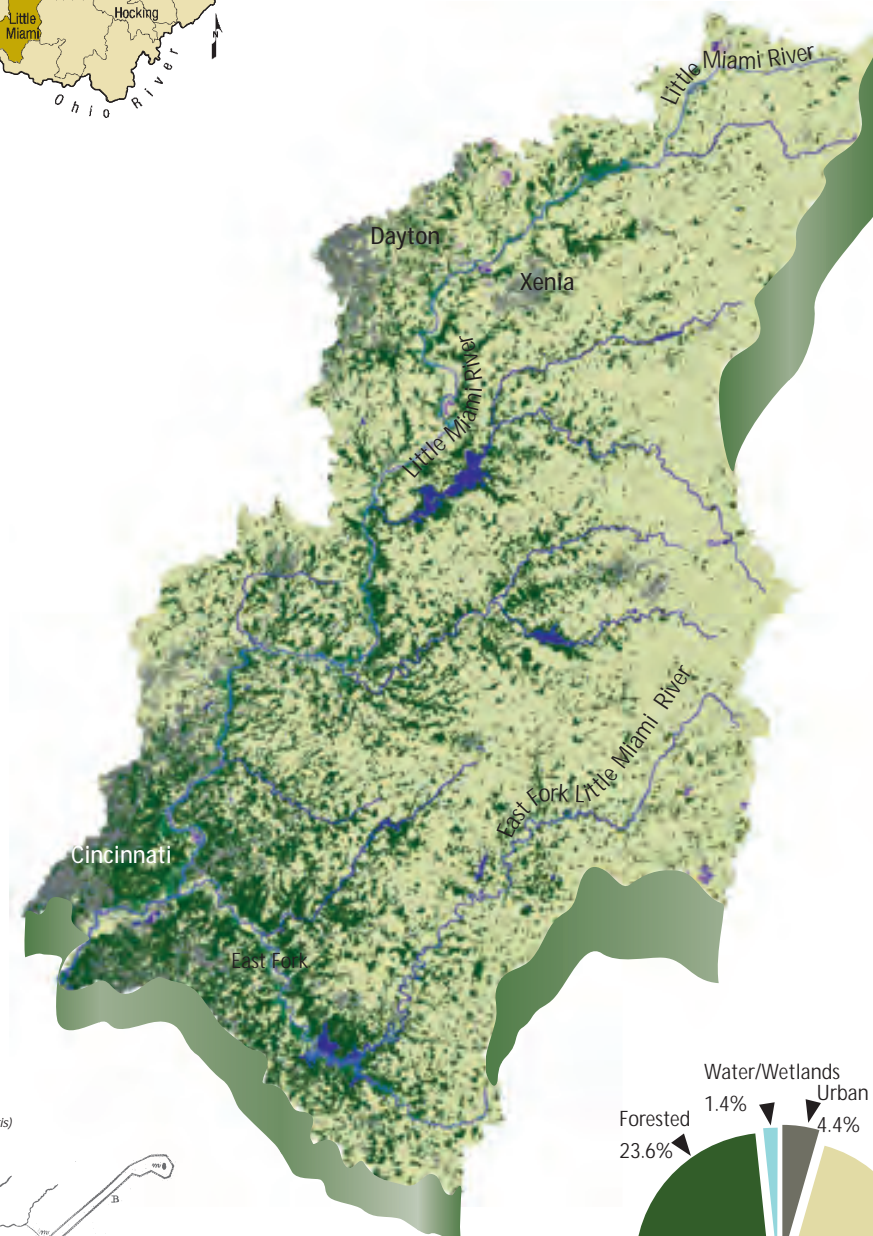
- Average Gradient: 3.9 feet/mile
- Fish Species: 114
- Mussel Species: 37
- Aquatic Macroinvertebrate Taxa: 297
- Scenic River Designations (miles)
 - Scenic River:
 - Stillwater River & Greenville Creek: 83
 - Recreational River:
 - Stillwater River: 10
- Stream Flow (cfs)
 - Maximum: 352,000
 - Average: 3,367
 - Minimum: 155
- Dams: 15
- Aquatic Life Use Designations (miles)
 - Warmwater Habitat: 170.3



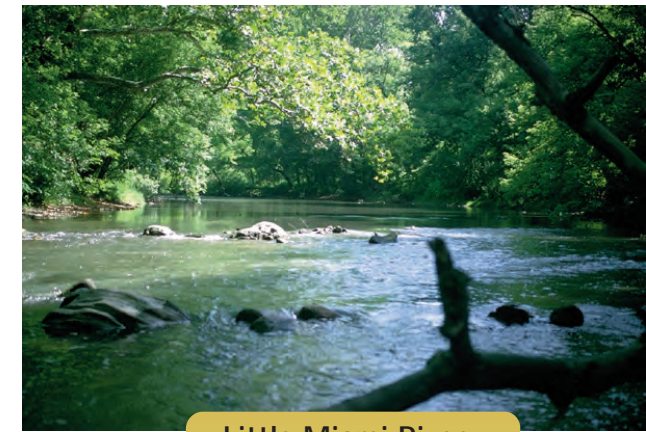
Little Miami River

State and National Scenic River

The Shawanoese called it Che,ke,me,a,mee,sepe “the Little Miami River.” Ohio’s first State and National Scenic River is our longest reach of Exceptional Warmwater Habitat. Endangered stream species, a high biological diversity, and one of Ohio’s oldest river groups are but a few of the many attributes of the Little Miami River watershed. Originating near South Charleston, the river flows in a southwesterly direction to its confluence with the Ohio River east of Cincinnati. With great sport fishing, beautiful scenery, canoe liveries, parks, and trails it is easy to understand why the Little Miami River is a popular recreational retreat for many Ohioans.



View of the upper Little Miami River upstream from Xenia (Greene County, Ohio).

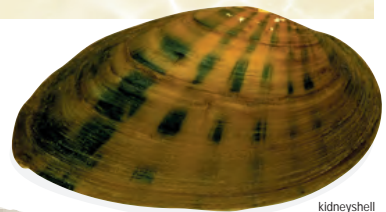


Cascade at Clifton, Greene County, Ohio (Henry Howe 1846).

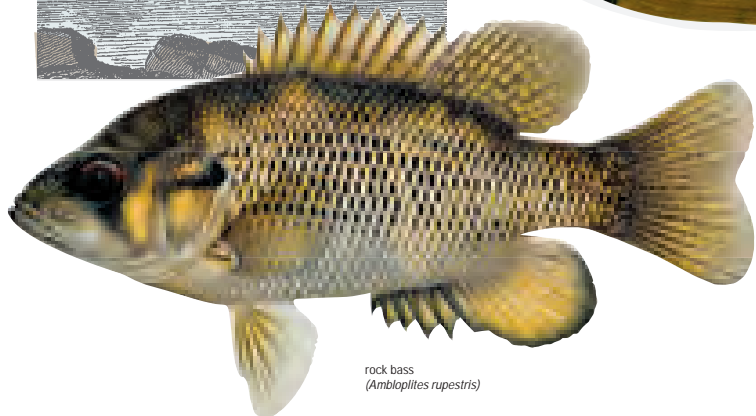


Principal Streams

Stream Name	Length (miles)	Drainage Area (sq. mi.)
Little Miami River	105.5	1755
East Fork	81.7	501
Todd Fork	35.0	261
Caesar Creek	33.9	239
Anderson Fork	28.3	93
Massie Creek	9.5	87
Stonelick Creek	22.9	78



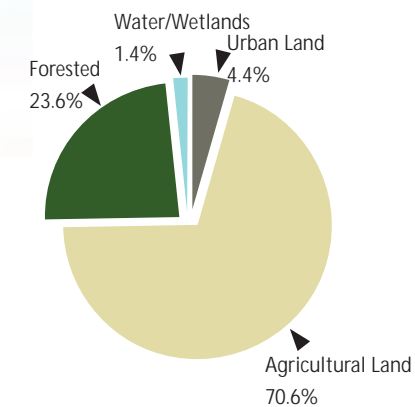
kidneyshell (*Ptychobranchus fasciolaris*)



rock bass (*Ambloplites rupestris*)



Fort Ancient (Warren County, Ohio).



Little Miami River

Watershed Facts

- Named Streams: 141
- Endangered Stream Species: 12
- Clean Water Act Goals (miles)
 - Meeting: 118 (48.4%)
 - Partially Meeting: 77 (31.6%)
 - Not Meeting: 49 (20.0%)
- Population Estimate
 - Total: 610,777
 - People/Square Mile: 348

Mainstem Facts

- Average Gradient: 6.5 feet/ mile
- Fish Species: 106
- Mussel Species: 44
- Aquatic Macroinvertebrate Taxa: 311
- State Scenic River Designations (miles)
 - Scenic River: 105
- Stream Flow (cfs)
 - Maximum: 84,100
 - Average: 1,280
 - Minimum: 27
- Dams: 2
- Aquatic Life Use Designations (miles)
 - Exceptional Warmwater Habitat: 102.5
 - Warmwater Habitat: 3.0

Scioto River

The Wyandotts named it the “Sci,o,to”, but its meaning is not known. An archeological past that spans more than 10,000 years is evidence of its importance to native Americans. A high biological diversity, high quality tributaries, large State parks and forests, and a diverse array of landforms are but a few of the watershed’s attributes. As it flows south through central Ohio, the mainstem transforms into a large river as it cuts through the edge of Appalachia into the rugged hill country between Chillicothe and Portsmouth. The Scioto River remains important today for its water supplies, recreational opportunities, rich farmland, abundant groundwater, and extensive deposits of sand and gravel. The river south of Columbus is Ohio’s longest free-flowing stream.



Principal Streams

Stream Name	Length (miles)	Drainage Area (sq. mi.)
Scioto River	230.8	6510
Paint Creek	94.7	1143
Big Darby Creek	78.7	557
Big Walnut Creek	74.2	557
Salt Creek	45.4	553
Olentangy River	88.5	536
Deer Creek	67.1	408
Little Walnut Creek	49.8	281
Rattlesnake Creek	42.3	277
Scioto Brush Creek	36.0	273
Little Salt Creek	28.6	247
North Fk. Paint Creek	46.6	236
Alum Creek	55.8	201
Mill Creek	37.8	185
Little Darby	69.1	176
Sunfish Creek	26.5	145
Rocky Fork	27.5	145
Whetstone Creek	35.0	114
S. Fork Scioto Brush	18.2	113
Little Scioto River	27.2	111
M. Fork Salt Creek	21.2	108
Rush Creek	40.1	107

Stream Habitat

Throughout its length, the Scioto River contains a wide diversity of aquatic and riparian habitats. The upper river has been extensively channelized, but the middle and lower reaches contain predominantly natural habitats comprised of alternating series of pools, riffles, and runs. Although its banks are severely eroding in many sections, the river maintains great island habitats, fast deep chutes, numerous snags, and extensive sand and gravel bars.



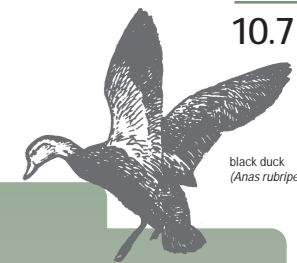
View of the lower Scioto River near Portsmouth (Scioto County, Ohio).



paddlefish (*Polyodon spathula*)



The landing at Portsmouth (Scioto County, Ohio, Henry Howe 1846).



black duck (*Anas rubripes*)

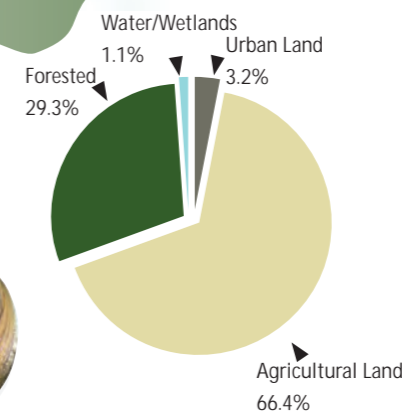
Scioto River

Watershed Facts

- Named Streams: 567
- Endangered Stream Species: 36
- Clean Water Act Goals (miles)
 - Meeting: 863 (71.7%)
 - Partially Meeting: 199 (16.5%)
 - Not Meeting: 142 (11.8%)
- Population Estimate
 - Total: 1,521,367
 - People/Square Mile: 233

Mainstem Facts

- Average Gradient: 2.3 feet/ mile
- Fish Species: 116
- Mussel Species: 67
- Aquatic Macroinvertebrate Taxa: 372
- State Scenic River Designations (miles)
 - Scenic River:
 - Olentangy River: 22
 - Big and Little Darby Creeks: 84
- Stream Flow (cfs)
 - Maximum: 177,000
 - Average: 4,749
 - Minimum: 244
- Dams: 6
- Aquatic Life Use Designations (miles)
 - Warmwater Habitat: 228.1
 - Modified Warmwater Habitat: 2.7



clubshell (*Pleurobema clava*)



Plan of the purchase of the Ohio and Scioto Land Companies in 1787.

Hocking River

Hock,hock,ing “a bottle” and Wea,tha,kagh,qua sepe “bottle river” are two native American words and meanings for the Hocking River. The name came from a waterfall area 6 -7 miles northwest of Lancaster where the stream was narrow and straight above the fall, but wide below and from above - resembled a bottle. Rich coal deposits, rugged wooded hills, canal lands, and abundant wildlife are but a few of the watershed’s attributes. Originating near Lancaster, the Hocking flows southeasterly to the Ohio River at Hockingport. With an abundance of public lands, the watershed provides Ohioans many recreational opportunities such as great stream fishing, canoeing, hiking, wildlife viewing, and hunting.



Mainstreet view of Lancaster in 1886 (Fairfield County, Ohio, Henry Howe).

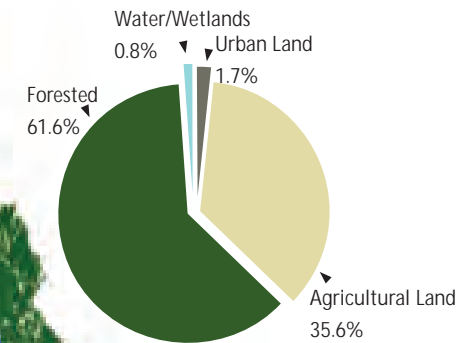
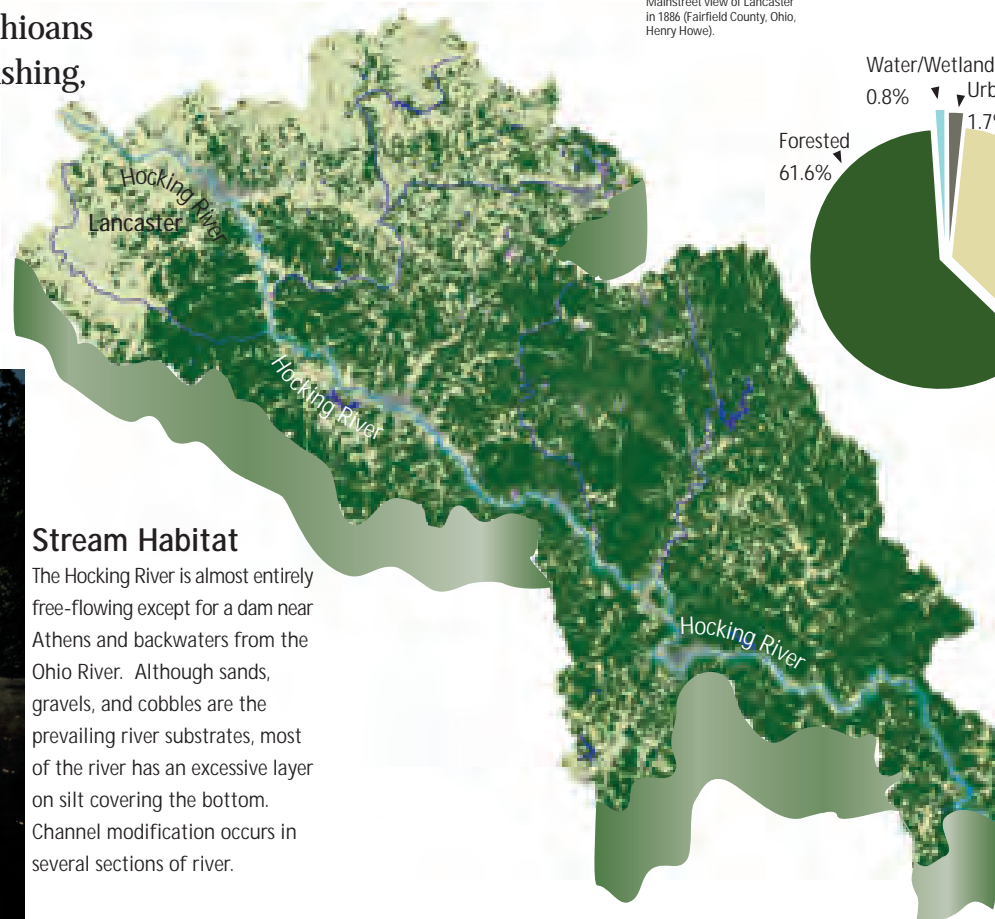
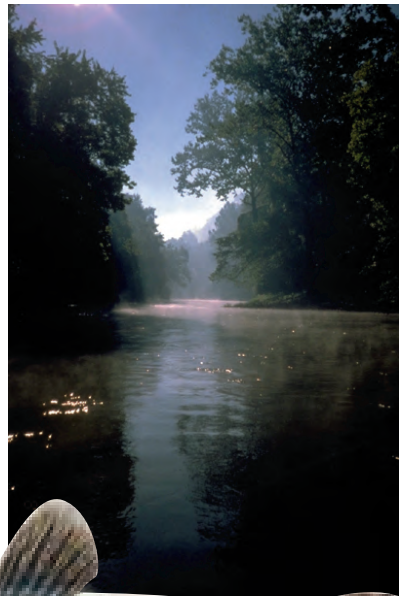


pink papershell (Potamilius ohioensis)

Principal Streams

Stream Name	Length (miles)	Drainage Area (sq. mi.)
Hocking River	94.9	1200
Rush Creek	37.2	236
Federal Creek	23.8	145
Sunday Creek	27.2	139
Monday Creek	27.0	116
Little Rush Creek	18.0	98
Clear Creek	23.0	91

View of the Hocking River downstream from Logan



Stream Habitat

The Hocking River is almost entirely free-flowing except for a dam near Athens and backwaters from the Ohio River. Although sands, gravels, and cobbles are the prevailing river substrates, most of the river has an excessive layer on silt covering the bottom. Channel modification occurs in several sections of river.

Hocking River

Watershed Facts

- Named Streams: 122
- Endangered Stream Species: 3
- Clean Water Act Goals (miles)
 - Meeting: 160 (56.1%)
 - Partially Meeting: 49 (17.2%)
 - Not Meeting: 76 (26.7%)
- Population Estimate
 - Total: 153,314
 - People/Square Mile: 128

Mainstem Facts

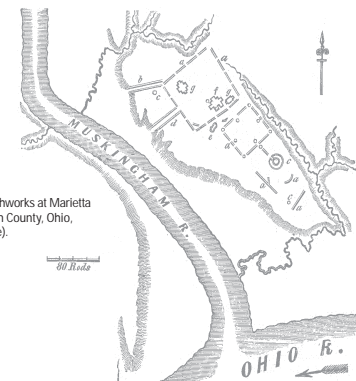
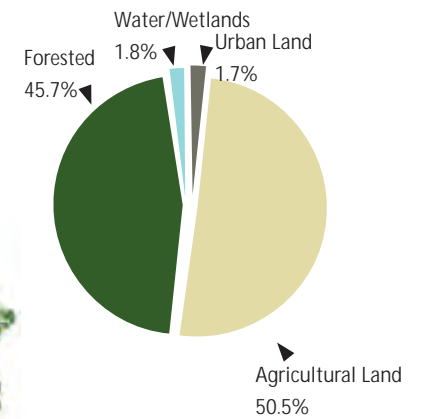
- Average Gradient: 4.6 feet/ mile
- Fish Species: 97
- Mussel Species: 27
- Aquatic Macroinvertebrate Taxa: 266
- State Scenic River Designations (miles)
 - none
- Stream Flow (cfs)
 - Maximum: 50,000
 - Average: 1,023
 - Minimum: 10
- Dams: 4
- Aquatic Life Use Designations (miles)
 - Warmwater Habitat: 89.0
 - Modified Warmwater Habitat: 5.9

flathead catfish (Pylodictis olivaris)



Muskingum River

Da,righ,quay “a town or place of residence”, Mus,king,um and Wa,ka,ta,mo “a town on the river side”, and Mus,king,um “the glare of an elk’s eye” are all reported native American words and meanings for the Muskingum River. And with ancient earthworks, the Legend of Duncan Falls, the shell button industry, the Y bridge, the Muskingum River Parkway, and large public lands, Ohio's largest inland watershed is rich with history, tradition, and public recreation. Originating at the confluence of the Walhonding and Tuscarawas rivers in Coshocton, the Muskingum flows south into the Ohio River at Marietta. The Muskingum River has an outstanding sport fishery - especially for spotted bass and huge flatheads.



Ancient earthworks at Marietta (Washington County, Ohio, Henry Howe).

Principal Streams

Stream Name	Length (miles)	Drainage Area (sq. mi.)
Muskingum River	111.9	8038
Tuscarawas River	129.9	2590
Walhonding River	23.5	2252
Mohican River	64.2	999
Wills Creek	92.2	853
Licking River	67.5	781
Killbuck Creek	81.7	613
Sandy Creek	41.3	503
Stillwater Creek	63.5	485
Kokosing River	57.2	482
Sugar Creek	45.0	356
Black Fork	58.4	351
Lake Fork	14.7	344
Moxahala Creek	29.2	301
S. Fork Licking River	33.9	288
Conotton Creek	38.7	286
N. Fork Licking River	38.4	239
Wakatomika Creek	42.6	234
Wolf Creek	47.4	231
Clear Fork	36.6	219
Jonathan Creek	26.1	193
Chippewa Creek	26.7	188
Nimishillen	24.5	187
Salt Fork	32.0	161
Jerome Fork	24.5	159
Seneca Fork	30.3	151

Stream Habitat

As the result of canalization that began in 1832, most of Muskingum river is impounded by a series of 10 dams and locks. Although most of the river is pooled, its upper reach and tailwater areas provide more diverse habitats characteristic of large streams.



View of the Muskingum River and Philo Dam at Duncan Falls (Muskingum County, Ohio).



spotted bass (*Micropterus punctulatus*)



fanshell (*Cyprogenia stegaria*)

The Muskingum River contains some of the largest and most diverse mussel beds in Ohio (Photo by Tim Daniel, ODNR, Division of Wildlife).

Fort Harmar (1786) was the second military post erected by Americans in Ohio (Washington County, Ohio, Henry Howe).



View of the falls on Muskingum River at Eaglesport (Morgan County, Ohio, Henry Howe).



Muskingum River

Watershed Facts

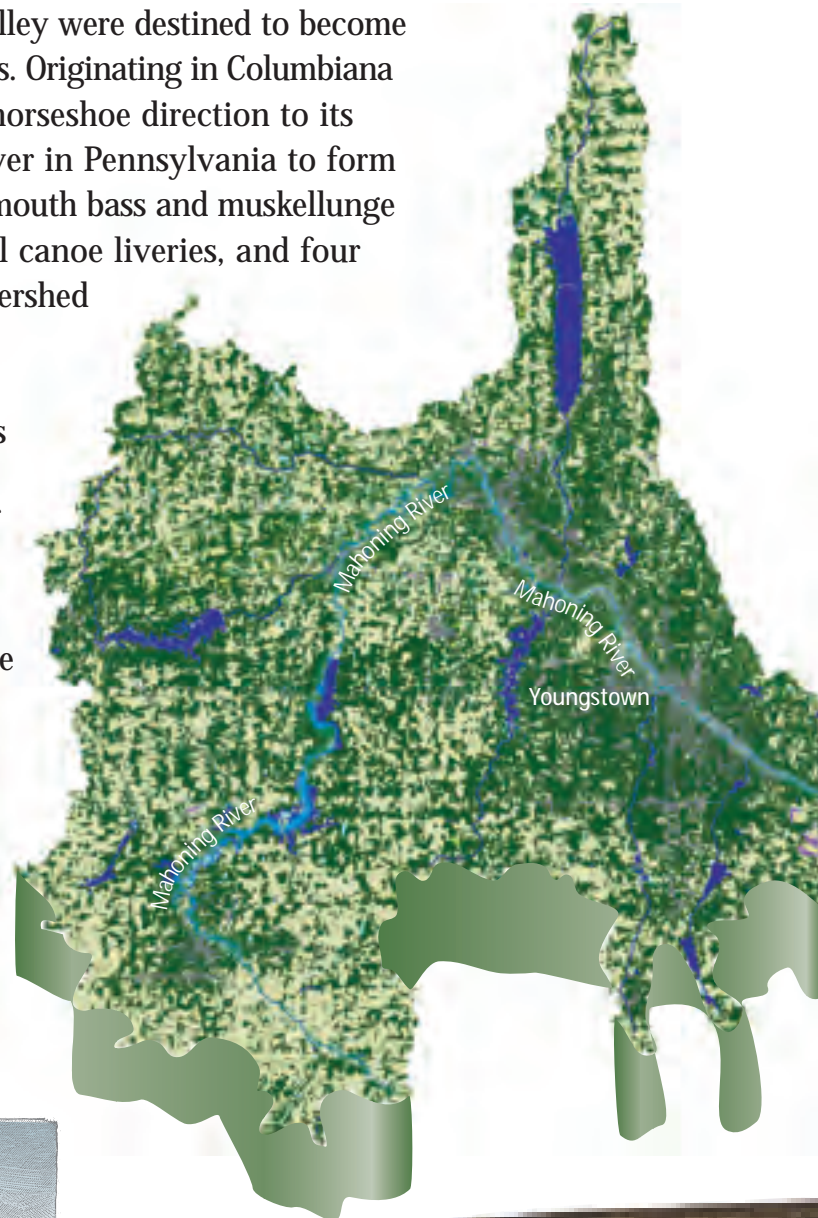
- Named Streams: 675
- Endangered Stream Species: 31
- Clean Water Act Goals (miles)
 - Meeting: 441 (56.9%)
 - Partially Meeting: 150 (19.4%)
 - Not Meeting: 184 (23.7%)
- Population Estimate
 - Total: 1,392,980
 - People/Square Mile: 173

Mainstem Facts

- Average Gradient: 1.3 feet/ mile
- Fish Species: 108
- Mussel Species: 67
- Aquatic Macroinvertebrate Taxa: 202
- State Scenic River Designations (miles)
 - Scenic River:
 - Kokosing River: 48
- Stream Flow (cfs)
 - Maximum: 270,000
 - Average: 7,646
 - Minimum: 325
- Dams: 10
- Aquatic Life Use Designations (miles)
 - Warmwater Habitat: 111.9

Mahoning River

Mahoni “a lick” and Mahonink “at the lick” are two native American words and meanings from which the name was derived. Located halfway between Cleveland and Pittsburgh with abundant coal and iron ore deposits and good railroads, Youngstown and the Mahoning valley were destined to become one of Ohio’s leading steel producers. Originating in Columbiana County, the mainstem flows in a horseshoe direction to its confluence with the Shenango River in Pennsylvania to form the Beaver River. With good smallmouth bass and muskellunge fishing in upper mainstem, several canoe liveries, and four large state park reservoirs, the watershed offers a diversity of recreational opportunities. Although the water quality of the Mahoning River has improved, the protection of headwater habitat and removal of contaminated sediments and lowhead dams remain challenges for future restoration efforts for the



A headwater view of the Mahoning River (Columbiana County, Ohio).

Stream Habitat

A substantial length of the Mahoning River in Ohio is impounded by two large reservoirs and 12 lowhead dams. Free-flowing sections, however, have diverse habitats comprised of deep pools interspersed by riffles and runs. Typical of glaciated watersheds, most riffle-run complexes have swift flows over a mixture of sand, gravel, cobble, and boulder substrates. Streamside forests are present along much of the river’s length - even in urban areas.



Youngstown was the first settlement in the Western Reserve (Mahoning County, Ohio, Henry Howe, 1846).

Mahoning River

Watershed Facts

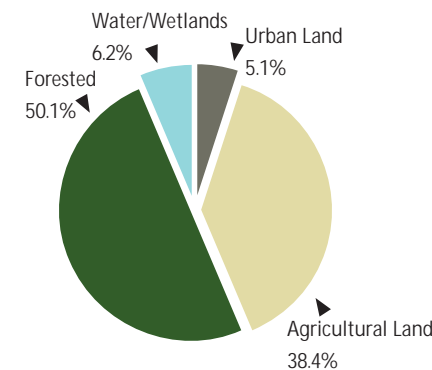
- Named Streams: 66
- Endangered Stream Species: 5
- Clean Water Act Goals (miles)
 - Meeting: 32 (25.2%)
 - Partially Meeting: 11 (8.7%)
 - Not Meeting: 84 (66.1%)
- Population Estimate
 - Total: 514,219
 - People/Square Mile: 478

Mainstem Facts

- Average Gradient: 4.0 feet/ mile
- Fish Species: 72
- Mussel Species: 14
- Aquatic Macroinvertebrate Taxa: 200
- State Scenic River Designations (miles): none
- Stream Flow (cfs)
 - Maximum: 21,000
 - Average: 1,129
 - Minimum: 155
- Dams: 15
- Aquatic Life Use Designations (miles)
 - Warmwater Habitat: 97.1

Principal Streams

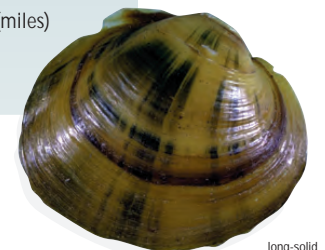
Stream Name	Length (miles)	Drainage Area (sq. mi.)
Mahoning River (in OH)	97.1	1075
Mosquito Creek	33.7	139
West Branch	29.2	109
Eagle Creek	21.5	109



In the summer of 1890, Youngstown extended the city limits to include the Brier Hill Furnaces which were erected by Governor Tod. They had what was called a wash-metal plant where pig-iron was resmelted (Mahoning County, Ohio, Henry Howe).



muskellunge (Esox masquinongy)



long-solid (Fusconata maculata)