



The Appleton Wetland; Its Decline, Cause and Recommended Action

Appendix B: Relevant Extracts from the MRWMP

Report prepared by

**Appleton Wetland Research Group
of the
Mississippi Valley Field Naturalists**

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August 11, 2014

Relevant Extracts from the MRWMP (Mississippi River Water Management Plan)

A number of relevant pages from the MRWMP have been collected in this Appendix in order to provide a ready reference to one component of the problem – allowing Enerdu to maintain high water levels in Reach 18 would have serious ecological impact on the Appleton Wetland. This was an unintended consequence, but it must be addressed now. The information is arranged under several topic headings with an appropriate header page identifying the topic for the extracted pages that follow. They appear in the following order:

Introduction

This includes a number of background details:

- MRWMP Cover with date of completion of the Plan.
- Executive Summary (MRWMP page i) that includes background as to the reasons for developing the Plan, an outline of the river basin and the water control structures and power dams in place, and some objectives of the Plan.
Among the reasons for developing the Plan it states;
 - Ministry of Natural Resources made amendments to the Lakes and Rivers Improvement Act that would require the production of Water Management Plans, and thereby begin the process of ensuring that water resources were not abused to meet potential peak hydro demands.The objectives include;
 - reviewing and documenting current operation and management regimes from an ecological and water management perspective,
 - setting water management objectives for the system to balance environmental, social and economic values and considerations, and
 - defining the individual operating plans for each water control structure.
- Approval Page (MRWMP page ix) with the signatures of the plan proponents, along with a statement of the term of the Plan;
 - For the ten-year period January 1, 2007 to December 31, 2017.
- Disclaimer (MRWMP page xi) with the usual limitations on what is covered, including the following statement;
 - Approval of this plan does not grant a dam owner the right to flood Crown land or the land of any other person without first obtaining the Crown's or that person's consent, nor does it authorize any infringement of the right of the Crown or of any other person.

Facilities Table

- A listing of the major features of the 12 waterpower stations and water control facilities in the plan. (MRWMP Figure 3.3, Section 3, page 11) In particular, the elevations of the deck of the dam or weir in masl are provided for the Appleton, Enerdu and Mississippi River Power Corporation generator stations.

Description of Reach 18 – Appleton to Almonte, including:

- a summary of resources and features of the Reach (Section 7, page 95);

- recognition of the Appleton Provincially Significant Wetland, and the Appleton Swamp Provincially Significant Candidate ANSI, and
 - a description of the Enerdu GS.
- the operating plan of the Enerdu GS (Section 7, page 96) stating;
 - the compliance range for the Enerdu GS is 116.7 to 118 .0 m,
 - the GS is a “run-of-the-river” operation and can pass approximately 14 cms through the generating station with excess water being spilled over the weir,
 - the target operating range for this structure is 117.20 m to 117.70 m,
 - flashboards are added to the top of the weir to increase the head at the dam providing normal summer levels being maintained between 117.60 m and 117.70 m,
 - flows exceeding 40 cms (25 cms if the plant is not operational) will cause levels in the community to exceed 118.0 m with flashboards in place, and the flashboards are to be removed if levels reach this elevation, and
 - if the elevation of 118.0 m is exceeded when the flashboards are not in place and the discharge facilities have been operated when operable to provide the maximum discharge possible, the structure will not be considered to be out of compliance.
- maps of Reach 18 in two parts;
 - Map 7.8 Appleton (Section 7, page 93), and
 - Map 7.9 Almonte (Section 7, page 97).
- Description and operating plan for the Mississippi River Power GS (Section 7, page 98).

Priorities of MRWMP

The priorities are clearly stated (Section 4, page 24) as:

- Water management within the Mississippi River has evolved to the point where the priorities are as follows;
 - flood control,
 - low flow augmentation,
 - ecological integrity,
 - recreation / tourism, and
 - hydro generation.
- The system is never operated to maximize hydroelectric generation to the detriment of the other priorities.
- As with any of the other competing interests on the system, the overall goal is to maximize the benefits of the water in the system for the people, fish and wildlife living on, or using the system.

These priorities are further reiterated (Appendix 8, page 211) in response to Comment 11.1:

- The overall goal is to maximize the use of the water for the people and wildlife living in, on, near or using the system.
- Water management within the Mississippi River has evolved to the point where the priorities are;
 - flood control,
 - low flow augmentation,
 - ecological integrity,

- recreation/tourism, and
 - hydro generation.
- Hydro generation is the lowest priority because all the generating stations are “run of the river” and have limited impact on the overall operation of the system.
- Occasionally, when there is sufficient water, the system can be operated to maximize generation however, it is never operated to the detriment of the other priorities.

The response to Comment 11.2 on the same page is essentially the same:

- The overall goal is to maximize the use of the water for the people and wildlife living in, on, near or using the system.
- Water management within the Mississippi River has evolved to the point where the priorities are;
 - flood control,
 - low flow augmentation,
 - ecological integrity,
 - recreation/tourism, and
 - hydro generation.

It seems very clear that in the MRWMP priorities, ecological integrity trumps hydro generation.

Scoping Report – Appleton to Almonte

This report (Appendix 7, page 155) identifies as “natural heritage features”;

- Appleton Provincially Significant Wetland, and
- Appleton Swamp Provincially Significant Candidate ANSI.

Again, as in the description of Reach 18, there is no question that the existence of the Appleton Wetland was recognized when the plan was developed.

Plan Administration

This topic (Section 10, page 120) covers the issues of Plan Amendment, and Plan Review and Renewal.

Points related to Plan Amendment include:

- Amendments would likely arise as a result of new scientific research and studies being conducted or other information becoming available as specified in the plan or through other data gathering exercises.
- If changes are of such magnitude that a change in operating regime is considered at one or more of the structures, then the Ministry of Natural Resources (MNR) will issue an order to amend the plan.
- The Standing Advisory Committee will be informed of all amendments and given the opportunity to provide comments.
- MNR, in consultation with the plan proponents, will decide the appropriate degree of public and First Nations consultation required for plan amendments.

- Major amendments may involve a significant geographical scale (i.e. extensive areas up and or downstream of a dam) or have significant impact on the balancing of the environmental, social and economic attributes.

Points related to Plan Review and Renewal include:

- The Mississippi River Water Management Plan will be subject to review and renewal, on average, once every 10 years.
- Given the moderate complexity of the plan, but the absence of significant issues, the review process should be initiated approximately 1 year prior to the end of its term.
- The plan review process will mirror the steps involve in the plan preparation, with new data and information considered during the review as a basis of continuing with the status quo or recommending changes.

Public Advisory Committee to the MRWMP

Issues Report
Final Version
March 17, 2004

Section 7.2 on flashboards:

- Head augmentation, such as flashboards are seen as a water conserving measure, with relatively little ecological impact.

This fails to recognize the potential ecological impact of high flashboards such as used by Enerdu at that time.

Section 9.11.12 on water levels below Appleton:

- Water levels below Appleton are mostly inflow affected. The large wetland area below Appleton provides excellent shock flow absorption and water levels are relatively stable.

This fails to recognize that summer water levels below Appleton were in fact set by the operations at Enerdu, and that they were at that time higher than prior historic levels.

Section 9.11.14 on the scenic waterway through the Appleton Wetland:

- Recreational usage is becoming a hot topic on this section of the waterway, particularly on the scenic Appleton to Almonte stretch, which travels through the middle of a provincially significant wetland. This river area is an ideal paddle recreation area due to its protection from winds, access at both ends, and long corridor of undeveloped shoreline.

This does recognize the existence of the wetland, and its value as a scenic recreational resource, but did not anticipate that elevated water levels were turning it into a wasteland of dead trees.

Introduction

MRWMP Cover

Executive Summary (MRWMP page i)

Approval Page (MRWMP page ix)

Disclaimer (MRWMP page xi)



Mississippi River Water Management Plan Final Report



June 15, 2006

Executive Summary

The Mississippi River system is composed of a complex network of rivers, streams, rapids and lakes and numerous water control structures including 23 which are owned by: Mississippi Valley Conservation, Ontario Power Generation, Canadian Hydro Developers, Enerdu Power Systems Ltd. and the Ministry of Natural Resources. Twelve of these structures have a significant impact on water levels and flows, and are subject to this planning process. Six of these structures are owned and operated by the Mississippi Valley Conservation (MVC), while the Crotch Lake Dam is owned and operated by the Ontario Power Generation (OPG). The other five operate as hydro-electric energy generating systems (High Falls, Appleton, Enerdu, Almonte and Galetta). As well, there are a number of smaller privately owned structures that are not subject to this process.

In 2001, Ontario deregulated the power industry and restructured the electricity market. As a result, Ministry of Natural Resources made amendments to the Lakes and Rivers Improvement Act that would require the production of Water Management Plans, and thereby begin the process of ensuring that water resources were not abused to meet potential peak hydro demands. These plans document operating ranges, management strategies and provisions for self-monitoring for compliance.

The objectives for the Mississippi River Water Management Plan include:

- *reviewing and documenting current operation and management regimes from an ecological and water management perspective;*
- *setting water management objectives for the system to balance environmental, social and economic values and considerations;*
- *enhancing public understanding of water management; and*
- *defining the individual operating plans for each water control structure.*

Over the past three years, federal and provincial agencies have met with the waterpower producers and Mississippi Valley Conservation and discussed the various options to manage water flows and levels on the system. As well, several community representatives were involved with the Public Advisory Committee and they provided advice to the Planning Team in the development of options as well as provided an essential link to the community. Several Public Open Houses were held, and numerous submissions and surveys have been completed and considered in this process.

The result of these consultations has been the preparation of the Mississippi River Water Management Plan. The preferred option for this plan is to operate the hydro-generating facilities and water control structures in accordance with the current operating practices, as described in Sections 7 and 8, with the exception of the Shabomeka Lake Dam. While water levels will still be managed within the current operating range of Shabomeka Lake, adjustments have been made in the fall and winter water levels to improve the success of lake trout spawning. This preferred option is considered to satisfy the planning objectives to the greatest extent possible, given the range of competing interests and uncertainty associated with weather conditions.

Approval Page

Mississippi River Water Management Plan

Mississippi River Waterpower Producers and the Ontario Ministry of Natural Resources,
Bancroft, Kemptville and Peterborough Districts, Southern Region
For the ten-year period January 1, 2007 to December 31, 2017

In submitting this plan, (I/we) declare that this water management plan for waterpower has been prepared in accordance with Water Management Planning Guidelines for Waterpower, as approved by the Minister of Natural Resources on May 14, 2002.

Dave Keevill
Canadian Hydro Developers Inc.
I have authority to bind the corporation.

Dec 12/2006
Date

Mike Dupuis
Enerdu Power Systems Ltd.
I have authority to bind the corporation.

DEC 22/2006
Date

Scott Newton
Mississippi River Power Corporation
I have authority to bind the corporation.

Jan 9/2007
Date

Peter Murray
North East Plant Group Manager
Ontario Power Generation Inc.
I have authority to bind the corporation.

Jan 16/07
Date

Paul Lehman
Mississippi Valley Conservation Authority (MVC)
I have authority to bind the corporation.

Nov 30/2006
Date

I certify that this water management plan has been prepared in accordance with Water Management Planning Guidelines for Waterpower, as approved by the Minister of Natural Resources on May 14, 2002, and that direction from other sources, relevant policies and other obligations have been considered. I recommend this plan be approved for implementation.

Martin D. Blake
Acting District Manager, Kemptville District
Ontario Ministry of Natural Resources

Jan 23/07
Date

Approved by:

Ray Bonenberg
Ray Bonenberg, Regional Director, Southern Region

Feb 2/2006

In 1994, MNR finalized its Statement of Environment Values (SEV) under the Environmental Bills of Rights. The SEV is a document that describes how the purposes of the EBR are to be considered whenever decisions are made in the ministry that might significantly affect the environment. During the development of this water management plan, the ministry has considered its SEV.

DISCLAIMER

This water management plan (WMP) sets out legally enforceable provisions for the management of flows and levels on this river within the values and conditions identified in the WMP.

In instances where, due to emergency energy shortages, the Independent Electricity System Operator (IESO) requests that owners of the waterpower facilities and associated water control structures seek relief from certain provisions of this WMP, the Ministry of Natural Resources (MNR) will consider those requests expeditiously and, after consultation with the IESO, may allow short-term relief from certain provisions.

The mandatory provisions of this WMP will be waived, as appropriate, when the dam owners (which may include other dam owners, such as MNR) are requested to do so by a police service or other emergency measures organization.

In instances of unscheduled facility imperatives (e.g. emergency maintenance etc.), MNR will consider requests from the owner for temporary relief from the plan expeditiously with consideration to the relative priorities of both MNR and the owner.

This plan does not authorize any other activity, work or undertaking in water or for the use of water, or imply that existing dams(s) meet with safe design, operation, maintenance, inspection, monitoring and emergency preparedness to provide for the protection of persons and property under the *Lakes and Rivers Improvement Act*. Approval of this WMP does not relieve the dam owners from their responsibility to comply with any other applicable legislation. For the purposes of this plan, an operational plan means a plan for the management of flows and levels.

Approval of this plan does not grant a dam owner the right to flood Crown land or the land of any other person without first obtaining the Crown's or that person's consent, nor does it authorize any infringement of the rights of the Crown or of any other person.

Facilities Table

Figure 3.3, Section 3, page 11

Figure 3.3 – Description of Existing Waterpower Stations and Water Control Facilities

Control Structure	Installed Hydro Generating Power (megawatts)	Combined Hydraulic Capacity (cms) (Station Only)	Drainage Area (sq km)	Total Storage Volume (ha m) ¹	Usable Storage Volume (ha m)	Elevation of deck of dam or (Weir) (m. a.s.l.)	# of Sluices (stoplog bays)-Width of sluice # of Stoplogs
Shabomeka	-	12.0	41	536	402	271.67 (271.45) ²	1 – 2.44 m. 8 stoplogs
Mazinaw	-	48.0	339	3423	1793	269.00 (268.20) ³	2 – 3.95 m 7 stoplogs/sluice
Kashwakamak	-	65.0	417	3822	1911	262.26 (261.06) , (261.67) ³	2 – 3.43 m. 10 stoplogs/sluice
Mississagagon	-	3.0	22	491	382	268.45 (268.42)	1 – 1.33 m. 6 stoplogs
Big Gull	-	25.0	135	3048	1524	254.76 (253.66) , (254.47) ³	1–2.90 m./1–2.29 m 7 and 5 stoplogs
Crotch	-	68.0	1030	7617	5859	241.67 (240.00)	1 - 4.20 m. 16 stoplogs
High Falls G.S.	2.9	275.2 (14.3)	1233	132	132	188.42 (187.61)	4 - 4.67 m. 1-20, 3-12
Carleton Place	-	260.0	2876	3787	1273	135.63 (133.92)	5 - 4.25 m 3 bays w 10, 2 w 9 logs
Appleton G.S.	1.3	(35.0)	2932	n.a.	n.a.	(123.00)	4 - 6.71 m 8 stoplogs
Enerdu G.S.	0.35	(14.0)	3012	n.a.	n.a.	117.2	-
Mississippi River G.S.	2.4	(34.0)	3012	n.a.	n.a.	114.44	-
Galetta G.S.	1.6	(30.0)	3684	n.a.	n.a.	(82.61)	2 – 6 m., 1 - 5m. 7 stoplogs / sluice
<ol style="list-style-type: none"> 1. Total storage based on height of stoplogs times surface area of the lake. Big Gull and Carleton Place are influenced by the channel above the dam and are based on number of logs which impact water levels on the lake 2. Elevation of top of embankment 3. Elevation of emergency spill way. 4. Usable storage refers to the actual operating range currently in place (maximum of summer target range to minimum fall level), not maximum spring level to sill elevation of structure. 5. n.a – means not applicable. 							

Description of Reach 18 – Appleton to Almonte, including:

Section 7, page 95

Section 7, page 96

Map 7.8 Appleton (Section 7, page 93)

Map 7.9 Almonte (Section 7, page 97)

Section 7, page 98

Reach 18 – Appleton to Almonte (Enerdu and Mississippi River G.S.)

The stretch of river from the Appleton Generating Station to Almonte is about 9 km in length and includes the Enerdu and Mississippi River Generating Stations located in the Town of Mississippi Mills (Almonte). The river is moderately deep in this reach and a provincially significant wetland complex is located along a portion of the riverbank.

Natural Resources – This reach includes documented cool and warmwater fish species. Walleye and white sucker spawn below the Appleton Generating Station while the vegetated banks provide spawning for northern pike, bullheads and perch. This portion of the river is also home to many turtles and bullfrogs. Figure 7.47 provides a list of documented fish species. There are no known species at risk.

Figure 7.47 – Fish Species Appleton to Almonte	
Northern Pike	Smallmouth bass
White sucker	Pumpkinseed
Brown bullhead	Walleye
Rock bass	Yellow perch
Largemouth bass	

Source - MNR

Natural Heritage Features – This reach includes the Appleton Provincially Significant Wetland, and the Appleton Swamp Provincially Significant Candidate ANSI.

Land Use – Agriculture dominates most of the shoreline through this section of the river, until the Town of Mississippi Mills. Boat access at boat launches is difficult due to low water levels and low storage capability at the stations.

Description of Enerdu Generating Station – The Enerdu Generating Station is located on the Mississippi River in the Town of Mississippi Mills (see Map 7.9). The Enerdu Generating Station is a “run-of-the-river” operation that consists of a powerhouse with an overflow weir. The total length of the dam is approximately 61 m and the elevation of the weir is 117.2m a.s.l. Flashboards (0.40 m on weir and 0.50 m across river) are added in the summer to increase the head at the dam. The Enerdu Generating Station has a maximum plant output of 0.35 megawatts.

The dam can pass approximately 14 cms through the generating station with excess water being spilled over the weir. The station has a total drainage area of 3012 sq. km. and maintains levels except under extremely low flows from the dam to the tailrace of the Appleton Dam, which is a distance of about 9 km. The dam has limited storage capabilities due to the rock outcrop approximately 0.5 km upstream of the dam.



This facility was originally built in 1842 as the Wylie Flour Mill and was used to grind grain into flour. From 1993-97 two turbine intakes, two pit-type Kaplan turbines, two draft tubes, two Santasalo 5:1 gearboxes, two 250 hp, 600 V and 1200 rpm induction generators along with a tailrace and metering equipment were installed by the Dupuis family. The original dam was repaired and is still in use.

OPERATING PLAN – ENERDU G.S.

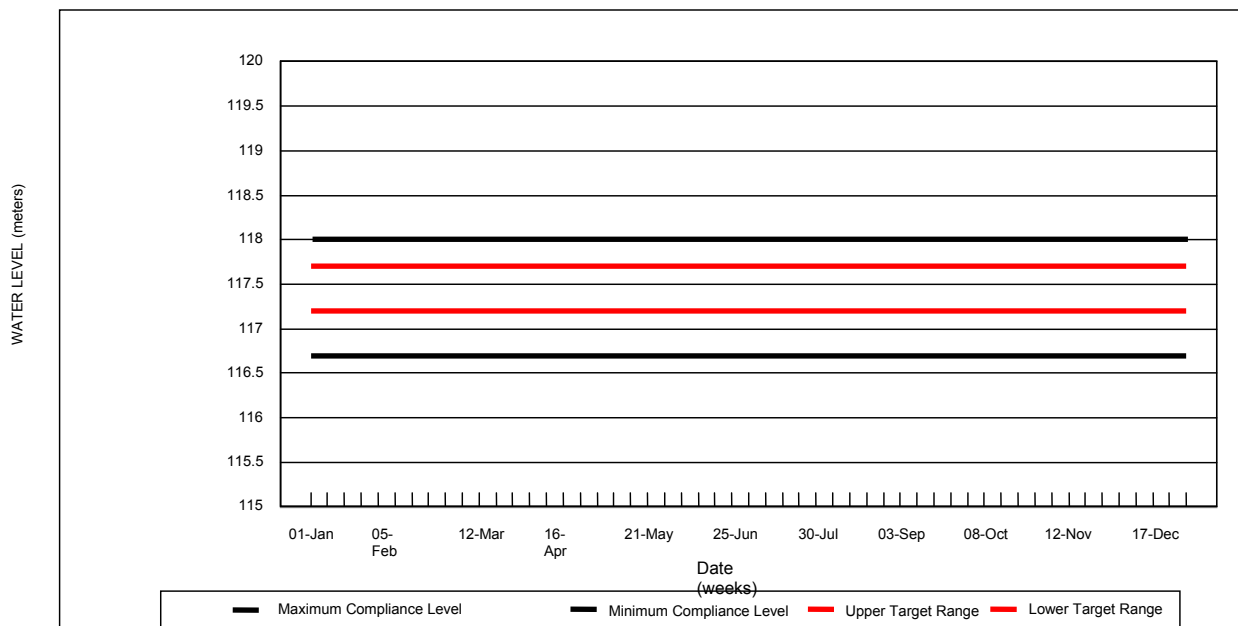
Planning Considerations and Operational Constraints – Operational constraints on this reach include frazil ice in the winter, which is ice formed below the surface of fast flowing super cooled water and normally is created downstream of rapids.

Management Strategies – The compliance range for the Enerdu GS is 116.7 to 118.0 m. The following best practices provide direction on how the dam will be managed:

1. The Enerdu Generating Station is a “run-of-the-river” operation and can pass approximately 14 cms through the generating station with excess water being spilled over the weir.
2. The best management practices or target range for this structure is 117.20 m to 117.70 m. Flashboards are added to the top of the weir (117.60 m) and across the river (117.70 m) to increase the head at the dam providing normal summer levels being maintained between 117.60 m and 117.70 m. The stepped elevation of the flashboards allows flows to be directed to the intake channel of the dam when levels are between 117.60 and 117.70 m.
3. With this flashboard configuration, flows exceeding 40 cms (25 cms if the plant is not operational) will cause levels in the community to exceed 118.0 m. The flashboards are to be removed if levels reach this elevation.

Compliance Monitoring - Due to the limited storage capacity at run-of-the-river structures sudden fluctuations resulting from equipment failure or weather conditions can impact short term water level readings. Average daily readings are considered an appropriate compliance measure. Although this structure has no stoplog control section as part of its superstructure, the flashboards can impact flood levels through the community of Almonte under moderate flow conditions. Therefore, an upper compliance level of 118.0 m exists for this structure. If the elevation of 118.0 m is exceeded when the flashboards are not in place and the discharge facilities have been operated when operable to provide the maximum discharge possible, the structure will not be considered to be out of compliance (see Figure 7.48).

Figure 7.48 – Compliance Levels for Enerdu Generating Station



MISSISSIPPI RIVER WATER MANAGEMENT PLAN
Natural Heritage, Dams, and Structures

Map 7.8 - Appleton

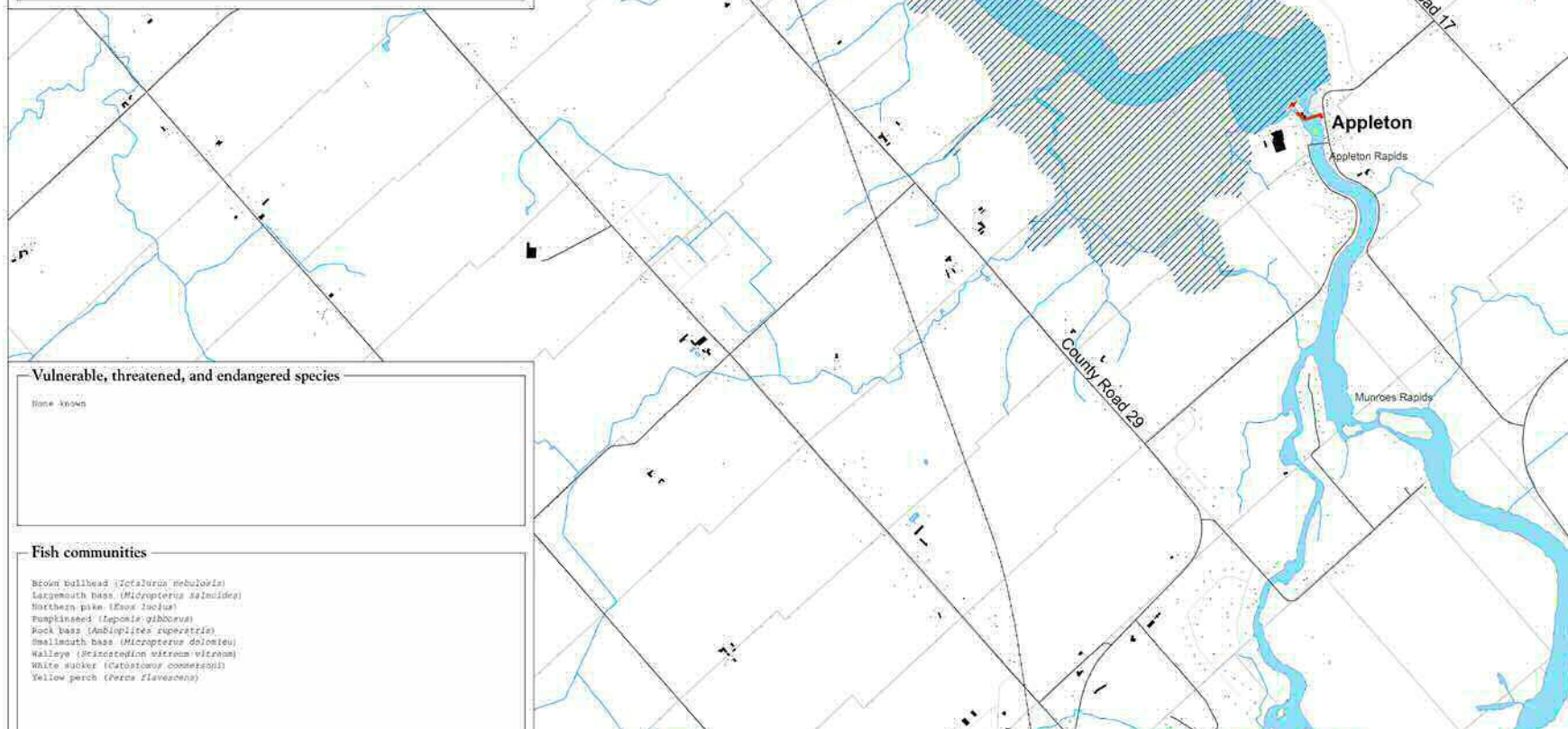
This map series was prepared under the Mississippi River Water Management Plan project, an initiative to develop and enhance the knowledge of water and natural resource considerations to effectively manage existing hydro-electric generating stations, dams, and any other water control structures on the Mississippi River which impact on hydro-electric generation.

The natural resource features shown on this map have been obtained from available information sources on file with the Ontario Ministry of Natural Resources.



1,000 500 0 1,000
Metres

Universal Transverse Mercator NAD 83
Data source: Ontario Ministry of Natural Resources
Natural Resources Values and Information System (NRVIS)



MISSISSIPPI RIVER WATER MANAGEMENT PLAN
Natural Heritage, Dams, and Structures

Map 7.9 - Almonte

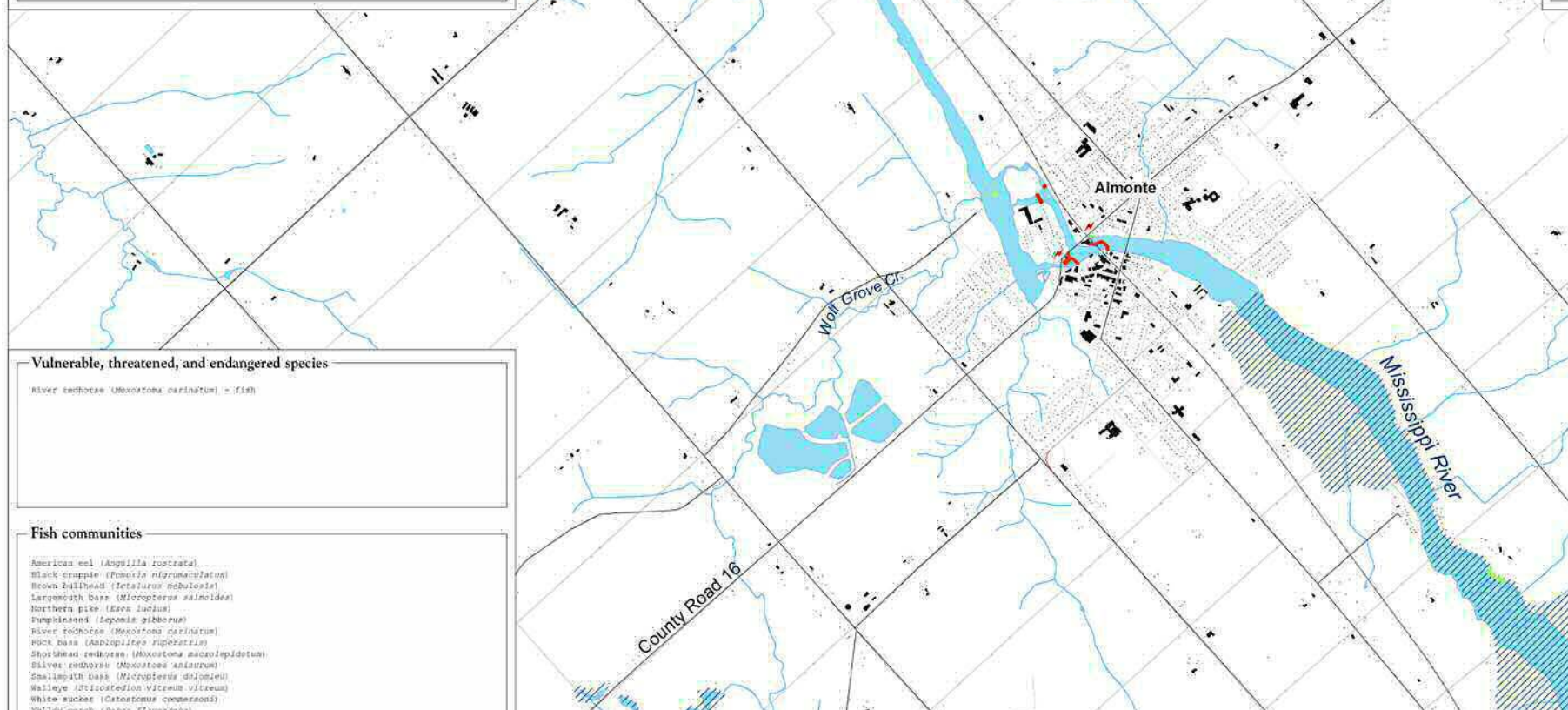
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1,000 500 0 1,000
Metres

Universal Transverse Mercator NAD 83
Data source: Ontario Ministry of Natural Resources
Natural Resources Values and Information System (NRVIS)



Vulnerable, threatened, and endangered species

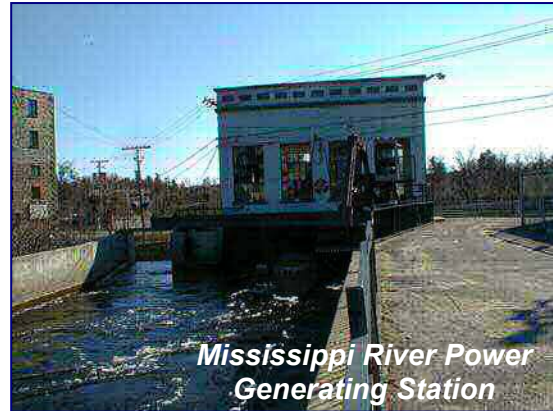
River herring (*Ulosastomus xanthurus*) - Fish

Fish communities

American eel (*Anguilla rostrata*)
Black crappie (*Pomoxis nigromaculatus*)
Brown bullhead (*Ictalurus nebulosus*)
Largemouth bass (*Micropterus salmoides*)
Northern pike (*Esox lucius*)
Pumpkinseed (*Lepomis gibbosus*)
River herring (*Ulosastomus xanthurus*)
Rock bass (*Ambloplites rupestris*)
Spottail shiner (*Notropis nana*)
Sliver shiner (*Notropis atherinoides*)
Smallmouth bass (*Micropterus dolomieu*)
Walleye (*Stizostedion vitreum vitreum*)
White sucker (*Catostomus commersoni*)

Description of Mississippi River G.S. – The Mississippi River Power Generating Station is owned by Mississippi River Power Corporation (MRPC) and is located 150 m downstream of the Enerdu Generating Station in the Town of Almonte (see Map 7.9).

The Mississippi River Power G.S. is a “run-of-the-river” operation and has a maximum plant output of 2.4 megawatts. The station consists of a power house with a debris bypass stoplog sluice and an overflow weir. The hydro station can pass approximately 34 cms, with excess flows going over the falls beside the generating facility or down the chancery channel and over Willards Falls.



The dam was first built in 1890 by the Metcalfe brothers and operated for ten years by the Almonte Electric Light Company. In 1901, the Town of Almonte purchased the plant from the AELC and in 1908 the Almonte Electric Light Commission was formed. The dam, however, deteriorated and after several years was rebuilt in 1925 in its present location, just downstream of the original site. Total plant capacity at that time was 840 kilowatts. In 1987, major renovations were initiated; however, due to a number of problems completing the work the plant did not reopen until 1991.

The Mississippi River Power G.S. has a total drainage area of 3012 sq. km. and only influences levels in the bay between Enerdu and this structure.

OPERATING PLAN – MISSISSIPPI RIVER POWER G.S.

Planning Considerations and Operational Constraints – Operational Constraints on this reach include frazil ice in the winter, which is ice formed below the surface of fast flowing super cooled water and normally is created downstream of rapids.

Management Strategies – There is no upper compliance level provided for Mississippi G.S. The lower compliance level for the Mississippi River Power GS is 113.5 m. The following best practices provide direction on how the dam will be managed:

1. The Mississippi River G.S. is a “run-of-the-river” operation and can pass approximately 34 cms through the generating station, with excess flows going over the falls beside the generating facility or down the chancery channel and over Willards Falls.

Compliance Monitoring - Due to the limited storage capacity at run-of-the-river structures sudden fluctuations resulting from equipment failure or weather conditions can impact short term water level readings. Daily readings are considered sufficient for compliance reporting. The lower compliance level was established based on the upstream channel elevations. No upper compliance level has been established due to inability of the generating facility to influence water levels above normal operating limits. See Figure 7.49. An ongoing objective in operating this plant is to maintain scenic flows over the weir.

Priorities of MRWMP

Section 4, page 24

Appendix 8, page 211 in response to Comment 11.1

Appendix 8, page 211 in response to Comment 11.2

followed in the options discussions of the reach-by-reach description in Section 7 of the plan. In the case of Crotch Lake, the Planning team tried several different options to see if improvement could be made.

The public identified a number of specific questions related to fluctuating water levels and general operating regimes. These included:

- If hydro-electric generation sites were non-existent within the watershed, would the water be managed differently?
- What are the overall priorities for managing water levels?
- If hydro-electric generation in the Mississippi River watershed is produced by “run of the river”, how does hydro-electric generation influence water management policy within the watershed?
- Is it possible to maintain higher summer levels during a drought?
- Is winter drawdown necessary?
- Is it possible to manage the watershed adaptively to include predictive climate data and reduce unnecessary drawdown?
- Which structures within the system operate with a variable flow system?
- Could a study be created, whereby an upper watershed lake is exempt from the winter drawdown for a number of years to comparatively study the ecological impact?
- Has a literature review been conducted to research the impact of the winter drawdown, and, if not, could one be conducted?

Response to Public Comments on Fluctuating Water Levels – If hydro stations were closed, but dams still existed in these locations, there would be only minor changes to the overall operation of the system because of one less competing interest for water.

The overall goal is to maximize the net benefits of the water for the people, fish and wildlife living in, on, near or using the system. Water management within the Mississippi River has evolved to the point where the priorities are as follows (note the priorities vary on importance depending on the time of year, location and circumstances):

- Flood control;
- Low flow augmentation;
- Ecological integrity;
- Recreation / tourism; and
- Hydro-generation.

The hydro-generation stations on the Mississippi River are “run of the river”. They can operate and produce power in variable water flows and have limited impact on the overall operation of the system. Occasionally, when there is sufficient water, the system can be operated to maximize generation, but on average the hydro-generating stations are only able to operate at about 50% efficiency. The system is never operated to maximize hydro-electric generation to the detriment of the other priorities. As with any of the other competing interests on the system, the overall goal is to maximize the benefits of the water in the system for the people, fish and wildlife living on, or using the system.

Fluctuations in water levels over the year are the cause of many frustrations, but the system is managed to mitigate these as much as possible. For example, the summer

11.0 GENERAL COMMENTS ERROR! BOOKMARK NOT DEFINED.

The following comments have been derived from the PAC members, the public, agencies, open houses, questionnaires and the scoping report comment period.

11.1 Comment: *If there were no hydroelectric generation sites on the watershed, would the water be managed differently? If as stated, hydroelectric generation in the Mississippi River watershed is produced by “run of the river” how does hydroelectric generation influence water management policy on the watershed.*

Response: If there were no hydro stations, but dams still existed in these locations, on the river system, there would be minor changes to the overall operation of the system as there would be one less competing interest for the water.

The overall goal is to maximize the use of the water for the people and wildlife living in, on, near or using the system. Water management within the Mississippi River has evolved to the point where the priorities are:

- flood control
- low flow augmentation
- ecological integrity
- recreation/tourism
- hydro generation

(Note: the priorities vary on importance depending on the time of year, location and circumstances.)

Hydro generation is the lowest priority because all the generating stations are “run of the river” and have limited impact on the overall operation of the system.

Occasionally, when there is sufficient water, the system can be operated to maximize generation however, it is never operated to the detriment of the other priorities. As with any of the other competing interests on the system, the overall goal is to maximize the use of the water in the system for the people and wildlife living in, on, near or using the system.

Action by MRWMP: The comment is addressed in the response. No further action is proposed by the MRWMP planning team.

11.2 Comment: *What are the general priorities for how this system is operated throughout the year?*

Response: The overall goal is to maximize the use of the water for the people and wildlife living in, on, near or using the system. Water management within the Mississippi River has evolved to the point where the priorities are:

- flood control
- low flow augmentation
- ecological integrity
- recreation/tourism
- hydro generation

(Note: the priorities vary on importance depending on the time of year, location and circumstances.)

Action by MRWMP: The comment is addressed in the response. No further action is proposed by the MRWMP planning team.

Scoping Report – Appleton to Almonte

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Appleton Provincially Significant Wetland

Appleton Swamp Provincially Significant Candidate ANSI

Carleton Place to Appleton

This section of river, beginning at the Carleton Place water control structure and ending at the Appleton Generating Station, is generally wider and deeper than the river upstream of Mississippi Lake. Walleye are thought to spawn below the Carleton Place structure while the riverbanks provide ample smallmouth bass spawning substrate.

Table 1: Physical Characteristics

Geographic Township	Beckwith/Ramsay Township
Section length (km)	5.0

Documented Fish Species

Community not sampled – likely includes the following species:

Brown bullhead (*Ictalurus nebulosus*)
 Northern pike (*Esox lucius*)
 Pumpkinseed (*Lepomis gibbosus*)
 Smallmouth bass (*Micropterus dolomieu*)
 Walleye (*Sander vitreus*)
 White sucker (*Catostomus commersoni*)

Species at risk

None known

Natural heritage features

None known

Appleton to Almonte

Table 1: Physical Characteristics

Geographic Township	Ramsay Township
Section length (km)	8.0

Documented Fish Species

Brown bullhead (*Ictalurus nebulosus*)
 Largemouth bass (*Micropterus salmoides*)
 Northern pike (*Esox lucius*)
 Pumpkinseed (*Lepomis gibbosus*)
 Rock bass (*Ambloplites rupestris*)
 Smallmouth bass (*Micropterus dolomieu*)
 Walleye (*Sander vitreus*)
 White sucker (*Catostomus commersoni*)
 Yellow perch (*Perca flavescens*)

Species at risk

River redhorse (*Moxostoma carinatum*) - fish

Natural heritage features

Appleton Provincially Significant Wetland
 Appleton Swamp Provincially Significant Candidate ANSI

Plan Administration

Section 10, page 120

Plan Amendment

Plan Review and Renewal.

Section 10 - Plan Administration

10.1 Plan Amendment

Under certain circumstances, amendments may be required to the water management plan prior to the plan review and renewal. These amendments would likely arise as a result of new scientific research and studies being conducted or other information becoming available as specified in the plan or through other data gathering exercises. If changes are of such magnitude that a change in operating regime is considered at one or more of the structures, then the Ministry of Natural Resources (MNR) will issue an order to amend the plan.

Amendments may also be considered when a new issue arises, for example a change in dam ownership. A change such as this may require a revision to the monitoring plan or possibly to the operating regime. Amendments may be made to the water management plan and individual operating regimes during the planning cycle, provided outcomes remain consistent with the objectives defined in the water management plan.

The Standing Advisory Committee will be informed of all amendments and given the opportunity to provide comments. MNR, in consultation with the plan proponents, will decide the appropriate degree of public and First Nations consultation required for plan amendments. Water Management Plan amendments may be categorized as administrative, minor or major. Administrative amendments include those changes that will not affect the implementation of the plan (i.e. a change to the presentation of information in the plan). Minor amendments include changes that are anticipated to affect a small geographic scale (i.e. in the immediate vicinity of the dam) or where OMNR and the Steering Committee agree that no significant impact is anticipated as a result of the amendment. Major amendments may involve a significant geographical scale (i.e. extensive areas up and or downstream of a dam) or have significant impact on the balancing of the environmental, social and economic attributes.

10.2 Plan Review and Renewal

The Mississippi River Water Management Plan will be subject to review and renewal, on average, once every 10 years.

Given the moderate complexity of the plan, but the absence of significant issues, the review process should be initiated approximately 1 year prior to the end of its term. The plan review process will mirror the steps involved in the plan preparation, with new data and information considered during the review as a basis of continuing with the status quo or recommending changes (MNR 2001).

Public Advisory Committee

Issues Report

Final Version
March 17, 2004

Cover Page

Section 7.2 Flashboards

Section 9.11.12 Water levels below Appleton:

Section 9.11.14 Scenic waterway and the Appleton Wetland:

Mississippi River Water Management Plan Public
Advisory Committee - Public Consultation Findings

Issues Report
Final Version
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PAC Submission to Planning

Planning need only respond to issues and questions
outlined in Section 12 of this document.

7.0 Hydro-Electric Generation Issues

- 7.1 Wastage of water- every effort should be made to retain the maximum amount of water in the system during times of high flow through.
- 7.2 Head augmentation, such as flashboards are seen as a water conserving measure, with relatively little ecological impact.
- 7.3 Limited water storage in system- public input encourages the consideration of the storage capacity of the tributaries as part of the water management plan.
- 7.4 Spillover- sufficient (minimal) water flow over weirs and dam spillways to maintain esthetic and ecological waterway values- key areas - Appleton, Almonte.
- 7.5 Protocol for movement of water; generation facilities are described as “run of the river”, but it is still unclear what drives current water management decisions – what takes precedence?
- 7.6 Five m^3/s flow rate base line into Dalhousie Lake. What is the source of this baseline? Is this amount of water determined by minimum flows for generation or is it based on proven downstream minimum requirements to coincide with downstream requirements? If so, what are those requirements and how are they calculated?
- 7.7 Extend high flow period by avoiding dumping of surplus water i.e. water flows exceeding $14.3 \text{ c}^3/\text{s}$ at High Falls Generating Station in order to conserve water resources and extend peak generation capacity period.

9.11.11 Water conditions in the Appleton Bay, directly below the power dam have dramatically improved since the dam commenced operation. Improved water flows and aeration have rejuvenated this once dead portion of the river to a lush and healthy habitat with visible improvements in water quality and the return of native fish species and frogs to the bay area.

9.11.12 Water levels below Appleton are mostly inflow affected. The large wetland area below Appleton provides excellent shock flow absorption and water levels are relatively stable.

9.11.13 Low water levels make the use on the Appleton Boat ramp difficult to impossible.

9.11.14 Recreational usage is becoming a hot topic on this section of the waterway, particularly on the scenic Appleton to Almonte stretch, which travels through the middle of a provincially significant wetland. This river area is an ideal paddle recreation area due to its protection from winds, access at both ends, and long corridor of undeveloped shoreline. With most boat ramps in the region now charging for use, the Appleton and Almonte ramps remain among the last free trailer boat access points. As a result there has been a substantial increase in boat traffic, but most notably, in high horsepower, high speed traffic. Historically, this section of river has been a haven for paddlers, and a quiet fishing spot for families. In the interest of these recreational river users, PAC would encourage the Town of Mississippi Mills to consider access controls. As a minimum, introduce fees equal to surrounding ramps to equalize boat pressure, but ideally under a scheme that favors people powered or lower speed traffic. The power boaters can go anywhere, but the wetland corridor between Appleton and Almonte remains one of the few accessible flat water paddling areas in the region. Tension between those involved in tranquil pursuits and motor-sports have increased significantly in recent years due largely to the access restrictions at other boat launch sites, not imposed on this river section. Personal watercraft have become a particularly annoying issue, both for noise and speed and their tendency to buzz around fishermen and paddlers at high speed in one area, specifically the Appleton bay boat launch, and public swimming area beside the boat launch at Almonte has been areas of particular tension, where kids take turns on the machine while others party on shore. The OPP have been called on several occasions over the last three years to intervene. Access controls or

a simple statement of use policy by Mississippi Mills would reduce tension. As access to both ends of the river corridor is on park land controlled by the Town of Mississippi Mills, control of the problem lies in their hands. As a minimum, policies should be applied that are consistent with other regions, or alternatively, a policy of free access for any boat that can be carried in to the water, and a trailer access charge with an escalating price scale based on horsepower would favorably re-bias the river traffic toward paddlers and low horsepower activities, such as small access fees could be used to pay for any required restrictive or access control structure and enforcement, or turned over to the Almonte Fair Grounds Board (Access to the Almonte boat ramp is on fair grounds property) and the Appleton Community Association (Appleton Village ramp) for implementation, revenue generation and enforcement. This issue should be raised and included for consideration in the Mississippi Mills Official Plan, currently under revision.