

SUMMARY NOTES OF THE MAY 1, 2013 MEETING OF THE ROOT RIVER WATERSHED RESTORATION PLAN ADVISORY GROUP

INTRODUCTION

The May 1, 2013, meeting of the Root River Watershed Restoration Plan Advisory Group was convened at Franklin City Hall at 9:07 a.m. The meeting was called to order by Susan Greenfield, Executive Director of the Root-Pike Watershed Initiative Network (Root-Pike WIN). Attendance was taken by circulating a sign-in sheet.

In attendance at the meeting were the following individuals:

Advisory Group Members

Susan Greenfield, Co-Chair	Executive Director, Root-Pike Watershed Initiative Network
Jeff Martinka, Co-Chair	Executive Director, Southeastern Wisconsin Watersheds Trust, Inc. (Sweet Water)
Michael G. Hahn, Secretary	Chief Environmental Engineer, Southeastern Wisconsin Regional Planning Commission
Joseph E. Boxhorn	Senior Planner, Southeastern Wisconsin Regional Planning Commission
Chris Clayton	Urban River Restoration, River Alliance of Wisconsin
Jaren J. Hiller	Senior Project Engineer, AECOM
Alan V. Jasperson	Secretary-Treasurer, Racine County Board of Drainage Commissioners
Julie L. Kinzelman	Laboratory Director/Research Scientist, City of Racine Health Department
Laura L. Kletti	Principal Engineer, Southeastern Wisconsin Regional Planning Commission
Christopher Magruder	Community Environmental Liaison, Milwaukee Metropolitan Sewerage District
Matthew T. Magruder	Systems Data Technician, Milwaukee Metropolitan Sewerage District
Wendy McCalvy	Board of Directors, Caledonia Conservancy
Monte G. Osterman	Supervisor, Racine County Board of Supervisors
Aaron W. Owens	Planner, Southeastern Wisconsin Regional Planning Commission
Ronald J. Romeis	Assistant City Engineer, City of Franklin
Chad Sampson	County Conservationist, Racine County
Melissa H. Warner	Commissioner, Village of Caledonia Storm Water Utility District
Andrew D. Yench	Natural Resources Educator, University of Wisconsin-Extension

Guests

Robert Smage	Root-Pike Watershed Initiative Network
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Ms. Greenfield welcomed the attendees to the meeting and thanked them for their participation. She noted that the draft chapters to be reviewed were sent to the Group by electronic mail.

REVIEW OF SUMMARY NOTES FROM FEBRUARY 6, 2013, MEETING OF THE ROOT RIVER WATERSHED RESTORATION PLAN ADVISORY GROUP

At Ms. Greenfield's request Mr. Hahn addressed the summary notes from the February 6, 2013, meeting of the Advisory Group. He said that he would not do a detailed review, but that he would highlight a few topics, and would respond to any questions or comments from the Group.

Mr. Hahn said the Secretary's Note on page 2 of the summary notes refers to Exhibit B, which is a fact sheet developed by Iowa State University on the use of woodchip bioreactors for treatment of nitrate in agricultural drainage. He noted that while such bioreactors are effective in removing nitrate, they may not be effective for other pollutants, and research into removal effectiveness for other pollutants is ongoing.

Mr. Hahn referred to page 9 of the summary notes, where it is mentioned that continuously-recorded dissolved oxygen data from the upper sections of the mainstem of the Root River was provided by the U.S. Geological Survey (attached as Exhibit G to the February 6 summary notes) and analysis and evaluation of those data have been added to Chapter IV. Mr. Boxhorn elaborated on the large diurnal variations in dissolved oxygen concentrations that the data exhibit.

No other questions or comments were offered on the summary notes, and they were approved by consensus of the Advisory Group.

REVIEW OF PARTIAL PRELIMINARY DRAFT CHAPTER IV, "CHARACTERIZATION OF THE WATERSHED," OF SEWRPC COMMUNITY ASSISTANCE PLANNING REPORT NO. 316 (CAPR NO. 316), "A RESTORATION PLAN FOR THE ROOT RIVER WATERSHED"

Mr. Hahn provided a brief overview of the topics to be covered during the meeting, and he noted that development of Chapter IV, "Characterization of the Watershed," is an ongoing process that would continue for the near future as additional information becomes available and is incorporated and as text is drafted for the habitat focus area.

Mr. Hahn asked Mr. Owens to begin the review of the fourth partial preliminary draft of Chapter IV, "Characterization of the Watershed."

Mr. Owens summarized a paragraph on agricultural best management practices (BMPs) that is to be inserted on page 3 of the January 24, 2013, draft of Chapter IV. He asked Mr. Sampson to summarize the status of the Federal farm bill. Mr. Sampson said that the farm bill has been continued and the programs exist, but no funding level has yet been established. He said that local programs funded with State money are still being implemented. He highlighted the importance of the Federal funds to successful implementation of agricultural best management practices. He noted that, while State funds might cover 70 percent of project installation, they do not cover the annual rental fee paid to the producer. He said Federal funds could increase the subsidized share of implementation to 90 percent, and they would cover the annual rental fee.

Mr. Owens noted that Mr. Sampson had provided nine additional years of data on installed agricultural BMPs, covering the period from 2001 through 2008, and that information will be added to the report.

[Secretary's Note: The agricultural BMP data for 2001 through 2008 will be added to Table IV-7B-1A and Map IV-14A and updated versions of the table and map area will be developed.]

Ms. Greenfield asked if Racine County monitored agricultural BMP projects after installation. Mr. Sampson replied that the county inspects them in the first and second years after installation and then every four to five years. The County staff makes recommendations to landowners regarding maintaining or improving the performance of the BMPs.

Mr. Sampson said that:

- Racine County received a \$100,000 total, three-year grant from the Fund for Lake Michigan for riparian buffer installation,
- The buffers are to be installed in the Root River watershed or the Lake Michigan direct drainage area,

- Payments to the landowners would be \$3,000 per acre with the requirement that the buffer be maintained for 15 years, and
- It is expected that 12 to 14 acres of buffers will be installed in 2013.

Mr. Yenchu asked if there was a minimum width for riparian buffers and whether there was a technical standard for buffers. Mr. Sampson replied that Natural Resources Conservation Service Conservation Practice Standard Code 342, "Critical Area Planting," was followed in establishing buffers. He said that Racine County applies a 20-foot minimum buffer width, but generally tries to obtain a 30- to 40-foot width.

Mr. Owens presented an example map showing 75-, 400-, and 900-foot buffer widths, and he noted that additional watershed-wide analysis of buffer widths had begun and would be completed when the existing year 2010 land use inventory for Milwaukee County is completed. Mr. Owens and Mr. Hahn noted that the 75-, 400-, and 900-foot buffer widths were developed to address different requirements with the 75-foot width being generally effective for water quality improvement, and the 900-foot-width being needed to meet certain habitat requirements. There was considerable discussion among the Group regarding various buffer widths and the possibility of zoning overlay districts being established to address specific buffer functions.

Following that discussion, Mr. Boxhorn began review of the "Exotic and Invasive Species" subsection of Chapter IV. He noted that the page number references in the draft partial chapter relate to the pages in the version of the chapter distributed for the preceding Advisory Group meeting in February 2013. He said that the scientific name for the rusty crayfish would be corrected in Figure IV-Inv-F.

[Secretary's Note: The scientific name provided in Figure IV-Inv-F was changed to "*Orconectes rusticus*."]]

Ms. Warner asked that honeysuckle be included in the invasive species section, and she noted that phragmites can be spread by mowing when stem fragments are transported on mowing equipment.

[Secretary's Note: The following description of honeysuckle was added on page 8 of the draft partial chapter following the "Garlic Mustard" subsection:

"Honeysuckle

The exotic bush honeysuckles are a group of plant species native to Europe and Asia that are invading a variety of habitats in Wisconsin. They were introduced into North America beginning in the mid-eighteenth century for use as landscape ornamentals and cover for wildlife. The major exotic bush honeysuckle species include Amur honeysuckle, tatarian honeysuckle, Morrow's honeysuckle, and bella honeysuckle. In addition, several other species and hybrids of species have escaped from cultivation.

The exotic bush honeysuckles grow as dense, stout, upright deciduous shrubs with shallow roots. They reach heights of three to 10 feet. They are easily distinguished from native honeysuckle species of the genus *Lonicera*, such as grape honeysuckle, yellow honeysuckle, or red honeysuckle. The native species are woody vine-like twining species.

Several features of the biology of the exotic bush honeysuckles contribute to their status as nuisance plant species. They can occupy a broad variety of habitats, including forest edge, roadsides, pastures, abandoned fields, bogs, fens, and lake shores. Their distribution is aided by birds which consume their ripened fruit and disperse the seeds over long distances. They begin leaf development one to two weeks before native shrubs and trees. This early leafing can act to exclude spring

ephemeral wildflowers which have evolved to bloom before trees and shrubs leaf out. The vigorous growth of exotic bush honeysuckles inhibits the growth of native shrub and ground cover species. Through shading and depletion of soil moisture and nutrients they may exclude native species from habitats that they have invaded.

Exotic bush honeysuckles can be controlled through mechanical or chemical means. Because their roots are fairly shallow, smaller plants can be pulled or dug out of the ground. Chemical control can be accomplished by cutting the plants at the base and treating the cut immediately with herbicide. Two cuts per year are recommended—one in early spring and another in early fall. Chemical control may also be accomplished through foliar spraying. Both mechanical and chemical control methods must be repeated for three to five years in order to stop new plants from emerging from the seed bank.”

Mr. Boxhorn said that the U.S. Geological Survey (USGS) has compiled an inventory of stands of phragmites five acres or greater in size within 10 kilometers of the shorelines of the Great Lakes. He said that the inventory includes an assessment of lands vulnerable to invasion by phragmites. He noted that this assessment is currently undergoing internal review by the USGS and has not yet been released. He indicated that he would incorporate information on lands vulnerable to phragmites infestations if the assessments become available. Ms. Greenfield said that she would provide information on invasive plant removal work being done under a grant obtained by Alice Thompson, of Thompson & Associates Wetland Services, LLC.

[Secretary’s Note: As of the date these summary notes were issued, such information had not been provided.]

Mr. Yench asked if Map IV-INV-B would be updated beyond 2003, indicating he would be interested in whether reed canary grass is spreading and where it is located relative to phragmites. Mr. Boxhorn said that updating the inventory would depend on whether WDNR had adequate funds to collect and map the information and that such an update would represent a significant state-wide effort.

Next, Ms. Kletti reviewed the “Significant Geologic Site” subsection and an insert to the “River Flow Conditions” subsection both of which are to be inserted in the “Horlick Dam and Impoundment Characteristics” section.

With respect to the fourth sentence in the first paragraph of the “Significant Geologic Site” subsection, Ms. Greenfield noted that the “Town of Caledonia” is now the “Village of Mt. Pleasant.”

[Secretary’s Note: Because the reference is intended to locate the Horlickville Bluffs and Quarries according to U.S. Public Land Survey designations, the first part of the sentence was revised as follows (text in bold is included here, and in similar subsequent Secretary’s Notes, to indicated language changed or added onto the text. Text will not be bold in the report):

“The planning report referenced the Horlickville Bluffs and Quarries to be in **U.S. Public Land Survey Section 6, Township 3 North, Range 23 East**, which includes ...]

Mr. Osterman asked about the ramifications of the designation of a “geologic site of statewide or greater significance” at, and in the vicinity of, the dam. Ms. Kletti replied that the designation was advisory and provides no legal protection from disturbance, but that it should be considered as it relates to possible recommendations regarding the dam.

[Secretary’s Note: The second sentence in the fourth full paragraph on page 14 was revised to read as follows:

“The planning report designation of the Horlickville Bluffs and Quarries as a geologic site of statewide or greater significance is only advisory and does **not** provide any legal protections.”]

Mr. Boxhorn then proceeded with review of the section on “Recreational Facilities and Access.”

Ms. McCalvy noted that the Village of Caledonia has a park and open space plan; that Nancy Anderson of the SEWRPC staff has mapped trails on private conservancy property that are open to the public, including horse trails; and that the Caledonia Conservancy should be able to provide SEWRPC with maps of dual-purpose horse and walking trails. Mr. Boxhorn said that the 2012 Racine County park and open space plan that was prepared by SEWRPC includes Caledonia park sites and that the Root River report could include a map of trails on conservancy property and of dual-purpose horse and walking trails if the necessary information can be obtained. In response to a question from Mr. Yench, Mr. Boxhorn said that the extents of the trails could be shown beyond the Root River watershed boundaries.

Mr. Smage mentioned that there are also some dog walking trails, Ms. Greenfield said one is located along the Root River, and one is next to Quarry Park, and Ms. McCalvy said the Caledonia Conservancy is developing such a trail also. Mr. Boxhorn said he would look for information on those trails.

[Secretary’s Note: Map IV-Rec-C was revised to include horse trails that are open to the public and to show the continuation of the trails outside of the watershed. The revised map attached as Exhibit A.]

Mr. Boxhorn and Mr. Yench solicited comments from the Advisory Group and guests in attendance regarding the accessibility of the main stem of the Root River for paddling, starting with the Upper Root River. Mr. Smage characterized navigability as limited and said that he has not canoed the Root River along the Milwaukee-Racine County line. He also said the Upper Root River has pools deep enough to canoe, but there are many snags that limit navigability. He said navigability for paddling is better in the reaches downstream from 6 or 7 Mile Roads. Ms. Greenfield said that the reach from Linwood Park to River Bend Nature Center was readily navigated. Ms. McCalvy noted that paddling is generally better before and after the July through September time period.

Mr. Boxhorn noted that the green diamonds denoting fishing access locations on Map IV-Rec-D, “Fishing, Canoe, and Kayak Access within the Root River Watershed: 2013,” would be reduced in size so the “canoe and kayak” symbols would be more visible. Mr. Yench suggested that an inset map showing more detail for the paddling and fishing access points the downstream end of the Root River be added to Map IV-Rec-D.

[Secretary’s Note: The green diamonds denoting fishing access locations on Map IV-Rec-D were reduced in size, and an inset was added to Map IV-Rec-D (see attached Exhibit B).]

Regarding Map IV-Rec-E, “Marinas and Yacht Clubs on the Root River: 2013,” Ms. Warner noted that Belle Harbor Marina is public, so its symbol should be orange. Mr. Osterman asked that Reef Point Marina, which is owned by Racine County be added to Map IV-Rec-E, and Ms. Kinzelman mentioned the Racine Yacht Club and the Rooney Park public dock. Ms. Kinzelman noted that all the marinas in the Racine harbor are designated as clean marinas.

[Secretary’s Note: The Reef Point Marina, the Racine Yacht Club, and the Rooney Park public dock were all added to Map IV-Rec-E and Table IV-Rec-D (see attached Exhibits C and D, respectively). The color of the Belle Harbor Marina symbol was changed to orange on Map IV-Rec-E. The third full paragraph on page 18 was revised to read:

“**Eleven** marinas and yacht clubs are located on the Root River in the City of Racine **or in the Racine harbor**. Their locations are shown on Map IV-Rec-E. All are located downstream of the Marquette Street bridge. They primarily provide slips,

storage, and facilities serving recreational boating on Lake Michigan. As shown in Table IV-Rec-D, **four** of these facilities have drive-in boat launches available. **All of the facilities located in the Racine harbor** are currently certified through the Wisconsin Clean Marina Program. **In addition**, as of December 2010 Racine Riverside Marina had committed to pursue certification]

Ms. Warner said that the numbers in Table IV-Rec-E do not match Map IV-Rec-F, and Ms. Greenfield and Mr. Osterman pointed out that Table IV-Rec-E should list Racine County as the sole owner of Quarry Park.

[Secretary's Note: The location numbers in Table IV-Rec-E were revised to match Map IV-Rec-F and the table was revised to show Racine County as the sole owner of Quarry Park (see attached Exhibit E).]

REVIEW OF PARTIAL PRELIMINARY DRAFT CHAPTER V, "DEVELOPMENT OF TARGETS AND ALTERNATIVE MEASURES," AND APPENDIX E, "ACUTE TOXICITY OF SODIUM CHLORIDE TO FRESHWATER AQUATIC ORGANISMS, OF SEWRPC COMMUNITY ASSISTANCE PLANNING REPORT NO. 316 (CAPR NO. 316), "A RESTORATION PLAN FOR THE ROOT RIVER WATERSHED"

Mr. Boxhorn began the review of Appendix E and those portions of preliminary draft Chapter V that cover problems related to chlorides, chloride targets, and recreational access and use targets.

Mr. Hahn explained that Appendix E presents the results of analysis of sodium chloride and specific conductance in the Menomonee River watershed that were performed for the recently-completed effort to develop a watershed-based stormwater permit, and he noted that those results were considered generally applicable to a discussion of the same issues in the Root River watershed.

Ms. Kinzelman said that she would look into providing 1) available winter chloride and specific conductance monitoring data from the Pike River watershed that might be helpful in correlating chloride concentration with specific conductance and 2) specific conductance data collected in 2013 for storm sewer outfalls discharging to the Lower Root River. Mr. Christopher Magruder mentioned that regression analyses relating chloride and specific conductance for Honey and Underwood Creeks in the Menomonee River watershed could be a starting point for developing similar relationships for the Root River watershed.

[Secretary's Note: On May 2, 2013 the City of Racine Health Department sent Commission staff specific conductance data for stream sites within the Root River watershed and outfalls discharging into streams of the Root River watershed. On May 3, 2013 the City of Racine Health Department sent Commission staff specific conductance data for stream sites within the Pike River watershed and outfalls discharging into streams of the Pike River watershed. On July 17, 2013 Commission staff received chloride and specific conductance data for Pike River sites from Professor Christine Blaine of the Department of Chemistry at Carthage College, Kenosha, Wisconsin.]

During discussion by the Group regarding sources of chlorides, Ms. Warner noted that much of the development in the Root River watershed has a Lake Michigan source of water supply, so there should be relatively little water softening that would contribute chloride to surface waters; however, she inquired about the possible effects of a return flow from the City of Waukesha to the Root River if the City were successful in obtaining approval for a Lake Michigan supply. Mr. Hahn said that, under such a scenario, it is expected that the current use of water softeners by Waukesha Water Utility customers would be significantly reduced if a naturally soft water were obtained from Lake Michigan. Mr. Yencha added that anecdotal evidence from the portion of the City of New Berlin which has recently switched from a groundwater source to a Lake Michigan source indicates that the use of water softeners has declined.

Ms. Warner said that a salt supplier had indicated that magnesium chloride was less harmful to the environment than calcium chloride. Mr. Boxhorn responded that toxicity tests show that calcium and magnesium chloride are more toxic than sodium chloride.

Mr. Boxhorn then proceeded to review the “Recreational Access and Use Targets” subsection. That review engendered considerable discussion regarding 1) the new U.S. Environmental Protection Agency recommended recreational water quality standards, which are based on *E. coli* rather than fecal coliform bacteria and 2) potential major sources of bacteria within the watershed. He noted that fecal coliform bacteria are indicators of pathogens and viruses, which are the organisms of concern relative to human health and recreational use of waterways.

Mr. Boxhorn showed two PowerPoint© slides that summarize the watershed-wide degree of compliance with the fecal coliform bacteria standards as set forth in Tables V-Fec-B and V-Fec-C. Those slides are attached as Exhibit F. Mr. Boxhorn noted that reducing bacteria in the streams and rivers of the watershed will be a challenge. Ms. Kinzelman mentioned that the City of Racine’s outfall sampling and illicit stormwater discharge remediation program applies a decision tree to guide City staff through the process of checking for human markers, investigating the source of positive bacteria samples at storm sewer outfalls, and, ultimately, remediating the source.

[Secretary’s Note: Such a program to detect illicit discharges to storm sewer systems was recommended under the 2007 SEWRPC regional water quality management plan update for the greater Milwaukee watersheds, including the Root River watershed. That plan is the framework plan for the ongoing Root River watershed restoration plan. SEWRPC recently collaborated with the municipalities of the Menomonee River watershed, the Milwaukee Metropolitan Sewerage District, the Wisconsin Department of Natural Resources (WDNR), and the Southeastern Wisconsin Watersheds Trust, Inc., on developing a watershed-based municipal separate storm sewer system (MS4) permit. Through that process, a procedure was developed for the MS4 municipalities to efficiently and effectively sample outfalls for illicit discharges, and to remediate those discharges. It is envisioned that a similar approach will be recommended for urban areas in the Root River watershed under this watershed restoration plan.]

Mr. Yencha asked whether green infrastructure reduces bacteria in stormwater runoff. Mr. Boxhorn replied that he is currently doing a literature review on that topic, and that review may become an appendix in the watershed restoration plan report. Mr. Christopher Magruder noted that the MMSD green infrastructure plan, which was to be released soon includes information on removal of bacteria by green infrastructure.

Mr. Romeis said that the level of bacteria reduction between existing and recommended plan conditions, and the corresponding amounts of time that streams and rivers in the watershed would be in compliance with the bacteria standards, as set forth in Tables V-Fec-B and V-Fec-C, need to be presented to local decision makers in a way that highlights the improvements achieved through plan implementation.

As the review of recreational access and use targets concluded there was some additional discussion of access points for watercraft within the watershed. Ms. Warner said there are canoe and kayak access points in Linwood Park at 5 Mile Road and downstream of the weir at the WDNR Root River steelhead facility in the City of Racine, and Mr. Jasperson noted there is an access point with parking on Racine County park land along CTH G (Six Mile Road).

[Secretary’s Note: Map IV-Rec-E was revised to show Root River main stem canoe and kayak access points in Linwood Park at 5 Mile Road, downstream of the weir at the WDNR Root River steelhead facility in the City of Racine, and on Racine County park land along CTH G (Six Mile Road).]

Before moving on to the review of initial conceptual alternatives related to the Horlick dam, Mr. Hahn pointed out that the chapter text included place holders for report subsections on “Habitat Targets” and Flooding Targets,” and he noted that it is intended to present those subsections at the October 2013 Advisory Group meeting.

Ms. Kletti then made a presentation on conceptual Horlick dam alternatives (see Exhibit G). She said that, during this past winter and spring, the SEWRPC staff had conducted additional field work to validate the existence of a ledge upstream of the dam.

There was considerable discussion of aquatic invasive species passage issues, including mention of examples from the Ozaukee County program to remove barriers along the Milwaukee River. Mr. Martinka said that the height of water relative to the dam crest during high water events is a factor that WDNR considers in evaluating whether a dam is an impediment to fish passage. Ms. Warner said that Tim Campbell at the University of Wisconsin Sea Grant Institute has studied the effects of aquatic invasive species moving upstream. In response to a question from Ms. Greenfield, Mr. Hahn mentioned that the SEWRPC and WDNR staffs planned to meet to discuss issues related to dam removal, invasive species, and viral hemorrhagic septicemia in general, and specifically as they relate to the Horlick dam.

[Secretary’s Note: That meeting was held on June 13, 2013, and the summary notes from the meeting are attached as Exhibit H.]

Ms. Warner said that costs of an alternative calling for demolition of the dam should include the cost of restoration of the former impoundment area. Mr. Martinka asked if there were problems with toxic chemicals in the sediment of the impoundment. Ms. Kletti said that there were none based on the available data, but more sampling may be warranted.

[Secretary’s Note: Such additional sediment sampling would occur during the preliminary engineering phase for implementing an alternative selected by the County if that alternative could involve disturbance or exposure of sediment.]

Ms. Warner asked how far the impoundment extends upstream from the dam, and Ms. Kletti said it went to about STH 31 under normal flow conditions.

Mr. Hahn noted that the conceptual alternatives presented by Ms. Kletti are a starting point, and some may be eliminated or changed. He also said that any purely structural issues related to the dam would not be resolved by this plan and would require further study.

Ms. Kletti said that, following WDNR review and approval of a dam failure analysis performed by a consultant for the County, the dam hazard rating, which affects the required spillway discharge capacity, will be known. Ms. McCalvy asked if the dam and its upstream impoundment functioned to store significant amounts of water during floods, and Ms. Kletti responded that they did not. Mr. Smage said that outflow from the dam cannot be regulated under its current configuration, and Mr. Osterman offered the opinion that Racine County would not consider adding a mechanical gate because of the expense.

Mr. Osterman said that because of the possibility that a rock shelf is located immediately upstream from the dam, the aesthetics of the River might not be changed that much if the dam were removed. Ms. Warner asked if the apparent shelf may be the shoe of historic Lake Chicago. Mr. Osterman asked if it would be possible to show what the areal extent of the impoundment/River upstream of the dam site could be under the alternatives considered. Ms. Kletti and Mr. Hahn replied that that might be possible. Mr. Smage said that if the elevation of the impoundment were lowered, gravel beds might be exposed upstream of the dam.

DATE AND TIME OF NEXT MEETING

Ms. Greenfield thanked everyone in attendance for their participation and noted that the Root River Restoration Planning Group (stakeholder group) meeting will be held on May 29, 2013, at Gateway Technical College in the Village of Sturtevant.

ADJOURNMENT

There being no further business, the meeting was adjourned by unanimous consent at about 12:00 p.m.

FOLLOWUP FROM FEBRUARY 6, 2013, MEETING OF THE ADVISORY GROUP

In the third paragraph on page 4 of the summary notes of the February 6, 2013, meeting of the Advisory Group, it is indicated that Mr. Christopher Magruder was going to check with the Madison Metropolitan Sewerage District (Madison MSD) and the City of Green Bay to see whether they have experienced decreases in the concentration of phosphorus in the influent to their wastewater treatment plants as a result of the State's ban on phosphorus in detergents.

Mr. Magruder responded to Mr. Boxhorn on May 2, 2013, and said that he discussed this with both Madison MSD and Green Bay. In both cases, influent phosphorus concentrations have not gone down since the detergent rule became effective. Madison MSD reported that the phosphorus load in their influent has decreased; however, this was due to a decrease in the volume of influent. They attributed this to their ongoing water conservation efforts. Mr. Magruder noted that the Milwaukee MSD has also seen a decrease in the influent volume and consequent influent phosphorus loads, and he said that he thinks that this is more likely due to loss of industry in the City, rather than water conservation efforts.

MATERIAL ADDED TO CHAPTER IV, "CHARACTERIZATION OF THE WATERSHED," OF SEWRPC CAPR NO. 316 BY SEWRPC STAFF FOLLOWING THE MAY 1, 2013 MEETING OF THE ADVISORY GROUP

Subsequent to the May 1, 2013 meeting of the Advisory Group, the SEWRPC staff added maps, a table, and discussion of surveys of invasive plant species in Milwaukee County parks and natural areas located within the Root River watershed. These data were collected by the Milwaukee County Parks Department. The material that was added to the chapter is attached herein as Exhibit I.

ROOT RIVER WRP SUMMARY NOTES 05/01/2013 MTG (00211256).DOC
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MGH/JEB/LLK/pk
07/26/13

Exhibit A

Map IV-Rec-C

EXISTING RECREATIONAL TRAILS AND BIKE ROUTES WITHIN THE ROOT RIVER WATERSHED: 2013

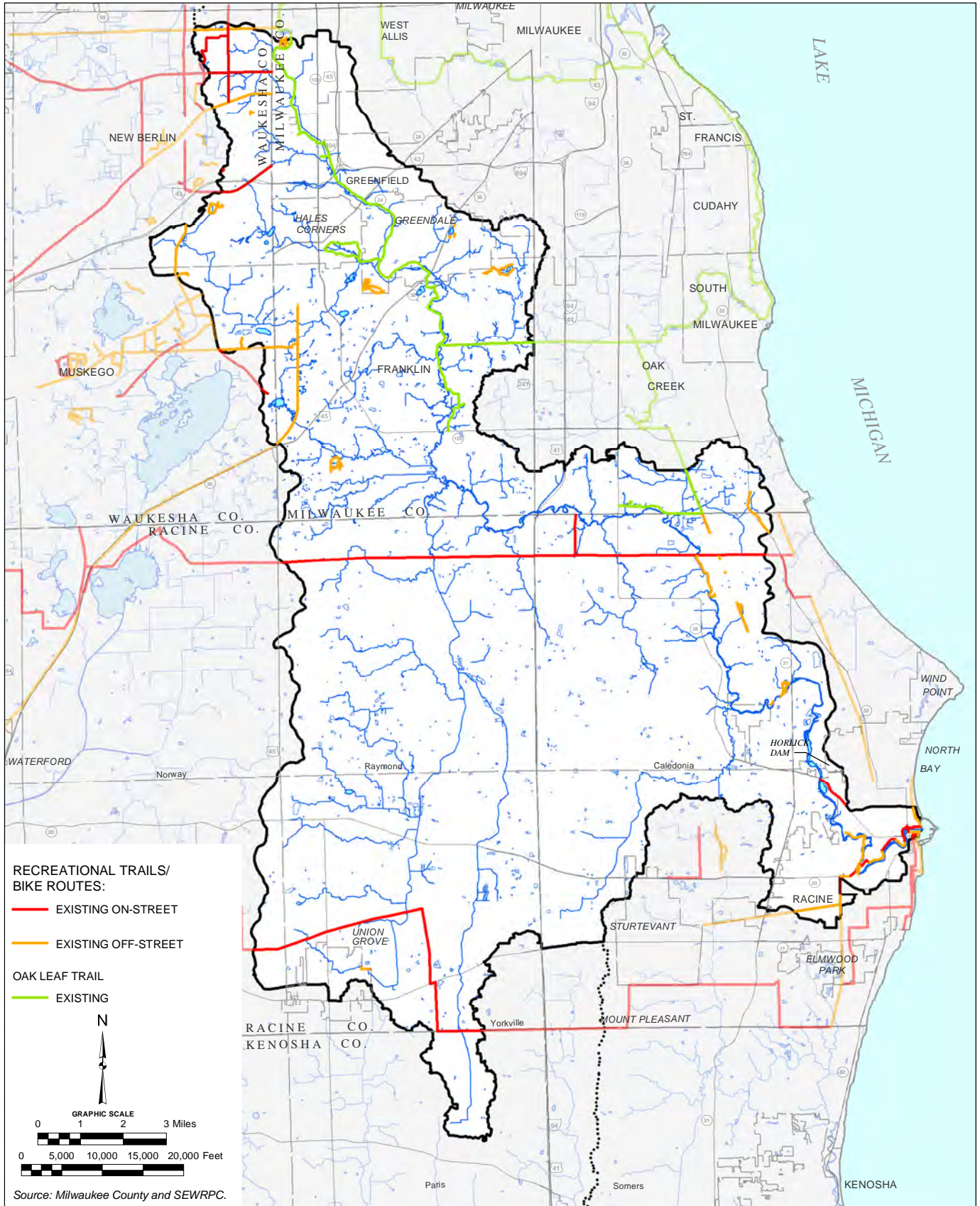


Exhibit B

Map IV-Rec-D

FISHING, CANOE, AND KAYAK ACCESS WITHIN THE ROOT RIVER WATERSHED: 2013

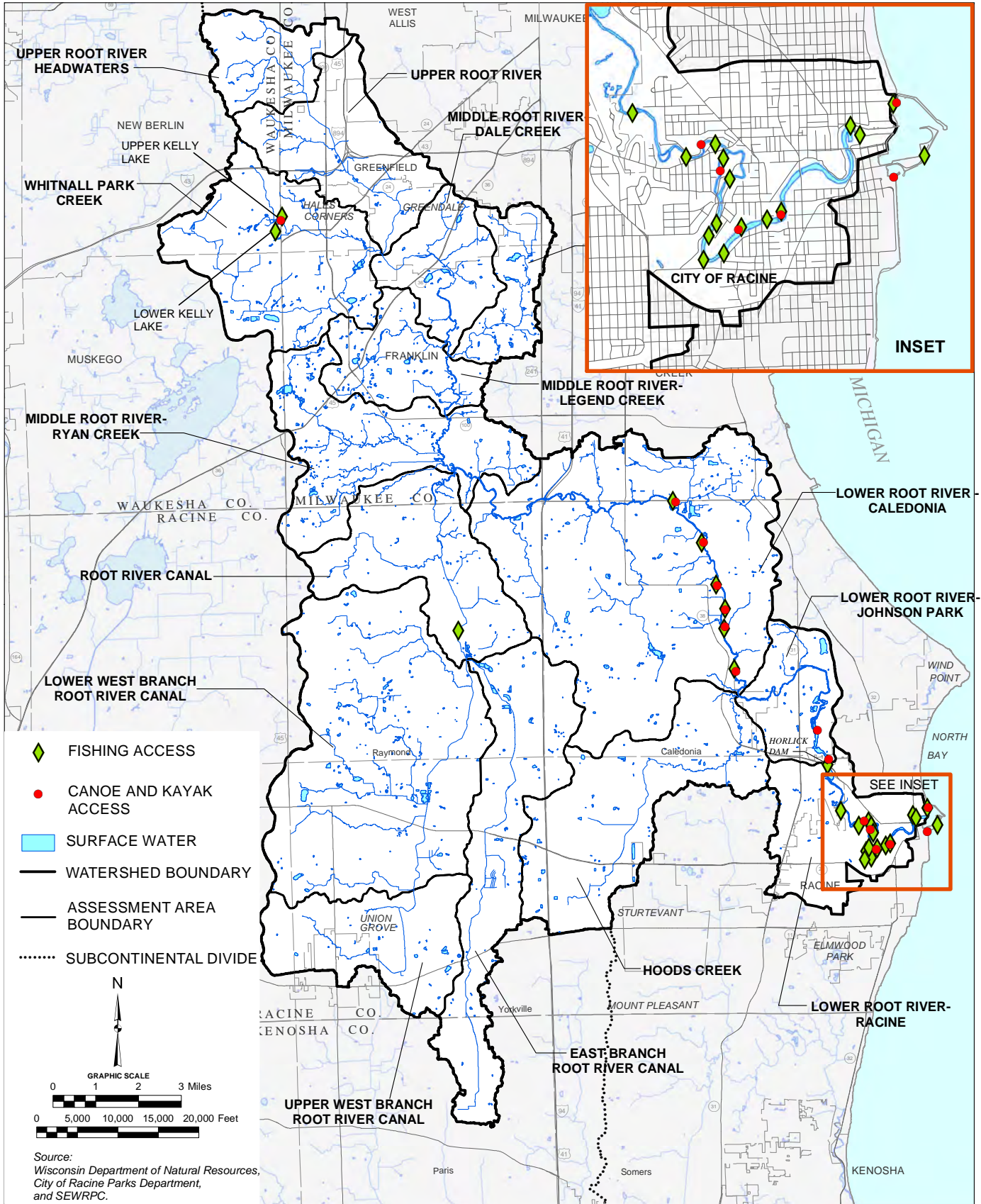
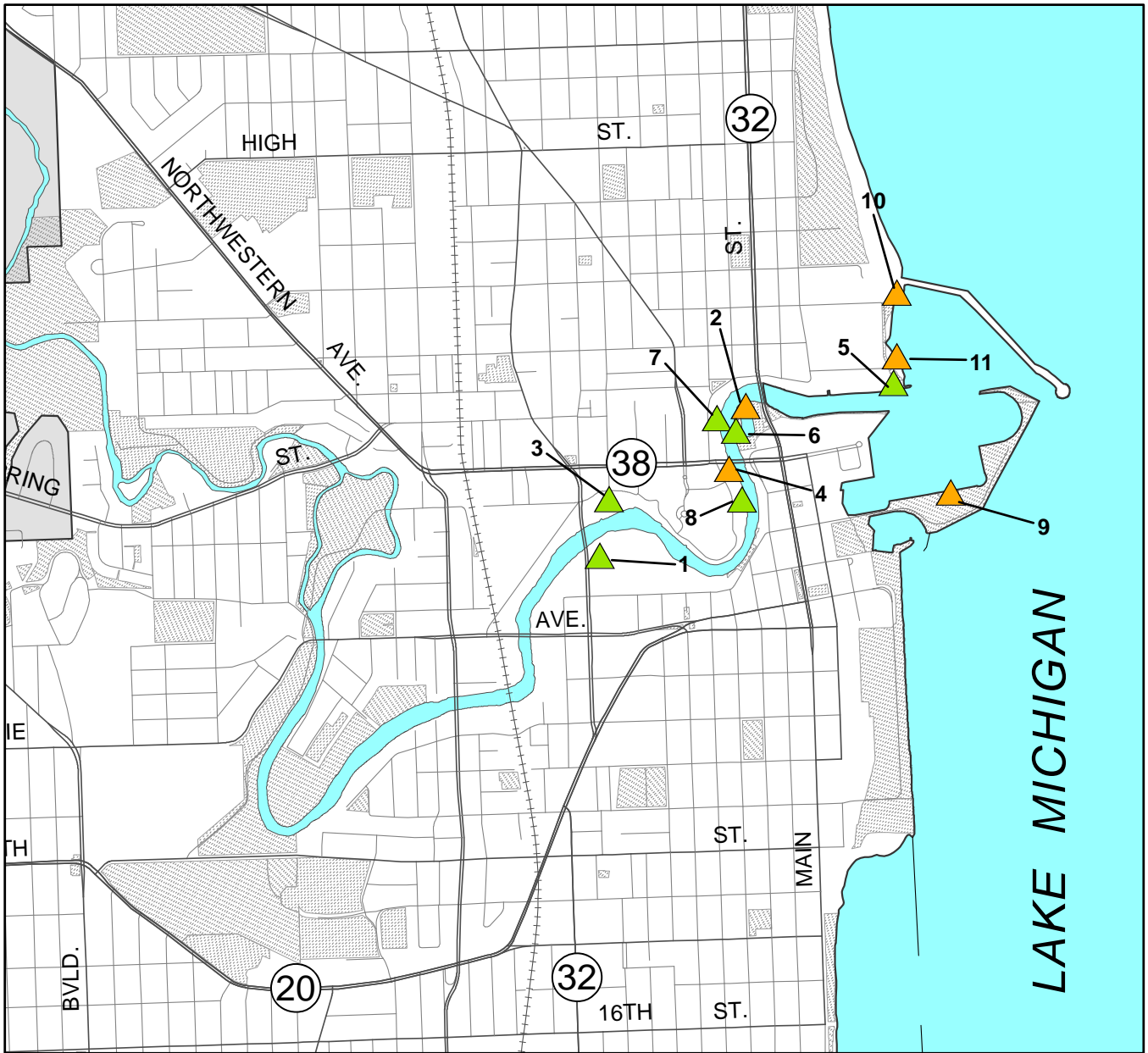



Exhibit C

Map-Rec-E

MARINAS AND YACHT CLUBS ON THE ROOT RIVER: 2013



LEGEND

 PUBLICLY-OWNED SITE

 SURFACE WATER

 PRIVATELY-OWNED SITE

8 REFERENCE NUMBER
(SEE TABLE IV-REC-D)

N



GRAPHIC SCALE

0 0.25 0.5 Miles

0 1,250 2,500 Feet

Source: City of Racine and SEWRPC.

Exhibit D

Table IV-Rec-D

MARINAS AND YACHT CLUBS LOCATED ALONG THE ROOT RIVER: 2013

Number on Map IV-Rec-E	Name	Address	Slips	Drive-In Boat Launch	Certified Clean Marina ^a
1	Azarian and Sons Marina	726 Water Street, Racine	166	N	N
2	Belle Harbor Marina	298 1st Street, Racine	N/A	N	N
3	Fifth Street Yacht Club	761 Marquette Street, Racine	N/A	Y	N
4	Harbor Lite Yacht Club	559 State Street, Racine	N/A	Y	N
5	Pugh Marina	1001 Michigan Boulevard, Racine	128	N	N
6	Pugh Marina on the Lake Up River	Sam's River Road, Racine	22	N	N
7	Racine Riverside Marina	950 Erie Street, Racine	N/A	Y	N ^b
8	West Shore Marine	811 Ontario Street, Racine	30	N	N
9	Reef Point Marina	2 Christopher Columbus Causeway, Racine	921	N	Y
10	Racine Yacht Club	1 Barker Street, Racine	N/A	N	Y
11	Rooney Park	5 Hubbard Street, Racine	N/A	Y	Y

NOTE: N/A indicates that the information was not available.

^aMarinas can be certified as clean marinas through the Wisconsin Clean Marina Program if they have voluntarily adopted sufficient best management practices and met the standard for certification. Certification is reviewed every three years.

^bAs of December 2, 2010, Racine Riverside Marina had committed to actively pursuing designation as a Wisconsin Clean Marina.

Source: SEWRPC.

Exhibit E

Table IV-Rec-E

URBAN FISHING WATERS IN THE ROOT RIVER WATERSHED: 2012

Number on Map IV-Rec-F	Lake or Pond	Municipality	Shoreline Accessible to Public	Fishing Pier	Catchable-Size Rainbow Trout Stocked in 2012
1	Franklin High School Pond.....	City of Franklin	Y	N	500
2	Gorney Park	Village of Caledonia	Y	N	2,000
3	Lockwood Park.....	City of Racine	Y	N	300
4	Johnson Park	City of Racine	Y	M	400
5	Quarry Park.....	Village of Mt. Pleasant and City of Racine	Y	Y	3,000
6	Scout Park.....	Village of Greendale	Y	Y	2,250
7	Shoetz Park.....	Village of Hales Corners	Y	N	750

Source: Wisconsin Department of Natural Resources and SEWRPC.

Map IV-Rec-F

URBAN FISHING SITES WITHIN THE ROOT RIVER WATERSHED: 2013

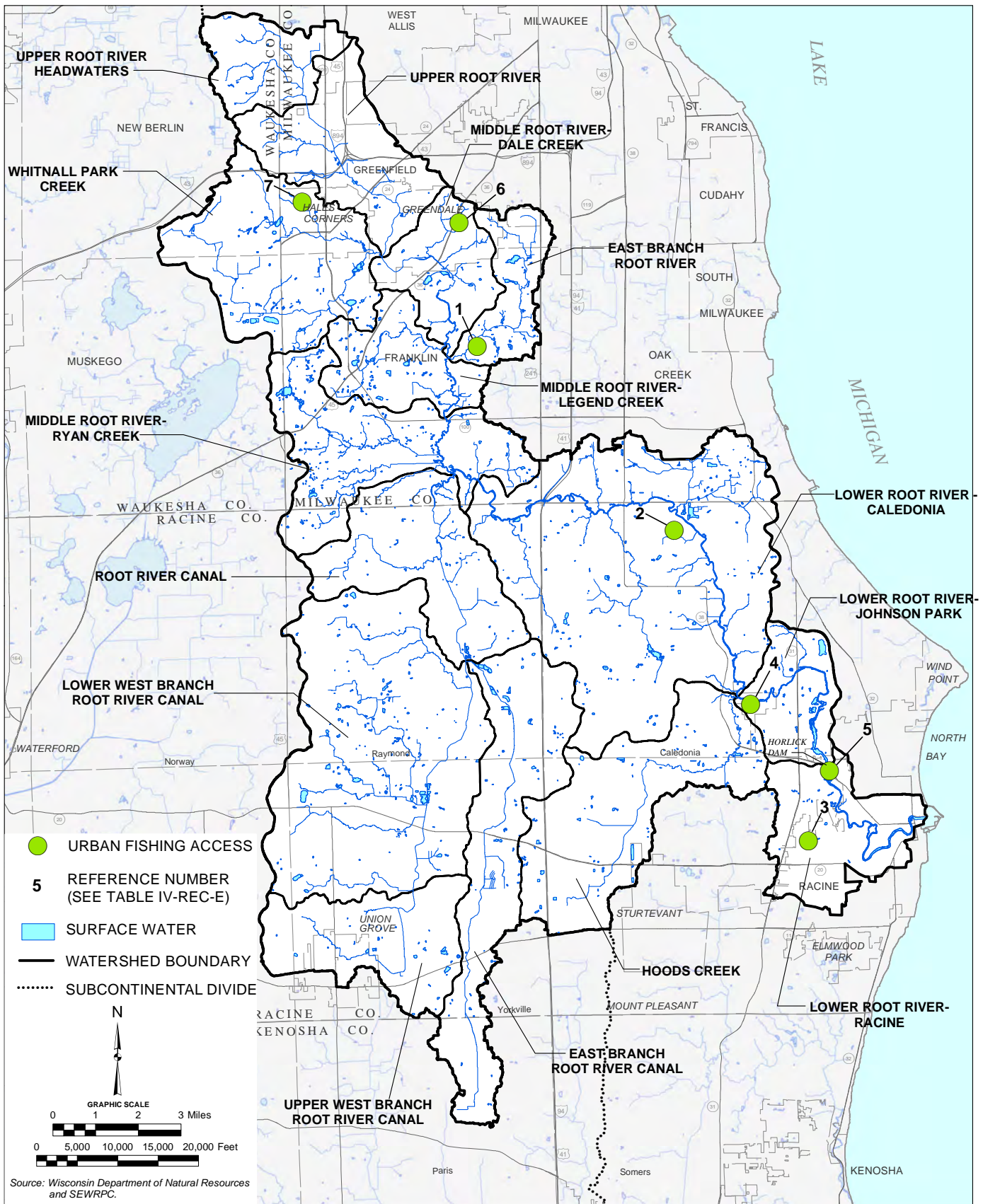


Exhibit F

Compliance with Fecal Coliform Bacteria Single Sample Standard

Condition	Full year 400 cells per 100 ml (percent)		Swimming Season 400 cells per 100 ml (percent)	
	Mean	Range of Assessment Area Means	Mean	Range of Assessment Area Means
Existing (2000)	57	43 – 72	69	55 – 81
Recommended Plan (2020)	61	51 – 72	72	63 – 80

Presented by subwatershed in Tables V-Fec-B and V-Fec-C

Compliance with Fecal Coliform Bacteria Geometric Mean Standard

Condition	Full year 200 cells per 100 ml (days in compliance)		Swimming Season 200 cells per 100 ml (days in compliance) ^a	
	Mean	Range of Assessment Area Means	Mean	Range of Assessment Area Means
Existing (2000)	46	6 – 148	27	4 – 84
Recommended Plan (2020)	94	28 – 248	54	12 – 138

^aOut of 153 days in the months May through September.

Presented by subwatershed in Tables V-Fec-B and V-Fec-C

Exhibit G

Horlick Dam Alternatives

- Issues of Concern
 - Water Quantity
 - Water Quality
 - Natural Resources
 - Social
 - Costs
- Baseline condition
- Conceptual Alternatives

Horlick Dam Alternatives

- Issues of Concern
 - Water Quantity
 - Flooding
 - Normal Flow
 - Groundwater



June 2008 flood

Horlick Dam Alternatives

- Issues of Concern

- Water Quality
 - Temperature
 - Dissolved Oxygen
 - Nutrients – Phosphorus
 - Sediments
 - Woody Debris



Horlick Dam Alternatives

- Issues of Concern

- Natural Resources
 - Fishery
 - Terrestrial Biota
 - Aquatic Invasive Species



Horlick Dam Alternatives

- Issues of Concern

- Social
 - Aesthetics
 - Safety
 - Recreation



Horlick Dam Alternatives

- Issues of Concern

- Costs
 - Construction
 - Demolition
 - Maintenance



Alternatives

Baseline Condition - today

Conceptual Alternatives

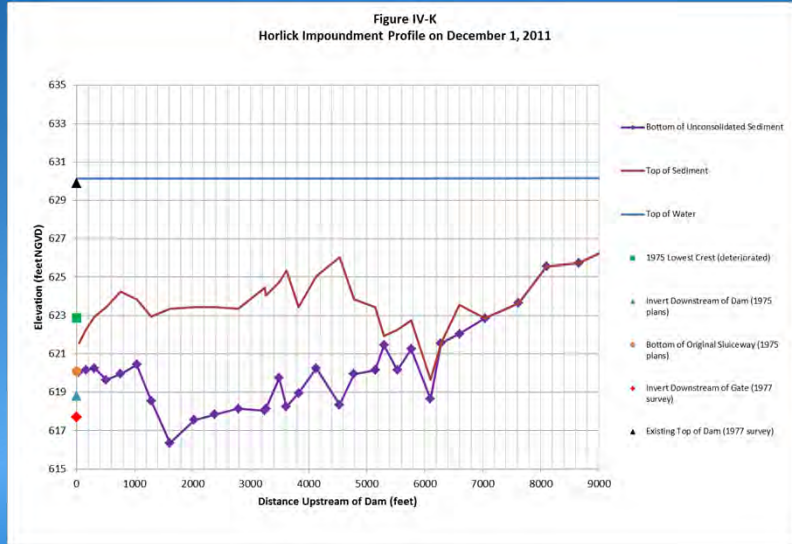
- Modify Dam to Enhance Spillway Capacity
- Modify Dam to Enable Fish Passage
- Modify Dam to Enhance Spillway Capacity & Fish Passage
- Remove Dam

Alternatives

Baseline Condition - today



Sediment Profile - 2011 Field Work

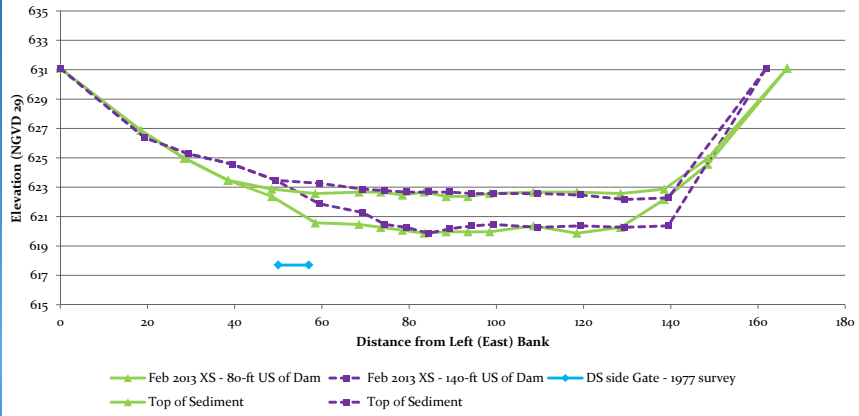


February 2013 Field Work



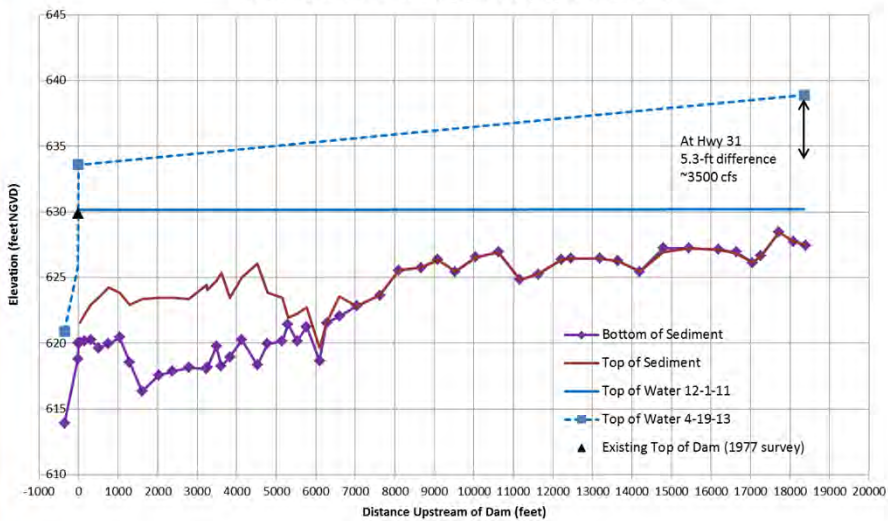
February 2013 Field Work

Horlick Dam Impoundment - Top of Sediment and Rod Refusal
(looking downstream)



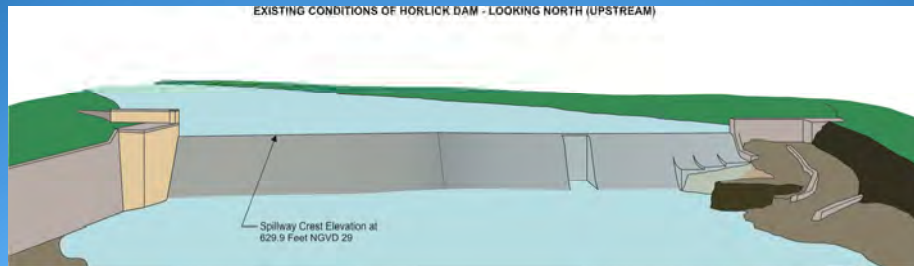
April 2013 Flood Backwater

Horlick Impoundment Profile 12/1/11 and 4/19/13 Water Profile



Alternatives

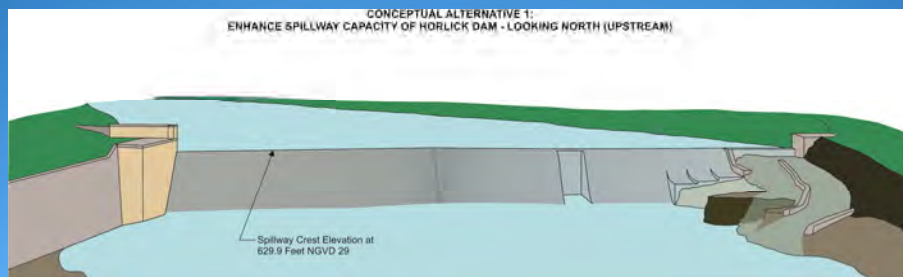
Baseline Condition - today



Conceptual Alternatives

Modify Dam to Enhance Spillway Capacity

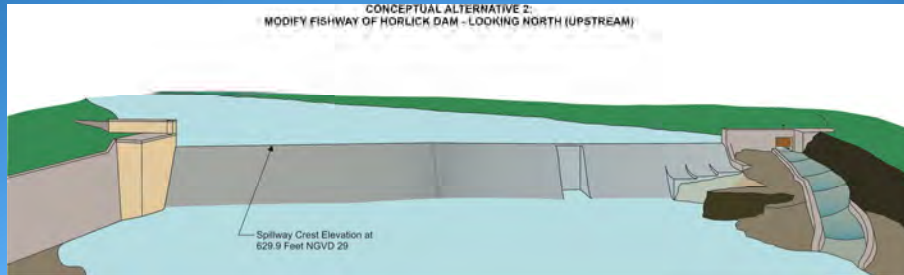
1 - Utilize Current Fishway Area



Conceptual Alternatives

Modify Dam to Enable Fish Passage

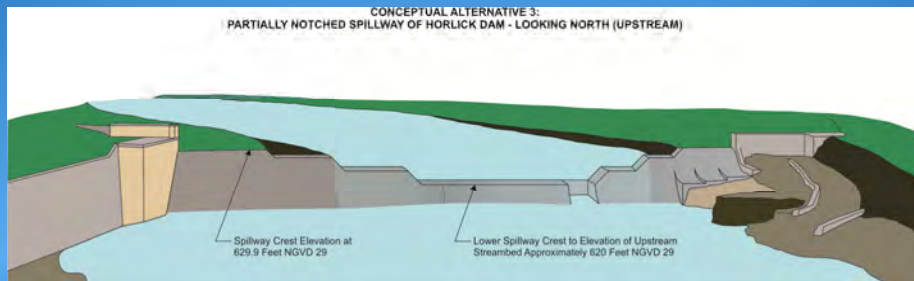
2 - Modify Current Fishway



Conceptual Alternatives

Modify Dam to Enhance Spillway Capacity and Fish Passage

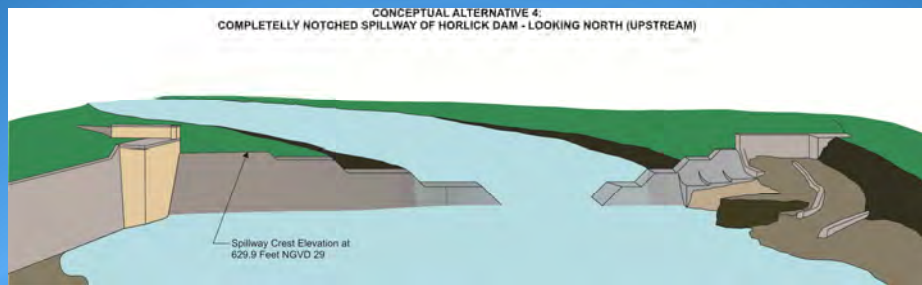
3 – Partial Notch of Current Dam Spillway



Conceptual Alternatives

Remove Dam

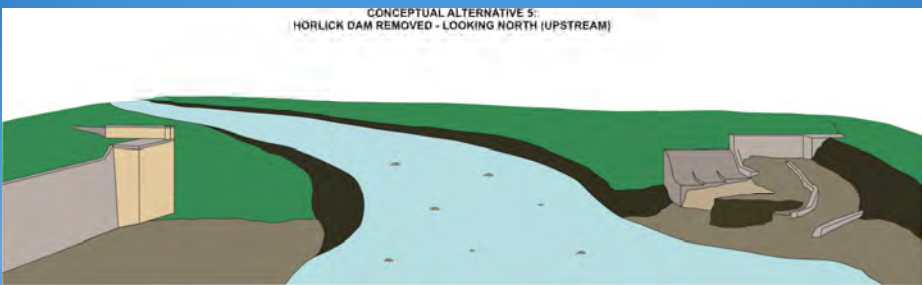
4 – Complete Notch of Current Dam Spillway



Conceptual Alternatives

Remove Dam

5 – Full Removal



Public-Owned Open Space

- Horlick Dam Alternatives as part of a larger corridor plan



Exhibit H

SUMMARY OF THE JUNE 13, 2013, WISCONSIN DEPARTMENT OF NATURAL RESOURCES/SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION STAFF MEETING TO DISCUSS ISSUES RELATED TO FISH PASSAGE IN STREAMS AND RIVERS TRIBUTARY TO LAKE MICHIGAN

INTRODUCTION

The meeting was held at the request of the Southeastern Wisconsin Regional Planning Commission (SEWRPC) staff with the intent of gaining a better understanding of Wisconsin Department of Natural Resources (WDNR) criteria for assessing a dam's significance as a barrier to passage of fish and invasive species and to discuss associated issues specifically related to the Horlick dam on the Root River in the City of Racine. The Horlick dam, which is owned by Racine County, is of particular interest because SEWRPC is preparing a restoration plan for the Root River watershed that will address the status of the Horlick dam as it relates to retaining and upgrading or removing the existing dam. The meeting agenda is attached as Exhibit A. Those in attendance at the meeting are listed in Exhibit B.

BRIEF OVERVIEW OF ONGOING ROOT RIVER WATERSHED RESTORATION PLANNING PROCESS

Michael Luba, WDNR Natural Resources Basin Supervisor, opened the discussion by noting that SEWRPC is preparing the Root River watershed restoration plan (WRP), and that plan will address alternatives for the Horlick dam, which is owned by Racine County. Michael Hahn, SEWRPC Chief Environmental Engineer, said that the Root River WRP is a second level plan that builds on the 2007 SEWRPC regional water quality management plan update for the greater Milwaukee watersheds, and focuses on more-specific issues, including the Horlick dam. He added that the focus areas of the WRP are:

- Water quality,
- Habitat,
- Recreational use, and
- Flooding (in Racine County only).

Mr. Hahn said that the SEWRPC staff had developed several conceptual alternatives related to the dam, and that these would be presented to the study Advisory Group in early August 2013 and to the Root River Restoration Planning stakeholder group and other interested parties in late August. He added that the examination of alternatives related to the dam is being conducted at the request of Racine County.

ISSUES RELATED TO HORLICK DAM

Laura Kletti, SEWRPC Principal Engineer, began the discussion of Horlick dam, noting that a dam break analysis submitted by Racine County was under review by WDNR and that it was likely, but not yet certain, that the dam would be placed in the "significant hazard" category. She said that a significant hazard dam would be required to safely pass the 500-year recurrence interval flood, but that her preliminary calculations indicated that the current spillway capacity was equal to about the peak 10-year flood flow. PowerPoint slides reviewed by Ms. Kletti during this meeting are attached as Exhibit C.

Tanya Lourigan, WDNR Water Management Engineer, added that a significant hazard rating meant that failure of the dam could result in damage to structures downstream of the dam, but the maximum rise in the downstream flood stage resulting from failure would be less than two feet. She also said that generally, in a case where a dam

is identified as having inadequate spillway capacity, the owner must increase that capacity within ten years, but that time frame could be shorter if WDNR determines that the condition of the dam justifies a quicker upgrade.

Mr. Hahn said that one challenge faced by the SEWRPC staff was providing Racine County with a sense of the extent of possible modifications to the dam while the WDNR review of the dam failure analysis, and determination of the adequacy of the spillway, has not yet been completed.

Ms. Kletti indicated that, during a 500-year event under current conditions, it would be expected that the tailwater elevation at the dam would be about at the elevation of the spillway crest. Brad Eggold, WDNR Natural Resources Region Team Supervisor, asked if photographs of the 2008 flood were available. Ms. Kletti said it is difficult to discern the tailwater elevation from the photos of that flood, and therefore, hard to determine whether the dam presented a barrier to fish passage under those conditions. Mr. Hahn said that preliminary analyses indicate that during very large floods the dam may not be a barrier, and that during the meeting the SEWRPC staff hoped to get clarification from WDNR on what criteria would be applied in determining whether or not a dam presents a barrier to fish passage.

Ms. Kletti said that field investigation by the SEWRPC staff indicated the existence of an apparent hard “shelf” at about elevation 620 feet above National Geodetic Vertical Datum, 1929 adjustment (NGVD 29) that extends from the upstream side of the dam to a location about 1,000 feet upstream. She noted that about four to five feet of sediment have collected in the impoundment above the top of the shelf. In response to a question from Mr. Hahn, Ms. Kletti indicated that, if the dam were removed, the shelf itself could represent somewhat of a barrier to fish passage. Craig Helker, WDNR Water Resources Management Specialist, said that test data for the sediment in the impoundment indicate slightly elevated levels of polycyclic aromatic hydrocarbons (PAHs). Ms. Kletti mentioned that the sediment sampling depths may not be deep enough to fully characterize the sediment quality, and that this needed more examination.

[Secretary’s Note: The spillway crest is at about elevation 630.0 feet above NGVD 29, or roughly 10 feet above the top of the apparent shelf.]

[Secretary’s Note: In a July 30, 2013, electronic mail message to Mr. Hahn, Mr. Helker indicated that he did not see risk to aquatic organisms since the slightly elevated PAH levels are still quite low.]

Ms. Kletti then proceeded with review of the conceptual alternatives set forth in Exhibit C. She said that the dam would have adequate hydraulic capacity to pass the 500-year flood if the entire spillway crest were lowered by about four feet, and that with such a configuration a preliminary estimate indicates that, for floods greater than a 10-year event, the tailwater elevation would be above the elevation of the lowered spillway crest.

[Secretary’s Note: The implication of that observation is that, with that degree of spillway crest lowering, fish passage might be possible during floods greater than a 10-year event.]

Ms. Lourigan noted that, if the spillway crest were lowered as called for under this alternative, the dam hazard rating might be reduced to low hazard because, if the dam were to fail, the smaller hydraulic head would result in a lower flood wave that would propagate downstream.

[Secretary’s Note: Under such a situation, it might be necessary for the designer of possible spillway modifications to perform several iterations to determine the spillway crest elevation that would both adequately pass the 100-year flood and result in a low hazard rating if the dam were to fail.]

Ms. Kletti described a second conceptual alternative under which the dam would be modified to enable fish passage by lengthening the existing, non-functioning fishway.

[Secretary's Note: This alternative was presented to highlight a possible means of enabling fish passage without removal of all, or a portion, of the dam. It does not directly address other modifications that might be needed to provide the necessary spillway capacity.]

Thomas Slawski, SEWRPC Principal Planner, noted that the need to extend a fishway further into the River arose because the land area on the east bank (left, looking downstream) upstream of the dam is a capped landfill that cannot be disturbed. In reply to a question from Ms. Lourigan, Dr. Slawski said that this alternative shows a passive fishway design.

The next conceptual alternative reviewed by Ms. Kletti calls for a complete notch of the spillway down to the current riverbed with the right (west) abutment left in place to possibly provide support for the riverbank and the adjacent hotel.

Finally, Ms. Kletti, described a conceptual alternative calling for complete removal of the dam, except for relatively small portions of the left and right abutments. With regard to the apparent shelf or ledge in the streambed, Dr. Slawski said that the dam had failed and been rebuilt just downstream several times and the observed ledge may be part of an older dam.

FISH PASSAGE ISSUES

Mr. Hahn then initiated the discussion of fish passage issues, asking the WDNR staff if there was a draft set of guidelines/criteria for evaluating the significance of a dam as a barrier to fish passage and also considering aquatic invasive species (AIS) and viral hemorrhagic septicemia (VHS). Robert Wakeman, WDNR Statewide Aquatic Invasive Species Coordinator, said that development of a WDNR policy on fish passage issues was underway. He noted that what began as a summary of WDNR's legal authority in that area had evolved to the point at which WDNR is now preparing a formal guidance document. There followed a wide-ranging discussion among those in attendance regarding the following issues:

- Identification of "pinch points" which are considered to be complete barriers to passage of aquatic organisms from downstream to upstream;
- Identification of AIS of concern;
- Preliminary identification by WDNR of pertinent criteria under which fish passage possibilities could be evaluated;
- The significance of VHS;
- Examples of how fish passage issues have been addressed by WDNR at other dams;
- The relationship between a dam that poses a threat to public health and safety and the WDNR's ability to maintain barriers to passage of fish, AIS, and VHS;
- The schedule for WDNR review of the Horlick dam failure analysis;
- Whether the WDNR Root River Steelhead Facility is a barrier to passive fish passage;
- The significance of sea lamprey for the Root River; and
- The future significance of the Lake Michigan sport fishery.

The discussion of each of those subtopics is summarized below. During the discussion, WDNR staff made it clear that any comments related to the proposed fish passage guidance and possible guidance content is currently preliminary and definitely subject to change since any guidance must go through a public review process prior to be finalized. Mr. Wakeman said that the public review process was tentatively scheduled to start around October 1, 2013. Mr. Hahn said that he would like to append the summary notes from the meeting to the Root River watershed restoration plan report, and he asked the WDNR whether that would be acceptable to them. Mr. Wakeman indicated that it would, saying that there was no information being discussed that would be considered “earth shaking.”

Identification of “Pinch Points”

Mr. Wakeman characterized “pinch points” as complete barriers to passage of aquatic organisms from downstream to upstream. He noted that the U.S. Army Corps of Engineers Great Lakes and Mississippi River Interbasin Study establishes whether a hydraulic structure functions as a barrier to fish passage by evaluating the structure during a 100-year recurrence interval (one-percent-annual-probability) flood. He said that he had the impression that Horlick dam is not a complete barrier to fish passage.

Identification of AIS of Concern

Mr. Wakeman said that the U.S. Army Corps of Engineers, Chicago District, AIS interbasin transfer evaluation identified eight possible connections between the Lake Michigan and Mississippi River Basins, including one low-potential site along Jerome Creek in the Village of Pleasant Prairie. He noted that, while interbasin transfer is not an issue related to the Horlick dam, the Corps report would be a useful reference regarding AIS of potential concern.

[Secretary’s Note: Mr. Wakeman distributed copies of the following paper at the meeting:

- Francis M Veraldi, Kelly Baerwaldt, Brook Herman, Shawna Herleth-King, Matthew Sanks, Len Kring, and Andrew Hannes (2011): Non-Native Species of Concern and Dispersal Risk for the Great Lakes and Mississippi River Interbasin Study, U.S. Army Corps of Engineers.]

Preliminary Identification by WDNR of Pertinent Criteria under Which Fish Passage Possibilities Could be Evaluated for a Dam that is Not Considered to be a Barrier

Mr. Wakeman cited the following evaluation sequence that would likely be applied to each AIS:

- Make a determination if each individual AIS of concern can:
 - Reach Horlick dam,
 - Become established,
 - Pass over the dam,
 - Become established upstream of the dam, and
 - Assign a high, medium, or low risk to the specific AIS for each of the four preceding criteria.

Mr. Wakeman said that, following this evaluation sequence, WDNR would make its decision by applying a public interest test, considering ecological, economic, aesthetic, and recreational values.

Mr. Wakeman indicated that the outcome of passing native species from the downstream side of a dam to the upstream side would also be evaluated, and he noted that it could be possible that the upstream habitat and water quality would be favorable for native species, but not for AIS. He also said that WDNR supports connecting fish populations.

Mr. Eggold offered the opinion that Chinook salmon might be able to “power through” the approximately two-foot difference between the tailwater at the Horlick dam during a 100-year flood and the spillway crest.

The Significance of VHS

Mr. Wakeman stated that VHS is a major issue in Wisconsin, and that if it was found downstream, but not upstream, of a dam, no passive fish passage would be allowed. Dr. Slawski asked if the fact that the Horlick dam was designed for fish passage (as evidenced by the remains of the former fishway) would affect WDNR’s decision on allowing fish passage from downstream to upstream of the dam. Ms. Lourigan replied that there was no evidence that the fishway was functional for fish passage in the past, and Mr. Wakeman added that the WDNR interest is in keeping VHS from spreading upstream from Lake Michigan.

There was also discussion of active fish passage as it relates to VHS. Mr. Wakeman said that active fish passage can only be allowed if a fish health certificate is obtained from the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP). He noted that WDNR is reevaluating whether this procedure is necessary and will discuss that with DATCP. Lloyd Eagan, WDNR Natural Resources Manager, said that an examination by a veterinarian is required for a fish health certificate to be obtained for stocked fish. Susan Beyler, WDNR Natural Resources Region Team Supervisor, described the procedure as it relates to stocked fish. She said that stocked fish must be isolated, and a veterinarian would take from 50 to 100 individual samples and test for VHS cell lines. She said that procedure takes 30 days, during which time the fish must remain isolated. She noted that WDNR staff has not found VHS except in Lake Michigan and Lake Winnebago.

Examples of How Fish Passage Issues Have Been Addressed by WDNR at Other Dams

In response to a question from Mr. Hahn regarding where active fish passage was being considered, Mr. Wakeman mentioned a trap and sort operation is being considered at Prairie du Sac dam on the Wisconsin River and Mr. Eggold mentioned that active passage of sturgeon is being considered on the Menominee River.

The Relationship between a Dam that Poses a Threat to Public Health and Safety and the WDNR’s Ability to Maintain Barriers to Passage of Fish, AIS, and VHS

Mr. Wakeman said that, when WDNR is considering proposed actions related to dams, public safety is the primary concern. Ms. Eagan asked whether WDNR can stop abandonment in the situation of a dam that is considered to be a pinch point and where there is no identified threat to public safety, but the dam owner no longer wishes to own, operate, and maintain the dam, so the owner makes a request to WDNR for abandonment. Ms. Lourigan replied that, based on case law, WDNR could not stop such an abandonment. Mr. Wakeman agreed, but he said that WDNR could seek a new owner. Dr. Boxhorn said it appeared that it is easier to abandon a dam than to establish fish passage, and Mr. Wakeman agreed. Ms. Lourigan confirmed that public health and safety considerations related to dams would trump fishery issues. She also noted that, if Horlick dam were to be left in place, modifications should be made to the stop log gate to enable drawdown of the impoundment.

Schedule for WDNR Review of the Horlick Dam Failure Analysis

Ms. Lourigan said that WDNR review of the dam failure analysis submitted by Racine County and a WDNR decision on the dam hazard rating could take six more months, and she said she would contact Konstantin Margovsky, WDNR Water Regulation and Zoning Engineer, to verify the status of the review. Ms. Kletti inquired whether it would be appropriate for the SEWRPC staff to discuss preliminary indications regarding the dam hazard rating at the August meetings for the Root River WRP. Ms. Lourigan said she would check on that, and she noted that since preliminary indications are that the existing spillway capacity is about equal to a 10-year flood flow, doing nothing regarding the dam is not an option.

[Secretary’s Note: During a July 11, 2013, telephone conversation with Mr. Hahn, Ms. Lourigan said that Graef (Racine County’s engineering consultant who prepared the dam failure analysis) was working on revisions to the analysis.]

Whether the WDNR Root River Steelhead Facility is a Barrier to Passive Fish Passage

Ms. Beyler said that when the flashboards are fully removed and the facility is not operating, it does not restrict passage of aquatic organisms. Mr. Eggold said that the boards are in at the steelhead facility weir from March 1 through mid- to late-April and from early September through the beginning of November, and that, even with the boards in, the facility is not a barrier to fish passage.

The Significance of Sea Lamprey for the Root River

Dr. Slawski asked whether sea lamprey were considered to be an issue for the Root River. Mr. Eggold said that he did not believe there had been any detected in the Root River, but he would have to check to be sure.

[Secretary's Note: Mr. Eggold provided survey results from young-of-year sampling for sea lamprey in the Root River going back to 1959, 1976, 1977, and 2000. No sea lamprey were detected in those years. He also noted that WDNR has not done any trapping for adults in this system.]

Mr. Helker noted that round goby, smallmouth bass, and redhorse were all found below Horlick dam, but not above the dam. He also said that sea lamprey were not considered an issue related to recent dam removals on the Pike River.

[Secretary's Note: During a July 30, 2013, telephone conversation with Mr. Hahn, Mr. Helker elaborated on the preceding statement, saying that the U.S. Fish and Wildlife Service had indicated that sea lamprey were not considered an issue related to recent dam removals on the Pike River.]

Ms. Lourigan, Mr. Eggold, and Dr. Slawski indicated that sea lamprey are not good jumpers and a 1.5- to two-foot-high barrier height has been set for recent dam modifications to inhibit lamprey passage.

The Future Significance of the Lake Michigan Sport Fishery

Dr. Slawski said that the objectives of preventing invasive species from migrating upstream and promoting native species are incompatible. He cited Eurasian water milfoil, zebra mussels, and quagga mussels as species whose spread has not been successfully prevented. He stated that dams represent a barrier that could slow down, but not prevent passage of AIS. He cited the example of Chinook salmon in Lake Huron, noting that the Chinook salmon fishery in that lake has essentially collapsed, and he posed the question: If what has happened in Lake Huron were to happen in Lake Michigan, how would that affect the WDNR decision support system/guidance regarding fish passage and for what game species would WDNR plan to manage? He concluded by saying that all evidence shows that native species within Lake Michigan would benefit from increased connections to tributary streams which has been demonstrated by removal of the North Avenue dam on the Milwaukee River.

[Secretary's Note: Dr. Slawski distributed copies of the following papers at the meeting:

- Luis A. Velez-Espino, Robert L. McLaughlin, Michael J. Jones, and Thomas C. Pratt (2011): Demographic Analysis of Trade-offs With Deliberate Fragmentation of Streams: Control of Invasive Species Versus Protection of Native Species, *Biological Conservation*, 144, 1068-1080.
- John M. Dettmers, Christopher I. Goddard, and Kelley D. Smith (2012): Management of Alewife Using Pacific Salmon in the Great Lakes: Whether to Manage for Economics or Ecosystem?, *Fisheries*, 37:11, 495-501.
- S. Dale Hanson, Mark E. Holey, Ted J. Treskas, Charles R. Bronte, and Ted H. Eggebraaten (2013): Evidence of Wild Juvenile Trout

Recruitment in Western Lake Michigan, North American Journal of Fisheries Management, 33:1, 186-191.]

Mr. Wakeman replied saying that:

- The proposed WDNR guide was intended to assist managers in reaching justifiable decisions regarding whether or not to approve action on a barrier to passage;
- Such decisions would be made on a case-by-case basis;
- There are situations where dams prevent AIS transfer;
- While the WDNR staff wants to connect systems, they have to be very cognizant of the presence of VHS and AIS; and
- The proposed guidance will provide questions that will enable managers to assess specific cases.

Mr. Helker said it is important that a neutral point be selected that balances native species passage with prevention of AIS passage.

Dr. Slawski said that any design related to Horlick dam should incorporate features to enhance the northern pike and walleye communities and improve connectivity along the River. He posed the question: Do Chinook salmon have a future in Lake Michigan? Mr. Eggold replied that the loss of such non-native sport species would likely cause fishers to rally around northern pike and walleye. He indicated that the WDNR thinking had shifted regarding salmon stocking, and in 2013 WDNR was stocking 50 percent less salmon than in the past. He noted that WDNR is finding that whitefish, alewives, and Chinook salmon are generally smaller and lighter than in the past. He said that WDNR will try to maintain salmon in Lake Michigan, but that effort is at a critical juncture because of low alewife populations.

Dr. Boxhorn stated that production in the Lake may be tied up in quagga mussel and cladophora biomass. He added that if this continues, the river system tributary to the Lake may be a source for export of native fish to the Lake.

ADJOURNMENT

Mr. Luba said that the SEWRPC staff should feel free to contact WDNR staff if questions arise on these issues. In conclusion, Mr. Hahn said that the SEWRPC staff would prepare a meeting summary and distribute a draft to the participants for their review and comment.

Respectfully submitted,

Michael G. Hahn
SEWRPC Chief Environmental Engineer

SUMMARY OF 6/13/2013 WDNR/SEWRPC FISH PASSAGE MEETING (00212268).DOC
300-1106
TMS/LLK/JEB/MGH/pk
06/28/13, 07/02/13, 07/11/13, 07/12/13, 07/30/13

Exhibit A

Wisconsin Department of Natural Resources and Southeastern Wisconsin Regional Planning Commission Meeting to Discuss Issues Related to Fish Passage in Streams and Rivers Tributary to Lake Michigan

Agenda

DATE: June 13, 2013

TIME: 2:00 p.m.

PLACE: Wisconsin Department of Natural Resources Southeast Region Office

AGENDA:

1. Introductions
2. Brief overview of ongoing Root River watershed restoration planning process (SEWRPC staff)
3. Issues related to Horlick dam
 - a. Ongoing evaluation of hazard classification and spillway adequacy (SEWRPC staff)
 - b. Information related to whether dam is a barrier to fish passage (SEWRPC staff)
 - c. Conceptual alternatives being considered relative to Horlick dam (SEWRPC staff)
4. Fish passage issues (All)
 - a. WDNR criteria for evaluating a dam's significance as a barrier to fish passage, invasive species, VHS (WDNR staff)
 - b. Is the WDNR Root River steelhead facility a barrier? (All)
 - c. Is Horlick dam a barrier? (All)
 - d. What are the aquatic species of interest?
 - e. Future significance of Lake Michigan sport fishery (All)

Exhibit B

**Wisconsin Department of Natural Resources and
Southeastern Wisconsin Regional Planning Commission
Meeting to Discuss Issues Related to Fish Passage in
Streams and Rivers Tributary to Lake Michigan**

June 13, 2013

Name	Affiliation	E-Mail Address	Phone
In Attendance			
Sue Beyler	WDNR	susan.beyler@wisconsin.gov	(262) 594-6218
Jim D'Antuono	WDNR	james.dantuono@wisconsin.gov	(262) 574-2122
Lloyd Eagan	WDNR	lloyd.eagan@wisconsin.gov	(608) 275-3243
Brad Eggold	WDNR	bradley.eggold@wisconsin.gov	(414) 382-7921
Craig Helker	WDNR	craig.helker@wisconsin.gov	(262) 884-2357
Tanya Lourigan	WDNR	tanya.lourigan@wisconsin.gov	(414) 263-8641
Michael Luba	WDNR	michael.luba@wisconsin.gov	(262) 263-8514
Bob Wakeman	WDNR	robert.wakeman@wisconsin.gov	(262) 574-2149
Joseph Boxhorn	SEWRPC	jboxhorn@sewrpc.org	(262) 547-6722, ext. 244
Michael G. Hahn	SEWRPC	mhahn@sewrpc.org	(262) 547-6722, ext. 243
Laura L. Kletti	SEWRPC	lkletti@sewrpc.org	262) 547-6722, ext. 224
Aaron W. Owens	SEWRPC	aowens@sewrpc.org	262) 547-6722, ext. 293
Thomas M. Slawski	SEWRPC	tslawski@sewrpc.org	262) 547-6722, ext. 263

Exhibit C

Alternatives

Baseline Condition - today

Conceptual Alternatives

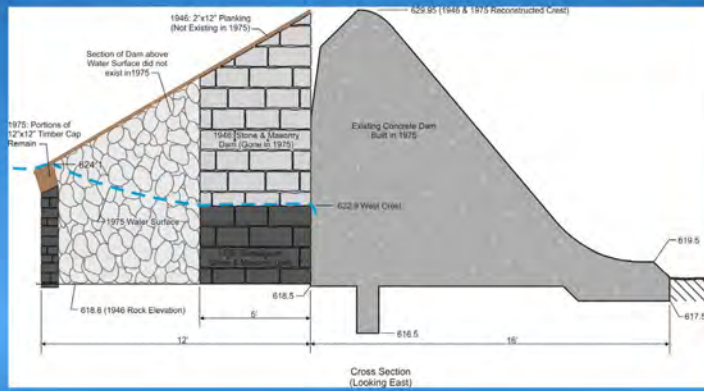
- Modify Dam to Enhance Spillway Capacity
- Modify Dam to Enable Fish Passage
- Remove Dam

Alternatives

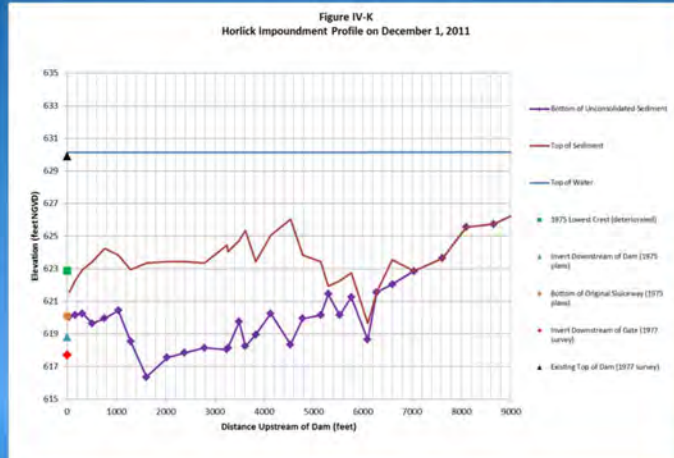
Baseline Condition - today

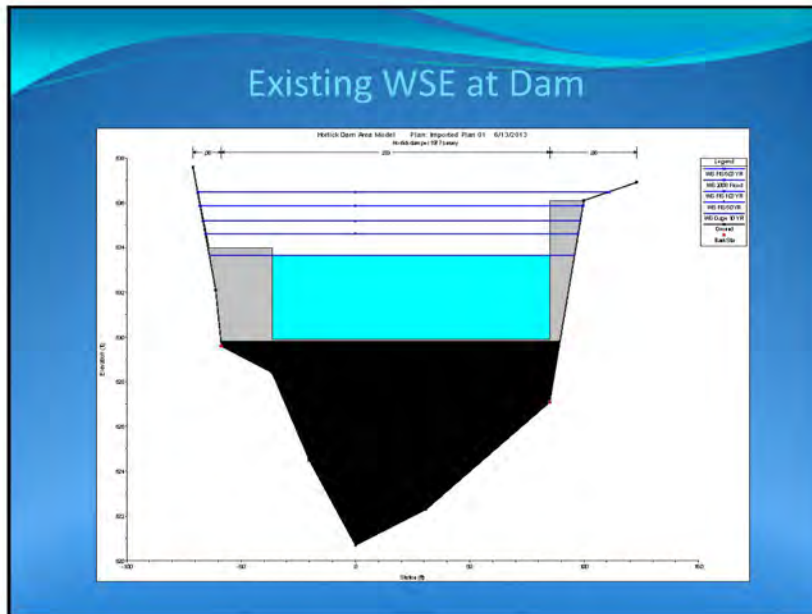
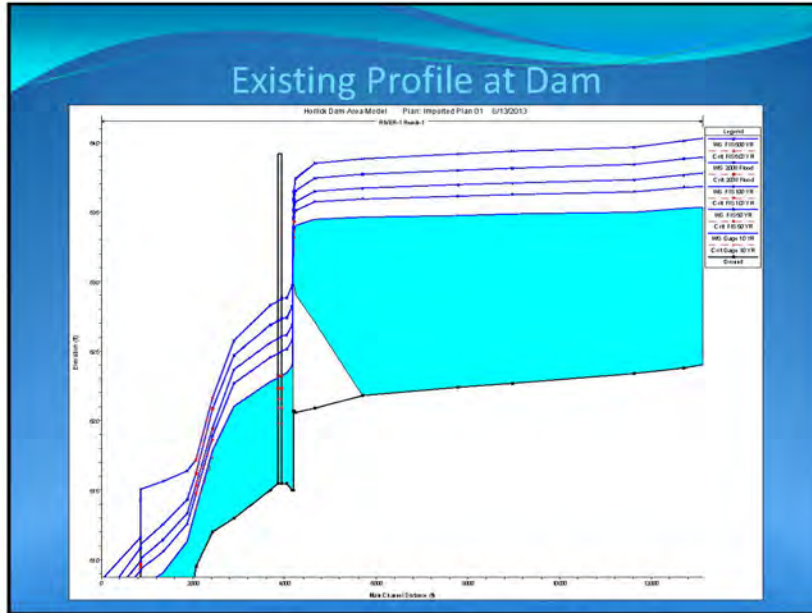


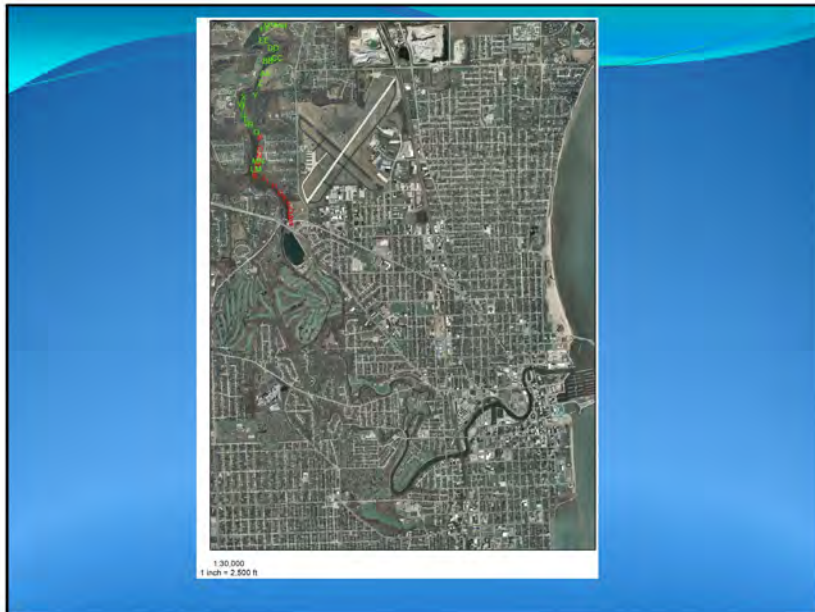
1975 Reconstruction

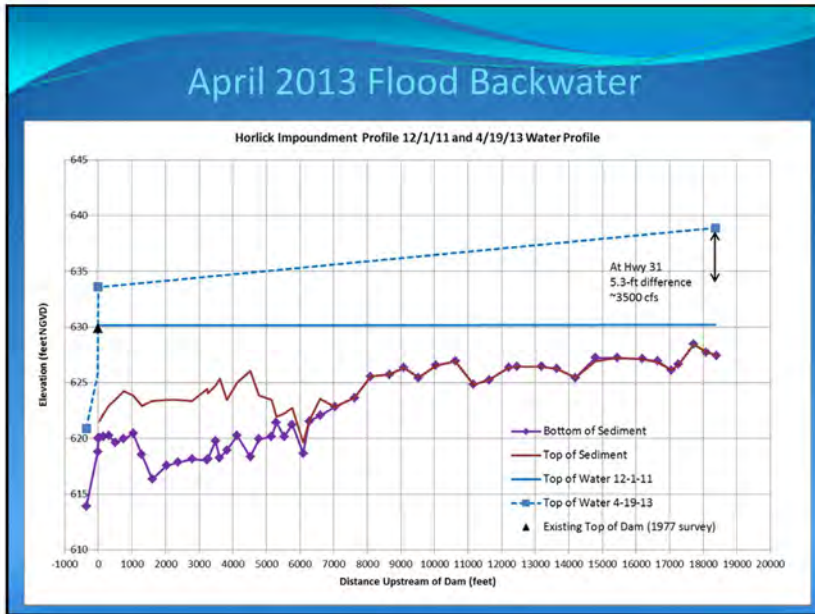
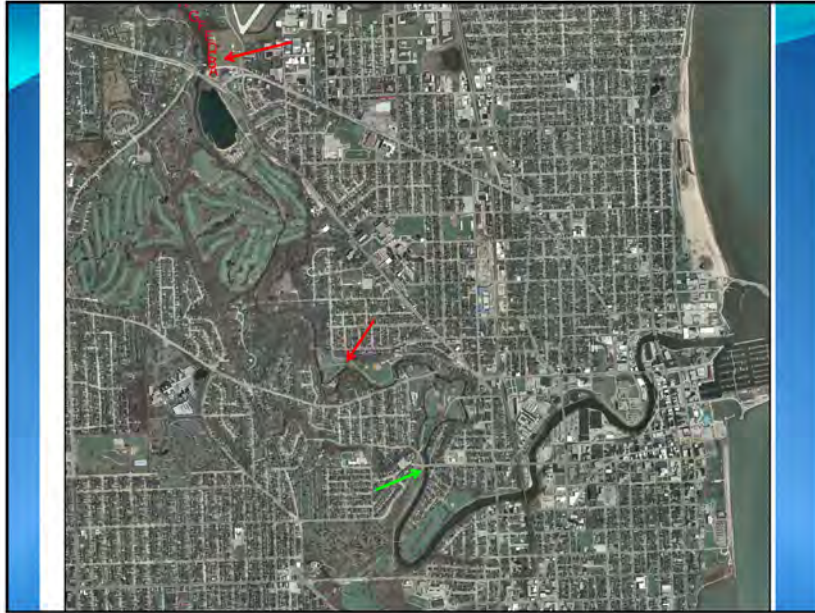


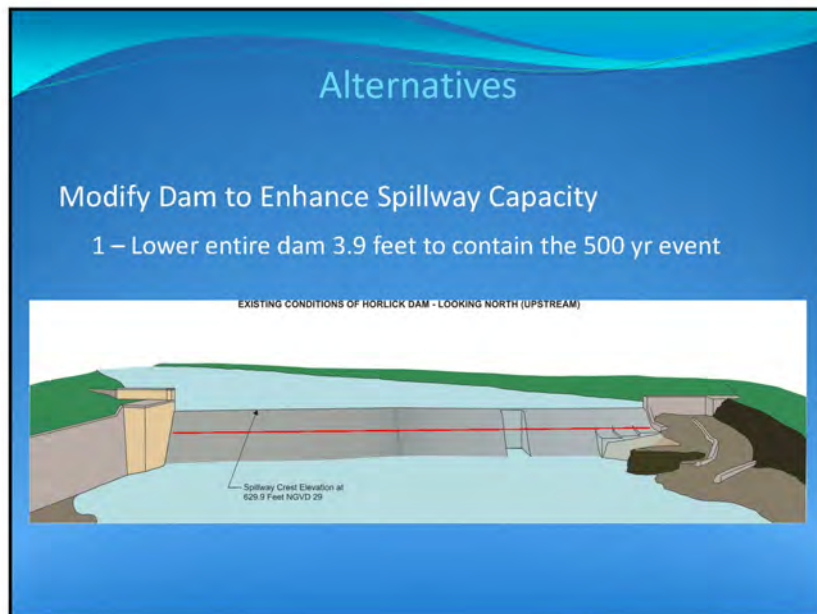
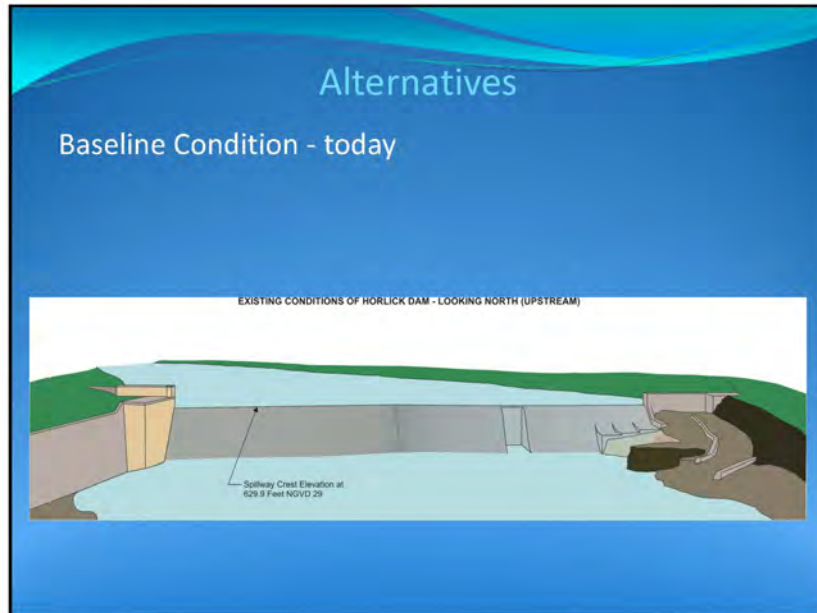
Sediment Profile - 2011 Field Work









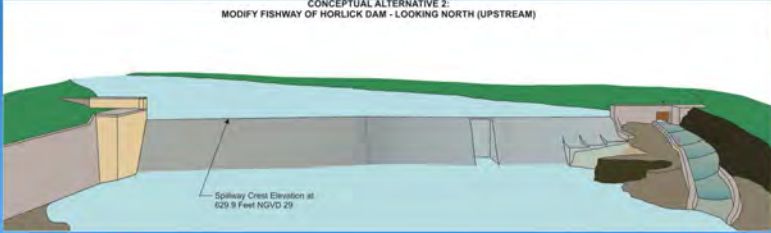


Conceptual Alternatives

Modify Dam to Enable Fish Passage

2 - Modify Current Fishway – lengthen into river

CONCEPTUAL ALTERNATIVE 2:
MODIFY FISHWAY OF HORLICK DAM - LOOKING NORTH (UPSTREAM)



Spillway Crest Elevation at 629.9 Feet NGVD 29

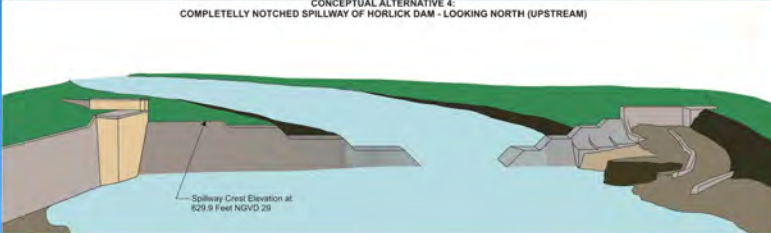
This diagram illustrates a cross-section of a dam and its spillway. The dam is shown on the left, with a spillway extending to the right. The spillway is depicted as a series of steps or a fishway. A line points to the crest of the spillway, which is labeled with the elevation '629.9 Feet NGVD 29'. The river is shown flowing from left to right, passing through the spillway. The background shows a green hillside on the left and a brown embankment on the right.

Conceptual Alternatives

Remove Dam

3 – Complete Notch of Current Dam Spillway

CONCEPTUAL ALTERNATIVE 4:
COMPLETELY NOTCHED SPILLWAY OF HORLICK DAM - LOOKING NORTH (UPSTREAM)



Spillway Crest Elevation at 629.9 Feet NGVD 29

This diagram illustrates a cross-section of a dam and its spillway. The dam is shown on the left, with a spillway extending to the right. The spillway is depicted as a series of steps or a fishway. A line points to the crest of the spillway, which is labeled with the elevation '629.9 Feet NGVD 29'. The river is shown flowing from left to right, passing through the spillway. The background shows a green hillside on the left and a brown embankment on the right.

Conceptual Alternatives

Remove Dam

4 – Full Removal

CONCEPTUAL ALTERNATIVE 5:
HORLICK DAM REMOVED - LOOKING NORTH (UPSTREAM)



Exhibit I

[This text should be inserted after the first paragraph on page 14 of the May 1, 2013 insert to Chapter IV]

Milwaukee County Parks Department Invasive Plant Surveys

Since 2009, Milwaukee County Parks Department staff has conducted surveys of invasive plant species in County parks and natural areas. These surveys mapped locations of populations of invasive plant species within lands managed by the Parks Department. The plants species mapped in these surveys include species considered prohibited and restricted under the classification established pursuant to Chapter NR 40, “Invasive Species Identification, Classification and Control,” of the *Wisconsin Administrative Code*, as well as species that are regarded as invasive but not currently classified as prohibited or restricted.

The Parks Department surveys located and mapped 729 infestations of invasive plant species in Milwaukee County parks and natural areas (Table IV-Inv-D). The surveys mapped 26 invasive plant species (Maps IV-Inv-C through IV-Inv-F). County Parks Department staff also reported that five additional species—common buckthorn and four species of exotic bush honeysuckle—were commonly found throughout the park system. Because they were so common, infestations of these five species were not mapped. They may represent the most common invasive plant species in the portion of the park system located in the Root River watershed.

Map IV-Inv-C shows locations of infestations of herbaceous invasive plant species within those Milwaukee County parks and natural areas located in the Root River watershed. The surveys found 174 infestations of 15 herbaceous invasive plant species.¹ These totals do not include infestations of garlic mustard or dame’s rocket, which are shown on separate maps (see below). While garlic mustard and dame’s rocket were the most common herbaceous invasive plant species found in the park system (Maps IV-Inv-D and IV-Inv-E), several other herbaceous species accounted for 10 or more infestations. These species include burdock, common reed grass, forget-me-not, narrow leaf cattail, reed canary grass, teasel, wild chervil, and yellow iris. Several areas within the park system have multiple sites containing infestations of herbaceous invasive plant species. The section of the Root River Parkway located between S. 108th Street and W. Morgan Avenue has numerous infestations consisting of common reed grass, narrow-leaf cattail, reed canary grass, teasel, and wild chervil. Kulwicky Park contains several infestations consisting of common reed grass, teasel, wild chervil, and wild parsnip. Scout Lake Park contains several infestations consisting of burdock, narrow-leaf cattail, and purple loosestrife. The sections of the Root River Parkway located immediately to the northwest and southeast of W. Loomis Road (STH 36)

¹*It should be noted that common teasel and cut-leaf teasel are shown on the map as teasel.*

have numerous infestations consisting of burdock, common reed grass, forget-me-not, Japanese knotweed, teasel, and yellow iris. Most of the infestations in the section of the parkway located immediately southeast of W. Loomis Road consist of yellow iris. Grobschmidt Park contains numerous infestations consisting of burdock, common reed grass, narrow-leaf cattail, and wild parsnip.

Map IV-Inv-D shows locations of infestations of garlic mustard within those Milwaukee County parks and natural areas located in the Root River watershed. The surveys found 377 infestations of this species. Garlic mustard was the most common invasive species that was mapped in the surveys, accounting for almost 52 percent of the mapped infestations. Several areas within the park system have multiple sites containing infestations of garlic mustard. These areas include Greenfield Park, the section of the Root River Parkway between S. 124th Street and W. Oklahoma Avenue, the section of the Root River Parkway between W. Layton Avenue and W. Grange Avenue, Scout Lake Park, Whitnall Park—especially along Whitnall Park Creek, Hales Corners Park, Grobschmidt Park—especially around Mud Lake, and the section of the Root River Parkway along the Milwaukee-Racine county line east of IH-94.

Map IV-Inv-E shows locations of infestations of dame's rocket within those Milwaukee County parks and natural areas located in the Root River watershed. Dame's rocket is a short-lived European perennial that was introduced into North America as an ornamental plant in the seventeenth century. It has since escaped cultivation and become naturalized. It lacks natural predators and diseases in North America and competes with native species for water, light, and nutrients, often forming dense monocultures. The surveys found 111 infestations of this species. Dame's rocket was the second most common invasive species that was mapped in the surveys, accounting for about 15 percent of the mapped infestations. Several areas within the park system have multiple sites containing infestations of dame's rocket. These areas include the section of the Root River Parkway between W. Forest Home Avenue (STH 24) and W. Grange Avenue, Whitnall Park—especially along Whitnall Park Creek, Hales Corners Park, Grobschmidt Park—especially around Mud Lake, and the section of the Root River Parkway immediately south of W. Drexel Avenue.

Map IV-Inv-F shows locations of infestations of woody invasive plant species within those Milwaukee County parks and natural areas located in the Root River watershed. The surveys found 67 infestations of nine woody invasive plant species. In addition to the infestations of woody invasive plant species shown on Map IV-Inv-F, Milwaukee County Parks staff reported that common buckthorn and four species of exotic bush honeysuckle—Amur honeysuckle, tatarian honeysuckle, Morrow's honeysuckle, and bella honeysuckle—were commonly found in Milwaukee County parks and natural areas in the Root River watershed. Japanese barberry was the most common wood invasive plant species mapped in the surveys. The surveys mapped 36 locations with infestations of this species. Several areas within the park system have multiple sites containing infestations of woody invasive plant species. The section of the Root River Parkway located between S. 124th Street and W. Cleveland Avenue

contains at least three infestations consisting of multiflora rose. The section of the Root River Parkway located near W. Beloit Road contains several infestations consisting of black alder and black locust. Whitnall Park contains several infestations of black alder along Whitnall Park Creek. Other woody invasive plant species found in Whitnall Park include Japanese barberry, multiflora rose, oriental bittersweet, and winged burning bush. Grobschmidt Park contains infestations of Japanese barberry and white poplar. Franklin Park contains several infestations of Japanese barberry and oriental bittersweet.

Table IV-Inv-D shows the number of infestations of invasive plant species in each of the assessment areas located wholly or partially in Milwaukee County by species. Most assessment areas contain numerous infestations. There are two exceptions to this generalization. No infestations were reported in the Root River Canal assessment area and only five infestations were reported in the Middle Root River-Legend Creek assessment area. The fact that numbers of infestations detected in the assessment areas are substantially lower than the numbers detected in other assessment areas in the County should be interpreted with caution. The differences among assessment areas may partially reflect differences in the amount of effort expended in surveying invasive species.

Table IV-Inv-D

**INFESTATIONS OF INVASIVE PLANT SPECIES IN MILWAUKEE COUNTY PARKS AND
NATURAL AREAS LOCATED IN THE ROOT RIVER WATERSHED BY ASSESSMENT AREA: 2009-2013**

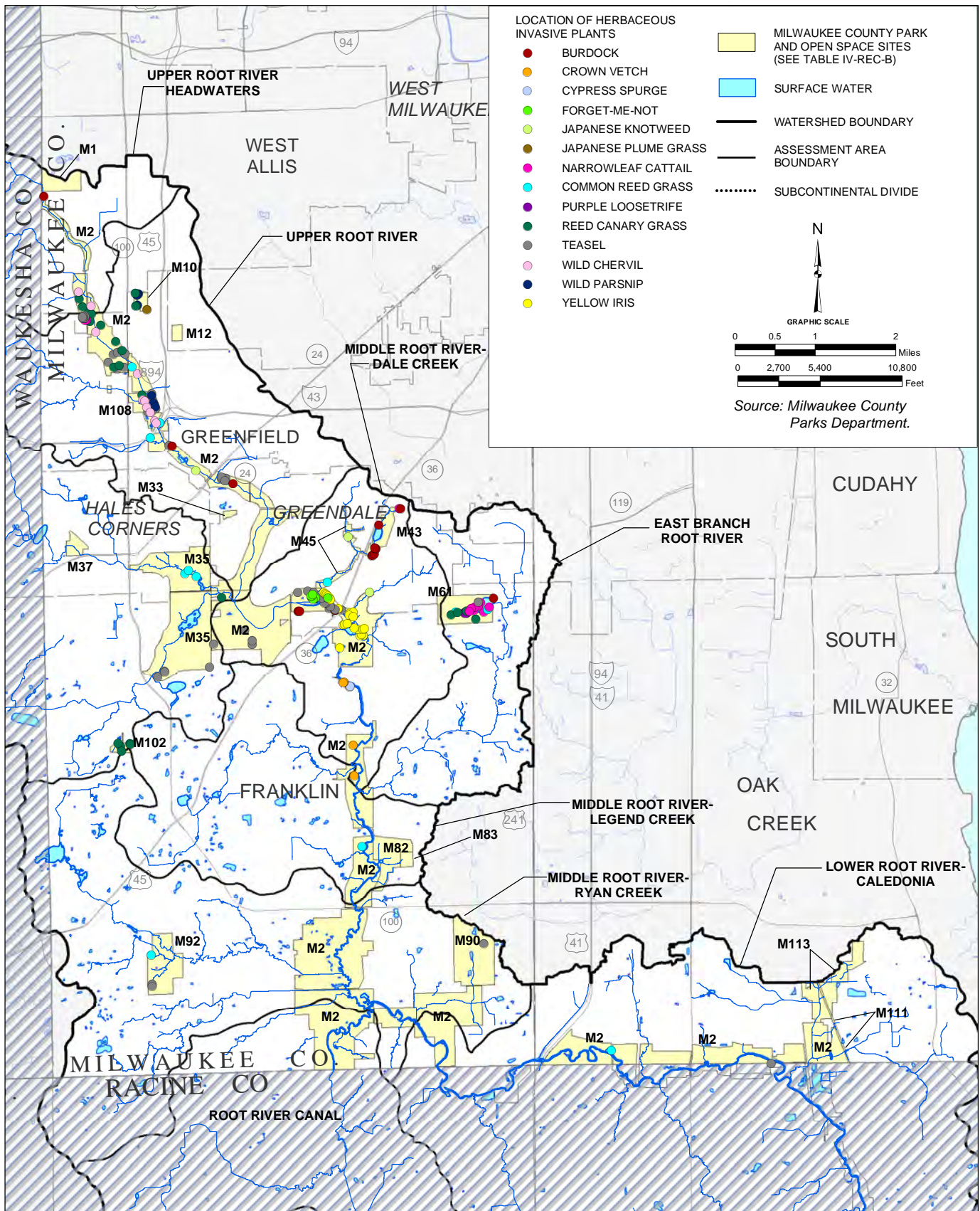
Species	Growth Habit	Upper Root River Headwaters	Upper Root River	Whitnall Park Creek	Middle Root River-Dale Creek	East Branch Root River	Middle Root River-Legend Creek	Middle Root River-Ryan Creek	Root River Canal	Lower Root River-Caledonia	Total
Black Alder (<i>Alnus glutinosa</i>)	Woody	2	4	5	0	0	0	0	0	0	11
Black Locust (<i>Robinia pseudoacacia</i>)	Woody	0	4	0	0	0	0	0	0	0	4
Burdock (<i>Arctium minus</i>)	Herbaceous	1	2	0	13	1	0	0	0	0	17
Common Reed Grass (<i>Phragmites australis</i>)	Herbaceous	0	3	3	1	3	1	1	0	1	13
Crown Vetch (<i>Coronilla varia</i>)	Herbaceous	0	0	0	5	0	0	0	0	0	5
Cypress Spurge (<i>Euphorbia cyparissias</i>)	Herbaceous	0	0	0	1	0	0	0	0	0	1
Dames Rocket (<i>Hesperis matronalis</i>)	Herbaceous	1	52	34	16	0	3	1	0	4	111
Forget-Me-Not (<i>Myosotis sylvatica</i>)	Herbaceous	0	0	0	10	0	0	0	0	0	10
Garlic Mustard (<i>Allaria petiolata</i>)	Herbaceous	84	52	67	102	20	1	2	0	49	377
Glossy Buckthorn (<i>Frangula alnus</i>)	Woody	1	0	0	0	0	0	0	0	0	1
Japanese Barberry (<i>Berberis thunbergii</i>)	Woody	0	0	0	1	2	0	31	0	2	36
Japanese Knotweed (<i>Polygonum cuspidatum</i>)	Herbaceous	0	1	0	2	0	0	0	0	0	3
Japanese Plume Grass (<i>Miscanthus sacchariflorus</i>)	Herbaceous	0	1	0	0	0	0	0	0	0	1
Multiflora Rose (<i>Rosa multiflora</i>)	Woody	3	1	1	0	0	0	0	0	2	7
Narrowleaf Cattail (<i>Typha angustifolia</i>)	Herbaceous	0	2	0	2	8	0	0	0	0	12
Oriental Bittersweet (<i>Celastrus orbiculatus</i>)	Woody	0	0	1	0	0	0	2	0	0	3
Purple Loosestrife (<i>Lythrum salicaria</i>)	Herbaceous	0	0	0	0	3	0	0	0	0	3
Reed Canary Grass (<i>Phalaris arundinacea</i>)	Herbaceous	3	10	6	0	4	0	0	0	0	23
Teasel ^a (<i>Dipacus sylvestris</i> and <i>D. laciniatus</i>)	Herbaceous	0	24	5	13	1	0	3	0	1	47
Tree of Heaven (<i>Ailanthus altissima</i>)	Woody	0	1	0	0	0	0	0	0	0	1
White Poplar (<i>Populus alba</i>)	Woody	0	0	0	0	1	0	0	0	0	1
Wild Chervil (<i>Anthriscus sylvestris</i>)	Herbaceous	2	8	0	0	0	0	0	0	0	10
Wild Parsnip (<i>Pastinaca sativa</i>)	Herbaceous	0	7	0	0	0	0	0	0	0	7
Winged Burning Bush (<i>Euonymus alatus</i>)	Woody	0	0	1	2	0	0	0	0	0	3
Yellow Iris (<i>Iris pseudacorus</i>)	Herbaceous	0	0	0	22	0	0	0	0	0	22
Total	--	97	172	123	190	43	5	40	0	59	729

^aTeasel includes both common teasel and cut-leaf teasel.

Source: Milwaukee County Parks Department and SEWRPC.

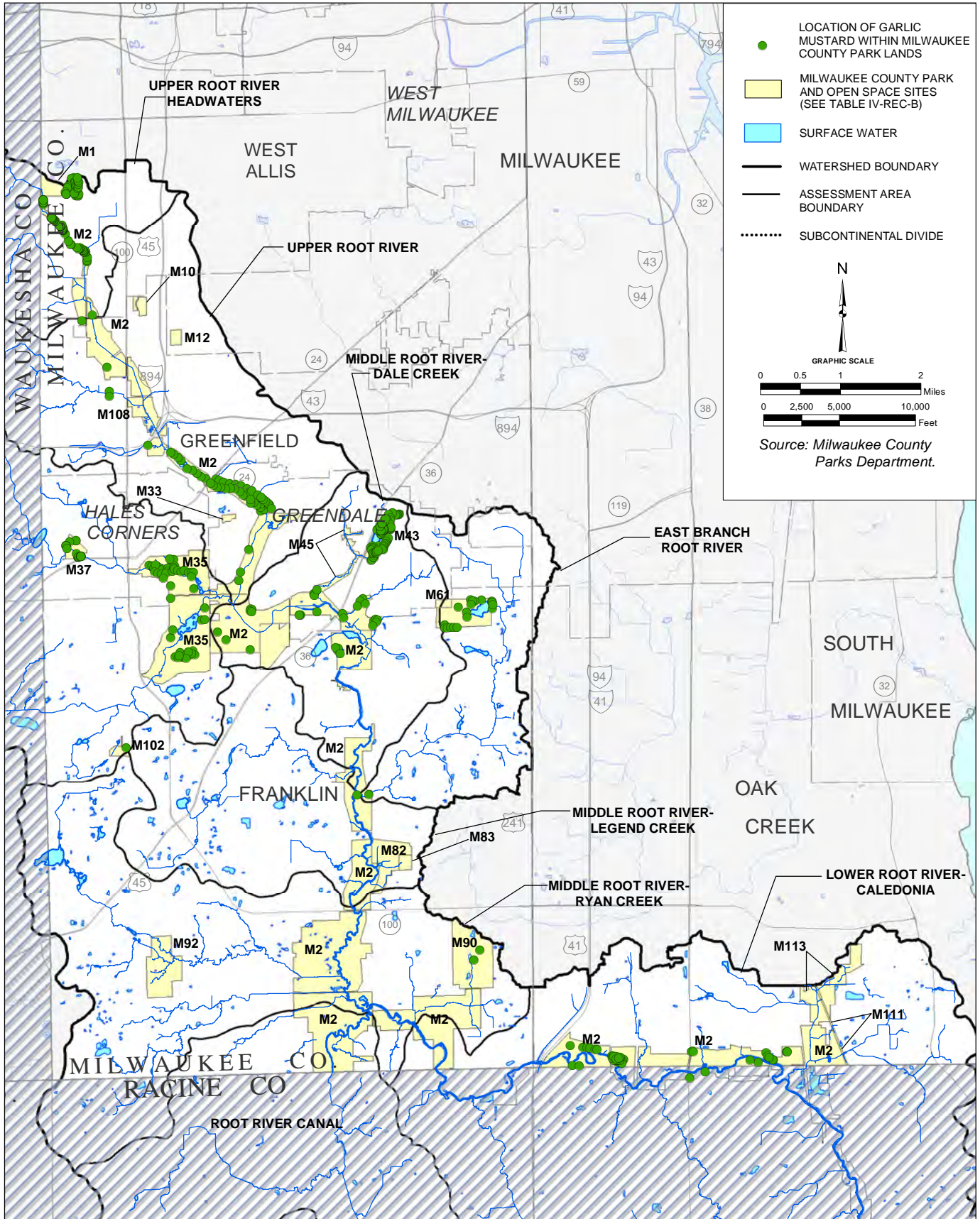
Map IV-INV-C

INFESTATIONS OF HERBACEOUS INVASIVE PLANT SPECIES WITHIN MILWAUKEE COUNTY PARKS LOCATED IN THE ROOT RIVER WATERSHED: 2009-2013



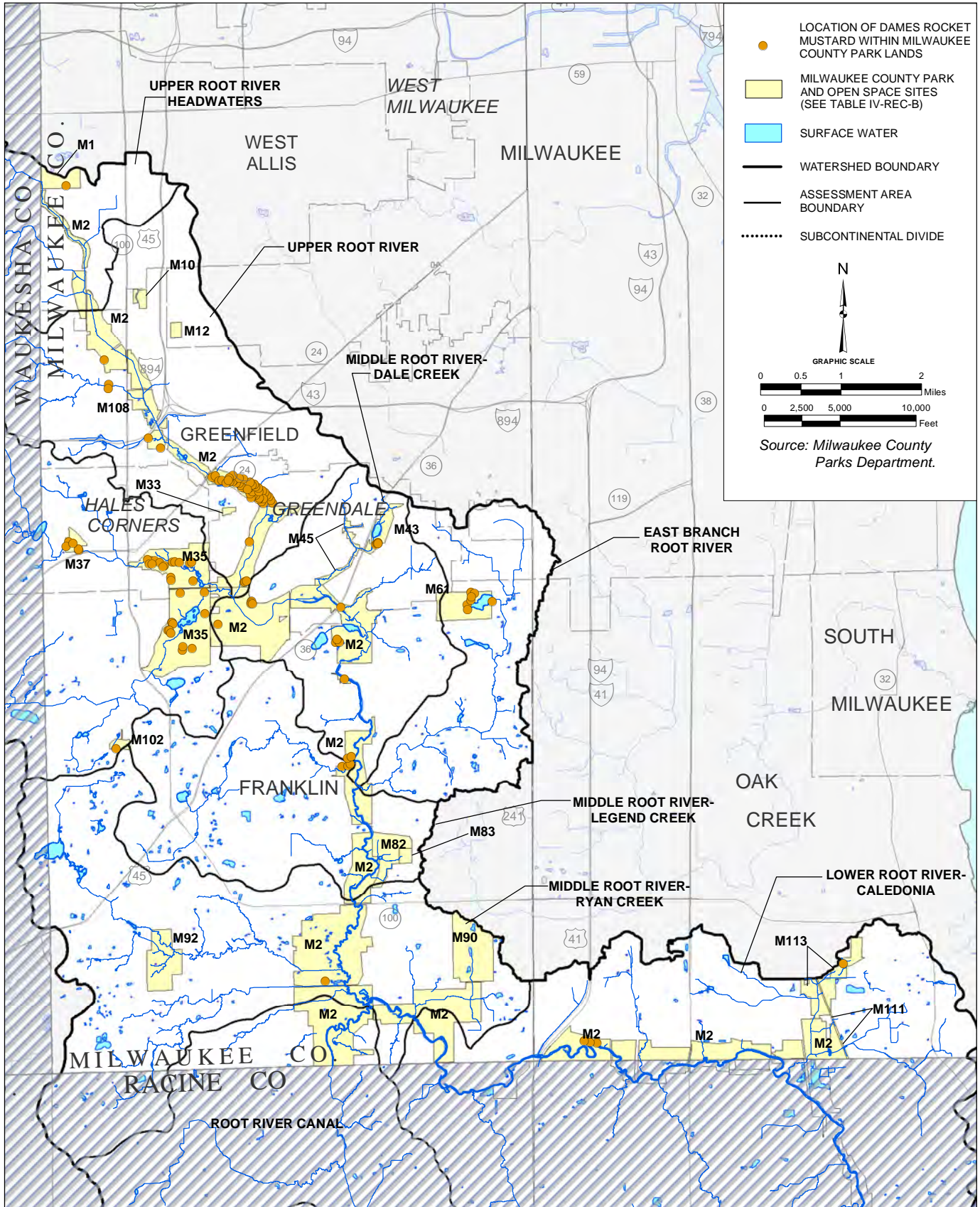
Map IV-INV-D

INFESTATIONS OF GARLIC MUSTARD WITHIN MILWAUKEE COUNTY PARKS
LOCATED IN THE ROOT RIVER WATERSHED: 2009-2013



Map IV-INV-E

INFESTATIONS OF DAMES ROCKET MUSTARD WITHIN MILWAUKEE COUNTY PARKS
LOCATED IN THE ROOT RIVER WATERSHED: 2009-2013



Map IV-INV-F

INFESTATIONS OF WOODY INVASIVE PLANT SPECIES WITHIN
MILWAUKEE COUNTY PARKS LOCATED IN THE ROOT RIVER WATERSHED: 2009-2013

