STORAENSO

ORIGINAL

August 15, 2003

Office of the Secretary,
Federal Energy Regulatory Commission
888 1st Street, N.E.
Washington, D.C. 20426

0163

Little Quinnesec Falls Hydroelectric Project, FERC No. 2536 – Article 409, 2003 Exotic Species Report

In accordance with the Commission order approving the monitoring plan for Purple Loosestrife and Eurasian Milfoil within the Project boundary, we are submitting the enclosed report for 2003. No evidence of Purple Loosestrife was found within the Project however, one site, downstream of the Project, contained a small colony. This site was manually removed and disposed of. Additionally, the surveyors did identify one colony of Eurasian Milfoil. While the present of the milfoil is a concern and warrants continued monitoring, it is their belief that the diverse community may inhibit further spreading of this invasive species. This information is being forwarded to the City of Niagara concurrent with this filing recommending that they treat the Purple Loosestrife in accordance with our consultant's comments.

Sincerely,

STORA ENSO NORTH AMERICA CORPORATION

Mark E. Anderson
Resources Manager

Enclosure: White Water Associates, Inc. Report

CC: File (Little Quinnesec Falls, LG-90-30 – Article 409)
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WHITE WATER ASSOCIATES, INC.

PURPLE LOOSESTRIFE AND EURASIAN WATERMILFOIL MONITORING

Hydro Project No. 2536, Little Quinnesec Falls

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I. SUMMARY

Annual monitoring for purple loosestrife (*Lythrum salicaria*) and Eurasian watermilfoil (*Myriophyllum spicatum*) has been designated as part of the FERC requirements for the relicensing of the Hydro Project No. 2536, Little Quinnesec Falls, on the Menominee River by Stora Enso North America Corp., Niagara Mill, formerly known as Consolidated Papers Inc., Niagara Division. On July 30, 2003, biologists from White Water Associates, Inc. conducted visual and grab sample surveys by boat in the project area from Little Quinnesec Dam to Big Quinnesec Dam. In addition, a short distance downstream of the Little Quinnesec Dam was inspected on foot.

Purple loosestrife was found **only** downstream of the Little Quinnesec Dam, outside the project area, on the Wisconsin side in the village of Niagara approximately 100 feet downstream of the boat access site. We found about 8 small (6 inches to 1 foot) non-flowering stalks and one flowering stalk. All were growing along the shoreline in saturated soil. The identified stalks were pulled and removed from the area.

As in 2002, Eurasian watermilfoil (*Myriophyllum spicatum*) was recorded in the project area but in limited abundance. Identification of samples collected last year as Eurasian watermilfoil was confirmed by botanists Dr. Emmet Judziewicz and Dr. Robert Freckman of University of Wisconsin, Stevens Point. Identification of samples was further confirmed following the 2002 report by Michael Moody and Dr. Donald Les of the University of Connecticut, using genetic analysis. Location and relative abundance was noted.

Informational warning signs regarding nuisance aquatic plants acquired from WDNR have been posted at public landings in the project area. Informational brochures about purple loosestrife were made available to the public in 1999.

II. INTRODUCTION

Monitoring for purple loosestrife (*Lythrum salicaria*) and Eurasian watermilfoil (*Myriophyllum spicatum*) was conducted on July 30, 2003 as required by Article 409 of the order issuing a license for Hydro Project No. 2536, Little Quinnesec Falls. There have been reports c

both species within the Menominee River basin since 1990. There were no reports of these alien species within the project area reported from surveys during the license application process (1990). Purple loosestrife was found in 1998, 1999, 2000, 2001, 2002 and 2003 growing along the Wisconsin shoreline below the Little Quinnesec Dam, outside the project area, within the city of Niagara, about 100 feet below the public boat access. This patch does not seem to have expanded at all in size. Some questionable specimens of watermilfoil had been found in past years of monitoring but identification of Eurasian watermilfoil was not confirmed until 2002. Native species of watermilfoil are also present in the project area.

III. METHODS

On July 30, 2003, biologists Elizabeth Rogers and David Tiller, of White Water Associates, Inc., used a small boat and motor to look at the shoreline between the two dams, including the numerous backwater wetlands. Most of the backwater wetlands are densely vegetated with a species-rich diversity of aquatic plants (submergent and emergent) making it imperative to use oars for more complete access. Binoculars were used to scan the shore and less accessible backwater areas. Purple loosestrife in flower is a showy and easily identifiable plant during its peak blossoming period that extends from late July through August at this latitude, depending on the variation of the year. All wetlands and backwaters connected to the reservoir in the project area were visually inspected for purple loosestrife.

We surveyed for Eurasian watermilfoil by taking grab samples from beds of aquatic plants using hands and a metal garden rake. We then examined the leaves, counting leaf divisions of the largest leaves. According to most taxonomic keys, number of leaf divisions is the main morphological trait that can be used to separate the native northern watermilfoil (*Myriophyllum sibiricum*, formerly *exalbescens*) from Eurasian watermilfoil (*Myriophyllum spicatum*), although there is considerable variability within each species. Generally, the average number of leaf divisions (on one side of the leaf) for northern watermilfoil ranges from 5-11 with a reported maximum of 13. The average number for Eurasian watermilfoil ranges from 14-17 with a maximum of 20. A total of 28 leaf divisions confirms the identity of Eurasian watermilfoil. Also useful later in the season is the presence of winter buds (turions) on northern watermilfoil, structures not found on Eurasian watermilfoil. In addition, Eurasian watermilfoil exhibits a different growth form than the native

species, branching repeatedly at the water's surface and creating a canopy of floating stems and leaves.

IV. FINDINGS AND MANAGEMENT RECOMMENDATIONS

In response to dry summer conditions, water levels in the flowage were noticeably lower (approximately 18 inches) than last year. Backwaters that have previously been accessible by boat were only accessible at their connection to the flowage. Many shallow areas were muck flats, providing habitat for migrating shorebirds.

Purple Loosestrife

No purple loosestrife was found within the project area (lying between the two dams). Below the Little Quinnesec Dam on the Wisconsin side of the river, associated with the Village of Niagara, we again found one small group of purple loosestrife plants growing scattered along the shoreline approximately 100 feet downstream of the public landing (about 50 feet below the access overlook) (see map in Appendix). The small colony consisted of about 8 small (6 inches to 1 foot) non-flowering stems and one taller flowering stem. Plants were growing in saturated soil at the edge of the river. We carefully pulled the plants we found and removed them from the site. Pulling plants is not sufficient to eliminate the loosestrife as individuals can sprout from fragments of roots left in the soil, or seeds still present in the seed bank. Removal of the flowering stalks each year, or removal of young plants before they reach maturity, will limit the number of seeds produced and the species' ability to propagate via seeds. More effective control would require application of herbicide to freshly cut stems.

Eurasian Watermilfoil

The project area has a robust diversity of native aquatic plants (submergent and emergent) particularly in the backwaters. This intact species-rich community may make the flowage more resistant to invasive plant species. Native watermilfoils present during the 2003 survey included *Myriophyllum heterophyllum* and *M. sibiricum.*

In 2002, we collected specimens of watermilfoil with leaf divisions numbering a total of 28 or more for large leaves, and producing flowers. This was the first year that flowering of watermilfoil was noted on the project area during the survey. The plants that were flowering were subsequently identified as Eurasian watermilfoil by botanists Dr. Emmet Judziewicz and Dr. Robert Freckman of University of Wisconsin, Stevens Point.

Research is currently underway in New England and Wisconsin to determine if apparent infestations of Eurasian watermilfoil are actually hybrids of the alien *M. spicatum* and a native species, such as *M. sibiricum*. Many eastern and midwestern lakes that have problem invasive levels of what was believed to be Eurasian watermilfoil have been found instead to be dominated by the hybrid. In fact, lakes where the hybrid is present almost always lack the native *M. sibiricum* as well as a pure form of the alien Eurasian watermilfoil, *M. spicatum*. The current data indicate that the hybrid form may be more widespread than previously known and may be more invasive than the pure form.

Following up on this source of information, in late 2002, several specimens of purported Eurasian watermilfoil as well as samples of both native species were sent to Dr. Donald Les and Michael Moody of the University of Connecticut for further identification by genetic analysis. Genetic analysis of our specimens from the project area indicated that no hybrids were present, only the pure form of Eurasian watermilfoil and pure forms of *M. heterophyllum* and *M. sibiricum*. This may mean that the current patches of pure Eurasian watermilfoil in the project area are less likely to spread than if these patches consisted of hybrids. In 2003, the two locations known to have Eurasian watermilfoil were checked again. Both backwaters were quite dry consisting of exposed muck flats with drying algae on the surface. In one location we could still find some Eurasian watermilfoil in the water, but did not observe blossoms. There was no visual indication that the Eurasian watermilfoil had spread in extent.

IV. CONCLUSIONS

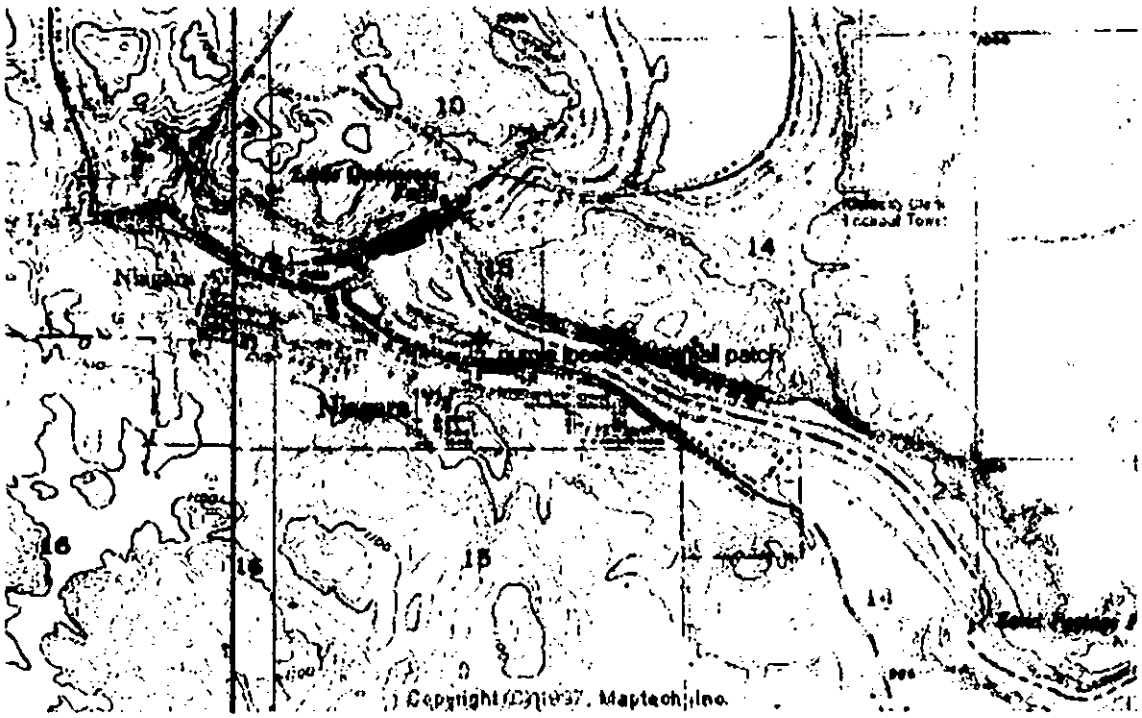
The purple loosestrife just downstream from the project area could be readily controlled through repeated applications of herbicide (*Round-Up or Rodeo®*). Pulling the larger flowering

plants will slow seed production, but not eliminate the species. Given the species' propensity to spread, continued control of this alien even outside the project area appears to be a very worthwhile investment in terms of preventing the establishment of this alien within the project area. In 1999, brochures on loosestrife control were made available to the public. Warning signs form Wisconsin DNR, advocating that boaters clean their motors of any plant material from other bodies of water, were posted at boat landings in 2001 and are still present.

The Eurasian watermilfoil locations should be monitored for any noticeable changes. Currently it is coexisting with many native aquatic species including *Elodea canadensis*, *Potamogeton foliosis*, *P. epihydrus*, *P. richardsonii*, *P. pectinatus*, *P. zosteriformis*, *Najas flexilis*, *Myriophyllum sibiricum*, *Myriophyllum heterophyllum*, *Meglodontia beckii*, *Valisneria americana*, *Nuphar variegata*, *Sagittaria latifolia*, and *Ceratophyllum demersum*. At the present time, this diverse community continues in the presence of Eurasian watermilfoil. It may be that such a species-rich community will be able to constrain the growth of the alien species, preventing it from becoming an ecological problem in the project area. In addition, the fact that the hybrid is not currently present in the project area, and the native species are still abundant, bodes well for the perpetuation of a diverse aquatic community.

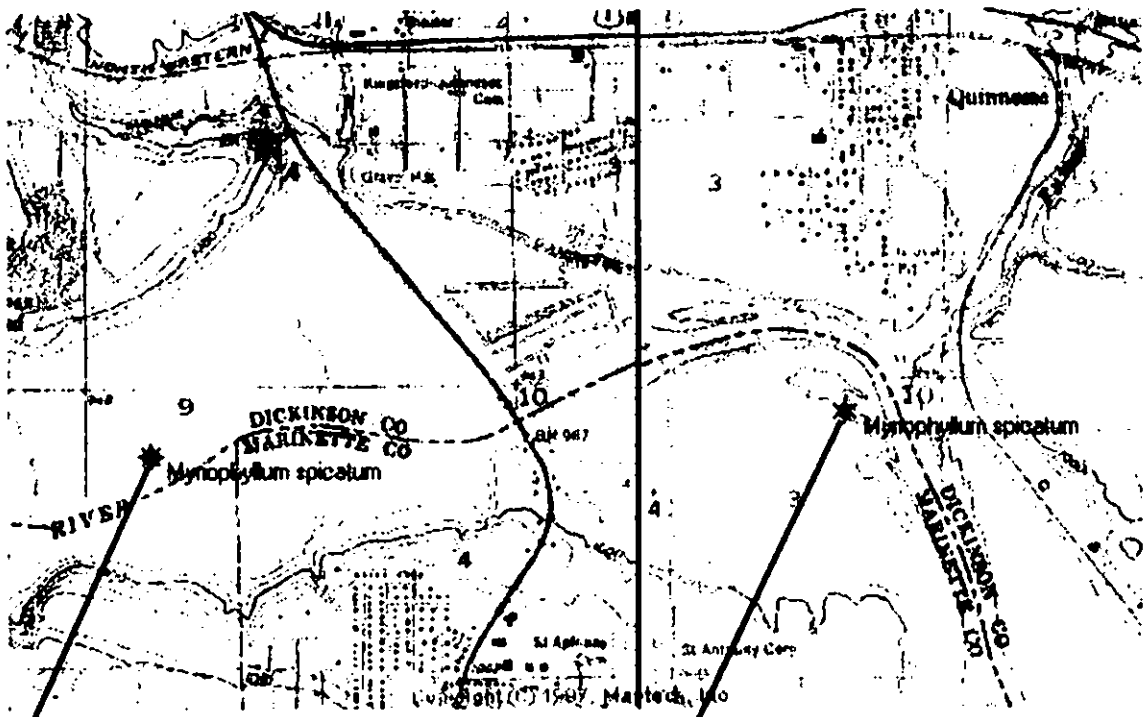
APPENDIX

Maps



Location of Small Patch of Purple Loosestrife

About 100 feet downstream of public boat access, City of Niagara



This location was essentially a drying muck flat and no M. spicatum was observed in 2003

No flowering beds present. Several floating fragments of M. spicatum found but most of the area was a drying muck flat in 2003.

Locations of confirmed *Myriophyllum spicatum*