Lake Holcombe Management Plan
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Lake Holcombe Management Plan

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Contents

Contents 3
Preface 5
Contributors 6
Overview 7
Lake Management Plan Summary 7
Background 8
Description of the Major Tributaries 9
Water Quality 11
Shoreline Development 11
Recreational Opportunities 11
Fisheries 11
Aquatic Vegetation 12
Project Goals & Implementation for Lake Holcombe Management Plan 13
Aquatic Invasive Species 13
Eurasian Water milfoil 14
Purple Loosestrife 20
Curly-leaf Pondweed 20
Rusty Crayfish 21
Chinese Mystery Snail 21
Banded Mystery Snail 21
Neighborhood Watch 21
Water Quality 22
Phosphorous 22
Citizen Lake Monitoring Network 23
Backwater Flow 24
Shoreline Erosion 25
Shoreline Habitat Buffer 26
Fisheries & In-lake Habitat/Critical Habitat Designation 27
In-lake Habitat Restoration 28
Critical Habitat Designation 29

Recreation 30
Public Access 30
Safe Lakes 31
Boater Safety 31
Slow-No-Wake Zones 32
Outreach 33
Bathymetric Map 33
Volunteer Recruitment and Retention 33
LHIA Lake Management Plan Self-Audit 33
Appendices 34
Appendix A 34
Appendix B 35
Appendix C 36
Appendix D 38
Appendix E 42
Appendix F 43
Appendix G 45
Appendix H 47
Appendix I 48
Appendix J 49
Appendix K 51
Appendix L 56
Appendix M 57
Appendix N 58
Appendix O 59
Appendix P 67
Appendix Q 68
References 74

Preface

This publication is for all the people who live in the Lake Holcombe community, who enjoy Lake Holcombe and are concerned with the well-being of Lake Holcombe. This is a living document that will set guidelines and goals in order to restore and strengthen the lake ecosystem, protect and improve the natural beauty of the area, and to maintain the water-based recreational activities.

Contributors

Funding for this project was provided by the Wisconsin Department of Natural Resources through the Aquatic Invasive Species Control Grant #AEPP 316-12 and by the fundraising efforts of the Lake Holcombe Improvement Association.

The Lake Holcombe Management Plan Committee was made up of the following individuals who generously donated their time and energy towards this project:

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Overview

The Lake Holcombe Improvement Association (LHIA) working in collaboration with Beaver Creek Reserve Citizen Science Center, Wisconsin Department of Natural Resources (WDNR), Xcel Energy, University of Wisconsin Eau Claire and other area stakeholders have developed a management plan for improving the habitat, water quality and recreational safety of the Holcombe Flowage. The Lake Holcombe Lake Management Plan has been designed to be a living document, to be used as a tool and altered as necessary to assist in future management decisions.

Initial concerns about water quality issues on the Holcombe Flowage were raised in the 1980's and 1990's. Based on the results of the Lower Chippewa River Water Quality Assessment (1993) and other studies the main issues affecting water quality were found to be:

- Abundant nutrient levels in the Jump River Watershed
- Water levels and dissolved oxygen (DO) levels associated with backwater embayments
- And the invasion of invasive plant species such as purple loosestrife (*Lythrum salicaria* L.) and Eurasian water-milfoil (*Myriophyllum spicatum*)

Past studies provide an understanding of the dynamics of the Holcombe Flowage. Portions of the flowage were found to not meet the state's water quality standards and parts have been listed with the Environmental Protection Agency as a 303(d) "Impaired Water". An "Impaired Water" is a waterbody that does not meet or are not expected to meet, water quality standards. The main factors causing this listing were exceedances in the pH water quality standards and elevated nutrient levels.

In 2011, the Lake Holcombe Lake Management Plan Committee formed. Over the next two years the committee met with lake enthusiasts and specialists to gain an overview and seek guidance to determine main issues and how to best proceed on managing them. From these meetings seven comprehensive goals were developed to serve as a foundation for the Lake Holcombe Lake Management Plan.

Lake Management Plan Summary

Purpose Statement:

Lake Holcombe has a rich tradition of angling, recreation and aesthetic value, which is linked to good water quality and a healthy plant and animal community. Recent studies of Lake Holcombe indicate the presence of Eurasian water-milfoil and curly-leaf pondweed (*Potamegeton crispus*), degradation to shoreline habitat, erosion, blue-green algae, a loss of water quality and issues with recreational safety. As the lake is widely used by thousands of

recreators annually and thus susceptible to further infestations, degradation, and safety issues, a comprehensive lake management plan is needed.

Goal Statement:
The goal of the Lake Holcombe Lake Management Plan is to implement a strategy focusing on continuing control of aquatic invasive species, along with monitoring water quality, the creation of in-lake and near shore habitat as well as a providing education to increase awareness of lake issues and recommended action to improve Lake Holcombe.

Goals:

1. Control, contain, and educate on **Aquatic Invasive Species** found in the Holcombe Flowage.
2. Improve and maintain **Water Quality** by increasing flow to embayments and decreasing water pollution.
3. Create structure to protect and decrease **Shoreline Erosion**.
4. Develop **Shoreline Habitat Buffers** to protect water quality and near-shore habitat for plants and animals.
5. Create and protect **In-lake Habitat** to promote a healthy **Fishery. Designate Critical Habitat.**
6. Provide and encourage safe **Recreation** opportunities.
1. Create a **Bathymetric Map** to be used by anglers, recreators, researchers and managers.

Background

The Holcombe Flowage is a drainage lake located at the lower end of the Upper Chippewa Basin (Appendix A). The basin covers an area of 4,680 square miles, including 11 counties and 23 individual watersheds. The basin is home to 4,501 miles of named rivers and streams including the Chippewa, Flambeau, and Jump rivers (LHPT 2006, Appendix B). The ecoregions found in the basin includes woodland, agriculture, open water, wetlands, and urban development. The northern region of the basin is mostly wooded with little urban development, while the southern region contains agriculture and growing development. The Holcombe Flowages falls within Chippewa and Rusk Counties. The lake is located near the Town of Holcombe, Cornell, Ladysmith, and Sheldon.

The lake as it is known today was created by the construction of a dam by Union Lumbering Company, in 1872. The dam stored water that could be released to float logs down the river. In 1950, Northern States Power Company purchased the dam and converted it into a hydro-electric dam. Today, the dam consists of three turbine/generators, has a hydraulic capacity of 12,000 cubic feet per second and provides an average of 101 million kilowatt hours per year (LHPT 2006).

The Holcombe Flowage is a large watershed (Table 1). On an average day the area of the Holcombe Flowage is 3858 acres. The shoreline length is 91 miles, half of which is undeveloped public land or Xcel Energy land. The remaining half is privately owned and developed. The Holcombe Flowage is a relatively shallow eutrophic[1] drainage lake.

TABLE 1. Physical Characteristics of Holcombe Flowage	
Average Surface Area	3,858 acres
Volume Shoreline	46,979 acre feet 91 miles
Maximum depth	62 feet
Mean depth	12 feet
Length Bottom	10 miles 80% sand, 10% gravel, 10% muck
Source: Holcombe Flowage Facts & Figures, WDNR website. http://dnr.wi.gov/lakes/lakepages/LakeDetail.aspx?wbic=2184900&page=facts	

Description of the Major Tributaries

Lake Holcombe Flowage is supplied with water from many different tributaries. The two largest tributaries are the Chippewa and Flambeau Rivers, which provide 80-90% of the total source water to the Holcombe Flowage (LHPT 2006). Both rivers are considered important resources and provide critical habitat for many endangered species and Species of Greatest Conservation Need. The main stem of the Chippewa River begins at the mouth of the Chippewa Flowage located in Sawyer County. The Chippewa flows south through Rusk County until it is joined by the Flambeau River before entering the Holcombe Flowage (LHPT 2006, Figure 1).

Figure 1. Convergence of the Flambeau and Chippewa River.

The Flambeau River consists of the North Fork and the South Fork of the Flambeau. The North Fork originates in Iron County and has five dams and four waste water discharges. The entire South Fork is considered an Outstanding Resource Water (WDNR 2006). The excellent water

[1] Eutrophic defines lakes that have waters rich in mineral and organic nutrients that promote a proliferation of plant life, especially algae. When the plants decay the oxygen supply depletes, causing potential issues for other animal life.

quality and habitat is due to the fact that the river originates at the outlet of Round Lake in Price County, and continues through the Chequamegon National Forest and therefore receives no point source discharge or agricultural input.

The Chippewa River is divided in the East Fork and the West Fork. The East Fork originates in central Iron County, and is mostly forest, wetlands, and some agriculture. There is a wastewater treatment plant located in Glidden, WI and is the only point source discharge on the East Fork. The West Fork runs mostly through the Chequamegon National Forest, and therefore has very little human impact.

Entering from the northeast, Main Creek and Jump River supply 14% of the water input to the Holcombe Flowage. Both Main Creek and the Jump River are subject to extreme flow variations, which can increase the flow by 50%. During high water events, these two waterways may account for a large input of nutrients into the Holcombe Flowage (LHPT 2006).

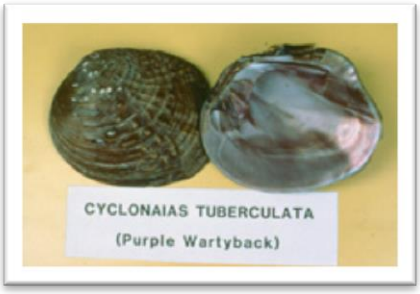


Figure 2. Purple wartyback. Photo by Lisie Kitchell, WDNR

The Jump River is significant due to the crucial habitat it provides for many important wildlife species, such as two listed dragonflies, and the purple wartyback mussel (*Cyclonaias tuberculata)*(Figure 2). The river is very productive for game fish and regarded as one of the best smallmouth bass streams in Northwestern Wisconsin. Portions of the Jump River have been listed as Exceptional Resource Water (ERW)[2], and several more sections have been recently proposed for addition (LHPT 2006).

The Main Creek watershed is a blend of forested land to the north and agricultural land to the south. Agricultural impacts within the streams' riparian zone have greatly decreased the streams stability. The destruction of the stream bank from pasturing has led to channel widening and heavy sedimentation. Nutrient loading from barnyard runoff and agricultural fields are another major concern. However, the Main Creek watershed does support sections of excellent Class I trout water on the South and Middle Forks (LHPT 2006). Stream habitat improvements have taken place on sections of the South Fork.

Deertail Creek drains 68 sq. miles of land and has an average discharge of 7.5 cfs, approximately half that of Main Creek. The mouth of Deertail Creek is located on the Chippewa River on the upstream edge of the flowage. Agriculture dominates the middle reaches of Deertail Creek and contributes sediments and nutrients to the flowage. There are also two wastewater treatment plants that discharge to the Deertail Creek watershed, at the villages of Tony and Glen Flora (LHPT 2006).

[2] An ERW is defined as "a lake or stream which has excellent water quality, high recreational and aesthetic value, and high quality fishing, but which may be impacted by point source pollution or have the potential for future discharge from a small sewer community."

Water Quality

Holcombe Flowage has struggled with water quality issues including erosion, high levels of suspended solids, high levels of phosphorus, and low levels of dissolved oxygen. The result of the issues is that the Holcombe Flowage was listed as an "impaired waterbody". Numerous discussions, projects, and research have been conducted in an attempt to alleviate the problems.

Shoreline Development

Approximately half of the 91 miles of shoreline along Holcombe Flowage is public land or owned by Xcel Energy. The majority of this land has remained untouched by development. The remaining 45 miles of shoreline is privately owned, and as a result has undergone significant development. "All areas with the exception of Bays 3, 15, and 16 had an increase in the amount of development along the shoreline between 1992 and 2005" (Heuschele, BCR 2007).

The increase in human population near Holcombe Flowage and its utilization as a highly valued recreational resource has raised concern on health of the system. Without a concerted effort to protect the shoreline, development and the extensive use of the flowage will degrade shoreline habitat and aquatic life.

Coarse woody cover (CWC) is an important aspect of in-lake near-shore habitat. The introduction of fallen trees from shore, provide shade and cover for fish and aquatic life. The development of the lake's shorelines results in the removal of CWC depriving the littoral zone of this critical habitat.

Recreational Opportunities

This amazing area is a recreational hotspot and is celebrated for its tourism, camping, and fishing opportunities. The residents and visitors to the Holcombe Flowage provide a significant economic stimulus to the area. The Holcombe Flowage provides a diversity of recreational facilities including campsites, day-use areas, and boat landings.

User conflicts on the water and the deterioration of fishing/fishing habitat, water quality and the increase of aquatic invasive species are the primary concerns for residents, whereas visitors have few concerns with their recreational experiences.

Fisheries

The Holcombe Flowage is considered an angling destination. Residents and visitors identify fishing as the most important open-water recreational activity on the flowage followed by pleasure boating.

The Holcombe fishery contains several species of native game fish including walleye, catfish, panfish, and musky. Lake sturgeon a species listed as special concern in Wisconsin is also found in the Holcombe Flowage. Past surveys have shown that the Holcombe Flowage has a reasonably healthy fishery. Managing shoreline erosion and creating in-lake habitat will help to generate a sustainable fish population, which will elevate fish stocking efforts.

Aquatic Vegetation

In 1996, the Us Army Corps of Engineers conducted a survey of the aquatic vegetation in the Holcombe Flowage. They concluded the macrophyte community present in Holcombe Flowage was similar to other eutrophic lakes and provided good habitat for fish and wildlife (LHPT 2006). Using similar sampling techniques and sampling sites, an aquatic plant survey was conducted in 2006 by Beaver Creek Reserve's Citizen Science Center to be compared with the 1994/1995 study (see Appendix C for results). In the 1994/95 study, 47 aquatic plant species were documented: 15 emergents, 5 floating leaf, and 27 submersed species. None of these species were listed as endangered, threatened or species of special concern. Two non-native species were found: *Potamogeton crispus* and *Lythrum salicaria* (Heuschele, BCR 2007).

From the 2006 survey the following was found:

> The plant community increased to 52 aquatic plant species documented in 2006: 19 emergents, 5 floating leaf, and 28 submersed species. None of these species were listed as endangered, or threatened, but three of the submersed species found are classified as species of special concern: *Ceratophyllum echinatum, Potamogeton diversifolius,* and *Utricularia geminiscapa* (Figure 3). These species of special concern are at risk of state extirpation due to lack of abundance. Four non-native species were present in 2006: *Eichhornia crassipes*, *Potamogeton crispus, Lythrum salicaria*, and *Myriophyllum spicatum.* (Heuschele, BCR 2007)

Figure 3. ***Utricularia geminiscapa.***

Project Goals & Implementation for Lake Holcombe Management Plan

The Lake Holcombe Improvement Association met with experts on topics of concern, reviewed historical data, prioritized issues, and considered public input to devise the following seven goals to become part of the Holcombe Flowage Lake Management Plan:

Goal I. Aquatic Invasive Species
Goal II. Water Quality
Goal III. Shoreline Erosion
Goal IV. Shoreline Habitat Buffer
Goal V. Fisheries & In-lake Habitat/ Critical Habitat Designation
Goal VI. Recreation
Goal VII. Bathymetric Map

Aquatic Invasive Species

Goal 1: Aquatic Invasive Species *Control, contain, and educate on Aquatic Invasive Species found in the Holcombe Flowage.*			
Action Items	Who will implement?	Timeline	Finance
Eurasian Watermilfoil Continue to monitor, control, and educate on Eurasian water-milfoil.	LHIA	Ongoing with annual review.	LHIA via grants
Purple Loosestrife Continue to monitor, control, and educate on purple loosestrife.	Lake Holcombe School District/Brian Guthman and Xcel Energy will continue to monitor. If needed, LHIA will devise a new monitoring plan.	Ongoing with annual review.	Lake Holcombe public schools, Xcel Energy, and LHIA.
Curly-leaf Pondweed Continue to monitor, and educate on curly-leaf pondweed. Develop action steps for if CLP population becomes a problem.	LHIA	Ongoing with annual review.	LHIA
Rusty Crayfish Consider population study to determine if any management is necessary.	LHIA	No current timeline.	N/A
Neighborhood Watch	LHIA	Ongoing	LHIA & WDNR
Clean Boats Clean Waters	LHIA	Ongoing	LHIA volunteers

Goal 1: Control, contain, and educate on Aquatic Invasive Species found in the Holcombe Flowage.

Families, home owners, and recreators enjoy the Holcombe Flowage. Lake users as well as the natural populations of aquatic life are continuously threatened by the expansion and

introductions of invasive species. The management and prevention of invasive species throughout the Holcombe Flowage is critical to maintain the integrity of native plant and animal communities.

Known aquatic invasive species to the Holcombe Flowage include:

- Eurasian watermilfoil (*Myriophyllum spicatum*)
- purple loosestrife (*Lythrum salicaria*)
- curly-leaf pondweed (*Potamogeton crispus*)
- rusty crayfish (*Orconectes rusticus*)
- Chinese mystery snail (*Bellamya chinensis*)
- banded mystery snail (*Viviparus georgianus)*

To review aquatic plant management methods please see Appendix D.

EURASIAN WATER MILFOIL

Management of Eurasian watermilfoil on Lake Holcombe will consists of:

1. WDNR will continue conducting annual surveys of EWM in locations stocked with weevils.
2. LHIA will continue rearing weevils.
3. WDNR will conduct pre- and post-weevil surveys during weevil rearing years.
4. Educate private landowners on how to identify, and how to eradicate EWM.
5. Educate public on weevil rearing and biocontrol.

Figure 4. Eurasian watermilfoil.

LHIA will continue introducing milfoil weevils through rearing until one of the following parameters is reached:

- Eurasian watermilfoil is no longer found.
- Milfoil weevils are not surviving beyond a season.
- The weevil rearing program is no longer cost-effective.

Since the discovery of Eurasian watermilfoil in Lake Holcombe in 2006, LHIA has been on top of the battle to minimize and contain this invasive species. LHIA's milfoil weevil biological control project has proven to be a huge success in showcasing what can be accomplished through the hard work, dedication, and commitment of volunteers in the fight against aquatic invasive species.

The milfoil weevil, (*Euhrychiopsis lecontei*), is used to control Eurasian watermilfoil in Wisconsin. The milfoil weevil is a native small, herbivorous aquatic beetle. It is a milfoil (*Myriophyllum spp.*) specialist, feeding only on plants in this genus. The major plant damage is done by the larva. Upon hatching, the first instar larvae feed on the meristem for up to five days. Older larvae spend their time inside the stem (Sheldon and O'Bryan 1996) feeding on cortical and vascular tissues. When stems are hollowed-out by weevil larvae, they become weaker and less buoyant (Creed et al. 1992) causing the plant to break or sink.

Figure 5. Milfoil weevil.
Photo courtesy of Paul Skawinski.

In 2006, Eurasian watermilfoil was discovered in Lake Holcombe (Figure 6). In 2008, an Aquatic Invasive Species Grant was received from WDNR to use chemical treatment (Weedar) on 17 acres of Pine Lake. In 2009, a second Aquatic Invasive Species Grant was received to use chemical control on 10 acres of Pine Lake.

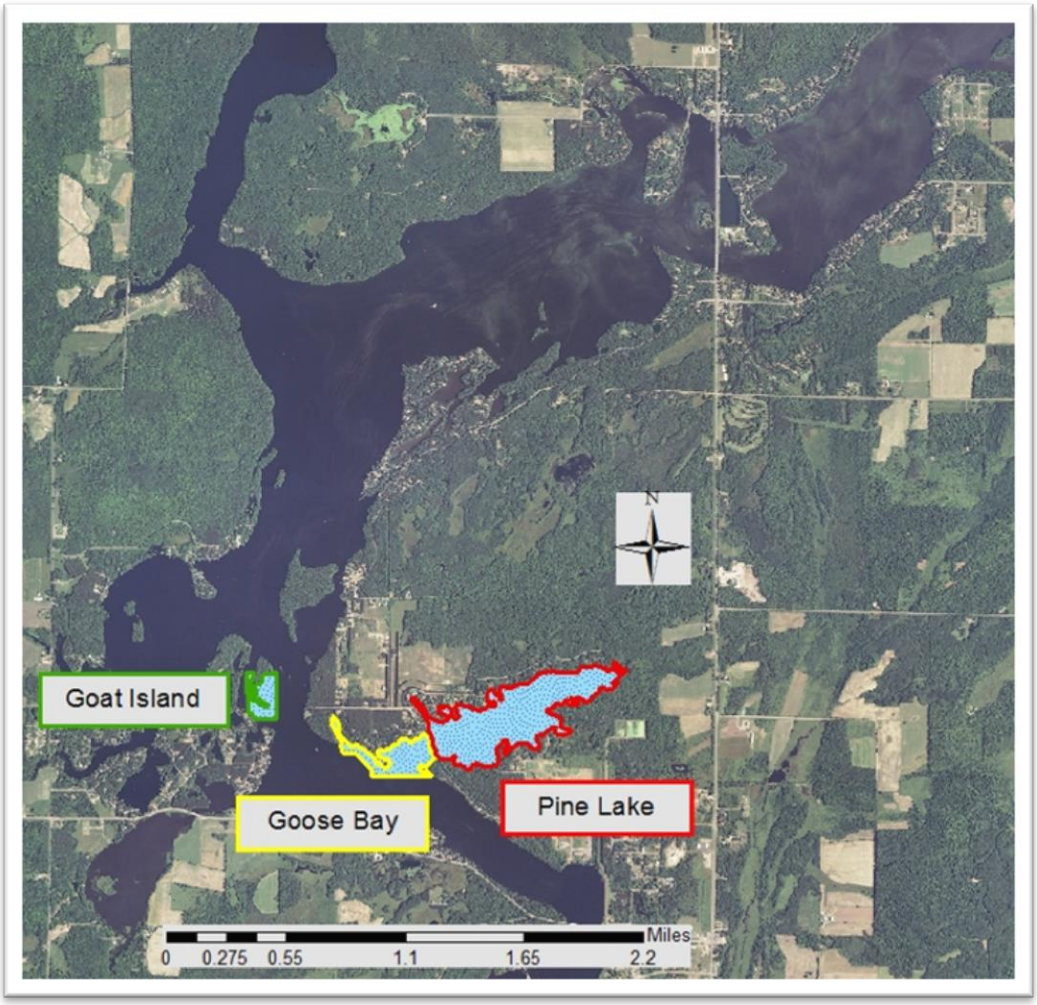


Figure 6. EWM survey areas. Lepsch, WDNR 2013.

The third year of EWM control no chemical treatment was administered and the EWM returned in quantities higher than prior to chemical treatment. In 2010, LHIA decided to try a new approach and began a two pronged bio-control project. The first step was to purchase 21,000 milfoil weevils from EnviroScience (for more information on EnviroScience see Appendix E) and release them into the largest milfoil beds. The second step was a mass weevil rearing project which was initiated in 2011. For this project, LHIA raised weevils in large cattle tanks (See Figure 7). Weevils propagated throughout the summer were extracted and introduced into Lake Holcombe (See Figures 8, 9, & 10). Many lakes, including Holcombe, appear to have a low-level population of naturally occurring weevils, but mass rearing provides a significant boost to control efforts. The rearing program has completed three seasons of weevil introductions. Milfoil weevils have been found in non-treated areas, implying that the introduced weevils traveled to other affected areas within the lake. A definitive outcome to the EWM control project cannot be stated at this time. For more information on the assessment of EWM and milfoil weevils in the Holcombe Flowage please review Lepsch 2013.

Figure 7. Weevil rearing tanks. LHIA.

Figure 8. Sampled sites with EWM and weevil presence or evidence in Pine Lake. Lepsch, WDNR 2013.

Figure 9. Sampled sites with EWM and weevil presence or evidence in Goose Bay. Lepsch, WDNR 2013.

Figure 10. Sampled sites with EWM and weevil presence or evidence in Goat Island. Lepsch, WDNR 2013.

A summary from Golden Sands RC&D of the weevil rearing project to date follows:

> Lake Holcombe Association participated in Milfoil Weevil Mass Rearing Pilot Study with Golden Sands RC&D Council, Inc. in 2011-2013. Expected return rate was 9.6 weevils out per weevil stocked. In 2011, Lake Holcombe's return rate was 3.1. 720 weevils were initially stocked to the10 rearing tanks, and total production was estimated at 2,090 weevils. In 2012, Lake Holcombe was obliged to release their weevils one life cycle early, due to a lack of healthy milfoil for feeding, yet their return rate was 6.2. 750 weevils were initially stocked to 10 rearing tanks, and total production was estimated at 4,675 weevils. Lab examinations in 2011 observed: Low occurrence of miscellaneous insects; no non-*M. spicatum* species mixed in; poor stem health; heavy weevil damage to stems in some tanks; limited available oviposition sites; and fewer eggs than expected. Lab examination in 2012 observed: High weevil damage; scaly, egg-like things, very black silk around eggs rather than the usual rusty color, one pupae had thread-like fungus; many good meristems with eggs abundant, few miscellaneous insects (amphipods, caddisflies, ceratopogonids, damselfly larvae, dytiscidae larvae); few good meristems but most had eggs, some miscellaneous insects (zygopterans, dytiscid larvae). Tank temperatures were moderated by adding fresh groundwater as needed. In 2011, water temperature ranged from 70 - 90 F, with a mean of 82 F. These temperatures were higher than temperatures expected (per Thorstenson 2011), and similar to temperatures optimal for weevil production. In 2012, ambient temperatures in Holcombe were extremely hot, and required several visits per day from volunteers to cool down the tanks prior to shade cloth being installed on July 5th. Water temperature ranged from 72 – 92 F, with a mean of 83 F, again maintaining temperatures at about optimum for weevil production, 84.2 F (Mazzei et al. 1999).
>
> In 2011, Lake Holcombe had lower than expected production, probably due to the warm, sunny site providing optimal temperatures for rapid weevil development. We adjusted for this in 2012 by shortening the Lake Holcombe feeding cycle from 21 days (appropriate for average lake temperatures) to every 17 days (appropriate for optimal temperatures). This scheduled a total hold time of 42 days for Lake Holcombe, rather than the previous 54 day hold time. However, volunteers encountered significant problems in finding healthy milfoil stems to feed the weevils. Nearly all stems collected from the lake were already damaged by weevils. Due to an acute lack of quality food, the Holcombe crew released their weevils one feeding cycle early, after just 24 days. Stems samples collected from food collection areas found an average of 2.1 weevils per stem. This not only explains the prevalence of weevil damaged stems, but also suggests a vigorous weevil population already developing in the lake.

Lake Holcombe Association supported this project with 306 hours of volunteer labor in 2011, and 200 hours of volunteer time in 2012.

-Summary courtesy of Amy Thorstenson, Golden Sands RC&D.

Summary from Lake Holcombe Improvement Association on the success of the volunteer run weevil rearing project:

Figure 11. Volunteers sorting EWM to feed to weevils. Courtesy Doc Dougherty.

The success of the weevil rearing project at Lake Holcombe is due mainly to the tremendous amount of volunteer help received from members of Lake Holcombe Improvement Association. The feeding and rearing of weevils is an extremely labor intensive project. When worked needed to be done, a phone call to our volunteer list would result in 20-25 people showing up ready to help.

Figure 12. Volunteers cleaning EWM in preparation to feed weevils. Courtesy Doc Dougherty.

This number of volunteers enabled LHIA to complete the tasks in about 2 hours and people enjoyed being with co-workers and seeing the success of the project as we moved forward. During the three year rearing project the decline of milfoil in some areas, and finding larvae, pupae and a great amount of stem damage in the milfoil harvested for feeding weevils in the tanks, provided a lot of encouragement to all the volunteers and lake residents. We know it is working.

-Summary courtesy of Doc Dougherty, LHIA.

PURPLE LOOSESTRIFE

Management of purple loosestrife will continue on Lake Holcombe according to these parameters:

1. Mr. Guthman and his students will continue yearly monitoring of PL.
2. If PL populations expand biological control will be reinstated.
3. Xcel Energy will continue to monitor for PL along their properties.
4. If current monitoring ends, LHIA will determine a strategy to continue monitoring.
5. Educate private landowners on how to identify and to eradicate PL.

Figure 13. Purple loosestrife.

By the early 1990's, purple loosestrife covered 70 acres on the north end of Lake Holcombe. Purple loosestrife is listed as a restricted[3] species under the Invasive Species Rule NR-40. Mechanical control began in 1993, followed by chemical control. In 1996, LHIA decided to introduce biological control. Weevils (*Hylobius transversovittatus*) and G*alerucella* beetles received from WDNR were stocked for two years. Brian Guthman, past LHIA president and educator with the Lake Holcombe school district, began raising *Galerucella sps*. beetles with his students. Over a span of ten years, it is estimated that the Lake Holcombe school district raised and released over one million beetles into the wetlands surrounding the flowage. Mr. Guthman and his students have monitored two 200m x 200m research plots and have seen no return of purple loosestrife. Areas that had significant infestations have been converted to cattails and wild rice. Remaining purple loosestrife is patchy and seems to be kept in control by a self-sustaining population of *Galerucella sps*. beetles. For a map of the 2013 PL assessment see Appendix F. To review the 2013 Purple Loosestrife Assessment report for Lake Holcombe see Turner 2013.

CURLY-LEAF PONDWEED

Curly-leaf pondweed was discovered in Lake Holcombe in 2006 (See map Appendix G). Currently CLP is not an active concern. LHIA will design a plan to:

1. Continue to monitor CLP population.
2. Layout action steps if CLP reaches levels where it requires management.
3. Research possible management strategies.

Figure 14. Curly-leaf pondweed.

[3] A "restricted" species is defined by Wisconsin's NR40 Rule as "an invasive species that is already too widespread to expect statewide eradication." Although eradication is unlikely it is still "illegal for people to transport, import, transfer, sell and introduce species in the restricted category."

Rusty Crayfish

LHIA has no current management plans for rusty crayfish.

Figure 15. Rusty crayfish.

Rusty crayfish were discovered in the Holcombe Flowage in 2008. Rusty crayfish are a regulated and restricted species, meaning it is illegal to transport or transfer this species in the state of Wisconsin. There is currently no statewide management strategy that is effective in eradicating the rusty crayfish once it is established; therefore the DNR emphasize controlling the spread.

It is believed that the rusty crayfish population is small. With a fishing license, it is legal to harvest and consume rusty crayfish. If harvesting, care should be taken to not harvest any native crayfish.

Chinese Mystery Snail

LHIA has no current management plans for Chinese mystery snails.

Chinese mystery snails were found in the Holcombe Flowage in 2008. At this point, studies have shown CMS to be relatively "benign" with respect to native snails and its potential to influence ecosystems and native species (Mackie 1996).

Figure 16. Chinese mystery snail (left) & banded mystery snail (right). MN DNR.

Banded Mystery Snail

LHIA has no current management plans for banded mystery snails.

The banded mystery snail (BMS) (*Viviparus georgianus*) was intentionally introduced to the Hudson River by an amateur conchologist (Jokinen 1992, Mills et al. 1993). They appeared in the Holcombe Flowage in 2008. Banded mystery snail can form large aggregations and can be vectors for the transmission of parasites and diseases (USGS 2012). The BMS have shown to significantly reduce the survival of largemouth bass eggs (Eckblad and Shealy 1972).

Neighborhood Watch

LHIA Neighborhood Watch will:

1. Determine areas to be monitored and at what frequency.
2. Determine a plan on how to record collected data.
3. Locate and mark all known AIS locations with map and GPS unit.
4. Determine actions when new infestations are discovered.

Because of its high frequency of use and the number of invasive species present, Lake Holcombe is considered a super spreader. To help monitor aquatic invasive species populations, LHIA has initiated a Neighborhood Watch program. An invasive species Neighborhood Watch program encourages local lake users to invest in the protection of their lake. A Neighborhood Watch program:

- Locates all known AIS populations.
- Monitors species growth and expansion.
- Documents new locations.
- Educates local lake users and encourage environmental stewardship.

Water Quality

Goal 2: Water Quality *Improve and maintain Water Quality by increasing flow to embayments and decreasing water pollution.*			
Action Items	Who will implement?	Timeline	Finance
Phosphorus Identify, and respond to manageable phosphorus contributors.	LHIA will initiate conversations with Chippewa County	Begin in 2013, continuing with annual review.	To be determined
Citizen Lake Monitoring Monitor lake's trophic state through secchi disk and collecting chemistry.	LHIA	Resume in 2013, adding additional sites.	LHIA
Backwater Flow Research possible plans to increase the flow to backwater embayment.	LHIA	Begin in 2013	To be determined

Goal 2: Improve and maintain water quality by increasing flow to embayments and decreasing water pollution.

Establishing good water quality in Lake Holcombe is critical to maintaining the elements of beauty, recreation, and a healthy aquatic community that lake user's value. Surveys of the Holcombe Flowage in 1998 found degraded habitat in the backwater embayments and elevated levels of phosphorus in the lake. Therefore the flowage was listed by the Environmental Protection Agency as 303(d) impaired water bodies. To improve, maintain, and protect the Holcombe Flowage, improved water quality will be a top priority.

Phosphorous

Phosphorous is the primary nutrient affecting the growth of aquatic plants and algae in most of Wisconsin's lakes. According to research by the University of Wisconsin Stevens Point and Portage County Staff, phosphorous above levels "30 parts per billion (ppb(µg/l =ppb)) can lead

to nuisance aquatic plant growth" (UWSP 2005). The background phosphorus concentrations of the Jump River and Main Creek watershed are approximately twice as high as other watersheds of Wisconsin.

Phosphorus can naturally occur in a lake or can enter by waste run-off from agricultural use, wastewater treatment facilities, or leaching septic systems. Lake Holcombe's high phosphorous background levels are primarily due to naturally-occurring phosphorous. The mineralogy of the area could be a possible factor. Wetlands in the Holcombe Flowage also appear to be a factor due to their soft water, iron concentrations, and a minimal amount of calcium. Iron's phosphorus retention is seasonal, releasing attached phosphorus during times of oxygen loss (Roesler 2012).

Lake Holcombe Improvement Association will not be able to control the naturally occurring phosphorus in the flowage. Instead, LHIA must focus on the lesser, but still significant phosphorus contributors. The LHIA will discuss with Chippewa County water quality concerns and ways to correct them.

1. Leaching septic systems - There has been significant public interest in monitoring septic systems to determine if septic systems are a large contributor to water quality issues.
    a. Methods to monitor septic systems have not yet been determined.
    b. Drinking Water – Monitor drinking water by conducting groundwater/well testing to check for bacteria and nitrogen.

2. Large Farms – livestock: Surveys of livestock farms throughout the Holcombe Flowage will determine if there is runoff from these farms or if livestock have direct access to waterways. LHIA will work with surrounding counties to:
    a. Prioritize farms of concern.
    b. Implement agriculture performance standards in the watershed.

CITIZEN LAKE MONITORING NETWORK

The Citizen Lakes Monitoring Network provides citizens an opportunity to monitor Wisconsin lakes to contribute to an established database of information used in managing water resources.

LHIA participates in the Citizen Lake Monitoring Network by:

1. Secchi disk: LHIA currently conducts secchi monitoring on two sites. They plan to add an additional two sites in 2013.
2. Chemistry: Data is collected in order to measure the chlorophyll and phosphorous levels present in a lake. LHIA will conduct chemistry on three sites starting in 2013.

All new monitoring sites for secchi or chemistry must be approved by the WDNR. Additional sites should be requested through the local Citizen Lake Monitoring Coordinator at Beaver Creek Reserve Citizen Science Center located in Fall Creek, Wisconsin.

Figure 17. Citizen Lake Monitoring volunteer Wayne Wieland taking a secchi depth on Lake Holcombe. BCR.

BACKWATER FLOW

The backwater areas of the Holcombe Flowage experience low dissolved oxygen levels during the winter and extensive algae blooms during the summer. Limited water flow from the main waterbody to the backwater areas is responsible for the poor water quality. Increasing the dissolved oxygen levels during winter months in backwater areas will aid in supporting fish, plants, and other aquatic life in the flowage. Improving the water quality in backwater areas will lower the amount of algae blooms, which will improve habitat conditions for wildlife and recreational opportunities. LHIA will work to develop and implement measures to increase dissolved oxygen and decrease algal blooms.

1. Backwater bays do not drain. The flowage basin needs to be altered to allow water to flow through to alleviate stagnant water, algae build up and low levels of dissolved oxygen. Potential solutions to this problem will be researched by LHIA.
    a. Place large tubes that would extend from main part of flowage into back bays.
    b. Replace culvert at Pine Point with a bridge.
2. Contact an engineer to determine feasible possibilities. Contact Dave Nashold and Dan Masterpole -Chippewa County Department of Land Conservation and Forest Management. (see Appendix H for contact information)

Shoreline Erosion

Goal 3: Shoreline Erosion Create structure to protect and decrease Shoreline Erosion.			
Action Items	Who will implement?	Timeline	Finance
Erosion Survey Shoreline survey to identify and classify areas of erosion.	Xcel Energy	Summer of 2013	Xcel Energy
Erosion Control-Class III	Xcel Energy	Winter of 2012-2013 and future work determined by the 2013 Erosion Survey.	Xcel Energy
Erosion Control-Class II	LHIA	Ongoing	LHIA & grants
Outreach Create "Mitigating Shoreline Erosion" resource for private landowners. Provide outreach to landowners and local government.	LHIA	Summer of 2013	LHIA

Goal 3: Create structure to protect and decrease shoreline erosion.

Xcel Energy conducted erosion surveys on the Holcombe Flowage in 1978, 1995, and 2008. The 1995 survey indicated approximately 17% of the flowage exhibited some degree of erosion. Five and a half miles of shoreline exhibited signs of slight erosion, 4.4 miles showed moderate erosion, and 0.5 miles were deemed severe (Miller 2011). (See Appendix I for Xcel Erosion Categories)

In 2003, Xcel Energy created a Shoreline Erosion Protection Plan for the Holcombe Flowage with the following goals:

- First priority, stabilize the severely eroded sites on Licensee's land identified in the 1995 erosion survey.
- Monitor Licensee-owned property at five year intervals, beginning in 2008.
- Use the data collected over those five years to mitigate class III erosion sites on Licensee-owned shoreline.

In the fall of 2008, the entire flowage was surveyed using the same methods as previous surveys pursuant to the Holcombe Shoreline Erosion Protection Plan (Lake Holcombe erosion map Appendix J).

Based on the data from the 2008 survey, the new erosion control plan is proposed:

1. Xcel Energy will conduct the 2013 erosion survey on all of Lake Holcombe. (Xcel is only required to survey their owned property, but will survey the whole lake.)
2. Xcel will focus on the Class III erosion sites.

3. LHIA will focus on the Class II erosion sites.
4. LHIA will be responsible for providing information from the erosion survey to private landowners.
5. LHIA will create a "Mitigating Shoreline Erosion" resource for private landowners including:
    a. Informative steps for landowners to manage erosion.
    b. Directions on how to acquire a permit.
    c. The process for working on erosion control.
    d. A contact list.
6. LHIA will provide outreach to local government and landowners on the importance of quality shoreline habitat, the economic benefits, and the impacts of development.

Shoreline Habitat Buffer

Goal 4: Shoreline Habitat Buffer *Develop Shoreline Habitat Buffers to protect water quality and near-shore habitat for plants and animals.*			
Action Items	Who will implement?	Timeline	Finance
Habitat Assessment Shoreline survey to identify habitat types and needs.	WDNR	Survey conducted summer of 2012.	WDNR
Pilot Demonstration Site Create a small pilot site for outreach to encourage property owners to develop buffers on their shorelines.	LHIA	2014	LHIA
Outreach Hold a Creating Shoreline Habitat Buffer class every year over the next five years.	LHIA	2014	LHIA

Goal 4: Develop and maintain shoreline habitat buffers to protect water quality and near-shore habitat for plants and animals.

A shoreline buffer is the unspecified width of shoreline that is covered by a matrix of trees, shrubs, plants, and duff.

The Holcombe Flowage has 91 miles of shoreline; 52% of which is developed. Developed shorelines lack adequate buffers, necessary to prevent erosion, absorb excess nutrients, recharge groundwater, promote recreation, provide pleasing aesthetics, discourage Canada geese, and provide terrestrial and aquatic wildlife habitat (Sorge 2012).

A well-developed shoreline buffer is also imperative to the success of as a long-term control for EWM. The native milfoil weevil requires thick duff of natural vegetation for hibernation. If natural shoreline is replaced with lawn, rip-rap, sand or pavement, the weevils can not survive

the winter. Weevils are weak flyers, so natural shoreline must be accessible to weevils at locations scattered around the entire lake (Newman et al. 2001, Thorstenson 2011).

The WDNR will conduct a shoreline habitat assessment survey to create a baseline for future management decisions.

LHIA will encourage shoreline habitat buffers through education and outreach by:

1. Creating a pilot demonstration site.
2. Conduct a "creating shoreline habitat buffer" class every year over the next five years.
    a. WDNR Fish Habitat handout – Heath Benike
    b. Protecting Your Waterfront handout – Cece Teskey
3. Encourage landowners to purchase Shoreline Habitat packets from WDNR.
4. Collaborate with Chippewa County to set a Shoreline Habitat Buffer ordinance.
    a. Suggest a buffer standard in accordance to Natural Resource Conservation Service Conservation Practice Standard for Streambank and Shoreline Protection (Appendix K).

Fisheries & In-lake Habitat/Critical Habitat Designation

Goal 5: In-lake Habitat & Critical Habitat Designation Create and protect In-lake Habitat to promote a healthy Fishery. Designate Critical Habitat.			
Action Items	Who will implement?	Timeline	Finance
Habitat Assessment Shoreline survey to identify habitat types and needs.	WDNR	Survey conducted summer of 2012.	WDNR
Fish Survey Fish survey to determine population, habitation, and areas of need.	WDNR	Summer of 2013	WDNR
Fisheries Objectives Upon completion of shoreline and fish surveys develop fishery management objectives.	WDNR	After completion of shoreline survey and fish survey.	WDNR
Habitat Restoration Restore habitat in areas of need identified by the shoreline survey and the fish survey.	WDNR and LHIA	Begin summer 2013	WDNR and LHIA

Goal 5: Maintain and improve in-lake habitat to promote a healthy Fishery. Designate critical habitat.

With 120 miles of shoreline and over 3,000 acres of water, the Holcombe Flowage is a fisherman's dream. Fish species in the Holcombe Flowage include walleye, musky, largemouth bass, smallmouth bass, crappie, northern pike, sturgeon and catfish (Table 2).

Healthy fish populations are important to shoreline land owners, anglers, and tourists. It is desirable to encourage a self-sustaining and diverse population of native fish species in the Holcombe Flowage. The Lake Holcombe Improvement Association will work to create and maintain a self-sustaining fishery by collaborating with the WDNR to increase fish habitat.

TABLE 2. Game fish species found in the Holcombe Flowage

Species	Prevalence
Walleye	Abundant
Panfish (i.e. bluegill, crappies)	Common
Muskellunge	Common
Largemouth Bass	Common
Smallmouth Bass	Common
Northern Pike	Common
Sturgeon	Common
Catfish	Present

Source: Holcombe Facts and Figures. WDNR website. http://dnr.wi.gov/lakes/lakepages/LakeDetail.aspx?wbic=2184900

IN-LAKE HABITAT RESTORATION

The way to improve upon a good fishery is through increasing habitat. Spawning habitat for fish in the Holcombe Flowage is limited, stunting fish populations. Currently musky are stocked into the Holcombe Flowage on an annual basis. Incorporating course woody habitat (CWH), trees, limbs, branches, and roots, can be added to a water body naturally or by human means to create important refuge, for foraging and spawning habitat for fish (Hanchin et al 2003, Lawson et al. 2011), aquatic invertebrates, turtles, birds, and other aquatic animals (Engel and Pederson 1998; Sass 2009).

The following steps will be implemented to restore in-lake habitat through the addition of CWH:

1. Summer 2012- The 2012 shoreline survey identified habitat areas/habitat types, assessed habitat and flow, and identified areas of need.
2. Summer 2013 – The WDNR will conduct a fish survey of the Holcombe Flowage, determining areas of fish habitation and identifying areas of need.
3. Upon completion of the fish survey, WDNR will develop objectives and a management plan for the Holcombe Flowage.
4. Summer 2013 – Tree drops will be added to identified areas.
5. Winter 2013-2014 – LHIA and WDNR will restore habitat in areas of need identified as a result of the shoreline survey and the fish survey.
6. Pre and Post fish surveys will be conducted to determine the effectiveness of habitat creation.

7. Sustainable habitat will be created on the back side of Musky Island for young of the year musky.

Possible in-lake habitat restoration may include:

- Tree drops and fish sticks will provide habitat for bass and panfish that are associated with plant beds in shallow water. These methods also provide habitat for waterfowl and turtles. These methods work well in low energy areas or medium depth.
- Half logs create habitat for smallmouth bass. They can be utilized in shallow areas of high energy.
- Enhancing submergent vegetation will increase spawning habitat for walleye and musky.

CRITICAL HABITAT DESIGNATION

Critical habitat is defined as areas that are most important to the overall health of the aquatic plants and animals found in a water body. Without the protection of these critical habitat areas, invasive species would have an extreme advantage on the overall habitat. (Review Appendix L for Critical Habitat Designation selection.)

The Holcombe Flowage has been selected to be reviewed for CHD (Appendix M).

LHIA will assist the WDNR in the following:

1. Conduct a CHD survey to determine potential areas for listing.
2. WDNR will compile a report.
3. A public meeting will be held for review of the report.
4. The Holcombe Flowage CHD will be made official and posted to the WDNR website.

Recreation

Goal 6: Recreation *Provide diverse and safe Recreation opportunities.*			
Action Items	Who will implement?	Timeline	Finance
Public Access/Boat Landings Identify, assess, and respond to all viable public access points.	The initial survey of public access points will be done by LHIA. Future monitoring and maintenance will be done by corresponding township.	Initial survey- 2012 Access points will be reassessed every five years.	Towns of Birch Creek, Willard, and Lake Holcombe
Safe Lakes Educate and promote safe responsible habits to help keep boaters and other recreationalists safe.	LHIA	Begin in 2013, continuing with annual review.	To be determined
Boater Safety Promote WI Boating Safety Course and ensure a class if offered on an annual basis.	FFA of Lake Holcombe public schools, Brian Guthman, WDNR, and LHIA	Ongoing with annual review.	FFA of Lake Holcombe public schools, WDNR, and LHIA
Slow No Wake Zones Have new Boating-Water Regulation Ordinance passed and accepted by all three local townships.	LHIA, Towns of Lake Holcombe, Willard and Birch Creek	Ordinance accepted by all three townships in 2012. Installation of new buoys in 2013.	LHIA
Outreach Provide educational materials for the local community and lake users on lake safety, rules and regulations, and management concerns of Holcombe Flowage.	LHIA	Begin in 2013, ongoing with annual review.	LHIA via grants

Goal 6: Provide diverse and safe recreation opportunities.

Public Access

Numerous public access points surround Lake Holcombe. Some of these locations are commonly used, some are unknown, some are developed, and some are private land with an easement.

LHIA will work to:

1. Identify all access points.
2. Assess the accessibility and viability of access points.
3. Respond to viable access points to update and make accessible.
4. Every five years all public access points will be reassessed by LHIA.

If public access points are found to be no longer viable, an agreement would need to be made between WDNR and the corresponding township to abandon that particular access point. If a

problem with a public access point occurs, the corresponding township will be responsible for resolving the issue and maintaining the site.

All viable public access points are marked on the newly updated (2013) bathymetric map. To view map please contact the Lake Holcombe Improvement Association.

SAFE LAKES

Wisconsin law prohibits the operation of a watercraft under the influence of alcohol. LHIA wants to educate and promote responsible habits to keep boaters and other recreationalists safe.

The following topics are initial steps in promoting a safe experience for recreationalists:

1. LHIA will work with local businesses to facilitate discussion on strategies to educate the public to prevent drinking and boating.
2. Contact will be made with the local Business Association and Tavern League of Wisconsin to discuss the possibility of providing a water taxi service that could transport patrons to and from their homes and between eating/drinking establishments. Initially, taxi services would be offered on holiday weekends. If the service is well utilized, service would be expanded to include weekends and other specific events.
3. Public Service Announcements on local radio stations may be used to educate and encourage proper behavior on the lake. Topics would include, but not be limited to, proper operating speeds (No Wake Zones), alcohol use, and operating at night (proper lights).

BOATER SAFETY

LHIA has made it a priority to provide information on boater safety.

To promote boater safety LHIA will be responsible for:

1. Ensuring that a Wisconsin Boating Safety Course is offered locally on an annual basis.
    - Currently this course is offered and instructed cooperatively by the WDNR, FFA (former "Future Farmers of America"), and Brian Guthman (Agri-Science Instructor for Lake Holcombe Public Schools). If these parties cease to offer the Boating Safety Course, LHIA will take on the responsibility of offering the course.
2. Publicizing upcoming boating courses by posting them in their newsletter.
3. Posting boater rules and regulations and updates on any changes in their newsletter.
4. Recruiting participants for Wisconsin Boating Safety Courses from lake property owners, summer residents, surrounding areas, and local school districts.
5. Establishing, promoting, and maintaining a "Kids Don't Float" kiosk.

"Kids Don't Float" (Appendix N) is a statewide drowning prevention program developed to address Wisconsin's leading cause of boating-related deaths, children drowning. A boat operator without life jackets for all passengers can borrow a life jacket from a local kiosk and return when done.

Lake Holcombe Improvement Association installed a "Kids Don't Float" kiosk at a well-utilized boat landing Pine Point Park. The Wisconsin Department of Natural Resources has partnered with LHIA and provided the plans, materials for the kiosk, and a starter supply of life jackets (Appendix O). LHIA will manage the kiosk making sure it is updated, replenished, and stored at the end of boating season. Future plans have been established to place a second "Kids Don't Float" kiosk at the public boat landing located on Highway 27 across from Little TeePee Campground.

Figure 18. Kids Don't Float program - http://www.lakearbutus.com

SLOW-NO-WAKE ZONES

The state of Wisconsin has a Slow-No-Wake law (Appendix P) that applies to all lakes in the state, including the lake areas of flowages. It is important to have consistent boating ordinances between the three townships that surround Holcombe Flowage, the Town of Willard, Town of Birch Creek, and the Town of Lake Holcombe. The Town of Lake Holcombe worked with the neighboring two townships to pass a uniform Boating-Water Regulation Ordinance pertaining to the placement of safety markers and navigational aids.

Aside from the state mandated Slow-No-Wake regulations, Lake Holcombe's Boating-Water Regulation Ordinance proposes a supplementary 30 Slow-No-Wake buoys and two Slow-No-Wake signs to be placed in key areas of the Holcombe Flowage. In addition, the ordinance includes 21 Swim Area buoys, seven Warning buoys, and five Hazard buoys. For a complete list and locations of markers and navigational aids review Chapter 11: Boating –Water Regulations see Appendix Q.

To increase public knowledge and safety in regards to Slow-No-Wake zones, LHIA will:

1. Include all Slow-No-Wake markers and signage on 2013 bathymetric map of the Holcombe Flowage. To view map please contact the Lake Holcombe Improvement Association.
2. Research the possibility of initiating an auxiliary Coast Guard to assist in patrolling.

OUTREACH

Lake Holcombe Improvement Association will provide educational materials for the local community and lake users on lake safety, rules and regulations, and management concerns of the Holcombe Flowage. Means of outreach will include but are not limited to:

1. A newsletter distributed to members quarterly.
2. Creating new outreach materials such as brochures and placemats to be used in local dining establishments.
3. Kiosks at boat landings or public access locations. Currently Cranberry and Little Tee Pee Landing have kiosks. LHIA will determine where to keep, replace or put new kiosks and how to maintain them.
4. Promoting the Clean Boats Clean Waters program at boat landings.

Bathymetric Map

An updated bathymetric map will provide recreators, anglers, boaters, and natural resource managers with the necessary information needed to utilize the Holcombe Flowage to its greatest potential. To view map please contact the Lake Holcombe Improvement Association.

Volunteer Recruitment and Retention

Volunteer Recruitment and Retention is an end result of having an active, productive, vibrant, and results oriented lake association. When citizens see exciting results, lake projects that result in actual benefits with visual proof, good people want to be part of the process. Projects need to be made visible and part of the daily conversation.

LHIA Lake Management Plan Self-Audit

As previously stated, this publication is a living document that will set guidelines and goals in order to restore and strengthen the lake ecosystem, protect and improve the natural beauty of the area, and to maintain the water-based recreational activities of the Holcombe Flowage. In order to ensure that LHIA, and other invested parties are following through with this plan a self-audit will be conducted on an annual basis. At the time of the audit LHIA can determine what they have succeeded on, what remains, and what part(s) of the plan may change. This is a very important step in the plan and to achieve success, the self-audit must not be overlooked.

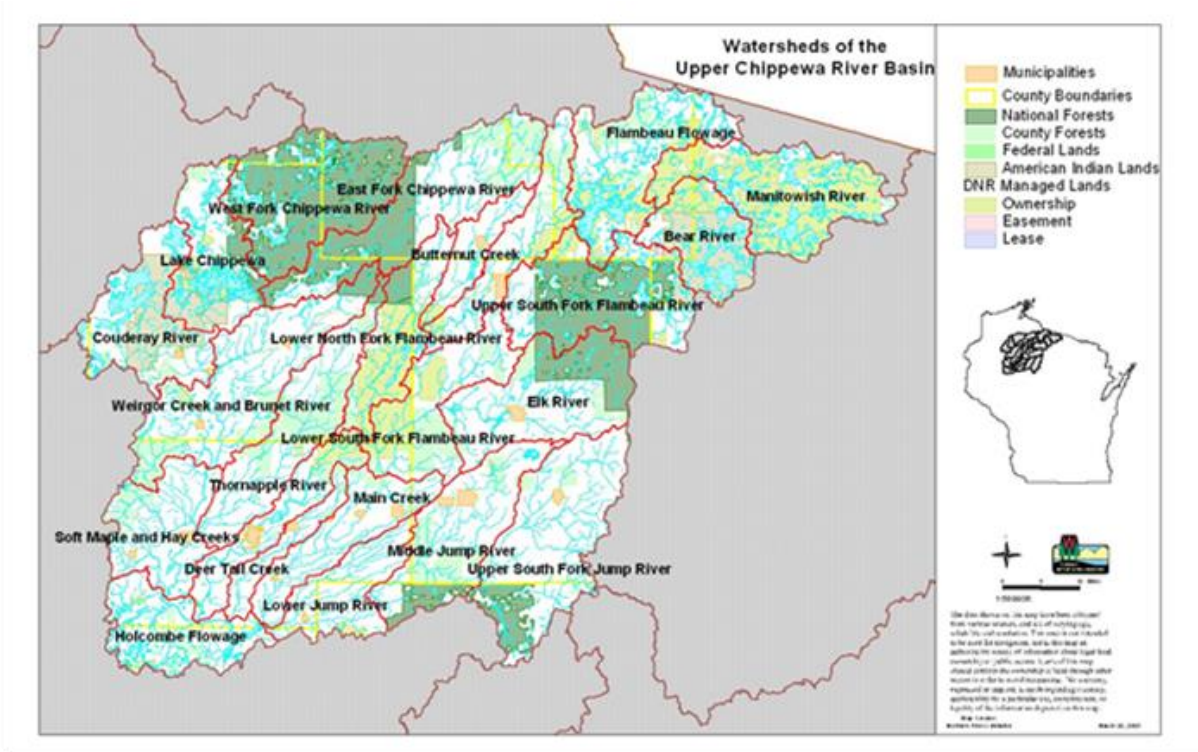
Appendices

Appendix A

Map of Wisconsin watershed basins. (WDNR - http://dnr.wi.gov/water/basin/)

Appendix B

Map of individual watersheds comprising the Upper Chippewa River Basin including a classification of land segments/ownership. (Lake Holcombe Planning Team 2006)



Appendix C

Species List for 1994/1995 and 2006. (Heuschele 2007)

* Species were counted from the hard data furnished by the US Army Corp. of Engineers

1994/95 Species Lists (47)*

Emergents

Carex spp.
Carex pseudo-cyperus
Dulichium arundinaceum
Eleocharis sp.
Iris versicolor
Lythrum salicaria
Sagittaria latifolia
Sagittaria rigida
Schoenoplectus tabernaemontani
Scirpus cyperinus
Sium suave
Sparganium spp.
Typha angustifolia
Typha latifolia
Zizania aquatica

Floating-Leaf

Lemna minor
Lemna trisulca
Nuphar advena
Nymphaea tuberosa
Spirodela polyrhiza

Submersed

Ceratophyllum demersum
Chara spp
Elodea canadensis
Heteranthera dubia
Megalodonta beckii
Myriophyllum sibiricum
Myriophyllum verticillatum
Najas flexilis
Nitella spp
Polygonum natans
Potamogeton amplifolius
Potamogeton crispus

2006 Species List (52)

Emergents

Acorus calamus
Berula erecta
Carex
Carex pseudo-cyperus
Comarum palustre
Dulichium arundinaceum
Eleocharis acicularis.
Eleocharis palustris
Iris versicolor
Lythrum salicaria
Sagittaria latifolia
Sagittaria rigida
Schoenoplectus tabernaemontani
Scirpus cyperinus
Sium suave
Sparganium spp.
Typha angustifolia
Typha latifolia
Zizania aquatica

Floating-Leaf

Lemna minor
Lemna trisulca
Nuphar variegata
Nymphaea tuberosa
Spirodela polyrhiza

Submersed

Ceratophyllum demersum
Ceratophyllum echinatum
Chara spp
Elodea canadensis
Heteranthera dubia
Megalodonta beckii
Myriophyllum sibiricum
Myriophyllum spicatum

1994/95 Submersed Cont.

Potamogeton diversifolius
Potamogeton epihydrus
Potamogeton natans
Potamogeton nodosus
Potamogeton obtusifolius
Potamogeton pusillus
Potamogeton richardsonii
Potamogeton robbinsii
Potamogeton spirillus
Potamogeton zosteriformis
Ranuculus spp.
Stuckenia pectinatus
Utricularia minor
Utricularia vulgaris
Vallisneria americana

2006 Submersed Cont.

Myriophyllum verticillatum
Najas flexilis
Nitella spp
Potamogeton amplifolius
Potamogeton crispus
Potamogeton diversifolius
Potamogeton epihydrus
Potamogeton foliosus
Potamogeton natans
Potamogeton nodosus
Potamogeton obtusifolius
Potamogeton pusillus
Potamogeton richardsonii
Potamogeton robbinsii
Potamogeton spirillus
Potamogeton zosteriformis
Stuckenia pectinatus
Utricularia geminiscapa
Utricularia vulgaris
Vallisneria americana

Appendix D

Aquatic Plant Management Methods

Plant Management Methods

Permit Requirements

The document, Aquatic Plant Management in Wisconsin (Aron et al. 2006), explains the permit requirements for aquatic plant control as follows:

The WDNR regulates the removal of aquatic plants when plants are removed manually, mechanically, or chemically in an area greater than thirty feet in width along the shore. Manual removal refers to pulling by hand or hand–held devices that do not rely on external power. Any chemical application requires a permit regardless of the size of the treated area. The WDNR Administrative Code Chapters *NR 107- Aquatic Plant Management* and *NR 109- Aquatic Plants: Introduction, Manual Removal & Mechanical Control Regulations* establish criteria for the plant management permit program. Nearly all activities used to manage aquatic plants require a permit. There are two general exemptions from permit requirements. Waterfront landowners can manually remove plants or give permission to manually remove plants (with the exception of wild rice) along their shoreline up to a 30-foot corridor. The second exemption states that landowners may manually remove the invasive plants purple loosestrife, Eurasian watermilfoil, and curly-leaf pondweed along their shoreline.

When developing a control plan for aquatic invasive plants, there are numerous methods to consider. The Department of Ecology of the State of Washington describes the methods to control the growth and distribution of aquatic invasive plants as follows:

<u>Manual Control</u>

Manual removal includes hand pulling, cutting, or raking. Manual removal is inexpensive, environmentally safe, and effective when removing plants from small areas. This method should be conducted after flowering but before seed head production.

Advantages to Manual Control:

- Manual control methods are easy to use around docks and recreation areas.
- Equipment is inexpensive.
- Hand-pulling allows the flexibility to remove specific aquatic plants.
- Manual control is environmentally safe.

Disadvantages to Manual Control:

- This process may need to be repeated several times each summer.
- Manual control is labor intensive and impractical for large areas or thick weed beds.
- It is difficult to collect all plant fragments.

- Plants with massive rhizomes are difficult to remove by hand.
- Pulling and raking stirs up sediment, and disturbs bottom-dwelling animals.

Mechanical Control

Mechanical Control includes mechanical cutting, harvesting, suction harvesting, and rotovation. Due to the fact that Lake Holcombe is a flowage, suction harvesting and rotovation are not appropriate options and will not be discussed in this plan.

Mechanical weed cutters are large floating machines that cut aquatic plants several feet below the water's surface. Plants are collected after cutting is complete. Floating plants and fragments need to be removed using a net or a weed rake.

Advantages to Mechanical Cutters:

- Cutting creates an immediate open area in the water.
- Underwater cutters can work in shallow waters not accessible to larger harvesters.
- Habitats for fish and other organisms can be retained.

Disadvantages to Mechanical Cutters:

- Plants will likely need to be cut several times during the growing season.
- Some species are difficult to cut.
- Cutting creates plant fragments which may quicken the spread of invasive plants.
- Additional labor is required to remove cut fragments.

Mechanical harvesters are large machines that both cut and collect aquatic plants. Cut plants are removed from the water by a conveyor belt and stored on the harvester until disposal. Harvesting usually occurs in late spring, summer, and early fall.

Advantages to Mechanical Harvesters:

- Harvesting results in immediate open areas of water.
- Removing plants from the water removes the plant nutrients, such as nitrogen and phosphorus, from the system.
- Harvesting as aquatic plants are dying for the winter can remove organic material.
- Habitat for fish and other organisms remains undisturbed.
- Harvesting can be targeted to specific locations, protecting designated areas from treatment.

Disadvantages to Mechanical Harvesters:

- Plants will need to be cut several times during the growing season.
- There is little or no reduction in plant density with mechanical harvesting.
- Off-loading sites and disposal areas for cut plants must be available.
- Small fish, invertebrates, and amphibians can be collected and killed by the harvester.
- Harvesting creates plant fragments which may enhance the spread of invasive plants.

- Harvesting may not be suitable for lakes with bottom obstructions (stumps, logs) or that are shallow (3-5 feet of water).

Aquatic Herbicides

Aquatic herbicides are specifically formulated for use in water to control aquatic plants. Aquatic herbicides can be sprayed directly onto emergent aquatic plants or applied to the water in a liquid or granular form. Herbicides approved for aquatic use by the Environmental Protection Agency have been reviewed and are considered compatible with the aquatic environment, when used according to label directions. WDNR permits are required for herbicide application under Chapter NR 107.

Aquatic communities are full of life. The plants, invertebrates, fish, birds and mammals are all interconnected and dependent upon each other. Aquatic weed control can affect an organism, which may in turn affect other organisms, disturbing the whole community. The risk to other members of the natural community is an important factor to keep in mind when considering the use of aquatic herbicides.

Contact herbicides act quickly, killing all plant material they come in to contact with. This makes contact herbicides more effective with annuals, since the roots, not directly contacted by the herbicide, are left alive and able to regrow. Because the entire plant is not killed, retreatment is necessary.

Systemic herbicides are absorbed by the plant, killing the entire plant. Systematic herbicides are more effective in controlling perennial and woody plants.

Non-selective herbicides will generally affect all plants that they come in contact with. This type of herbicide is generally used to control all or most vegetative species in treatment area.

Selective herbicides are used to control certain plants while not affecting others.

Advantages to Aquatic Herbicides:

- Application can be less expensive than other aquatic plant control methods.
- Aquatic herbicides are easily applied around docks and underwater obstructions.

Disadvantages to Aquatic Herbicides:

- Some herbicides have swimming, drinking, fishing, irrigation, and other water use restrictions (check the label and general permit).
- Herbicides may have unwanted side effects to people using the water and to the surrounding environment.
- Non-targeted plants may be killed.
- May require additional applications.
- Herbicide use can be a controversial topic. Consider lake users opinions before deciding to treat plants with herbicides.

Biological Control

Biological control is the deliberate introduction of a predatory organism to regulate the population of a pest organism. Biological control in regards to Lake Holcombe will be discussed further in the following segments.

Advantages to Biological Control:

- Lower overall cost compared to other control methods.
- Longer-term control compared to other methods.
- Plant specific control.

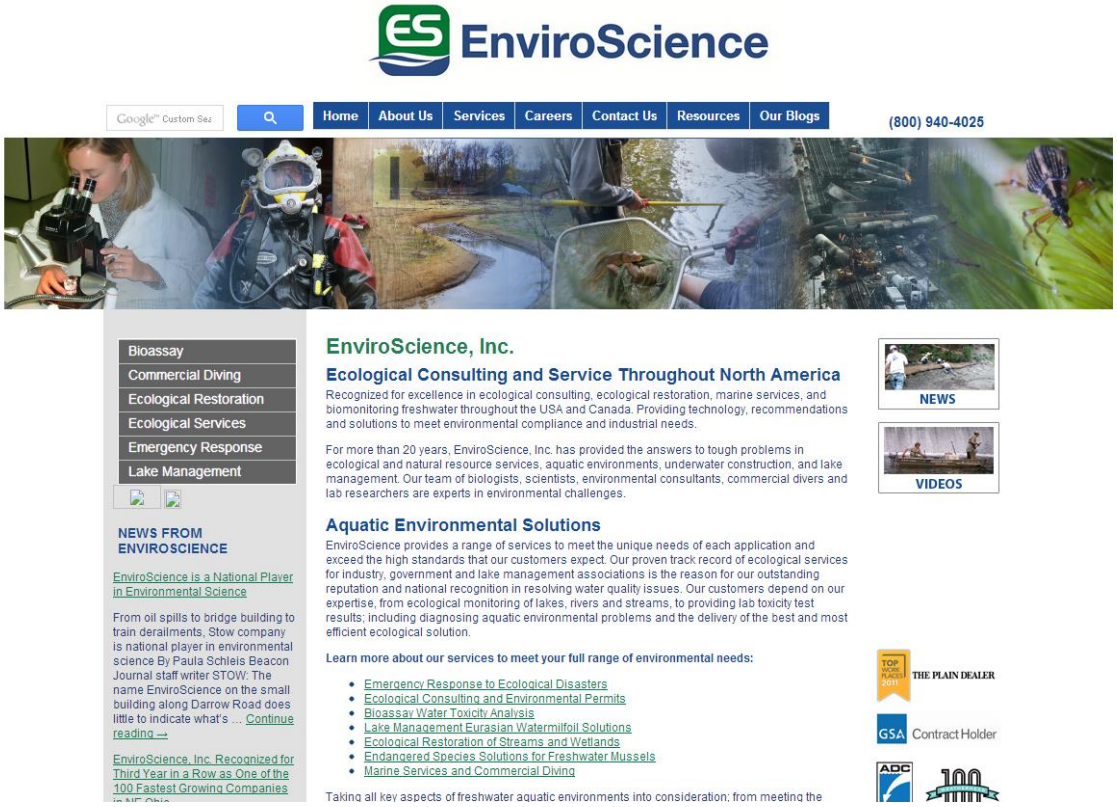
Disadvantages to Biological Control:

- Multiple introductions are required.
- Biological control takes years to take effect.
- Specific environmental conditions necessary for success.

Appendix E

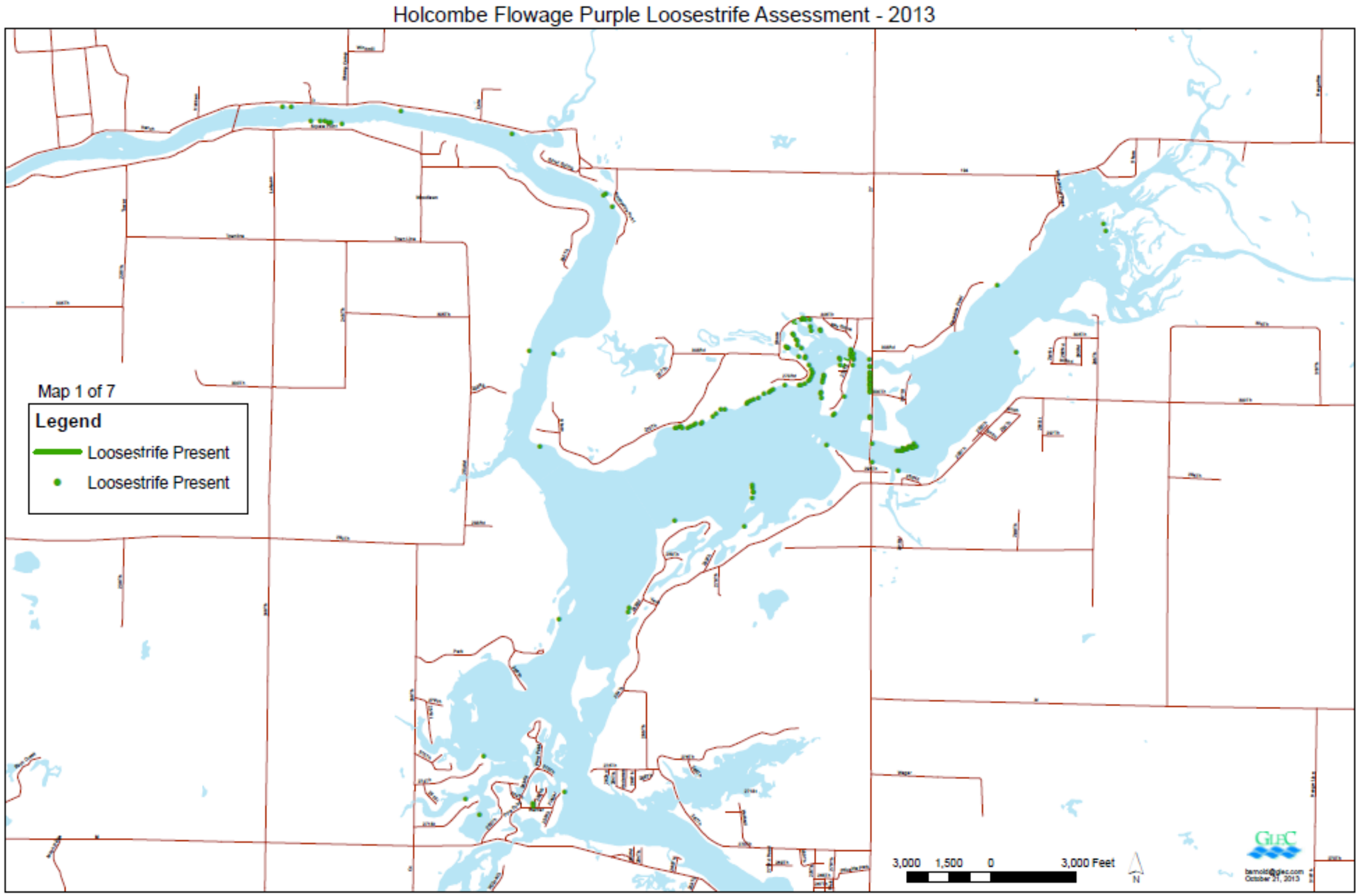
EnviroScience

http://enviroscienceinc.com/



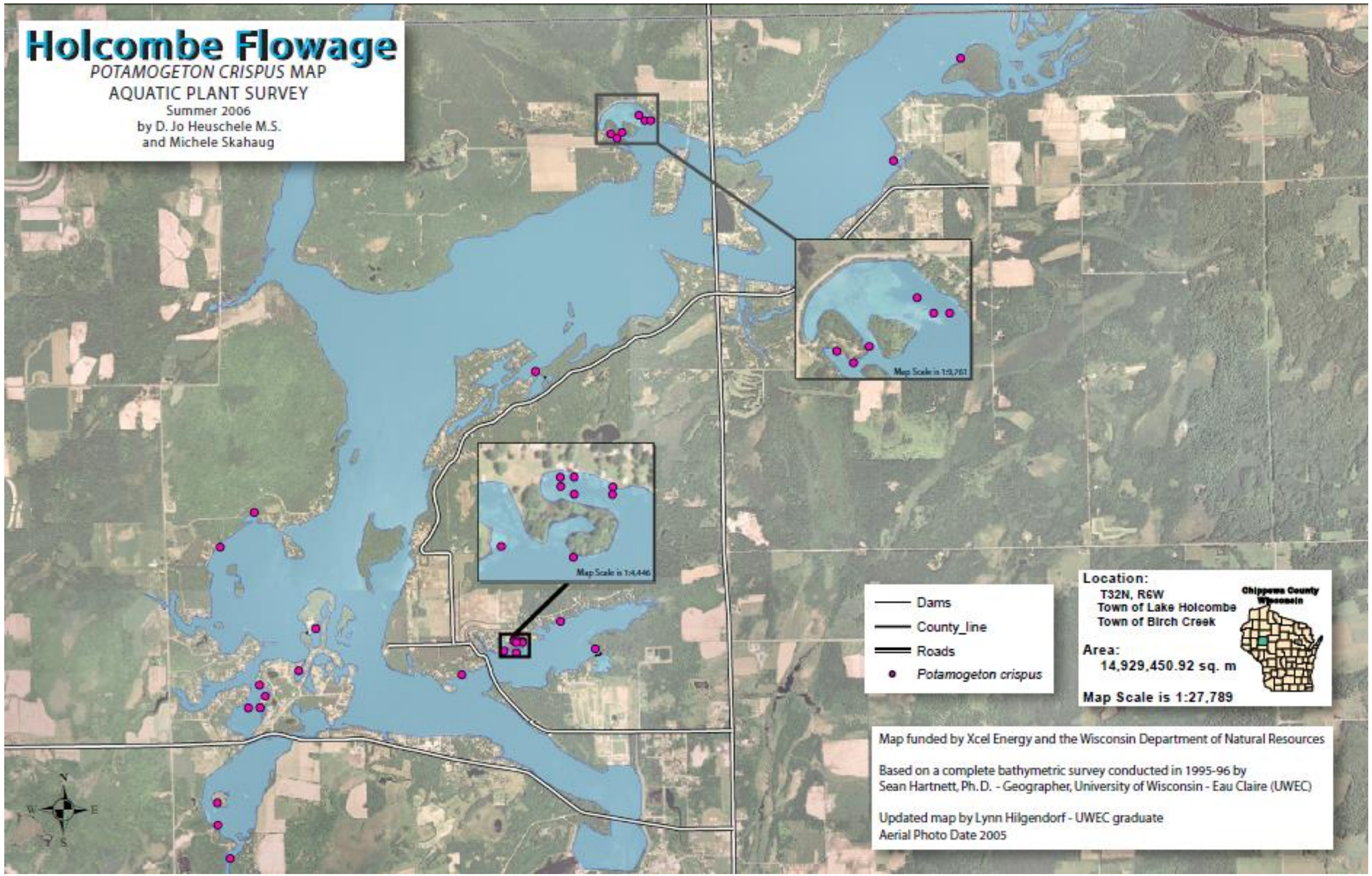
Appendix F

Purple loosestrife map for 2013. Map from Turner 2013, GLEC.



Appendix G

Curly-leaf pondweed map from Heuschele, 2006.



Appendix H

Chippewa County Department of Land Conservation and Forest Management.

Room 011
711 N Bridge St.
Chippewa Falls, WI 54729
Phone:(715) 726-7920
Dave Nashold dnashold@co.chippewa.wi.us
Dan Masterpole dmasterpole@co.chippewa.wi.us

Appendix I

Xcel Energy erosion categories.

Xcel categorizes erosion into three classifications:

Class I: Banks exhibiting minor to limited sheet erosion but without any material drift into the impoundment. This includes areas in final process of stabilization that are usually protected from wave action by emergent vegetation.

Class II: This category is used to describe banks displaying moderate sheet erosion and possible evident of material entering the littoral zone. These banks are either in early stages of stabilization or lack stability. At least 50% of shoreline vegetated.

Class III: Incorporates unstable banks exhibiting serious sheet erosion with free flowing down-drift materials in the reservoir. At this final stage, banks are actively losing top soil and vegetation. Less than 50% of shoreline remains vegetated.

Appendix J

Xcel Energy Lake Holcombe Erosion Survey Map 2008.

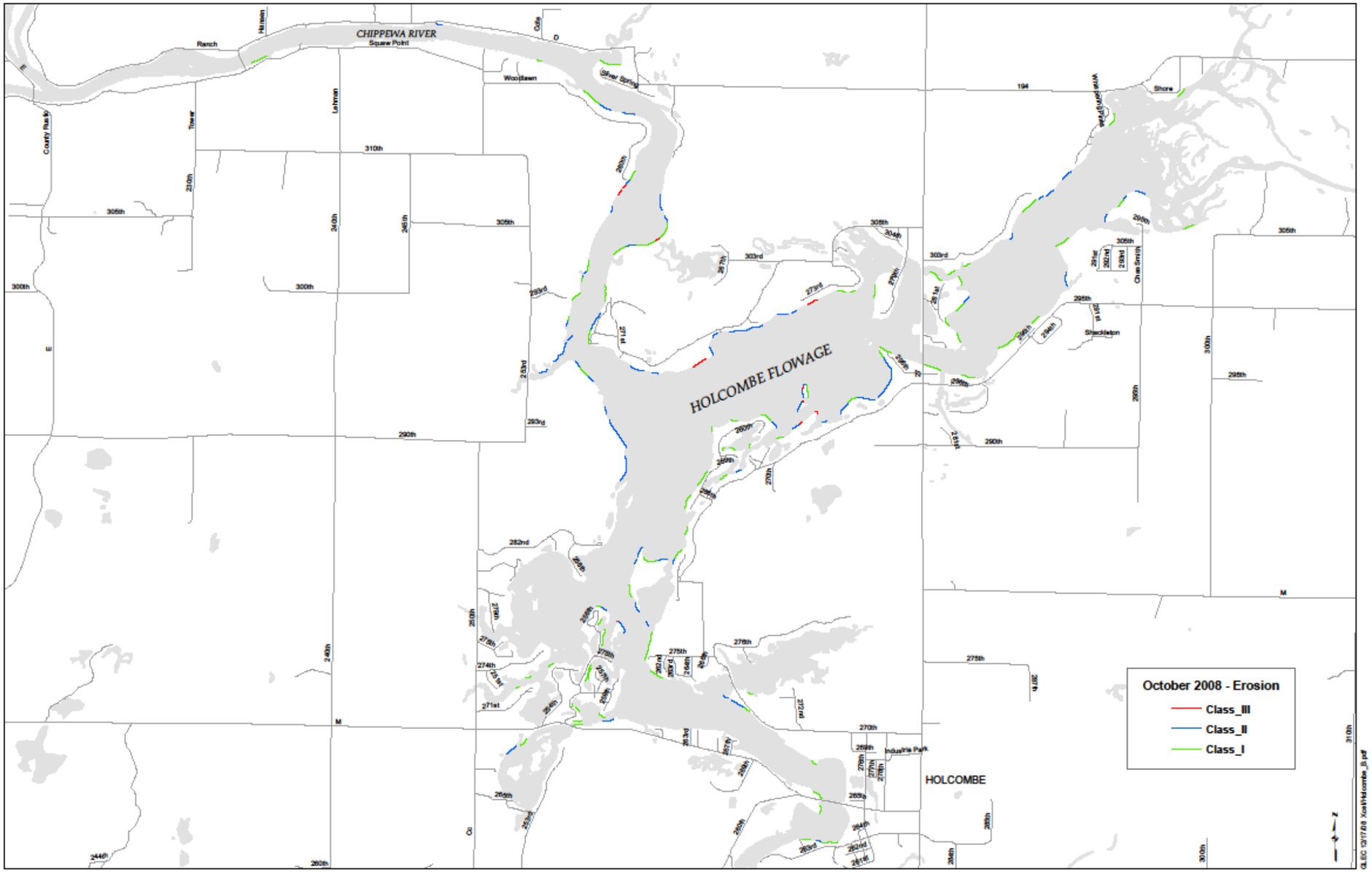


Figure 3: Shoreline Erosion Areas on Lake Holcombe

Appendix K

Natural Resources Conservation Service - Conservation Practice Standard

http://www.usda.gov/wps/portal/usda/usdahome

Natural Resources Conservation Service
Conservation Practice Standard
Streambank and Shoreline Protection
(Ft.)
Code 580

Definition

Treatment(s) used to stabilize and protect banks of streams or constructed channels, and shorelines of lakes, reservoirs, or estuaries.

Purpose

- To prevent the loss of land or damage to land uses, or facilities adjacent to the banks of streams or constructed channels, shoreline of lakes, reservoirs, or estuaries including the protection of known historical, archeological, and traditional cultural properties.
- To maintain the flow capacity of streams or channels.
- Reduce the offsite or downstream effects of sediment resulting from bank erosion.
- To improve or enhance the stream corridor for fish and wildlife habitat, aesthetics, recreation.

Conditions where practice applies

This practice applies to streambanks of natural or constructed channels and shorelines of lakes, reservoirs, or estuaries where they are susceptible to erosion. It does not apply to erosion problems on main ocean fronts, beaches or similar areas of complexity.

CRITERIA

General Criteria Applicable to All Purposes

Treatments shall be in accordance with all applicable local, state and federal laws and regulations.

Treatments applied shall seek to avoid adverse effects to endangered, threatened, and candidate species and their habitats, whenever possible.

Treatments applied shall seek to avoid adverse effects to archaeological, historic, structural, and traditional cultural properties, whenever possible.

An assessment of unstable streambank or shoreline sites shall be conducted in sufficient detail to identify the causes contributing to the instability (e.g. livestock access, watershed alterations resulting in significant modifications of discharge or sediment production, in channel modifications such as gravel mining, head cutting, water level fluctuations, boat-generated waves, etc.).

Proposed protective treatments to be applied shall be compatible with improvements being planned or installed by others.

Protective treatments shall be compatible with the bank or shoreline materials, water chemistry, channel or lake hydraulics, and slope characteristics above and below the water line.

End sections of treatment areas shall be adequately anchored to existing treatments, terminate in stable areas, or be otherwise stabilized to prevent flanking of the treatment.

Protective treatments shall be installed that result in stable slopes. Design limitations of the bank or shoreline materials and type of measure installed shall determine steepest permissible slopes.

Designs will provide for protection of installed treatments from overbank flows resulting from upslope runoff and flood return flows.

Internal drainage for bank seepage shall be provided when needed. Geotextiles or properly designed filter bedding shall be incorporated with structural measures where there is the potential for migration of material from behind the measure.

Treatments shall be designed to account for any anticipated ice action, wave action, and fluctuating water levels.

All disturbed areas around protective treatments shall be protected from erosion. Disturbed areas that are not to be cultivated shall be protected as soon as practical after construction.

Vegetation shall be selected that is best suited for the site conditions and achieves the intended purpose(s).

In order to ensure plant community establishment and integrity, a vegetative management plan shall be prepared in accordance with NRCS conservation practice standard Critical Area Planting, Code 342.

Additional Criteria for Streambanks

Stream segments to be protected shall be classified according to a system deemed appropriate by the state. Segments that are incised or that contain the 5-year return period (20 percent probability) or greater flows shall be evaluated for further degradation or aggradation.

A site assessment shall be performed to determine if the causes of instability are local (e.g. poor soils, high water table in banks, alignment, obstructions deflecting flows into bank, etc.) or systemic in nature (e.g. aggradation due to increased sediment from the watershed, increased runoff due to urban development in the watershed, degradation due to channel modifications, etc.). The assessment need only be of the extent and detail necessary to provide a basis for design of the bank treatments and reasonable confidence that the treatments will perform adequately for the design life of the measure.

Changes in channel alignment shall not be made without an assessment of both upstream and downstream fluvial geomorphology that evaluates the affects of the proposed alignment. The current and future discharge-sediment regime shall be based on an assessment of the watershed above the proposed channel alignment.

Bank protection treatment shall not be installed in channel systems undergoing

rapid and extensive changes in bottom grade and/or alignment unless the treatments are designed to control or accommodate the changes. Bank treatment shall be constructed to a depth at or below the anticipated lowest depth of streambed scour.

If the failure mechanism is a result of the degradation or removal of riparian vegetation, stream corridor restoration shall be implemented, where feasible, (see Additional Criteria for Stream Corridor Improvement) as well as treating the banks.

Toe erosion shall be stabilized by treatments that redirect the stream flow away from the toe or by structural treatments that armor the toe. Additional design guidance is found in the EFH Part 650, Chapter 16, Streambank and Shoreline Protection.

Where toe protection alone is inadequate to stabilize the bank, the upper bank shall be shaped to a stable slope and vegetated, or shall be stabilized with structural or soil-bioengineering treatments.

Channel clearing to remove stumps, fallen trees, debris, and sediment bars shall only be performed when they are causing or could cause unacceptable bank erosion, flow restriction, or damage to structures. Habitat forming elements that provide cover, food, pools, and water turbulence shall be retained or replaced to the extent possible.

Treatments shall be functional and stable for the design flow and sustainable for higher flow conditions.

Treatments shall not induce an increase in natural erosion.

Treatments shall not limit stream flow access to the floodplain.

Where flooding is a concern, the effects of protective treatments shall not increase flow levels above those that existed prior to installation.

Additional Criteria for Shorelines

All revetments, bulkheads or groins are to be no higher than 3 feet (1 meter) above mean high tide, or mean high water in non-tidal areas

Structural shoreline protective treatments shall be keyed to a depth to prevent scour during low water.

For the design of structural treatments, the site characteristics below the waterline shall be evaluated for a minimum of 50 feet (15 meters) horizontal distance from the shoreline measured at the design water surface.

The height of the protection shall be based on the design water surface plus the computed wave height and freeboard. The design water surface in tidal areas shall be mean high tide.

When vegetation is selected as the protective treatment, a temporary breakwater shall be used during establishment when wave run up would damage the vegetation.

Additional Criteria for Stream Corridor Improvement

Stream corridor vegetative components shall be established as necessary for ecosystem functioning and stability. The appropriate composition of vegetative components is a key element in preventing excess long-term channel migration in re-established stream

corridors. The establishment of vegetation on channel banks and associated areas shall also be in accordance with conservation practice standard Critical Area Planting, Code 342.
Treatments shall be designed to achieve habitat and population objectives for fish and wildlife species or communities of concern as determined by a site-specific assessment or management plan. Objectives shall be based on the survival and reproductive needs of populations and communities, which include habitat diversity, habitat linkages, daily and seasonal habitat ranges, limiting factors and native plant communities. The type, amount, and distribution of vegetation shall be based on the requirements of the fish and wildlife species or communities of concern to the extent possible.

Treatments shall be designed to meet aesthetic objectives as determined by a site-specific assessment or management plan. Aesthetic objectives shall be based on human needs, including visual quality, noise control, and microclimate control. Construction materials, grading practices, and other site development elements shall be selected and designed to be compatible with adjacent land uses.

Treatments shall be designed to achieve recreation objectives as determined by a site-specific assessment or management plan. Safety requirements shall be based on type of human use and recreation objectives.

Considerations
When designing protective treatments, consider should be given to the changes that may occur in the watershed hydrology and sedimentation over the design life of the treatments.
Consider utilizing debris removed from the channel or streambank into the treatment design when it is compatible with the intended purpose to improve benefits for fish, wildlife and aquatic systems.

Use construction materials, grading practices, vegetation, and other site development elements that minimize visual impacts and maintain or complement existing landscape uses such as pedestrian paths, climate controls, buffers, etc. Avoid excessive disturbance and compaction of the site during installation.

Utilize vegetative species that are native and/or compatible with local ecosystems. Avoid introduced, invasive, noxious or exotic species that could become nuisances. Consider species that have multiple values such as those suited for biomass, nuts, fruit, browse, nesting, aesthetics and tolerance to locally used herbicides. Avoid species that may be alternate hosts to disease or undesirable pests. Species diversity should be considered to avoid loss of function due to species-specific pests. Species on noxious plant lists should not be used.

Select plant materials that provide habitat requirements for desirable wildlife and pollinators. The addition of native forbs and legumes to grass mixes will increase the value of plantings for both wildlife and pollinators.

Treatments that promote beneficial sediment deposition and the filtering of sediment, sediment-attached, and dissolved substances should be considered.

Consider maintaining or improving the habitat value for fish and wildlife by including treatments that provide aquatic habitat in the treatment design and that may lower or moderate water temperature and improve water quality.

Consider the need to stabilize side channel inlets and outlets and outlets of tributary streams from erosion.

Consider aquatic habitat when selecting the type of toe stabilization.

Consider maximizing adjacent wetland functions and values with the project design and minimize adverse effects to existing wetland functions and values.

Livestock exclusion shall be considered during establishment of vegetative treatments and appropriate grazing practices applied after establishment to maintain plant community integrity. Wildlife may also need to be controlled during establishment of vegetative treatments. Temporary and local population control methods should be used with caution and within state and local regulations.

When appropriate, establish a buffer strip and/or diversion at the top of the bank or shoreline protection zone to help maintain and protect installed treatments, improve their function, filter out sediments, nutrients, and pollutants from runoff, and provide additional wildlife habitat.

Consider conservation and stabilization of archeological, historic, structural and traditional cultural properties when applicable.

Consider safety hazards to boaters, swimmers, or people using the shoreline or streambank when designing treatments.

Protective treatments should be self-sustaining or require minimum maintenance.

Plans and specifications

Plans and specifications for streambank and shoreline protection shall be prepared for specific field sites and based on this standard and shall describe the requirements for applying the practice to achieve its intended purpose. Plans shall include treatments to minimize erosion and sediment production during construction and provisions necessary to comply with conditions of any environmental agreements, biological opinions or other terms of applicable permits.

OPERATION AND MAINTENANCE

An operation and maintenance plan shall be prepared for use by the owner or others responsible for operating and maintaining the system. The plan shall provide specific instructions for operating and maintaining the system to insure that it functions properly. It shall also provide for periodic inspections and prompt repair or replacement of damaged components or erosion.

References

NEH Part 650, Chapter 16, Streambank and Shoreline Protection..

Appendix L

The selection of waters for Critical Habitat Designation (CHD) as based on:

- Quality of natural resource.
- The amount of information the WDNR holds on the water body.
- Current and future risks of development and in-lake activities to the resource.

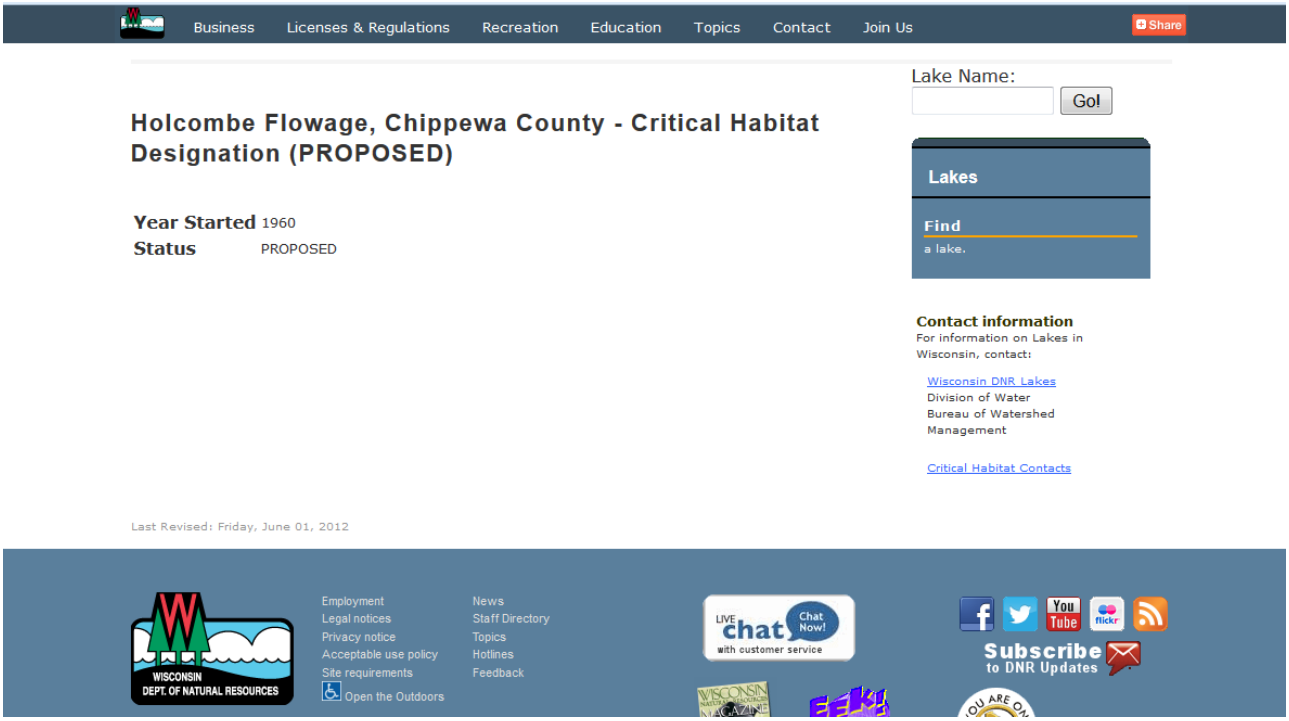
After lake selection the process for CHD is as follows:

a. The WDNR compile and review scientific data on the waterbody.
b. The WDNR conducts field work and surveys public rights features.
c. Data is compiled into a CHD report which is then posted for public review.
d. After feedback from the public comment and completion of the report, the areas of critical habitat are officially designated.

Appendix M

Holcombe Flowage, Chippewa County - Critical Habitat Designation (PROPOSED)

http://dnr.wi.gov/lakes/criticalhabitat/project.aspx?project=25645533



Appendix N

Kids Don't Float background information.

http://dnr.alaska.gov/parks/boating/kdfhome.htm

Appendix O

Kids Don't Float construction plans, information, and materials.

Assembly Instructions for Life Jacket Loaner Station.

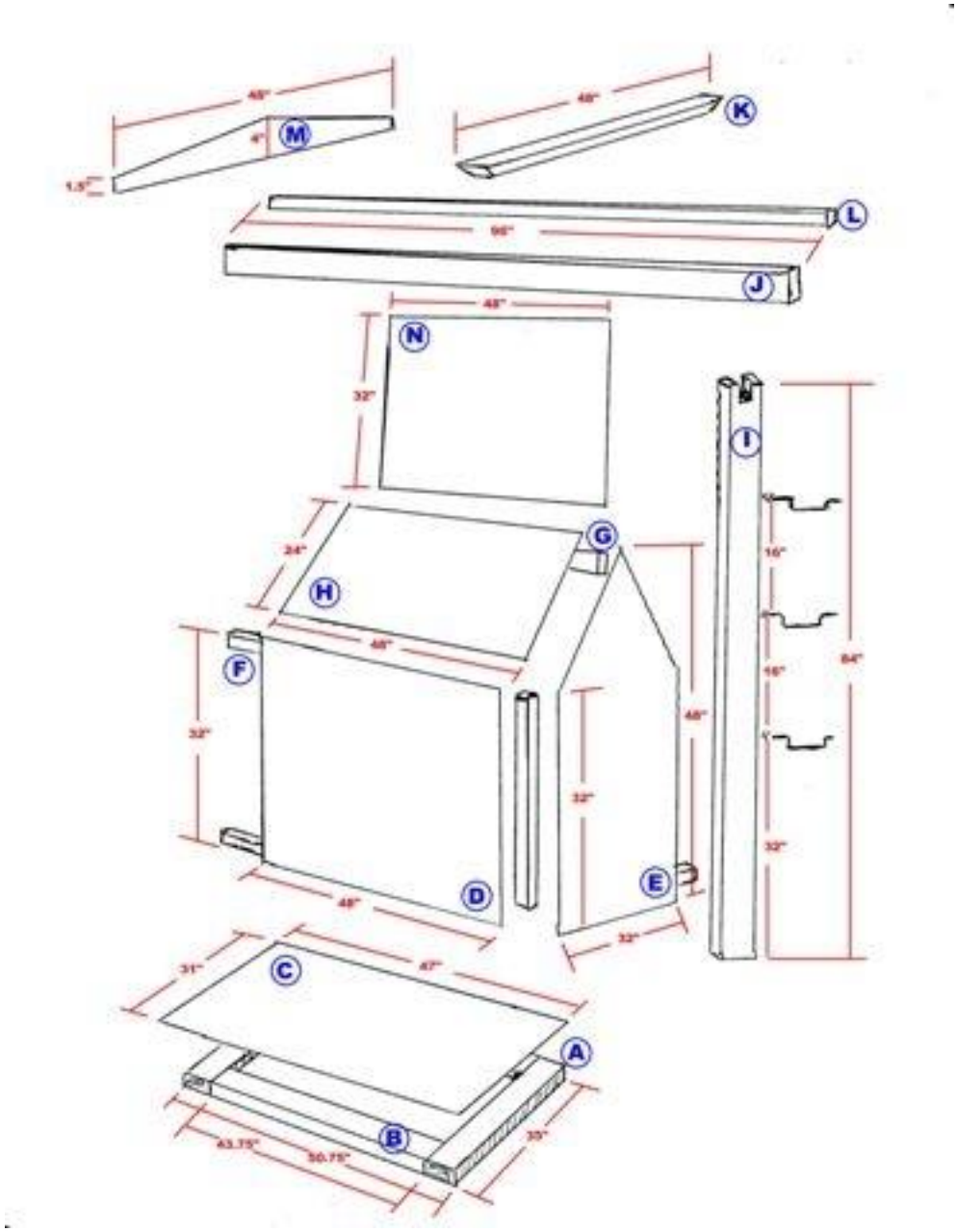
A. Lay 2, 35" long treated 2 x 4s out 43.75" apart from each other.
B. Lay 2, 43.75" treated 2 x 4's between them and fasten together.
C. Center one 31" x 47" MDO sheet over 2 x 4s and screw down firmly.
D. Attach 2, 32" x 48" side panels to the outside edges of floor panel.
E. Attach 2, 48" x 32" pointed top panels between other side panels.
F. Reinforce box with necessary treated 2 x 2' in corners and along bottom.
G. Fasten 47" long 2 x 4 between peaks for hinges and support.
H. Install 1, 24"x 48" (unlettered lid is fastened solid).
H2. 1, 24"x 48" hinged lid supplied by American Signs & Designs
I. Fasten 2, 7' long treated 2x6s with notch tops to the ends of boxes.
J. Insert 1, 8' long treated 2x4 in notched uprights as ridge beam.
K. Attach 2, 4' long treated 2x2s on 2x6 uprights and under ridge beam.
L. Attach 2, 8' long treated 2x2s to the ends of (Ks) to support roof sheeting.
M. Attach 2, ½" MDO gable end pieces to each end of J & Ls.
N. Attached clear fiberglass roof panels to roof frame and cover peak
With either vinyl corner molding or aluminum coil stock ridge cap.
(None of the materials described in N are shown on the parts diagram.

Materials list:

7- - - - - - 8' long treated 2x4s.
2- - - - - - 4'x 8' sheets of MDO board. (medium density overlay).
2- - - - - - 7' long treated 2x6s.
6- - - - - - Rubber coated hangers for hanging life jackets.
2- - - - - - 4" heavy duty casters for rolling.
4- - - - - - 3" round vents for ends of box.
2- - - - - - 3" long hinges for lid cover.
1- - - - - - 3" long handle for lid.
Misc. exterior deck screws to fasten all parts together.
Clear fiberglass panels to cover 32 sq. ft. of roof.
Flat Brown exterior house paint for entire structure.

Being supplied by American Signs & Designs.
1. One double faced white PVC sign face shown as N.
2. One single face brown sign (hinged lid) shown as H.

For any additional information or instructions on assembly please call 608-375-7446, or
Email: signs@rldusa.com


M
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DRAFT

LIFE JACKET LOANER BOARD AGREEMENT

AGREEMENT BETWEEN THE DEPARTMENT OF NATURAL RESOURCES AND

_____

This agreement (Agreement) between the Department of Natural Resources (hereinafter referred to as the "DNR"), acting through the Secretary and _____, acting as a single entity or designee (hereafter referred to as the Loaner Board Partner "LBP").

WITNESSTH:

WHEREAS, it is the purpose of the DNR to promote safe boating practices and to reduce boating related fatalities; and

WHEREAS, the DNR desires to work with citizens and groups to create a safer boating environment: and

WHEREAS, the LBP has expressed a desire to assist the DNR in this endeavor,

NOW, THEREFOR, pursuant to policy and in consideration of the mutual, the benefits which will accrue to the DNR and the LBP, the parties agree as follows:

1. AUTHORIZATION

The DNR authorizes LBP to build, maintain and supply a Personal Flotation Device Loaner Station at _____Landing, located on _____, _____County Wisconsin, for a period of one year, commencing on the day following ratification of this agreement. The Agreement shall automatically renew for an additional consecutive year period, unless reasonable notice of cancellation is given by either party before the date of renewal. The DNR or LBP reserve the right to terminate this Agreement or any part thereof, at any time upon 30 days written notice without the necessity of any legal process, after holding a meeting prior to the termination setting forth the reasons for termination.

An evident and distinct separation shall be maintained between the management and decision-making activities of LBP and those of the DNR. All steps shall be taken to

avoid even an appearance that the DNR directs the management or decision-making process of LBP.
The management and operation of the LBP and the loaner board program is subject to all applicable Wisconsin Statutes and the Wisconsin Administrative Code.

2. DNR RESPONSIBILITIES

The DNR shall provide the plans to construct the Personal Flotation Device Loaner Station.

The DNR will directly supply materials or reimburse the LBP for the cost of the materials used to construct the Loaner Station.

The DNR will have final approval of the location chosen by the LBP for the placement of the Loaner Board Station.

The DNR will provide a starter set of personal flotation devices to LBP. These personal flotation devices will be clearly identified as a component of the Loaner Board project. As funding allows, the DNR will provide replacement personal flotation devices as needed.

The DNR will provide regulations and other boating safety handouts as available for the loaner station.

The DNR will maintain ownership of the loaner station, life jacket and materials.

The DNR will provide signage recognizing the LBP as a partner in the loaner board project.

3. LOANER BOARD PARTNER (LBP) RESPONSIBILITY

The LBP shall limit its official activities to the support of the Loaner Board station.

The LBP shall secure written permission from the owner or governmental entity responsible for the boat landing before placing the loaner board station.

The LBP is responsible for the construction and placement of the Loaner Board station.

The LBP is responsible for stocking and maintaining the personal flotation devices at the Loaner Board station and for notifying the DNR of items missing and presumed lost or stolen.

The LBP is responsible for stocking and maintaining boating regulations and other boating safety literature as the DNR sees fit.

The LBP is responsible for monitoring usage of the Loaner Board Station as requested by the DNR.

The LBP is responsible for placing the Loaner Board Station at the boat landing prior to the Memorial Holiday weekend. *Note high water or other natural or man-made conditions may preclude placement within this time frame. In this case it is the LBP's responsibility to notify the DNR of said conditions.

The LBP is responsible for removing and storing the loaner board station at the end of the boating season, but not before the Labor Day Holiday weekend. High water or other natural or man-made conditions may cause exception, in this case it is the LBP's responsibility to notify the DNR of said conditions.

4. INDEMNIFICATION AND LIABILITY

The DNR shall be responsible for the consequences of its own acts, errors, or omissions and shall be responsible for any losses, claims, and liabilities which are attributable to such acts, errors, or omissions. The LBP recognizes and understands that it may be responsible for the consequences of its own acts, errors, or omissions and those of its employees, agents, boards, commissions, agencies, officers and representatives, including providing its own defense. In situations including joint liability, each party shall be responsible for the consequences of its own acts, errors, or omissions and those of its employees, agents, boards, commissions, agencies, officers and representatives. It is not the intent of the parties to impose liability beyond that imposed by state statutes. This clause applies only to actions of each party pursuant to this agreement, and does not apply to actions or events that occur outside the scope of this agreement.

5. ASSIGNMENT

No transfer or assignment of this Agreement or of any part thereof or interest therein, directly or indirectly, voluntary or involuntary, shall be made unless such transfer or assignment is first approved in writing by the DNR Secretary or Secretary's authorized representative.

6. APPROPRIATIONS

Nothing herein contained shall be construed as binding the DNR to expend any sum in excess of appropriations made by the Legislature, or administratively allocated, for the purpose of the Agreement, or to involve the DNR in any contract or other obligation for the future expenditure of money in excess of such appropriations or allocation.

7. MISCELLANEOUS

A. The rights and benefits conferred by this Agreement shall be subject ts of the laws of the State of Wisconsin governing the DNR and the rules and regulations promulgated thereunder, whether now in force or hereafter enacted or provided; and the mention of specific restrictions, conditions and stipulations herein shall not be construed as in any way impairing the general powers of supervision, regulation, and control by the DNR.

B. Both parties agree to keep this Agreement in force when signed by both Parties hereto until terminated by mutual agreement or at the option of either party upon three months notice given in writing upon any anniversary date thereof. DNR and LBP shall review the Agreement every three years and at such other times as may be required by either party on 30 days written notice.

C. DNR or LBP may terminate this Agreement upon 30 days written notice to the other party if, after reasonable effort by said party to correct a default, it is determined that conditions still exist contrary to this Agreement.

This Agreement is effective between LBP and DNR with regard to, and only to, the following specified sites, which are collectively referred to throughout this Agreement as _____landing, to wit:

(1) _____Boat Landing.

IN WITNESS WHEREOF, the Loaner Boar Partner, has caused this Agreement to be executed this _____day of _____2_____.

_____(LBP)

By:_____

Attested:_____

Position:_____

IN WITNESS WHEREOF, the of Department of Natural Resources has caused this Agreement to be ratified this _____day of _____,2_____

Department of Natural Resources

By:_____
For the Secretary

KIDS DON'T FLOAT!

Kids Don't Float (KDF) is a statewide drowning prevention program that was developed to address Wisconsin's leading cause of boating-related deaths. In a collaborative effort between several state and federal agencies, organizations and local sponsors, *Kids Don't Float* provides life jackets that can be borrowed at no cost and returned after use.
Kids Don't Float stations are set up on boat landings around the state and are stocked with a variety of youth and adult size personal flotation devices or life jackets. A boat operator who forgets to bring enough life jackets for all of his or her passengers, can borrow what is needed and then return to the station once their voyage is complete.

Wisconsin Personal Flotation Device Requirements
U.S. Coast Guard and Wisconsin State Law require that a boater carry one wearable Personal Flotation Device or life jacket for every passenger on board the boat, including the operator. In addition, boats sixteen feet and over are required to have a throwable type Personal Flotation Device, such as a Type IV cushion or ring buoy. The U. S. Coast Guard also requires that children 13 years of age and under, must where their Personal Flotation Device when on Federal waterways such as the Great Lakes or Mississippi River. While it is not a requirement, the Wisconsin Department of Natural Resources strongly recommends that all boaters, and especially children, wear their personal flotation device whenever they are on the water.

History
The *Kids Don't Float* program is currently in a trial stage in Wisconsin. Beginning around Memorial Day, 2012, several loaner board stations will be set up around the state. These loaner boards will be built and maintained by local civic groups, sport's clubs, lake associations, governmental agencies and private citizens interested in helping promote safe boating. The Wisconsin Department of Natural Resources provides the plans and materials to build the stations as well as a starter supply of life jackets or personal flotation devices.

The *Kids Don't Float* program is modeled after a very successful program in Alaska. Alaska's program began in Homer, Alaska, in early 1996. The public response was so positive that, in November of the same year, the Alaska Department of Health and Social Services Section of Community Health and EMS, the U.S. Coast Guard District 17 Recreational Boating Safety Program, and Alaska Safe Kids partnered on an expansion. Currently Alaska has over 500 loaner board stations set up on boat landings around the state.

Become a Loaner Board Partner
The Wisconsin Department of Natural Resources is looking for responsible groups, clubs, associations, agencies or individuals who are interested in promoting boating safety to sponsor a loaner board in their area. The partners will be responsible for construction and placement of the loaner board station as well as securing permission

from the governing body or individual on whose property the station will be set up. The partners will also be responsible for periodically checking the life jackets and replacing if necessary. Additionally, the partners will be responsible for removing and storing the station at the end of the boating season. The Wisconsin Department of Natural Resources will provide the plans and materials for the loaner board station as well as a starter supply of loaner life jackets. For more information please contact Chuck Horn at charles.horn@wisconsin.gov.

Appendix P

Wisconsin Slow-No-Wake Law

The state of Wisconsin has a Slow-No-Wake law that applies to all lakes in the state, including the lake areas of flowages. Slow-No-Wake is the minimum speed possible while still maintaining steerage (control of boat direction). The purpose of this law is twofold: making lakes safer for recreationalists, swimmers, fisherman, and near shore recreators. In addition, the Slow-No-Wake law will help to protect shorelines and improve water quality. Boats operating in shallow waters often churn up sediment decreasing water quality. Eliminating near shore wakes will also reduce large waves which contribute to shoreline erosion. Motors in shallow areas can chop up vegetation, potentially spreading invasive aquatic plants.

The Slow-No-Wake 100 Foot Rule:
While operating a motorboat, Slow-No-
Wake speed is required within 100 feet of a raft, pier, buoyed restricted area and lake shore.
While operating a personal watercraft, Slow-No-Wake speed is required when within 100 feet of any other boat, including other personal watercrafts.

The Slow-No-Wake 200 Foot Rule:
While operating a personal watercraft, Slow-No-Wake speed is required when within 200 feet of the shoreline.

Appendix Q

Holcombe Boating – Water Regulations

Chapter 11: Holocombe Flowage Boating –Water Regulations

-228-

CHAPTER 11

BOATING – WATER REGULATIONS

11.01 BOATING - WATER REGULATIONS ORDINANCE

(1) **TITLE/PURPOSE.** This ordinance is entitled the "Town of Lake Holcombe Boating – Water Regulations Ordinance". The purpose of this ordinance is to adopt boating and water use regulations for the Town of Lake Holcombe.

(2) **AUTHORITY**

(A) The Town Board of the Town of Lake Holcombe has specific statutory authority, powers and duties pursuant to the specific statutory sections noted in this ordinance and/or by its adoption of Village Board Powers under Section 60.10, Wisconsin Statutes, to regulate, control, prevent, and enforce against in the Town of Lake Holcombe certain uses, activities, businesses, and operations by persons, including boating and water regulations. Under Section 30.77, Wisconsin Statutes, the Town of Lake Holcombe may enact regulations pertaining to the use, operation, or equipment of boats, which conform with Sections 30.60 to 30.71, Wisconsin Statutes, or rules promulgated by the Department of Natural Resources under those sections. The Town of Lake Holcombe, in conjunction with other townships, having jurisdictions on the waters of lakes located in more than one (1) township or municipality can regulate when all Towns, Villages, and Cities, having jurisdictions on the waters of the lake have enacted identical local regulations or unless at least 50% of the Towns, Villages, and Cities have jurisdiction over the lake have enacted an identical ordinance and at least 60% of the footage of the shore land of the lake is within the boundaries of these Towns, Villages, and Cities. (Reference Section 30.77(3)(a), Wisconsin Statutes.)

(B) With respect to regulations local in nature such as "slow and no wake" ordinances for narrow channel areas, the Town of Lake Holcombe may regulate such areas by Town of Lake Holcombe ordinance. (Reference Section 30.77(3), Wisconsin Statutes.)

(C) All ordinances must be publicized in accordance with Section 30.77(4), Wisconsin Statutes.

(D) All local ordinances are subject to advisory review by the Department of Natural Resources as provide in Section 30.77(3)(d), Wisconsin Statutes.

(3) **ADOPTION OF ORDINANCE.** The Town Board has, by adoption of this ordinance, confirmed the specific statutory authority, powers, and duties noted in the specific sections of this ordinance and has establish by these sections and this ordinance the regulations, controls, and enforcement against certain uses, activates, businesses and operation by persons using water in the Town of Lake Holcombe.

(4) **APPLICABILITY AND ENFORCEMENT**

(A) The provisions of this ordinance shall apply to all waters of the Town of Lake Holcombe.

(B) The officers of the Town of Lake Holcombe, of Chippewa County, and the State of Wisconsin Department of Natural Resources, shall enforce this chapter.

(5) **INTENT.** The intent of this ordinance is to provide safe and healthful conditions for the enjoyment of aquatic recreation consistent with public rights and interest, and the capability of the water resources.

(6) **STATE BOATING AND SAFETY LAWS ADOPTED.** Except as specifically noted other wise in this ordinance, Section 30.50 to 30.71 Wisconsin Statutes, describing and defining regulations with respect to boating and boating safety for which the penalty is a forfeiture, including penalties to be imposed and procedure for prosecution, are hereby adopted and incorporated by reference by the Town of Lake Holcombe and made a part of this ordinance as if fully set forth herein. Any future amendments, modifications, revisions, additions, or deletions of the above noted statutory chapter shall be incorporated herein and made a part of this ordinance in order to secure uniform State regulation of boating in the State of Wisconsin.

(7) **ADDITIONAL TRAFFIC RULES.** In addition to the traffic rules in Section 30.65, Wisconsin Statutes, adopted herein, the following rules shall apply to boats using the waters covered by this ordinance:

(A) No person shall operate any boat contrary to any legally placed buoys, or any regulatory markers.

(8) **DEFINITIONS**

(A) **Regulatory Marker** means any anchored or fixed marker in the water or anchored platform on the surface of the water other than aids to navigation and shall include but not be limited to bathing beach markers, speed zone markers, information markers, mooring buoys, fishing buoys, and restricted area markers.

(B) **Slow-No-Wake** means that speed at which a boat moves as slowly as possible while still maintain steerage control.

(C) **Shore Zone** means the water area within 200 feet of any shore.

(D) **Swimming Zone** means an authorized area marked by official buoys to designate a swimming area.

(E) **Public Access** means any access to the waters by means of public property.

(F) **Water Ski** means a boat towing a person using water skis, and aquaplane or similar device.

(G) **Hazard** means an area creating an unsafe condition for public bating or water skiing.

(9) **SPEED RESTRICTIONS.** No motorboat shall be operated with the shore zone at a speed sufficient to cause a wake. No person shall operate a motorboat on the waters of said lake at a speed greater than is reasonable and prudent under the conditions and having regard for the actual and potential hazards then existing.

(10) **RESTRICTED AREAS.** No person shall operate a boat within a water area, which has been clearly marked, by buoys or some other distinguishing device as a bathing or swimming area.

(11) MARKERS AND NAVIGATION AIDS; POSTING ORDINANCE

(A) **Duty of Officers.** Officers, employees and agents of the Town who are authorized to do so are authorized and directed to place authorized markers, navigation aids and signs in such water areas located within the boundaries of the Town as shall be appropriate to advise the public of the provisions of this ordinance and to post and maintain a copy of this ordinance at all public access points within the jurisdiction of the town.

(B) **Standard markers.** All markers placed by the officers, employees and agent of the Town who are authorized to do so, or any other person upon the water of the lake, shall comply with the regulations of the Uniform Navigation Aids System established by the Wisconsin Department of Resources as amended from time to time. (Reference N.R. 509)

(C) **Interference with Markers Prohibited.** No person shall without authority, remove, damage, or destroy or moor or attach any watercraft to any buoy, beacon, or maker placed in the waters of the lake by the authority of the State, County or Town or by any private person pursuant to the provisions of this ordinance.

(12) MARKERS AND NAVIGATIONS AIDS. Buoys will be placed to provide the public with the provisions of this sections as follows:

A. WAYSIDE PARK - Town of Lake Holcombe, Section 20, T32N, Range 6W. Five (5) **"SWIM AREA**" buoys. The purpose is to designate the public swim area for the Lake Holcombe Wayside Park. (See Map A)

B. CHRISTIAN HARBOR YOUTH CAMP – Town of Lake Holcombe, Section 17, T32N, Range 6W. Four (4) **"SWIM AREA**" buoys. The purpose is to designate the swim area for the Christian Harbor Youth Camp. (See Map B)

C. PINE LAKE – Town of Lake Holcombe, Section 20 & 21, T32N, Range 6W. Two (2) **"SLOW-NO-WAKE"** buoys, one (1) **"SLOW-NO-WAKE"** sign, and (2) **"HAZARD"** buoys. The regulatory sign will be placed on the bridge pier entering into Pine Lake. One (1) Slow-no-wake buoy will be placed 100 feet East of bridge carrying West Lake Short Drive traffic and one (1) Slow-no-wake buoy will be placed 100 feet west of the western smallest island located in the North/South center of Pine Lake. One (1) Hazard buoy will be placed 65 feet North of the property owned by Tom Fularczyk and one (1) Hazard buoy will be placed 65 feet south of the property owned by Robert Weber and each Hazard buoy will be placed East and West off the tip of the rock pile. The purpose of this section is to reduce shoreline erosion and eliminate hazards to boaters due to the fact that Pine Lake is a large stump field. (See map C)

D. XCEL ENERGY DAM – Town of Lake Holcombe, Section 32, T32N, Range 6W. Seven (7) **"WARNING**" buoys. Seven (7) Warning buoys are attached to eyebolt anchor located on the North Shore approximately One Hundred Fifty (150) feet upstream of the spillway, thence about One Thousand Three Hundred (1300) Feet South to eye bolt anchor located on the South shore approximately Two Hundred (200) feet upstream of the powerhouse. (See Map D)

E. BIRCH CREEK PARK – Town of Birch Creek, Section 18, T32N, Range 6W. Three (3) **"SWIM AREA"** buoys. The purpose is to designate the public swim area for the Birch Creek Park. First buoy to be One Hundred (100) feet East from South property line of Park, then Northeast at Seventy-five (75) feet intervals. (See Map E)

F. CRANBERRY CHANNEL – Town of Birch Creek, Section 19, T32N, Range 6W. Three (3) **"SLOW-NO-WAKE"** buoys. First regulatory marker located where Lake Holcombe narrows to under Two Hundred (200) feet. Second regulatory marker located at County "M" Bridge. Third regulatory marker placed approximately one-half the distance between the first and second regulatory markers, approximately two hundred (200) feet North from the West Property line of Tax Roll Computer No. 199. (See Map F)

G. CHANNEL BY ISLE BAY RESORT – Town of Lake Holcombe, Section 8, T32N, Range 6W. One (1) **"SLOW-NO-WAKE"** buoy. Section 17, T32N, Range 6W, Three (3) **"SLOW-NO-WAKE"** buoys. The channel is located Southwest of the Isle Bay Resort. (See Map G)

H. WHITE BIRCH CAMPGROUND – Town of Lake Holcombe, Section 9, T32N, Range 6W, Two (2) **"SWIM AREA"** buoys. The purpose is to designate the swim area for the White Birch Campground. (See Map H)

I. LIONS CLUB PUBLIC PARK – Town of Lake Holcombe, Section 7, T32N, Range 6W. Two (2) **"SWIM AREA"** buoys. The purpose is to designate the public swim area for the Lake Holcombe Lions Public Park. (See Map I)

J. WAYSIDE CHANNEL – PARADISE POINT BAY – Town of Lake Holcombe, Section 3, T32N, Range 6W. One (1) **"SLOW-NO-WAKE"** buoy. (See Map J)

K. REEF WEST OF HIGHWAY 27 – Town of Lake Holcombe, Section 9, T32N, Range 6W. Two (2) **"HAZARD"** buoys. The buoys are located on the reef West of Highway 27. (See Map K)

L. NORTH OF GOAT ISLAND – Town of Lake Holcombe, Section 20, T32N, Range 6W. Three (3) **"HAZARD"** buoys. The buoys are located north of Goat Island. (See Map L)

M. CRANBERRY CREEK BAY – Town of Birch Creek, Section 19, T32N, Range 6W. Six (6) **"SLOW-NO-WAKE"** buoys. (See Map M)

N. PARK CHANNEL – Town of Birch Creek, Section 19, T32N, Range 6W. One (1) **"HAZARD"** buoy and Three (3) **"SLOW-NO-WAKE"** buoys. (See Map N)

O. PINE POINT COUNTY PARK – Town of Birch Creek, Section 19, T32N, Range 6W. Five (5) **"SWIM AREA"** buoys. The purpose is to designate the swim area for the Pine Point County Park. (See Map O)

P. DEER TRAIL CREEK – Town of Willard, Section 31 & 32, T33N, Range 6W. Three (3) **"SLOW-NO-WAKE"** buoys. (See Map P)

Q. WHISPERING PINES AREA – Town of Willard, Section 35, T33N, Range 6W. Four (4) **"SLOW-NO-WAKE"** buoys. (See Map Q)

R. NORTH SHORE BAY – Town of Lake Holcombe, Section 4, T32N, Range 6w. Four (4) **"SLOW-NO-WAKE"** buoys and one (1) **"SLOW-NO-WAKE"** sign. (See Map R)

(13) <u>POSTING REQUIREMENTS.</u> The Town of Lake Holcombe shall place and maintain a copy of this ordinance at all public access points with the jurisdiction of the Town of Lake Holcombe.

(14) PENALTIES. Wisconsin State boating penalties as found in Section 30.80, Wisconsin Statutes are adopted by reference. All deposits for boating violations shall be in accordance with the amount established by the Uniformed Deposit Schedule under Section 23.66 Wisconsin Statues, as amended from time to time.

(15) SEVERABILITY. The provisions of this ordinance shall be deemed severable, and it is expressly declared that the Town of Lake Holcombe would have passed the other provisions of this ordinance irrespective of whether or not one or more provisions may be declared invalid. If any provision of this ordinance, or the application of any person or circumstances is held invalid, the remainder of the ordinance and the application of such provisions to other persons or circumstances shall be affected.

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