



A Citizen -led Success Story to Improve Water Quality and Battle AIS

English Lake Protection and Rehabilitation District
in Manitowoc County

Presenter: Tom Ward, Invasive Species Coordinator, Manitowoc
County Lakes Association

English Lake is located in Manitowoc County



- The lake is 48 acres
- 85 feet deep, the deepest lake in the County
- In 1982 a Lake District was formed

Over multiple decades the Lake Districts leadership dealt with multiple sources or threats to water quality and the aquatic ecosystem. I will discuss the efforts and abatement measures implemented.



“Behind every successful Lake group is a dedicated leader that can make things happen”



Carol Entringer conducting a boat inspection, has led the Citizen successes for the past 29 years. Carol is currently vacationing in Florida.

- The English Lake District and Association has taken considerable leadership in keeping the lake organization active and on track.
- The late Ed Trochlell started the Lake Protection and Rehabilitation District in 1982.
- From 1992 to 1995 two Lake Planning grants begin the process of assessment, under Ed's leadership.
- Ed passed away in 1995, his daughter Pat Trochlell carries on the conservation tradition as a Water Resources Manager for DNR.
- 1988 Carol Entringer is elected to the District Board.
- 1995 Carol picks up where Ed left off and leads the District to the present.

The Lake District started the Process with multiple Lake DNR Planning Grants

- 1991 – 1995 Two Lake Planning Grants helped with assessing the water quality and private sanitary systems on the Lake.
- 1995 – 1997 Phase III grant studied inputs of sediments and/or nutrients from overland drainage and targeted for study as event samples; drainage patterns and flows were investigated for their potential role as both sources of sediment and opportunities for remediation methods.
- 1997 Phase IV and V Grant awarded – Developing designs, cost estimates, funding plans, and feasibility determinations for best management practice projects designed to control nutrient loadings to the lake, and to prioritize the identified projects.
- 1998 Phase VI Grant awarded: targeting a bad barnyard and its watershed along with field drain tile running into the lake on the east side.

The Lake District partnered with the Manitowoc County Soil & Water Conservation Dept. to relocate the barnyard and cows out of the watershed with funds from the Sevenmile/Silver Creek Non-point pollution Project.



A water way was installed to direct water around the farmstead and field tile were directed into the woodlot away from English Lake.





1999 A Detention pond and Wetland was constructed below the barnyard to intercept sediment and runoff from the east watershed.

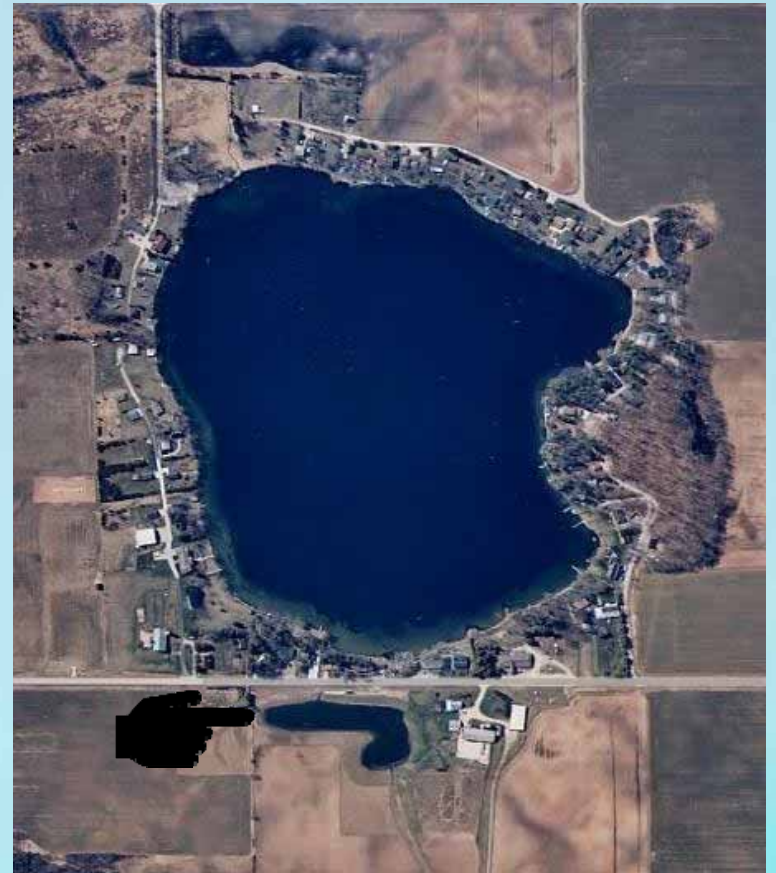


Natural shoreline buffers were promoted by the County Lakes Association as part of a Lakes Classification Process with many of the Lake owners installing native plants



The County Park's Boat launch before a natural buffer was installed;
After mowing stopped it returned to a natural shoreline.

In 2000 a tornado storm of rain and hail filled the retention pond in an afternoon and successfully held back the run off waters.



2002 WCC crew help plant wetland plants destroyed by Geese



The Township received a grant to purchase the wetland plants



Not all projects were a success, in the early 90's a field tile line discharged to the Lake from cropland to the south. Ed Trochlell and Carol tried to get the Department of Transportation to purchase 35 acres of cropland and remove the tile and restore wetlands. **The old drain tile after a decade collapsed and the farmland returned to wetlands once again protecting the lake.**



Not all Projects are a success, however the effort counts

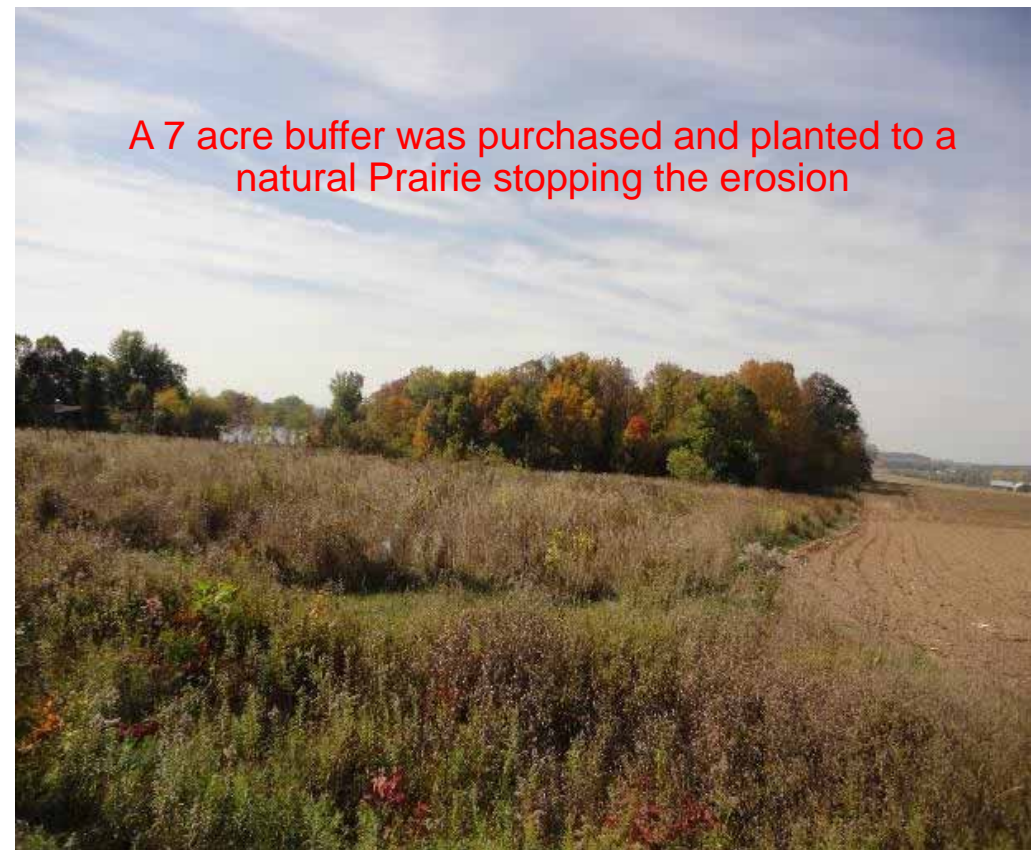


- This house was built on a filled wetland on the NW corner of the lake. The property experienced frequent flooding with high lake levels.
- The County Zoning Department had a chance to deny rebuilding of the structure but issued a building permit for construction on the original foot print.
- In 2008 with Carols leadership the District applied for a FEMA grant to purchase the property and remove the old structure before a building was constructed.
- The Grant was denied and the opportunity to restore the wetland that filtered runoff from adjoining cropland was lost, as well as preventing future owners from buying a problem.



Manitowoc County passed an ordinance that prohibited application of manure unless it was incorporated into the soil within 72 hours, however steep cropland from the north of the lake continued to discharge to the lake during large storm events.

Carol did not give up! She pestered the property owner for over a decade and on Dec. 14 2007 seven acres of the cropland north of the lake was purchased for a buffer area with a DNR Implementation grant.



Buffer Prairie Plantings



Just when you think you have everything under control came the Invaders!

- Aquatic Invasive Species Threats:
- **Verified:** Banded Mystery Snail (2012), Curly-Leaf Pondweed (2007), Eurasian Water-Milfoil (2009), Hybrid Eurasian / Northern Water-Milfoil (2011)

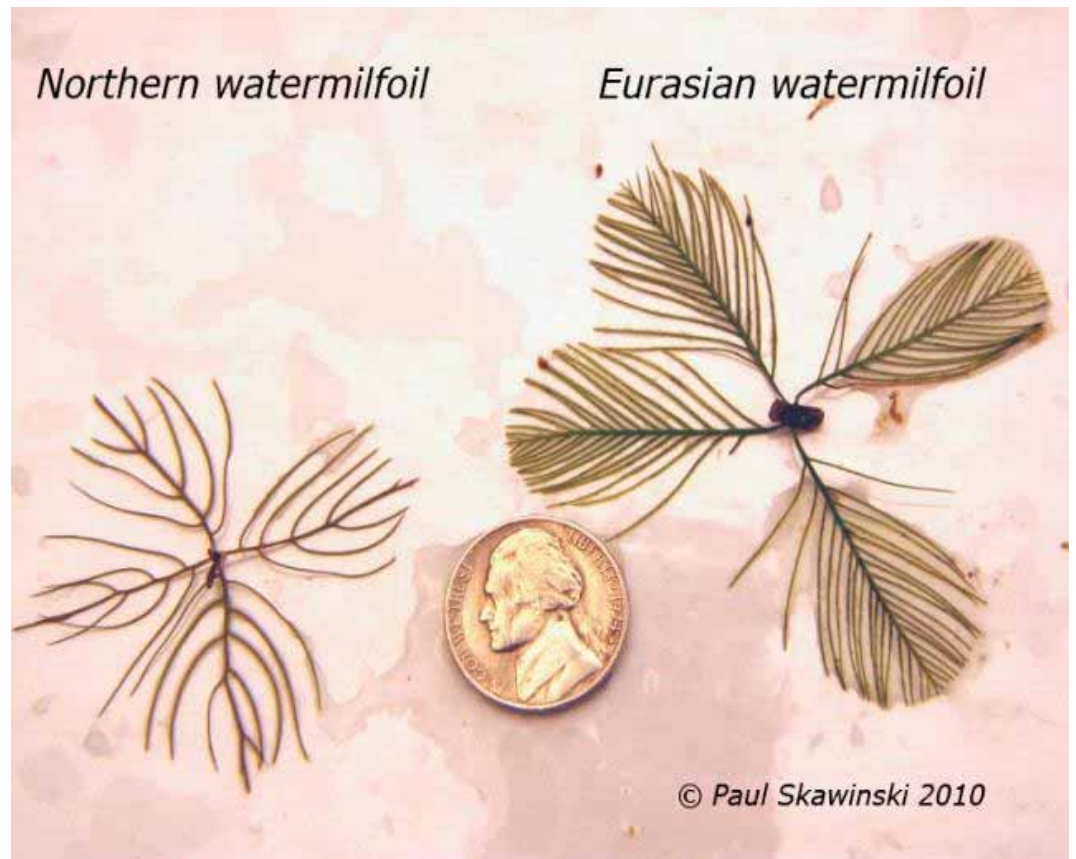


Banded Mystery Snail having babies

English Lake conducted AIS monitor training for most of It's Lake residents



The next day after the Monitor Training Marilyn Burns identifies Eurasian Milfoil on English Lake (2008)



The Battle with Eurasian Milfoil Begins!

- 2010 The District receives Grants to deal with the EWM



In 2010 Bonnesto Company was hired to apply a liquid chemical to kill Eurasian Milfoil and Curly leaf pondweed.

The treatment in 2010 was not effective, so a 2011 treatment was postponed until studies regarding hybrid Eurasian water milfoil could be conducted, and strategy formulated for 2012 could be formed.



- A DNA sample was taken of the milfoil and it was found to be a hybrid cross between the native northern and Eurasian. The northern characteristics gave the new Frankenstein plant a resistance to 2-4D.
- Other lakes in the County were tested for the hybrid and 4 other lakes within 5 miles of English lake was discovered to have the hybrid.

Boat Inspections at the launch was started and a cleaning station with a bleach solution was placed at the landing.



2012 the Lake was Treated the 2nd Time to knock out the EWM

- Clean Lakes treated the lake with aquatic herbicide DMA 4 IVM (liquid 2, 4-D) for Eurasian Milfoil in spring.
- By Fall the EWM was back, another treatment failure
- 2013 Clean Lakes treated the lake again in spring with Aquathal K (liquid Enddothall) and DMA 4 (liquid 2, 4-D).
- No Eurasian Water Milfoil seen the rest of the year 2013.

2014 Divers were hired to remove identified EWM by hand pulling



English Lake Sucks: 2015 Economy Waterway Services 33933 High Dr. East Troy, WI 53120 was hired to suck out the EWM plants by the roots.

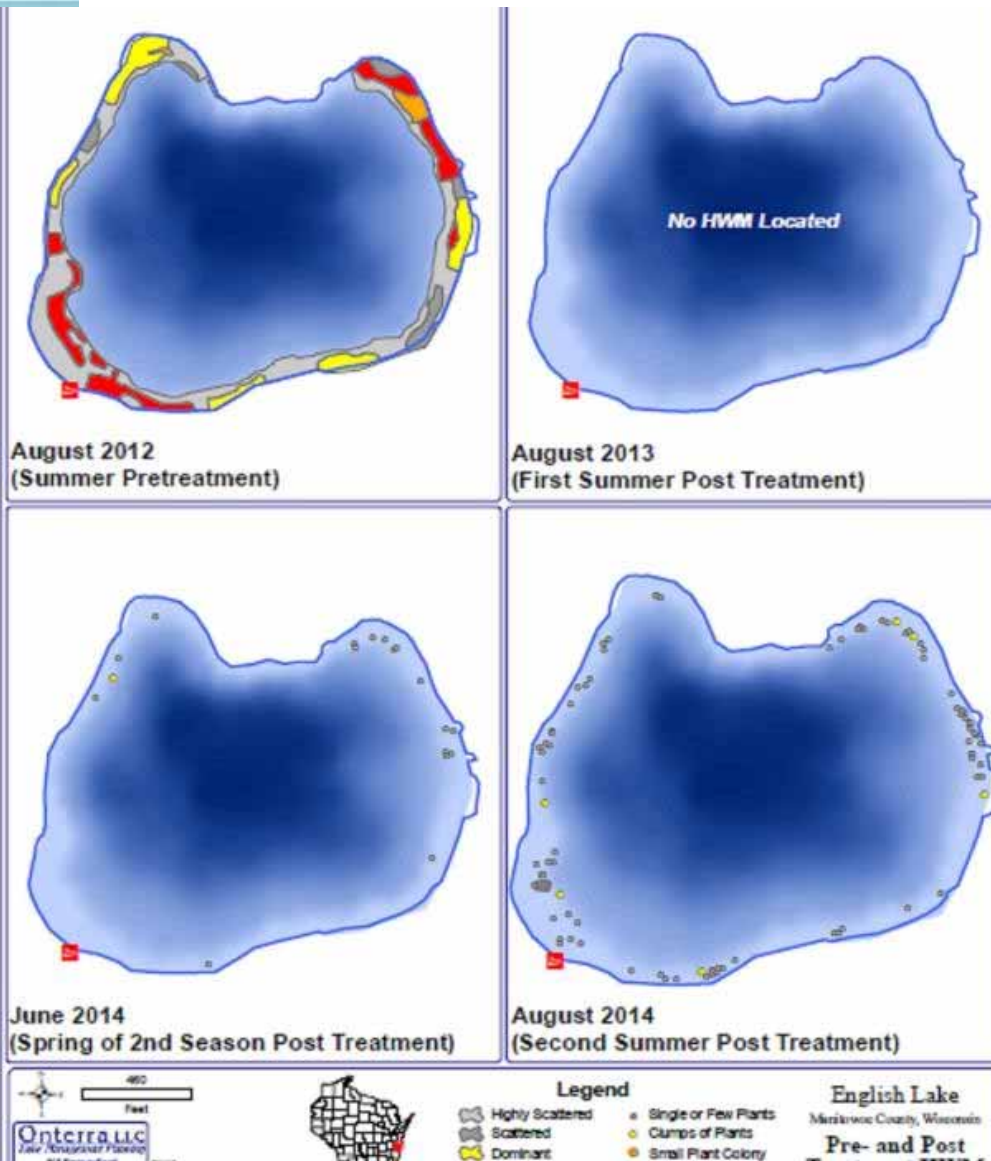


An Implementation Grant was received and Aquatic Plant Management LCC hired to do the Plant Management Plan.



EWM was deposited in onion bags and allowed to drain out to be deposited on farm fields.

The project exceeded the budget and was unable to finish the EWM removal .



Lessons Learned: Hybrid EWM is hard to kill and requires a combination herbicide that almost doubles the cost.

- In 2016 for some unknown reason EWM plants started to die back and were almost gone by August.
- EWM will be monitored in 2017 to see if it returns with a vengeance.
- If a Lake District chooses to do battle with EWM be prepared for the long haul and commitment.
- English Lake has a narrow littoral zone that perimeter the lake and high phosphorus levels feeding the EWM that would make access by property owners very difficult.

For You It is all Worth the Effort

