Ohio Environmental Protection Agency

April 2012

Grand River (lower) Watershed TMDL Report

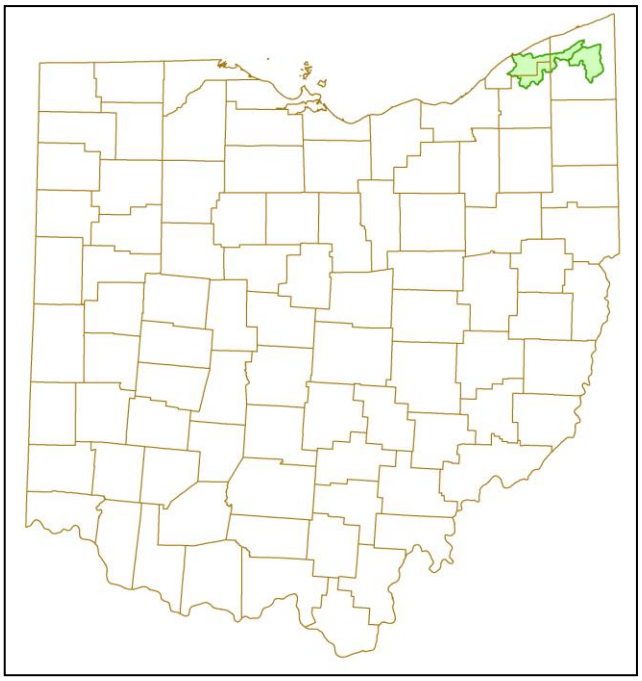
The Clean Water Act requires Ohio EPA to prepare a cleanup plan for watersheds that do not meet water quality goals. The cleanup plan, known as a total maximum daily load (TMDL) report, specifies how much pollution must be reduced from various sources and recommends specific actions to achieve these reductions.

What are the essential facts?

- Ohio EPA studied the lower Grand River watershed and found water quality problems at several locations.
- Water quality improvements can be made with practical, economical actions.
- Making water quality improvement depends on the participation of the watershed's residents.

Where is the lower Grand River watershed?

The lower Grand River watershed is located in northeastern Ohio in Lake, Geauga and Ashtabula counties. The river flows into Lake Erie at Painesville. The Grand River downstream from Mill Creek transitions from a low-gradient swamp stream to a higher-gradient bedrock stream near Mechanicsville.



*A **watershed** is the land area that drains into a body of water.*

The mainstem and tributaries draining Lake and Geauga counties cut though erodible shale bedrock and are deeply incised due to scouring flows associated with snowmelt. This has resulted in spectacular scenery, including deep, canyon-like gorges, numerous cascades and waterfalls in the adjoining tributaries. Because of the scenery in this watershed, 23 miles have been designated by the Ohio Department of Natural Resources as Wild river and 10 miles as Scenic river. The isolation caused by such a dramatic landscape has helped to preserve the physical habitat and water quality of the mainstem. Land use in the lower Grand River watershed transitions from urban/suburban on the western edge to rural and agricultural in the eastern two-thirds.

How does Ohio EPA measure water quality?

Ohio is one of the few states to measure the health of its streams by examining the number and types of fish and aquatic insects in the water. An abundance of fish and insects that tolerate pollution is an indicator of an unhealthy stream. A large number of insects and fish that are sensitive to pollution indicate a healthy stream.

In 2003 and 2004, comprehensive biological, chemical, and physical data were collected in the watershed by Ohio EPA scientists. The watershed's conditions were compared with state water quality goals to determine which streams are impaired, and how much needs to be done to restore good stream habitat and water quality.

What is the condition of the lower Grand River watershed?

Overall, 77% of sites met aquatic life use goals and 29% of sites met recreation use goals. Of those sites not attaining aquatic life use goals, four attained no goals and nine partially attained goals. The mainstem of the Grand River fully reached aquatic life goals but did not reach all recreation use goals. Predominant causes of impairment were pollutants associated with urban runoff and storm water and natural sources such as low flow.

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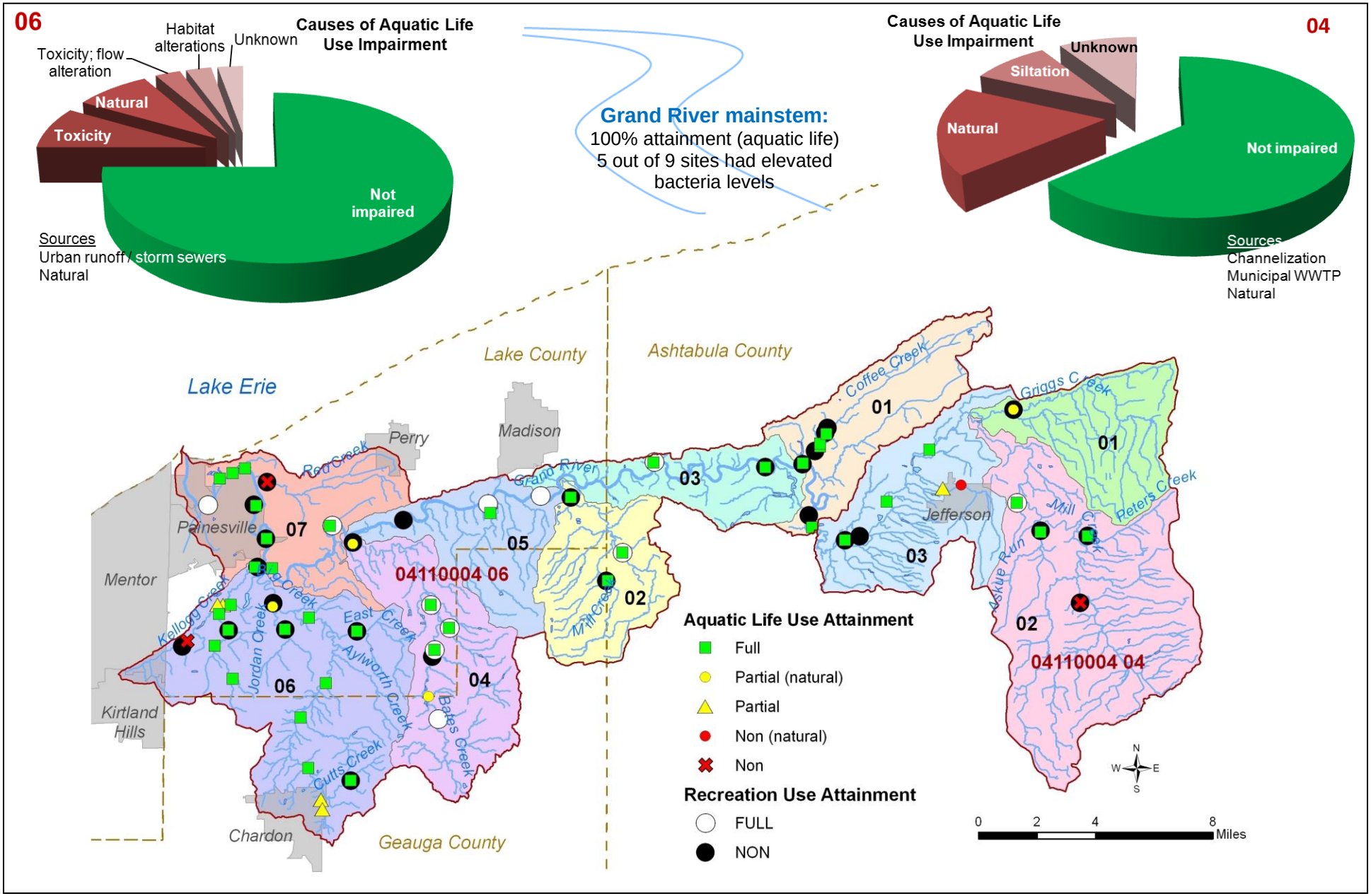
What are the problems?



How can the problems be fixed?

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In towns and rural residential areas

- Install BMPs that retain or infiltrate storm water on-site.
- Adopt better site design practices.
- Install post-construction BMPs capable of settling, infiltrating, filtering or otherwise treating pollutants.
- Reduce runoff from urban areas carrying nutrients.

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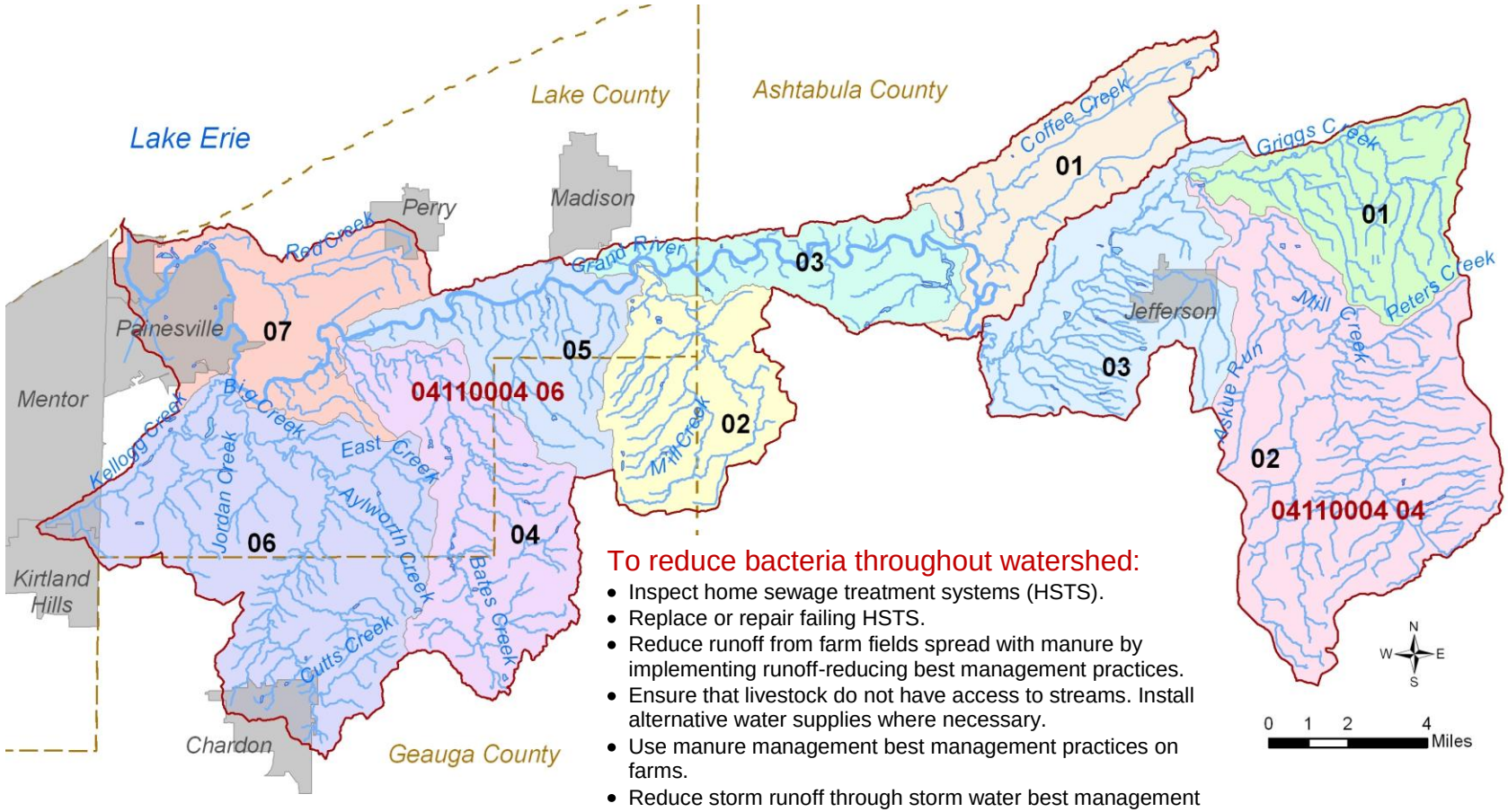
On farmland

- Along the upper reaches of Mill Creek, install BMPs that reduce sediment runoff.
- Reduce runoff from farm fields carrying nutrients.

In towns and rural residential areas

- Investigate the cause of toxicity at the Jefferson WWTP and address through permitting.
- Install BMPs that retain or infiltrate storm water on-site.
- Install post-construction BMPs capable of settling, infiltrating, filtering or otherwise treating pollutants.



To reduce bacteria throughout watershed:

- Inspect home sewage treatment systems (HSTS).
- Replace or repair failing HSTS.
- Reduce runoff from farm fields spread with manure by implementing runoff-reducing best management practices.
- Ensure that livestock do not have access to streams. Install alternative water supplies where necessary.
- Use manure management best management practices on farms.
- Reduce storm runoff through storm water best management practices that treat runoff before it enters a stream.

What are the most important "fixes" in the watershed?

- ***Reduce effects of hydrologic alteration and pollutants from urban runoff and storm water.***
  - *Install best management practices (BMPs) that retain or infiltrate storm water on-site.*
  - *Adopt better site design practices.*
  - *Install post-construction BMPs capable of settling, infiltrating, filtering or otherwise treating pollutants.*
  - *Reduce runoff from urban areas carrying nutrients.*
- ***Adopt minimal-impact site design practices that will protect water quality and preserve riparian areas to keep hydrology intact.***
- ***Reduce siltation from agricultural land uses by using BMPs.***
- ***Reduce bacteria entering streams.***
  - *Inspect home sewage treatment systems; replace or repair those that are failing.*
  - *Reduce runoff from farm fields spread with manure. Utilize manure management BMPs.*
  - *Ensure that livestock does not have access to streams.*

What actions are needed to improve water quality?

There are a variety of reasons why streams in the lower Grand River watershed fail to meet water quality goals, so several types of actions are needed to improve and protect the watershed.

The recommendations focus on reducing pollutant loads and/or increasing the capacity of the streams to better handle the remaining pollutant loads. Sources of water quality problems that should be focused on making water quality improvements include:

- Utilize storm water BMPs to increase infiltration and reduce pollutants.
- Preserve riparian areas to keep hydrology intact.
- Reduce bacteria through agricultural and storm water BMPs that reduce runoff.

Who can improve the situation?

Implementation of this report's recommendations will be accomplished by federal, state and local partners, including the voluntary efforts of landowners.

Ohio EPA will issue permits to point source dischargers that are consistent with the findings of this TMDL report. Ohio EPA works with municipal separate storm sewer systems in the watershed to apply conservation-based storm water practices.

The Ohio Department of Natural Resources has programs dedicated to abating pollution from certain agricultural practices; promoting soil, water, and wildlife conservation; and dealing with storm water and floodplain protection. County agencies often work with state and federal partners in administering federal and state assistance programs to people in their counties. Several such programs are available to address home septic system upgrades and agricultural and urban conservation practices.

The Western Reserve Land Conservancy (WRLC) has a watershed coordinator in the Grand River who is working on watershed action plans for the upper and lower watersheds and who works to improve water quality in the watershed. Also, The Cleveland Museum of Natural History and The Nature Conservancy work to protect high quality natural areas in the watershed.

Several areas have developed riparian setbacks as part of planning commission regulations. A 319 project grant was awarded to the WRLC in July 2007 that included some restoration and easement work in the Grand River watershed. Additional funding may become available for agricultural conservation practices through provisions in the Farm Bill for buffer strips, wetlands and other land conservation practices.

Where can I learn more?

The Ohio EPA report containing the findings of the watershed survey, as well as general information on TMDLs, water quality standards, 208 planning, permitting and other Ohio EPA programs, is available at http://www.epa.ohio.gov/dsw/tmdl/index.aspx.

The lower Grand River watershed draft TMDL report was available for public review from October 12 through November 14, 2011. The final report was approved by U.S. EPA on April 12, 2012. The report is available at: http://www.epa.ohio.gov/dsw/tmdl/GrandRiver.aspx.

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