

CHAPTER 1

GENERAL REFERENCE



Sand bar in Ottawa County

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Ohio's 312-mile Lake Erie coast is exciting and diverse. An extensive collection of picturesque natural landscapes, vibrant downtown waterfronts, busy recreational harbors, celebrated cultural landmarks and timeless lighthouses can be discovered along Ohio's Great Lake coast. Lake Erie boasts many seasonal and year-round attractions, including sandy beaches, tranquil nature preserves, popular fishing spots, lively marinas, summertime resorts and island retreats. From birdwatching, beachcombing and enjoying the sunset, to swimming, fishing, boating and paddling, Lake Erie offers a range of activities for all age groups and interests.

Lake Erie is the warmest and most biologically-productive of the Great Lakes. It is unmatched as a sport-fishing destination, with more fish caught each year in Lake Erie than the other four Great Lakes combined. The Western Basin of Lake Erie is one of the most productive natural spawning and nursery areas on the Great Lakes. Sport fishing in Ohio is a \$2.9 billion industry and is important to local, state and national economies. Anglers visiting the Lake Erie region spend around \$2 billion annually. The lake's charter boat industry is the largest in North America and accounts for 40 percent of all Great Lakes charter boats.

The Lake Erie Watershed is the most urbanized of the five Great Lake watersheds and has the highest population density. Approximately 12 million people live in the Lake Erie Watershed, or 33 percent of the entire Great Lakes population. Lake Erie supplies fresh water to more than 11 million people, including three million Ohioans.

The Lake Erie region is an integral part of the lives of many Ohioans. Lake Erie and its countless natural resources contribute to the quality of life and economic vitality of the coastal region. Lakefront communities in Ohio's eight coastal counties (Ashtabula, Cuyahoga, Erie, Lake, Lorain, Lucas, Ottawa and Sandusky) take advantage of coastal resources, bringing new life and energy to local economies. The redevelopment of waterfront brownfields and the creation of new lakeside parks, trails and attractions help connect people and events to the lake and support economic growth. Communities also actively protect open space, natural habitat and water quality.

Lake Erie faces many challenges and threats, such as the introduction of invasive species and the spread of toxic algae blooms. Algae are naturally occurring organisms in freshwater ecosystems and are an important food source in the aquatic food chain. Common groups of freshwater algae, or cyanobacteria, include diatoms, green algae and blue-green algae. Cyanobacteria can release toxins (cyanotoxins)—a product of harmful algal blooms—which can threaten drinking water, recreational activities and human health. Toxic algae blooms are most prevalent in the warmer and shallower Western Basin. Phosphorus runoff from non-point pollution sources, e.g. agricultural lands, is a major contributor to Lake Erie's annual algae growth. Pollutants that enter Lake Erie from an identifiable source, such as a combined sewer overflow, is called "point source pollution." These pollutants can also lead to the growth of harmful algal blooms as well as pose other health hazards, such as higher *E. coli* bacteria levels.

Invasive species are non-native plants and animals that enter an ecosystem—outside of their original habitat—and cause harm to a region's environment and economy. Invasive species disrupt the natural food chain, overpower native species, affect fisheries and recreational activities, and can be hazardous to human health. The Lake Erie and Great Lakes ecosystems have been significantly altered due to the introduction of non-native species (see map on page 158).

Comprehensive coastal stewardship efforts can be best organized by understanding how human activities and economic factors interact with the natural environment. The *Ohio Coastal Atlas, Third Edition* is an educational and informational resource designed to illustrate the many cultural, physical and natural resources in the Lake Erie Basin and establish an understanding of various coastal issues. It is intended to provide useful information about Lake Erie and its watershed to coastal decision-makers, elected officials, resource managers, planners, engineers, educators, researchers, conservation and watershed groups, non-governmental organizations, tourists and residents.

The *Ohio Coastal Atlas* is a collaborative effort among many partnering organizations and brings many different and diverse disciplines together into a user-friendly format. Data and contact sources are included to help facilitate open dialogue and spatial data exchanges with partnering agencies (see Appendix, page 250). The *Third Edition* is a fully-updated publication that expands upon the information presented in the previous edition (*Second Edition*, 2007). It includes new and revised chapters, introduces new topics, features all new maps and incorporates new and updated spatial datasets.



Downtown Cleveland, Cuyahoga County



Geneva State Park, Geneva-on-the-Lake, Ashtabula County



Century Park, Lorain, Lorain County

OHIO COASTAL ATLAS OVERVIEW

In this chapter, coastal county information, population statistics and employment numbers are highlighted. This chapter also provides reference maps to help locate counties, municipalities, townships and quadrangles in northern Ohio. Additional chapter contents include maps and information about the U.S. Coastal Zone Management Program, the Ohio Coastal Management Program and Ohio's designated coastal area.

Chapter 2: Lake Erie Watershed focuses on Lake Erie's bathymetric and physical features and the hydrography of the Lake Erie Watershed. Lake Erie is part of the Great Lakes system, the world's largest interconnected system of fresh water. The Great Lakes border eight U.S. states and one Canadian province. This chapter explains how Lake Erie fits within the Great Lakes Basin and how it is connected to the Atlantic Ocean. Chapter maps feature Lake Erie bathymetry, the Lake Erie Watershed, hydrologic unit codes, hydrography, land cover and Great Lakes Areas of Concern.

Lake Erie has played an important role in the movement and settlement of people. **Chapter 3: History** provides information about Native American history, European exploration, conflict and American expansion. Over 160 historic, environmental, societal and cultural events are listed in the Lake Erie Timeline (pages 62-67). Additional chapter maps highlight natural vegetation, Native American trails, the Underground Railroad, original land subdivisions, Ohio's canals, Lake Erie shipwrecks and historic transportation routes.

Chapter 4: Transportation and Shipping highlights major transportation corridors in the coastal area, including maritime transportation, and touches upon waterborne commerce, freight commodities, dredging and port statistics.

Ohio's Lake Erie shore boasts many year-round and seasonal recreational attractions and activities, including swimming, boating, paddling, fishing and wildlife viewing, among many others. **Chapter 5: Outdoor Recreation** shows Ohio's Lake Erie public access and recreation sites, including parks, nature preserves, wildlife areas, boat ramps and scenic overlooks. Additional recreational resources, such as trails, motorized watercraft access sites (docks, ramps and marinas), paddling access and prominent birding sites, are also highlighted in this chapter.

Lake Erie and its surrounding wetlands, shore areas, marshes, estuaries, grasslands and forests provide essential habitat for a variety of avian, aquatic and terrestrial species. **Chapter 6: Ecosystem and Habitat** explores these environments and provides detailed information on lake science, ecological regions, protected lands, Lake Erie environmental zones, the National Wetlands Inventory, Important Bird Areas and aquatic invasive species. Additional chapter maps show fish habitat and sport fishery harvest of walleye and yellow perch.

Lake Erie is a dynamic body of water. Waves, water and gravity continually reshape the coast. **Chapter 7: Coastal Processes** focuses on coastal erosion, lake circulation, sediment transport, lakebed substrates, shore structures and bluff composition.

Chapter 8: Soils is the first of three chapters to examine the physical geography and geology of the Lake Erie Watershed. Soils are a natural mixture of unconsolidated minerals and organic matter that occur on the land surface. Soils provide the setting for plant growth, regulate water, filter potential pollutants and cycle nutrients. This chapter maps and examines soil order, prime farmland, drainage class, hydric soils and soil groups, among other topics.

The Lake Erie Basin was carved out during several glacial advances and retreats in the Pleistocene Epoch. Many ancestral lakes with fluctuating geographic extents, lake levels and drainage outlets predated modern Lake Erie. The earliest lake to form was Lake Maumee about 14,000 years ago. **Chapter 9: Geology** provides a comprehensive overview of how Lake Erie formed and how glaciers also molded northern Ohio's landscape. Chapter maps highlight bedrock and glacial geology, drift thickness, karst geology, oil and gas fields and mineral industries.

Water resources include surficial and underground sources that are useful or potentially useful for agricultural, industrial, environmental, recreational and household activities. Nearly all water demands require fresh water. More than 11 million people, including three million Ohioans, rely on Lake Erie for daily potable water. Additionally, more than 4.5 million people in Ohio depend on groundwater to meet daily water needs. **Chapter 10: Water Resources** primarily discusses groundwater resources in northern Ohio. Chapter maps highlight aquifer yields, net recharge, potentiometric surfaces and groundwater pollution potential, among other topics.

Learn more about the information presented in this chapter:

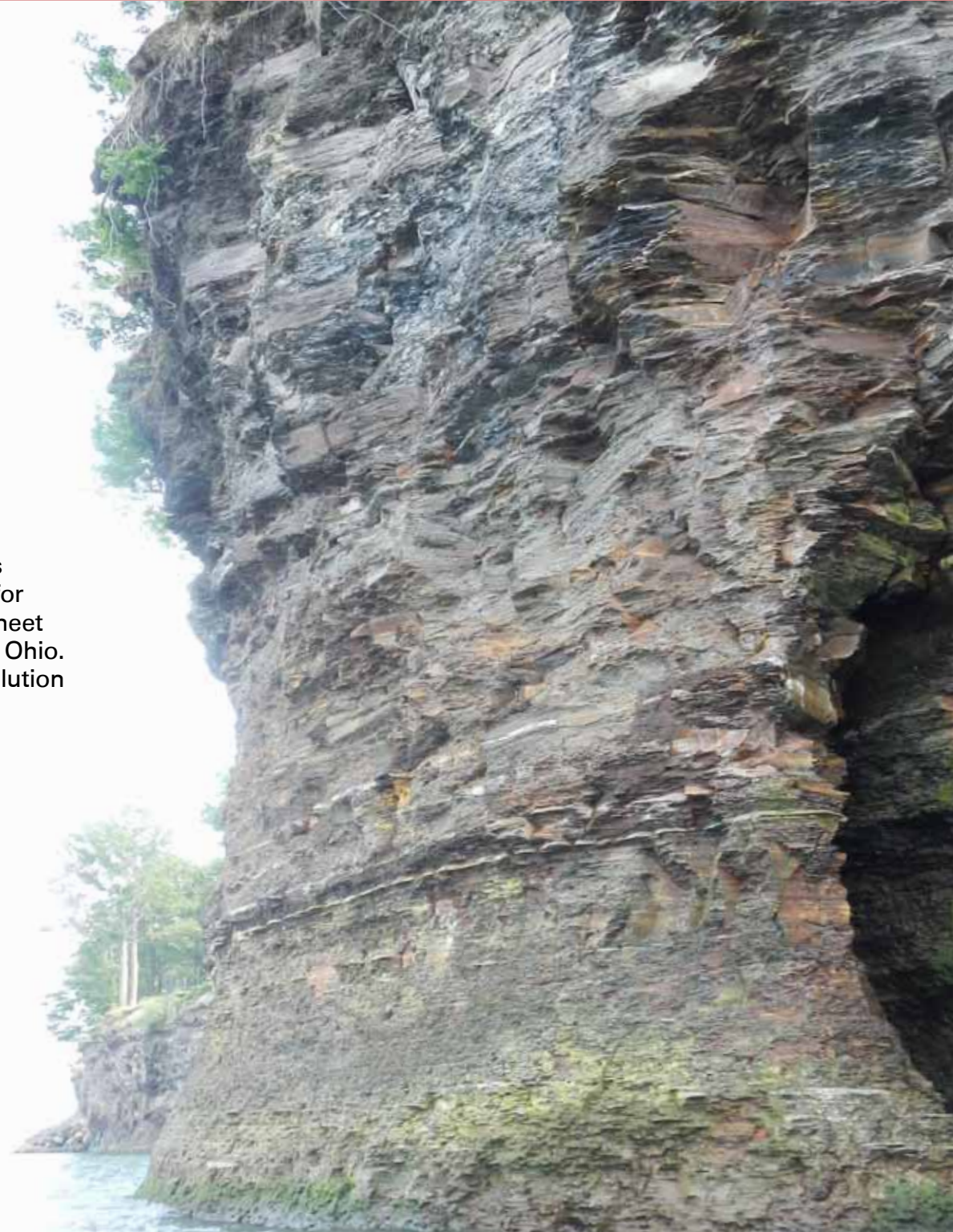
National Oceanic and Atmospheric Administration,
Office for Coastal Management
coast.noaa.gov

Ohio Department of Natural Resources, Office of Coastal Management
coastal.ohiodnr.gov

Ohio Development Services Agency, Ohio County Profiles
development.ohio.gov

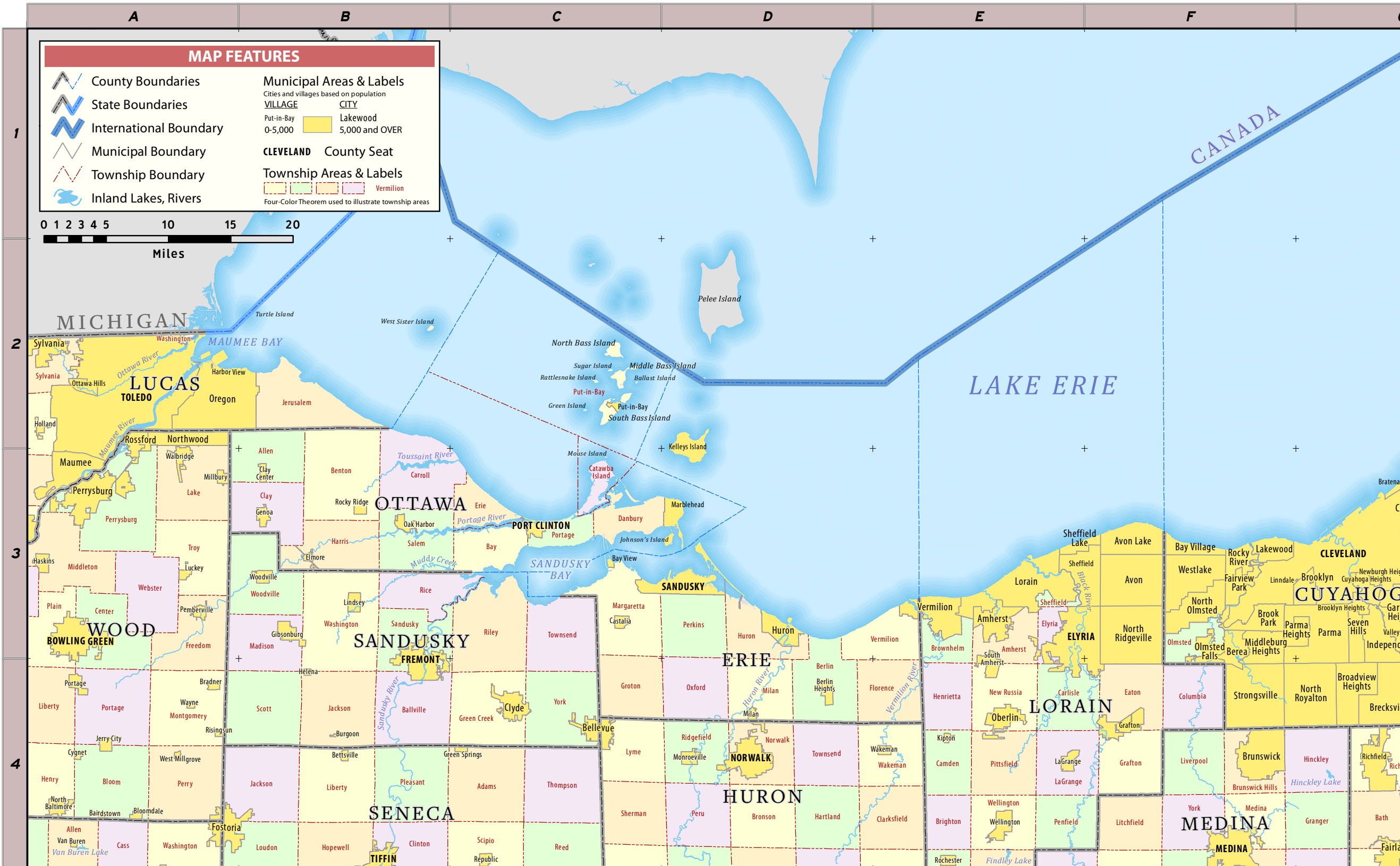
U.S. Census Bureau
www.census.gov

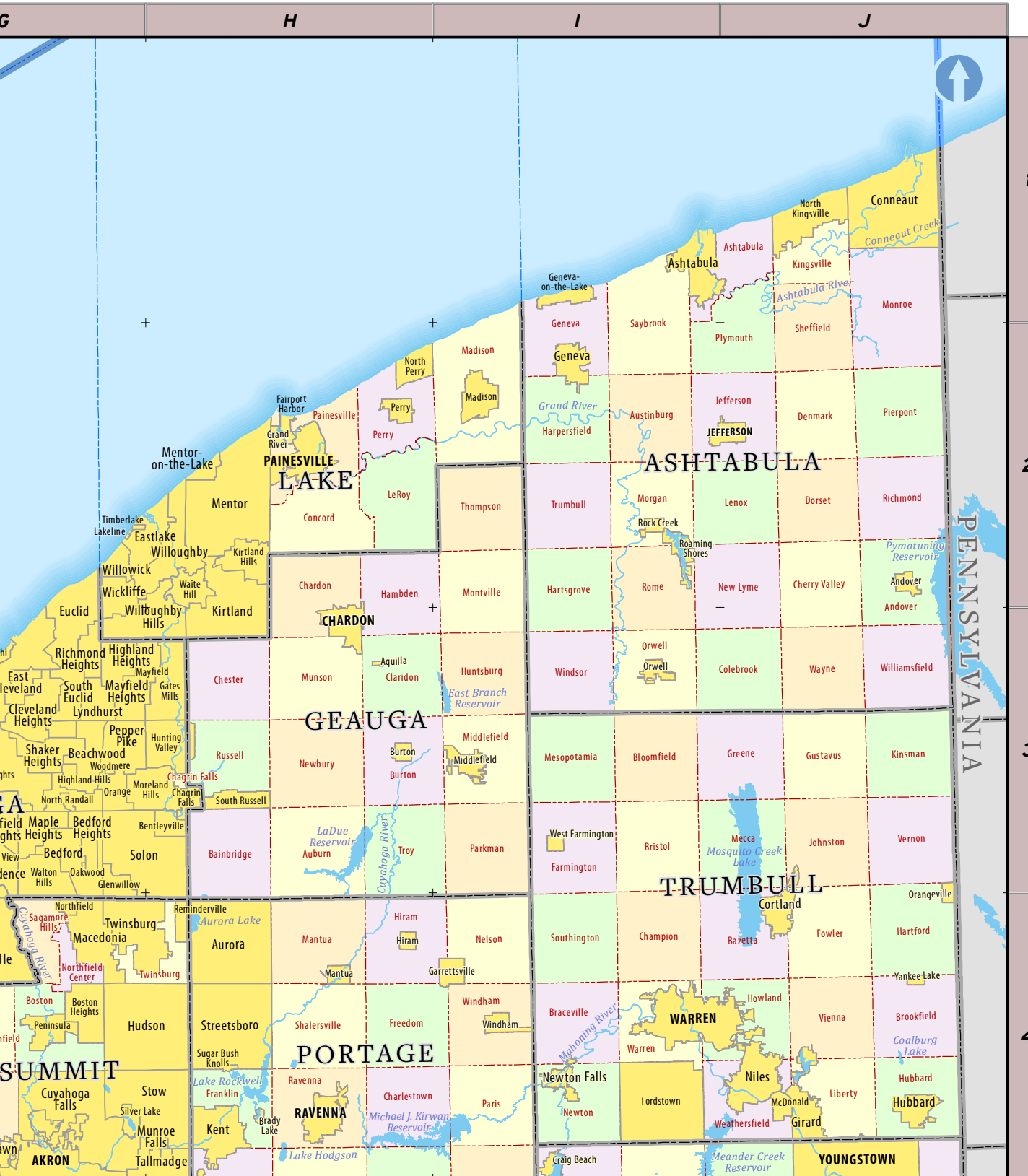
A complete list of chapter sources is found in the Appendix.



Shale bluff in Avon Lake, Lorain County

REFERENCE MAP





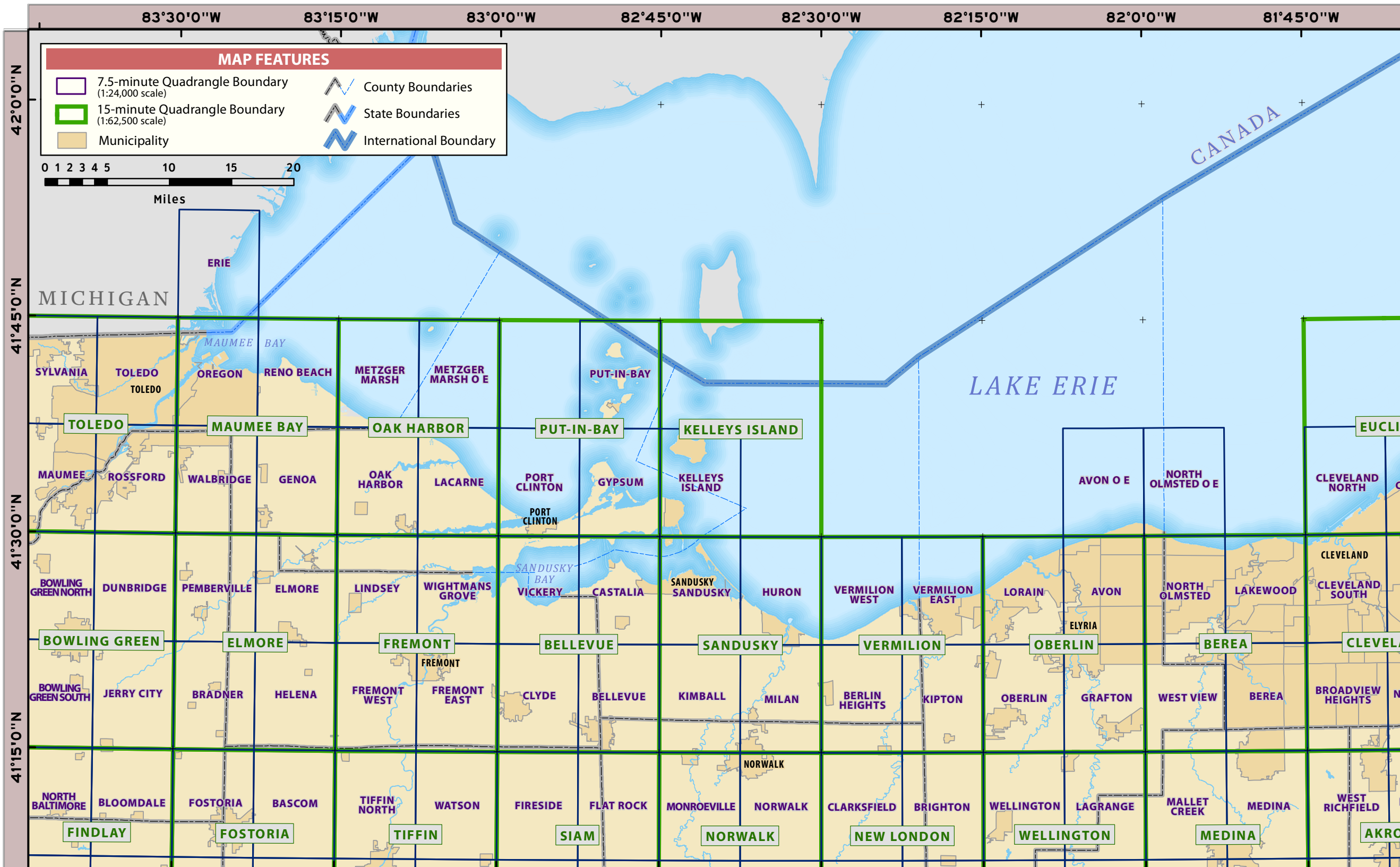
MUNICIPALITY GRID

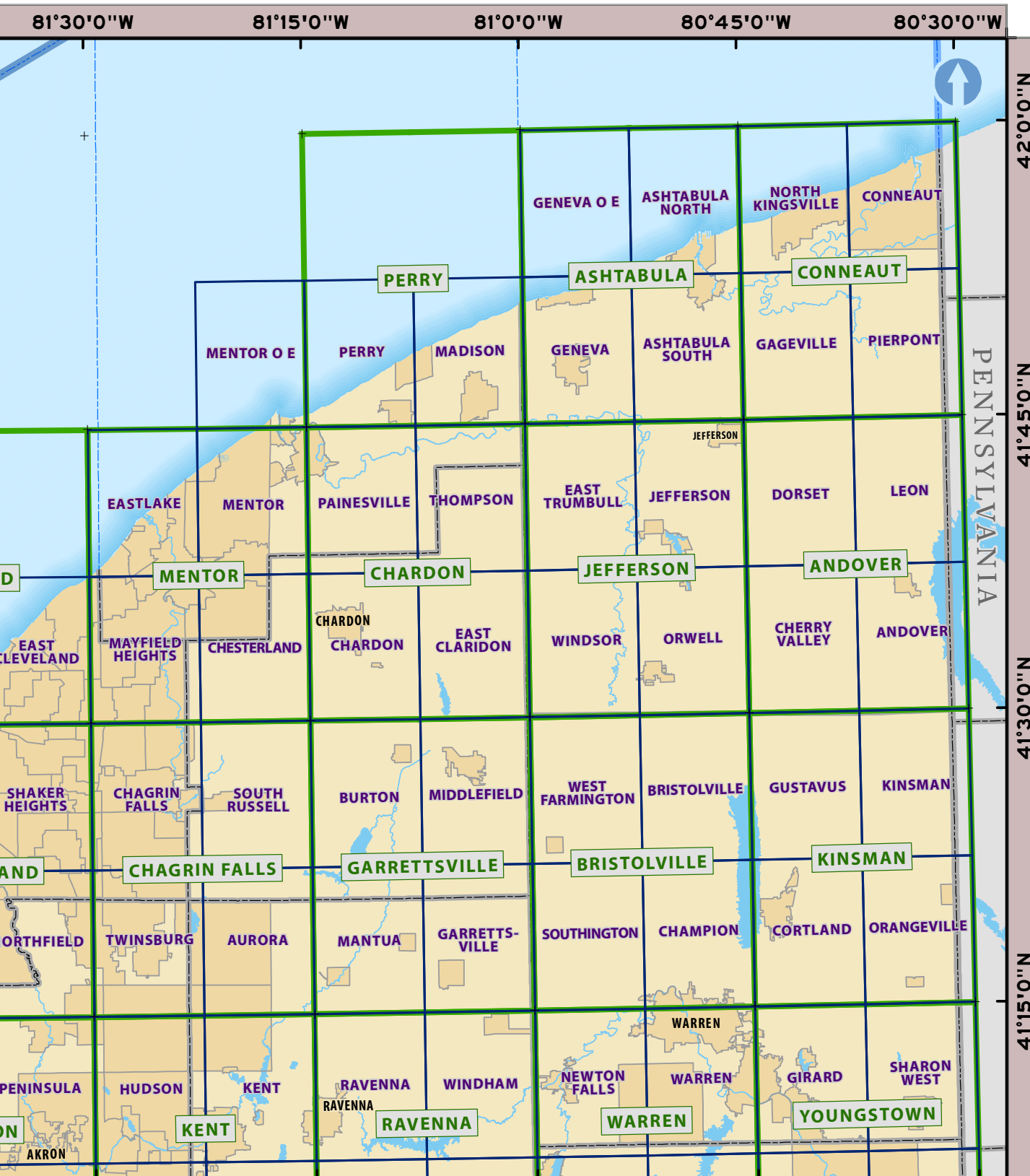
Akron.....	G4	Kirtland.....	H3	South Euclid.....	G3
Amherst.....	E3	Kirtland Hills.....	H2	South Russell.....	H3
Andover.....	J2	LaGrange.....	E4	Stow.....	H4
Aquilla.....	H3	Lakeline.....	G2	Streetsboro.....	H4
Ashtabula.....	I1	Lakewood.....	F3	Strongsville.....	F4
Aurora.....	H4	Lindsey.....	B3	Sugar Bush Knolls.....	H4
Avon.....	F3	Linndale.....	F3	Sylvania.....	A2
Avon Lake.....	F3	Lorain.....	E3	Tallmadge.....	H4
Bairdstown.....	A4	Lordstown.....	I4	Tiffin.....	B4
Bay View.....	C3	Luckey.....	A3	Timberlake.....	G2
Bay Village.....	F3	Lyndhurst.....	G3	Toledo.....	A2
Beachwood.....	G3	Macedonia.....	G4	Twinsburg.....	G4
Bedford.....	G3	Madison.....	I2	Valley View.....	G3
Bedford Heights.....	G3	Mantua.....	H4	Van Buren.....	A4
Belleveue.....	C4	Maple Heights.....	G3	Vermilion.....	E3
Bentleyville.....	H3	Marblehead.....	D3	Waite Hill.....	H2
Berea.....	F3	Maumee.....	A3	Wakeman.....	E4
Berlin Heights.....	D4	Mayfield.....	H3	Walbridge.....	A3
Bettsville.....	B4	Mayfield Heights.....	G3	Walton Hills.....	G3
Bloomdale.....	A4	McDonald.....	J4	Warren.....	I4
Boston Heights.....	G4	Medina.....	F4	Wayne.....	A4
Bowling Green.....	A3	Mentor.....	H2	Wellington.....	E4
Bradner.....	A4	Mentor-on-the-Lake.....	H2	West Farmington.....	I3
Brady Lake.....	H4	Middleburg Heights.....	F3	Willowick.....	G2
Bratenahl.....	G3	Middlefield.....	I3	Windham.....	H4
Broadview Heights.....	G4	Milan.....	D4	Woodmere.....	G3
Brook Park.....	F3	Millbury.....	A3	Woodville.....	B3
Brooklyn.....	G3	Monroeville.....	D4	Yankee Lake.....	J4
Burgoon.....	B4	Moreland Hills.....	H3	Youngstown.....	J4
Burton.....	H3	Munroe Falls.....	H4		
Brunswick.....	F4	Newburgh Heights.....	G3		
Castalia.....	C3	Newton Falls.....	I4		
Chagrin Falls.....	H3	Niles.....	J4		
Chardon.....	H3	North Baltimore.....	A4		
Clay Center.....	B3	North Kingsville.....	J1		
Cleveland.....	G3	North Olmsted.....	F3		
Cleveland Heights.....	G3	North Perry.....	H2		
Clyde.....	C4	North Randall.....	G3		
Conneaut.....	J1	North Ridgeville.....	F3		
Cortland.....	J4	North Royalton.....	G4		
Craig Beach.....	I4	Northfield.....	G4		
Cuyahoga Falls.....	G4	Northwood.....	A2		
Cuyahoga Heights.....	G3	Norwalk.....	D4		
Cygnat.....	A4	Oak Harbor.....	B3		
East Cleveland.....	G3	Oakwood.....	G3		
Eastlake.....	H2	Oberlin.....	E4		
Elmore.....	B3	Olmsted Falls.....	F3		
Elyria.....	E3	Orange.....	G3		
Euclid.....	G3	Oregonville.....	J4		
Fairlawn.....	G4	Oregon.....	A2		
Fairport Harbor.....	H2	Orwell.....	I3		
Fairview Park.....	F3	Ottawa Hills.....	A2		
Fostoria.....	A4	Painesville.....	H2		
Fremont.....	B4	Parma.....	G3		
Garfield Heights.....	G3	Parma Heights.....	G3		
Garrettsville.....	I4	Pemberville.....	A3		
Gates Mills.....	H3	Peninsula.....	G4		
Geneva.....	I2	Pepper Pike.....	G3		
Geneva-on-the-Lake.....	I1	Perry.....	H2		
Genoa.....	B3	Perrysburg.....	A3		
Gibsonburg.....	B3	Port Clinton.....	C3		
Girard.....	J4	Portage.....	A4		
Glenwillow.....	G3	Put-in-Bay.....	C2		
Grafton.....	F4	Ravenna.....	H4		
Grand River.....	H2	Reminderville.....	H4		
Green Springs.....	C4	Republic.....	C4		
Harbor View.....	A2	Richfield.....	G4		
Haskins.....	A3	Richmond Heights.....	G3		
Helena.....	B4	Risingsun.....	A4		
Highland Heights.....	G3	Roaming Shores.....	I2		
Highland Hills.....	G3	Rochester.....	E4		
Hiram.....	H4	Rock Creek.....	I2		
Holland.....	A2	Rocky Ridge.....	B3		
Hubbard.....	J4	Rocky River.....	F3		
Hudson.....	H4	Rossford.....	A2		
Hunting Valley.....	H3	Sandusky.....	D3		
Huron.....	D3	Seven Hills.....	G3		
Independence.....	G3	Shaker Heights.....	G3		
Jefferson.....	J2	Sheffield.....	E3		
Jerry City.....	A4	Sheffield Lake.....	E3		
Kelleys Island.....	D2	Silver Lake.....	G4		
Kent.....	H4	Solon.....	G3		
Kipton.....	E4	South Amherst.....	E3		

TOWNSHIP GRID

Adams.....	C4	Erie.....	C3	Plain.....	A3
Allen (Hancock).....	A4	Farmington.....	I3	Pleasant.....	B4
Allen (Ottawa).....	B3	Florence.....	E4	Plymouth.....	J2
Amherst.....	E3	Fowlerville.....	H4	Portage (Ottawa).....	C3
Andover.....	J2	Franklin.....	H4	Portage (Wood).....	A4
Ashtabula.....	J1	Freedom (Portage).....	H4	Put-in-Bay.....	C2
Auburn.....	H3	Freedom (Wood).....	A3	Ravenna.....	H4
Austinburg.....	I2	Geneva.....	I2	Reed.....	C4
Bainbridge.....	H3	Grafton.....	F4	Richfield.....	G4
Ballville.....	B4	Granger.....	G4	Richmond.....	J2
Bath.....	G4	Greek Creek.....	C4	Ridgefield.....	D4
Bay.....	C3	Greene.....	J3	Riley.....	C3
Batzetta.....	J4	Groton.....	C4	Rome.....	I2
Benton.....	B3	Gustavus.....	J3	Russell.....	H3
Berlin.....	D4	Hambden.....	H2	Sagamore Hills.....	G4
Bloom.....	A4	Harpersfield.....	I2	Salem.....	B3
Bloomfield.....	I3	Harris.....	B3	Sandusky.....	B3
Boston.....	G4	Hartford.....	J4	Saybrook.....	I2
Braceville.....	I4	Hartland.....	D2	Scioto.....	C4
Brighton.....	E4	Hartsgrove.....	I2	Scott.....	B4
Bristol.....	I3	Henrietta.....	E4	Shalersville.....	H4
Bronson.....	D4	Henry.....	A4	Sheffield (Ashtabula).....	J2
Brookfield.....	J4	Hinckley.....	G4	Sheffield (Seneca).....	C4
Brownhelm.....	E3	Hiram.....	H4	Sherman.....	C4
Brunswick Hills.....	F4	Hopewell.....	B4	Southington.....	I4
Burton.....	H3	Howland.....	J4	Sylvania.....	A2
Camden.....	E4	Hubbard.....	J4	Thompson (Geauga).....	I2
Carlisle.....	E4	Huntsburg.....	I3	Thompson (Seneca).....	C4
Carroll.....	B3	Huron.....	D3	Townsend (Huron).....	D4
Cass.....	A4	Jackson (Sandusky).....	B3	Townsend (Sandusky).....	C3
Catawba Island.....	C3	Jackson (Seneca).....	B4	Troy (Geauga).....	H3
Center.....	A3	Jefferson.....	J2	Troy (Wood).....	A3
Chagrin Falls.....	H3	Jerusalem.....	B2	Trumbull.....	I2
Champion.....	I4	Johnston.....	J3	Twinsburg.....	H4
Chardon.....	H2	Kingsville.....	J1	Vermilion.....	E3
Charlestown.....	H4	Kinsman.....	J3	Vernon.....	J3
Cherry Valley.....	J2	LaGrange.....	E4	Vienna.....	J4
Chester.....	H3	Lake.....	A3	Wakeman.....	E4
Claridon.....	H3	Lenox.....	H2	Warren.....	I4
Clarksfield.....	E4	LeRoy.....	J2	Washington.....	A4
Columbia.....	F4	Liberty (Seneca).....	B4	Wayne.....	J3
Clay.....	B3	Liberty (Trumbull).....	A4	Weathersfield.....	J4
Clinton.....	B4	Liberty (Wood).....	J4	Webster.....	A3
Colebrook.....	J3	Litchfield.....	F4	Wellington.....	E4
Concord.....	H2	Liverpool.....	F4	Williamsfield.....	J3
Concord.....	H2	Loudon.....	B4	Windham.....	I4
Contra Costa.....	F4	Lyme.....	C4	Windsor.....	I3
Contra Costa.....	F4	Madison (Lake).....	I2	Woodville.....	B3
Contra Costa.....	F4	Madison (Sandusky).....	B3	York (Medina).....	F4
Contra Costa.....	F4	Mantua.....	H4	York (Sandusky).....	C4
Contra Costa.....	F4	Margaretta.....	C3		
Contra Costa.....	F4	Mecca.....	J3		
Contra Costa.....	F4	Medina.....	H2		
Contra Costa.....	F4	Mesopotamia.....	I3		
Contra Costa.....	F4	Middlefield.....	I3		
Contra Costa.....	F4	Middleton.....	A3		
Contra Costa.....	F4	Milwaukee.....	D4		
Contra Costa.....	F4	Montgomery.....	A4		
Contra Costa.....	F4	Montville.....	I2		
Contra Costa.....	F4	Morgan.....	I2		
Contra Costa.....	F4	Munson.....	H3		
Contra Costa.....	F4	Nelson.....	H4		
Contra Costa.....	F4	New Lyme.....	J2		
Contra Costa.....	F4	New Russia.....	E4		
Contra Costa.....	F4	Newbury.....	H3		
Contra Costa.....	F4	Newton.....	I4		
Contra Costa.....	F4	Northfield Center.....	G4		
Contra Costa.....	F4	Norwalk.....	D4		
Contra Costa.....	F4	Olsted.....	F3		
Contra Costa.....	F4	Orwell.....	I3		
Contra Costa.....	F4	Oxford.....	D4		
Contra Costa.....	F4	Painesville.....	H2		
Contra Costa.....	F4	Paris.....	I4		
Contra Costa.....	F4	Parkman.....	I3		
Contra Costa.....	F4	Penfield.....	E4		
Contra Costa.....	F4	Perkins.....	D3		
Contra Costa.....	F4	Perry (Lake).....	H2		
Contra Costa.....	F4	Perry (Wood).....	A4		
Contra Costa.....	F4	Perrysburg.....	A3		
Contra Costa.....	F4	Peru.....	D4		
Contra Costa.....	F4	Pierpont.....	J2		
Contra Costa.....	F4	Pittsfield.....	E4		

QUADRANGLE INDEX MAP





This map illustrates both 7.5-minute and 15-minute quadrangle grids in Ohio's coastal region. It serves as an identification resource to help locate corresponding U.S. Geological Survey (USGS) topographic maps. Each quadrangle is named after a municipality, town or feature located within the geographic area it covers.

One 7.5-minute quadrangle (thin purple lines) represents a geographic extent measuring 7.5 minutes of latitude by 7.5 minutes of longitude. Even though angular dimensions are equal, quadrangles in Ohio cover a more rectangular and vertical area. This occurs because lines of longitude, or meridians, converge at the North and South poles. Quadrangles in northern Ohio—between 41 and 42 degrees north latitude—are narrower than quadrangles closer to the equator. In this map, the latitudinal distance between 7.5-minute quadrangle meridians is about 6.5 miles, while the longitudinal distance between latitudes is approximately 8.7 miles (about 56 square miles). Quadrangles closer to the 41st parallel are slightly larger, by land area, than quadrangles located closer to the 42nd parallel.

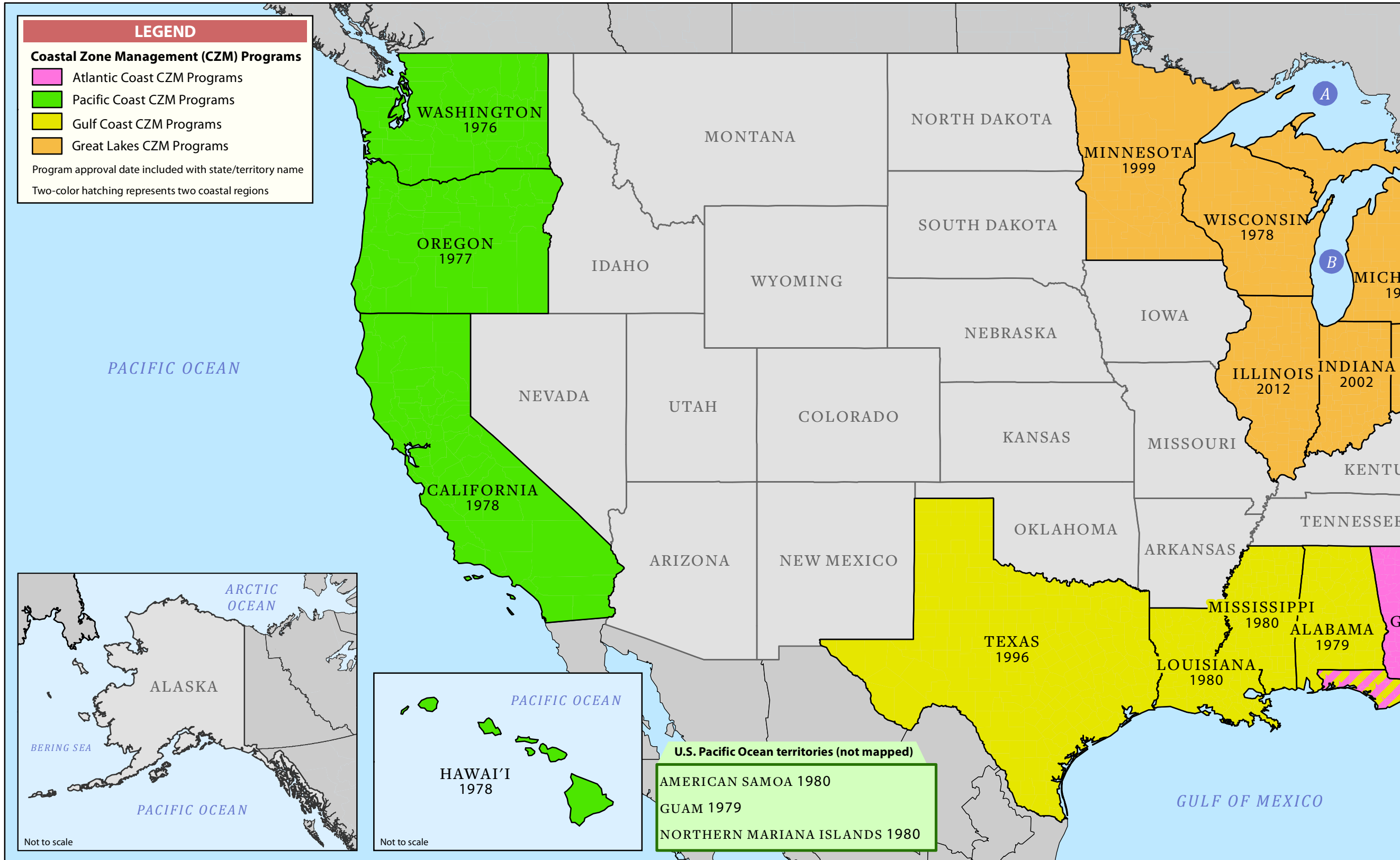
USGS topographic maps show three-dimensional relief, benchmarks, lakes, rivers, streams and vegetation cover. Topographic maps also show political boundaries and cultural features such as roads, railroads, airport runways, buildings and quarries. Contour lines connect points of equal elevation and represent relief. Contour intervals on 7.5-minute topographic maps range from five feet to 20 feet, depending on the terrain. Areas where contour lines are close together represent steep terrain, vertical cliffs and/or river valleys. Areas with broad contour gaps represent flat landscapes. Elevation labels are placed on every fifth contour line, called an "index contour." Benchmarks identify vertical elevations above sea level and are typically physically positioned on the ground with round, brass plates set in concrete.

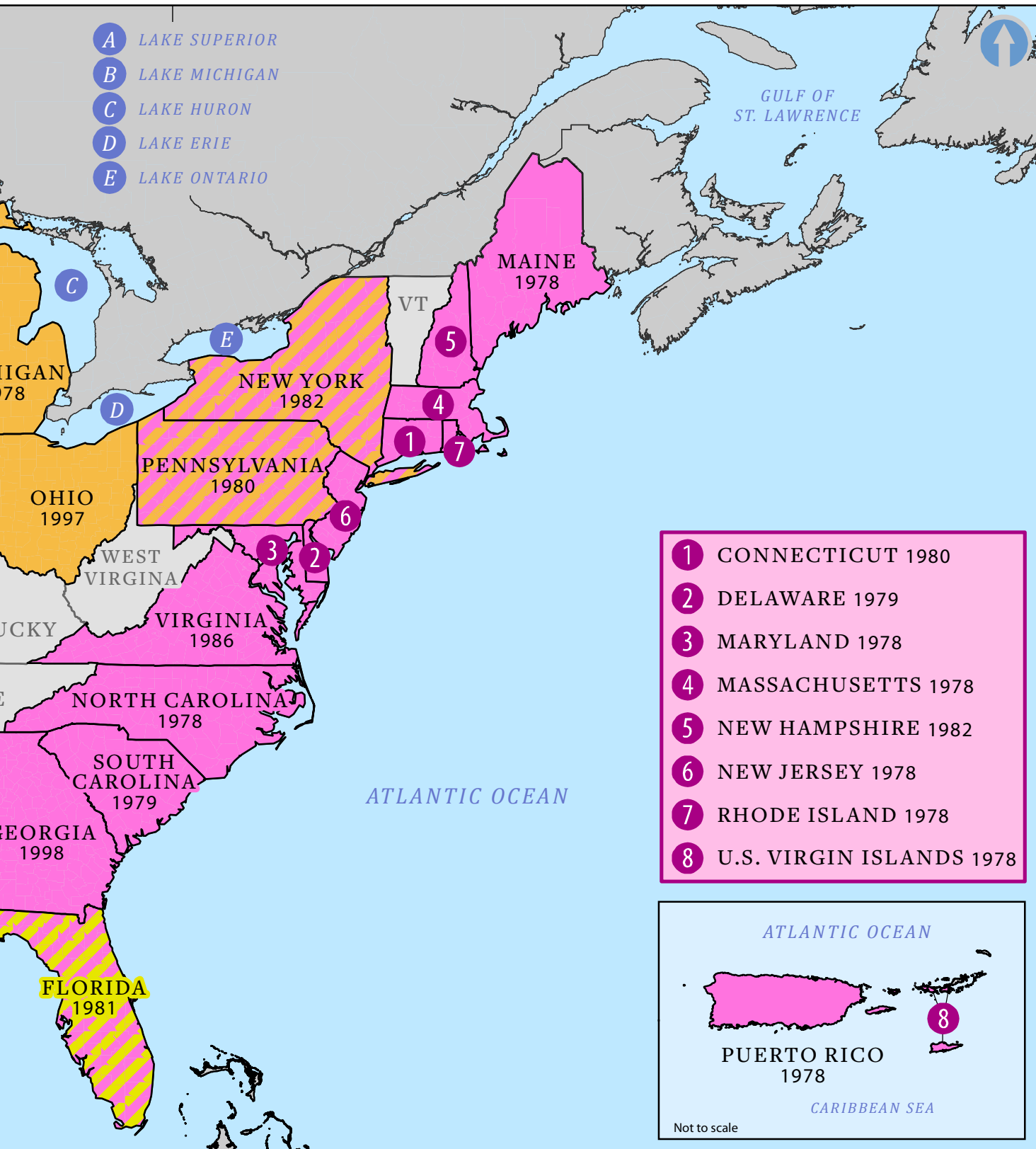
USGS 7.5-minute topographic maps are mapped at a scale of 1:24,000, where one inch on the map equals 24,000 inches (2,000 feet) on the ground. The 15-minute topographic maps (out of print) were mapped at a smaller scale (1:62,500). The USGS began the topographic mapping program in 1902 with Ohio and ten other states. Ohio was the first state with a complete 15-minute topographic map coverage (1918) and the first state with a complete 7.5-minute map series (1964).

In 2009, the USGS's National Geospatial Program began updating topographic maps as digital documents, known as the "US Topo" series. US Topo maps are computer-generated and do not require on-the-ground data collection, field inspection or manual drafting. They include aerial photography and shaded relief. US Topo maps can be downloaded—free of charge—from the USGS webpage. All maps can be viewed and printed using Adobe Reader or comparable PDF viewing software. Limited GIS functionality allows users to turn data layers on and off.

Note: The abbreviation "O E" stands for "Over Edge" and is common in coastal areas. This naming convention occurs when a quadrangle for an area does not have a corresponding USGS quad number. As a result, mapped topographic data is included on the adjoining map sheet. Examples in the Lake Erie coastal region include: Avon O E, Geneva O E, Mentor O E, Metzger Marsh O E and North Olmsted O E.

U.S. COASTAL ZONE MANAGEMENT PROGRAMS





The nation's ocean and Great Lakes coastal regions are home to a wealth of natural resources and are also some of the most developed and visited areas in the country. Population growth, tourism, industry and coastal development lead to many economic benefits; however, these activities can result in the loss of critical habitat, green space and biodiversity. Coastal counties make up less than ten percent of the nation's total land*, yet approximately 123 million people, or 39 percent of the nation's total population, lived in those counties in 2010. It is projected that coastal county population will soon comprise more than half of the total U.S. population. The population density of the nation's coastal counties averages 446 people per square mile*—much higher than the national average of 105 people per square mile. In 2010, the population density of Ohio's eight coastal counties combined was 809 people per square mile (ranked ninth nationally).

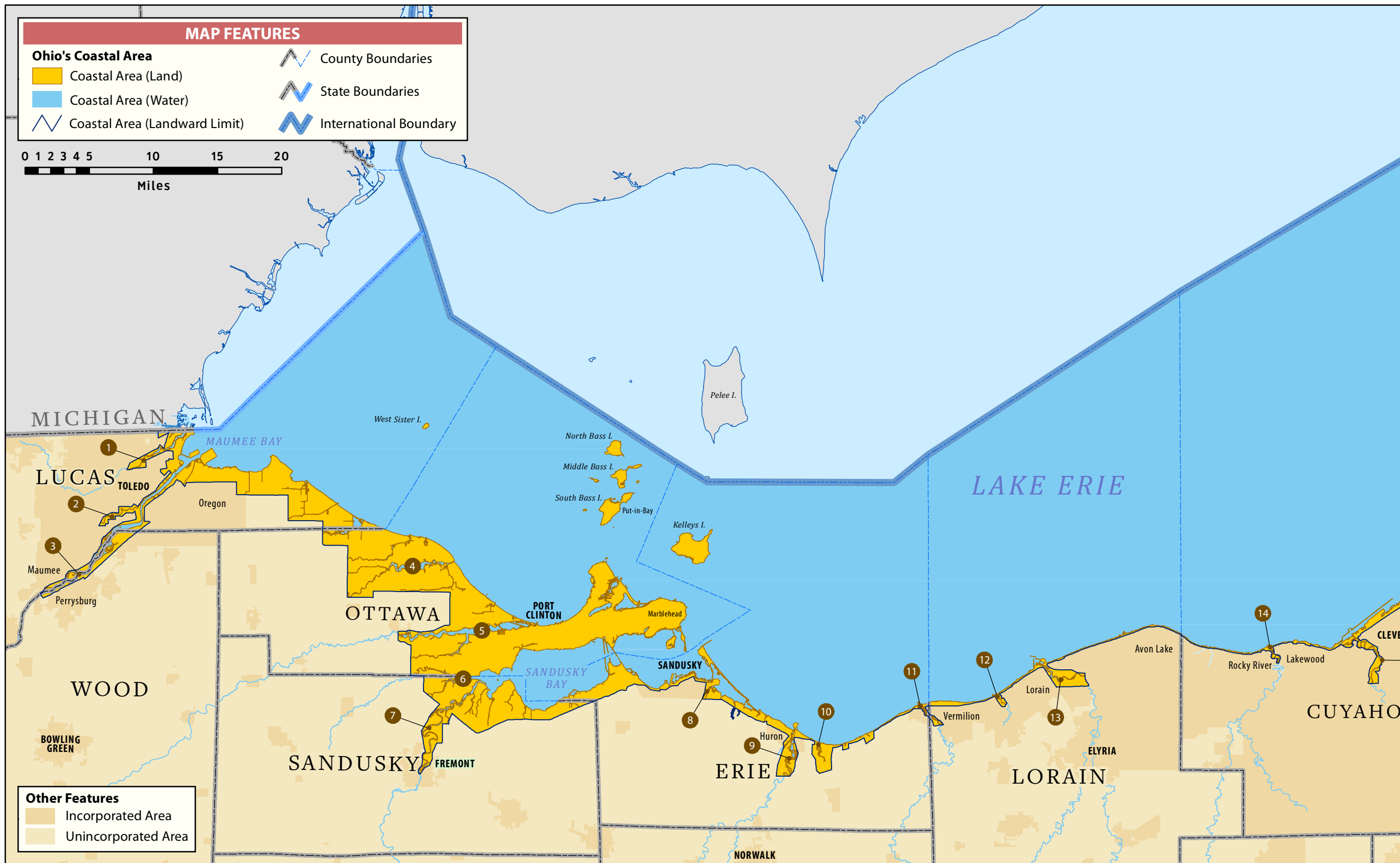
Coastal states and communities also face challenges such as bluff and beach erosion, habitat loss, water quality threats, aquatic invasive species, seasonal population influxes and severe storms. Coastal management is a cooperative and wide-ranging effort aimed to help preserve, protect, and enhance coastal resources while balancing economic, environmental and cultural interests. These efforts are accomplished with federal and state partnership programs and with the support and assistance of political subdivisions, local groups and individuals.

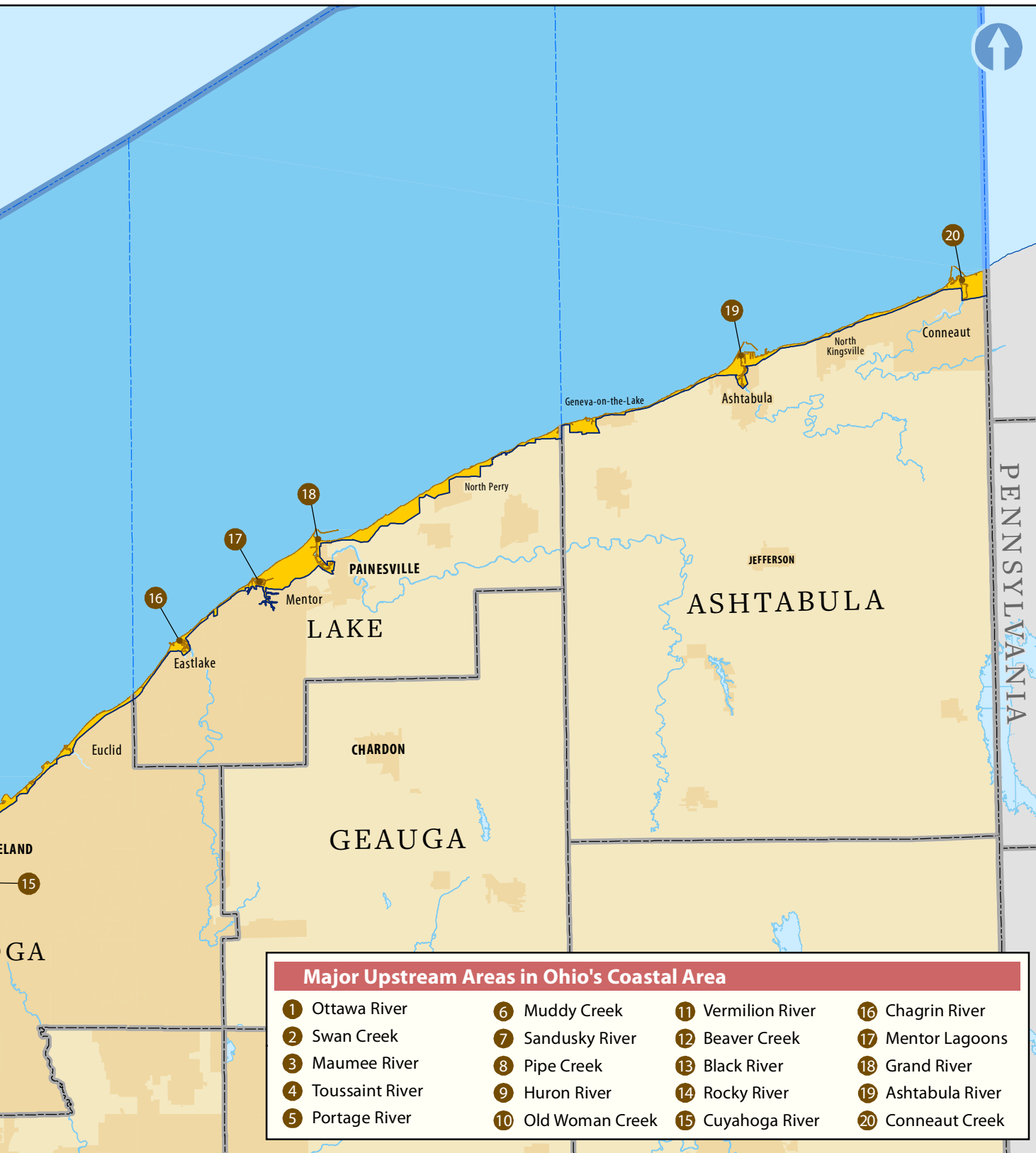
Congress enacted the Coastal Zone Management Act (CZMA) in 1972. The CZMA defines coastal management as: "Achieving the wise use of the land and water resources of the coastal zone giving full consideration to ecological, cultural, historic and aesthetic values and the need for compatible economic development." The CZMA encourages states to develop state-specific programs to preserve, protect, develop, and, where possible, restore and enhance valuable natural coastal resources, such as wetlands, floodplains, estuaries, beaches, dunes, and fish and wildlife.

The U.S. Coastal Zone Management Program is implemented through voluntary state-federal partnership programs. The National Oceanic and Atmospheric Administration's (NOAA) Office for Coastal Management is the lead federal agency tasked with coordination of the program, while federally-approved state programs, such as the Ohio Coastal Management Program, oversee day-to-day implementation geared toward each state's priorities and needs. Every state coastal management program includes a Federal Consistency component, whereby federal agency activities must be consistent with the policies of the state's coastal management program, and a coastal nonpoint pollution control program, which focuses on mechanisms to prevent and manage nonpoint source pollution runoff. Of the 35 coastal states and territories, 34 have federally-approved coastal management programs (approval dates included on map). Alaska is the only eligible state without a coastal management program. Illinois has the newest program (approved in 2012).

* Excluding Alaska

OHIO'S DESIGNATED COASTAL AREA





The Ohio Department of Natural Resources, Office of Coastal Management was created in 2002 to administer the Ohio Coastal Management Program (OCMP). Federally approved in 1997, the OCMP sets forth policies that address nine management areas: (1) Coastal Erosion and Flooding; (2) Water Quality; (3) Wetlands and Other Ecologically Sensitive Resources; (4) Ports and Shoreline Development; (5) Recreation and Cultural Resources; (6) Fish and Wildlife Management; (7) Environmental Quality; (8) Energy and Mineral Resources, and; (9) Water Quantity. The program aims to preserve, protect, develop, monitor, restore and enhance Lake Erie's coastal resources while balancing economic, environmental and cultural interests for the benefit of all Ohio residents.

In administering the OCMP, the Office of Coastal Management carries out a variety of resource management activities, including outreach and education events, technical assistance, regulatory reviews, and financial assistance to local communities, universities, government agencies and non-profit organizations for a wide variety of projects to protect and enhance coastal resources, public access and economic development.

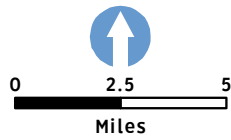
While many aspects of the OCMP address issues throughout Ohio's Lake Erie Watershed, the program is primarily focused on efforts within the designated Coastal Area. The Coastal Area is defined in Ohio Revised Code Section 1506.01 and includes Ohio's portion of Lake Erie and adjacent shore areas that directly and significantly impact coastal waters. It includes Ohio's entire 312-mile coast, beaches, bluffs, wetlands, estuaries, islands, floodplains, upstream areas and transitional areas. The landward extent of the Coastal Area ranges from about one-eighth-of-a-mile to a maximum of 15 miles up the Maumee River in Lucas and Wood counties. In total, Ohio's designated Coastal Area includes almost 3,900 square miles, the majority of which cover Lake Erie open water in Lucas, Ottawa, Sandusky, Erie, Lorain, Cuyahoga, Lake and Ashtabula counties.

On the map, the open water portion of the Coastal Area is highlighted in a darker blue, whereas the area's land portion, including islands, is displayed in orange. Major upstream areas, such as the Maumee, Sandusky, Huron, Black and Cuyahoga rivers, are individually identified on the map.

State, local and non-profit entities located within the territory are eligible for federal coastal management funding. Coastal Management Assistance Grant projects must be located entirely within the Coastal Area or must demonstrate direct, substantial benefits to resources within the Coastal Area.

COASTAL COUNTY PROFILES: ASHTABULA COUNTY & CUYAHOGA COUNTY

ASHTABULA COUNTY



LAKE ERIE

Lake Erie Watershed (Great Lakes Watershed) | Ohio River Watershed (Mississippi River Watershed)

COUNTY FACTS*

Established: June 7, 1807
 County Seat: Village of Jefferson
 2010 Population: 101,497
 2015 Population (est.): 98,632
 2020 Population (proj.): 101,230
 Land Area: 702.7 sq mi (1st of 88)

"Ashtabula" is an anglicized spelling of the Iroquois word, "Hash-tah-buh-lah," meaning, "river of many fish"

COASTAL FACTS

Miles of Coast: 30.0 miles†
 Islands: 0
 Miles of Publicly-Accessible Coast: 4.6 miles†
 Primary Public Access Sites: 12†
 Right-of-Way Access Sites: 1†
 Lakefront Municipalities: 4
 Lakefront Townships: 3
 Commercial Harbors: 2

COASTAL MANAGEMENT AREA†

Mainland: 8.27 sq mi
 Island: 0.00 sq mi
 Water: 643.16 sq mi
 Total: 651.43 sq mi

WATERSHED FACTS

Percent of County in Lake Erie Watershed (LEWS): 85%

Largest LEWS Subbasins	8-digit HUC‡	Land Area
Grand	04110004	341.4 sq mi
Chagrin-Ashtabula	04110003	193.3 sq mi
Chautauqua-Conneaut	04120101	63.2 sq mi

Largest Populations*	Census 2010	Est. 2015
Ashtabula city	19,123	18,371
Conneaut city	12,841	12,712
Geneva city	6,215	6,051
Saybrook township (ub)	6,013	5,861
Ashtabula township (ub)	5,659	5,482
Geneva township (ub)	3,628	3,510
Jefferson village	3,120	3,041
North Kingsville village	2,923	2,839
Harpersfield township	2,695	2,616
Monroe township	2,376	2,299

* Ohio Development Services Agency, County Profiles, 2016 Annual Edition

† Ohio Department of Natural Resources, Office of Coastal Management, 2015-2016

‡ HUC = Hydrologic Unit Code (see Chapter 2)

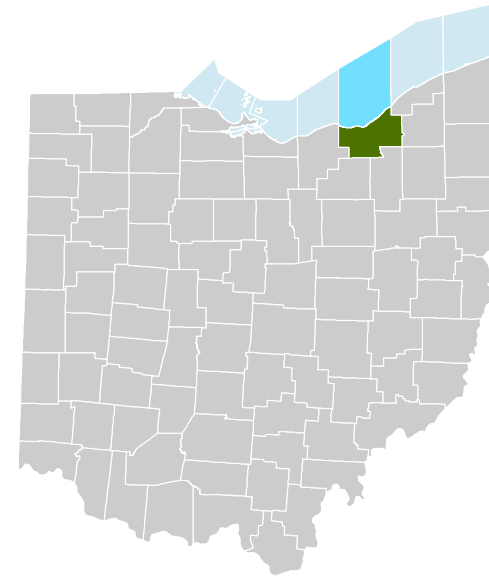
CUYAHOGA COUNTY

COUNTY FACTS*

Established: June 7, 1807
 County Seat: City of Cleveland
 2010 Population: 1,280,122
 2015 Population (est.): 1,255,921
 2020 Population (proj.): 1,209,550
 Land Area: 458.3 sq mi (40th of 88)
 "Cuyahoga" is an anglicized spelling of the Mohawk word, "cayagaga," meaning, "crooked river"

COASTAL FACTS

Miles of Coast: 35.2 milest
 Islands: 0
 Miles of Publicly-Accessible Coast: 6.8 milest
 Primary Public Access Sites: 19†
 Right-of-Way Access Sites: 4†
 Lakefront Municipalities: 6
 Lakefront Townships: 0
 Commercial Harbors: 1



COASTAL MANAGEMENT AREA†

Mainland: 9.11 sq mi
 Island: 0.00 sq mi
 Water: 805.09 sq mi
 Total: 814.20 sq mi

WATERSHED FACTS

Percent of County in Lake Erie Watershed (LEWS): 100%

Largest LEWS Subbasins	8-digit HUC‡	Land Area
Cuyahoga	04110002	189.7 sq mi
Black-Rocky	04110001	137.9 sq mi
Chagrin-Ashtabula	04110003	130.7 sq mi

Largest Populations*	Census 2010	Est. 2015
Cleveland city	396,815	388,072
Parma city	81,601	79,937
Lakewood city	52,131	50,656
Euclid city	48,920	47,676
Cleveland Heights city	46,121	44,962
Strongsville city	44,750	44,668
Westlake city	32,729	32,428
North Olmsted city	32,718	32,004
North Royalton city	30,444	30,311
Garfield Heights city	28,849	28,097

* Ohio Development Services Agency, County Profiles, 2016 Annual Edition
 † Ohio Department of Natural Resources, Office of Coastal Management, 2015-2016
 ‡ HUC = Hydrologic Unit Code (see Chapter 2)

COASTAL COUNTY PROFILES: ERIE COUNTY & LAKE COUNTY

ERIE COUNTY

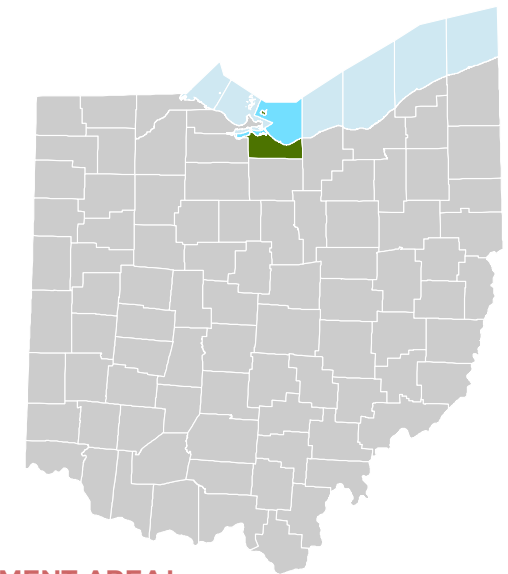
COUNTY FACTS*

Established: March 16, 1838
 County Seat: City of Sandusky
 2010 Population: 77,079
 2015 Population (est.): 75,550
 2020 Population (proj.): 72,900
 Land Area: 254.5 sq mi (87th of 88)

"Erie" is a shortened form of the Iroquois word, "Erielhonan," meaning "long tail." "Erie" itself means "cat" or "wildcat." The county is named after the Erie Native American Tribe.

COASTAL FACTS

Miles of Coast: 68.0 milest
 Islands: 1
 Miles of Publicly-Accessible Coast: 6.8 milest
 Primary Public Access Sites: 42†
 Right-of-Way Access Sites: 1†
 Lakefront Municipalities: 5
 Lakefront Townships: 4
 Commercial Harbors: 2



COASTAL MANAGEMENT AREA†

Mainland: 26.32 sq mi
 Island: 4.40 sq mi
 Water: 369.91 sq mi
 Total: 400.63 sq mi

WATERSHED FACTS

Percent of County in Lake Erie Watershed (LEWS): 100%

Largest LEWS Subbasins	8-digit HUC‡	Land Area
Huron-Vermilion	04110012	132.1 sq mi
Sandusky	04110011	117.8 sq mi
Lake Erie Islands	04120200	4.4 sq mi
Black-Rocky	04110001	0.2 sq mi

Largest Populations*	Census 2010	Est. 2015
Sandusky city	25,919	25,212
Perkins township	12,077	11,881
Huron city	7,148	7,022
Vermilion township	4,945	4,811
Vermilion city (part)	4,742	4,641
Margaretta township (ub)	4,498	4,440
Huron township (ub)	3,561	3,618
Berlin township (ub)	3,009	2,950
Milan township (ub)	2,590	2,556
Florence township	2,448	2,407

ub = unincorporated balance

* Ohio Development Services Agency, County Profiles, 2016 Annual Edition
 † Ohio Department of Natural Resources, Office of Coastal Management, 2015-2016
 ‡ HUC = Hydrologic Unit Code (see Chapter 2)

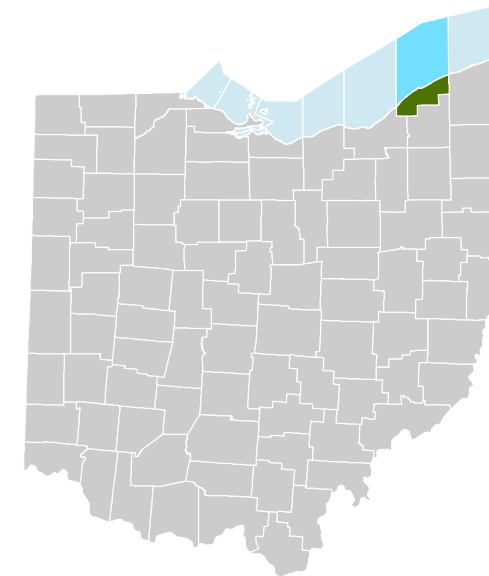
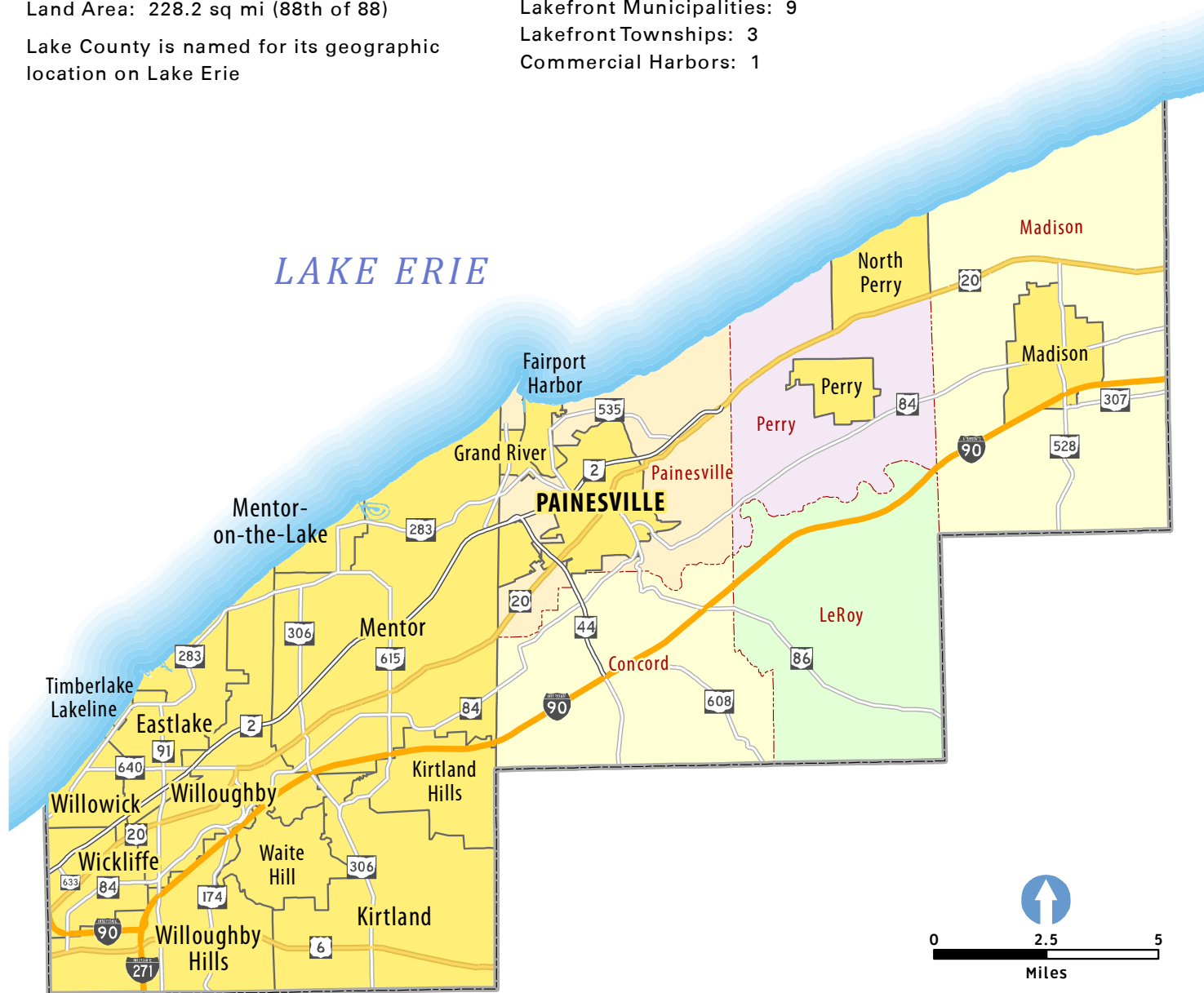
LAKE COUNTY

COUNTY FACTS*

Established: March 6, 1840
 County Seat: City of Painesville
 2010 Population: 230,041
 2015 Population (est.): 229,245
 2020 Population (proj.): 228,600
 Land Area: 228.2 sq mi (88th of 88)
 Lake County is named for its geographic location on Lake Erie

COASTAL FACTS

Miles of Coast: 32.3 milest
 Islands: 0
 Miles of Publicly-Accessible Coast: 8.0 milest
 Primary Public Access Sites: 27†
 Right-of-Way Access Sites: 0†
 Lakefront Municipalities: 9
 Lakefront Townships: 3
 Commercial Harbors: 1



COASTAL MANAGEMENT AREA†

Mainland: 14.19 sq mi
 Island: 0.00 sq mi
 Water: 743.47 sq mi
 Total: 757.66 sq mi

WATERSHED FACTS

Percent of County in Lake Erie Watershed (LEWS): 100%

Largest LEWS Subbasins	8-digit HUC‡	Land Area
Chagrin-Ashtabula	04110003	141.7 sq mi
Grand	04110004	86.5 sq mi

Largest Populations*	Census 2010	Est. 2015
Mentor city	47,159	46,901
Willoughby city	22,268	22,631
Painesville city	19,528	19,776
Concord township	18,201	18,245
Eastlake city	18,557	18,232
Painesville township (ub)	16,922	16,900
Madison township (ub)	15,699	15,599
Willowick city	14,175	13,957
Wickliffe city	12,747	12,545
Willoughby Hills city	9,486	9,382

ub = unincorporated balance

* Ohio Development Services Agency, County Profiles, 2016 Annual Edition

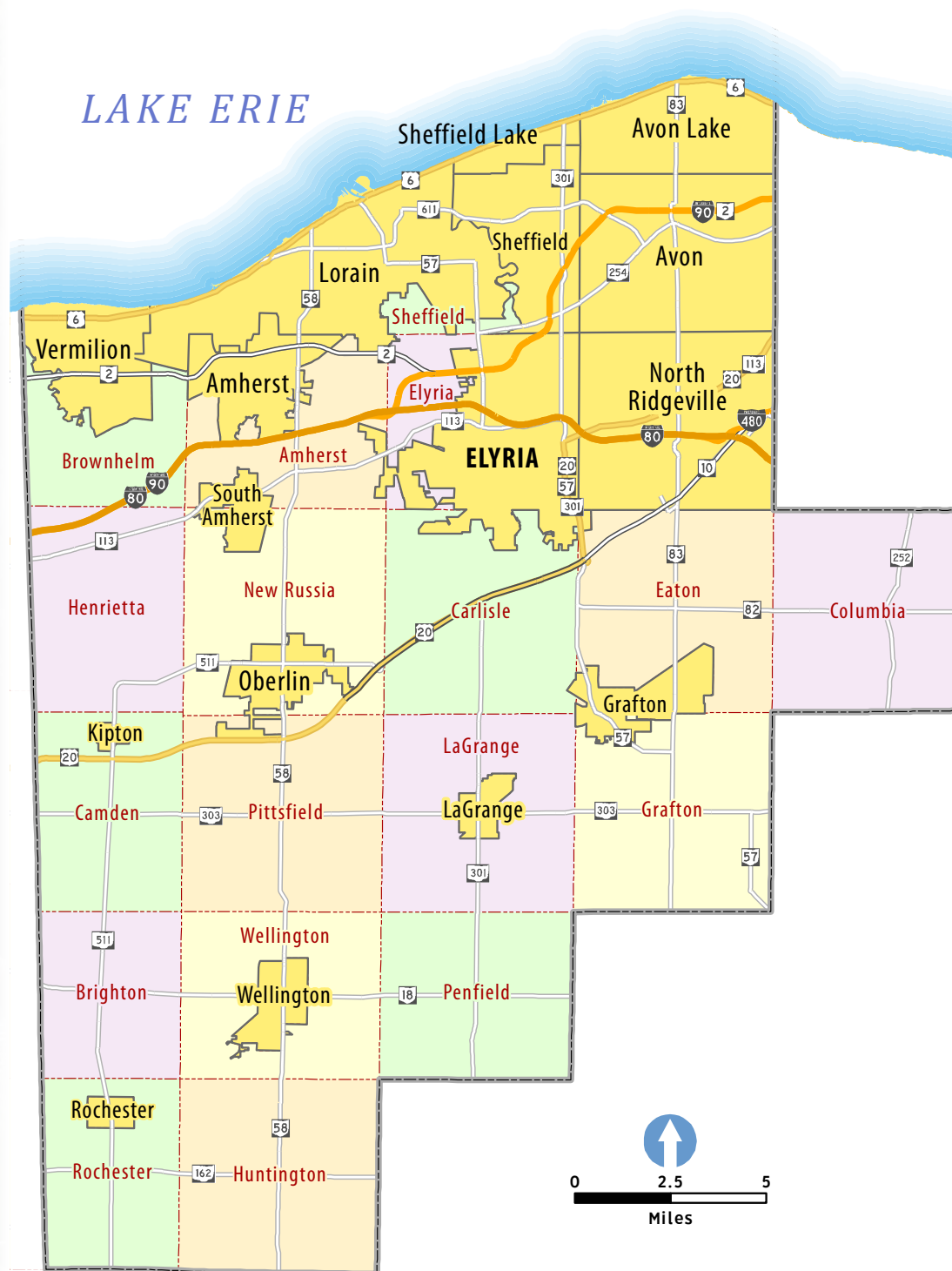
† Ohio Department of Natural Resources, Office of Coastal Management, 2015-2016

‡ HUC = Hydrologic Unit Code (see Chapter 2)



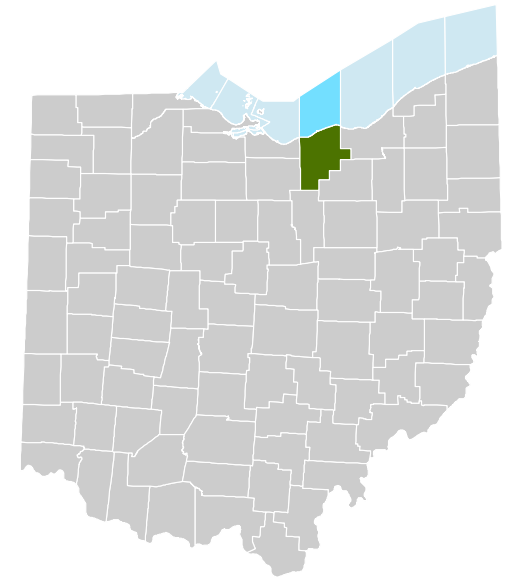
COASTAL COUNTY PROFILES: LORAIN COUNTY & LUCAS COUNTY

LORAIN COUNTY



COUNTY FACTS*

Established: December 26, 1822
 County Seat: City of Elyria
 2010 Population: 301,356
 2015 Population (est.): 305,147
 2020 Population (proj.): 310,230
 Land Area: 492.6 sq mi (29th of 88)
 Lorain County is named for the French Province of Lorraine



COASTAL FACTS

Miles of Coast: 23.3 miles†
 Islands: 0
 Miles of Publicly-Accessible Coast: 2.1 miles†
 Primary Public Access Sites: 15†
 Right-of-Way Access Sites: 0†
 Lakefront Municipalities: 4
 Lakefront Townships: 0
 Commercial Harbors: 1

COASTAL MANAGEMENT AREA†

Mainland: 6.84 sq mi
 Island: 0.00 sq mi
 Water: 444.84 sq mi
 Total: 451.68 sq mi

WATERSHED FACTS

Percent of County in Lake Erie Watershed (LEWS): 100%

Largest LEWS Subbasins	8-digit HUC‡	Land Area
Black-Rocky	04110001	447.2 sq mi
Huron-Vermilion	04110012	45.4 sq mi

Largest Populations*	Census 2010	Est. 2015
Lorain city	64,097	63,647
Elyria city	54,533	53,775
North Ridgeville city	29,466	32,483
Avon Lake city	22,581	23,453
Avon city	21,191	22,544
Amherst city	12,021	12,135
Sheffield Lake city	9,137	9,026
Oberlin city	8,286	8,350
Carlisle township	7,502	7,438
Columbia township	7,040	7,229

* Ohio Development Services Agency, County Profiles, 2016 Annual Edition
 † Ohio Department of Natural Resources, Office of Coastal Management, 2015-2016
 ‡ HUC = Hydrologic Unit Code (see Chapter 2)

LUCAS COUNTY

COUNTY FACTS*

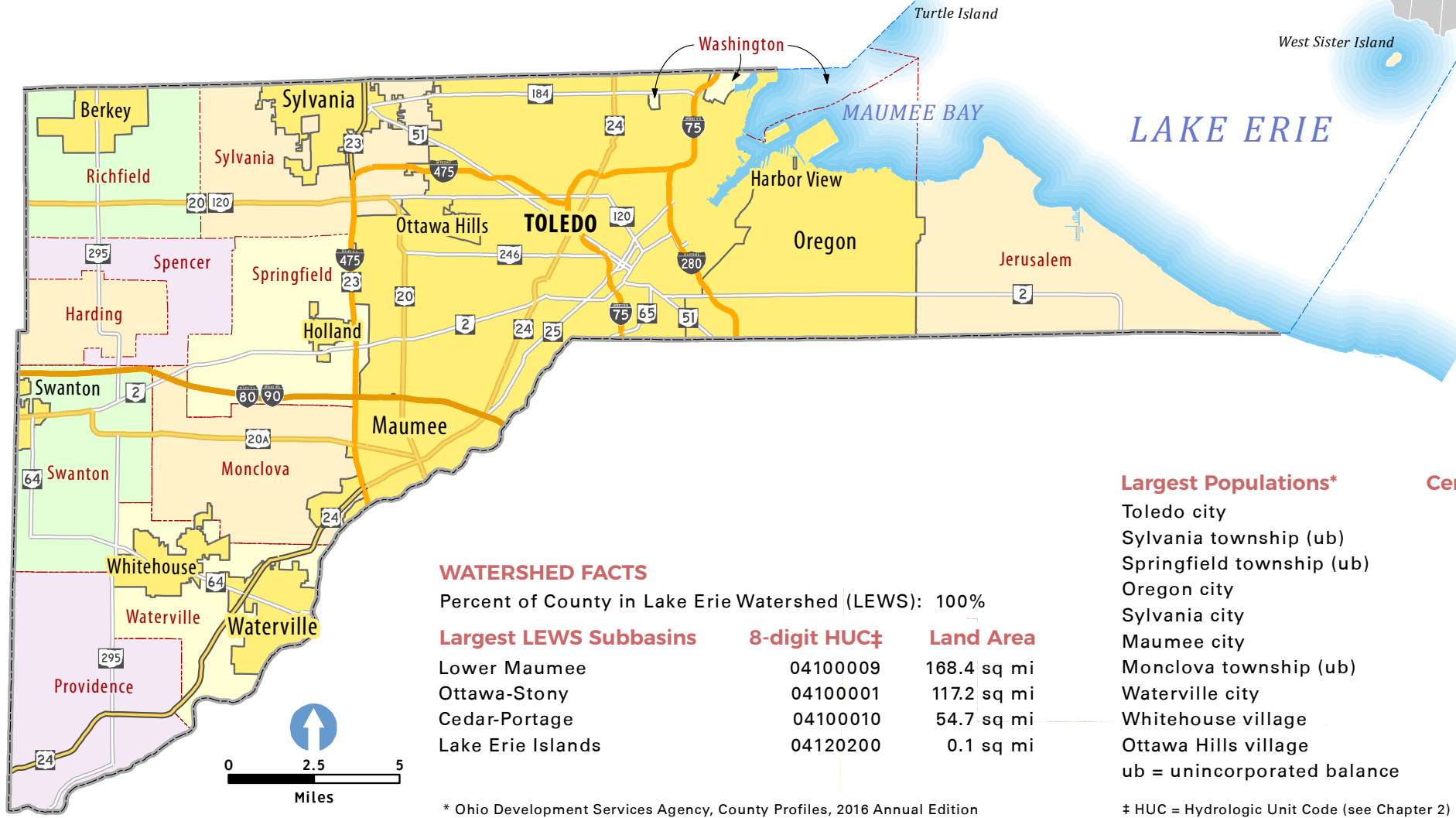
Established: June 20, 1835
 County Seat: City of Toledo
 2010 Population: 441,815
 2015 Population (est.): 433,689
 2020 Population (proj.): 430,450
 Land Area: 340.4 sq mi (85th of 88)
 Lucas County is named after Ohio's twelfth governor, Robert Lucas

COASTAL FACTS

Miles of Coast: 25.0 milest
 Islands: 2**
 Miles of Publicly-Accessible Coast: 9.1 milest
 Primary Public Access Sites: 9†
 Right-of-Way Access Sites: 19†
 Lakefront Municipalities: 2
 Lakefront Townships: 2
 Commercial Harbors: 1

COASTAL MANAGEMENT AREA†

Mainland: 43.30 sq mi
 Island: 0.12 sq mi
 Water: 249.07 sq mi
 Total: 292.49 sq mi



WATERSHED FACTS

Percent of County in Lake Erie Watershed (LEWS): 100%

Largest LEWS Subbasins	8-digit HUC‡	Land Area
Lower Maumee	04100009	168.4 sq mi
Ottawa-Stony	04100001	117.2 sq mi
Cedar-Portage	04100010	54.7 sq mi
Lake Erie Islands	04120200	0.1 sq mi

Largest Populations*

Toledo city
 Sylvania township (ub)
 Springfield township (ub)
 Oregon city
 Sylvania city
 Maumee city
 Monclova township (ub)
 Waterville city
 Whitehouse village
 Ottawa Hills village
 ub = unincorporated balance

Census 2010

287,206
 29,490
 24,492
 20,313
 19,000
 14,286
 12,396
 5,530
 4,149
 4,517

Est. 2015

279,789
 29,426
 24,407
 20,102
 18,965
 13,940
 12,360
 5,514
 4,462
 4,443

* Ohio Development Services Agency, County Profiles, 2016 Annual Edition
 † Ohio Department of Natural Resources, Office of Coastal Management, 2015-2016

‡ HUC = Hydrologic Unit Code (see Chapter 2)
 ** Not including manmade islands or islands in the Maumee River



COASTAL COUNTY PROFILES: OTTAWA COUNTY & SANDUSKY COUNTY

OTTAWA COUNTY

COUNTY FACTS*

Established: March 6, 1840
 County Seat: City of Port Clinton
 2010 Population: 41,428
 2015 Population (est.): 40,877
 2020 Population (proj.): 40,100
 Land Area: 255.1 sq mi (86th of 88)

Ottawa County is named after the Ottawa Indians, a Native American tribe that once inhabited the area. "Ottawa" is an anglicized spelling of the word, "adawe," which means "trader" or "to trade."

WATERSHED FACTS

Percent of County in Lake Erie Watershed (LEWS): 100%

Largest LEWS Subbasins	8-digit HUC‡	Land Area
Cedar-Portage	04110010	220.9 sq mi
Sandusky	04110011	29.1 sq mi
Lake Erie Islands	04120200	5.1 sq mi

Largest Populations*

Port Clinton city
 Danbury township (ub)
 Catawba Island township
 Allen township (ub)
 Oak Harbor village
 Clay township (ub)
 Salem township (ub)
 Genoa village
 Benton township (ub)
 Carroll township
 ub = unincorporated balance

Census 2010

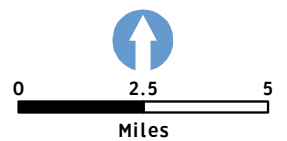
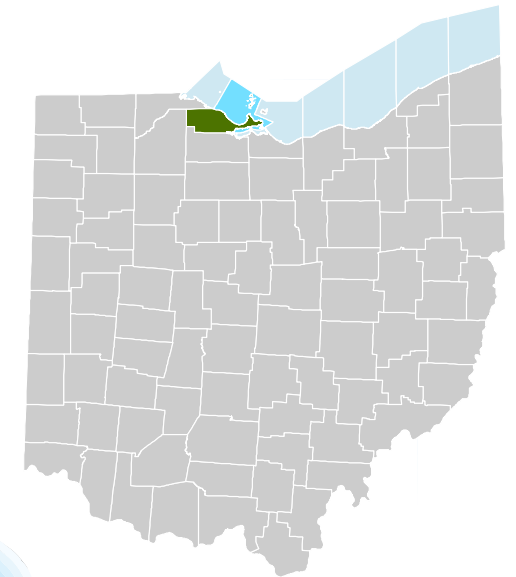
6,056
 4,264
 3,599
 3,504
 2,759
 2,722
 2,612
 2,336
 2,224
 2,135

Est. 2015

5,957
 4,181
 3,548
 3,477
 2,715
 2,697
 2,578
 2,306
 2,204
 2,113

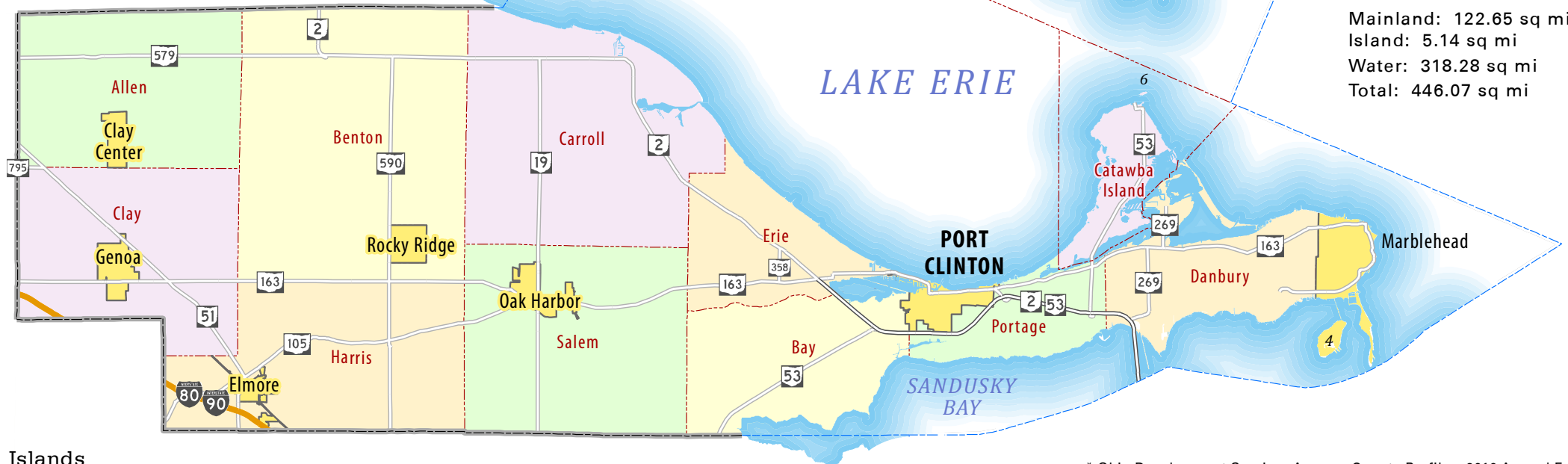
COASTAL FACTS

Miles of Coast: 95.4 milest
 Islands: 10**
 Miles of Publicly-Accessible Coast: 16.1 milest
 Primary Public Access Sites: 36†
 Right-of-Way Access Sites: 2†
 Lakefront Municipalities: 3
 Lakefront Townships: 7
 Commercial Harbors: 1



COASTAL MANAGEMENT AREA†

Mainland: 122.65 sq mi
 Island: 5.14 sq mi
 Water: 318.28 sq mi
 Total: 446.07 sq mi



Islands

1 - Ballast Island 2 - Gibraltar Island 3 - Green Island 4 - Johnson's Island 5 - Middle Bass Island
 6 - Mouse Island 7 - North Bass Island 8 - Rattlesnake Island 9 - South Bass Island 10 - Sugar Island

* Ohio Development Services Agency, County Profiles, 2016 Annual Edition
 † Ohio Department of Natural Resources, Office of Coastal Management, 2015-2016
 ‡ HUC = Hydrologic Unit Code (see Chapter 2)
 ** Not including Catawba Island or Starve Island

SANDUSKY COUNTY

COUNTY FACTS*

Established: April 1, 1820
 County Seat: City of Fremont
 2010 Population: 60,944
 2015 Population (est.): 59,679
 2020 Population (proj.): 58,670
 Land Area: 409.2 sq mi (66th of 88)

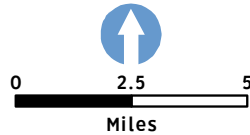
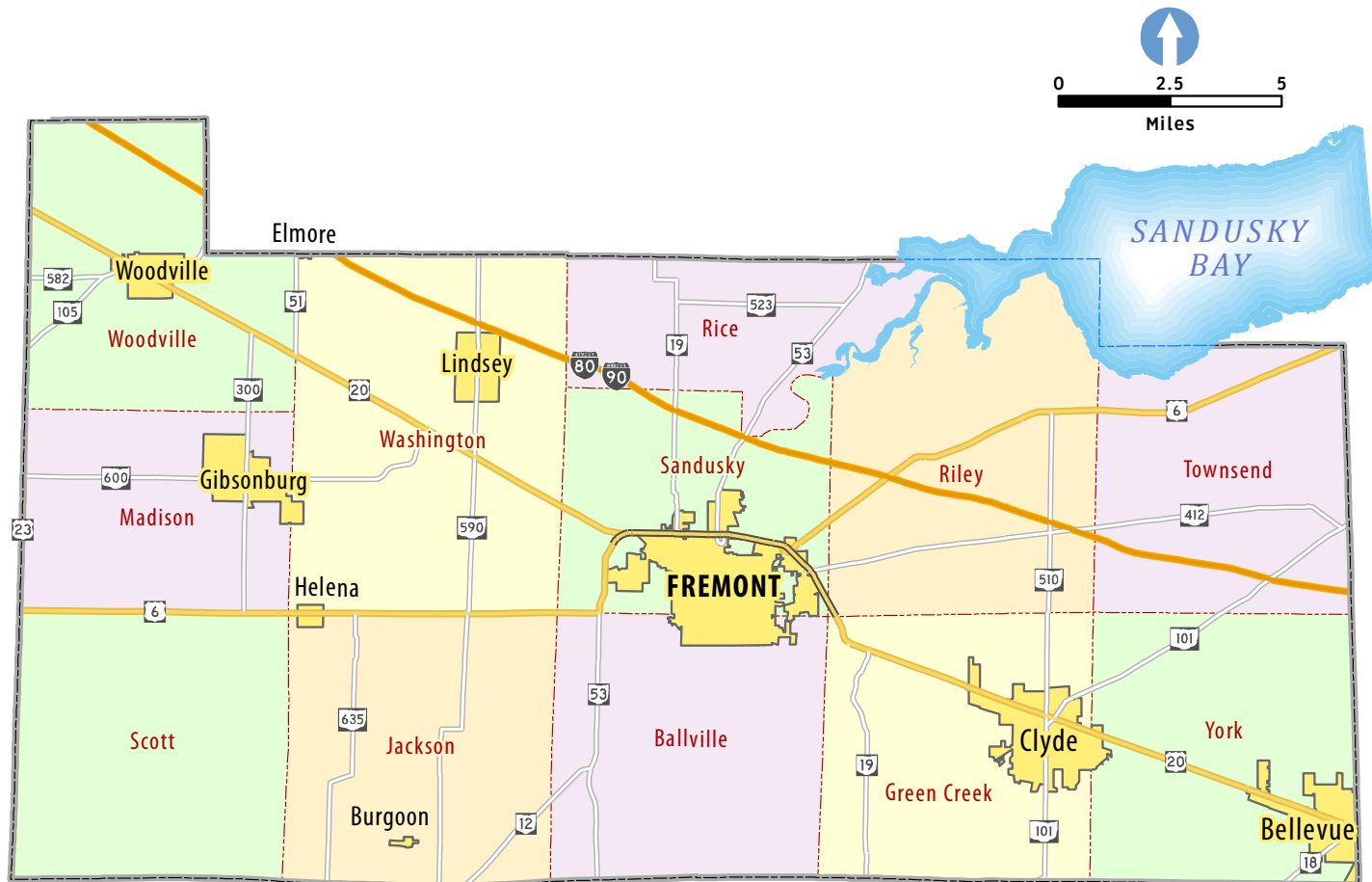
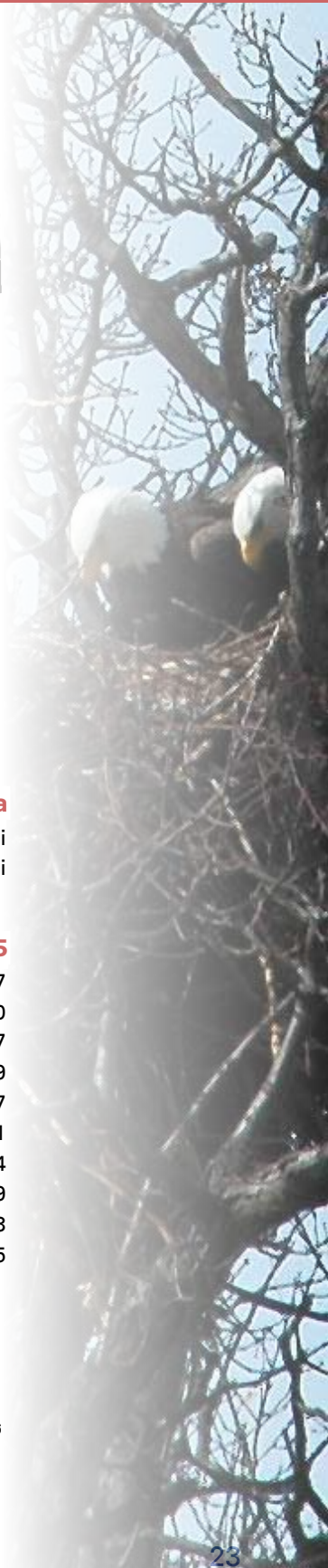
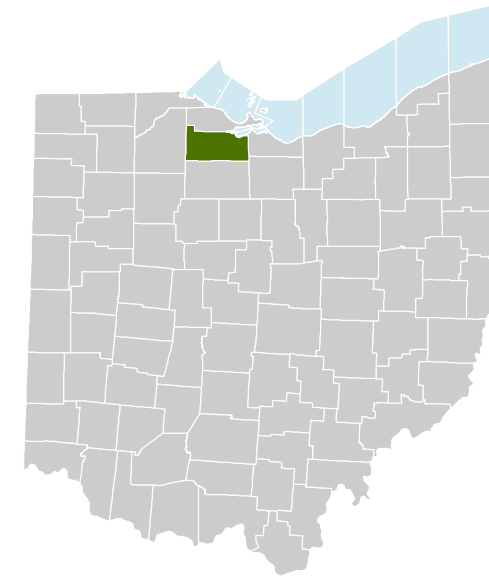
"Sandusky" is an anglicized spelling of the Wyandot word, "sandoostee," meaning, "at the cold water"

COASTAL FACTS

Miles of Coast: 14.3 miles†
 Islands: 0**
 Miles of Publicly-Accessible Coast: 3.5 miles†
 Primary Public Access Sites: 1†
 Right-of-Way Access Sites: 0†
 Lakefront Municipalities: 0
 Lakefront Townships: 3
 Commercial Harbors: 0

COASTAL MANAGEMENT AREA†

Mainland: 31.59 sq mi
 Island: 0.00 sq mi
 Water: 5.42 sq mi
 Total: 37.01 sq mi



WATERSHED FACTS

Percent of County in Lake Erie Watershed (LEWS): 100%

Largest LEWS Subbasins	8-digit HUC‡	Land Area
Sandusky	04100011	313.0 sq mi
Cedar-Portage	04100010	96.2 sq mi

Largest Populations*

	Census 2010	Est. 2015
Fremont city	16,734	16,297
Clyde city	6,404	6,260
Ballville township	5,985	5,887
Bellevue city (part)	4,528	4,429
Sandusky township	3,619	3,547
Green Creek township	3,567	3,491
Gibsonburg village	2,581	2,564
York township	2,531	2,479
Woodville village	2,135	2,083
Washington township (ub)	1,795	1,745

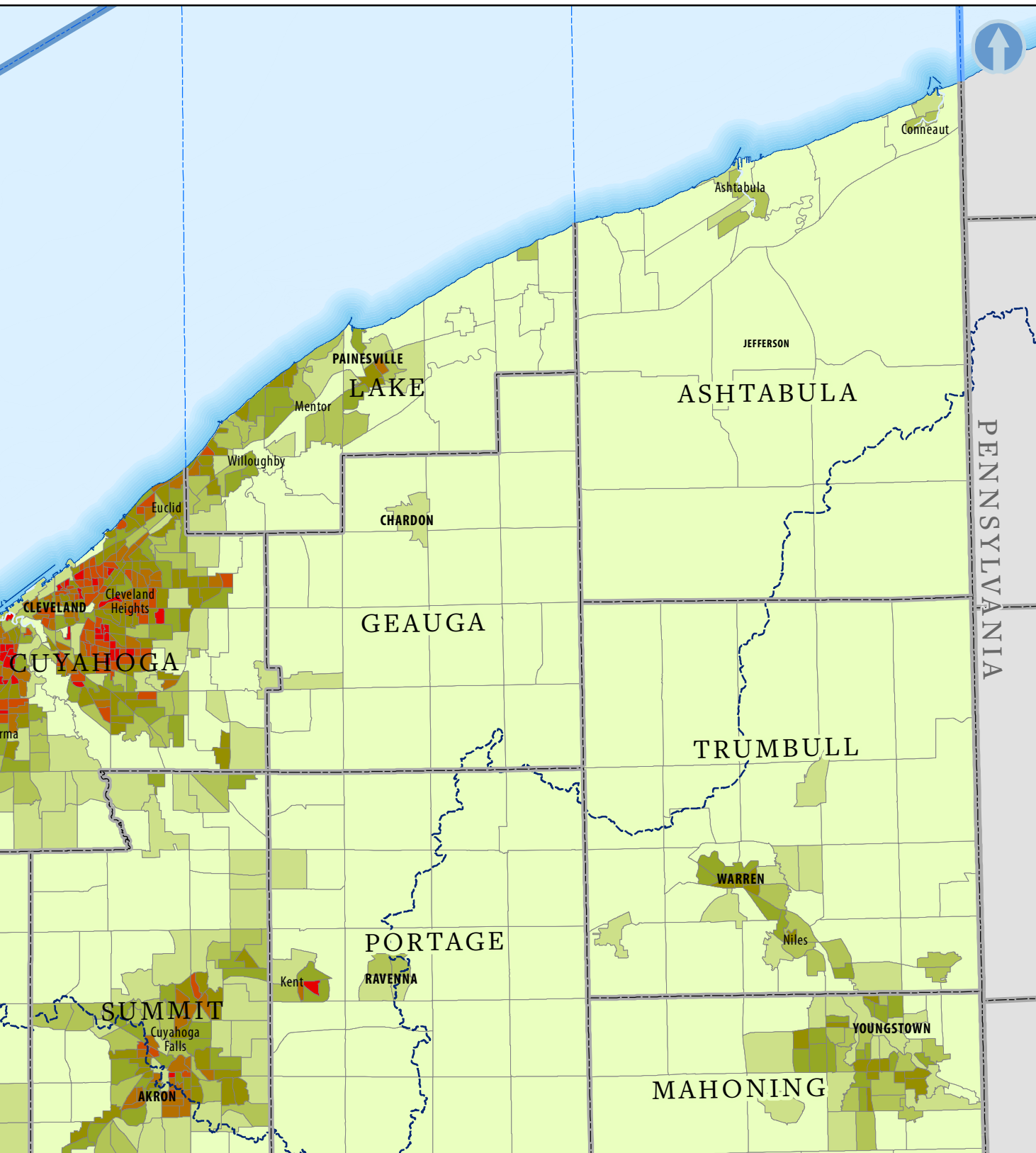
ub = unincorporated balance

* Ohio Development Services Agency, County Profiles, 2016 Annual Edition

† Ohio Department of Natural Resources, Office of Coastal Management, 2015-2016

‡ HUC = Hydrologic Unit Code (see Chapter 2)

** Not including intermittent and submerged islands in Sandusky Bay



Population density is a measurement of the number of people per unit of area (e.g. square miles). It is calculated by dividing the total population of a geographic feature (state, county or census unit) by the area of the feature (in square miles, or any square units). This map shows the population density of northern Ohio by census tract in 2010. A census tract is a small geographic subdivision used by the U.S. Census Bureau to present statistical data. The population of a census tract generally ranges between 1,200 and 8,000 people. The ideal census tract population is 4,000 people. The geographic size of a census tract varies greatly depending on the density of settlement. Census tract boundaries may be modified each census to maintain statistical comparability over time.

Population densities are represented on this map using a light green-to-dark red color scheme; where lighter greens show less densely populated census tracts and darker reds represent census tracts with greater population densities. Urban centers and rural locations are easily decipherable. Clusters of smaller census tract units with greater population densities represent heavily populated urban centers and suburban areas. In contrast, areas comprising larger census tract units with smaller population densities represent sparsely populated rural areas.

This map shows four major northern Ohio urban areas: the Metro Toledo area; the expansive Greater Cleveland metropolitan region; the Akron area, and; the Youngstown/Warren area. In rural counties, smaller, densely-populated census tracts typically represent county seats or other population concentrations.

Greater population density and distribution along the Lake Erie coast is well-defined, particularly in Lorain, Cuyahoga and Lake counties (between Lorain and Painesville). In coastal counties that are more sparsely populated, such as Ottawa, Erie and Ashtabula counties, census tracts with greater population densities are located adjacent to the lake (see Port Clinton, Sandusky, Ashtabula and Conneaut). Greater population densities are also distributed along major river systems, including Metro Toledo (Ottawa and Maumee rivers), Lorain/Elyria (Black River) and the Greater Cleveland/Akron area (Cuyahoga River).

Cuyahoga County has the highest population density among coastal counties with nearly 2,800 people per square mile, followed by Lucas County with around 1,300 people per square mile. Ashtabula County, Ohio's largest county by land area (702.7 square miles), has a population of just over 100,000 people. It is the least densely populated coastal county (144 people per square mile). Lake County, Ohio's smallest county by land area (228.2 square miles), has the third highest population density among coastal counties (around 1,000 people per square mile). Lorain County has a land area of 492.6 square miles and is the fourth-most densely populated (about 612 people per square mile). Sandusky County, which is 409 square miles and has a population of about 61,000, is the second-least densely populated coastal county (149 people per square mile).

COASTAL COUNTY POPULATION CARTOGRAM

CARTOGRAM LEGEND

1 block equals ≈5,000 people

County	Blocks	County	Blocks	County	Blocks
Ashtabula	20	Lake	46	Ottawa	8
Cuyahoga	253	Lorain	60	Sandusky	12
Erie	15	Lucas	87	Wood	26

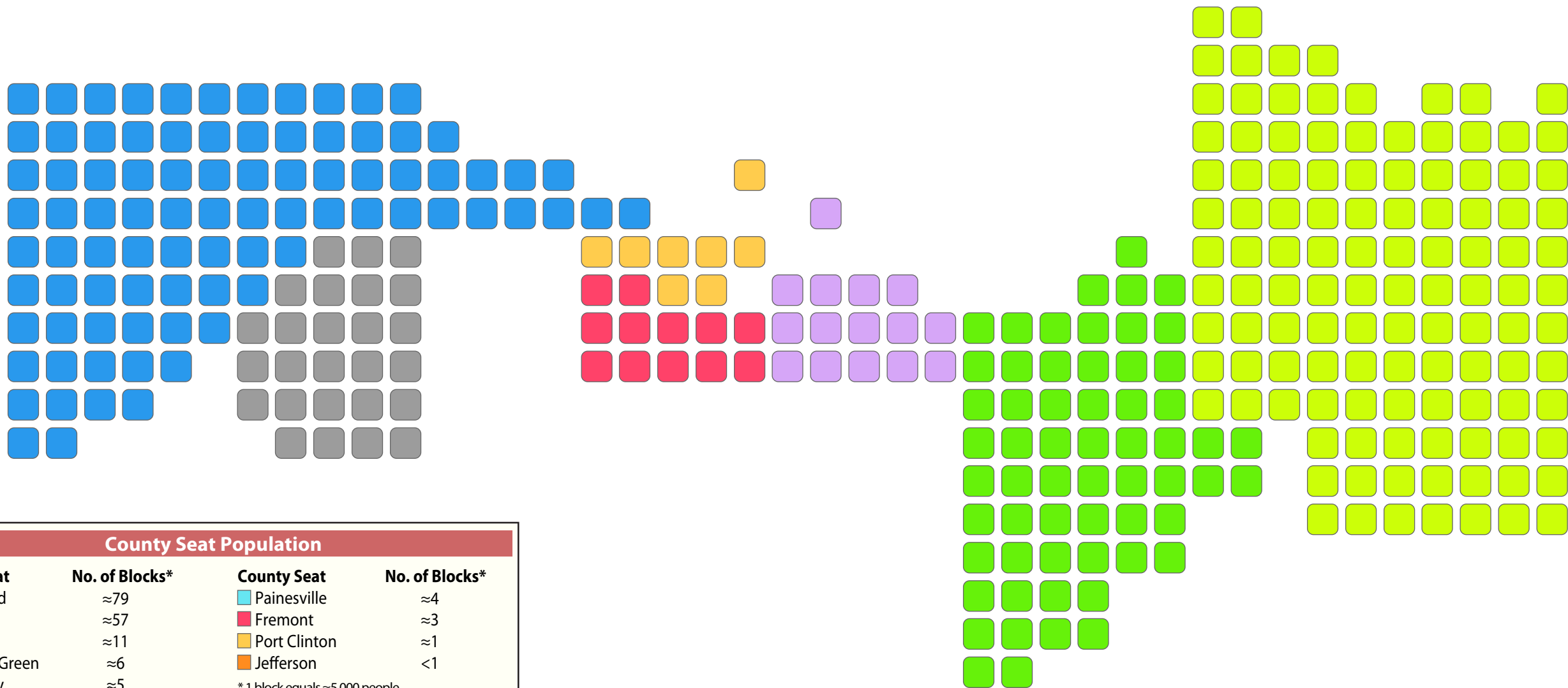
- Not representative of population distribution

U.S. Census Bureau (2012 census estimates)

Coastal County Statistics

County	2012 Pop. (Estimate)	State Rank*	Land Area	State Rank*
Cuyahoga	1,266,049	1	457.19 sq mi	39
Lucas	437,201	6	340.86 sq mi	85
Lorain	301,597	9	491.10 sq mi	28
Lake	229,528	11	227.49 sq mi	88
Wood	128,708	22	617.21 sq mi	7
Ashtabula	100,298	28	701.93 sq mi	1
Erie	76,390	34	251.56 sq mi	87
Sandusky	60,461	43	408.45 sq mi	65
Ottawa	41,355	61	254.92 sq mi	86

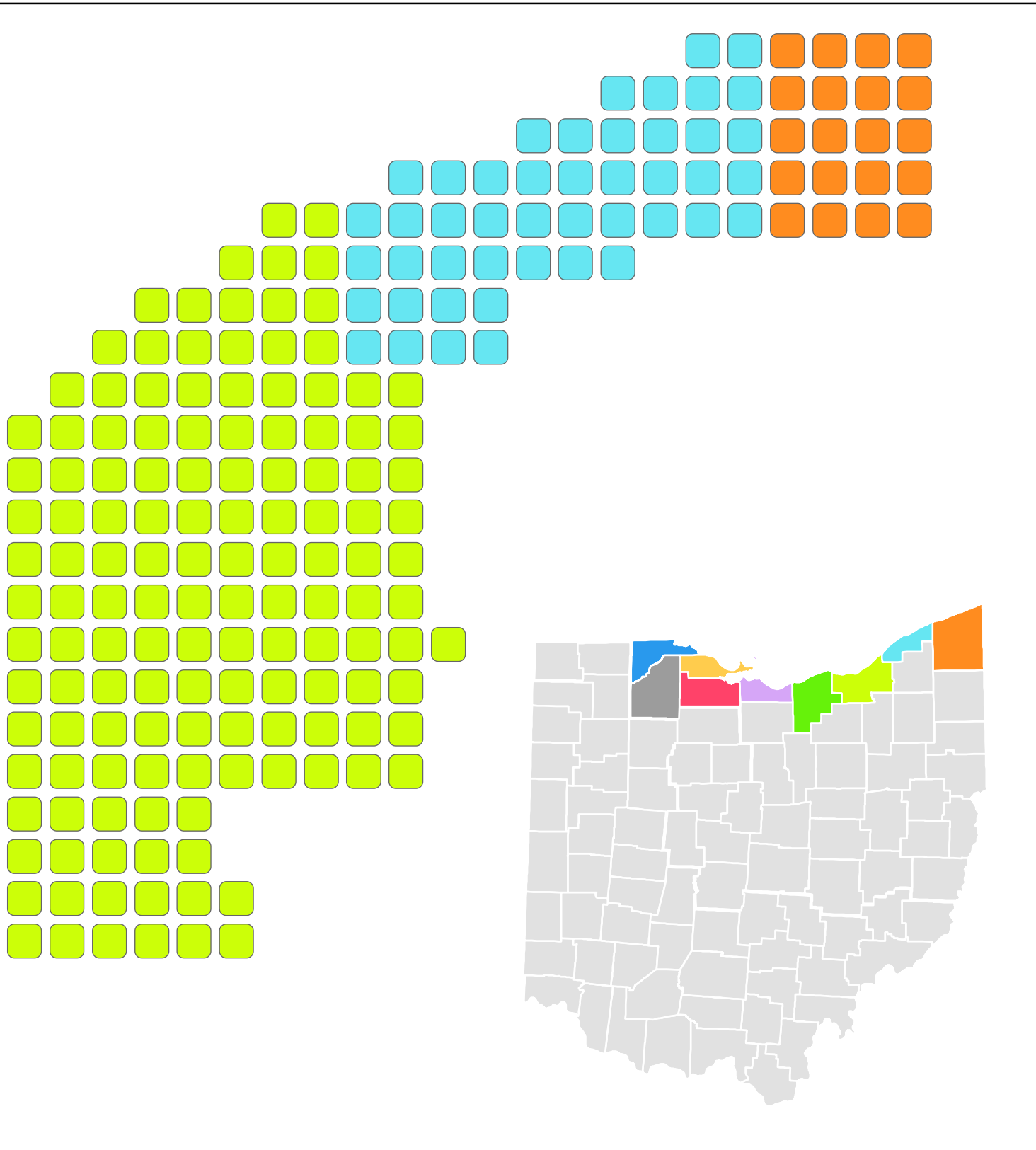
* 88 counties in Ohio



County Seat Population

County Seat	No. of Blocks*	County Seat	No. of Blocks*
Cleveland	≈79	Painesville	≈4
Toledo	≈57	Fremont	≈3
Elyria	≈11	Port Clinton	≈1
Bowling Green	≈6	Jefferson	<1
Sandusky	≈5		

* 1 block equals ≈5,000 people



POPULATION CARTOGRAM

A “cartogram” is an abstract map that proportionally distorts a geographic area to convey measurable variables, such as population. In this cartogram, Ohio’s eight coastal counties (and Wood County) are illustrated using equal-sized blocks—each representing approximately 50 people. The result shows county sizes proportional to population (based on 2012 Census estimates).

This cartogram attempts to preserve coastal county shape and adjacency. It is not representative of population distribution. Cuyahoga County, the fourth largest coastal county by land area (457.2 square miles), is by far the most populated and therefore depicted with the most blocks (253). In fact, the number of blocks representing Cuyahoga County’s population outnumbers the blocks of all other coastal counties combined (248 blocks), excluding Wood County. By comparison, only 20 blocks are used to represent Ashtabula County, Ohio’s largest county by land area (702.7 square miles). Lake County, Ohio’s smallest county by land area (228.2 square miles), is depicted with 46 blocks, which is more than the total number of blocks used to represent Ashtabula, Erie and Ottawa counties, combined. Ottawa County is the least populated coastal county and therefore represented with the fewest blocks (eight).

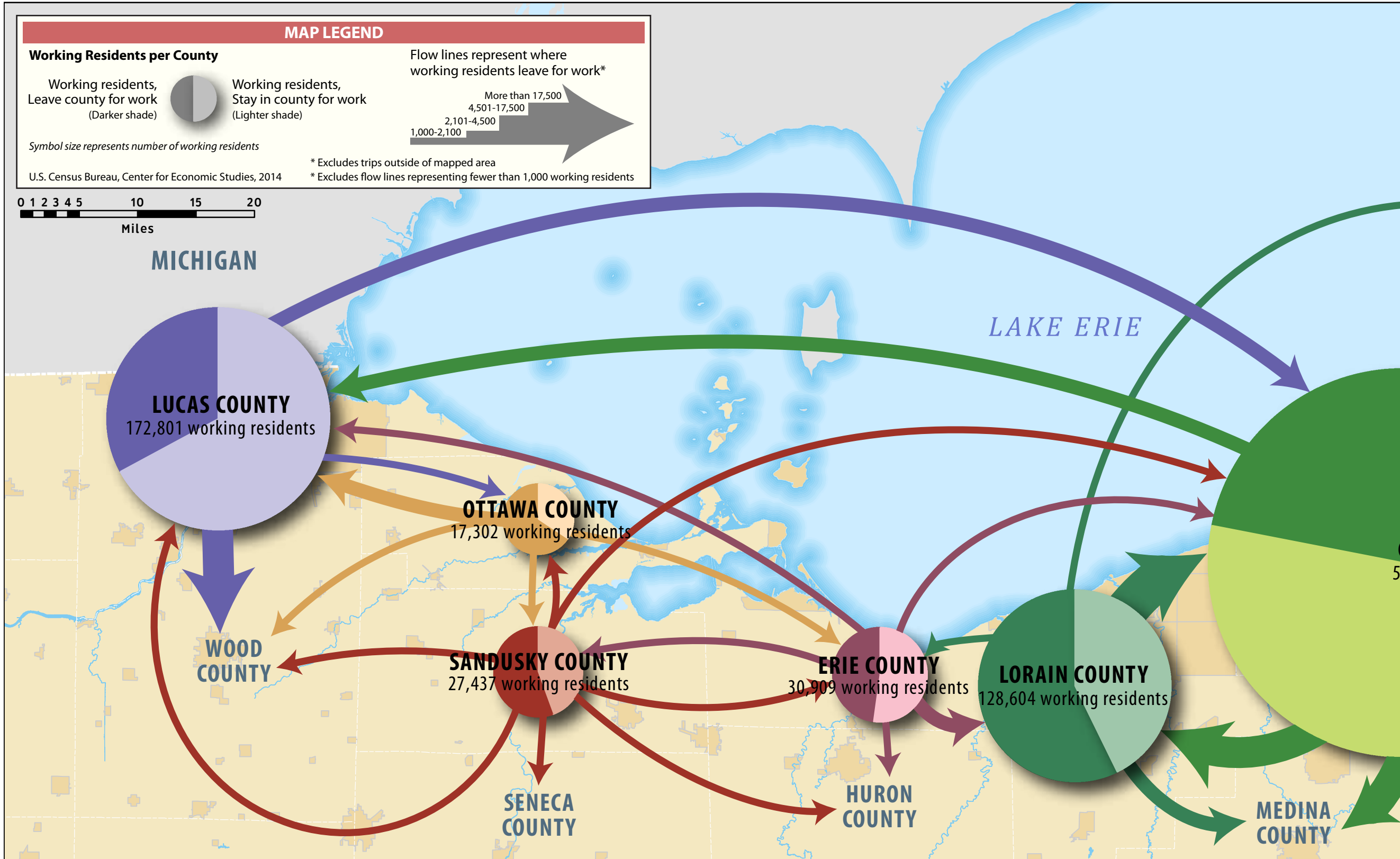
COASTAL COUNTY POPULATION

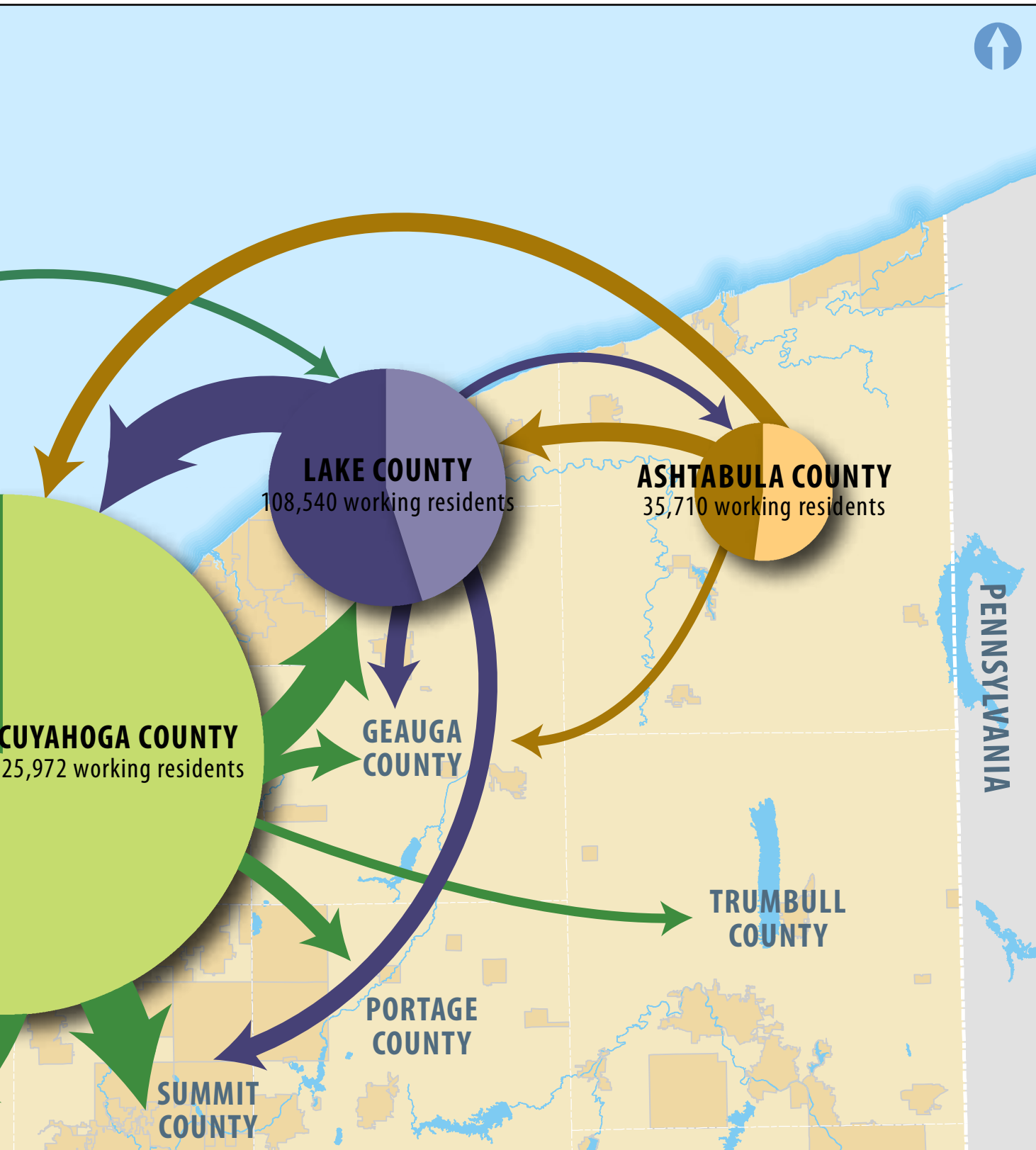
According to the U.S. Census Bureau, the combined population of Ohio’s coastal counties was approximately 2,600,000 people in 2010, amounting to nearly one-quarter of the state’s total population. From 2000 to 2010, coastal county population decreased by almost 4.5 percent. With a population of over 1,280,000 people, Cuyahoga County accounts for over half of the combined coastal county total.

Since 2000, Cuyahoga County has experienced the greatest population loss (over eight percent). Lucas County has the second largest population with almost 442,000 people and a ten-year population decrease of nearly three percent. Lorain and Lake counties, which are part of Greater Cleveland, have populations of about 301,000 and 230,000, respectively. Lorain County has experienced the greatest population increase of all coastal counties (almost six percent), while Lake County has experienced a minimal population increase since 2000 (around one percent). With just over 41,000 people, Ottawa County is the least populated coastal county. It has also experienced a one percent population increase since 2000.

It is projected that the combined population of Ohio’s coastal counties will drop by about 82,500 people (more than a three percent loss) by 2020. Cuyahoga County’s population is projected to decrease by 5.5 percent, followed closely by Erie County (5.4 percent drop). Lorain County is the only coastal county expected to experience a population increase (around three percent).

WORKING RESIDENTS AND EMPLOYMENT DESTINATIONS





This map shows the total number of working residents per coastal county. It also illustrates general employment trends and where people work.

The total number of working residents per county is represented by the graduated pie charts (labels included). The greater the number of working residents, the larger the pie chart. Each pie chart is divided into two sections, which represent the percentage of working residents that are employed in their county of residence (lighter shade) and the percentage of working residents that are employed outside their county of residence (darker shade). For example, in the coastal county area, Cuyahoga County is home to the greatest number of people in the workforce with nearly 526,000 working residents (more than half of all other coastal counties combined). Cuyahoga County also has the highest percentage of working residents that stay within the county for primary employment (78 percent). Lucas County has the second highest number of working residents (nearly 173,000 people) and the second highest percentage of working residents that stay within the county for work (67 percent). Ottawa County has the fewest number of working residents (just over 17,000 people) and the lowest percentage of working residents that stay within the county for primary employment (34 percent).

The flow lines show the movement of people who commute to other counties for primary employment. Arrows indicate the direction of movement. Line thickness denotes the quantity of flow. There are four flow line widths, representing (from thin to thick): (1) 1,000-2,100 commuters; (2) 2,101-4,500 commuters; (3) 4,501-17,500 commuters, and; (4) more than 17,500 commuters. There is no flow line representing commuters traveling outside their county of residence if the total number of people was fewer than 1,000. The map also excludes flow lines extending to counties outside of the mapped area. The following flow lines were *not* mapped due to space limitations: Lorain County residents commuting to Summit County (about 3,450 people); Lucas County residents commuting to Summit County (about 1,200 people), and; Cuyahoga County residents commuting to Wood County (1,110 people). The color of the flow line corresponds with the darker shade in the pie chart.

Fifty-five percent of working residents in Lake County and 57 percent of working residents in Lorain County travel to other counties for work. Over 35 percent of both counties' working residents commute to Cuyahoga County (more than 46,000 people from Lorain County and more than 39,800 people from Lake County). More Ottawa County residents commute to Erie, Lucas, Sandusky and Wood counties (6,625 people, combined) than the number of working residents that stay within the county (5,950 people).

The information used to create this map and the following map is available from the U.S. Census Bureau, Center for Economic Studies, Longitudinal Employer-Household Dynamics. All data is from 2014.

COASTAL COUNTY WORKFORCE

MAP LEGEND

People Employed in County

Employed in county,
Live outside of county



Employed in county,
Live in county

Arrows and percentages represent
non-residents entering county for work

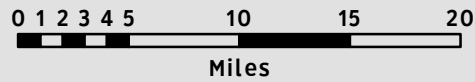
39%



Flow line widths do not represent inflow proportions

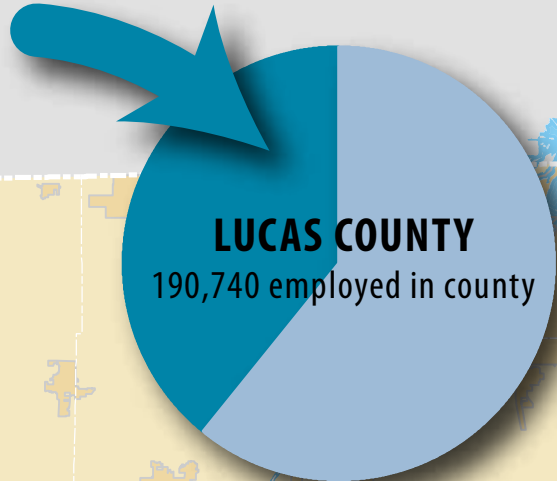
Symbol size represents number of people employed in county workforce

U.S. Census Bureau, Center for Economic Studies, 2014



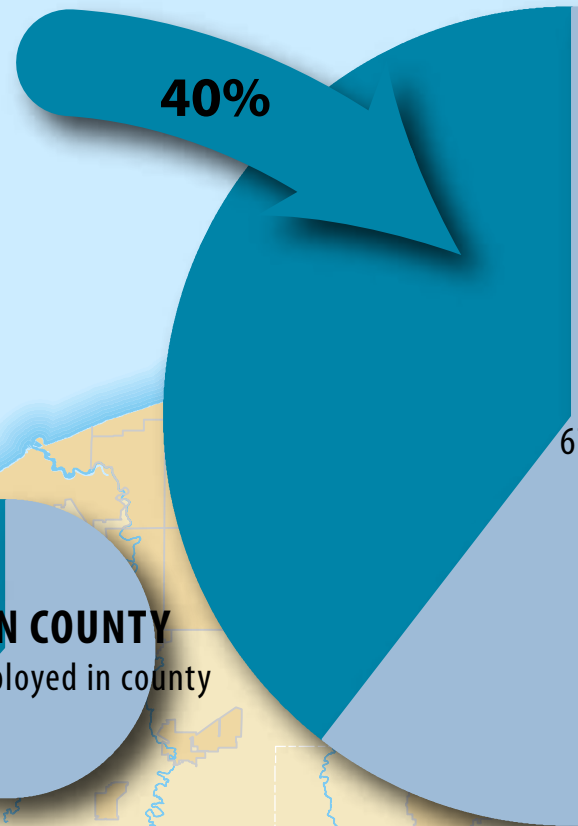
MICHIGAN

39%



LAKE ERIE

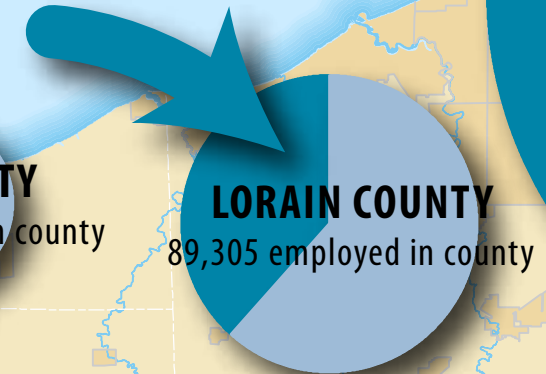
40%



49%

OTTAWA COUNTY
11,615 employed in county

38%



51%

SANDUSKY COUNTY
24,776 employed in county

49%

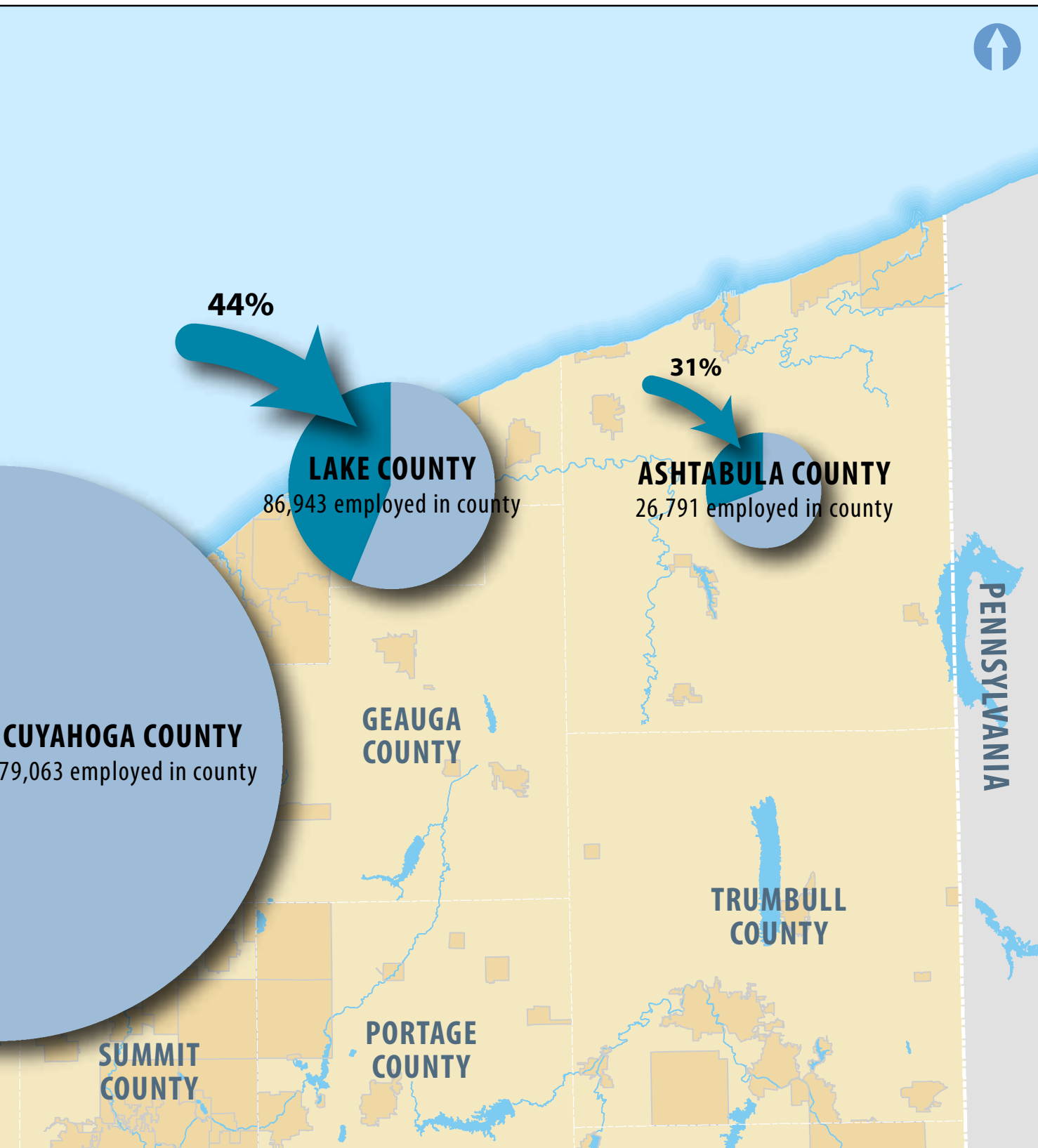
ERIE COUNTY
31,497 employed in county

WOOD COUNTY

SENECA COUNTY

HURON COUNTY

MEDINA COUNTY



This map illustrates the total number of people who are employed in each of Ohio's eight coastal counties (for primary employment). It also shows the proportions of residents and non-residents that work in a county. This is not a population map.

The total number of people employed in a coastal county is represented with graduated pie charts (labels included). The greater the number of people in a county's workforce, the larger the pie chart. Each pie chart is divided into two sections. The lighter shade of blue represents the percentage of the workforce that lives in the county. This section corresponds to the working resident total on the previous map. The darker shade of blue represents the percentage of workers that live outside the county. This proportion includes the combined number of residents from other coastal counties, non-coastal counties and out-of-state areas.

The flow lines and accompanying percentages illustrate the non-resident workforce. Flow line colors match the darker blue portion of the graduated pie chart (symbolizing non-resident workers). *Flow line widths are general and do not statistically represent the quantity of flow.*

Cuyahoga County employs the most people with a workforce of over 679,000 people. Sixty percent of its workforce lives in the county. As illustrated on the previous map, much of Cuyahoga County's non-resident workforce lives in Lorain and Lake counties (approximately 46,000 people and 40,000 people, respectively). Lucas County employs the second-most number of people (about 191,000 people). Almost 40 percent of its workforce lives outside the county. More people commute to Lucas County from Cuyahoga and Ottawa counties (almost 2,700 people from both) than from any other coastal county.

Lorain and Lake counties employ approximately 89,000 and 87,000 workers, respectively. Approximately 15,000 Cuyahoga County residents commute to Lake County for primary employment, while nearly 14,000 people travel to Lorain County. Over 4,400 Ashtabula County residents work in Lake County. Around 2,100 Erie County residents work in Lorain County.

Ottawa County has the fewest number of people that work in the county (about 11,500 people). Almost half of its workforce lives outside the county—over 1,300 people from Sandusky County and about 1,000 from Lucas County. Sandusky County is the only coastal county where over half (51 percent) of its workforce lives outside the county. Approximately 1,400 Ottawa County residents commute to Sandusky County for primary employment, while around 1,100 people travel from Erie County. Ashtabula County employs a higher percentage of working residents (69 percent) than any of the other coastal counties. Lorain County is second with 62 percent, followed by Lucas County (61 percent).

