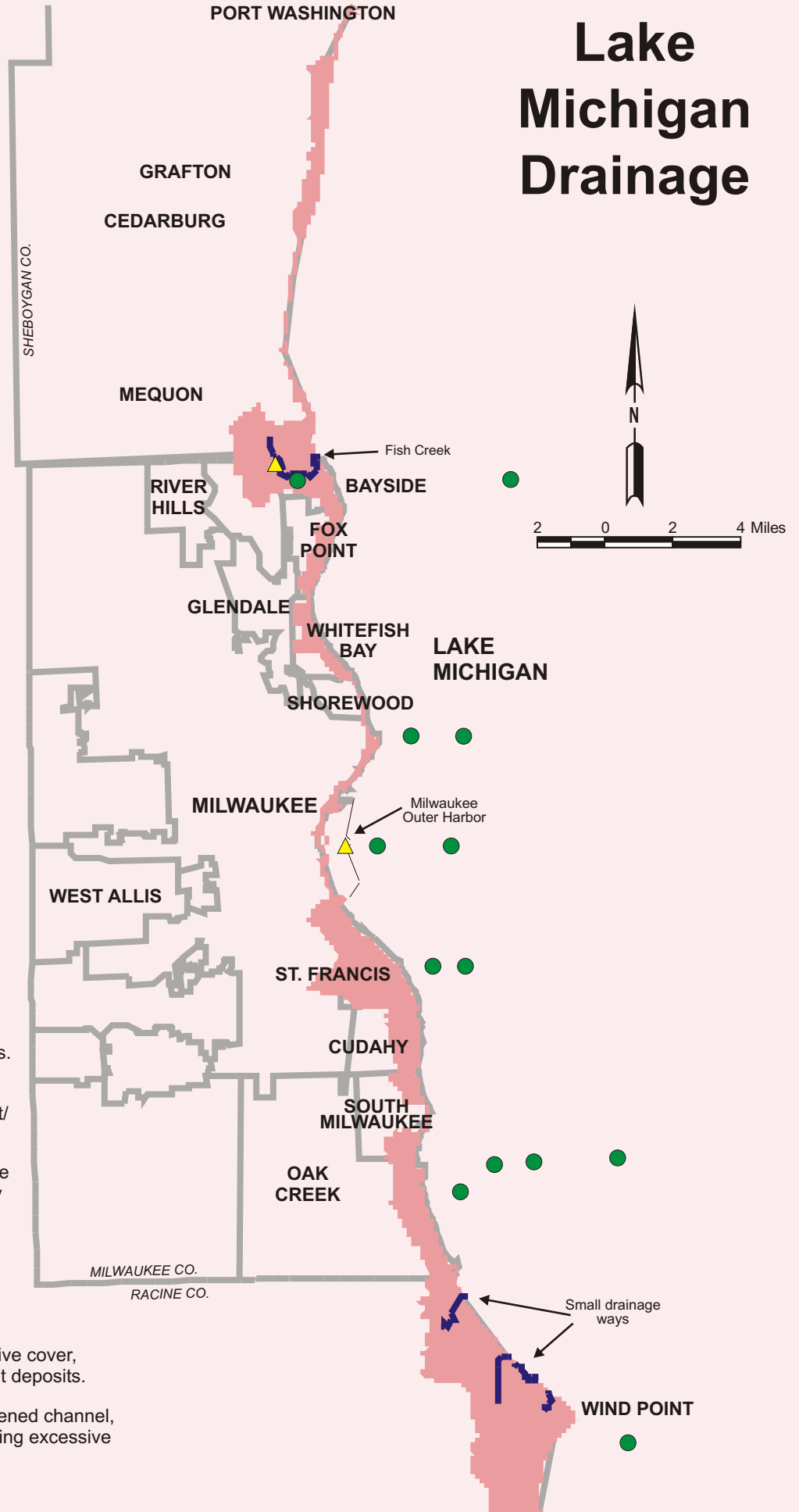


Habitat Map

Lake Michigan Drainage



Nearshore Lake Michigan

- Free flowing water exchange, rocky or sandy bottom, free of silt deposits.
- ▲ Limited water exchange, having artificial shoreline and significant silt/sediment deposits.
- Restricted water exchange, stagnate zones, artificial shoreline and heavy silt/sediment deposits.

Fish Creek

- Natural channel with vegetative cover, pools and riffles.
- ▲ Natural channel but lacking vegetative cover, pools and riffles having silt/sediment deposits.
- Concrete lined or artificially straightened channel, lacking vegetative cover and/or having excessive silt/sediment deposits.

Habitat & Lake Michigan Circulation Patterns

In the Lake Michigan Drainage area, good quality habitat and water circulation play an interrelated and vital role in maintaining a healthy aquatic ecosystem. If the habitat of the small plants and animals that fish feed on begins to disappear, your fishing days will be numbered. Likewise, if the quality of the habitat begins to degrade, the balance in diversity of aquatic life will also suffer.

The breakdown or loss of many habitats is caused by human activities. Singling out any one factor as responsible for the decline is difficult; generally it's multiple activities that affect our waterways: urbanization (the construction of residential, commercial and industrial developments, roadways and supporting infrastructure), non-native invasive species, the loss or filling of wetlands, removal of forested land cover, poor agricultural practices and water diversions such as damming and channelizing. Of these, urbanization within the watershed appears to be one of the greatest contributing factors that affects water quality, quantity and aquatic habitat.

Prevailing Summertime Winds and Lake Michigan Circulation Patterns



Source: "Environmental Setting and Implications for Water Quality in the Western Lake Michigan Drainages"; USGS 1997

Summer circulation influenced by winds from south to southwest (40% of year or 80% of summer). Source: former Federal Water Pollution Control Administration

Lake currents, water levels and circulation patterns also influence the aquatic habitat in the Lake Michigan Drainage area, particularly along the shoreline.

Throughout the year, the direction of the nearshore currents is determined by the prevailing wind direction along with the coastline's tendency to direct the winds either northerly or southerly parallel to the shore. Those wind driven nearshore currents can vary in width from 2 to 10 miles.

Offshore currents; those further out, cover a larger area of Lake Michigan and tend to move counterclockwise about 70 percent of the year and clockwise about 30 percent of the year. The offshore currents have circulation patterns which are usually opposite to those of the nearshore currents and, therefore, little interaction occurs between the two separate current systems.

Natural cycles in the climate can also affect habitat; low lake levels for example can affect both water temperature and the amount of available fish spawning areas, while higher water levels can cause shoreline erosion.

Water movement and circulation in Lake Michigan is driven by wind direction, but the effects of the earth's rotation, basin topography, and vertical water density are also important. In shallow water the entire water mass moves in the direction of the wind, while return flow occurs in the deeper parts of the lake.

Habitat Stats

Habitat along the beaches and nearshore areas is impacted by stormwater drainage from hard surface areas such as parking lots and buildings. The shoreline along the Lake Michigan Drainage area has been modified by development and for erosion protection from high water and wave action. Many other factors influence shoreline water quality and aquatic habitat such as the "zebra mussel," a non-native clam species which can cover the lake shore bottom and out-compete other natural species for the same food source.