



## **TMDL Scoping Report Development for Lake Michigan (nearshore) Mercury and Polychlorinated Biphenyls**

---

### **Background**

Over the last 30 years, waters in Illinois have been monitored for chemical, biological, and physical conditions. In some cases, the condition of those rivers and lakes falls short of the need to support basic water quality use goals. These waters are deemed impaired since they cannot meet use expectations set for them under state and federal law. When this happens Total Maximum Daily Load (TMDL) reports are developed for impaired waters to determine the maximum amount of a pollutant a water body can receive and still meet water quality standards and support its designated uses. Designated uses include aquatic life, indigenous aquatic life, public and food processing water supply, primary contact (e.g., swimming, water skiing), secondary contact (e.g., boating, fishing), fish consumption, and aesthetic quality.

TMDLs are done in stages to allow for public involvement and input. TMDL development in Illinois begins with data compilation—water quality, point source discharge, precipitation, soils, geology, topography, and land use—within the specific watershed. The data are analyzed to characterize and understand the impaired waterbodies and contributing sources. Illinois Environmental Protection Agency (IEPA) then assesses the tools necessary to develop the TMDL. In most cases, computer models are used to calculate pollutant loads and link those loads to the water body condition. In the case of the mercury and polychlorinated biphenyl TMDLs, models will be used to link pollutant loads to fish tissue concentrations. A scoping report has been completed for the project watershed, and this report summarizes the available data, TMDL targets, and the recommended modeling approach.

### **The Illinois Lake Michigan Nearshore Impaired Segments**

Lake Michigan beaches and their coastal waters are a highly valued societal and ecological resource. These waters are widely popular, highly used, and are monitored by Illinois EPA. There are 51 beach segments and 4 harbors along the Illinois Lake Michigan shoreline that are included on IEPA's impaired waters listing for mercury and PCBs, in addition to the Lake Michigan nearshore area extending 5 km from the coastline. For this TMDL, "shoreline segment" is used in place of "beach" because not all 51 segments are considered beaches as defined by the local management agencies. The maps accompanying this Fact Sheet show the location of the shoreline segments, the harbors and the nearshore open water segment. The impaired waterbody segments are shown in Figure 1, with additional detail shown in Figures 2 and 3.

### **Potential Pollutant Sources**

Potential sources of mercury and polychlorinated biphenyls to the impaired segments include: hydrodynamic transport from the main body of Lake Michigan, atmospheric loading, MS4 stormwater loading, other NPDES-permitted point sources, flow reversals from the Chicago Area Waterways, and diffusion and/or resuspension from bed sediments.

### **Candidate TMDL Approaches**

Based on the information compiled for the project study area, and a data gap assessment, three different approaches have been described and assessed for applicability for the Illinois Lake Michigan nearshore TMDLs. The three candidate approaches are, in order of increasing complexity: 1) Proportionality Approach; 2) Steady State Mass Balance Approach, and 3) Time Variable Approach. Based on a review of the available data and the contributing sources, IEPA and USEPA have recommended the proportionality approach for the mercury and PCB TMDLs.

### **Scoping Report Development**

In support of TMDL development, a scoping report has been developed that describes the project study area, the available data and data gaps, applicable water quality criteria and recommended TMDL targets, candidate modeling approaches, potential sources and their magnitudes, and a recommended approach. The scoping report is available at:

<http://www.epa.state.il.us/water/tmdl/report-status.html>.

For information on the assessment of Illinois waters, refer to the Integrated Report and 303(d) List at:  
<http://www.epa.state.il.us/water/tmdl/303d-list.html>.

For more information on the TMDL program in Illinois, refer to: <http://www.epa.illinois.gov/topics/water-quality/watershed-management/tmdls/index>.

If you have any questions, please contact Collin Stedman by phone at 217/782-3362 or email at:  
[Collin.Stedman@Illinois.gov](mailto:Collin.Stedman@Illinois.gov).

May 2015

---

Figure 1. Study Area and Impaired Segments

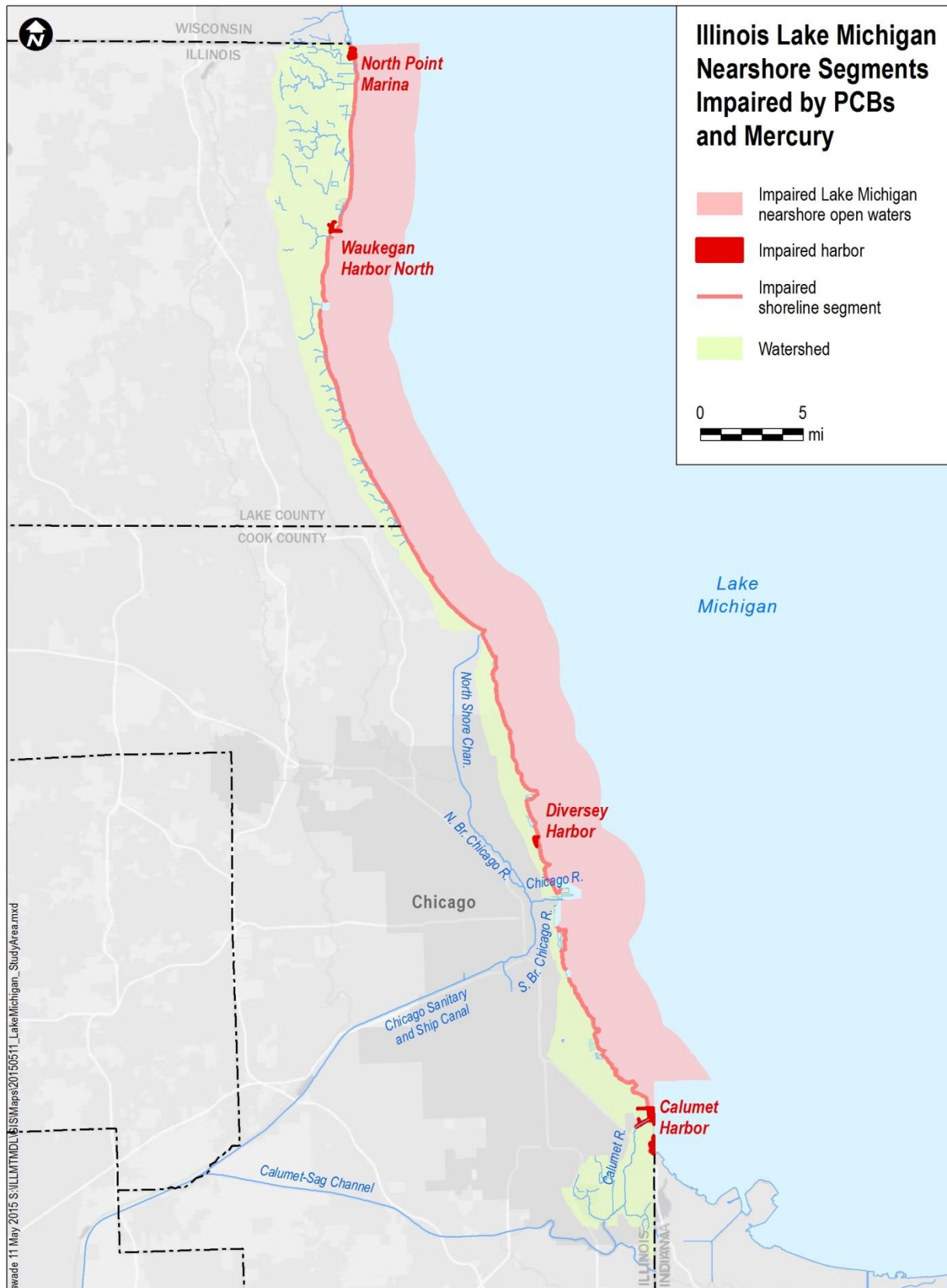
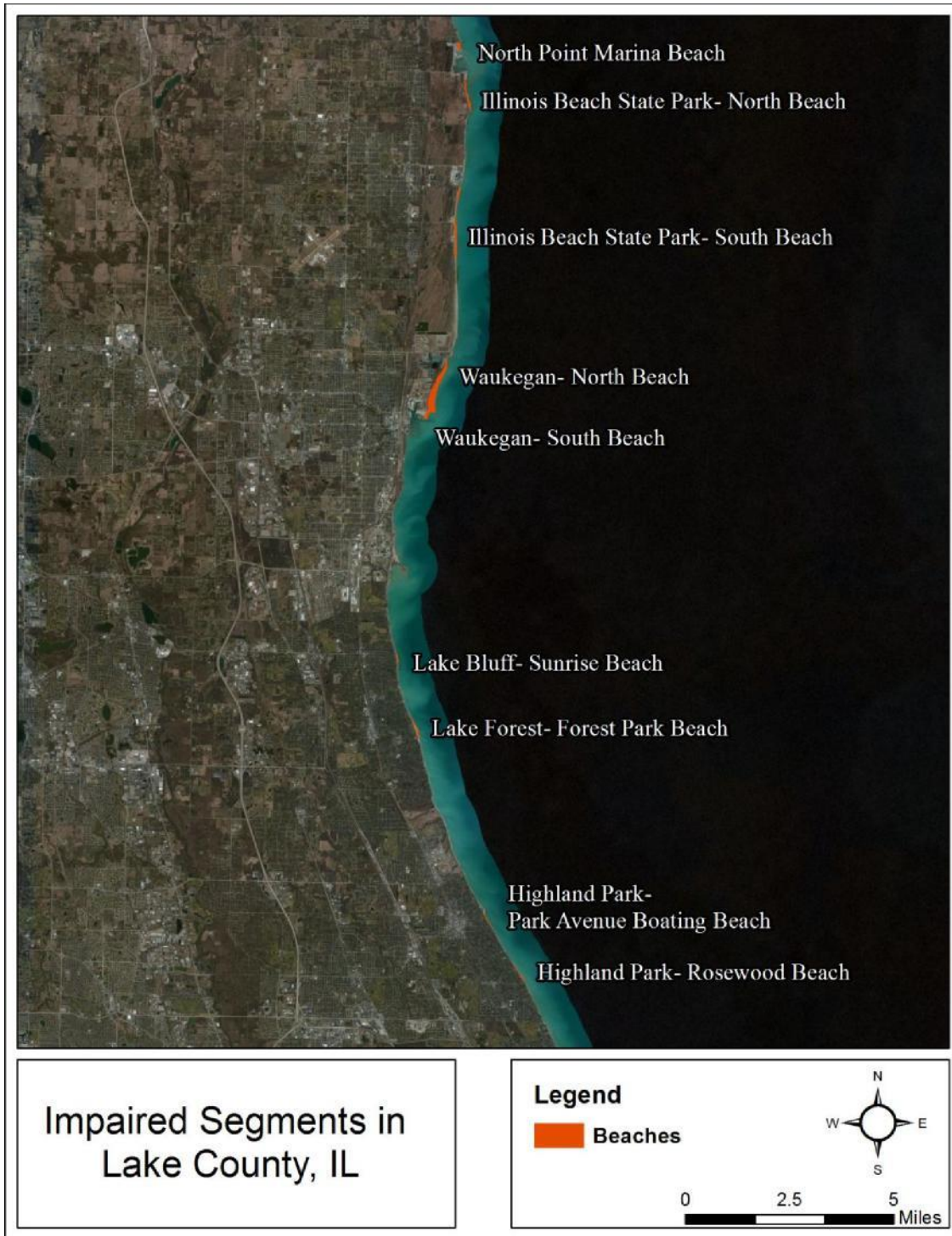
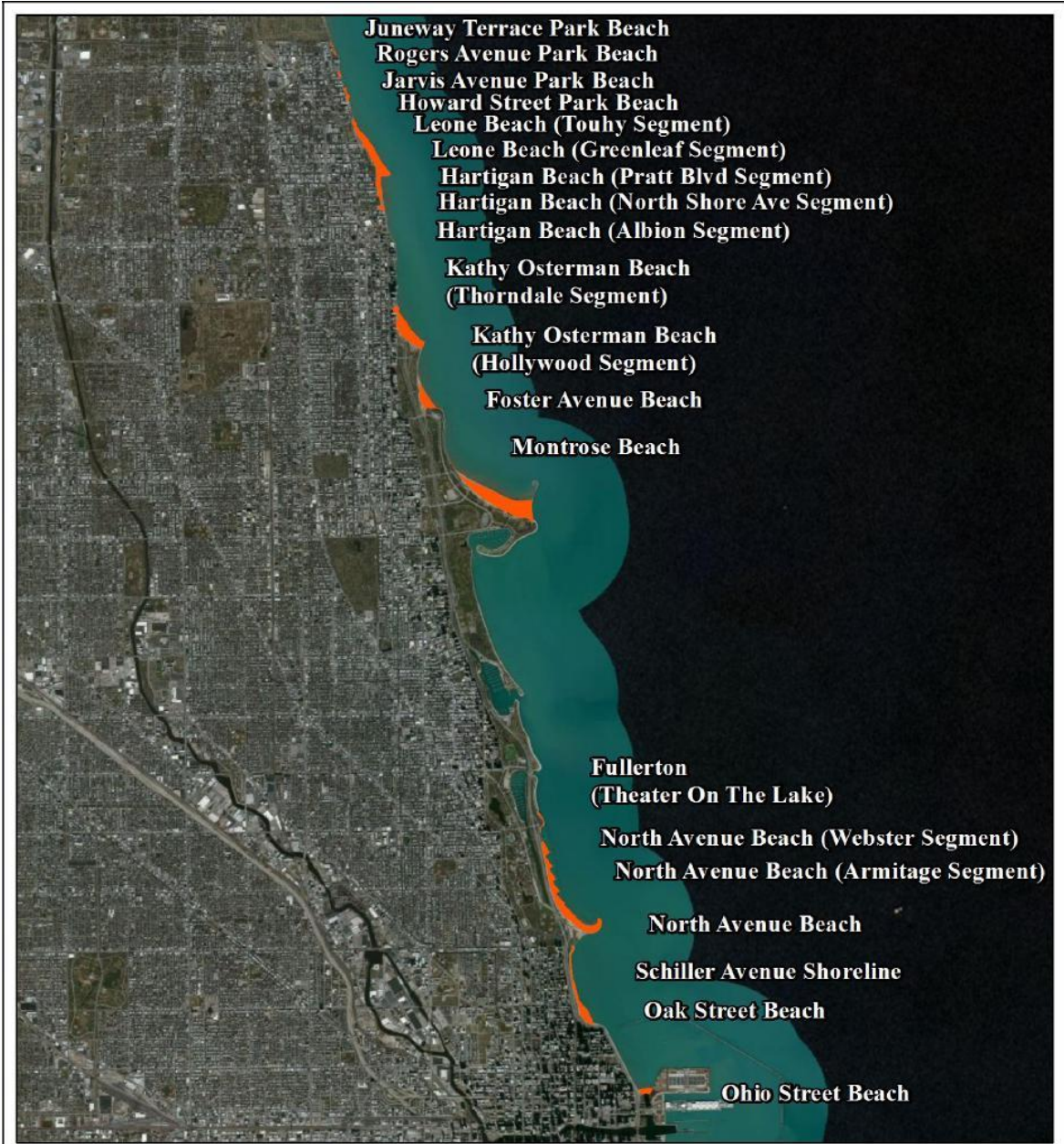


Figure 2. Impaired Harbors



Figure 3. Impaired Beach/Shoreline Segments





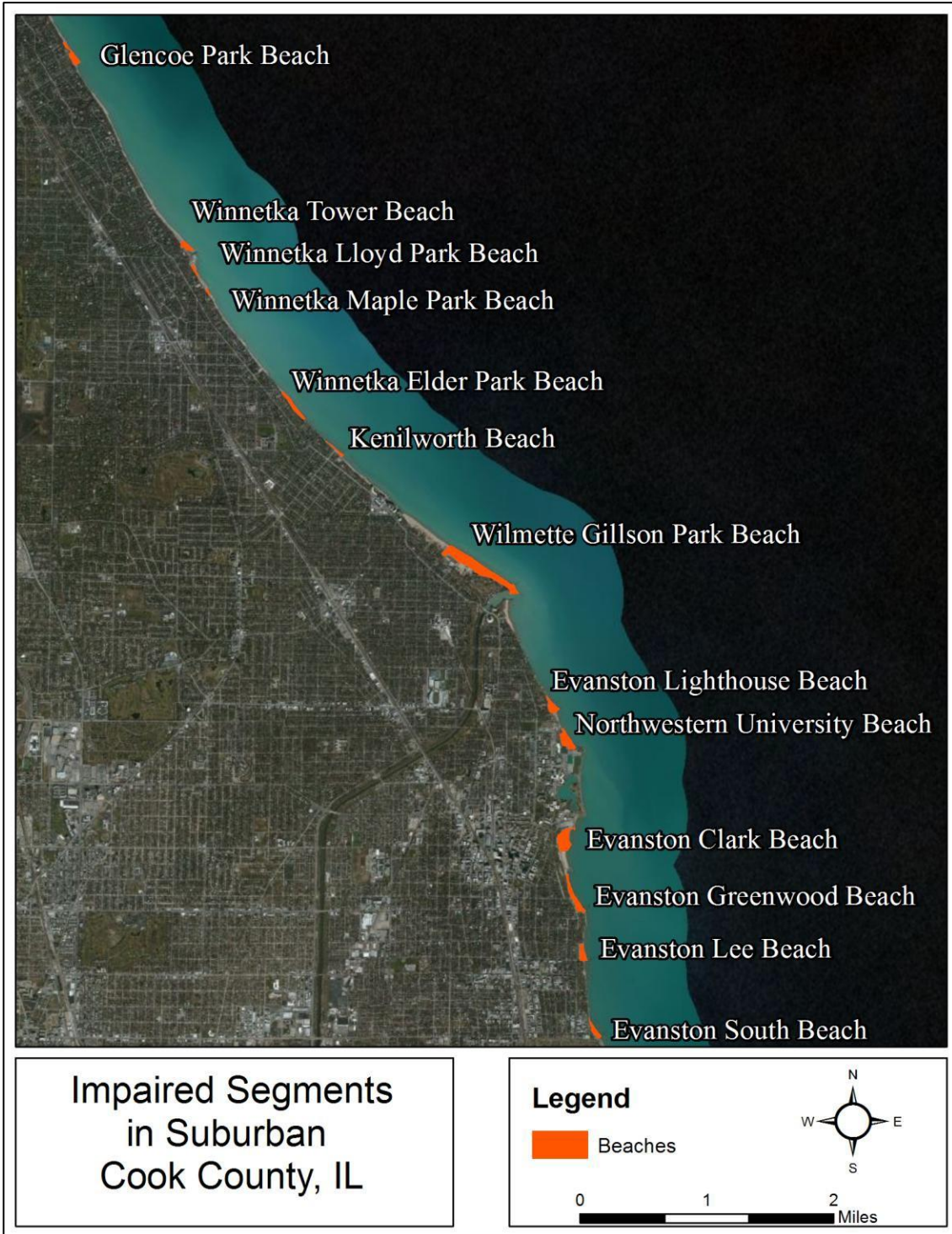
Impaired Segments in Northern Chicago, IL

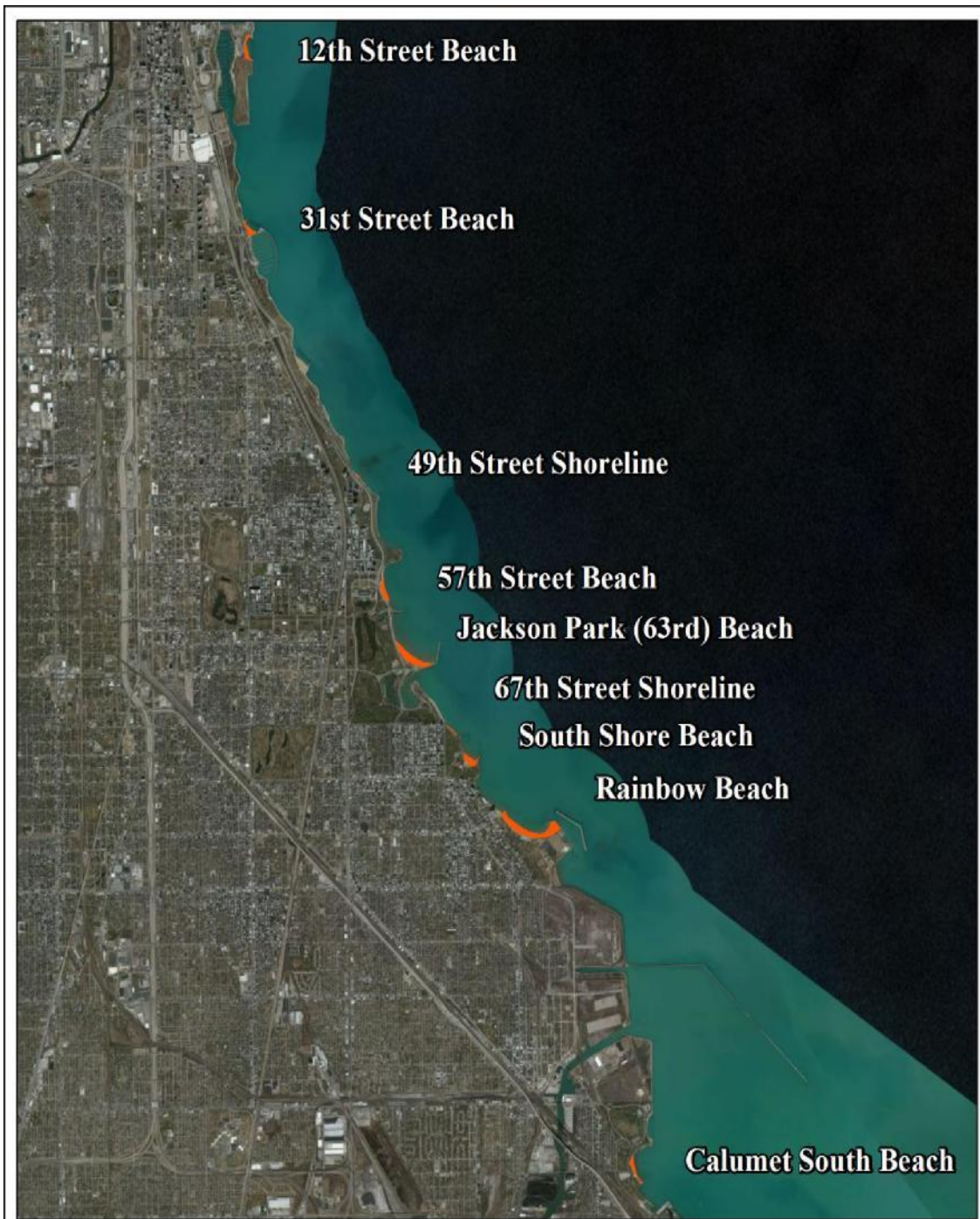
**Legend**

 Beaches/Shoreline

0 1.25 2.5 Miles







Impaired Segments in  
Southern Chicago, IL

