

Waterford Waterway Late-Season AIS Survey Summary

September 2017

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The Waterford Waterway Management District (WWMD) has initiated a project to develop a comprehensive lake management plan for the Waterford Waterway, an impoundment of the Fox River in Racine County which includes Tichigan Lake, Buena Lake, and portions of the Fox River (Map 1). To develop this management plan, studies pertaining to the waterway's water quality, watershed, immediate shoreland, and aquatic plant community are being completed. While the majority of these studies will be completed in 2018, a Late-Season Aquatic Invasive Species (AIS) Survey was completed in September of 2017 with a goal of mapping non-native aquatic plants throughout the system – primarily Eurasian watermilfoil. The results of this survey will be used to guide management efforts in 2018. This document provides a summary of the results from the 2017 Late-Summer AIS Survey on the Waterford Waterway.

Onterra ecologists completed the Late-Season AIS Survey on the Waterford Waterway on September 18 and 19, 2017 in an effort to map occurrences of Eurasian watermilfoil (*Myriophyllum spicatum*; EWM). Mid- to late-summer is the ideal time to map EWM as this plant is typically at or near its peak growth at this time of year. While the non-native plant curly-leaf pondweed (*Potamogeton crispus*; CLP) is also present in the Waterford Waterway, the CLP population typically reaches peak growth in June before naturally dying back by early July. The CLP population in the Waterford Waterway will be assessed in the early summer of 2018. The Late-Summer AIS Survey is a meander-based survey where all areas of the waterway are visually inspected for the presence of EWM. Using sub-meter GPS technology, EWM locations were mapped by using either 1) point-based or 2) area-based methodologies. Point-based techniques were applied to EWM locations that were considered to be *small plant colonies* (< 40 feet in diameter), *clumps of plants*, or *single or few plants*. Large colonies (> 40 feet in diameter) are mapped using polygons (areas) and were qualitatively attributed a density rating based upon a five-tiered scale from *highly scattered* to *surface matting* (Map 1).

The 2017 Late-Summer AIS Survey revealed that aquatic plants are largely restricted to shallower areas of Waterford Waterway, typically in 3.0 feet of water or less likely as a result of the low-clarity conditions in this system. Aquatic plants were observed growing slightly deeper in Tichigan Lake which had higher water clarity when compared to the rest of the system. The survey also revealed that EWM is present throughout most of these shallow areas where aquatic plants can be found (littoral zone) in the waterway. Approximately 700 acres of the Waterford Waterway was found to contain EWM; however, 96% of this area was delineated as having either *scattered* or *highly scattered* EWM (Map 1). At these lower densities, EWM does not cause significant recreational interference and likely has little to no ecological impact.

Approximately 25 acres or 4% of the littoral area containing EWM was delineated with a density rating of *dominant* or greater (Map 1). These areas of EWM of higher density have the potential to cause recreational interference and also likely impart negative ecological impacts. These areas of higher density EWM were found in portions of Tichigan Lake, the southern portion of the channel downstream of Conservancy Bay, Elm Island Bay (Photo 1), and within the bay of Fox Isle across the river from River City Marina. While areas containing higher densities of EWM create nuisance conditions, in most instances these areas were in 3.0 feet of water or less where navigation is already difficult due to shallow depth. And while EWM created nuisance conditions in the areas

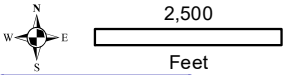
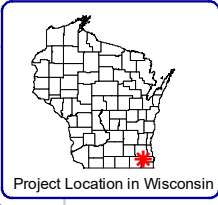
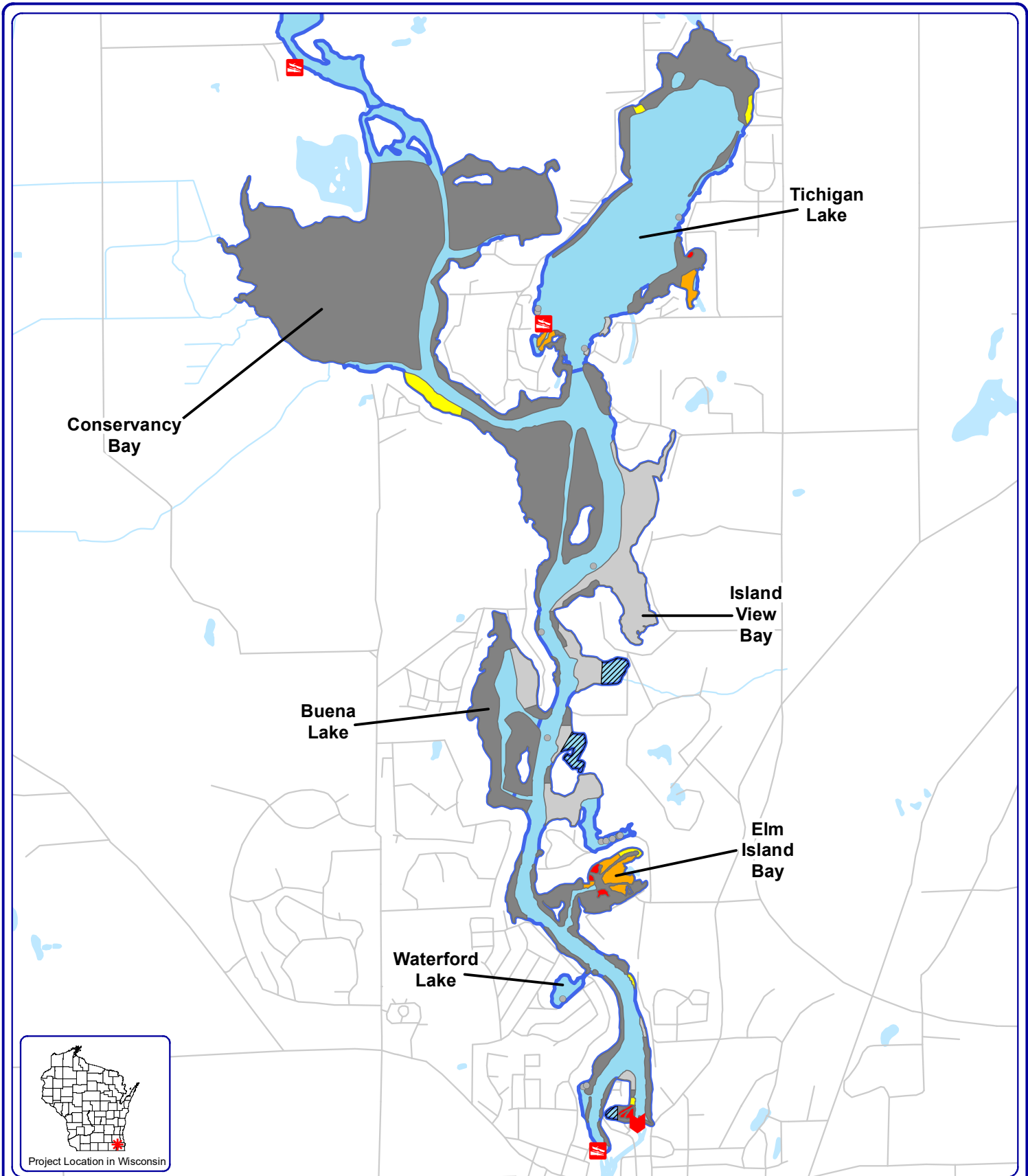
discussed, high-density growth of native aquatic plants was also observed throughout many shallow areas in the Waterford Waterway.

For instance, areas of Buena Lake, Island View Bay, Conservancy Bay, and many of the smaller bays in the waterway had surface-matted growth of the native plants coontail (*Ceratophyllum demersum*) and common waterweed (*Elodea canadensis*) with duckweed (*Lemna* spp.) and watermeal (*Wolffia* spp.) floating within. These native plants can grow to excessive levels in waterbodies with higher levels of nutrients, like the Waterford Waterway. These native plants were observed to be growing at greater densities than EWM in most littoral areas of the waterway.

Over the fall/winter of 2017/18, Onterra ecologists will begin discussions with the WWMD and the WDNR to discuss the 2017 AIS survey results and to develop potential management strategies for areas of the waterway containing denser areas of EWM growth. Studies pertaining to the waterway's water quality, watershed, and immediate shoreland zone will be initiated in 2018.



Photo 1. Colony of *highly dominant* EWM in Elm Island Bay (left) and areas with surface-matted native aquatic plants (primarily coontail, common waterweed, and duckweed) in Conservancy Bay (right). Photos taken during September 2017 Late-Season AIS Survey. Photo credit Onterra.



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Sources:
 Roads and Hydo: WDNR
 Plant Survey: Onterra, 2017
 Map Date: September 22, 2017
 Filename: Waterford_EWM_Sept17.mxd

Legend

- Single or Few Plants
- Clumps of Plants
- Small Plant Colony
- Unable to survey, non-navigable
- Public Access
- Waterford Dam

Waterford
 Impoundment
 Racine County, Wisconsin
September 2017
EWM Survey Results