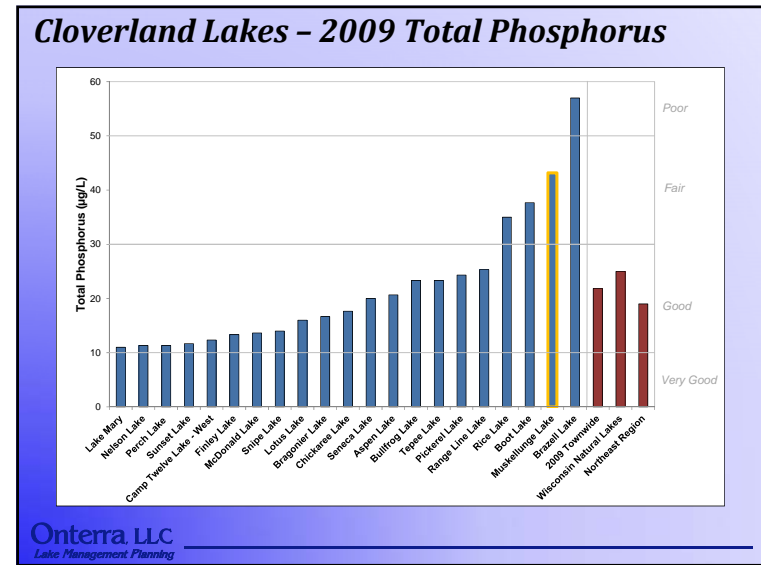
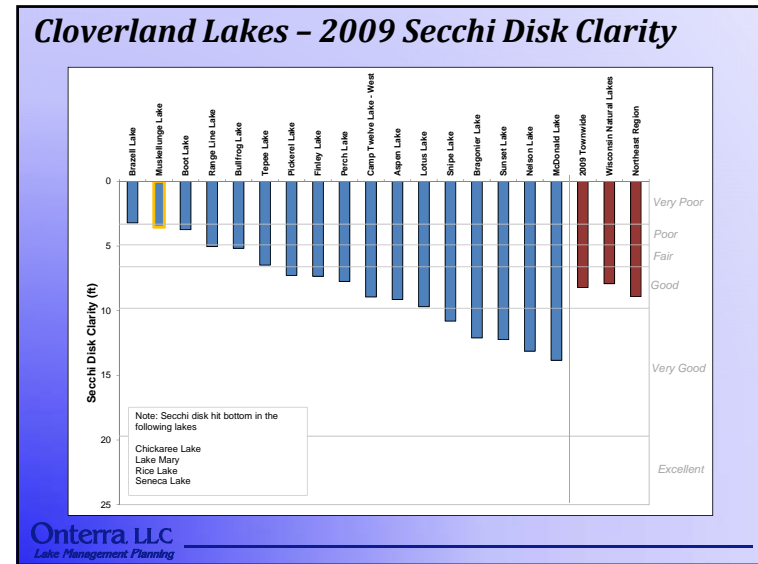
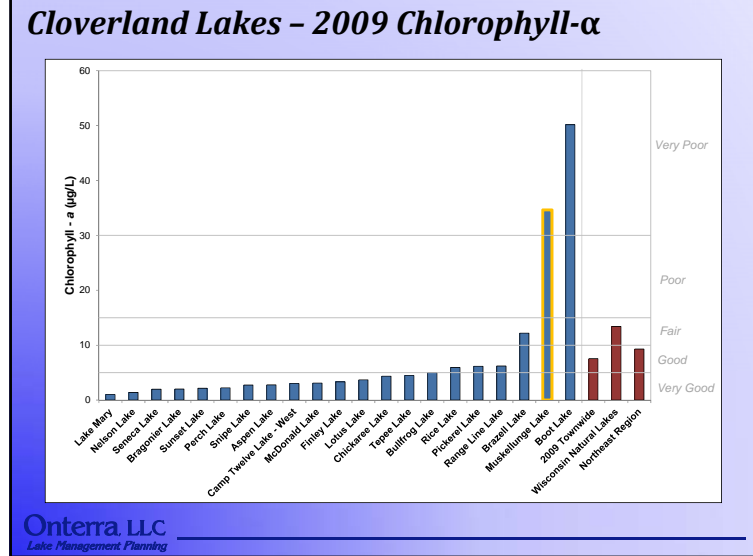


### Water Quality

- ↑ Phosphorus (Limiting Plant Nutrient)
- ↑ Chlorophyll-*a* (Algal Abundance)
- ↓ Water Clarity (Secchi Disk)

**Onterra, LLC**  
*Lake Management Planning*





## Muskellunge Lake Phosphorus

- Higher phosphorus than other regional lakes
- No agricultural/urban areas in watershed
- **USGS 2003 study:**
  - 253 lbs (58% annual budget) from groundwater
    - Anoxic wetland soils on northern end of the lake
  - Sediment cores indicate Muskellunge Lake has been highly productive for at least past 100 years

## Muskellunge Lake Phosphorus

- **USGS 2003 study continued:**
  - Majority of phosphorus is naturally-occurring
  - 70 lbs (16% of annual budget) from septic systems
    - Reducing this input would not improve water quality significantly

## ***Muskellunge Lake***

- **Effects of aeration:**

- Increase oxygen levels in hypolimnion by mixing
- Increases habitat area for fish and other organisms
- Lessen internal nutrient loading from bottom sediments
- Prevent winter fishkills

## ***Muskellunge Lake***

- **Additional questions:**

- What changes can we expect in the lake with drought vs. rainy years?
- Why is the fishery changing? There seem to be fewer walleye and more bass.
- Did aquatic vegetation harvesting have a positive or negative effect and why?
- What if we find invasive species? What should we do?
- What should we expect about sediment buildup? What is the future? Will the bays fill in completely over time? Are we accelerating the changes?
- What measureable effects to larger motors and jet skis have on silt, aquatic plant growth, etc.?
- Does the DNR have any plans to change any restrictions on lakes of various sizes? For example, there once was talk about not having personal watercraft on lakes less than 300 acres.
- Should we consider no-wake areas in the bays?

## ***Muskellunge Lake***

- **Additional questions:**

- Are there chemical treatments that can eliminate or minimize algae blooms? If so, are they cost-effective?
- What can be controlled or regulated and what cannot?
- Why are the recommendations that you have proposed the same for all of the township lakes?
- What if anything should lakefront owners do?