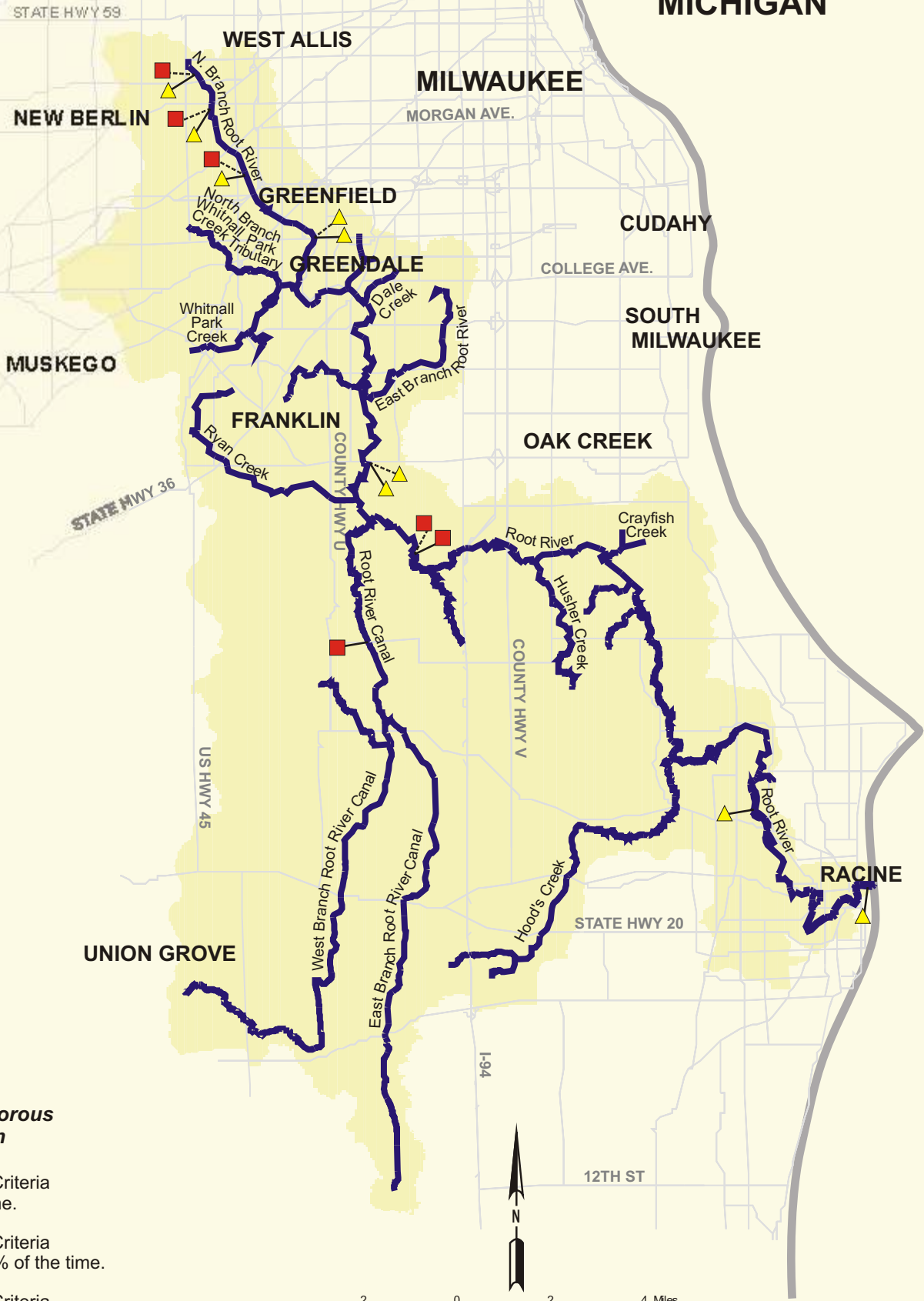


Nutrients Map

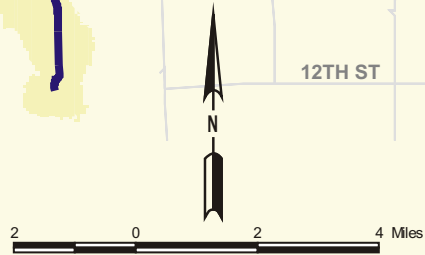
Root River Watershed

LAKE MICHIGAN



..... Total Phosphorous
 — Total Nitrogen

- Meets Water Quality Criteria at least 85% of the time.
- ▲ Meets Water Quality Criteria between 50% and 85% of the time.
- Meets Water Quality Criteria less than 50% of the time.



Nutrients

Just by limiting the amount of fertilizer we apply to our lawns, we can help improve the state of our waterways. High levels of nutrients in rivers and lakes can promote excessive plant and algae growth, resulting in dissolved oxygen deficiencies, loss of habitat, and noxious odors.

Another factor that affects water quality is the amount of **nutrients** in the water. Two of the major nutrients found in water are **phosphorous and nitrogen**. Both are necessary for living things to be healthy and grow. However, too much of these nutrients can cause excessive aquatic plant growth or algae blooms.



Algae blooms can decrease the amount of oxygen in the water, resulting in too little oxygen for fish and other aquatic animals to survive. These blooms can also create noxious odor problems once they begin to die off.

The concentration of nutrients and the form they are found in changes continually. How and why they change depends on a variety of complex factors. The total input of nutrients varies with land use and other factors. For example, during the summer, nutrient input may increase due to fertilization of cropland or lawns and gardens. During the autumn, rainfall causes the increased wash-off of organic matter such as leaves, twigs, grass, and other

debris. Because decomposition of this organic matter releases nutrients, it constitutes an important source of nutrient loading to the waterway.

Phosphorous and nitrogen are abundant in the waste material treated at the local or regional wastewater treatment plants. Municipal and industrial discharges, as well as sewer overflows, are also contributors of nutrients to our waterways. Urban stormwater runoff is another major concern because it too contains high nutrient levels. Nutrients in stormwater runoff come from lawn and garden fertilizers, pet and other animal wastes, organic leaf material, and soil from construction sites. This stormwater runoff enters the waterways every time it rains. Rural and agricultural areas also contribute to nutrient increases through failing septic systems, livestock feedlot operations, poor manure spreading techniques, fertilizing practices, and increased erosion from plowed surfaces or unstable stream banks. The EPA's recommended nutrient criteria for the eco-region that includes the Root River Watershed is 1.59 mg/L for total nitrogen and 0.08 mg/L for total phosphorus. These are only recommended criteria that have not as yet been adopted or put into law.

Nutrient Stats

Most locations in the upper Root River Watershed exceed the recommended total phosphorus criteria by 50% or more of the time. The total nitrogen criteria is generally met between 50% and 85% of the time. Nutrient data is lacking for most of the Root River south of Milwaukee County.

