

GOAL STATEMENT:

**IMPROVE LAKE HENRY WATER QUALITY FOR FOUR SEASON
RECREATIONAL OPPORTUNITIES BY REMOVING
SEDIMENTATION.**

HISTORY:

Lake Henry is a 44-acre eutrophic impoundment of the Trempealeau River located in the City of Blair, Trempealeau County, Wisconsin. The City of Blair owns nearly two-thirds of the approximately 2.5 miles of shoreline around Lake Henry. The Lake Henry drainage area is the Upper Trempealeau River Watershed, a 112,338-acre drainage basin dominated by agricultural land use (52%) and woodlands (39%). The lake and its watershed are located in the Western Coulee and Ridges Ecological Landscape which is characterized by highly eroded, drift-less topography with loess-derived and sandy soils. Lake Henry is the largest body of water in the Upper Trempealeau River Watershed.

The lake has a history of water quality problems including fish kills from drawdown, winter ice cover, eutrophication, algae blooms, and excess levels of sediment, nutrients and organic matter. According to the State of the Black-Buffalo-Trempealeau Basin Report [1], the largest problem facing Lake Henry is nonpoint source sedimentation, which causes infilling of the reservoir.

Early (1979) efforts at dredging the reservoir were short lived due to a higher than predicted infilling rate. According to a document written by the WDNR in 1979, 176,000 cubic meters of sediment was removed from the Lake Henry increasing its volume from 88,000 cubic meters to 264,000 cubic meters, but by 1991, the lake volume had reduced by 105,000 cubic meters. The mean annual infilling rate from 1984 to 1991 was 76,000 cubic meters. This number appears to be much higher than what it actually is. With a reduction in volume from 1979 to 1991 (12 yrs) that suggests that the annual infilling rate is just shy of 9,000 cubic meters annually

Nonpoint sources were identified in the 1995 Nonpoint Source Control Plan for the Upper Trempealeau River Priority Watershed Project (Watershed Plan). The primary sources of sediment were found to be agricultural (croplands, pasture, grassland, and other upland), streambank erosion and gullies. The Watershed Plan, which began in 1994 and ran until 2006, was considered very successful by the Trempealeau County Land Conservation Department; all major farming operators within the UTR in Trempealeau county actively participated in the Watershed Plan, and Trempealeau county achieved or exceeded the planned goals.

In 2011, the City of Blair was awarded a small-scale lake management planning grant from the Wisconsin Department of Natural Resources to create a long-range management strategy for Lake Henry. To do this, informational and educational public meetings and a community survey were completed. The public meetings informed the community about lake management issues and alternatives and engaged local citizens in the development of goals and objectives for lake management. Initial management planning strategies for Lake Henry have been evaluated culminating in the Long-Range Plan.

Lake Henry is a focal point in the community and should be a showcase for the City of Blair. The lake is a valuable asset that should be protected and improved for the benefit of the community and City

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as a whole. With this in mind, the following goals have been set and will guide future management planning and implementation efforts in Lake Henry:

1. Improve fish and wildlife habitat and provide relief from sedimentation in Lake Henry by dredging.
2. Create and support community-wide Lake Stewardship Organizations and/or a Lake Management District.
3. Reduce sediment, phosphorus, and pollutant inputs to Lake Henry from the City of Blair.
4. Make improvements to Riverside Memorial Park and Strand Wayside.
5. Involve the public in monitoring, protecting and enhancing natural resources associated with Lake Henry.
6. Provide for public accessibility to lake management planning and implementation results.



Aug -2018 view from Strand Wayside SE



Aug-2018 view from Strand Wayside SW

The City of Blair completed a Lake Management Plan in 2013 with funding assistance provided by the Wisconsin Department of Natural Resources. This plan recommended dredging of Lake Henry. In 2017, the City of Blair enlisted the services of Short Elliot Hendrickson (SEH) to assist with design and permitting. SEH has completed the following:

- Wisconsin Department of Natural Resources Pre-Application submittal.
- Sediment sampling and analysis to determine if any of the sediment would be considered a hazardous waste.
- Preliminary planning to review disposal locations.
- Wetland delineation, concurrence and jurisdictional determination.
- Dredging plan including review of several potential methods (hydraulic, dry mechanical and wet mechanical)
- Disposal plan including review of several potential methods (hydraulic pipeline, off-road trucking and over-the-road trucking) to several potential disposal locations (City-owned former whey ponds and several private properties).
- Wisconsin Department of Natural Resources Chapter 30 Permit Application.
- United States Army Corps of Engineers Permit Application.

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PROCESS:

Wisconsin Department of Natural Resources approved the City's dredging application on June 14, 2019. This approval is based upon the use of hydraulic dredging and a hydraulic pipeline to the City-owned former whey ponds to minimize the environmental impacts of draining the lake and constructing a temporary haul road. The City has, however, reserved the right to request modifications to the permit if hydraulic dredging is found to be cost-effective when bids are received.

The remaining steps are necessary to prior to commencement of dredging:

1. Obtain temporary construction easements for properties along the hydraulic pipeline route.
2. Develop fundraising strategy.
3. Fundraising.
4. Set bidding schedule, issue bidding documents to prospective contractors and receive bids.
5. Review bids and award the contract.

CONCURRENT PROJECTS:

The Blair Sportsman Club has restocked Lake Henry with over 500 trout annually prior the Ice Fishing Contest. With an additional restock of Trump Coulee and Vosse Coulee stream which are tributary streams to the Trempealeau up stream of Lake Henry. While these efforts continue, with much of the focus is on "put and take" mentality, realizing that Lake Henry requires improvement.

In conjunction with the potential dredging of Lake Henry the Blair Sportsmen Club is also investigate the potential of creating canoe / kayak opportunities from the bridge over pass of the Trempealeau from County W / South River Road to the mouth of Lake Henry. This project would involve the removal flood washed agricultural debris, blowdowns, and dead falls, some stream bank improvement and the creation of choke points and wing dams creating deep oxygenated pools for fish habitat and sedimentation fill, this extending the life of the larger Lake Henry dredging effort. The estimate cost of this project is \$35,000 - \$40,000. Most of the cost would be for excavator machine, rip rap and assistance local experts in this field.

BLAIR MEMORIAL PARK:

Lake Henry offers a diverse recreational resource including boating and year-round fishing. The entire south shore of the lake is bordered by the 25-acre Lakeshore Memorial Park, which is maintained by the City. A popular destination for the community, the Park includes a public outdoor swimming pool, ball fields, tennis courts, picnic areas, handicap accessible pathways along the lake, and an undeveloped natural area. The City currently mows much of the Park to the shore, some of which is has riprap to control erosion. The Blair Memorial Park is the primary gathering place for numerous activities:

- Camp sites – 31 available. In 2018, 234 campers generated \$13,660 during the summer months.
- July 4th Fireworks Celebration *add statistics here*
- Annual Ice Fishing Contest *add statistics here*
- Shelters – 4 available. In 2018, the shelters were rented out 96 times over the summer with a revenue of \$5292.10
- Blair Aquatic Center. Pool hours 1:00-4:45 pm and 6:00-7:45 pm. Lessons, water aerobics, lap

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swim and swim team offered. The average attendance for 2019 so far is 60 children/day, with a total of \$10,436.00 in daily and seasonal passes purchased.

- Ball Fields for youth Activities. In 2018, 206 kids were involved in our youth program.
- Car Show area During the Blair Cheese Festival
- Staging area for the Blair Cheese Festival Grande Parade
- Softball Tournaments Games
- Church Services
- Exercise / Walking Trail

All of these events and activities generate revenue for the City of Blair and have a positive residual impact on the local economy.

FINANCING (SHORT / LONG TERM OUTLOOK):

Currently construction plans are complete, the city of Blair has committed to allocate \$400,000.00 for this project. There are additional commitments from the City to establish a maintenance fund.

This project is estimated to cost approximately \$1,950,000.00 to \$2,100,000.00. We need your help. What can you do to help support our Goal?

FAQ FREQUENTLY ASKED QUESTIONS:

Is there a way for school students to get involved in the project?

Yes, there will be multiple opportunities for community involvement. One thought is to partner with the school district to construct and install fish cribs in the lake after dredging is complete.

How long will the actual dredging take?

Depending on the volume to be dredged and the dredging method selected, timing will vary. Based on projects of similar size, dredging can take between 8-12 weeks, but the time line may vary significantly depending upon the contractor selected and their schedule on other projects.

What is the potential cost range?

Hydraulic dredging of lake bed material typically ranges between \$10-\$18 per cubic yard. There are many variables with respect to cost such as volume to be dredged, proximity of spoil site to dredging area and contractors current work load. The project will be tailored to meet the City's budget.

Is there any grant money available?

Dredging projects of isolated inland waterways (as opposed to shipping lanes) are generally not grant eligible. Boat launch improvements could be funded by the Wisconsin Department of Natural Resource Recreational Boating program but this would be limited to the dredging in close proximity to the boat launch and any ramp and dock facilities.

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What are potential risks?

The process undertaken thus far has eliminated many risks caused by unknowns by way of endangered resources reviews, sediment sampling, wetland delineations, resident meetings, jurisdictional determinations and so forth. At this point, the major unknowns are:

1. Acquisition of temporary construction easements.
2. Cost of dredging. Estimates have been prepared based upon historical prices, but no hard bids have been received.
3. Construction. All construction projects have risks including mobilization delays, equipment breakdown, inclement weather, production delays, property damage, etc.
4. Flooding. A flood during (or after) dredging could transport large amounts of sediment and fill the forebay.

What is the expected life span, how long can we expect the dredging to last?

The 2015 Lake Henry Management Plan estimated an average sediment fill rate of approximately 12,000 cubic yards per year. At this rate, the 176,000 cubic yards to be dredged would be "replaced" in approximately 14 years. However, the sediment fill rate is highly variable. For example, a large flood can dislodge and transport a significant amount of sediment in a short amount of time.

Is there maintenance involved? If so, what is the frequency?

The proposed dredging will include a sediment forebay at the eastern end of the lake to trap large sediment particles at the mouth of the Trempealeau River. This sediment forebay should be cleaned out when full. Maintenance dredging is expected to be required every 5-7 years.

What are potential concerns / unknowns? Endangered Specimens? Contaminants? In the lake and at the dredge spoils site location?

As part of the initial site investigation, potential concerns will be identified. Endangered resources will be evaluated with state and federal authorities and the design will be tailored to reduce environmental impacts. Soil investigations for contaminants are required in the early stages of the investigation. The soil composition will determine where the sediment can be placed. Gaining access to lands in close proximity to the project site, is a significant consideration to allow for disposal at a reasonable cost.

Should we continue to mow/ trim the grass around the edge of the lake? Is this causing some of the vegetation growth?

Mowing up to the water edge will promote geese to frequent the area which will degrade water quality. A vegetative buffer with a height of 6" or greater will help reduce sediment transport as compared to short grass mowing. Buffer strips of native vegetation will help reduce sediment loadings, including phosphorous loadings, which will significantly affect algae growth.

Is there any concerns with boat traffic wakes- should this be a no wake lake?

Boat wakes can add to shoreline erosion. Reducing the lake to no-wake may help with shoreland erosion, but enforcing existing no wake regulations which prohibits boaters from operating their boats faster than slow no-wake anywhere within 100 feet from shore may produce the same results as an entire no-wake. Shoreline erosion will be evaluated.

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Why was hydraulic dredging the selected method versus mechanical dredging?

SEH initially requested that Wisconsin Department of Natural Resources issue the permit with the option to use either hydraulic dredging or dry mechanical dredging. Wisconsin Department of Natural Resources was concerned with the potential environmental impacts associated with drawing down the lake level. As a result, the City and SEH agreed to limit the dredging method to hydraulic dredging, which does not require a draw down. Hydraulic dredging also allowed for the use of hydraulic pipeline transport which has considerably less impact along its route. If the proposals received for hydraulic dredging are cost prohibitive, a mechanical dredging permit application will be submitted.

How will the City know how much material has been removed?

There will be three methods used to confirm the dredge volume. First, the selected contractor will be required to conduct a pre-dredge bathymetric survey to confirm existing conditions and repeat it upon completion. Second, a third-party surveyor will be engaged to spot check the contractor's bathymetric surveys. Finally, a third-party surveyor will be hired to survey the disposal site after dewatering is substantially complete to confirm the volume placed there.

How can I help?

Donations toward the Lake Henry Dredging Project can be mailed to P.O. Box XXX, Blair, WI 54616.