Upper St. Croix Lake
Critical Habitat Designation Report

Douglas County, WI

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WISCONSIN
DEPT. OF NATURAL RESOURCES

Critical Habitat Designation Program – Introduction

Wisconsites are concerned about the growing number of threats to sustainable healthy lakes in the state. Increases in shoreline development are changing lake ecosystems, and the conversion of natural lakeshore to residential development has greatly accelerated over the past 30 years. While many positive measures have been initiated within Wisconsin over the past few decades, habitat and water quality continue to be impacted.

Critical Habitat Designation is a program that includes formal designations of areas considered important to fish and wildlife. Critical Habitat is classified into three categories: sensitive areas, public rights features, and resource protection areas (uplands within the shoreline zone). These three elements combine to provide regulatory and management advice to the State of Wisconsin, counties, local units of governments, and others who are interested in protecting and preserving these unique habitats for future generations. Designation of Critical Habitat aims to serve four primary purposes:

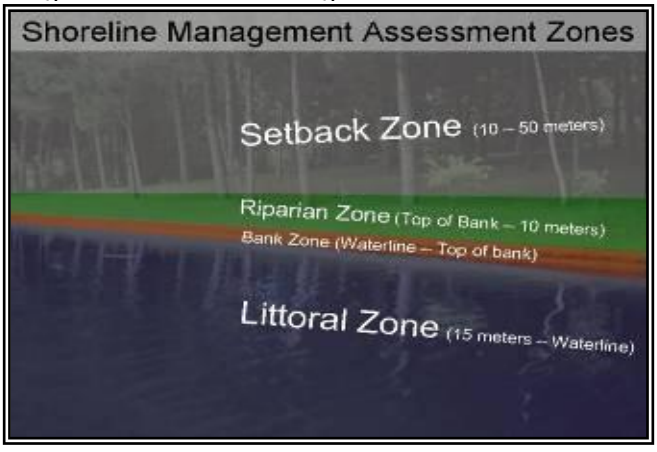
1) Resource protection through science based regulatory review.
2) Community-based resource protection through community education, planning and zoning.
3) As a guide to land-trusts and others acquiring land and conservation easements.
4) A mechanism to track long-term changes in these habitats.

Methods

Critical Habitat Designation occurred on Upper St. Croix Lake in Douglas County during 2008 and 2009. Upper St. Croix Lake, which is an 855 acre lake with a max depth of 22 feet, is located in Solon Springs and is the headwaters for the St. Croix River. Access to Upper St. Croix Lake is via seven public boat launches located around the lake.

Designations were conducted by a team consisting of the county fisheries biologist, water resources specialist, wildlife biologist, and critical habitat coordinator. Initially, DNR staff compiled and reviewed existing natural resource data that helped identify areas of focus related to fish, wildlife, endangered resources, and their habitats before going into the field. In the field, staff used existing natural resource data, delineation guidance, and professional judgment to establish the boundaries of the sites containing critical habitat. Critical Habitat Designation boundaries were recorded in the field using map grade Trimble Geo XM GPS Units. For each site, staff inventoried current shoreline management practices occurring along littoral, bank, riparian, and setback zones following standardized methods. Depending on the features of each area being delineated, standardized sampling of emergent and submergent aquatic vegetation, substrate, and woody habitat was also conducted.

Figure 1. Shoreline Management Zones



Note: A detailed description of the Critical Habitat Designation program, associated methods, and the values of Critical Habitat can be found at http://dnr.wi.gov/lakes/criticalhabitat/. Detailed assessments of each Critical Habitat area including raw sampling data and GIS shape files are available by contacting your local DNR office.

Management Recommendations

General Lakewide Recommendations: most of these actions will be good for the lake regardless if the site is within a designated critical habitat area or not. Emphasis of or exceptions to these general recommendations are discussed in more detail in the specific site management recommendations. For example, planting native vegetation along shorelines will generally be beneficial to the lake and property owner. Shorelines that are dominated by established lawn, however, may be out of compliance with current zoning standards and higher priority for restoration since those areas tend to pollute the resource more while simultaneously being devoid of natural fish and wildlife habitat.

Permanent Land Protection
Permanently protect designated critical habitat areas. Permanent land protection tools include: land acquisition, conservation easements, and mutual covenants. Competitive funding opportunities exist for parcels that are large and of particular conservation value. Voluntary protection or private funding sources may be the primary protection methods for smaller parcels. Specific lakewide and site recommendations emphasize priority areas for permanent land protection.

Shoreland Restoration
Leave natural shorelines undisturbed in accordance with local shoreland zoning rules. If the shoreline buffer does not exist or is disturbed, it should be replanted with native vegetation. The Douglas County Land & Water Conservation Department may provide shoreline restoration technical and funding assistance. Additionally, the Wisconsin Department of Natural Resources offers competitive shoreline restoration grants. Some local landscaping businesses may be able to assist landowners with site planning, including native plant selection.

Runoff Control
Implement lake and river water quality protection tools like rainwater gardens, rain barrels, infiltration pits and trenches, grass swales, etc. that divert and/or infiltrate water before it enters the lake or river. Similar to shoreland restoration, the Douglas County Land & Water Conservation Department may provide technical and funding assistance for these practices. Additionally, the Wisconsin Department of Natural Resources offers competitive lake protection grants. Some local landscaping businesses may be able to assist landowners with site planning, including plant selection.

Septic Systems
Inspect and maintain septic systems to prevent excess nutrient addition while protecting present water quality conditions. Ideally, the public sanitary sewer system will include the entire lake shoreline and watershed drainage area. Septic systems are not designed to remove the nutrients (i.e., phosphorous and nitrogen) that pollute water resources. Furthermore, septic water quickly moves through the local sandy soils and speeds delivery of potentially polluted water to the lake or river.

In-Lake Habitat Protection
Consider local recreational boating ordinances (i.e., slow-no-wake) within designated critical habitat areas. Specific lakewide and site recommendations emphasize priority areas for these ordinances.

In general, native aquatic plants should not be actively managed (i.e., no raking, herbicide use, or mechanized removal) and, if within a designated critical habitat site, will

require a permit for manual removal as well as chemical control. Lakewide and site specific recommendations describe exceptions to this general recommendation.

Near shore trees that fall into the water should be left in the water. Site specific recommendations discuss ideal locations for replacing lost woody habitat. There are opportunities with the DNR and Douglas County Land & Water Conservation Department to implement a Fish Sticks project that replaces this valuable habitat.

Specific Site Recommendations: these management actions are specific to the given site and only supersede general and specific lakewide recommendations if explicitly stated.

Sites

Twenty two areas are designated as Critical Habitat on Upper St. Croix Lake for a total of 145.8 acres (Figure 1; Tables 1 and 2). Eighteen areas are classified as Sensitive Areas and four areas are classified as Public Rights Features.

Figure 2. Upper St. Croix Lake Critical Habitat Map

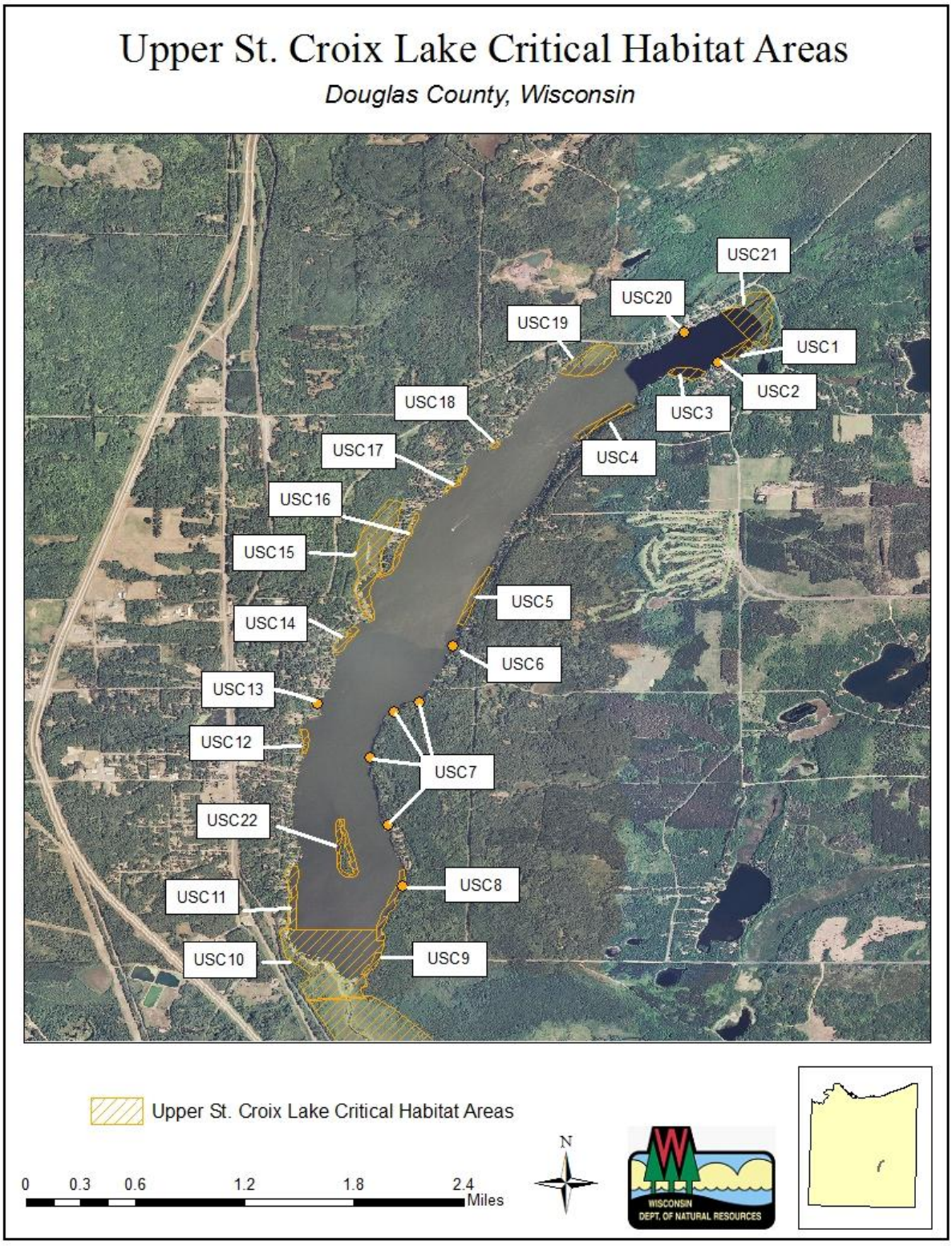


Table 1. Upper St. Croix Lake Critical Habitat Polygon Justifications

Critical Habitat Polygon ID	Acres	Justification	Justification	Justification	Justification	Classification
USC1	2.8	3	2	-	-	Sensitive Area
USC2	-	7		-	-	Resource Protection Area
USC3	4.0	3	2	6	-	Sensitive Area
USC4	4.5	7	2	-	-	Sensitive Area
USC5	4.6	7	2	-	-	Sensitive Area
USC6	-	9	-	-	-	Public Rights Feature
USC7	-	9	6	-	-	Sensitive Area
USC8	6.6	7	2	-	-	Sensitive Area
USC9	2.2	7	6	-	-	Sensitive Area
USC10	49.7	6	3	2	-	Sensitive Area
USC11	6.7	3	2	-	-	Sensitive Area
USC12	1.7	8	-	-	-	Public Rights Feature
USC13	-	9	-	-	-	Public Rights Feature
USC14	3.3	3	9	-	-	Sensitive Area
USC15	32.2	3	6	2	-	Sensitive Area
USC16	3.9	8	-	-	-	Public Rights Feature
USC17	1.3	8	-	-	-	Public Rights Feature
USC18	0.4	3	2	-	-	Sensitive Area
USC19	14.3	6	3	2	9	Sensitive Area
USC20	-	9	-	-	-	Public Rights Feature
USC21	19.8	6	3	-	-	Sensitive Area
USC22	5.2	8	-	-	-	Public Rights Feature

Table 2. Critical Habitat Justification Descriptions

Justifications	Justification Feature	Classification
1	Bio-diverse Submerged Aquatic Vegetation (SAV)	Sensitive Area
2	SAV Important to Fish and Wildlife Habitat	Sensitive Area
3	Emergent and Floating Leaf Vegetation	Sensitive Area
4	Rush Beds	Sensitive Area
5	Wild Rice Bed	Sensitive Area
6	Extensive Riparian Wetland	Sensitive Area
7	Woody Habitat	Public Rights Feature
8	Spawning Substrate	Public Rights Feature
9	Water Quality (springs, etc)	Public Rights Feature
10	Natural Scenic Beauty	Public Rights Feature
11	Navigational Thoroughfare	Public Rights Feature

Upper St. Croix Lake Critical Habitat Site USC1

Critical habitat site USC1 is a Sensitive Area that was designated because of its Emergent and Floating Leaf Vegetation, and Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat. USC1 is 2.8 acres in size and located on the Northeastern shore (Figure 3).

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Table 3. Table 4 summarizes the current management practices within the Setback, Riparian, Ban and Littoral Zones of USC1.

Established lawn within 35 feet of the water's edge should be replanted with native vegetation to comply with Douglas County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

According to the shoreline inventory, there is some riprap in USC 1. The wave energy is moderate. Riprap should not be permitted, and alternative bank stabilization methods should be used instead if evidence of erosion develops.

Buffers and overhanging vegetation, bog fringe and floating, emergent and submersed aquatic plants should be left alone.

Do not actively manage aquatic plants unless an aquatic invasive species should establish.

Implement Fish Sticks project. Contact local DNR Fisheries Biologist to investigate funding and technical assistance opportunities.

Table 3. USC1 Aquatic Plants

Scientific Name	Common Name	Plant Type
Typha latifolia	Broad-leaved cattail	Emergent
Brasenia schreberi	Watershield	Floating Leaf
Nuphar variegata	Spatterdock	Floating Leaf
Nymphaea odorata	White water lily	Floating Leaf
Ceratophyllum demersum	Coontail	Submergent
Megalodonta beckii	Water marigold	Submergent
Potamogetion foliosis	Leafy pondweed	Submergent
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent
Potamogeton robbinsii	Fern pondweed	Submergent
Potamogeton zosteriformis	Flat-stem pondweed	Submergent
Sagittaria cristata	Crested arrowhead	Submergent
Vallisneria americana	Wild celery	Submergent

Figure 3. USC1 Critical Habitat Area Map

Table 4. Shoreline Assessment of USC1				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	3	6.4		
Accessory Structures	3	6.4		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			1706	69.3
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			0	0
Established Lawn			754	30.7
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			2460	100
Bank Zone				
Natural Bank			2394	97.3
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			66	2.7
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			2460	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	4	8.6		
Boat Lifts	1	2.1		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	1	2.1		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC2

Critical habitat site USC2 is a Resource Protection Area that was designated because of the overhanging trees that will hopefully be allowed to fall and stay in the lake. USC2 is located along the East shore just south of the State Boat Launch (Figure 4).

Table 5 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC2.

Leave fallen trees in the water unless they are impeding navigation. Implement Fish Sticks project. Contact local DNR Fisheries Biologist to investigate funding and technical assistance opportunities.

Figure 4. USC2 Critical Habitat Area Map

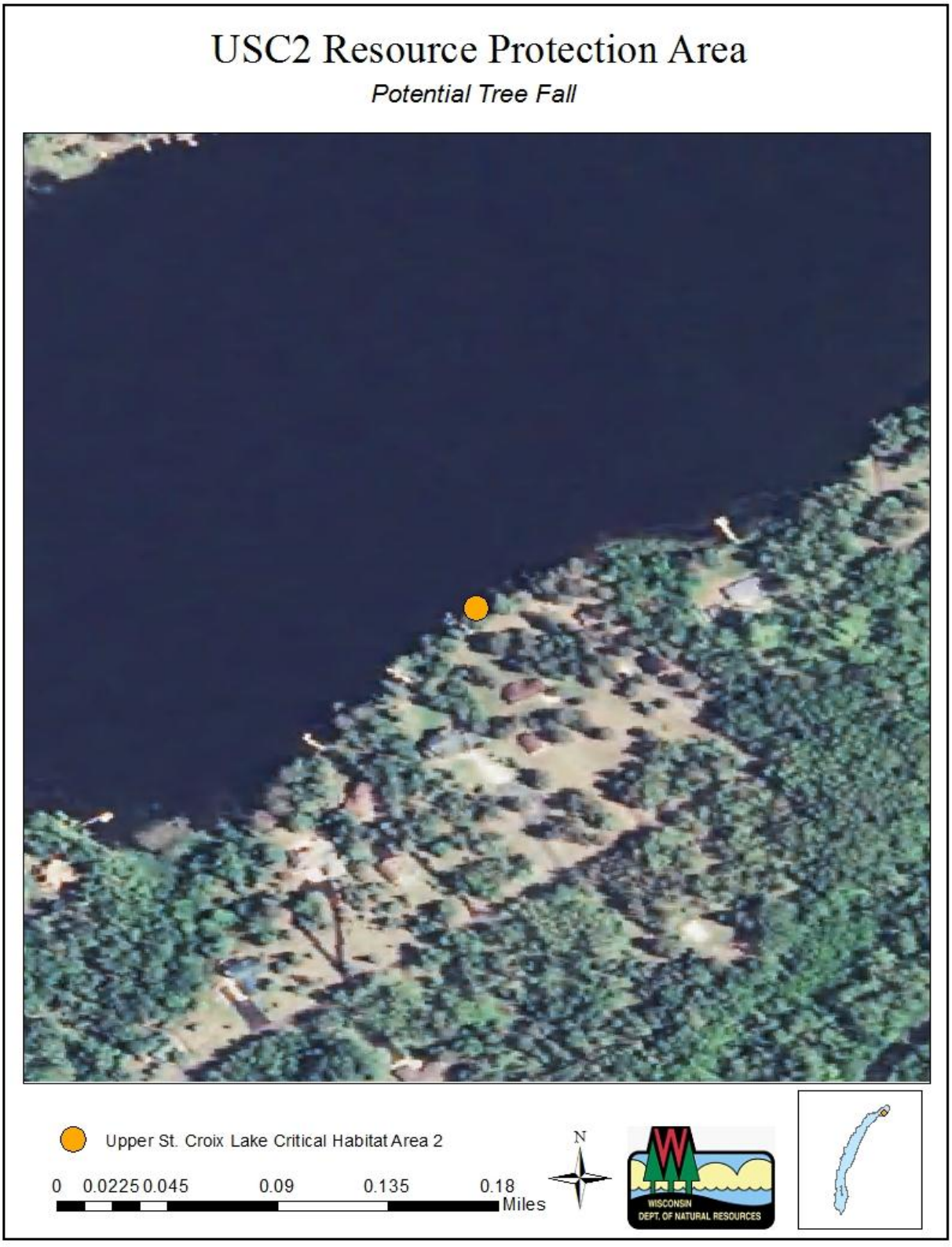


Table 5. Shoreline Assessment of USC2				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	2	1.7		
Commercial Buildings	0	0		
Natural vegetation			6068	98.4
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			98	1.6
Established Lawn			0	0
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			6166	100
Bank Zone				
Natural Bank			6133	99.5
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			33	0.5
Seawalls			0	0
Total Shoreline			6166	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	0	0		
Boat Lifts	0	0		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC3

Critical habitat site USC3 is a Sensitive Area that was designated because of its Emergent and Floating Leaf Vegetation, Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat, and Extensive Riparian Wetland. USC3 is 4.0 acres in size and is located on the Northeastern shore (Figure 5).

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 6. Table 7 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC3.

Buffers and overhanging vegetation, bog fringe and floating, emergent and submersed aquatic plants should be left alone.

Do not actively manage aquatic plants unless an aquatic invasive species should establish.

Leave fallen trees in the water. Implement Fish Sticks project. Contact local DNR Fisheries Biologist to investigate funding and technical assistance opportunities.

Table 6. USC3 Aquatic Plants

Scientific Name	Common Name	Plant Type
Sparganium chlorocarpum	Narrow-leaved bur-reed	Emergent
Typha latifolia	Broad-leaved cattail	Emergent
Nuphar variegata	Spatterdock	Floating Leaf
Nymphaea odorata	White water lily	Floating Leaf
Lemna minor	Small Duckweed	Free Floating
Ceratophyllum demersum	Coontail	Submergent
Potamogeton amplifolius	Large-leaf pondweed	Submergent

Figure 5. USC3 Critical Habitat Area Map

Table 7. Shoreline Assessment of USC3				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	1	17.9		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	1	17.9		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			295	100
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			0	0
Established Lawn			0	0
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			295	100
Bank Zone				
Natural Bank			295	100
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			295	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	1	17.9		
Boat Lifts	0	0		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC4

Critical habitat site USC4 is a Sensitive Area that was designated because of its Woody Habitat and Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat. USC4 is 4.5 acres in size and is located on the Northeastern shoreline of the lake (Figure 6).

Woody habitat was sampled using a standardized transect method and a summary of the results can be found in Table 8. Big Logs are defined as being greater than 10 cm (4 in) in diameter and greater than 150 cm (5 ft) in length. Small Logs are defined as being between 5-10 cm (2-4 in) in diameter and greater than 150 cm (5 ft) in length. Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Table 9. Table 10 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC4.

Buffers, overhanging vegetation and fallen trees should remain to provide cover and prevent shoreline erosion.

Dredging should not be allowed.

Do not actively manage aquatic plants unless an aquatic invasive species should establish.

Leave fallen trees in the water unless they are impeding navigation. Implement Fish Sticks project. Contact local DNR Fisheries Biologist to investigate funding and technical assistance opportunities.

Table 8. USC4 Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
USC4-1	1	3	98.4	30	53.7	161.0
USC4-2	0	2	98.4	30	0.0	107.3
USC4-3	0	1	98.4	30	0.0	53.7
USC4-4	2	2	98.4	30	107.3	107.3
USC4 Total	3	8	393.6	120	40.2	107.3

Table 9. USC4 Aquatic Plants

Scientific Name	Common Name	Plant Type
Sagittaria cristata	Crested arrowhead	Emergent
Potamogeton amplifolius	Large-leaf pondweed	Submergent
Potamogeton pusillus	Small pondweed	Submergent
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent
Potamogeton robbinsii	Fern pondweed	Submergent
Potamogeton zosteriformis	Flat-stem pondweed	Submergent
Vallisneria americana	Wild celery	Submergent

Figure 6. USC4 Critical Habitat Area Map

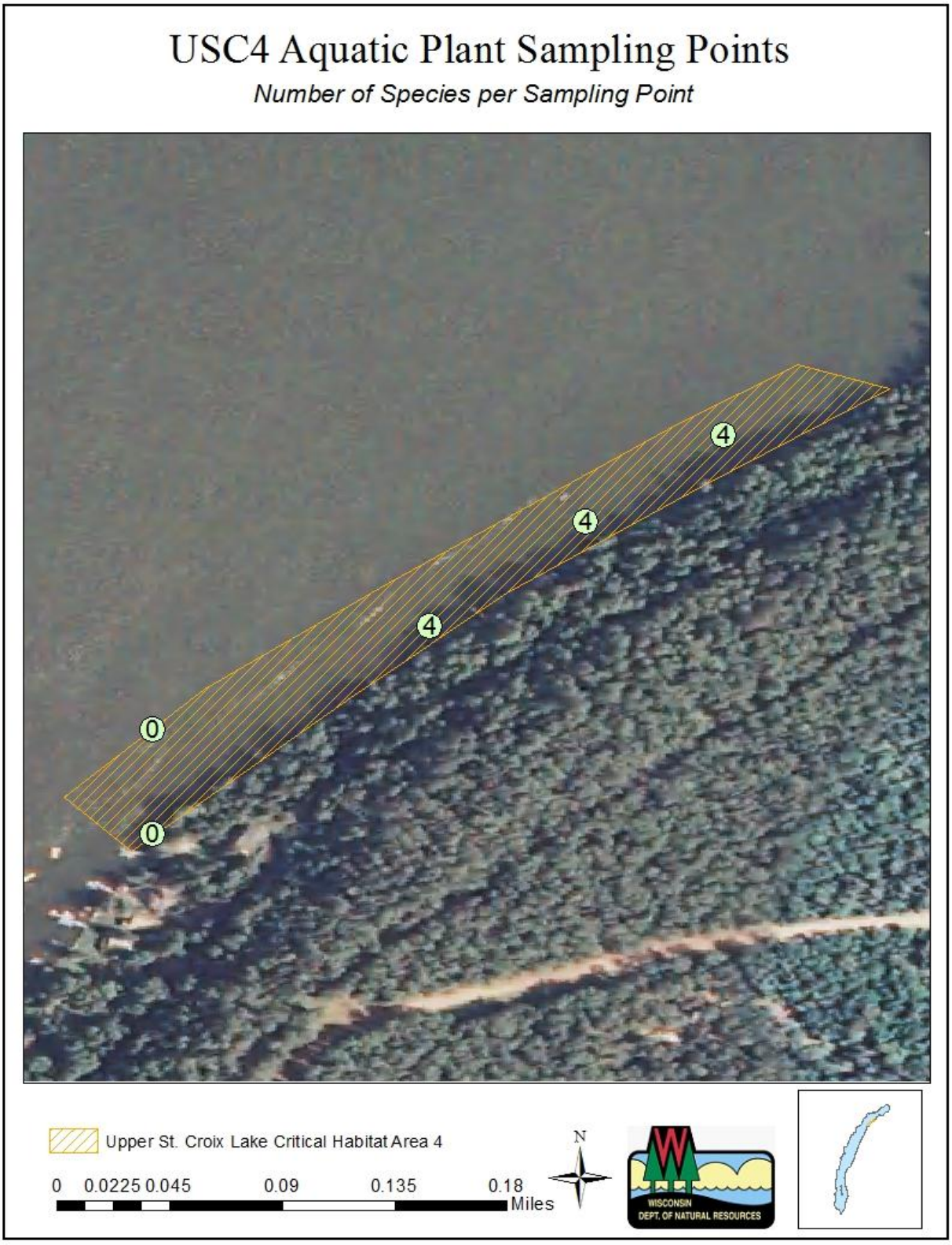


Table 10. Shoreline Assessment of USC4				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			230	100
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			0	0
Established Lawn			0	0
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			230	100
Bank Zone				
Natural Bank			230	100
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			230	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	0	0		
Boat Lifts	0	0		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC5

Critical habitat site USC5 is a Sensitive Area that was designated because of its Woody Habitat and Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat. USC5 is 4.6 acres in size and is located on the Eastern shoreline (Figure 7).

Woody habitat was sampled using a standardized transect method and a summary of the results can be found in Table 11. Big Logs are defined as being greater than 10 cm (4 in) in diameter and greater than 150 cm (5 ft) in length. Small Logs are defined as being between 5-10 cm (2-4 in) in diameter and greater than 150 cm (5 ft) in length. Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Table 12. Table 13 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC5.

Buffers, overhanging vegetation and fallen trees should remain to provide cover and prevent shoreline erosion.

Dredging should not be allowed.

Do not actively manage aquatic plants unless an aquatic invasive species should establish.

Leave fallen trees in the water unless they are impeding navigation. Implement Fish Sticks project. Contact local DNR Fisheries Biologist to investigate funding and technical assistance opportunities.

Table 11. USC5 Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
USC5-1	0	1	98.4	30	0.0	53.7
USC5-2	0	4	98.4	30	0.0	214.6
USC5-3	1	3	98.4	30	53.7	161.0
USC5-4	0	2	98.4	30	0.0	107.3
USC5 Total	1	10	393.6	120	13.4	134.1

Table 12. USC5 Aquatic Plants

Scientific Name	Common Name	Plant Type
Polygonum hydropiper	Water smartweed	Floating Leaf
Ceratophyllum demersum	Coontail	Submergent
Eleocharis acicularis	Needle spikerush	Submergent
Heteranthera dubia	Water star-grass	Submergent
Najas flexilis	Bushy pondweed	Submergent
Potamogeton amplifolius	Large-leaf pondweed	Submergent
Potamogeton epihydrus	Ribbon-leaf pondweed	Submergent
Potamogeton gramineus	Variable-leaf pondweed	Submergent
Potamogeton praelongus	White-stem pondweed	Submergent
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent
Potamogeton robbinsii	Fern pondweed	Submergent
Vallisneria americana	Wild celery	Submergent

Figure 7. USC5 Critical Habitat Area Map

Table 13. Shoreline Assessment of USC5				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	1	35.7		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			148	100
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			0	0
Established Lawn			0	0
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			148	100
Bank Zone				
Natural Bank			148	100
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			148	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	0	0		
Boat Lifts	0	0		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC6

Critical habitat site USC6 is a Public Rights Feature that was designated because of its Water Quality Features (Cold Water Seep Spring). USC6 is located on the Eastern shore (Figure 8).

Table 14 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC6.

Protect spring area from compaction and/or development.

Figure 8. USC6 Critical Habitat Area Map

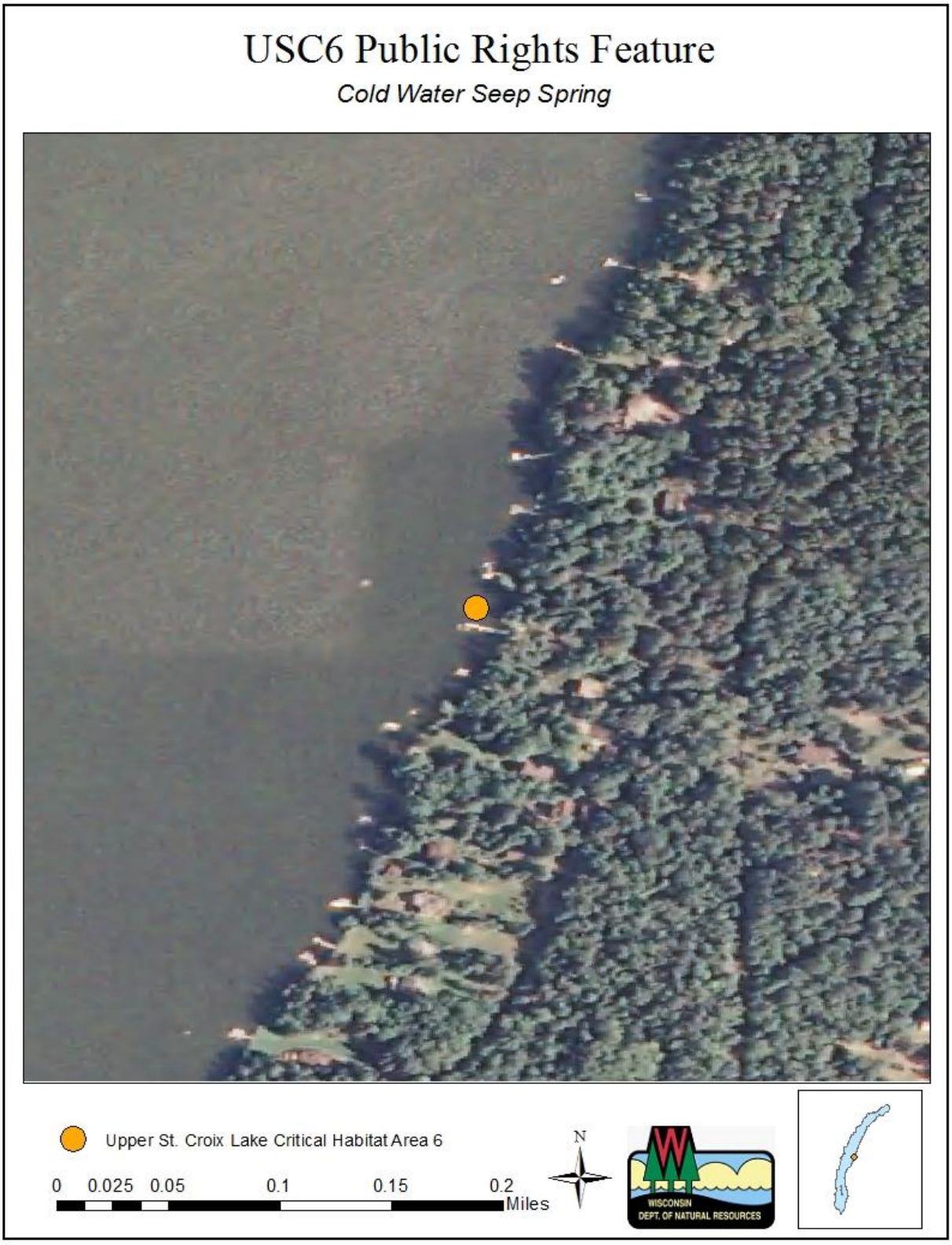


Table 14. Shoreline Assessment of USC6

Feature	Number	Density (per mile)	Shoreline Length (feet)	% of Shoreline
Setback Zone				
Homes	3	14.9		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	1	5.0		
Commercial Buildings	0	0		
Natural vegetation			672	63.0
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			164	15.4
Established Lawn			230	21.6
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			1066	100
Bank Zone				
Natural Bank			935	87.7
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			98	9.2
Pea Gravel Blanket			0	0
Established Lawn			33	3.1
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			1066	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	3	14.9		
Boat Lifts	3	14.9		
Swims Rafts/ Trampolines	1	5.0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC7

Critical habitat site USC7 is a Sensitive Area that was designated because of its Water Quality Feature (Inlet) and Extensive Riparian Wetland. USC7 is made up of a series of points where there are inlets coming into the lake from nearby wetlands. USC7 is located along the Eastern shore on the Southern half of the lake (Figure 9).

Table 15 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC7.

The extensive riparian wetland and associated small streams that drain them into the lake should be protected.

Established lawn within 35 feet of the water's edge should be replanted with native vegetation to comply with Douglas County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

Figure 9. USC7 Critical Habitat Area Map

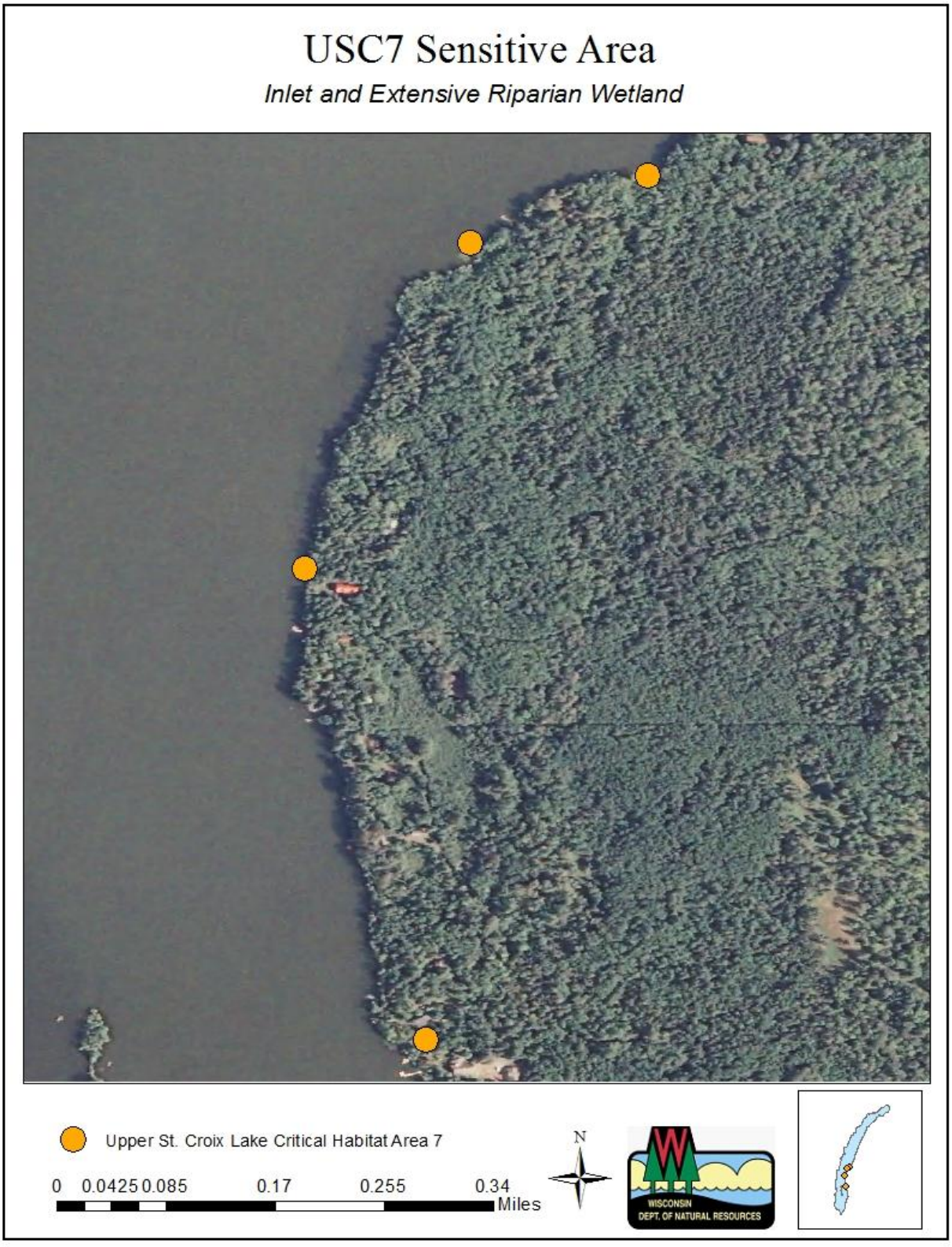


Table 15. Shoreline Assessment of USC7				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	4	9.2		
Accessory Structures	2	4.6		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	1	2.3		
Commercial Buildings	0	0		
Natural vegetation			2116	92.2
Shrub Layer Removed			49	2.1
Shrub & Ground Cover Removed			0	0
Established Lawn			131	5.7
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			2296	100
Bank Zone				
Natural Bank			2280	99.3
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			16	0.7
Seawalls			0	0
Total Shoreline			2296	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	4	9.2		
Boat Lifts	1	2.3		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC8

Critical habitat site USC8 is a Sensitive Area that was designated because of its Woody Habitat and Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat. USC8 is 6.6 acres in size and is located on the Southeastern shoreline (Figure 10).

Woody habitat was sampled using a standardized transect method and a summary of the results can be found in Table 16. Big Logs are defined as being greater than 10 cm (4 in) in diameter and greater than 150 cm (5 ft) in length. Small Logs are defined as being between 5-10 cm (2-4 in) in diameter and greater than 150 cm (5 ft) in length. Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Table 17. Table 18 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC8.

Buffers, overhanging vegetation and fallen trees should remain to provide cover and prevent shoreline erosion.

Do not actively manage aquatic plants unless an aquatic invasive species should establish.

Leave fallen trees in the water unless they are impeding navigation. Implement Fish Sticks project. Contact local DNR Fisheries Biologist to investigate funding and technical assistance opportunities.

Table 16. USC8 Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
USC8-1	0	1	131.2	40	0.0	40.2
USC8-2	1	1	131.2	40	40.2	40.2
USC8-3	2	2	131.2	40	80.5	80.5
USC8-4	2	0	131.2	40	80.5	0.0
USC8 Total	5	4	524.8	160	50.3	40.2

Table 17. USC8 Aquatic Plants

Scientific Name	Common Name	Plant Type
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent
Sparganium chlorocarpum	Short-stemmed bur-reed	Emergent
Sparganium fluctans	Floating-leaf bur-reed	Emergent
Nymphaea odorata	White water lily	Floating Leaf
Ceratophyllum demersum	Coontail	Submergent
Megalodonta beckii	Water marigold	Submergent
Myriophyllum sibericum	Northern water-milfoil	Submergent
Najas flexilis	Bushy pondweed	Submergent
Potamogeton amplifolius	Large-leaf pondweed	Submergent
Potamogeton gramineus	Variable-leaf pondweed	Submergent
Potamogeton praelongus	White-stem pondweed	Submergent
Potamogeton pusillus	Small pondweed	Submergent
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent
Potamogeton robbinsii	Fern pondweed	Submergent
Potamogeton zosteriformis	Flat-stem pondweed	Submergent
Vallisneria americana	Wild celery	Submergent

Figure 9. USC8 Critical Habitat Area Map

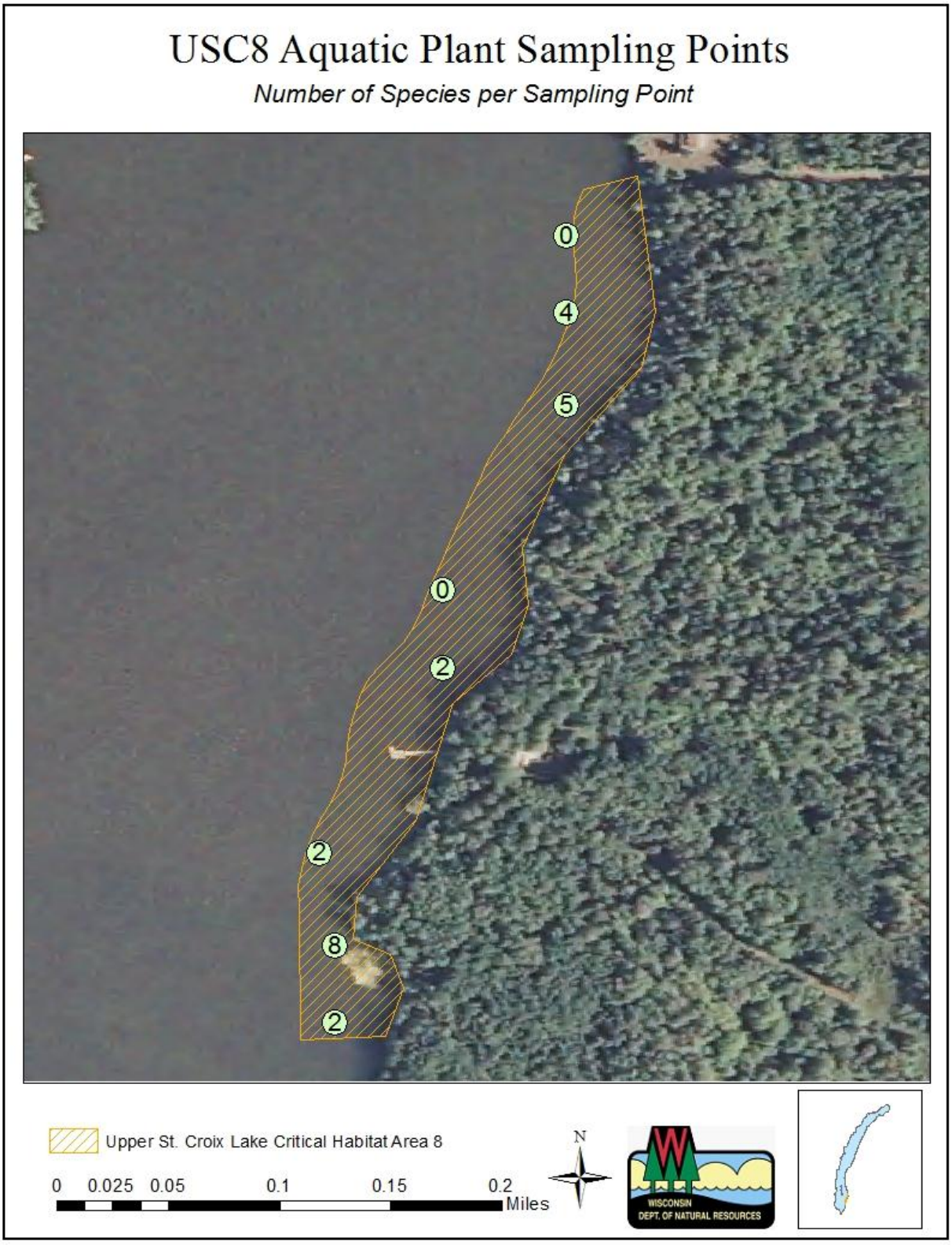


Table 18. Shoreline Assessment of USC8				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	1	7.3		
Accessory Structures	1	7.3		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			722	100
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			0	0
Established Lawn			0	0
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			722	100
Bank Zone				
Natural Bank			722	100
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			722	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	0	0		
Boat Lifts	0	0		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC9

Critical habitat site USC9 is a Sensitive Area that was designated because of its Woody Habitat and Extensive Riparian Wetland. USC is 2.2 acres in size and is located on the South/Southeastern shoreline (Figure 11).

Woody habitat was sampled using a standardized transect method and a summary of the results can be found in Table 19. Big Logs are defined as being greater than 10 cm (4 in) in diameter and greater than 150 cm (5 ft) in length. Small Logs are defined as being between 5-10 cm (2-4 in) in diameter and greater than 150 cm (5 ft) in length. Table 20 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC4.

Buffers and overhanging vegetation, bog fringe and floating, emergent and submersed aquatic plants should be left alone. Do not actively manage aquatic plants unless an aquatic invasive species should establish.

Leave fallen trees in the water unless they are impeding navigation.

Table 19. USC9 Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
USC9-1	1	1	65.6	20	80.5	80.5
USC9-2	2	1	65.6	20	161.0	80.5
USC9-3	5	2	65.6	20	402.4	161.0
USC9-4	3	2	65.6	20	241.5	161.0
USC9 Total	11	6	262.4	80	221.3	120.7

Figure 11. USC9 Critical Habitat Area Map

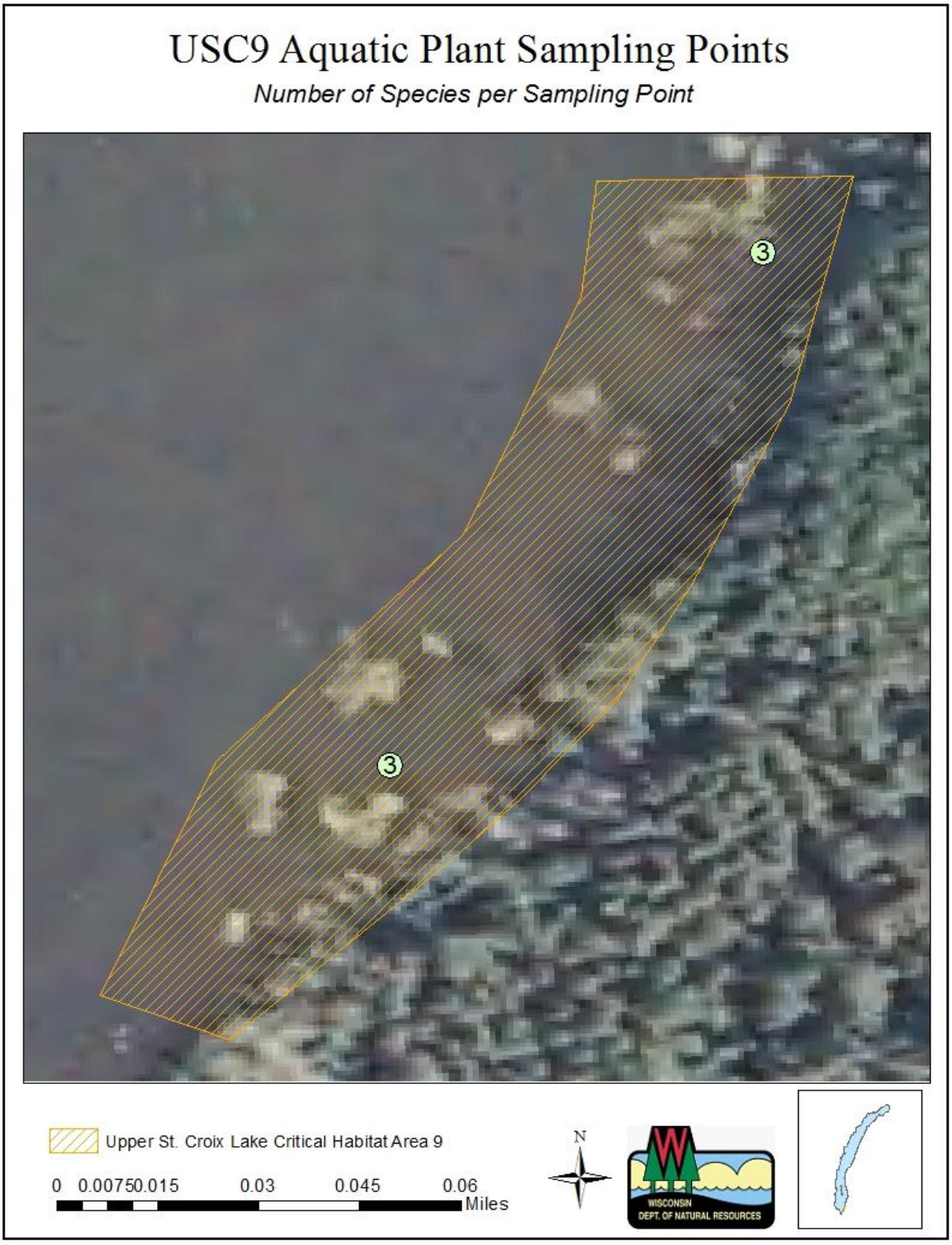


Table 20. Shoreline Assessment of USC9

Feature	Number	Density (per mile)	Shoreline Length (feet)	% of Shoreline
Setback Zone				
Homes	12	29.7		
Accessory Structures	8	19.8		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	7	17.3		
Commercial Buildings	0	0		
Natural vegetation			1706	80.0
Shrub Layer Removed			49	2.3
Shrub & Ground Cover Removed			148	6.9
Established Lawn			230	10.8
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			2132	100
Bank Zone				
Natural Bank			2083	97.7
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			33	1.5
Pea Gravel Blanket			0	0
Established Lawn			16	0.8
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			2132	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	6	14.9		
Boat Lifts	4	9.9		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC10

Critical habitat site USC10 is a Sensitive Area that was designated because of its Extensive Riparian Wetland, Emergent and Floating Leaf Vegetation, and Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat. USC10 is 49.7 acres in size and is located on the Southern end of the lake. The St. Croix River leaves the lake and Leo Creek enters the lake within this sensitive area (Figure 12).

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Table 21. Table 22 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC10.

Do not actively manage aquatic plants unless an aquatic invasive species should establish.

Buffers and overhanging vegetation, bog fringe and floating, emergent and submersed aquatic plants should be left alone.

Dredging should not be allowed in this area.

Extensive wild rice beds are located in this area and should be left undisturbed due to their importance as wildlife habitat and seasonal use by several fish species. Any activities, including aquatic plant removal, water level manipulation, and shoreline erosion control, that may impact wild rice populations must be considered by tribal partners within the Voigt Task Force. Contact the local DNR Water Management Specialist or Aquatic Plant Management Coordinator for more information.

Table 21. USC10 Aquatic Plants		
Scientific Name	**Common Name**	**Plant Type**
Lythrum salicaria	Purple loosestrife	Emergent
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent
Sparganium chlorocarpum	Short-stemmed bur-reed	Emergent
Sparganium fluctans	Floating-leaf bur-reed	Emergent
Zizania palustris	Northern wild rice	Emergent
Nuphar variegata	Spatterdock	Floating Leaf
Nymphaea odorata	White water lily	Floating Leaf
Lemna trisulca	Forked duckweed	Free Floating
Utricularia vulgaris	Common bladderwort	Free Floating
Ceratophyllum demersum	Coontail	Submergent
Chara	Muskgrasses	Submergent
Elodea canadensis	Common waterweed	Submergent
Heteranthera dubia	Water star-grass	Submergent
Megalodonta beckii	Water marigold	Submergent
Myriophyllum sibericum	Northern water-milfoil	Submergent
Myriophyllum tenellum	Dwarf water-milfoil	Submergent
Najas flexilis	Bushy pondweed	Submergent
Potamogeton amplifolius	Large-leaf pondweed	Submergent
Potamogeton friesii	Fries' pondweed	Submergent
Potamogeton gramineus	Variable-leaf pondweed	Submergent
Potamogeton praelongis	White-stemmed pondweed	Submergent
Potamogeton pusillus	Small pondweed	Submergent
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent
Potamogeton robbinsii	Fern pondweed	Submergent
Potamogeton spirillus	Spiral-fruited pondweed	Submergent
Potamogeton zosteriformis	Flat-stem pondweed	Submergent
Ranunculus aquatilis	Stiff water crowfoot	Submergent
Vallisneria americana	Wild celery	Submergent

Figure 12. USC10 Critical Habitat Area Map

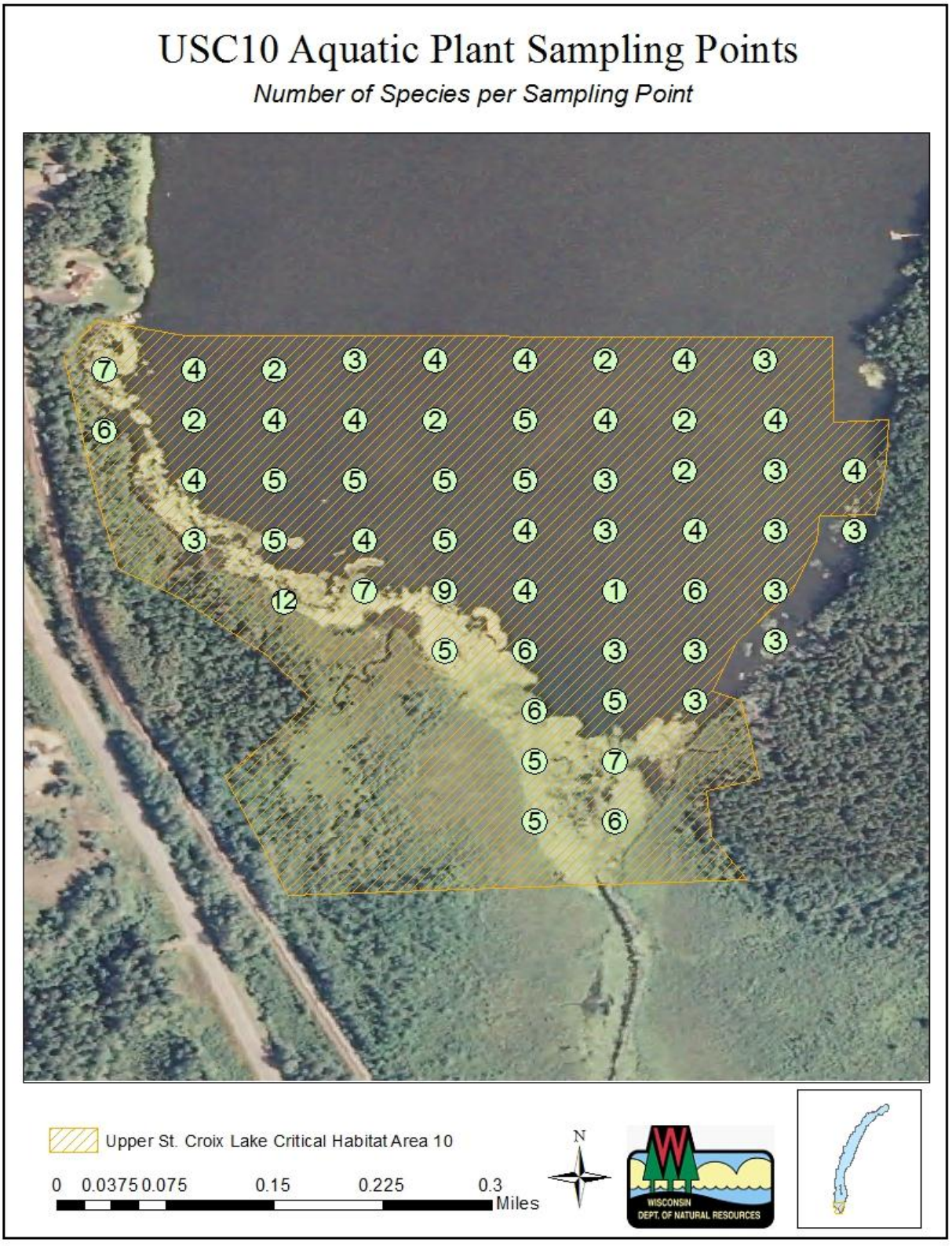


Table 22. Shoreline Assessment of USC10				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	0	0		
Accessory Structures	1	3.1		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			1689	98.1
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			0	0
Established Lawn			33	1.9
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			1722	100
Bank Zone				
Natural Bank			1722	100
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			1722	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	5	15.3		
Boat Lifts	1	3.1		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC11

Critical habitat site USC11 is a Sensitive Area that was designated because of its Emergent and Floating Leaf Vegetation, and Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat. USC11 is 6.7 acres in size and is located on the Southwestern shoreline (Figure 13).

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Table 23. Table 24 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC11.

Do not actively manage aquatic plants unless an aquatic invasive species should establish.

Buffers and overhanging vegetation and floating, emergent and submersed aquatic plants should be left alone.

Established lawn within 35 feet of the water's edge should be replanted with native vegetation to comply with Douglas County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

Leave fallen trees in the water unless they are impeding navigation. Implement Fish Sticks project. Contact local DNR Fisheries Biologist to investigate funding and technical assistance opportunities.

According to the shoreline inventory, there is some riprap in MEC6. Riprap should not be permitted, and alternative bank stabilization methods should be used instead if evidence of erosion develops.

Table 23. USC11 Aquatic Plants

Scientific Name	Common Name	Plant Type
Nuphar variegata	Spatterdock	Floating Leaf
Nymphaea odorata	White water lily	Floating Leaf
Lemna trisulca	Forked duckweed	Free Floating
Ceratophyllum demersum	Coontail	Submergent
Elodea canadensis	Common waterweed	Submergent
Megalodonta beckii	Water marigold	Submergent
Myriophyllum sibericum	Northern water-milfoil	Submergent
Potamogeton amplifolius	Large-leaf pondweed	Submergent
Potamogeton friesii	Fries' pondweed	Submergent
Potamogeton praelongis	White-stemmed pondweed	Submergent
Potamogeton pusillus	Small pondweed	Submergent
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent
Potamogeton robbinsii	Fern pondweed	Submergent
Potamogeton zosteriformis	Flat-stem pondweed	Submergent
Vallisneria americana	Wild celery	Submergent

Figure 14. USC13 Critical Habitat Area Map

Table 24. Shoreline Assessment of USC11				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	15	10.6		
Accessory Structures	8	5.7		
Commercial Buildings	0	0		
Riparian Zone				
Homes	1	0.7		
Accessory Structures	31	22.0		
Commercial Buildings	0	0		
Natural vegetation			6796	91.3
Shrub Layer Removed			344	4.6
Shrub & Ground Cover Removed			197	2.6
Established Lawn			98	1.3
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			10	0.1
Other			0	0
Not Visible			0	0
Total Shoreline			7446	100
Bank Zone				
Natural Bank			7216	96.9
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			98	1.3
Pea Gravel Blanket			0	0
Established Lawn			131	1.8
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			7446	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	23	16.3		
Boat Lifts	28	19.9		
Swims Rafts/ Trampolines	1	0.7		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC12

Critical habitat site USC12 is a Public Rights Feature that was designated because of its Spawning Substrate. USC12 is 1.7 acres in size and is located on the Southwestern shoreline (Figure 14).

Spawning substrate was sampled using a standardized transect method and the results can be seen in Table 25. Table 26 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC12.

Buffers, overhanging vegetation and fallen trees should remain to provide cover and prevent shoreline erosion which could cause undesirable increases in sedimentation on this valuable walleye spawning shoal, consisting of an abundance of cobble, gravel and sand.

Leave fallen trees in the water unless they are impeding navigation. Implement Fish Sticks project. Contact local DNR Fisheries Biologist to investigate funding and technical assistance opportunities.

Established lawn within 35 feet of the water's edge should be replanted with native vegetation to comply with Douglas County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

Figure 14. USC12 Critical Habitat Area Map

Table 25. USC 12 Spawning Substrate Sampling Transect Data																	
Transect Number	**Quadrat Number**	**Band Start**	**Band End**	**Band Width (m)**	**Depth (cm)**	**Embeddedness**	**Marl**	**Detritus**	**Clay**	**Silt**	**Sand**	**Fine Gravel**	**Coarse Gravel**	**Cobble / Rubble**	**Small Boulder**	**Large Boulder**	**Bedrock**
1	1	0	0.9	0.9	0	4		15							85		
1	2	0.9	4.4	3.5	12	4					10	55	35				
1	3	4.4	15	10.6	52	1					80			20			
2	1	0	0.8	0.8	0	4		30							70		
2	2	0.8	1.9	1.1	1	3					50	20	10	20			
2	3	1.9	3.1	1.2	15	4					10	60	10	20			
2	4	3.1	15	11.9	60	-					100						
3	1	0	0.6	0.6	0	3		40							60		
3	2	0.6	3.5	2.9	8	3					20	60	20				
3	3	3.5	15	11.5	52	-					100						
4	1	0	1.1	1.1	0	5								60	40		
4	2	1.1	2.7	1.6	16	4					20	50	10	20			
4	3	2.7	15	12.3	54	-					100						
5	1	0	0.6	0.6	0	3		25							75		
5	2	0.6	4.3	3.7	12	3					20	65		15			
5	3	4.3	15	10.7	64	2					50		30	20			
6	1	0	2.9	2.9	11	3					20	20		60			
6	2	2.9	14	11.1	68	2					70		20	10			
7	1	0	1.1	1.1	0	5					10			50	40		
7	2	1.1	2.1	1	14	4					25	40	10	25			
7	3	2.1	6	3.9	44	4					15			60	25		
7	4	6	11	5	76	1					55			20	25		
8	1	0	0.7	0.7	0	5							10	10	80		
8	2	0.7	2	1.3	7	3					60		10	30			
8	3	2	3.2	1.2	19	4					10	20	30	40			
8	4	3.2	15	11.8	69	2					80			20			
9	1	0	5.9	5.9	13	5							20	80			
9	2	5.9	15	9.1	65	1					90			10			
10	1	0	1.4	1.4	0	5						40			60		
10	2	1.4	2.6	1.2	0	1		80					15	5			
10	3	2.6	3.6	1	18	1		20					20	60			
10	4	3.6	15	11.4	54	-		10			90						

Table 26. Shoreline Assessment of USC12				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	3	21.5		
Accessory Structures	2	14.3		
Commercial Buildings	0	0		
Riparian Zone				
Homes	1	7.2		
Accessory Structures	4	28.6		
Commercial Buildings	0	0		
Natural vegetation			443	60.0
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			33	4.5
Established Lawn			262	35.5
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			738	100
Bank Zone				
Natural Bank			574	77.8
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			164	22.2
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			738	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	5	35.8		
Boat Lifts	2	14.3		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	1	2		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC13

Critical habitat site USC13 is a Public Rights Feature that was designated because of its Water Quality Features (Trout Stream). USC13 is where Park Creek enters Upper St. Croix Lake. Park Creek is a Class 3 Trout Stream (Figure 15).

Table 27 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC13.

Keep passage intact for runs of game and non-game fish for spawning and to protect water quality.

Figure 15. USC13 Critical Habitat Area Map

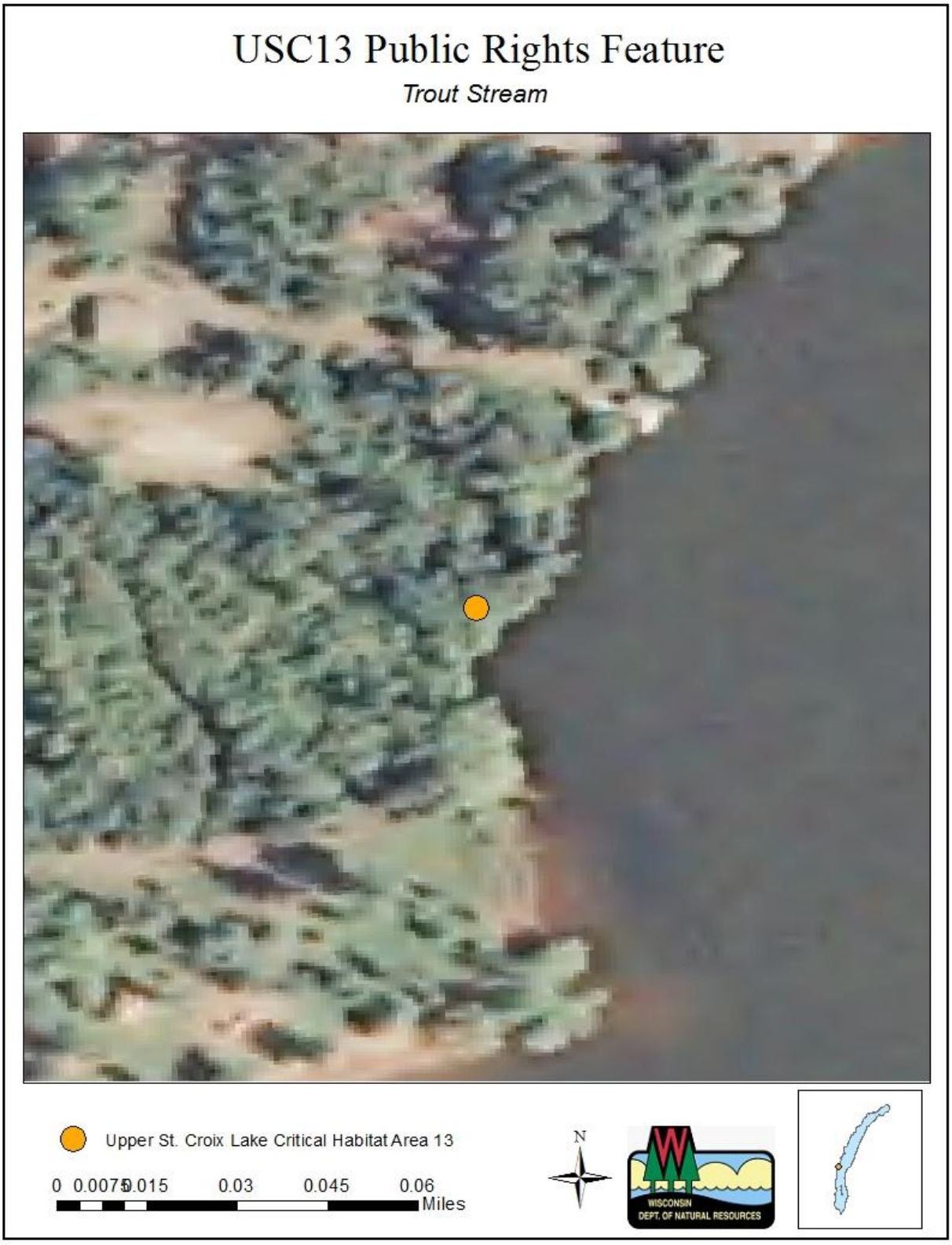


Table 27. Shoreline Assessment of USC13				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	1	6.4		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	3	19.3		
Commercial Buildings	0	0		
Natural vegetation			754	92.0
Shrub Layer Removed			33	4.0
Shrub & Ground Cover Removed			33	4.0
Established Lawn			0	0
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			820	100
Bank Zone				
Natural Bank			804	98.0
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			16	2.0
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			820	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	1	6.4		
Boat Lifts	0	0		
Swims Rafts/ Trampolines	1	6.4		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC14

Critical habitat site USC14 is a Sensitive Area that was designated because of its Emergent and Floating Leaf Vegetation and Water Quality Features. USC14 is 3.3 acres in size and is located at the mouth of Spring Creek which is a Class 2 trout stream (Figure 16).

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Table 28. Table 29 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC414.

Do not actively manage aquatic plants unless an aquatic invasive species should establish.

Buffers and overhanging vegetation along with floating, emergent and submersed aquatic plants should be left alone.

Established lawn within 35 feet of the water's edge should be replanted with native vegetation to comply with Douglas County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

Leave fallen trees in the water unless they are impeding navigation.

Table 28. USC14 Aquatic Plants

Scientific Name	Common Name	Plant Type
Typha latifolia	Broad-leaved cattail	Emergent
Nuphar variegata	Spatterdock	Floating Leaf
Nymphaea odorata	White water lily	Floating Leaf
Heteranthera dubia	Water star-grass	Submergent
Megalodonta beckii	Water marigold	Submergent
Myriophyllum sibericum	Northern water-milfoil	Submergent
Najas flexilis	Bushy pondweed	Submergent
Potamogeton amplifolius	Large-leaf pondweed	Submergent
Potamogeton praelongis	White-stemmed pondweed	Submergent
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent
Potamogeton robbinsii	Fern pondweed	Submergent
Potamogeton zosteriformis	Flat-stem pondweed	Submergent
Vallisneria americana	Wild celery	Submergent

Figure 16. USC14 Critical Habitat Area Map

Table 29. Shoreline Assessment of USC14				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	6	33.3		
Accessory Structures	2	11.1		
Commercial Buildings	0	0		
Riparian Zone				
Homes	1	5.6		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			98	10.3
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			66	6.9
Established Lawn			787	82.8
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			951	100
Bank Zone				
Natural Bank			328	34.5
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			623	65.5
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			951	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	11	61.1		
Boat Lifts	1	5.6		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC15

Critical habitat site USC15 is a Sensitive Area that was designated because of its Emergent and Floating Leaf Vegetation, Extensive Riparian Wetland, and Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat. USC15 is 32.2 acres in size and is located on the Western shoreline. An unnamed stream enters the lake within this sensitive area (Figure 17).

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Table 30. Table 31 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC15.

Do not actively manage aquatic plants unless an aquatic invasive species should establish.

Buffers and overhanging vegetation, bog fringe and floating, emergent and submersed aquatic plants should be left alone.

No dredging should be allowed in this area.

Established lawn within 35 feet of the water's edge should be replanted with native vegetation to comply with Douglas County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

Leave fallen trees in the water unless they are impeding navigation.

Table 30. USC15 Aquatic Plants

Scientific Name	Common Name	Plant Type
Sagittaria rigida	Stiff arrowhead	Emergent
Sparganium fluctans	Floating-leaf bur-reed	Emergent
Nuphar variegata	Spatterdock	Floating Leaf
Nymphaea odorata	White water lily	Floating Leaf
Lemna trisulca	Forked duckweed	Free Floating
Ceratophyllum demersum	Coontail	Submergent
Elodea canadensis	Common waterweed	Submergent
Megalodonta beckii	Water marigold	Submergent
Myriophyllum sibericum	Northern water-milfoil	Submergent
Najas flexilis	Bushy pondweed	Submergent
Potamogeton amplifolius	Large-leaf pondweed	Submergent
Potamogeton friesii	Fries' pondweed	Submergent
Potamogeton gramineus	Variable-leaf pondweed	Submergent
Potamogeton praelongis	White-stemmed pondweed	Submergent
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent
Potamogeton robbinsii	Fern pondweed	Submergent
Potamogeton zosteriformis	Flat-stem pondweed	Submergent
Vallisneria americana	Wild celery	Submergent

Figure 17. USC15 Critical Habitat Area Map

Table 31. Shoreline Assessment of USC15				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	4	20.1		
Accessory Structures	4	20.1		
Commercial Buildings	0	0		
Riparian Zone				
Homes	1	5.0		
Accessory Structures	6	30.2		
Commercial Buildings	0	0		
Natural vegetation			197	18.8
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			0	0
Established Lawn			853	81.2
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			1050	100
Bank Zone				
Natural Bank			722	68.8
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			262	25.0
Artificial Beach			66	6.3
Seawalls			0	0
Total Shoreline			1050	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	6	30.2		
Boat Lifts	2	10.1		
Swims Rafts/ Trampolines	1	5.0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges				
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC16

Critical habitat site USC16 is a Public Rights Feature that was designated because of its Spawning Substrate. USC16 is 3.9 acres in size and is located on the western shoreline. This site is a premier walleye spawning area for the lake.

Spawning substrate was sampled using a standardized transect method and the results can be seen in Table 32. Table 33 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC16.

Established lawn within 35 feet of the water's edge should be replanted with native vegetation to comply with Douglas County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

Buffers, overhanging vegetation and fallen trees should remain to provide cover and prevent shoreline erosion which could cause undesirable increases in sedimentation on this valuable walleye spawning shoal, consisting of an abundance of cobble, gravel and sand.

Leave fallen trees in the water unless they are impeding navigation. Implement Fish Sticks project. Contact local DNR Fisheries Biologist to investigate funding and technical assistance opportunities.

Figure 28. USC16 Critical Habitat Area Map

Table 32. USC 16 Spawning Substrate Sampling Transect Data

Transect Number	Quadrat Number	Band Start	Band End	Band Width (m)	Depth (cm)	Embeddedness	Marl	Detritus	Clay	Silt	Sand	Fine Gravel	Coarse Gravel	Cobble / Rubble	Small Boulder	Large Boulder	Bedrock
1	1	0	5.3	5.3	10	5							10	90			
1	2	5.3	15	9.7	70	2					75			25			
2	1	0	5	5	16	5							15	85			
2	2	5	14	9	76	3					60			40			
3	1	0	5	5	11	5						20	10	70			
3	2	5	8	3	75	-				40	60						
4	1	0	1.5	1.5	0	5						10	5	85			
4	2	1.5	5	3.5	13	4					10	10	60	20			
4	3	5	10	5	72	2				10	60			30			
5	1	0	0.5	0.5	0	5						30	60	10			
5	2	0.5	2.8	2.3	8	5							10	90			
5	3	2.8	15	12.2	76	2				20	65			15			
6	1	0	1.2	1.2	0	3					20	50		30			
6	2	1.2	3.4	2.2	5	5						20	20	60			
6	3	3.4	15	11.6	68	-				10	90						
7	1	0	0.9	0.9	0	4					20	60	10	10			
7	2	0.9	2.3	1.4	15	3					30	10	50	10			
7	3	2.3	5	2.7	40	3					30		20	50			
7	4	5	15	10	70	2				20	50			30			
8	1	0	1.2	1.2	0	3		20				15	5	60			
8	2	1.2	1.9	0.7	13	3					50		30	20			
8	3	1.9	4	2.1	27	4					10		40	50			
8	4	4	15	11	72	2				20	60			20			
9	1	0	3.5	3.5	12	3					20	10	20	50			
9	2	3.5	15	11.5	68	2				10	30		50	10			
10	1	0	1.1	1.1	0	4					10	45	20	25			
10	2	1.1	4	2.9	18	5					10		10	80			
10	3	4	13	9	75	2				20	50	20	10				

Table 33. Shoreline Assessment of USC16

Feature	Number	Density (per mile)	Shoreline Length (feet)	% of Shoreline
Setback Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			508	88.5
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			0	0
Established Lawn			66	11.5
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			574	100
Bank Zone				
Natural Bank			574	100
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			574	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	1	9.2		
Boat Lifts	0	0		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC17

Critical habitat site USC17 is a Public Rights Feature that was designated because of its Spawning Substrate. USC17 is 1.3 acres in size and is located on the Western Shore (Figure 30).

Spawning substrate was sampled using a standardized transect method and the results can be seen in Table 34. Table 35 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC17.

Established lawn within 35 feet of the water's edge should be replanted with native vegetation to comply with Douglas County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

Buffers, overhanging vegetation and fallen trees should remain to provide cover and prevent shoreline erosion which could cause undesirable increases in sedimentation on this valuable walleye spawning shoal, consisting of an abundance of cobble, gravel and sand.

Leave fallen trees in the water unless they are impeding navigation. Implement Fish Sticks project. Contact local DNR Fisheries Biologist to investigate funding and technical assistance opportunities.

Figure 30. USC17 Critical Habitat Area Map

Table 34. USC 17 Spawning Substrate Sampling Transect Data																	
Transect Number	**Quadrat Number**	**Band Start**	**Band End**	**Band Width (m)**	**Depth (cm)**	**Embeddedness**	**Marl**	**Detritus**	**Clay**	**Silt**	**Sand**	**Fine Gravel**	**Coarse Gravel**	**Cobble / Rubble**	**Small Boulder**	**Large Boulder**	**Bedrock**
1	1	0	0.8	0.8	0	5								25	75		
1	2	0.8	4	3.2	27	3					30	20	40	10			
1	3	4	15	11	56	1					70	30					
2	1	0	0.6	0.6	0	4					20			20		60	
2	2	0.6	15	14.4	36	1					90	10					
3	1	0	15	15	26	1					60	30	10				
4	1	0	7	7	21	4					10	10	10	70			
4	2	7	15	8	70	1					70	10		20			
5	1	0	4.3	4.3	0	5						10		90			
5	2	4.3	15	10.7	52	1					80			20			
6	1	0	1.8	1.8	0	5						90		10			
6	2	1.8	15	13.2	34	1					90		10				
7	1	0	1.1	1.1	0	5						10	30	60			
7	2	1.1	15	13.9	30	1				10	50	40					
8	1	0	1.3	1.3	0	4					40			60			
8	2	1.3	15	13.7	48						100						
9	1	0	2.6	2.6	15	5							10	90			
9	2	2.6	15	12.4	69	1				10	40		20	30			
10	1	0	1.6	1.6	0	3		20					10	70			
10	2	1.6	3.6	2	14	3					20	75	5				
10	3	3.6	8.2	4.6	52	1					75	25					

Table 35. Shoreline Assessment of USC17				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			279	100
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			0	0
Established Lawn			0	0
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			279	100
Bank Zone				
Natural Bank			279	100
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			279	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	0	0		
Boat Lifts	0	0		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC18

Critical habitat site USC18 is a Sensitive Area that was designated because of its Emergent and Floating Leaf Vegetation, and Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat. USC18 is 0.4 acres in size and is located along the Western shore (Figure 32).

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Table 36. Table 37 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC18.

Do not actively manage aquatic plants unless an aquatic invasive species should establish.

Buffers and overhanging vegetation along with floating, emergent and submersed aquatic plants should be left alone.

Do not remove rush beds. Place piers outside of rushes, or if that's not possible extend the piers beyond the rushes for boat mooring. Restore/replant rush beds that have been destroyed in the past.

Leave fallen trees in the water. Implement Fish Sticks project. Contact local DNR Fisheries Biologist to investigate funding and technical assistance opportunities.

Table 36. USC18 Aquatic Plants

Scientific Name	Common Name	Plant Type
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent
Sparganium sp	Bur-reed	Emergent
Typha latifolia	Broad-leaved cattail	Emergent
Nuphar variegata	Spatterdock	Floating Leaf
Elodea canadensis	Common waterweed	Submergent
Najas flexilis	Bushy pondweed	Submergent
Potamogeton epihydrus	Ribbon-leaf pondweed	Submergent
Sagittaria sp	Arrowhead (rosette)	Submergent

Figure 32. USC18 Critical Habitat Area Map

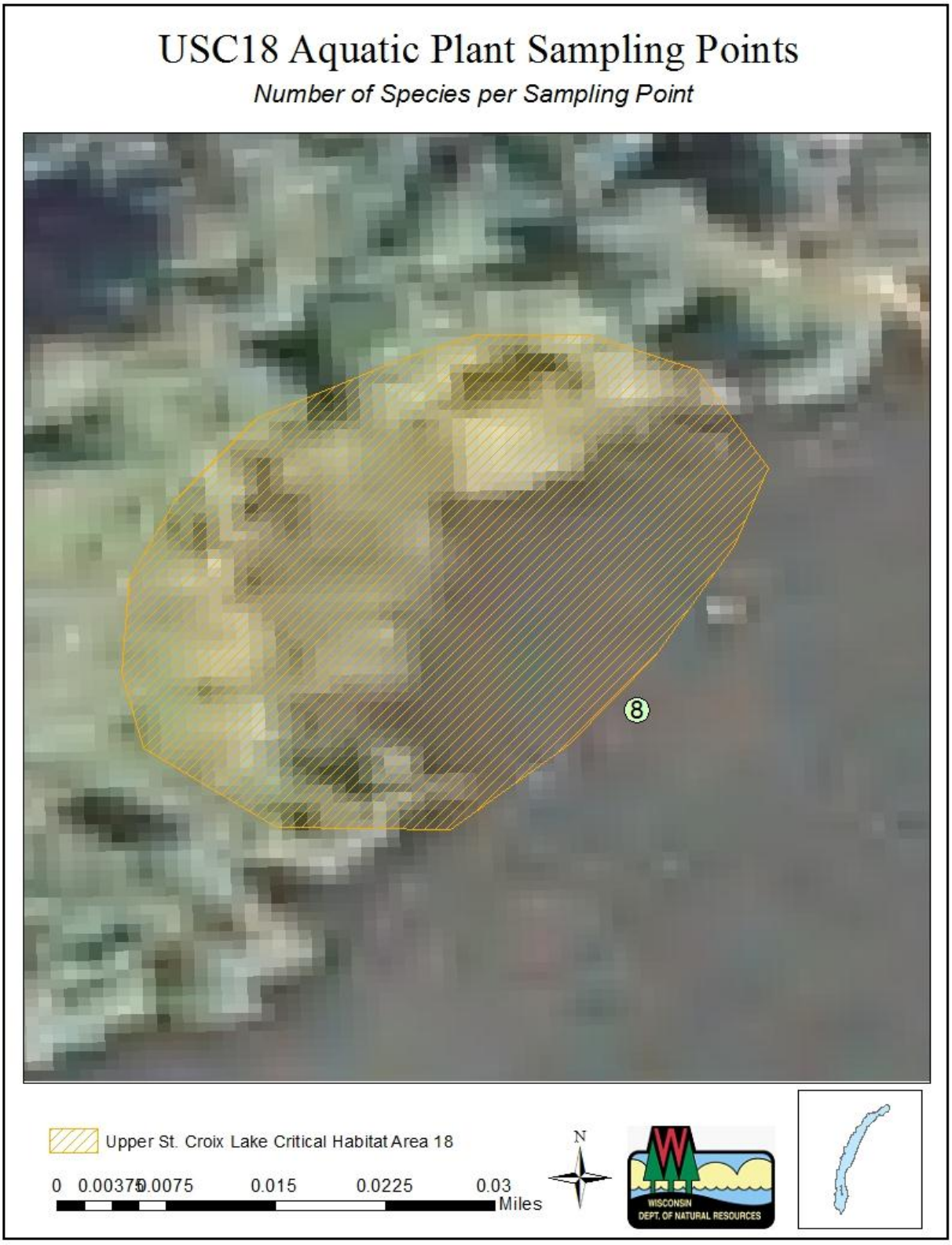


Table 37. Shoreline Assessment of USC18				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	1			
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	1	10.1		
Accessory Structures	4	40.2		
Commercial Buildings	0	0		
Natural vegetation			459	87.4
Shrub Layer Removed			66	12.6
Shrub & Ground Cover Removed			0	0
Established Lawn			0	0
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			525	100
Bank Zone				
Natural Bank			515	98.1
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			10	1.9
Seawalls			0	0
Total Shoreline			525	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	1	10.1		
Boat Lifts	0	0		
Swims Rafts/ Trampolines	1	10.1		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC19

Critical habitat site USC19 is a Sensitive Area that was designated because of its Extensive Riparian Wetland, Emergent and Floating Leaf Vegetation, Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat, and Water Quality Features. USC19 is 14.3 acres in size and located at the mouth of Beebe Creek which is a Class 1 trout stream (Figure 33).

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Table 38. Table 139 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC19.

Do not actively manage aquatic plants unless an aquatic invasive species should establish.

Buffers and overhanging vegetation, bog fringe and floating, emergent and submersed aquatic plants should be left alone.

No dredging should be allowed in this area.

Established lawn within 35 feet of the water's edge should be replanted with native vegetation to comply with Douglas County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

Leave fallen trees in the water unless they are impeding navigation.

Table 38. USC19 Aquatic Plants

Scientific Name	Common Name	Plant Type
Sagittaria cristata	Crested arrowhead	Emergent
Nuphar variegata	Spatterdock	Floating Leaf
Eleocharis acicularis	Needle spikerush	Submergent
Potamogeton amplifolius	Large-leaf pondweed	Submergent
Potamogeton praelongis	White-stemmed pondweed	Submergent
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent
Potamogeton robbinsii	Fern pondweed	Submergent
Stuckenia pectinata	Sago pondweed	Submergent
Vallisneria americana	Wild celery	Submergent

Figure 33. USC19 Critical Habitat Area Map

Table 39. Shoreline Assessment of USC19				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	12	24.9		
Accessory Structures	6	12.5		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	12	24.9		
Commercial Buildings	0	0		
Natural vegetation			1656	65.1
Shrub Layer Removed			98	3.9
Shrub & Ground Cover Removed			0	0
Established Lawn			722	28.4
Pastureland			0	0
Row Crop			0	0
Beach			66	2.6
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			2542	100
Bank Zone				
Natural Bank			2165	85.2
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			148	5.8
Pea Gravel Blanket			0	0
Established Lawn			115	4.5
Artificial Beach			115	4.5
Seawalls			0	0
Total Shoreline			2542	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	11	22.9		
Boat Lifts	12	24.9		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC20

Critical habitat site USC20 is a Public Rights Feature that was designated because of its Water Quality Features. USC20 is located at the mouth of Catlin Creek which is a Class 3 trout stream (Figure 35).

Table 40 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC20.

Impacts of extensive impervious surface in this area should be remediated by detention basins and reestablishment of buffers and shoreline vegetation where possible.

Figure 35. USC20 Critical Habitat Area Map

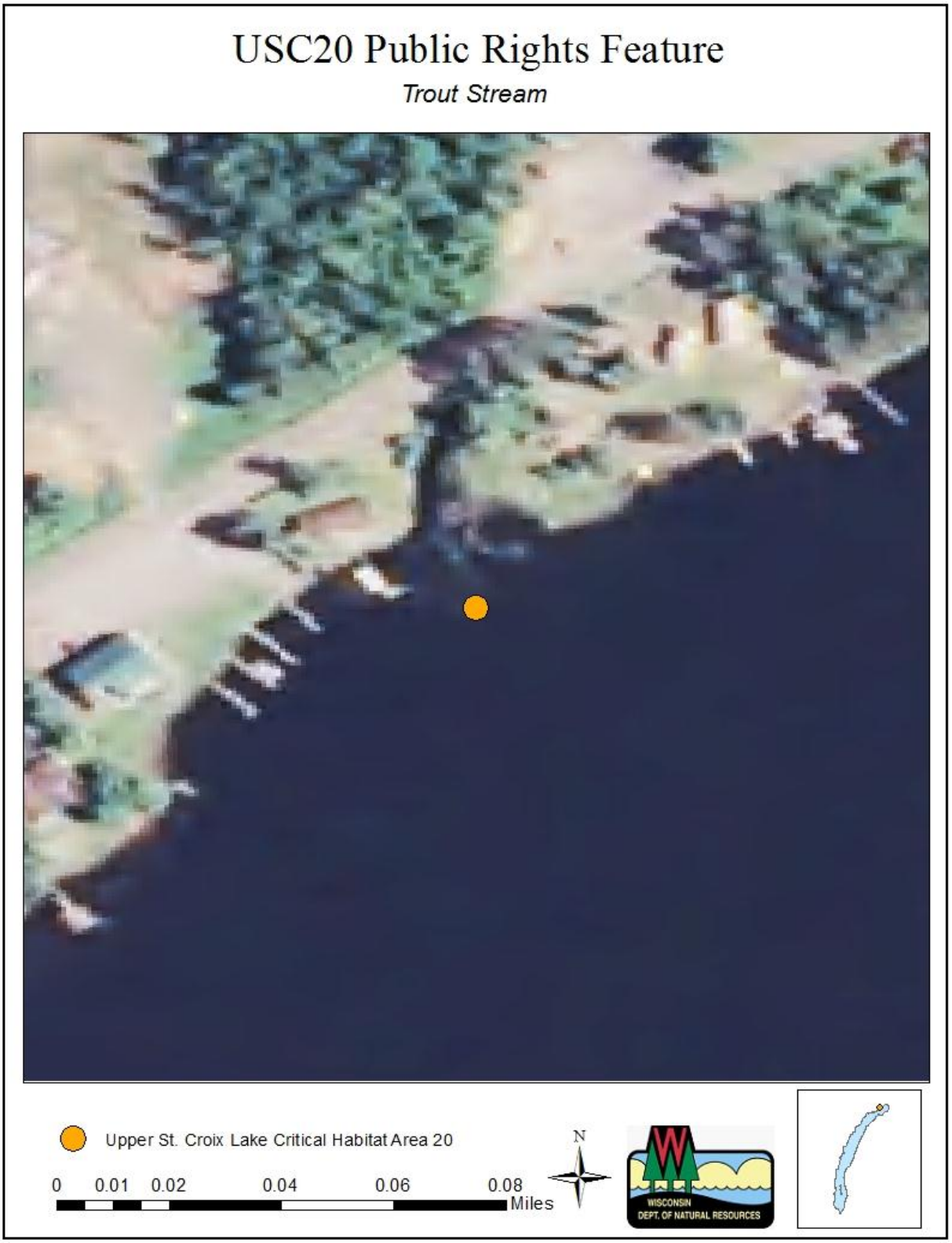


Table 40. Shoreline Assessment of USC20				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	1	5.4		
Accessory Structures	2	10.7		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0			
Accessory Structures	2	10.7		
Commercial Buildings	0	0		
Natural vegetation			361	36.7
Shrub Layer Removed			66	6.7
Shrub & Ground Cover Removed			0	0
Established Lawn			0	0
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			558	56.7
Other			0	0
Not Visible			0	0
Total Shoreline			984	100
Bank Zone				
Natural Bank			869	88.3
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			66	6.7
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			49	5.0
Seawalls			0	0
Total Shoreline			984	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	2	10.7		
Boat Lifts	1	5.4		
Swims Rafts/ Trampolines	1	5.4		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges				
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC21

Critical Habitat site USC21 was designated a Sensitive Area because of its Extensive Riparian Wetland and Emergent and Floating Leaf Vegetation. USC21 is 19.8 acres in size and is located at the mouth of St. Croix Creek which is a Class 1 trout stream. Critical Habitat site USC21 was also designated as a Public Rights Feature.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Table 41. Table 42 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC21.

Do not actively manage aquatic plants unless an aquatic invasive species should establish.

Buffers and overhanging vegetation, bog fringe and floating, emergent and submersed aquatic plants should be left alone.

No dredging should be allowed in this area.

Established lawn within 35 feet of the water's edge should be replanted with native vegetation to comply with Douglas County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

Leave fallen trees in the water unless they are impeding navigation. Implement Fish Sticks project. Contact local DNR Fisheries Biologist to investigate funding and technical assistance opportunities.

Table 41. USC21 Aquatic Plants

Scientific Name	Common Name	Plant Type
Sparganium fluctans	Floating-leaf bur-reed	Emergent
Nuphar variegata	Spatterdock	Floating Leaf
Nymphaea odorata	White water lily	Floating Leaf
Ceratophyllum demersum	Coontail	Submergent
Chara	Muskgrasses	Submergent
Heteranthera dubia	Water star-grass	Submergent
Megalodonta beckii	Water marigold	Submergent
Potamogeton amplifolius	Large-leaf pondweed	Submergent
Potamogeton foliosis	Fries' pondweed	Submergent
Potamogeton praelongis	White-stemmed pondweed	Submergent
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent
Potamogeton robbinsii	Fern pondweed	Submergent
Potamogeton zosteriformis	Flat-stem pondweed	Submergent
Ranunculus aquatilis	Stiff water crowfoot	Submergent
Vallisneria americana	Wild celery	Submergent

Figure 36. USC21 Critical Habitat Area Map

Table 42. Shoreline Assessment of USC21				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	4	21.6		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	6	32.2		
Commercial Buildings	0	0		
Natural vegetation			689	70.0
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			131	13.3
Established Lawn			164	16.7
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			984	100
Bank Zone				
Natural Bank			951	96.6
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			33	3.4
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			984	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	5	26.8		
Boat Lifts	3	16.1		
Swims Rafts/ Trampolines	2	10.7		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Upper St. Croix Lake Critical Habitat Site USC22

Critical habitat site USC22 is a Public Rights Feature that was designated because of its Spawning Substrate. USC22 is 5.2 acres in size and encompasses the entire center island (Figure 36).

Spawning substrate was sampled using a standardized transect method and the results can be seen in Table 43. Table 44 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of USC22.

Established lawn within 35 feet of the water's edge should be replanted with native vegetation to comply with Douglas County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

Buffers and overhanging vegetation should remain to provide cover and prevent shoreline erosion which could cause undesirable increases in sedimentation on this valuable walleye spawning area, consisting of an abundance of cobble, gravel and sand.

Leave fallen trees in the water unless they are impeding navigation. Implement Fish Sticks project. Contact local DNR Fisheries Biologist to investigate funding and technical assistance opportunities.

Figure 36. USC22 Critical Habitat Area Map

Table 43. USC 22 Spawning Substrate Sampling Transect Data																	
Transect Number	**Quadrat Number**	**Band Start**	**Band End**	**Band Width (m)**	**Depth (cm)**	**Embeddedness**	**Marl**	**Detritus**	**Clay**	**Silt**	**Sand**	**Fine Gravel**	**Coarse Gravel**	**Cobble / Rubble**	**Small Boulder**	**Large Boulder**	**Bedrock**
1	1	0	3	3	34	5								20	80		
1	2	3	9	6	78	5					5		25	70			
2	1	0	6.6	6.6	65	5						10	20	70			
3	1	0	3.8	3.8	53	5						5	5	90			
4	1	0	4.4	4.4	53	5						5	5	90			
5	1	0	1	1	5	5						10		90			
5	2	1	3	2	31	5						55	20	25			
5	3	3	7.3	4.3	72	1					60	30	10				
6	1	0	0.8	0.8	0	5						5	15	80			
6	2	0.8	2	1.2	20	5								25	75		
6	3	2	5.6	3.6	63	5						30	50	20			
7	1	0	2.6	2.6	14	5							20	80			
7	2	2.6	6	3.4	76						100						
8	1	0	3.6	3.6	44	5								25	75		
9	1	0	3	3	28	5					5	10	10	75			
9	2	3	6.2	3.2	75	2					60	10	30				
10	1	0	2.2	2.2	19	5							20	80			
10	2	2.2	9.4	7.2	71	1					75	10	15				

Table 44. Shoreline Assessment of USC22				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	1	29.2		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			115	63.5
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			0	0
Established Lawn			66	36.5
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			181	100
Bank Zone				
Natural Bank			148	81.8
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			33	18.2
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			181	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	1	29.2		
Boat Lifts	0	0		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Appendix 1. Personnel and dates of Critical Habitat Designation, Upper St. Croix Lake, Douglas County

Critical Habitat Designations occurred on 6/26/2007 by Scott Toshner, Pamela Toshner, Greg Kessler, and Paul Cunningham.

Shoreline management inventories occurred on 6/16/2008, 8/1/2008, and 8/6/2008 by Alex Smith and Paul Riordan.

Aquatic plant sampling occurred on 7/8/2008, 7/9/2008, 7/18/2008, 7/23/2008, 8/4/2008, 8/5/2008, 8/6/2008, 8/7/2008, and 8/9/2008 by Alex Smith Paul Riordan, Debbie Konkel, and Susan Knight.

Woody habitat sampling occurred on 6/10/2008 by Alex Smith and Paul Riordan.

Spawning substrate sampling occurred on 6/4/2008, 6/10/2008, and 6/16/2008 by Alex Smith and Paul Riordan.

Appendix 2: Notice of Public Information Meeting for Proposed Critical Habitat Designation

The Department of Natural Resources has located areas that meet the criteria for Critical Habitat Designation on the following water bodies in Douglas County: Beauregard Lake, Upper St. Croix Lake, St. Croix (Gordon) Flowage, and the St. Croix River between Upper St. Croix Lake and Gordon Flowage.

Because the Critical Habitat Designations are in waters held in trust by the state for all citizens and may be adjacent to private lands, state law provides an opportunity for public input to the Department's decision.

A public informational meeting is scheduled for Saturday, October 23rd, 2010 from 9:00 am – 11:00 am at the Solon Springs Community Center in Solon Springs, WI. The informational meeting will be an open house format that will allow time to talk with DNR staff, ask questions, and provide written comments regarding the designations.

The designation of Critical Habitat is of vital importance to water quality, hunting, fishing, and natural beauty of Wisconsin's lakes and streams. The Department has made a determination that the Critical Habitat Areas on said water bodies contain:

- Fish and wildlife habitat, including specific sites necessary for breeding, nesting, nursery, and feeding.
- Physical features that ensure protection of water quality.
- Reaches of bank, shore, or bed that are predominately natural in appearance (not man-made or artificial) or that screen man-made or artificial features.
- Navigation thoroughfares or areas traditionally used for navigation during recreational boating, angling, hunting, or enjoyment of natural scenic beauty.
- Areas of aquatic vegetation offering critical or unique fish and wildlife habitat, including seasonal or lifestage requirements, or offering water quality or erosion control benefits to the body of water.

The purpose of identifying Critical Habitat Areas is to protect and/or restore their conservation values and thus promote healthy lakes and rivers. Special permit conditions may apply to landowners who wish to alter Critical Habitat Areas through activities such as dredging, installing or repairing riprap, grading, irrigation, building dams, or establishing culverts or large pier complexes. Furthermore, in Critical Habitat Areas, manual removal of native aquatic plants may require a permit, and the chemical treatment or mechanical removal of native aquatic plants is unlikely to be approved.

Draft reports, maps, and more information on Critical Habitat Designations are all available at http://dnr.wi.gov/lakes/criticalhabitat/ or by contacting Alex Smith at (715) 635-4124.