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SECRETARY OF THE
FEDERAL ENERGY REGULATORY COMMISSION

2008 DEC -1 P 12:53

RECEIVED

November 25, 2008

Ms. Kimberly D. Bose
Office of the Secretary
Federal Energy Regulatory Commission
Mail Code: DHAC, PJ-12.3
888 First Street, NE
Washington, DC 20426

Subject: *Exotic Species Monitoring Survey*
Sturgeon Falls Hydroelectric Project - FERC Project No. 2720 — 059
City of Norway, Michigan, Licensee

Dear Secretary Bose:

Article 406 of the Federal Energy Regulatory Commission (FERC) license for the Sturgeon Falls Hydroelectric Project requires the licensee (City of Norway) to monitor the presence of Eurasian watermilfoil and purple loosestrife in project waters, and to implement measures to control their spread. During the 2007 survey, the extent of Eurasian watermilfoil was estimated at approximately 94 acres, while no purple loosestrife was observed.

In 2008, after careful consideration, the City of Norway made the decision to initiate biological measures for the control of Eurasian watermilfoil. The control program involved the stocking of approximately 10,000 milfoil-eating weevils, and performing a late summer, follow-up survey. One original and seven copies of a report on the control program and associated reservoir surveys, titled *Progress Report for the Implementation of the Middfoil Process of Eurasian Watermilfoil Control in the Sturgeon River, MI* (EnviroScience, Inc. of Stow, Ohio) are enclosed.

Copies of the report were provided to the Michigan Department of Natural Resources (Marquette Fisheries Station) and to the U.S. Fish and Wildlife Service (Green Bay Management Assistance Office) on October 9, 2008. Written comments approving the monitoring and control approach were provided by the Michigan Department of Natural Resources (Marquette Fisheries Station) by e-mail dated November 6, 2008. No comments have been received from the U.S. Fish & Wildlife Service to date. Documentation of consultation is provided as an attachment to the report.

Ms. Kimberly D. Bose

November 25, 2008

Page 2

If you have any questions regarding this submission or require additional information, please contact me.

Sincerely,

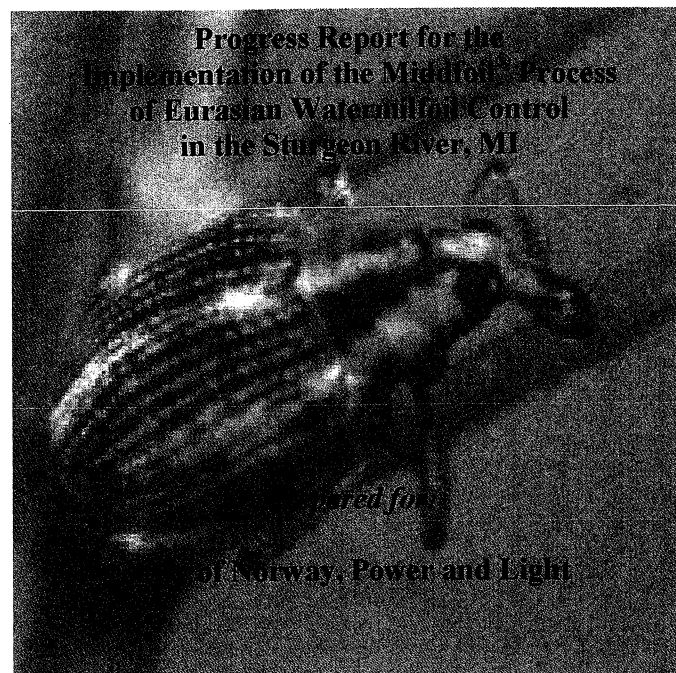
MEAD & HUNT, Inc.

A handwritten signature in black ink that reads "Linda D. Mitchell". The signature is written in a cursive, flowing style.

Linda D. Mitchell

Enclosures

cc: Ms. Jessica Mistak – Michigan Department of Natural Resources Marquette Fisheries Station
Mr. Nick Utrup – U.S. Fish & Wildlife Green Bay Management Assistance Office
Mr. Joe Pickart – City of Norway



Prepared by:



EnviroScience, Inc.
3781 Darrow Rd.
Stow, OH 44224

October 9, 2008

1.0 Introduction

The City of Norway, Power and Light is required to manage the infestation and excessive growth of Eurasian watermilfoil (*Myriophyllum spicatum*) (EWM) and Purple Loosestrife (*Lythrum salicaria*) to comply with their FERC (Federal Energy Regulatory Commission) license. An Invasive Plant Monitoring Survey was performed by the Wisconsin Lake and Pond Resource in late October of 2007. A total of 93.7 acres of Eurasian watermilfoil was found in the Menominee and Sturgeon Rivers. This plant is an invasive, exotic aquatic plant from Europe and Asia that is thought to have invaded the United States in 1930's. This invasive species tolerates a wide range of growing conditions and out-competes native vegetation which can lead to a monoculture of EWM. Thick beds of EWM limit recreational use, reduce biodiversity, and induce an unbalanced fishery.

Milfoil weevils have the potential to provide an environmentally safe alternative to traditional milfoil control techniques such as harvesting and herbicides. These traditional control methods are expensive, do not selectively target milfoil, and must be used repeatedly. In contrast, weevils provide a sustainable and extremely species-specific control of Eurasian milfoil. Adult weevils and larvae feed on milfoil leaves, while the larvae also damage the plant by burrowing through the plant stem, interrupting the vascular system and reducing the ability of the plant to float in the water column. Weevils will not eradicate milfoil, but have been used in numerous Michigan lakes to greatly reduce its growth to non-nuisance level.

2.0 Overall Project Description

The City of Norway, Power and Light began a one-year MiddFoil[®] program beginning in the summer of 2008. The stocking event, which included the augmentation of approximately 10,000 weevils in one site, was conducted on June 18, 2008. The late-summer follow-up survey was then performed on August 12, 2008.

3.0 Methods

In 2008 two basic types of quantitative data collection and one type of qualitative data collection were sampled at the time of the initial and follow-up surveys. The first of these involved collecting plants along three transect lines by swimming through the selected beds of Eurasian watermilfoil perpendicular to shore. The tops of two randomly selected plants were removed at five evenly spaced intervals, for a total of ten plants along each line, and 30 stem samples per site. These plants were analyzed, using a microscope, for the presence of weevils and number of meristems.

Where sufficient EWM stems were found, plant density was determined by collecting all EWM plants within a 0.09 m² PVC quadrat. These plants were counted and converted to number of plants per square meter. These data will serve as an indicator of increases or decreases in EWM density in future survey years.

A qualitative survey of the overall plant community was accomplished by swimming through and around the bed of milfoil noting the presence and density of native species. This sampling technique provides an indication of weevil impact on the EWM beds. We can compare the follow-up survey to the initial survey to determine if the native plants in the lake are becoming more abundant as the weevils damage the EWM stems.

4.0 2008 Initial Survey and Stocking Event

The initial survey and stocking event was conducted on June 18th, 2008. The area originally chosen for weevil stocking, depicted as Area X on the 2007 Exotic Species Monitoring Survey map, was evaluated and showed that the EWM was very sparse (App B, map). Adult weevils were spotted with ease from the boat indicating an indigenous population, which could contribute to the high density of the native plant community and low density of EWM.

The site established for weevil implantation (S1) was located along the southern shore, southeast of the boat launch (Figure 1) in one continuous milfoil bed. The EWM in this

site was not only dense, but the majority of the bed was topped out at the surface of the water. A total of approximately 10,000 weevil eggs and larvae were stocked in one area of this large site that exhibited favorable, life-sustaining factors necessary for weevil survival. During the initial survey (pre-treatment) weevils and damage indicative of weevils was observed in this site along with the original proposed site. This indicates that an indigenous population of weevils was present in the river prior to the initiation of the MiddFoil® treatment. This observation was further confirmed by an analysis of stems that were brought back to the EnviroScience laboratory for examination under a microscope. As shown in Table 1 (Appendix A), a total of 13 weevils were identified on 30 milfoil stems during the initial survey.

In addition to the EWM, several other native plant species were observed. These species include: largeleaf pondweed (*Potamogeton amplifolious*), eel grass (*Vallisneria americana*), elodea (*Elodea canadensis*), northern watermilfoil (*Myriophyllum sibiricum*), coontail (*Ceratophyllum demersum*) Illinois pondweed (*Potamogeton illinoensis*), flatstem pondweed (*Potamogeton zosteriformis*), white-stem pondweed (*Potamogeton praelongus*), small pondweed (*Potamogeton pusillus*), clasping-leaf pondweed (*Potamogeton richardsonii*), sago pondweed (*Potamogeton pectinatus*), buttercup (*Ranunculus* sp.), mare's tail (*Hippuris* sp.) and lilies (*Nuphar* sp.). A healthy and established population of native vegetation will not only compete for essential light and nutrients but is expected to replace the EWM, preventing future re-establishment of the milfoil.

5.0 2008 Follow-up Survey

The follow-up survey was performed on August 12, 2008. Biologists observed severe weevil-induced milfoil stem damage in S1, noting large open pockets where the EWM had fallen out of the water column. The native vegetation was starting to fill in these open areas. Surrounding the stocking location, the native plant community was dense at the water surface and covered with algae. From a visual observation, one might think it was the EWM causing the matted formation on the waters' surface when actuality 90%

of the mass was native. This community consisted of the same species seen during the June survey.

Laboratory examination revealed an extraordinary increase in weevil life stages on the 30 stems collected from the high value of 13 early in the season to 68 weevil life stages at the time of the follow-up survey (Table 1). It was obvious that this high weevil population had a dramatic impact on the EWM, decreasing the density by more than half per square meter by the August survey (App. A, Table 2). This growing population is expected to expand into other beds of milfoil in search of healthier food causing more damage.

The August 12, 2008 follow-up survey also included visual evaluation of exotic species occurrence within Sturgeon and Menominee River shoreline areas located within the boundary of the Sturgeon Falls project. EWM beds mapped during the 2007 survey were observed for apparent changes in bed size or density and shoreline areas were viewed for indications of purple loosestrife infestation. This survey revealed no changes in the sizes of previously identified EWM beds, and no signs of purple loosestrife infestation. Weevils and/or evidence of their presence were observed in beds designated as L, T, U, X and AD (App. B, Map).

Discussion and Conclusion

Since weevil damage does not typically cause a change in total EWM biomass over the course of one growing season (Newman et al., 1996), initial and final densities for the stocking site established in 2008 were averaged to obtain a single value that will be used in comparisons of EWM density in future years (App. A, Table 2). Mean values are expected to decline each year as weevil damage results in reduced numbers of plants surviving through the winter months. However in the case of the Sturgeon River, samples collected and compared from June and in August revealed a decrease in milfoil stem density in S1 by the time of the follow-up survey. This decrease was more than half, resulting in 103.33 stems per square meter in June to 33.33 stems per square meter

in August. A native aquatic plant community was also observed to be increasing within the stocking location. The presence and percentage of native aquatic plant species are expected to increase and continue competing for essential light and nutrients, and eventually replace the EWM. When working with a biological control agent such as the milfoil weevil, it is important to remember that the rate in which "control" is achieved can vary greatly from lake to lake. Many factors play an important role including the size of the lake, shoreline habitat, amount and health of the EWM, amount of weevils stocked, and how much recreation occurs on the lake. The Sturgeon River maintains the necessary requirements to sustain a population of weevils throughout the summer, as well as having the critical required shoreline habitat for overwintering survival. This was evident by finding an indigenous population. As the EWM begins to decrease overtime, so will the population of weevils until the two reach a state of equilibrium and sustain each others' presence within the river at low levels. Density oscillations observed between weevils and EWM are expected and are not surprising due to the fact that the milfoil has the potential to grow faster than the weevils can reproduce. It may take the population of weevils a season to "catch up" with the density of EWM before they can bring the milfoil levels back down. We witness this event happening in many water bodies in Michigan that utilize the MiddFoil® program.

In conclusion, by artificially augmenting the 10,000 weevils to the indigenous population, the weevils appear to have not only been able to sustain and thrive throughout the summer, but also to have some initial impacts on the milfoil population within the stocking location. These positive results can be expected to accelerate should the City of Norway decide to continue with future weevil stockings throughout areas of the Sturgeon River.

6.0 Literature Cited

Exotic Species Monitoring Survey; Sturgeon Falls Hydroelectric Project Report,
Wisconsin Lake and Pond Resource. December 13, 2007.

Appendix A

**2008 Progress Report Data
Tables for Sturgeon River**

Table 1. Summary Data from Site Transect Analysis of EWM During 2008 Initial and Follow-up Surveys of Sturgeon River

Site #	Parameter Measured	Initial Survey (June 18, 2008)	Follow-up Survey (August 12, 2008)
S1	Total weevils	13.00	68.00
	Total stems	30.00	30.00
	Average weevils/stem	0.43	2.27
	Avg. meristems/stem	2.00	1.90

Table 2. Average Density of Eurasian Watermilfoil Collected During 2008 Initial and Follow-up Surveys of Sturgeon River

Site #	Species	Common Name	2008 Average Density (stem/m ²)
S1	<i>Myriophyllum spicatum</i>	Eurasian watermilfoil	68.33

Appendix B
Exotic Species Monitoring Survey Map

Figure 1. Distribution of Eurasian watermilfoil (*Myriophyllum spicatum*) associated with the Sturgeon Falls Hydroelectric Project; mapped October 24, 2007 (Figure 1 of 2).

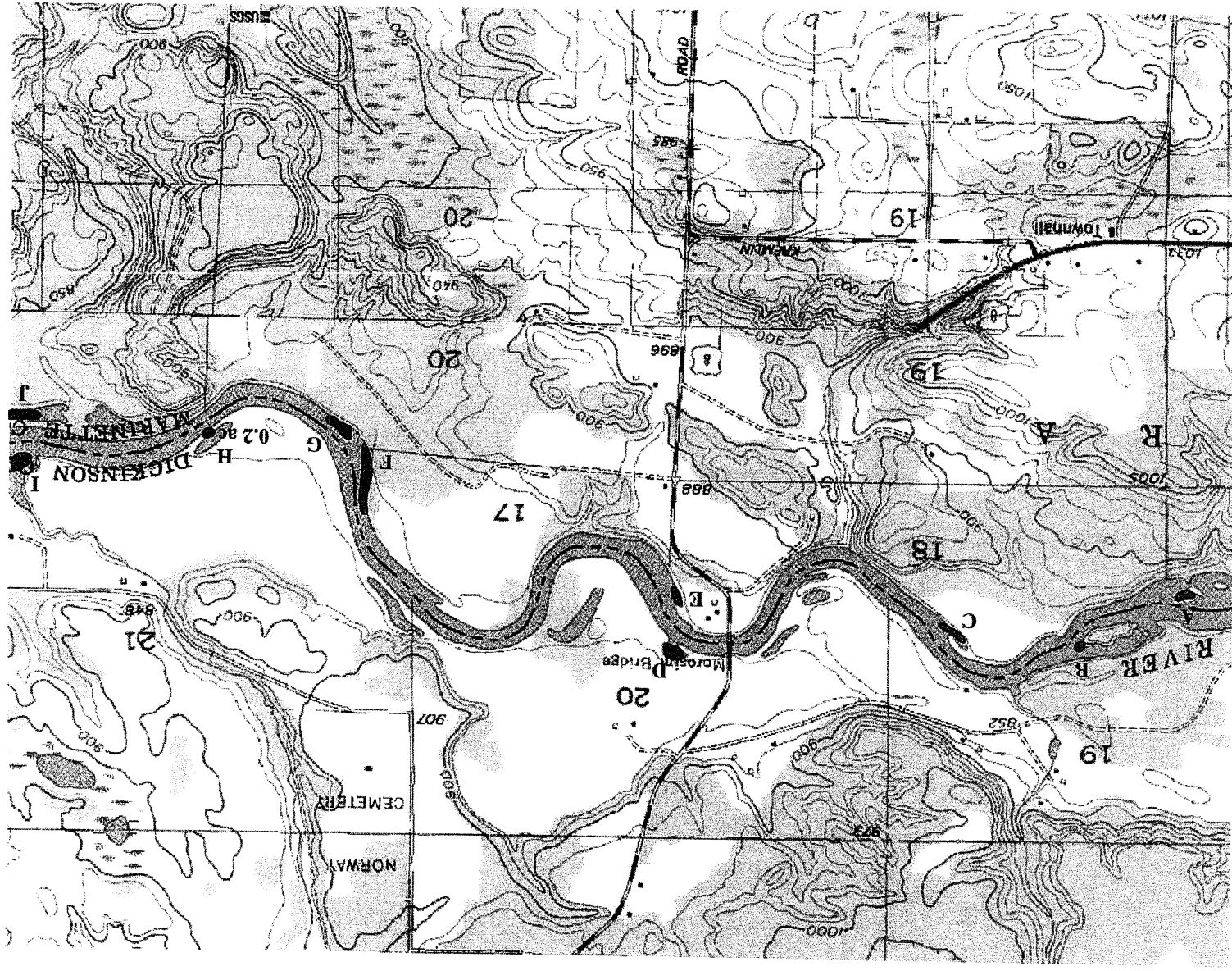
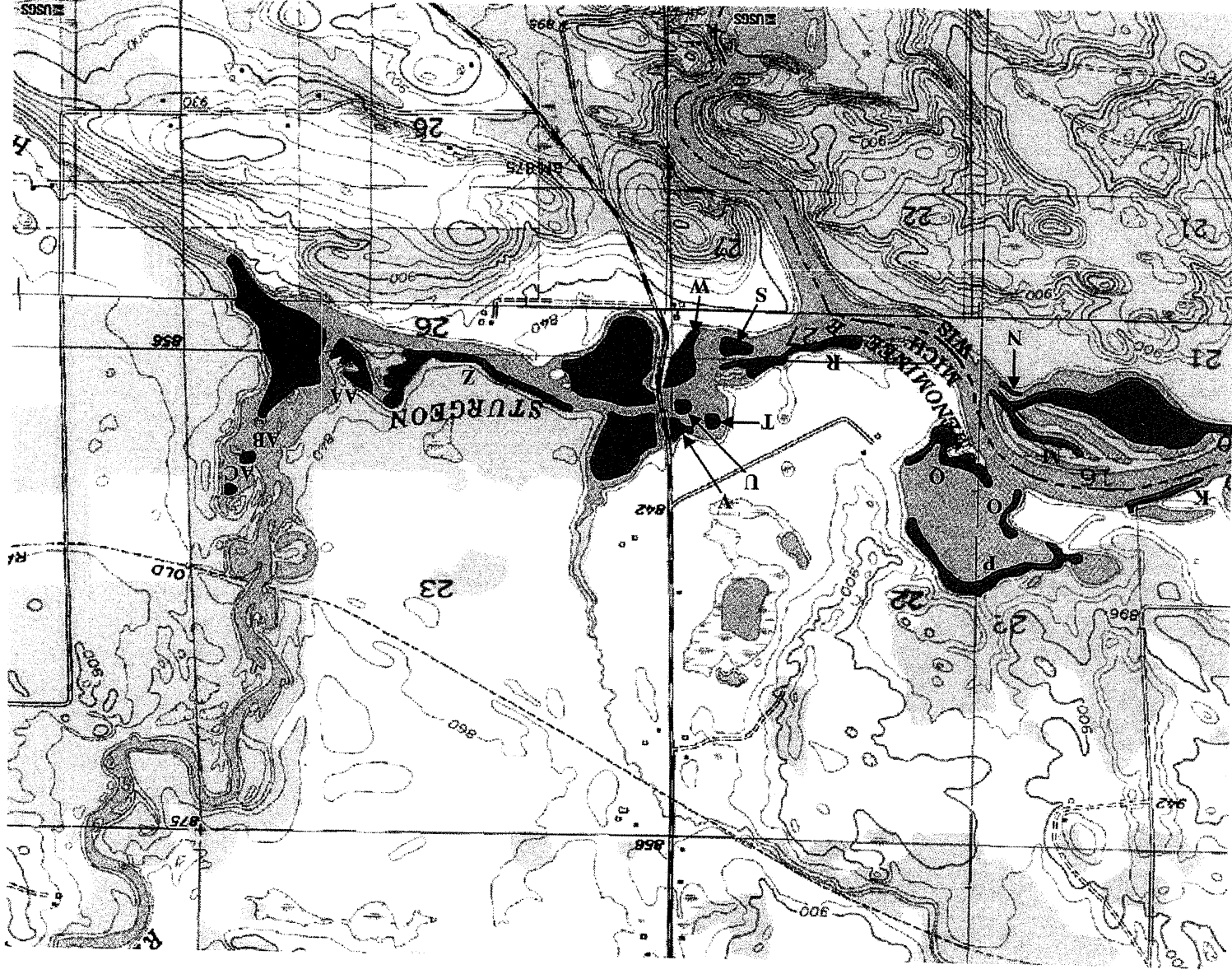


Figure 2. Distribution of Eurasian watermilfoil (*Myriophyllum spicatum*) associated with the Sturgeon Falls Hydroelectric Project; mapped October 24, 2007 (Figure 2 of 2).



Documentation of Consultation

Exotic Species Monitoring Survey
Sturgeon Falls Hydroelectric Project
FERC Project No. 2720

From: City of Norway Power & Light [dpl@norwaymi.com]
Sent: Thursday, November 06, 2008 10:37 AM
To: Linda Mitchell
Subject: Fw: Exotic Species Monitoring Comments

Joe Pickart
Electric Superintendent
City of Norway Department of Power and Light

----- Original Message -----

From: "Jessica Mistak" <MISTAKJL@michigan.gov>
To: "City of Norway Power & Light" <dpl@norwaymi.com>
Cc: "Nick Utrup" <Nick_Utrup@fws.gov>
Sent: Thursday, November 06, 2008 9:56 AM
Subject: Exotic Species Monitoring Comments

Joe,

The Michigan DNR has reviewed your October 9, 2008 progress report for Eurasian Watermilfoil (EWM) control in the Sturgeon River. We are encouraged to see that biological control of EWM was successful after the stocking of 10,000 weevils.

Although the report did not specify the control and monitoring plan for 2009, from my conversation with you I understand that the City plans to stock weevils in two isolated beds-U and T. Both of these locations are good candidates for biological control since they have been determined to have primarily EWM and little or no native plants. I also understand that another visual survey will be completed along the shoreline areas within the project boundary in August 2009.

We look forward to your update in 2009. As always, be sure to let us know if you have any questions.

Jessica

Jessica Mistak, Senior Fisheries Biologist DNR Marquette Fisheries Station
484 Cherry Creek Rd
Marquette, MI 49855
906-249-1611 ext. 308
FAX 906-249-3190

October 21st, 2008

Ms. Jessica Mistak
Senior Fisheries Biologist
Marquette Fisheries Station
Michigan Department of Natural Resources
484 Cherry Creek Road
Marquette, MI 49855

Subject: Sturgeon Falls Hydroelectric Project – FERC Project No. 2720
City of Norway, Michigan, Licensee
Exotic Species Monitoring

Dear Ms. Mistak:

Article 406 of the Federal Energy Regulatory Commission (FERC) license for the Sturgeon Falls Hydroelectric project requires the licensee to monitor the presence of Eurasian watermilfoil and purple loosestrife in project waters, and to implement measures to control their spread. During the 2007 survey, the extent of Eurasian watermilfoil was estimated at approximately 94 acres, while no purple loosestrife was observed.

In 2008, after careful consideration, the City made the decision to initiate biological measures for the control of Eurasian watermilfoil. The City believes that, in contrast to herbicidal control, this approach offers a method to reduce milfoil proliferation that is sustainable and species-specific. The control program involved the stocking of approximately 10,000 milfoil-eating weevils, together with a late-summer follow-up survey.

A report of the control program and associated reservoir surveys, titled *Progress Report for the Implementation of the Middfoil Process of Eurasian Watermilfoil Control in the Sturgeon River, MI* (EnviroScience, Inc. of Stow, Ohio) is enclosed for your review and comment. Please send any comments on this report to my attention within 30 days of the date of this letter. The City plans to submit this report in accordance with provisions of its *Invasive Plant Monitoring Plan* in November of this year.

Your attention to this matter is appreciated. Should you have questions, please do not hesitate to contact me.

Sincerely,

Joe Pickart
Utilities Superintendent
CITY OF NORWAY

October 21st, 2008

Ms. Louise Clemency
U.S. Fish & Wildlife Service
2661 Scott Tower Drive
New Franken, WI 54229

Subject: Sturgeon Falls Hydroelectric Project – FERC Project No. 2720
City of Norway, Michigan, Licensee
Exotic Species Monitoring

Dear Ms. Clemency:

Article 406 of the Federal Energy Regulatory Commission (FERC) license for the Sturgeon Falls Hydroelectric project requires the licensee to monitor the presence of Eurasian watermilfoil and purple loosestrife in project waters, and to implement measures to control their spread. During the 2007 survey, the extent of Eurasian watermilfoil was estimated at approximately 94 acres, while no purple loosestrife was observed.

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Your attention to this matter is appreciated. Should you have questions, please do not hesitate to contact me.

Sincerely,

Joe Pickart
Utilities Superintendent
CITY OF NORWAY

November 7th, 2008

Mr. Nick Utrup
FWS –Green Bay ESO
2661 Scott Tower Drive
New Franken, WI 54229

Subject: Sturgeon Falls Hydroelectric Project – FERC Project No. 2720
City of Norway, Michigan, Licensee
Exotic Species Monitoring

Dear Mr. Utrup:

Article 406 of the Federal Energy Regulatory Commission (FERC) license for the Sturgeon Falls Hydroelectric project requires the licensee to monitor the presence of Eurasian watermilfoil and purple loosestrife in project waters, and to implement measures to control their spread. During the 2007 survey, the extent of Eurasian watermilfoil was estimated at approximately 94 acres, while no purple loosestrife was observed.

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A report of the control program and associated reservoir surveys, titled *Progress Report for the Implementation of the Milfoil Process of Eurasian Watermilfoil Control in the Sturgeon River, MI* (EnviroScience, Inc. of Stow, Ohio) is enclosed for your review and comment. Please send any comments on this report to my attention within 17 days of the date of this letter.

The City's proposal for monitoring & planting of additional weevils in 2009 is to plant more weevils in the two isolated beds U and T on the map. This location is all milfoil and no native plants and I will be able to monitor the beds from the road. The City plans to submit this report in accordance with provisions of its *Invasive Plant Monitoring Plan* before the end of November of this year.

Your attention to this matter is appreciated. Should you have questions, please do not hesitate to contact me.

Sincerely,

Joe Pickart
Utilities Superintendent
CITY OF NORWAY
dpl@norwaymi.com