Designation of Critical Habitat Areas
Jacqueline Lake, Portage County

Wisconsin Department of Natural Resources
Eau Claire, WI

2006

Critical Habitat Area Designation
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I. INTRODUCTION

Designations of Critical Habitat Areas within lakes provide a holistic approach to ecosystem assessment and the protection of those areas within a lake that are most important for preserving the very character and qualities of the lake. These sites are those sensitive and fragile areas that support the wildlife and fish habitat, provide the mechanisms that protect the water quality in the lake, harbor quality plant communities and preserve the places of serenity and aesthetic beauty for the enjoyment of lake residents and visitors.

Critical Habitat Areas include Sensitive Areas and Public Rights Features. Sensitive Areas …"offer critical or unique fish and wildlife habitat, including seasonal or lifestage requirements, or offering water quality or erosion control benefits to the area" (Administrative code 107.05(3)(1)(1)). This code provides the Wisconsin Department of Natural Resources the authority for the identification and protection of sensitive areas in a lake. Public Rights Features are areas that fulfill the right of the public for navigation, quality and quantity of water, fishing, swimming or natural scenic beauty. Protecting these Critical Habitat Areas requires the protection of shoreline and in-lake habitat.

Protecting the terrestrial plant community on shore provides a buffer that absorbs nutrient runoff, prevents erosion, protects water quality, maintains water temperatures and provides important habitat. The habitat is important for species that require habitat on shore and in the water as well as those species that require a corridor in order to move along the shore (Figure 1).

Protecting the littoral zone and littoral zone plant communities is critical for fish, wildlife and the invertebrates that both feed upon (Figure 1). The Critical Habitat Area designation will provide a framework for management decisions that impact the ecosystem of the lake.

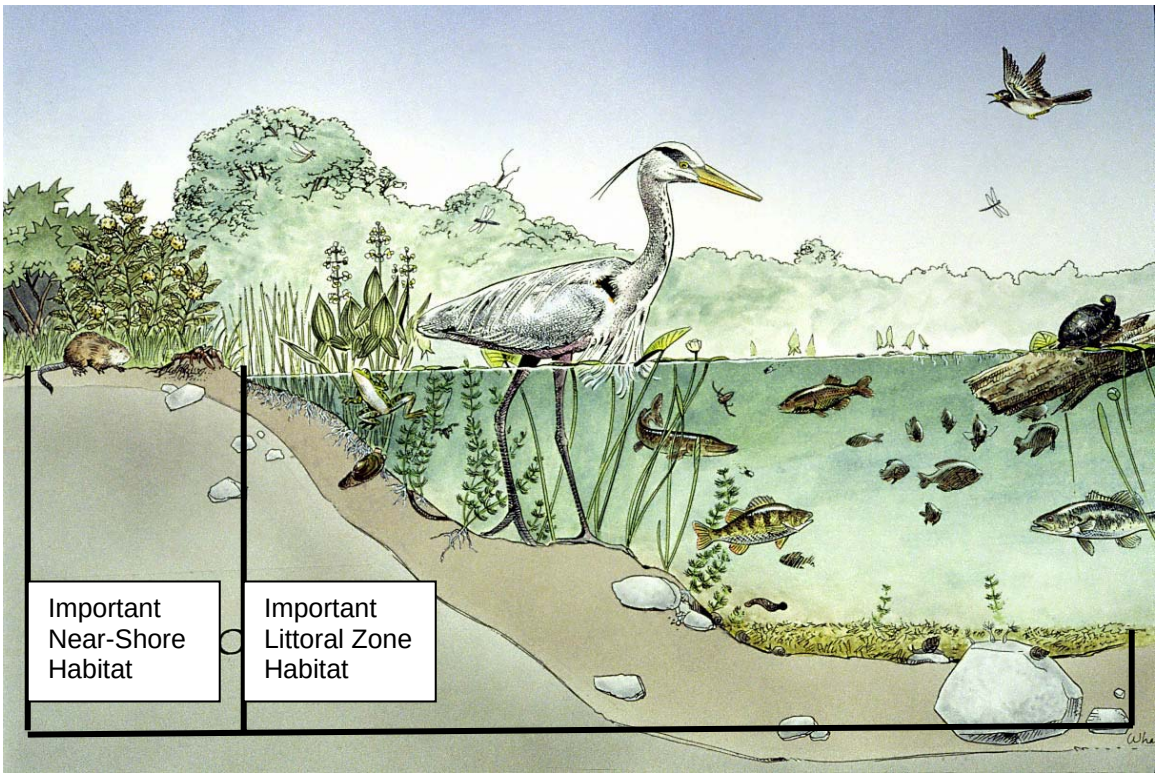

Figure 1. Location of important near-shore and littoral zone habitat.

The Critical Habitat Area designation will provide a framework for management decisions that impact the ecosystem of the lake.

A Critical Habitat Area Study was conducted October 9, 2006 on Jacqueline Lake, Portage County. The designations were based on aquatic plant data collected during July 2004 and previous fish surveys.
The study team included:
Tom Meronek, DNR Fish Biologist
Deborah Konkel, DNR, Aquatic Plant Specialist
Buzz Sorge, DNR Lakes Manager
Jon Robaidek, DNR Wildlife Biologist
Amy Lesik-Marcon, DNR Water Resource Specialist

Jacqueline Lake is a shallow mesotrophic lake with fair water quality. No filamentous algae was seen during the July 2006 study.

The aquatic plant community colonized nearly the entire littoral zone, more than half of the total lake area, to a maximum depth of 9.5 feet. The 0-1.5 ft. depth zone supported the most abundant aquatic plant growth. The aquatic plant community in Jacqueline Lake is a soft water community characterized by average-to-above average quality, good species diversity, a high intolerance to disturbance and a condition close to an undisturbed condition.

Utricularia purpurea (purple bladderwort) was the dominant species within the Jacqueline Lake aquatic plant community, especially in the 1.5-12ft depth zones, occurring at more than three-quarters of the sample sites and exhibiting a dense growth form. *U. purpurea* is listed as a Special Concern Species. *Nymphaea odorata* (white water lily) was the sub-dominant species, occurring at approximately half of the sites and at an above average density. Another listed Special Concern Species was commonly occurring in Jacqueline Lake, *Eleocharis robbinsii* (Robbin's spikerush).

II. THE CRITICAL HABITAT AREAS

The reasons for selection of each Critical Habitat Area in Jacqueline (Glisezinski) Lake are important, as this is what drives the selection process, their importance to the whole lake community.

All sites were selected because of their: importance for fish habitat, and the diverse, high quality aquatic plant communities they supported (Figure 2 on next page).

All Critical Habitat Areas were geo-referenced.

Attributes Common to All the Critical Habitat Areas

Water Quality

The aquatic and shoreline vegetation at all of the sites provides important water quality protections. The plants at all four sites provide a nutrient buffer by absorbing nutrients thus reducing algae growth. The plants at all sites provide a biological buffer, reducing the possibility that introduced exotic plant species could become established. The plants at all sites provide a physical buffer that protects the shoreline against wave erosion. Aquatic plants at all sites provide sediment stabilization, their roots anchoring the sediments and preventing resuspension by boat motors and waves and the resulting turbidity.

Wildlife Habitat

All of the Critical Habitat Areas provide very important wildlife habitat. Some values are unique to a Critical Habitat Area and some habitat values are shared by all the Critical Habitat Areas. All of the sites provide:

1) feeding areas for mink, loons, geese
2) shelter and cover for amphibians - frogs, toads
3) shelter, cover and feeding areas for turtles.

Fish Habitat

The designation of Critical Habitat Areas helps to preserve important fish habitat in a lake. The Critical Habitat Areas possess various attributes (submergent, floating-leaf, emergent and overhanging vegetation, and large woody cover) that have the potential to provide spawning areas, feeding areas, cover and nursery areas throughout the season. Some values are unique to a Critical Habitat Area and some habitat values are shared by all the Critical Habitat Areas in a lake. All of the Critical Habitat Areas in Jacqueline Lake provide:

1) spring and summer nursery areas, feeding areas and protective cover for northern pike
2) spring spawning, spring and summer nursery areas, feeding areas and protective cover for large-mouth bass
3) summer spawning, spring and summer nursery areas, feeding areas and protective cover for bluegill and bullhead.

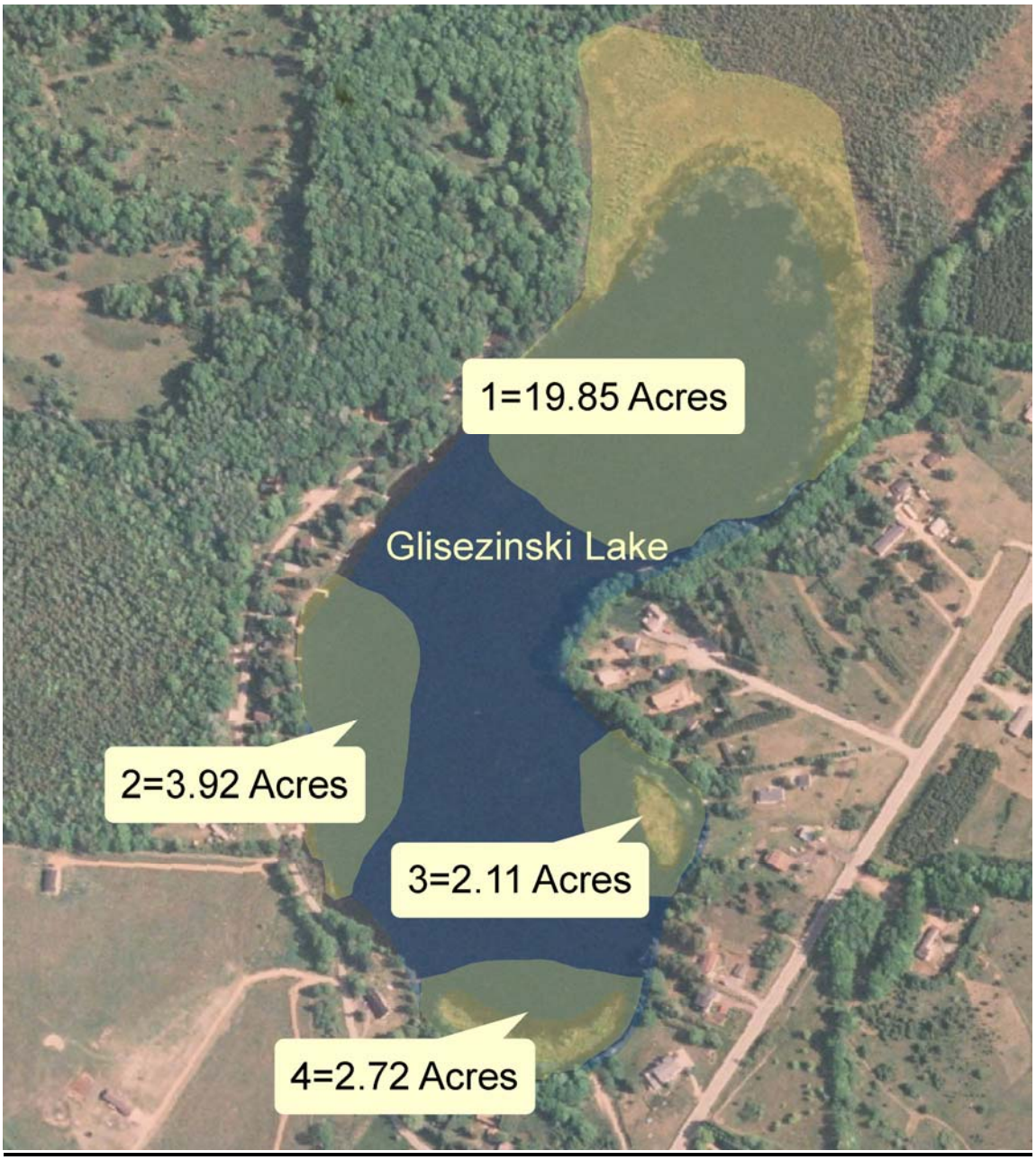

Figure 2. Location of Critical Habitat Areas on Jacqueline (Glisezinski) Lake.

Critical Habitat Area Jacqueline 1 – North Bog

This Critical Habitat Area possesses outstanding scenic beauty and is distinctly unique to this lake. It includes approximately 20-acres of shallow water (averaging 3 feet deep) and bog in the north third of the lake. The Critical Habitat Area extends landward to the Ordinary High Water Mark and out to the maximum rooting depth of 3 feet (Figure 2). The bay includes deep marsh, shallow water marsh, sedge meadow and bog wetlands that supports important near-shore terrestrial habitat, shoreline habitat and littoral zone habitat composed of abundant herbaceous growth of the wetlands, good shrub cover and some forest growth with a few small areas of lawn (Figure 3, 4). About 90% of the shoreline is wetland and 10% is home development.

The sediment is composed of silt and peat. Fallen trees are common at the wooded stretched of this site for fish and wildlife habitat.

This site provides and auditory and visual buffer from road and boat noise and shoreline structures. Do to its unique nature, this area could provide educational opportunities.

The Plant Community:

This site supports 14 species of aquatic plants.

Emergent vegetation: sedges, three-way sedge, spikerush, water horehound, marsh St. John's-wort, meadowsweet shrubs and leatherleaf shrubs protect the shoreline and provide important food sources, cover and fish spawning habitat.

Floating-leaf vegetation: white water lilies and watershield, dampen wave action and provide important fish cover.

A diverse submerged plant community provides many important habitat components for the fish and wildlife community (Table 1). Robbin's spikerush is present and purple bladderwort is dominant. Small rosette and turf-forming species colonize the bottom, anchoring the sediments. Pipewort is abundant and needle spikerush is present at this site.

Seven sensitive species occurred at this site (Table 2). The species sensitivity is measured by its Coefficient of Conservatism. A Coefficient of Conservatism is an assigned value, 0-10, the probability that the species will occur in an undisturbed habitat. A coefficient of 9 or 10 were given to native plants found only in area of high quality, of which many are Endangered, Threatened or Special Concern Species. Coefficients of 8 are native plants found in stable climax habitats (Nichols 1998).

Two of these sensitive species are Special Concern Species: Robbin's spikerush and purple bladderwort. Special Concern Species are species with which there is a concern about their lack of abundance or distribution. The purpose of this designation is to focus attention on these species before they become threatened or endangered.

Figure 3. Overview of Jacqueline Lake CRHA 1 and close up of wooded shore at CRHA1.

Figure 4. Jacqueline Lake CRHA 1, north shore, west to east

Table 1. Wildlife Uses of Aquatic Plants in Jacqueline Lake Critical Habitat Area 1

Aquatic Plants	Fish	Water Fowl	Song and Shore Birds	Upland Game Birds	Muskrat	Beaver	Deer
Submergent Plants							
Eleocharis acicularis	S	F			F		
Eriocaulon aquaticum		F					
Utricularia purpurea	F, C						
Floating-leaf Plants							
Brasenia schreberi	S, I, C	F(Seeds)			F	F	F
Nymphaea odorata	F,I, S, C	F(Seeds)	F		F	F	F
Emergent Plants							
Carex spp	S*	F*(Seeds), C	F*(Seeds)	F*(Seeds)	F	F	F
Chamaedaphne calyculata				F			F
Eleocharis smallii (palustris)	I	F, C					
Juncus spp.	S	C, F	C, F	C, F	F		
Sagittaria sp.		F*, C	F(Seeds), C	F, C	F	F	
Typha latifolia	I, C, S	F(Entire), C	F(Seeds), C, Nest	Nest	F*, C*, Lodge	F	
Xyris montana		F, C					

F=Food, I= Shelters Invertebrates, a valuable food source C=Cover, S=Spawning
***=Valuable Resource in this category**

*Current knowledge as to plant use. Other plants may have uses that have not been determined.

Table 2. Sensitive Species Recorded at Critical Habitat Area 1.

Species		Coefficient of Conservatism
Chameadaphne calyculata	leatherleaf	9
Dulichium arundinaceum	Three-way sedge	9
Eleocharis robbinsii	Robbin's spikerush	10
Eriocaulon aquaticum	Pipewort	9
Lycopus virginicus	Water horehound	8
Triadenum fraserii	Marsh St. Johns-wort	8
Utricularia purpurea	Purple bladderwort	9

Wildlife Habitat

This site provides habitat for a diversity of wildlife – furbearers, birds, amphibians and reptiles. The emergent vegetation and shoreline and near-shore shrubs and brush are the critical wildlife habitat components at this site. Loons nested in this area in the past, it is unknown whether the young survived. In addition to the wildlife habitat values found at all the sites, this site also provides:

1) shelter, cover and feeding areas for otter, mink, harriers, salamanders and turtles
2) shelter, cover, nesting and feeding areas for muskrats and loons
3) feeding areas for ducks and geese
4) nesting areas for songbirds

Fish Habitat

In addition to the fish habitat values provided at all sites (page 3), this Critical Habitat Area provides:

1) Spring spawning for northern pike and large-mouth bass
2) spring and summer nursery areas, feeding areas and protective cover for yellow perch

Recommendations for Area 1

Recommendations for the terrestrial shoreline buffer:

1) Minimize removal of any shoreline vegetation. Allow removal of a maximum corridor width of 30 feet.
2) Maintain the current wildlife habitat
3) Protect loon habitat and nesting area. Loons nested in the area in the past.
4) Maintain near-shore terrestrial vegetation in current undisturbed condition to prevent and absorb nutrient run-off in order to maintain water quality.
5) No bank grading allowed.

Recommendations for the aquatic habitat to the Ordinary High Water Mark

1) Maintain the aquatic vegetation (emergent, floating-leaf and submergent) in an undisturbed condition for wildlife habitat, fish cover and as a buffer for water quality protection. Permits required for any vegetation removal.

2) Protect emergent vegetation.
3) Maintain the current wildlife habitat
4) Protect loon habitat and nesting area. Loons nested in the area in the past.
5) Do not remove fallen trees along the shoreline, leave in water for habitat.
6) Maintain aquatic vegetation in current undisturbed condition to absorb nutrient run-off in order to maintain water quality.
7) Recommend slow no-wake in this area
8) No shoreline erosion control needed, no permits will be issued.
9) No permit approval for pea gravel beds or sand blankets, except for DNR fishery or wildlife approved projects.
10) No dredging or lake bed removal or modifications.
11) No pier placement.
12) No boat ramp placement.
13) No recreational floating devices.

Critical Habitat Area Jacqueline 2 – West Shore

This Critical Habitat Area encompasses approximately 500ft of shoreline, 4 acres out to the maximum rooting depth of 10 feet (Figure 2). The sediment is sand, silt and peat.

The site includes important shoreline and shallow water habitats (Figure 5, 6). The shoreline has abundant lawn (65%), with some natural grassy growth (30%) and very limited wooded cover (5%).

It appears that any large woody cover (an important structural component of fish and wildlife habitat) is removed from this shore.

The Plant Community:

The aquatic plant community at this site supports 9 species of plants.

Shoreline and emergent vegetation includes creeping spikerush and three-way sedge that provide wildlife cover and food sources, protect the shoreline and provide spawning habitat.

Floating leaf-species are commonly occurring white water lily and watershield and yellow pond lily that provide fish and wildlife cover and food resources.

A diverse submergent plant community provides a diverse habitat (Table 3). Purple bladderwort is common and Robbin's spikerush is present. The pondweed family is likely the most important producer of habitat and is represented here by large-leaf pondweed. Small rosette species protect the lake bottom and anchor the sediment. Pipewort rosettes are present, colonizing the lake bed.

Four sensitive species occurred at this site (Table 4). The species sensitivity is measured by its Coefficient of Conservatism. A coefficient of 9 or 10 were given to native plants found only in area of high quality, of which many are Endangered, Threatened or Special Concern Species. Coefficients of 8 are native plants found in stable climax habitats (Nichols 1998).

Two of these sensitive species are Special Concern Species: Robbin's spikerush and purple bladderwort. Special Concern Species are species with which there is a concern about their lack of abundance or distribution. The purpose of this designation is to focus attention on these species before they become threatened or endangered.

Figure 5. Overview of Jacqueline Lake CRHA 2

Figure 6. South section of CRHA 2 with natural shoreline

Table 3. Wildlife Uses of Aquatic Plants in Jacqueline Lake Critical Habitat Area 2

Aquatic Plants	Fish	Water Fowl	Song and Shore Birds	Upland Game Birds	Muskrat	Beaver	Deer
Submergent Plants							
Eriocaulon aquaticum		F					
Potamogeton amplifolius	F, I, S*,C	F*(Seeds)			F*	F	F
Utricularia purpurea	F, C						
Floating-leaf Plants							
Brasenia schreberi	S, I, C	F(Seeds)			F	F	F
Nuphar variegata	F,C, I, S	F, I	F		F*	F	F*
Nymphaea odorata	F,I, S, C	F(Seeds)	F		F	F	F
Emergent Plants							
Eleocharis smallii (palustris)	I	F, C					

F=Food, I= Shelters Invertebrates, a valuable food source C=Cover, S=Spawning
***=Valuable Resource in this category**

*Current knowledge as to plant use. Other plants may have uses that have not been determined.

After Fassett, N. C. 1957. A Manual of Aquatic Plants. University of Wisconsin Press. Madison, WI

Nichols, S. A. 1991. Attributes of Wisconsin Lake Plants. Wisconsin Geological and Natural History Survey. Info. Circ. #73

Table 4. Sensitive Species Recorded at Critical Habitat Area 2

Species		Coefficient of Conservatism
Dulichium arundinaceum	Three-way sedge	9
Eleocharis robbinsii	Robbin's spikerush	10
Eriocaulon aquaticum	Pipewort	9
Utricularia purpurea	Purple bladderwort	9

Wildlife Habitat

This site provides habitat for a diversity of wildlife – furbearers, birds, amphibians and reptiles. The emergent vegetation at this site provides critical wildlife habitat. In addition to the habitat values found at all the sites, this site also provides

1) Feeding areas for muskrat, mink, loons, geese and songbirds
2) Shelter, cover and feeding areas for frogs, toads, and turtles

Fish Habitat

In addition to the fish habitat values provided by all Critical Habitat areas in Jacqueline Lake (page 3), this area also provides:

1) spring spawning for northern pike, large-mouth bass and yellow perch
2) winter nursery areas for bluegill and black bullhead

Recommendations for Area 2

Recommendations for the terrestrial shoreline buffer:

1) No removal of any shoreline vegetation still left. More than adequate corridors have been cleared.
2) Restoration of native shoreland buffer vegetation needed at this site.
3) Maintain the current wildlife habitat
4) Use no lawn chemicals on properties around the lake.
5) Install stormwater management such as rain gardens to reduce run-off to the lake.
6) No bank grading allowed.

Recommendations for the aquatic habitat to the Ordinary High Water Mark:

1) Maintain the aquatic vegetation (emergent, floating-leaf and submergent) in an undisturbed condition for wildlife habitat, fish cover and as a buffer for water quality protection. Permits required for any vegetation removal.
2) Limit aquatic plant removal to navigation issues.
3) Minimize swim and wading areas.
4) Protect emergent vegetation that is sparse at this site.
5) Maintain the current wildlife habitat
6) Currently there may be compliance issues at this site. Several sand blankets have been installed and review needs to take place to determine if these were permitted.
7) If the blankets were not permitted, they need to be removed.
8) Maintain the current aquatic vegetation for fish habitat.

9) Do not remove fallen trees along the shoreline, leave in water for habitat.
10) No shoreline erosion control measures needed such as rip-rap, retaining walls. No permits will be issued.
11) No permit approval for pea gravel beds or sand blankets, except for DNR fishery or wildlife approved projects.
12) No dredging or lake bed removal or modifications.
13) No additional pier placement.
14) No boat ramp placement.
15) No recreational floating devices.

Critical Habitat Area Jacqueline 3 – East Island

This Critical Habitat Area encompasses approximately 2 acres around the bog island at the southeast shore, including everything below the Ordinary High Water Mark to the maximum rooting depth of 3 feet (Figure 2). It includes bog wetlands that support important near-shore terrestrial habitat, shoreline habitat and shallow water habitat (Figure 7). The sediment is a mixture of sand, silt and peat. The shoreline and bog island at this Critical Habitat Area is composed of abundant herbaceous growth with some shrub growth of the bog (80%) and home and lawn development (20%).

Large woody cover from fallen trees is present in along parts of the shoreline. This woody cover provides important habitat for fish cover and wildlife resting areas.

The bog island at this site provides and auditory and visual buffer from road and boat noise and shoreline structures. The bog mat island is a distinctly unique feature for this Ciritical Habitat area and Area 4.

The Plant Community:

This site supports 11 species of aquatic plants.

This emergent vegetation at this site protects the shoreline and provides important food sources, cover and fish spawning habitat. The emergent plant community is composed of leatherleaf shrubs, marsh St. John's-wort, spikerush, and cattail.

Floating-leaf vegetation, yellow pond lily, watershield and commonly occurring white water lilies, dampen wave action and provide important fish habitat.

A diverse submergent plant community provides many fish and wildlife benefits (Table 5). Purple bladderwort is abundant at this site. Small rosette and turf-forming species colonize the lake bottom, anchoring the substrate. These submerged rosette and turf-forming species include pipewort and needle spikerush. The pondweed family is an important food source for fish and waterfowl and is represented at this site by ribbon-leaf pondweed.

Five sensitive species occur at this site (Table 6). The species sensitivity is measured by its Coefficient of Conservatism. A coefficient of 9 or 10 were given to native plants found only in area of high quality, of which many are Endangered, Threatened or Special Concern Species. Coefficients of 8 are native plants found in stable climax habitats (Nichols 1998). One of the sensitive species at this site is a listed Special Concern species because of its rarity statewide and its sensitivity to disturbance: *Utriculuaria purpurea* (purple bladderwort).

Figure 7. Jacqueline Lake CRHA 3; top overview; bottom views of bog island with shoreline behind and view in channel between bog island and shore.

Table 5. Wildlife Uses of Aquatic Plants in Jacqueline Lake Critical Habitat Area 3

Aquatic Plants	Fish	Water Fowl	Song and Shore Birds	Upland Game Birds	Muskrat	Beaver	Deer
Submergent Plants							
Eleocharis acicularis	S	F			F		
Eriocaulon aquaticum		F					
Potamogeton epihydrus	F, I, S*,C	F*(All)			F*	F	F
Utricularia purpurea	F, C						
Floating-leaf Plants							
Brasenia schreberi	S, I, C	F(Seeds)			F	F	F
Nuphar variegata	F,C, I, S	F, I	F		F*	F	F*
Nymphaea odorata	F,I, S, C	F(Seeds)	F		F	F	F
Emergent Plants							
Chamaedaphne calyculata				F			F
Eleocharis smallii (palustris)	I	F, C					
Typha latifolia	I, C, S	F(Entire), C	F(Seeds), C, Nest	Nest	F* (Entire), C*, Lodge	F	

F=Food, I= Shelters Invertebrates, a valuable food source C=Cover, S=Spawning
***=Valuable Resource in this category**

*Current knowledge as to plant use. Other plants may have uses that have not been determined.

After Fassett, N. C. 1957. A Manual of Aquatic Plants. University of Wisconsin Press. Madison, WI

Nichols, S. A. 1991. Attributes of Wisconsin Lake Plants. Wisconsin Geological and Natural History Survey. Info. Circ. #73

Table 6. Sensitive Species Recorded at Critical Habitat Area 3

Species		Coefficient of Conservatism
Chameadaphne calyculata	leatherleaf	9
Eriocaulon aquaticum	Pipewort	9
Potamogeton epihydrus	Ribbon-leaf pondweed	8
Triadenum fraserii	Marsh St. Johns-wort	8
Utricularia purpurea	Purple bladderwort	9

Wildlife Habitat

This site provides habitat for a diversity of wildlife – furbearers, birds, amphibians and reptiles. The emergent vegetation and shrubs and brush at the shoreline and in the near-shore terrestrial zone provide critical wildlife habitat at this site. In addition to the habitat values found at all the sites, this site also provides

1) shelter and cover for muskrat
2) shelter, cover and feeding areas for mink and turtles
3) shelter, cover, nesting and feeding areas for songbirds, frogs, toads and snakes
4) feeding areas for loons and geese

Fish Habitat

In addition to the fish habitat values provided at all Critical Habitat Areas in Jacqueline Lake (page 3), this area also provides

1) spring spawning for northern pike, large-mouth bass and yellow perch
2) winter nursery areas for bluegill and black bullhead
3) spring spawning sites, year-round nursery areas, feeding areas and protective cover for yellow perch

Recommendations for Site 3

Recommendations for the terrestrial shoreline buffer:

1) Maintain any natural shoreland vegetation left.
2) Minimize removal of any shoreline vegetation. Allow removal of a maximum corridor width of 30 feet.
3) Maintain the current wildlife habitat
4) Use no lawn chemicals on properties around the lake.
5) Bank stabilization needed in some areas to prevent erosion and maintain water quality.
6) Permit only bioengineering projects for shoreline erosion control. No rip-rap, retaining walls.
7) Restore natural vegetation buffer on shoreline behind the island to protect water quality. A buffer of native vegetation would reduce nutrient run-off and absorb nutrients
7) Install stormwater management such as rain gardens to reduce run-off to the lake.

8) No bank grading allowed.

Recommendations for the aquatic habitat to the Ordinary High Water Mark:

1) Maintain the aquatic vegetation (emergent, floating-leaf and submergent) in an undisturbed condition for wildlife habitat, fish cover and as a buffer for water quality protection. Permits required for any vegetation removal.
2) Minimize removal of aquatic vegetation, remove for navigation only.
3) Protect bog island for wildlife and native plant refuge.
4) Protect emergent vegetation.
5) Maintain the current wildlife habitat
6) Maintain the current aquatic vegetation for fish habitat.
7) Do not remove fallen trees along the shoreline, leave in water for habitat.
8) No pea gravel beds or sand blankets, except for DNR fishery or wildlife approved projects.
9) No dredging or lake bed removal or modifications.
10) No additional pier placement.
11) No boat ramp placement.
12) No recreational floating devices.

Critical Habitat Area Jacqueline 4 – South Island

This Critical Habitat Area encompasses nearly 3 acre around the south bog island, including the area below the Ordinary High Water Mark to a maximum rooting depth of 3 feet (Figure 2). It includes bog wetlands that support important near-shore terrestrial habitat, shoreline habitat and shallow water habitat (Figure 8). The sediment is sand, silt and peat. The shoreline and bog island at this Critical Habitat Area is dominated by shrub growth with some herbaceous growth and some wooded cover (30%). The bog makes up approximately 60% of the site.

Large woody cover from fallen trees is common in the shallow water. This woody cover provides important habitat for fish cover and wildlife resting areas.

The bog island at this site provides and auditory and visual buffer from road and boat noise and shoreline structures. It also provides an easily accessed educational opportunity. The bog mat island is a distinctly unique feature for this Critical Habitat area and Area 3.

The Plant Community:

The aquatic plant community is composed of 7 species at this site.

The emergent vegetation at this site protects the shoreline and provides important food sources, cover and fish spawning habitat. The emergent community is composed of meadowsweet shrubs, leatherleaf shrubs and cattail.

Floating-leaf vegetation, water shield and abundant white water lilies dampen wave action and provide important fish habitat.

A diverse submergent plant community provides many fish and wildlife benefits (Table 7). Purple bladderwort is dominant in at this site and Robbin's spikerush is common.

Four sensitive species occurred at this site (Table 8). The species sensitivity is measured by its Coefficient of Conservatism (Nichols 1998).

Two of these sensitive species are listed Special Concern Species: Robbin's spikerush and purple bladderwort. Special Concern Species are species with which there is a concern about their lack of abundance or distribution. The purpose of this designation is to focus attention on these species before they become threatened or endangered.

Figure 8. Jacqueline Lake CRHA 4, view of bog island and shoreline behind

Table 8. Wildlife Uses of Aquatic Plants in Jacqueline Lake Critical Habitat Area 4

Aquatic Plants	Fish	Water Fowl	Song and Shore Birds	Upland Game Birds	Muskrat	Beaver	Deer
Submergent Plants							
Utricularia purpurea	F, C						
Floating-leaf Plants							
Brasenia schreberi	S, I, C	F(Seeds)			F	F	F
Nymphaea odorata	F,I, S, C	F(Seeds)	F		F	F	F
Emergent Plants							
Chamaedaphne calyculata				F			F
Typha latifolia	I, C, S	F(Entire), C	F(Seeds), C, Nest	Nest	F*, C*, Lodge	F	

F=Food, I= Shelters Invertebrates, a valuable food source C=Cover, S=Spawning

***=Valuable Resource in this category**

*Current knowledge as to plant use. Other plants may have uses that have not been determined.

After Fassett, N. C. 1957. A Manual of Aquatic Plants. University of Wisconsin Press. Madison, WI

Nichols, S. A. 1991. Attributes of Wisconsin Lake Plants. Wisconsin Geological and Natural History Survey. Info. Circ. #73

Table 8. Sensitive Species Recorded at Critical Habitat Area 4

Species		Coefficient of conservatism
Chameadaphne calyculata	leatherleaf	9
Eleocharis robbinsii	Robbin's spikerush	10
Eriocaulon aquaticum	Pipewort	9
Utricularia purpurea	Purple bladderwort	9

Wildlife Habitat

This site provides habitat for a diversity of wildlife – furbearers, birds, amphibians and reptiles. The floating-leaf vegetation, logs fallen into the littoral zone and shrubs and brush at the shoreline and in the near-shore terrestrial zone provide critical wildlife habitat at this site. In addition to the habitat values found at all the sites, this site also provides

1) shelter, cover, nesting areas and feeding areas for muskrat, mink, songbirds, turtles and snakes
2) shelter, cover and feeding areas for frogs and toads
3) feeding areas for loons, ducks and geese

Fish Habitat

All of the Critical Habitat Areas in Jacqueline Lake provide:

1) spring and summer nursery areas, feeding areas and protective cover for nothern pike
2) spring spawning, spring and summer nursery areas, feeding areas and protective cover for large-mouth bass
3) summer spawning, spring and summer nursery areas, feeding areas and protective cover for bluegill and bullhead

Recommendations for Area 4

Recommendations for the terrestrial shoreline buffer:

1) Minimize removal of any shoreline vegetation. Allow removal of a maximum corridor width of 30 feet.
2) Maintain the current wildlife habitat
3) Restore natural shoreline vegetation for protection of water quality.
4) No shoreline erosion control needed such as rip-rap, retaining walls. No permits will be issued.
5) No bank grading.

Recommendations for the aquatic habitat to the Ordinary High Water Mark:

6) Maintain the aquatic vegetation (emergent, floating-leaf and submergent) in an undisturbed condition for wildlife habitat, fish cover and as a buffer for water quality protection. Permits required for any vegetation removal.
7) Protect emergent vegetation.
8) Maintain the current wildlife habitat
9) Do not remove fallen trees along the shoreline, leave in water for habitat.

10) No pea gravel beds or sand blankets, except for DNR fishery or wildlife approved projects.
11) No dredging or lake bed removal or modifications.
12) No additional pier placement.
13) No boat ramp placement.
14) No recreational floating devices.
15) Post exotic education signs at boat landing to help protect lake from exotics introduction.
16) This site is at the boat landing for Jacqueline Lake. The combination of the narrow shallow channel and the very flocculent peat sediments result in impacts to water quality when motors churn through this area. Restrictions are needed on operating motors until boats get through the channel, boats should be paddled only until they clear the channel.