

Follow Up for Prairie Crossing Fish Survey of 2023

I. Fish Survey Results

It has been 25 years since the original Prairie Crossing fish project was conceived and implemented. The ponds and Lake Leopold have matured, riparian vegetation has changed dramatically, and the aquatic communities have undergone significant change. Climate change has created modifications in regional temperature regimens and regional hydrology. Many of our regional lakes have problems with hazardous algal blooms (HABs); Prairie Crossing has experienced potential HABs blooms. On the positive side the strong growth of riparian vegetation will intercept nutrients and slow the eutrophication process. We submit that this would be a good time to revisit the conceptual basis of water management at the complex, pull together a volunteer program with and for residents, and to revisit future planning.

Conditions which we experienced as part of the fish survey included :

- Low dissolved oxygen (DO) levels exist during the daytime in Sanctuary Pond and unnamed pond number 2; in the evening the DO will probably go to zero.
- At the inception of Sanctuary Pond, the shiners as well as other species survived episodes of very low DO. Fisheries literature suggests that the shiners are tolerant of low DOs; we continue to be concerned.
- Excessive growth of white-water lilies exists in Lake Leopold and the ponds.
- The water lilies put down extensive beds of rhizomes that crowd out other forms of aquatic vegetation.
- The shiners typically spawn in June and July and broadcast their eggs over aquatic vegetation; the water lilies may not be a preferred habitat for this type of spawning.
- *Ceratophyllum* is a flowering aquatic plant that gets its nutrients from the water column, not the sediments; it is present in Sanctuary Pond in nuisance proportions.
- Sanctuary Pond was subjected to a massive sewage spill in 2021; the dense *Ceratophyllum* population may be a result of that episode; it may be retaining nutrients in substantial amounts.
- Riparian vegetation around Sanctuary Pond is diverse, includes mature trees, and should be a substantial buffer against future nutrient delivery.
- Riparian vegetation around the two unnamed ponds should also be a buffer against both nutrients and salt.
- Chara beds exist in Lake Leopold; Chara is a macro algae (i.e. it resembles a flowering plant but it is not); it also gets its nutrients from the water column not the sediments
- Fish assemblages were associated with the Chara beds

II. Management History

Integrated Lakes Management(ILM) participated in the early planning of the construction of the ponds and Lake Leopold. The 19 foot depth of the lake was a direct suggestion and took into consideration the potential uses of the lake for swimming, boating, and fisheries. Sanctuary Pond was established “ as a sanctuary” and included rotenoning of the pond and subsequent translocation of the state E/T species. Additionally, ILM established a monitoring program for the complex which included Lake Leopold and Sanctuary Pond. ILM participated in monitoring and active management. Management has included biological control (i.e. milfoil weevils), chemical applications and most recently dredging. Some of the monitoring duties and management was taken over by a Prairie Crossing resident through 2022..

III. Going Forward

During the late 90's and beyond the Illinois Environmental Protection Agency (IEPA) sponsored the Voluntary Lake Monitoring Program (VLMP). A great many regional lakes, in collaboration with the Lake County Health Department (LCHD), participated in this program. The program involved active training of volunteers for the purpose of recording water quality data for their lake communities. As of 2021 the IEPA suspended the VLMP program over cost considerations; the program had run for over 50 years. There is an active movement to bring the VLMP back. The program leverages the state's resources, and it has been critical for recording lake water quality data and trends. Even without a state program however we encourage the development of a volunteer monitoring program for Prairie Crossing. We suggest the following:

Monitoring and education

- Create a resident-based volunteer monitoring group
- Purchase a jon boat and a small electric motor. Dedicate it's use to monitoring of the lake and ponds .This prevents non-native aquatics from entering the lake/ponds. Many regional lakes are seeing zebra mussel infestation.
- Purchase a DO meter/Sonde , a pH meter, a Secchi disk, and a conductivity probe to record water quality parameters for the lake/ponds. May wish to install logging software and probes.
- The community currently monitors the swimming area for bacterial contamination. We encourage the development of a parallel program to screen for hazardous algal blooms (HABs).
- Get LCHD to aid in the development of a training program (cf. the VLMP Training Manual) for the lake/ponds.
- Measure the DO for unnamed Pond No. 1
- Install a staging gauge and/or an electronic sensor to measure lake levels!
- Work with the Illinois Natural History Survey (INHS), LCHD, and LCFPD to create a fish survey on a five-year cycle
- Create an annual program to present results to the community.
- Create an aquatic curriculum for the charter school.
- Consider giving Sanctuary Pond a formal name (perhaps a plaque)
- Work with recreational fisheries interests to coordinate stocking with water quality and E/T presence

Maintenance

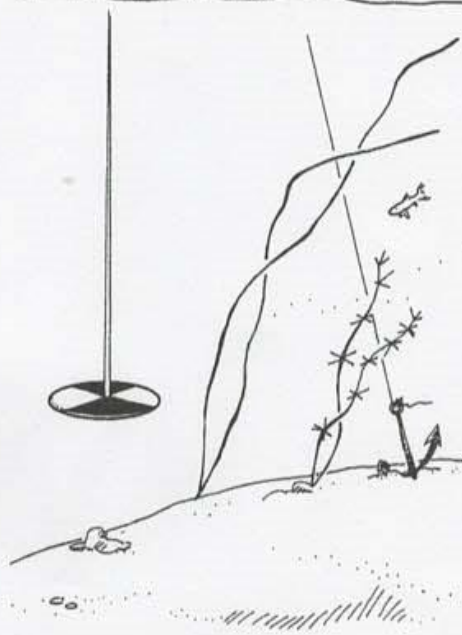
- Collaborate with the monitoring team concerning potential maintenance issues
- Consider a small aerator for Sanctuary and unnamed pond no. 2
- Consider the physical removal of portions of the white water lily fringe
- Research potential shoreline restorations for portions of the complex
- Work with contractors to develop a 20 year program horizon for lake maintenance (the maturation of the riparian vegetation should make the seasonal cycles of the lake more predictable).



Illinois

**V olunteer
L ake
M onitoring
P rogram**

Training Manual



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Program has ended but many local lakes have sustained the monitoring work initiated under VLMP.

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