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## **Lost Lake, Town of Saint Germain, Vilas County Lake Management Planning & AIS Control Project Update – August 2017**

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Following the discovery of Eurasian watermilfoil (EWM) in 2013 and curly-leaf pondweed (CLP) in 2014, the Lost Lake Protection and Rehabilitation District (LLPRD) has initiated an Aquatic Invasive Species (AIS) early detection and response framework with increased population monitoring. EWM populations were initially targeted through professional hand-harvesting activities. Once the population exceeded a threshold where these activities were thought to no longer be feasible, the LLPRD opted to discontinue further management until it understands if the EWM population will continue to increase or if it will plateau at a level where the ecosystem function and navigation, recreation, and aesthetics are not impeded.

Following Onterra's recommendations in 2015 and 2016, the LLPRD postponed targeting the new CLP population applying a similar philosophy as discussed above for EWM. In the eyes of many of the district members and directors, they had simply sat back and watched the CLP population expand to seemingly unfathomable levels. During the late-fall/winter of 2016-17, there were a number of correspondences between the district and Onterra discussing the possibility of conducting an herbicide control strategy during the spring of 2017. Factors such as likely native plant impacts, the need for multiple annual treatments, and potential regulatory opposition were weighed heavily. Following these discussions, the LLPRD board of directors supported pursuing an herbicide spot treatment targeting the largest and densest population of CLP during the spring of 2017.

The LLPRD and the chosen third-party applicator selected by the district, Clean Lakes, applied for a WDNR permit during late-March 2017 to target the CLP within the western lobe of the lake with liquid endothall at 2.0 ppm active ingredient (1.4 ppm acid equivalent [ae]), a typical herbicide spot-treatment dose targeting this species. The permit was approved on May 17, 2017 and the herbicide treatment occurred on May 24, 2017. The dam operations were altered during the herbicide treatment in attempt to keep the herbicide from being flushed downstream before it could impact the CLP as well as reduce potential downstream impacts of the herbicide on vulnerable growth stages of wild rice. However, the heavy amounts of rain this spring greatly limited the ability to impact discharge rates through manipulation of the dam's spillway.

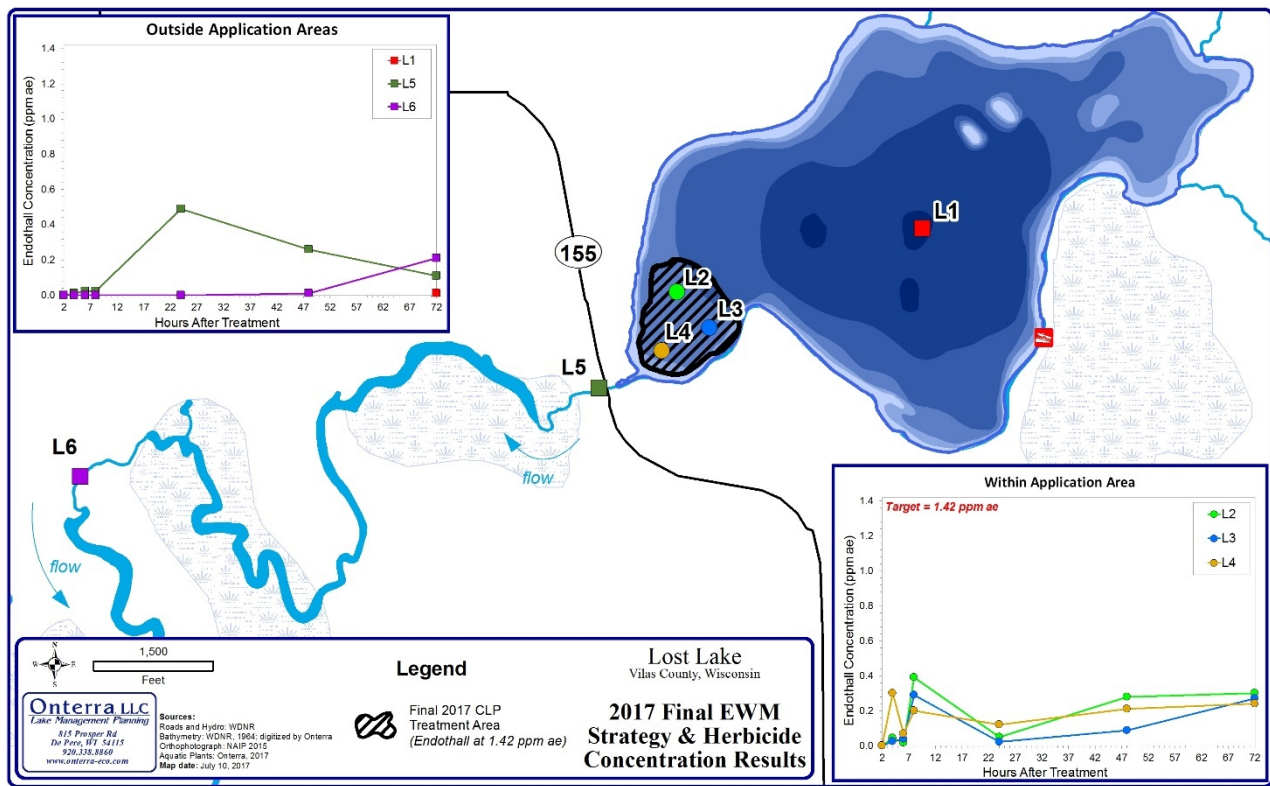
While the herbicide was applied to a specific area of Lost Lake, a monitoring plan was designed to understand how the herbicide would dissipate following the treatment. LLPRD volunteers collected water samples at 3 locations in the treatment area, one location in the center of the lake, and 2 locations downstream at 7 intervals spanning 72 hours after treatment. The data indicate that the concentration in the treatment area was lower than the target (0.3-0.4 ppm ae compared with the target of 1.4 ppm ae), but were sustained for 72 hours and thought to be sufficient for CLP control. Low-level herbicide concentrations were documented downstream in the Lost Creek, but much below concentrations the published literature documents as having impacts to wild rice. Herbicide concentrations were observed only slightly above minimal detection limits at 3 days after the treatment in the center of the lake. The herbicide concentration monitoring data suggest that the impacts of the spot treatment were likely to be confined to the approximate area of the treatment and not have impacts lake-wide.

A late-June survey revealed that the herbicide treatment was highly effective, with no CLP being located in the western lobe of the lake. Low-density and small sized CLP populations were documented in other parts of the lake during the late-June Survey. A late-summer point-intercept aquatic plant survey was conducted on Lost Lake to document how aquatic plant populations have changed since the previous survey completed in 2010. The data could also be parsed within the treatment area to understand the collateral impacts of the herbicide treatment on the native plant community.

Numerous reliable anecdotal reports conveyed that the plant population of Lost Lake was much lower than previous years. Point-intercept survey data collected by Onterra in mid-August confirmed these reports. Of the

top 12 most frequent native plant species in Lost Lake, 8 exhibited large population declines comparing 2010 to 2017. As discussed, some declines were anticipated within the treatment area, particularly as it is Onterra's experience that some of the species within Lost Lake are particularly vulnerable to the herbicide used. However, impacts to plant species lake-wide are likely not due to the herbicide treatment since the monitoring indicated barely detectable (0.009 ppm ae) concentrations lakeward from the treatment area. Even species traditionally not impacted by endothall, such as common waterweed, displayed lake-wide population declines in 2017.

While the declines in many of the species were greater in magnitude within the treatment area, the plant species population reductions were observed in areas outside of the herbicide application area. As reported by the Milwaukee Journal Sentinel, January 1 through July 31 was Wisconsin's wettest year on record (records date back 123 years). These climactic conditions can impact water clarity, water levels and flow, nutrient levels, etc. that need to be included as factors that impacted the aquatic plant population of Lost Lake. A thorough discussion of the native plant data will be contained within the 2017 AIS Monitoring & Control Strategy Assessment Report that will be distributed this winter.



With the help of a Wisconsin DNR Education, Planning, and Prevention Grant totaling nearly \$23,500, a project is also underway to update the Lake Management Plan for Lost Lake. Previous lake management planning efforts were initiated by the Town of Saint Germain Lakes Committee in 2004 and 2010. The updated plan will contain historic and current data from the lake as well as provide guidance for its management by integrating stakeholder perceptions and goals. Study components will include investigations of the water quality, watershed, shoreline condition, aquatic plants, and fisheries data integration.

Because of the wealth of data that was collected just within the past few months, much of the data analysis has yet to be completed. Following data analysis and report creation, likely February-March 2018, the Lost Lake Planning Committee and Onterra staff will meet to discuss the project results and begin creation of management goals and actions the LLPRD will pursue to manage their lake in both a recreationally enjoyable and ecologically sound manner. This will include EWM and CLP management goals as the project shifts from an Early Detection and Response Phase to an Established Population Management Phase.