

# *The Quiet Lakes*



**TEAL, LOST LAND and GHOST LAKES IMPROVEMENT ASSOCIATION, INC.**  
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**DATE:** August 20, 2019

**FROM:** David J. Neuswanger (President, Quiet Lakes Improvement Association)

**TO:** Mr. Mark Sundeen and Dr. Scott Van Egeren (Wisconsin Department of Natural Resources)

**SUBJECT:** July 2019 Report on Mechanical Plant Harvest under DNR Permit # NO-2019-58-4405M

Gentlemen, it is my duty and pleasure to report that our initial use of an Eco-Harvester mechanical aquatic plant puller to selectively remove Hybrid Eurasian Water Milfoil (HEWM) from Lost Land and Teal lakes in Sawyer County has met with considerable success to date. There was a learning curve, to be sure, in operating the machine effectively; but we now know enough to report with confidence that operations conducted under this permit are likely to meet our objectives of controlling and preventing further spread of HEWM in our lakes at a reasonable cost with no detectable adverse impacts.

**Operational Start-Up:** Our \$300 DNR permit for mechanical harvesting, issued on May 14, 2019 by Mr. Sundeen, requires that we submit monthly reports summarizing our harvest activities. On June 7, 2019, we obtained insurance under which to operate the Eco-Harvester from Markel American Insurance Company at a cost of \$906 per annum. We spent the next couple weeks registering the watercraft, licensing its trailer, and customizing the Eco-Harvester for safety and operational efficiency (sun shade, depth sounder, storage, etc.). We first launched the Eco-Harvester on Lost Land Lake on June 19, 2019. Our first four days on the water in late June were dedicated to becoming comfortable with the hydraulic systems and operating features in a total of only 10 hours of operating time. HEWM harvest during the late June learning period was negligible. At that time, it seemed as if the machine might not work effectively until late-developing patches of HEWM had “topped out” at the surface. Patches of HEWM with apical meristems a foot or more beneath the water surface were fragmenting and not being captured for removal as efficiently as we had hoped. We feared we might be doing more harm than good by operating during that time period, so we delayed removal operations until early July when we started seeing large, mostly monotypic patches of HEWM (up to 2 acres) “topped out” in locations identified on our permit issuance map – primarily in Wilson Bay of Lost Land Lake. We have since learned we could have operated more effectively during that late June period by lowering the roller drum to maximum depth (4 feet) while significantly reducing roller drum rotation speed and boat speed so that early-growing plants in deeper water could be reached and pulled without significant breakage.

**July Operations and HEWM Harvest (includes minor late-June activity):** From the onset of operations through July 31, 2019, volunteer members of the Quiet Lakes Improvement Association spent a total of 92 work hours (one driver, one helper) operating the Eco-Harvester on 13 dates, logging a total of 76.8 hours of machine operating time – more than half in transport to and from harvest sites. (Our daily log is available for DNR review upon request.) Total HEWM harvest during days of operation was 26 full Eco-Harvester loads, roughly estimated to be 2 cubic yards per load, for a total of 52 cubic yards of compacted HEWM. We have not tried to convert that estimated volume to a wet weight, but it would vary considerably depending on the amount of time a “load” of plants had to drain before being off-loaded into a dump trailer at the boat ramp. Because we restricted our July operations to visibly dense patches of topped-out HEWM at water depths of 4 to 7 feet, we conservatively estimated that more than 98% of all plants harvested were the targeted invasive HEWM. Highly desirable native species such as Large-leaf pondweed and Claspingleaf pondweed were seen only rarely among the harvested plants, probably because co-occurring specimens of these species were not yet as tall as HEWM and therefore were relatively invulnerable to “capture” by the rotating drum being operated almost exclusively in the top two feet of the water column. A substantial but unquantified proportion of harvested HEWM came aboard the Eco-Harvester with clean, intact roots, indicating the plants had been pulled from the sediment, which was our aim. Similar to Diver-Assisted Suction Harvest (DASH), but with far less disturbance of sediment, our aim was to pull these plants with their roots intact so they would not generate new stems and resume dominance before native plants had a chance to recolonize.

**Transport and Disposal:** Considerable time was needed to transport full Eco-Harvester loads of HEWM at a maximum speed of 4.2 mph from various harvest sites to concrete boat landings where harvested plants could be off-loaded into dump trailers. Most harvest activity occurred in Wilson Bay (northeast area of Lost Land Lake on permit issuance map). Those plants were off-loaded at the recently renovated DNR boat landing in Landing Camp Bay (western part of lake). Plants harvested along the western shoreline south of Duncan’s Point and in the extreme southwest corner of Morgan Bay (a.k.a. Steamboat Bay) in the southern end of the lake were transported to a recently renovated private boat landing at *The Retreat at Lost Land Lake*. Plants off-loaded at this resort and at the DNR boat landing were hauled in a tarp-covered dump trailer to the old landfill site at the end of Trappe Road on a 40-acre tract of land owned by the Township of Spider Lake, which had previously approved a Resolution permitting us to dispose of HEWM in a safe location where there is no chance that live fragments will find their way into surface waters. Off-loading resulted in some spillage of fragments that were subsequently raked and removed by volunteers before the Eco-Harvester was re-deployed or trailered at the end of each work day. Cleaning the ramp area and machine prior to transport by trailer usually required a full hour of conscientious work by the two-person crew of volunteers.

**Impact Assessment:** We were unable to quantify the actual surface area in which the Eco-Harvester was operated or plants were removed. HEWM occurred in irregularly-shaped patches of variable size and plant density, thwarting any attempt to develop discrete polygons using the personal hand-held GPS units at our disposal. Given the measurement error inherent in most commercially available GPS systems (plus or minus 15 feet), and also the route distortion created by any significant amount of wind, it was impossible to accurately quantify areas of infestation and removal due to inevitable gaps or overlaps in areas of operation. However, our primary operators (QLIA Vice-President Norm Bratteig and Eco-Harvester Lead Operator Kim Phelps) have recorded GPS coordinates of the approximate centers of significant areas of operation where follow-up observations may be made to determine the future composition of the aquatic plant community. (If DNR knows of an accurate and efficient way to estimate area of operation, we would appreciate some technical assistance in that endeavor.) By the end of July, it was becoming clear that we had removed most of the large, obvious, topped-out patches of HEWM in Lost Land Lake, which included mapped locations in Wilson Bay to the northeast, the western shoreline, and Morgan (Steamboat) Bay to the south. It is too soon to know whether HEWM will return to former densities in the areas harvested, but observations with a sensitive depth sounder suggested that no stems of HEWM remained underwater after harvest in some of the areas of heaviest infestation.

**Noteworthy Observations:** With this report, we are officially conveying the unwelcome news that in spring of 2019 HEWM was reported by several members and confirmed by QLIA President Dave Neuswanger in at least two locations in the western end of Teal Lake, which is connected by Thoroughfare to Lost Land Lake. We had feared such spread, but we are optimistic that we may now have an effective method to reduce or eliminate these pioneer patches and discourage further colonization of Teal Lake. On a brighter but perplexing note, significant areas of HEWM infestation known to occur late in 2018 or in spring of 2019 disappeared almost completely without human intervention. Such areas included the eastern and southeastern shorelines of Morgan Bay in Lost Land Lake and a small embayment in the northwest corner of Teal Lake. Between mid-June and mid-July, vigorously growing HEWM in fairly high density in these areas simply died and yielded to other native plants. We have no idea why, but we are not complaining. The history of aquatic invasive species is replete with examples of invaders exhibiting mass mortality when confronted with environmental conditions or pathogens to which they were not adapted; so we should not be totally surprised by this development. It will be interesting to see what happens over the next few years.

**Public Reaction:** QLIA members are very pleased with our first-year progress in controlling HEWM in Lost Land Lake. Boaters frequently approach our volunteer operators to inquire about the Eco-Harvester and thank them for their service to the Quiet Lakes community. Nobody has complained of noise because the Honda generator and paddle-wheel propulsion system is relatively quiet. Numerous individuals and lake association representatives have asked us for information and demonstration. We will have the Eco-Harvester on display at QLIA's annual picnic on Saturday, August 24 at Boulder Lodge on Ghost Lake 20 miles east of Hayward from Noon until 4 p.m. Our DNR partners are invited to participate as guests and learn more about our operations. We also would be happy to accommodate an on-the-water tour and demo for DNR officials at a time of mutual convenience.