Capital Region PRISM AIS Lake Survey Report

Date: August 18\textsuperscript{th} and 26\textsuperscript{th} 2020
Site Name: Tomhannock Reservoir
GPS Location: 42.8189 -73.5246
Physical Address: Route 7
County: Rensselaer
Town: Pittstown, NY
Site Size:
1720 acre(s) / Lake Perimeter: 19 Miles / Mean Depth: 23 Feet

Property Owner Contact:
City of Troy City Clerk’s Office
433 River Street Troy, NY 12180

Primary Contact: Dennis Wischman, NYSDEC
Email: dennis.wischman@dec.ny.gov

Secondary Contact: Chris VanMaaren, Regional Fisheries Manager,
Division of Fish and Wildlife
NYSDEC, 65561 State Hwy 10, Stamford, N.Y. 12167
P: (607) 652-2620 | Email: chris.vanmaaren@dec.ny.gov

Survey Leader: Kristopher Williams, PRISM Coordinator
P: (518) 321-0189 | Email: kbw44@cornell.edu
iMapInvasives User ID: 9274

Summary

On August 18\textsuperscript{th} and 26\textsuperscript{th} 2020 the Capital Region PRISM conducted an Aquatic Invasive Species Macrophyte Survey to delineate Water Chestnut (\textit{Trapa natans}) monocultures on the Tomhannock Reservoir a drinking water supply for the City of Troy and other municipalities in Rensselaer County. A visual inspection of the surface waters and subsurface were conducted along the (littoral zone) shoreline of the water body. The New York State Department of Fish and Wildlife assisted in the two survey dates. Rensselaer County Soil & Water Conservation District USDA NRCS Service Center Conservation Technician was also present of the first day of surveying.

The infestations are occurring in the shallow portions of the littoral zone were soft sediments are present. There are six major infestations present with a seventh forming. The seven sites altogether account for 71.75 acers of biomass on the surface waters or 4.15% of the total lake acreage. Data was delineated using ARC GIS Collector. Please note the iMap Invasives Presence polygons on the second page showing the infestations. The percent coverage of the littoral zone is not know at this time.

There are portions of the reservoir where water chestnut is not present or is present but in isolated and sparse patches. These areas are in rocky deep waters. Notably the northeastern shore of Reservoir Lake Road and portions of the southwestern shore. The likely hood of future infestations are low in these areas due to the deep and rocky lake geomorphology. Note the link and map above of the littoral zone.
Aquatic Invasive Species Present of Concern


Site Description:
The water source for the city of Troy, New York is the Tomhannock Reservoir, a man-made reservoir 6.5 miles (10.5 km) northeast of Troy in the town of Pittstown. The reservoir is 5.5 miles (8.9 km) long, and holds 12.3 billion US gallons (47,000,000 m³) when full. Licensed fishing (both warm-weather and ice fishing) is a popular recreational activity. The reservoir is surrounded by agricultural lands with fragmented forest. The Reservoir has a shore line elevation of 400 feet and overflows into the Tomhannock Creek to the Hoosic River. Otter and Sunkauissia Creek drain into the reservoir. 1. Troy NY Water Department reports Archived 2007-10-22 at the Wayback Machine Retrieved 2011-08-05.

iMapInvasives Prioritization Model:
([https://www.arcgis.com/home/webmap/viewer.html?webmap=57d30ff9bff7426c8950d90b0ba43bba&extent=-81.0352,39.2503,-70.2686,45.8067](https://www.arcgis.com/home/webmap/viewer.html?webmap=57d30ff9bff7426c8950d90b0ba43bba&extent=-81.0352,39.2503,-70.2686,45.8067))

The shoreline of the Tomhannock Reservoir is ranked moderately high on the prioritization model comprehensive score attribute with a strong coloring on the heat map.

Does this site contain previously treated infestations?
- No

Survey Techniques:
- Visual Inspection of Surface and Subsurface
Section 2: Survey Result Summary

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Location (GPS)</th>
<th>Growth Type</th>
<th>Phenology</th>
<th>Abundance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brittle Naiad</td>
<td>Najas minor</td>
<td>42.8198 -73.5181</td>
<td>Floating</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Curly-leaf pondweed</td>
<td>Potamogeton crispus</td>
<td>42.8198 -73.5181</td>
<td>Floating</td>
<td>Detritus</td>
<td>n/a</td>
</tr>
<tr>
<td>Eurasian Water-milfoil; European Water-milfoil</td>
<td>Myriophyllum spicatum</td>
<td>Intermittent through out</td>
<td>Submerged/Rooted</td>
<td>Growth</td>
<td>Sparse/Dense</td>
</tr>
<tr>
<td>Water Chestnut</td>
<td>Trapa natans</td>
<td>Note Seven Polygons</td>
<td>Surface/Rooted</td>
<td>In seed</td>
<td>Monoculture(s)</td>
</tr>
<tr>
<td>Suspected HAB Reported to DEC</td>
<td>n/a</td>
<td>42.8163 -73.5209</td>
<td>Surface/Water Column</td>
<td>n/a</td>
<td></td>
</tr>
</tbody>
</table>

Native species observed in Tomhannock Reservoir

- Myriophyllum sibiricum - Northern watermilfoil
- Najas flexilis - Slender/bushy naiad
- Elodea sp. (E. canadensis, E. nuttallii) - Elodea, waterweed
- Nymphaea odorata - White water lily
- Ceratophyllum demersum - Coontail
- Chara vulgaris - Chara, muskgrass
- Potamogeton amplifolius - Large-leaf pondweed
- Potamogeton perfoliatus - Clasping Pondweed

Areas of Concern:
The Presence polygons in green where dense monocultures of Water Chestnut (*Trapa natans*) are confirmed.
Section 3: Summary of Recommendations

Treatment:
Chemical treatment is not an option for the public water supply.

Bio-Based mapping should possibly be considered to determine the possible extent in which soft sediments occur in the reservoir within the littoral zone. These areas can represent possible environments for future expansion of the plant into new un-established habitat.

Mechanical Harvesting:
- Newly introduced populations of *T. natans*. Early detection of introductions and a rapid control response are key to preventing high-impact infestations. Because *T. natans* is an annual plant, effective control can be achieved if seed formation is prevented. Small populations can be controlled by hand pulling working from canoes or kayaks.
- Established and large infestations usually require the use of mechanical harvesters.
  - Regardless of treatment, ideally removal should take place before the fruit has ripened and dropped to the bottom forming a long-term seed bank.
  - Water chestnut overwinters entirely by seeds that may remain viable in the sediment for up to 12 years, repeated annual control is critical to deplete the seed bank. Treatment generally is needed for five to twelve years.
  - Shallow water aquatic weed harvesters maybe needed for control / eradication in sections of the littoral zone in conjunction with larger harvesters. Some hand pulling maybe required.
Basic Primer(s) on Water Chestnut

- [https://www.dec.ny.gov/docs/lands_forests_pdf/aiswatercfs.pdf](https://www.dec.ny.gov/docs/lands_forests_pdf/aiswatercfs.pdf)
- [https://seagrant.sunysb.edu/ais/pdfs/WaterChestnutFactsheet.pdf](https://seagrant.sunysb.edu/ais/pdfs/WaterChestnutFactsheet.pdf)

**Post-Survey Monitoring:**

The Capital Region PRISM will continue to monitor the infestation(s) of Water Chestnut (*Trapa natans*) on a triannual cycle and delineate their size using collector polygons. The PRISM will also monitor for other AIS.

Will post-treatment management be handled by another person/entity? Not Applicable at this time.

If yes- please provide the contact information:

Will an Invasive Species Management Plan be created? Not Applicable at this time.