



# Clean Water Act Section 303(d) Total Maximum Daily Loads (TMDLs)

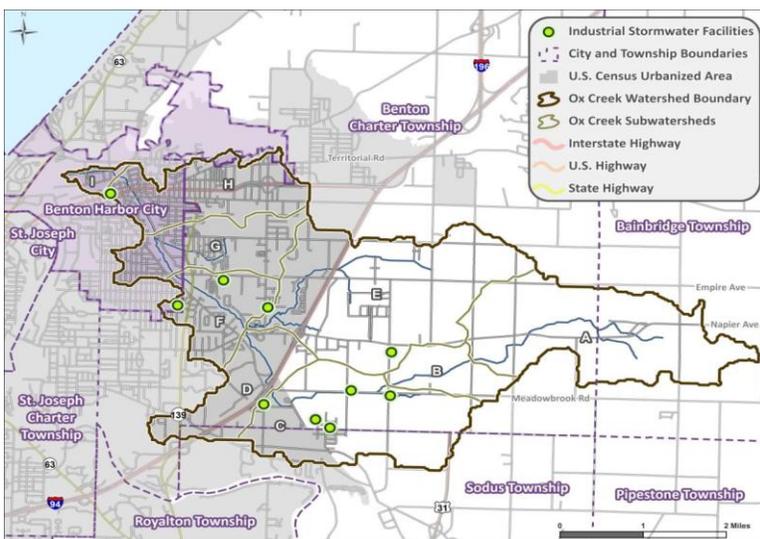
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## Ox Creek TMDL Development March 2013

### Why the Interest in Ox Creek?

- Ox Creek is a warmwater stream that flows through Benton Harbor where it joins the Paw Paw.
- It originates in agricultural lands east of the city and drains an area of 16.5 square miles.
- The lower portion of the watershed is heavily influenced by urbanization and storm water.
- Ox Creek appears on Michigan's §303(d) list because it is not meeting the "other indigenous aquatic life and wildlife" designated use; indicated by poor macroinvertebrate community ratings.
- Sedimentation, siltation, total suspended solids (TSS), and flow regime alterations are causes of the impairment.
- Sources of impairment are stream bank modifications and storm water quality and quantity.

Ox Creek is part of the Paw Paw River watershed



### What is a TMDL?

- A TMDL is a tool for achieving water quality standards.
- It is based on the relationship between pollutant sources and in-stream water quality conditions.
- It establishes an allowable amount (Loading Capacity) of pollutant and the reductions needed to meet water quality standards.
- The TMDL process is a flexible framework for identifying actions needed to attain water quality standards.
- States are responsible for implementing TMDL development.
- EPA reviews and approves TMDLs.

### The Ox Creek TMDL

- Loading Capacity = 183 tons/day for the entire watershed.
- Loading Capacity is based on 300 mg/L TSS target concentration as a daily maximum and a design flow that meets hydrology based objectives.
- Design Flow = 1 day exceedance flow using a representative site (Galien River) with acceptable bugs and drainage area weighting factor.
- Point Source Allocations include MS4 and Industrial Stormwater permittees
- Non-Point Allocations are assigned based on percentage of jurisdictional area in watershed.

### TMDL Implementation Recommendations

- Apply and / or install agricultural and urban Best Management Practices (BMPs) that would reduce TSS loads and stormwater runoff from being delivered to Ox Creek
- Identify areas where wetland restoration and riparian buffers would be beneficial in removing TSS from runoff
- Use tools such as High Impact Targeting (HIT) to identify and prioritize source areas in greatest need of sediment reduction BMPs and restoration
- Continue outreach to encourage participation in installation of BMPs in priority areas
- Pursue funding opportunities to implement BMPs through state and federal assistance grants