Upper Eau Claire Lake Critical Habitat Designation Report

Bayfield County, WI

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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:

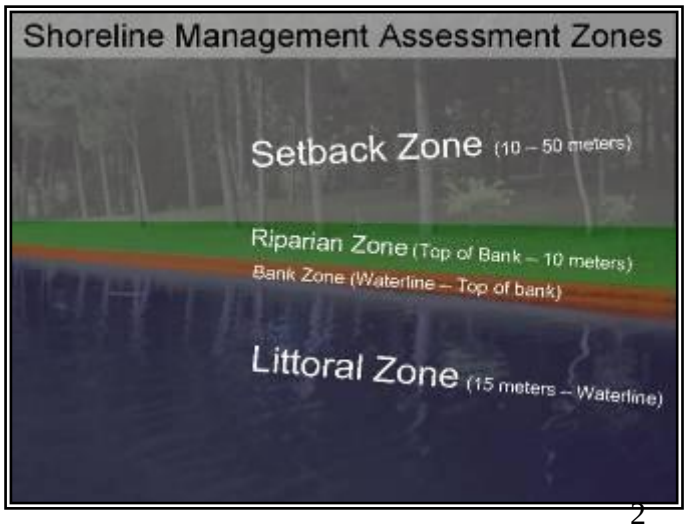
1) Resource protection through science based regulatory review.
2) Community-based resource protection through community education, planning and zoning.
3) As a guide to land-trusts and others acquiring land and conservation easements.
4) A mechanism to track long-term changes in these habitats.

Methods

Critical Habitat Designation occurred on Upper Eau Claire Lake in Bayfield County during 2007 and 2008. Upper Eau Claire Lake, which is a 996 acre lake with a max depth of 92 feet, is part of the Eau Claire Chain of Lakes and is located upstream from Middle Eau Claire Lake. Access to Upper Eau Claire Lake is via a public boat launch on Peninsula Road.

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 management guidelines 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 Bayfield 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 Bayfield 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, a public sanitary sewer system should be constructed. 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 Bayfield County Land & Water Conservation Department to implement a Fish Sticks project that replaces this valuable habitat.

Specific Site Recommendations: these management guidelines 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 Eau Claire 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 Eau Claire Lake Critical Habitat Map

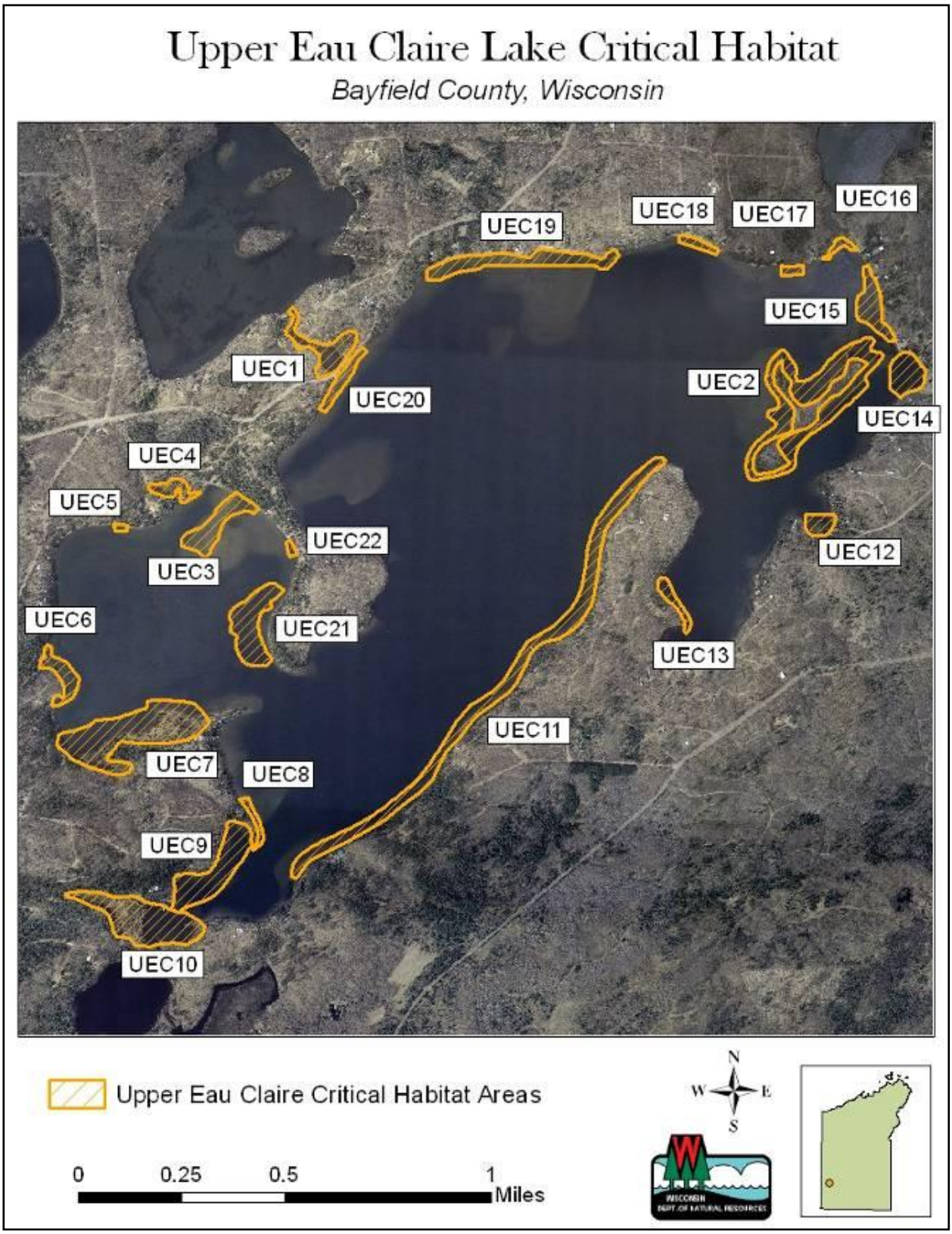


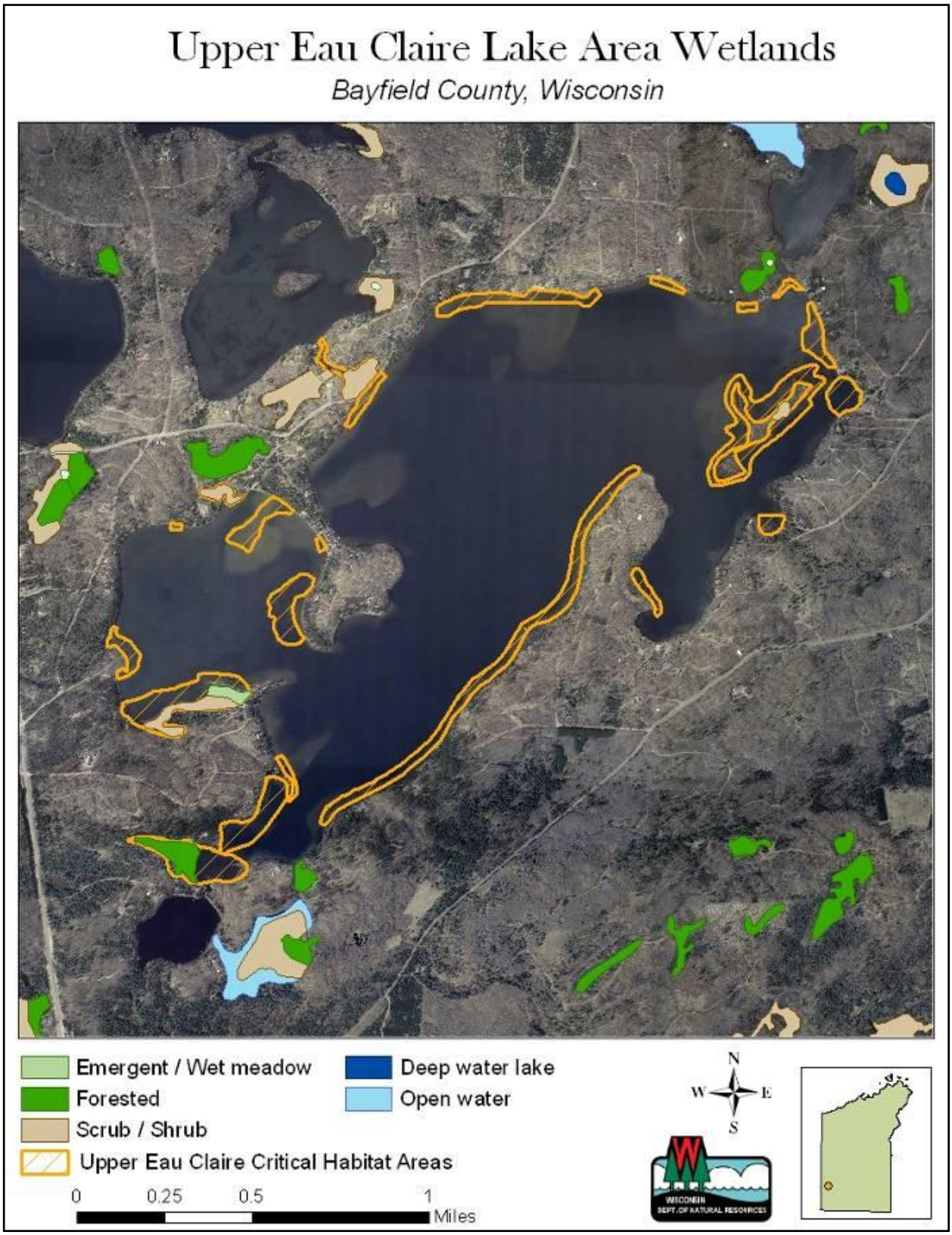
Table 1. Upper Eau Claire Lake Critical Habitat Polygon Justifications

Critical Habitat Polygon ID	Acres	Justification	Justification	Justification	Justification	Justification	Classification
UEC1	5.6	3	6	11	-	-	Sensitive Area
UEC2	21.2	8	4	2	11	10	Sensitive Area
UEC3	5.8	4	-	-	-	-	Sensitive Area
UEC4	2.2	6	-	-	-	-	Sensitive Area
UEC5	0.4	4	-	-	-	-	Sensitive Area
UEC6	3.5	4	7	-	-	-	Sensitive Area
UEC7	20.4	6	3	-	-	-	Sensitive Area
UEC8	1.1	7	8	-	-	-	Public Rights Feature
UEC9	10.4	2	-	-	-	-	Sensitive Area
UEC10	14.5	3	6	-	-	-	Sensitive Area
UEC11	24.7	8	-	-	-	-	Public Rights Feature
UEC12	2.0	2	-	-	-	-	Sensitive Area
UEC13	1.8	7	8	-	-	-	Public Rights Feature
UEC14	4.4	2	3	-	-	-	Sensitive Area
UEC15	4.7	4	-	-	-	-	Sensitive Area
UEC16	0.9	4	-	-	-	-	Sensitive Area
UEC17	0.7	4	-	-	-	-	Sensitive Area
UEC18	1.1	4	-	-	-	-	Sensitive Area
UEC19	9.2	4	-	-	-	-	Sensitive Area
UEC20	2.4	8	-	-	-	-	Public Rights Feature
UEC21	8.4	2	-	-	-	-	Sensitive Area
UEC22	0.4	4	-	-	-	-	Sensitive Area

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

Figure 3. Upper Eau Claire Lake Area Wetlands Map



Upper Eau Claire Lake Critical Habitat Site UEC1

Critical habitat site UEC1 is a Sensitive Area that was designated because of its Emergent and Floating Leaf Vegetation, Extensive Riparian Wetland, and Extensive Public Use. UEC1 is 5.59 acres in size and encompasses the entire channel between Upper Eau Claire Lake and Birch Lake.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 3 and 4. Table 5 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC1.

Prioritize for permanent land protection.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

According to the shoreline inventory, there is riprap in UEC1. Riprap is not necessary because the wave energy is low. Low-energy sites are typically not eligible/authorized for riprap permits. If shoreline erosion is a problem, overland runoff from rooftops, driveways, and lawns or reckless motorboat use are the most likely causes. Previously and potentially illegally placed riprap should be removed.

Dredging should not be allowed.

Enforce current slow-no-wake ordinance.

Enforce violations of current aquatic plant management rules. Some property owners appear to be removing more aquatic plants than state law allows.

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.

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

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

Table 3. UEC1 Aquatic Plants				
Scientific Name	**Common Name**	**Plant Type**	**FQI Coefficient**	**Relative Frequency**
Carex sp	Sedges	Emergent	-	1.3
Dulichium arundinaceum	Three-way sedge	Emergent	9	4.0
Pontederia cordata	Pickerelweed	Emergent	9	13.3
Sagittaria sp	Arrowhead	Emergent	-	5.3
Schoenoplectus acutus	Hardstem bulrush	Emergent	5	4.0
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent	4	6.7
Typha sp	Cattail	Emergent	1	2.7
Brasenia schreberi	Watershield	Floating Leaf	7	20.0
Nuphar variegata	Spatterdock	Floating Leaf	6	13.3
Nymphaea odorata	White water lily	Floating Leaf	6	26.7
Potamogeton gramineus	Variable pondweed	Submergent	7	1.3
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent	5	1.3

Table 4. UEC1 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**UEC1**
Total number of points sampled	34
Total number of sites with vegetation	27
Total number of sites shallower than maximum depth of plants	29
Frequency of occurrence at sites shallower than maximum depth of plants	93.103
Simpson Diversity Index	0.842
Maximum depth of plants (Feet)	1.5
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	34
Average number of all species per site (shallower than max depth)	2.59
Average number of all species per site (veg. sites only)	2.78
Average number of native species per site (shallower than max depth)	2.59
Average number of native species per site (veg. sites only)	2.78
Species Richness	12
Species Richness (including visuals)	12
Floristic Quality Index	18.70

Figure 4. UEC1 Aquatic Plant Diversity Map

Table 5. Shoreline Assessment of UEC1				
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 Eau Claire Lake Critical Habitat Site UEC2

Critical habitat site UEC2 is a Sensitive Area that was designated because of its Spawning Substrate, Rush Beds, Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat, Extensive Public Use, and Natural Scenic Beauty. UEC2 is 21.24 acres in size and encompasses the entire shoreline around 3-in-1 Island.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 6 and 7. Spawning substrate was sampled using a standardized transect method and the results can be seen in Table 8. Table 9 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC2.

Stabilize and/or restore paths to the water that are eroding into the lake.

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.

Do not remove bulrush or other aquatic plants.

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

Table 6. UEC2 Aquatic Plants				
Scientific Name	**Common Name**	**Plant Type**	**FQI Coefficient**	**Relative Frequency**
Carex sp	Sedges	Emergent	-	0.7
Sagittaria sp	Arrowhead	Emergent	-	0.7
Schoenoplectus acutus	Hardstem bulrush	Emergent	5	4.1
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent	4	8.8
Sparganium sp	Bur-reed	Emergent	-	1.4
Typha sp	Cattail	Emergent	1	Visual
Nymphaea odorata	White water lily	Floating Leaf	6	1.4
Sparganium fluctuans	Floating-leaf-bur-reed	Floating Leaf	10	0.7
Ceratophyllum demersum	Coontail	Submergent	3	2.0
Chara	Muskgrasses	Submergent	7	19.6
Elodea canadensis	Common waterweed	Submergent	3	4.1
Heteranthera dubia	Water star-grass	Submergent	6	2.0
Megalodonta beckii	Water marigold	Submergent	8	0.7
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	6.1
Myriophyllum tenellum	Dwarf water-milfoil	Submergent	10	6.8
Najas flexilis	Bushy pondweed	Submergent	6	12.8
Nitella	Nitella	Submergent	7	1.4
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	3.4
Potamogeton friesii	Frie's pondweed	Submergent	8	3.4
Potamogeton gramineus	Variable pondweed	Submergent	7	5.4
Potamogeton pusillus	Small pondweed	Submergent	7	0.7
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent	5	2.0
Potamogeton robbinsii	Robbins pondweed	Submergent	8	0.7
Potamogeton strictifolius	Stiff pondweed	Submergent	8	0.7
Potamogeton zosteriformis	Flat-stem pondweed	Submergent	6	7.4
Vallisneria americana	Wild celery	Submergent	6	3.4

Table 7. UEC2 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**UEC2**
Total number of points sampled	160
Total number of sites with vegetation	74
Total number of sites shallower than maximum depth of plants	157
Frequency of occurrence at sites shallower than maximum depth of plants	47.13376
Simpson Diversity Index	0.911888
Maximum depth of plants (Feet)	23
Number of sites sampled using rake on Rope (R)	7
Number of sites sampled using rake on Pole (P)	153
Average number of all species per site (shallower than max depth)	0.94
Average number of all species per site (veg. sites only)	2.00
Average number of native species per site (shallower than max depth)	0.94
Average number of native species per site (veg. sites only)	2.00
Species Richness	25
Species Richness (including visuals)	26
Floristic Quality Index	30.20

Table 8. UEC2 Spawning Substrate Sampling Transect Data

Transect Number	Quadrat Number	Band Start	Band End	Band Width (m)	Embeddedness	Marl	Detritus	Clay	Silt	Sand	Fine Gravel	Coarse Gravel	Cobble / Rubble	Small Boulder	Large Boulder	Bedrock
1	1	0	4	4	3					40	15	15	30			
1	2	4	12.5	8.5						100						
2	1	0	2	2	3					5	25	10	60			
2	2	2	6	4	3					50	20	30				
2	3	6	15	9						100						
3	1	0	2	2	4					10	10	50	30			
3	2	2	4	2	4					10	50	20	20			
3	3	4	14.2	10.2	1				10	20	15	15	40			
3	4	14.2	15	0.8						100						
4	1	0	11.5	11.5	4					10	20	10	60			
4	2	11.5	15	3.5						100						
5	1	0	15	15					20	80						
6	1	0	15	15			5		5	90						
7	1	0	15	15			5		5	90						
8	1	0	6.2	6.2			5		5	90						
8	2	6.2	12	5.8	2					70		10	20			
8	3	12	15	3						100						
9	1	0	13.2	13.2					30	70						
10	1	0	6	6						100						
10	2	6	10.3	4.3			100									

Figure 5. UEC2 Aquatic Plant Diversity Map

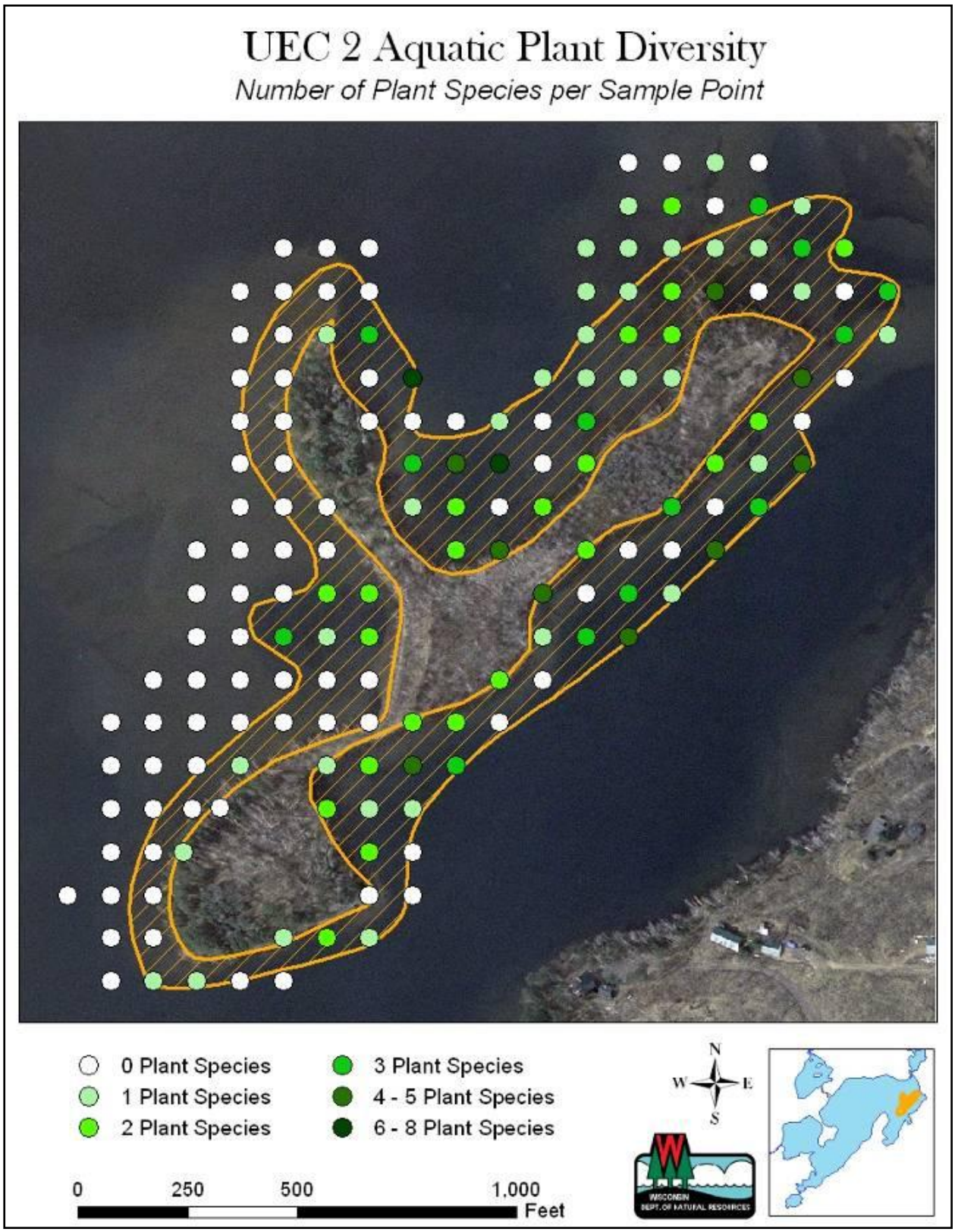


Figure 6. UEC2 Rushes Map

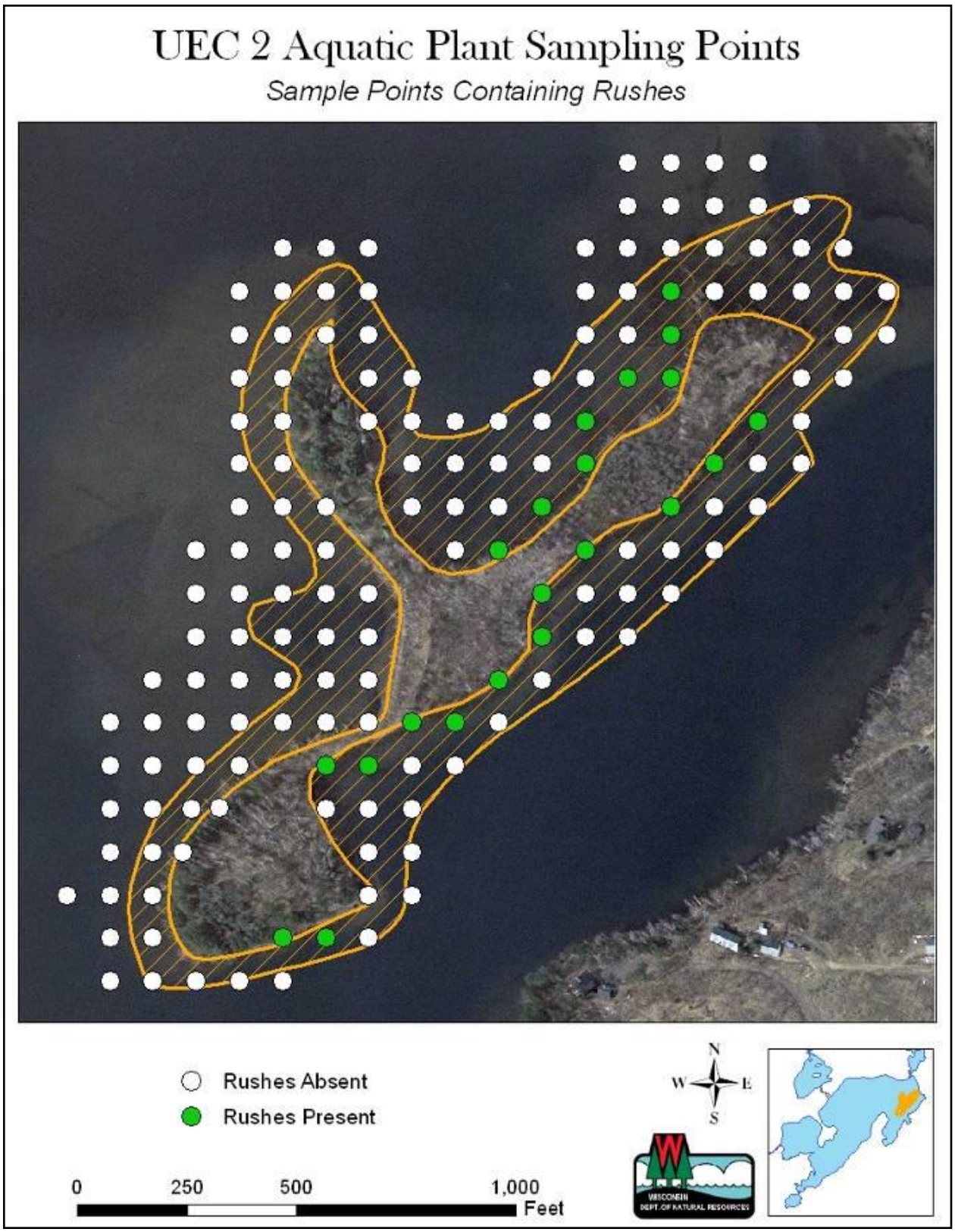


Figure 7. UEC2 Spawning Substrate Transects Map

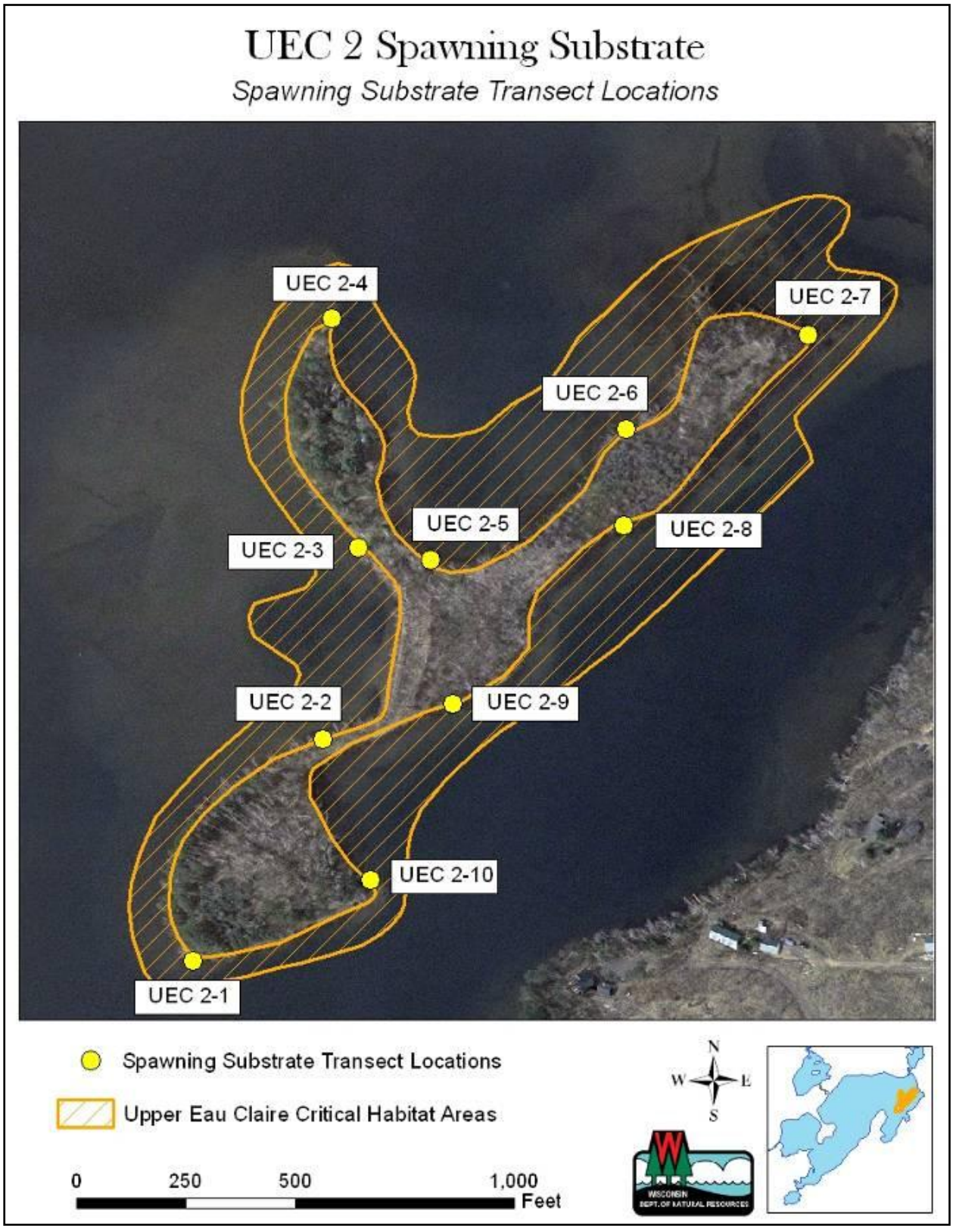


Table 9. Shoreline Assessment of UEC2				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	2	1.7		
Commercial Buildings	0	0		
Natural 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 Eau Claire Lake Critical Habitat Site UEC3

Critical habitat site UEC3 is a Sensitive Area that was designated because of its Rush Beds. UEC3 is 5.76 acres in size and is located just west of the public boat launch.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 10 and 11. Table 12 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC3.

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.

Encourage motor boaters to avoid the rush beds, particularly the offshore areas, which are rare on lakes.

Table 10. UEC3 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent	4	23.4
Sparganium sp	Bur-reed	Emergent	-	Visual
Chara	Muskgrasses	Submergent	7	39
Eleocharis acicularis	Needle spikerush	Submergent	5	6.5
Elodea canadensis	Common waterweed	Submergent	3	2.6
Myriophyllum tenellum	Dwarf water-milfoil	Submergent	10	6.5
Najas flexilis	Bushy pondweed	Submergent	6	6.5
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	2.6
Potamogeton gramineus	Variable pondweed	Submergent	7	11.7
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent	5	1.3

Table 11. UEC3 Aquatic Plant Sampling Summary Statistics

SUMMARY STATISTICS	UEC3
Total number of points sampled	87
Total number of sites with vegetation	49
Total number of sites shallower than maximum depth of plants	85
Frequency of occurrence at sites shallower than maximum depth of plants	57.647
Simpson Diversity Index	0.766
Maximum depth of plants (Feet)	5.5
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	87
Average number of all species per site (shallower than max depth)	0.91
Average number of all species per site (veg. sites only)	1.57
Average number of native species per site (shallower than max depth)	0.91
Average number of native species per site (veg. sites only)	1.57
Species Richness	9
Species Richness (including visuals)	10
Floristic Quality Index	18.00

Figure 8. UEC3 Aquatic Plant Diversity Map

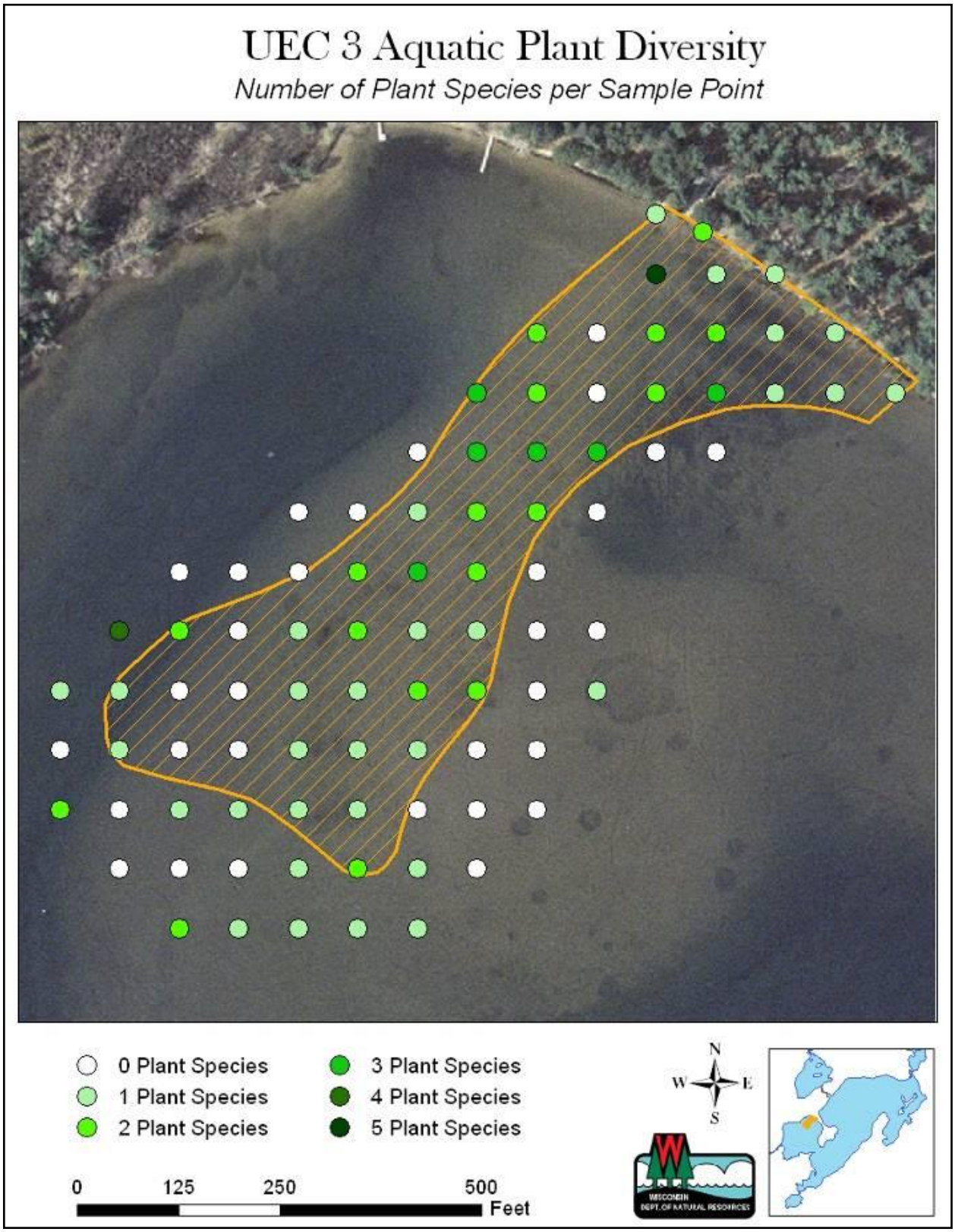


Figure 9. UEC3 Rushes Map

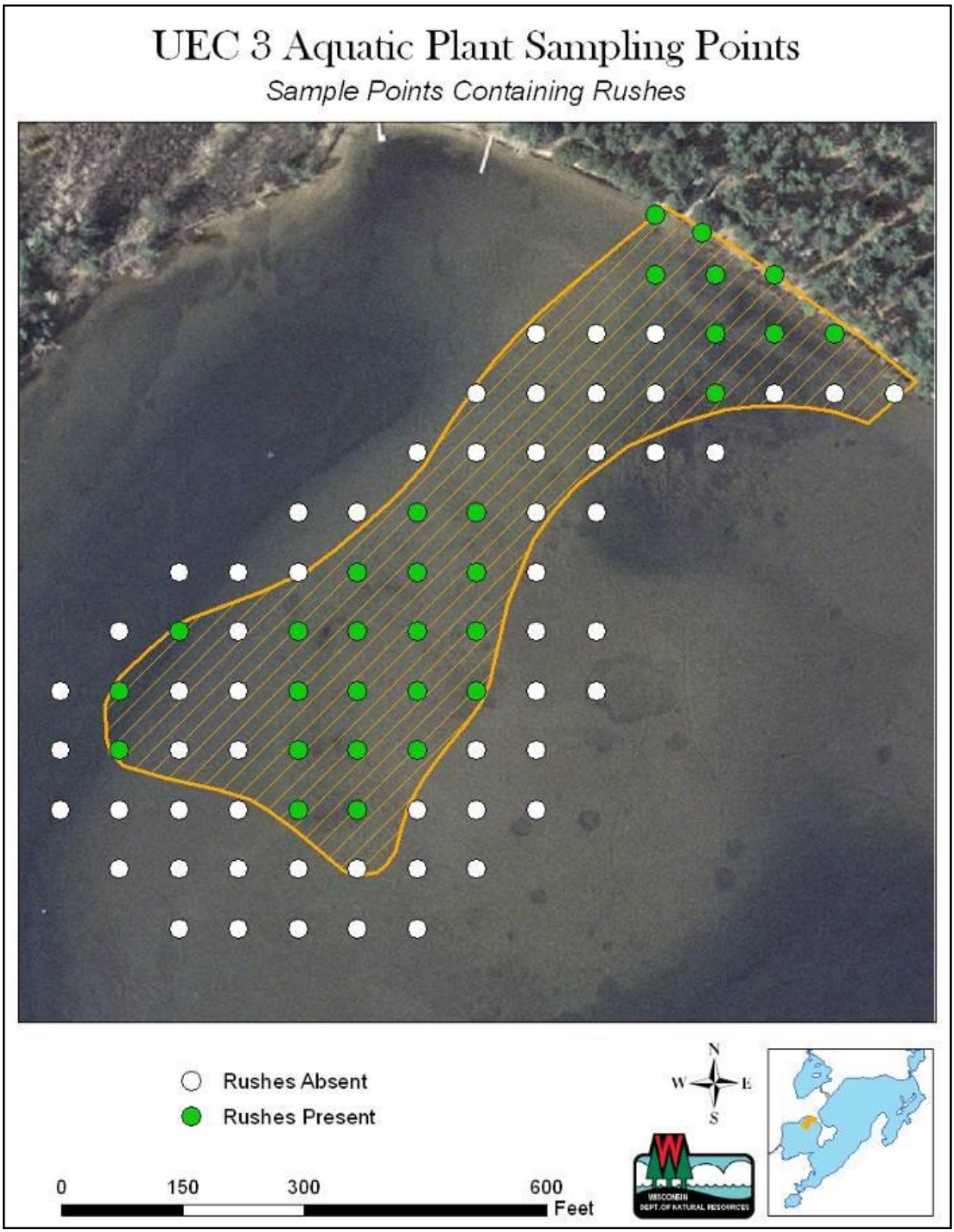


Table 12. Shoreline Assessment of UEC3				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	1	17.9		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	1	17.9		
Accessory Structures	0	0		
Commercial Buildings	0	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 Eau Claire Lake Critical Habitat Site UEC4

Critical habitat site UEC4 is a Sensitive Area that was designated because of its Extensive Riparian Wetland. UEC4 is 2.21 acres in size and is located just west of the public boat launch.

Table 13 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC4.

Prioritize for permanent land protection.

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

Leave fallen trees in the water.

Figure 10. UEC4 Riparian Wetlands Map

Table 13. Shoreline Assessment of UEC4				
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 Eau Claire Lake Critical Habitat Site UEC5

Critical habitat site UEC5 is a Sensitive Area that was designated because of its Rush Beds. UEC5 is 0.36 acres in size and is located west of the public boat launch along the North shore of Outlet Bay.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 14 and 15. Table 16 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC5.

The dominant vegetation type along the Riparian Zone of UEC5 is Coniferous Forests at 100% (Table 4; Figure 5).

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

Table 14. UEC5 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Carex hystericina	Bottle brush sedge	Emergent	3	13.3
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent	4	20.0
Typha sp	Cattail	Emergent	1	6.7
Chara	Muskgrasses	Submergent	7	20.0
Filamentous algae	Algae	Submergent	-	Visual
Najas flexilis	Bushy pondweed	Submergent	6	13.3
Najas guadalupensis	Southern water-nymph	Submergent	7	6.7
Potamogeton gramineus	Variable pondweed	Submergent	7	20.0
Stuckenia pectinata	Sago pondweed	Submergent	3	Visual

Table 15. UEC5 Aquatic Plant Sampling Summary Statistics

SUMMARY STATISTICS	UEC5
Total number of points sampled	15
Total number of sites with vegetation	8
Total number of sites shallower than maximum depth of plants	13
Frequency of occurrence at sites shallower than maximum depth of plants	61.538
Simpson Diversity Index	0.836
Maximum depth of plants (Feet)	3
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	15
Average number of all species per site (shallower than max depth)	1.15
Average number of all species per site (veg. sites only)	1.88
Average number of native species per site (shallower than max depth)	1.15
Average number of native species per site (veg. sites only)	1.88
Species Richness	7
Species Richness (including visuals)	9
Floristic Quality Index	13.40

Figure 11. UEC5 Aquatic Plant Diversity Map

Figure 12. UEC5 Rushes Map

Table 16. Shoreline Assessment of UEC5				
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 Eau Claire Lake Critical Habitat Site UEC6

Critical habitat site UEC6 is a Sensitive Area that was designated because of its Rush Beds and Woody Habitat. UEC6 is 3.52 acres in size and is located near the dam on Upper Eau Claire Lake.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 17 and 18. 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 (3.9 inches) in diameter and 150 cm (59 inches) in length. Small logs are defined as being 5-10 cm (2-3.9 inches) in diameter and greater than 150 cm (59 inches) in length. Table 20 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC6.

The public has a right to navigate the dam and Eau Claire River. Furthermore, state law allows a person or people to portage a watercraft by the shortest route across private property in order to use public waters. Therefore, no obstructions should be placed or words shared, whether verbal or on signage, that impedes or prohibits navigation.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

According to the shoreline inventory, there is some riprap in UEC6. The wave energy is moderate. Riprap should not be permitted, and alternative bank stabilization methods should be used instead if evidence of erosion develops.

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.

Table 19. UEC6 Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
UEC6-1	1	0	65.6	20	80.5	0.0
UEC6-2	0	6	65.6	20	0.0	482.9
UEC6-3	0	1	65.6	20	0.0	80.5
UEC6-4	0	1	65.6	20	0.0	80.5
UEC6 Total	1	8	262.4	80	20.1	161.0

Table 17. UEC6 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Carex aquatilis	Long-bracted tussock sedge	Emergent	7	1.6
Sagittaria sp	Arrowhead	Emergent	-	1.6
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent	4	7.8
Typha sp	Cattail	Emergent	1	4.7
Brasenia schreberi	Watershield	Floating Leaf	7	1.6
Nymphaea odorata	White water lily	Floating Leaf	6	4.7
Spirodela polyrhiza	Large Duckweed	Free Floating	5	1.6
Ceratophyllum demersum	Coontail	Submergent	3	1.6
Chara	Muskgrasses	Submergent	7	23.4
Filamentous algae	Filamentous algae	Submergent	-	Visual
Heteranthera dubia	Water star-grass	Submergent	6	1.6
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	4.7
Myriophyllum tenellum	Dwarf water-milfoil	Submergent	10	3.1
Najas flexilis	Bushy pondweed	Submergent	6	10.9
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	1.6
Potamogeton gramineus	Variable pondweed	Submergent	7	20.3
Potamogeton praelongis	White-stem pondweed	Submergent	8	3.1
Stuckenia pectinata	Sago pondweed	Submergent	3	6.3

Table 18. UEC6 Aquatic Plant Sampling Summary Statistics

SUMMARY STATISTICS	UEC6
Total number of points sampled	52
Total number of sites with vegetation	31
Total number of sites shallower than maximum depth of plants	52
Frequency of occurrence at sites shallower than maximum depth of plants	59.615
Simpson Diversity Index	0.8716
Maximum depth of plants (Feet)	5.5
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	52
Average number of all species per site (shallower than max depth)	1.25
Average number of all species per site (veg. sites only)	2.10
Average number of native species per site (shallower than max depth)	1.25
Average number of native species per site (veg. sites only)	2.10
Species Richness	17
Species Richness (including visuals)	18
Floristic Quality Index	23.50

Figure 13. UEC6 Aquatic Plant Diversity Map

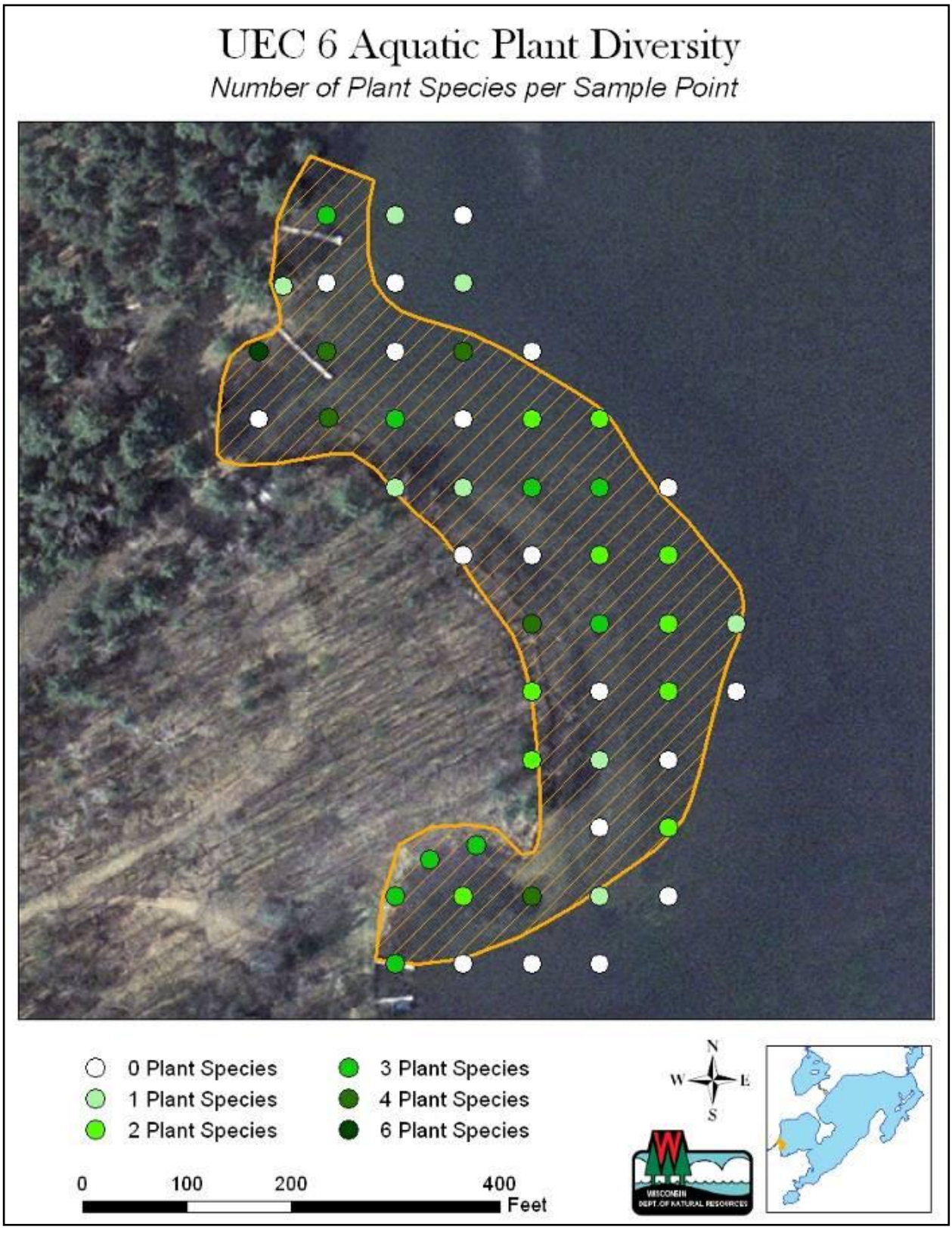


Figure 14. UEC6 Rushes Map

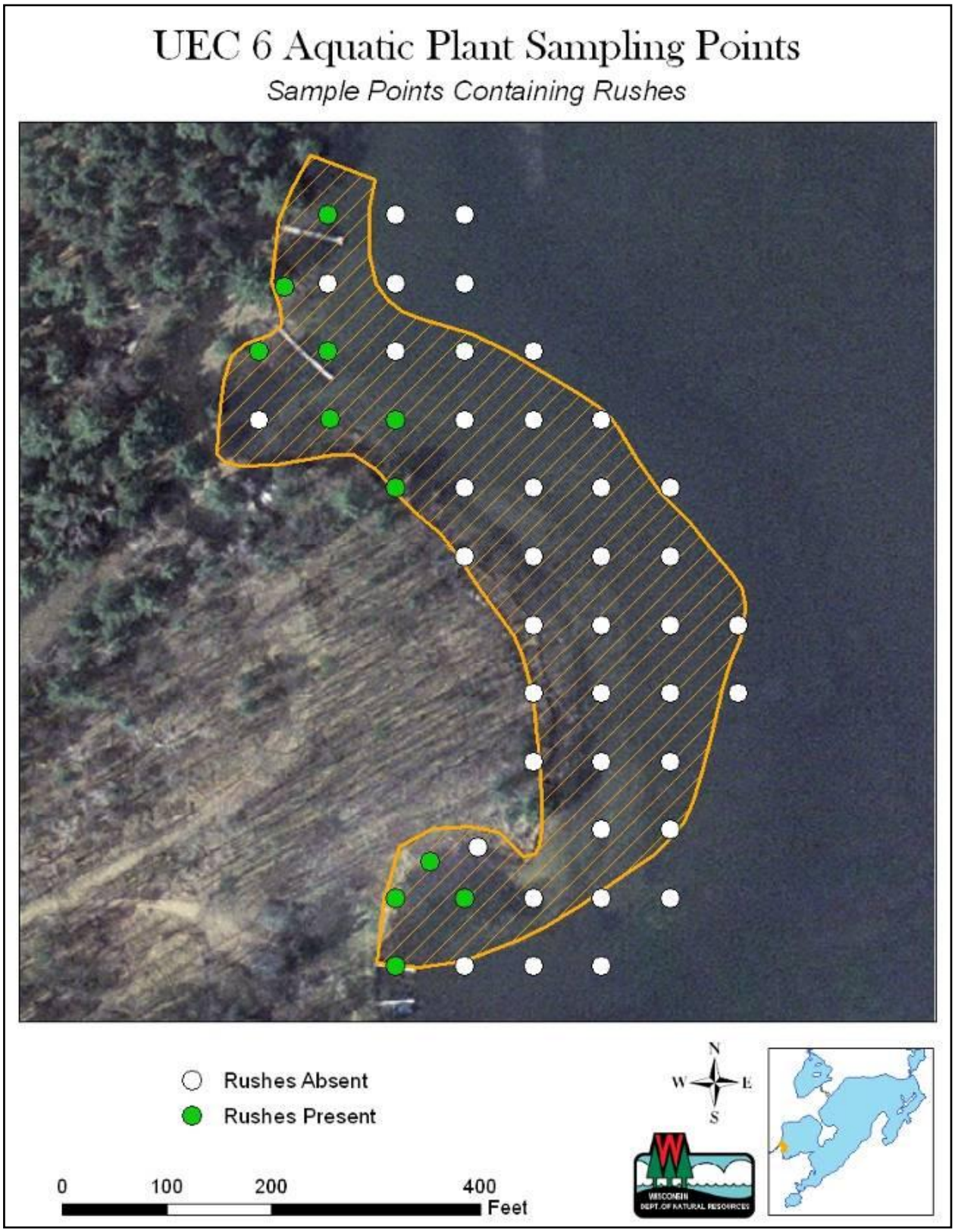


Figure 15. UEC6 Woody Habitat Transects Map

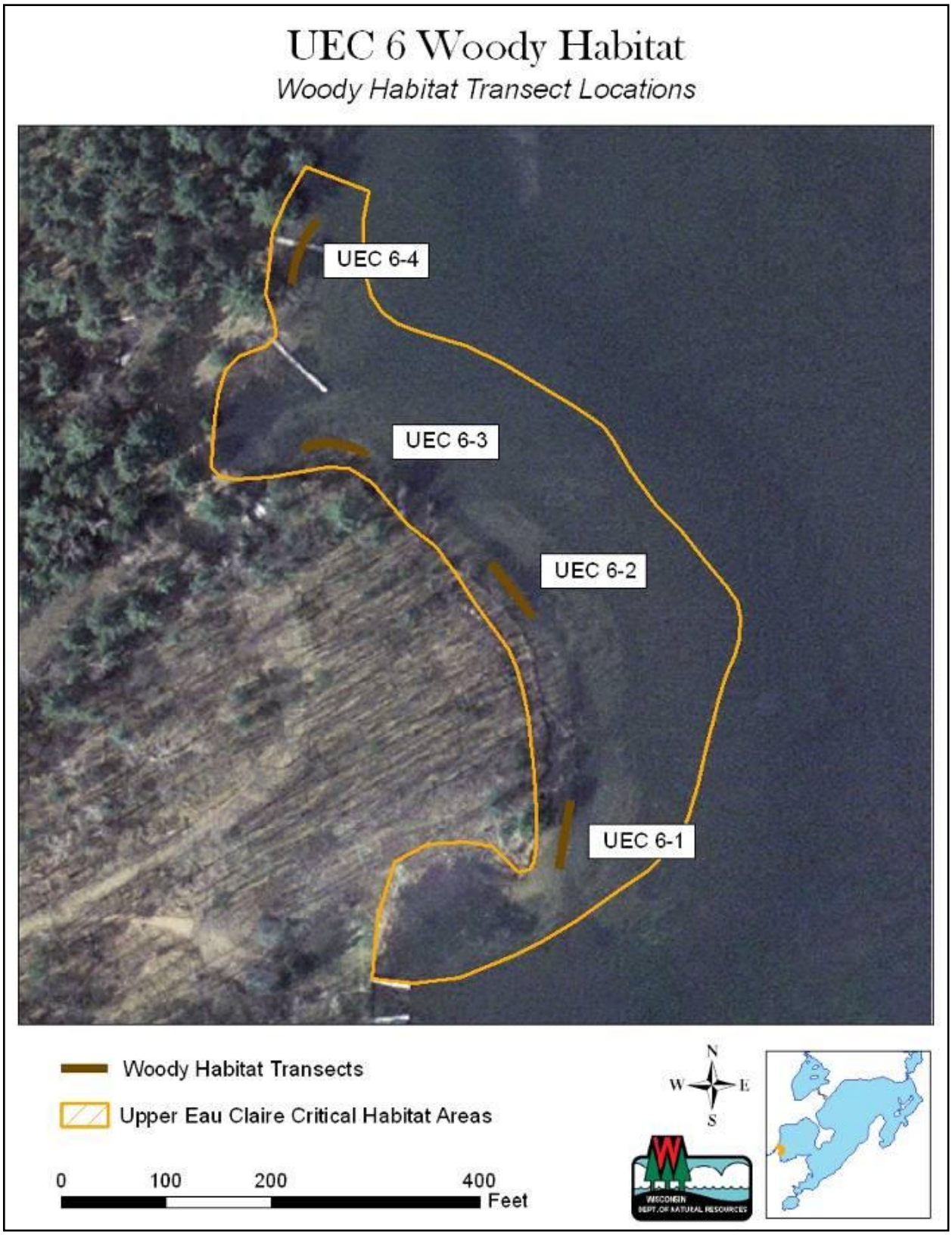


Table 20. Shoreline Assessment of UEC6				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	3	14.9		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	1	5.0		
Commercial Buildings	0	0		
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 Eau Claire Lake Critical Habitat Site UEC7

Critical habitat site UEC7 is a Sensitive Area that was designated because of its Extensive Riparian Wetland and Emergent and Floating Leaf Vegetation. UEC7 is 20.40 acres in size and is located along the South shore of Outlet Bay.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 21 and 22. Table 23 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC7.

Prioritize for permanent land protection.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

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

Leave fallen trees in the water.

Table 21. UEC7 Aquatic Plants				
Scientific Name	**Common Name**	**Plant Type**	**FQI Coefficient**	**Relative Frequency**
Carex aquatilis	Long-bracted tussock sedge	Emergent	5	1.8
Eleocharis palustris	Creeping spikerush	Emergent	6	0.9
Eleocharis robbinsii	Robbins spikerush	Emergent	10	0.9
Sagittaria sp	Arrowhead	Emergent	-	2.7
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent	4	5.4
Typha sp	Cattail	Emergent	1	1.8
Brasenia schreberi	Watershield	Floating Leaf	7	8.9
Nuphar variegata	Spatterdock	Floating Leaf	6	4.5
Nymphaea odorata	White water lily	Floating Leaf	6	12.5
Potamogeton natans	Floating-leaf pondweed	Floating Leaf	5	7.1
Iris versicolor	Northern blue flag	Forb	5	Visual
Utricularia gibba	Creeping bladderwort	Free Floating	9	Visual
Myrica gale	Sweet gale	Shrub	9	2.7
Ceratophyllum demersum	Coontail	Submergent	3	0.9
Chara	Muskgrasses	Submergent	7	9.8
Eleocharis acicularis	Needle spikerush	Submergent	5	3.6
Elodea canadensis	Common waterweed	Submergent	3	0.9
Filamentous Algae	Filamentous Algae	Submergent	-	Visual
Juncus palocarpus f. submersus	Brown-fruited rush	Submergent	8	1.8
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	Visual
Najas flexilis	Bushy pondweed	Submergent	6	15.2
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	3.6
Potamogeton gramineus	Variable pondweed	Submergent	7	7.1
Potamogeton obtusifolius	Blunt-leaf pondweed	Submergent	9	2.7
Potamogeton zosteriformis	Flat-stem pondweed	Submergent	6	0.9
Schoenoplectus subterminalis	Water bulrush	Submergent	9	3.6
Stuckenia pectinata	Sago pondweed	Submergent	3	0.9

Table 22. UEC7 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**UEC7**
Total number of points sampled	98
Total number of sites with vegetation	60
Total number of sites shallower than maximum depth of plants	98
Frequency of occurrence at sites shallower than maximum depth of plants	61.2245
Simpson Diversity Index	0.9212
Maximum depth of plants (Feet)	5
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	98
Average number of all species per site (shallower than max depth)	1.18
Average number of all species per site (veg. sites only)	1.93
Average number of native species per site (shallower than max depth)	1.18
Average number of native species per site (veg. sites only)	1.93
Species Richness	23
Species Richness (including visuals)	27
Floristic Quality Index	30.60

Figure 16. UEC7 Aquatic Plant Diversity Map

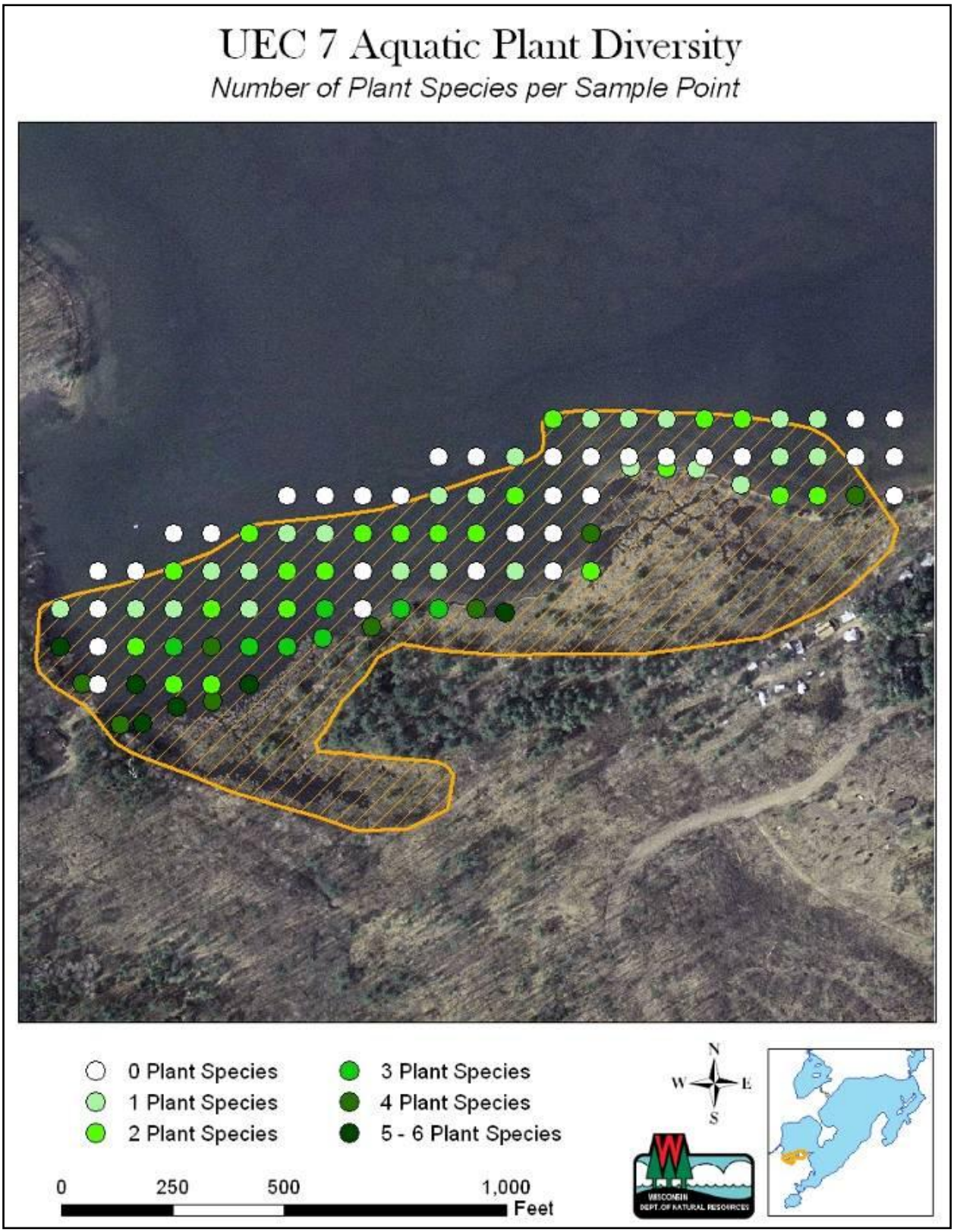


Table 23. Shoreline Assessment of UEC7				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	4	9.2		
Accessory Structures	2	4.6		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	1	2.3		
Commercial Buildings	0	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 Eau Claire Lake Critical Habitat Site UEC8

Critical habitat site UEC8 is a Public Rights Feature that was designated because of its Woody Habitat and Spawning Substrate. UEC8 is 1.08 acres in size and is located on the South end of the lake.

Woody Habitat was sampled using a standardized transect method and a summary of the results can be found in Table 24. Big logs are defined as being greater than 10 cm (3.9 inches) in diameter and 150 cm (59 inches) in length. Small logs are defined as being 5-10 cm (2-3.9 inches) in diameter and greater than 150 cm (59 inches) in length. Spawning Substrate was sampled using a standardized transect method and a summary of the results can be found in Table 25. Table 26 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC8.

According to the shoreline inventory, there is no riprap in UEC8, and it is not recommended because it could disturb spawning substrates. The wave energy is moderate. Alternative bank stabilization methods should be used instead of hard armoring like riprap.

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.

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

Table 24. UEC8 Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
UEC8-1	0	0	65.6	20	0.0	0.0
UEC8-2	0	1	65.6	20	0.0	80.5
UEC8-3	0	1	65.6	20	0.0	80.5
UEC8-4	1	1	65.6	20	80.5	80.5
UEC8 Total	1	3	262.4	80	20.1	60.4

Figure 17. UEC8 Woody Habitat Transects Map

Table 25. UEC8 Spawning Substrate Sampling Transect Data

Transect Number	Quadrat Number	Band Start	Band End	Band Width (m)	Embeddedness	Marl	Detritus	Clay	Silt	Sand	Fine Gravel	Coarse Gravel	Cobble / Rubble	Small Boulder	Large Boulder	Bedrock
1	1	0	0.5	0.5						100						
1	2	0.5	3.3	2.8	2					55	5	40				
1	3	3.3	7	3.7						100						
2	1	0	2	2	3					10	20	10	60			
2	2	2	7.5	5.5						100						
3	1	0	0.9	0.9	5					5	5	40	50			
3	2	0.9	5.2	4.3	1					20	10	70				
3	3	5.2	14	8.8						100						
4	1	0	1.2	1.2	2					10		50	40			
4	2	1.2	7	5.8	2					5	10	25	60			
4	3	7	15	8						100						
5	1	0	5	5	2					45	10	15	30			
5	2	5	8.2	3.2	3					15	25	30	30			
5	3	8.2	15	6.8						100						
6	1	0	3.7	3.7	1					85	15					
6	2	3.7	8.6	4.9	2					20	20	20	40			
7	1	0	1.3	1.3	2					30		10	60			
7	2	1.3	6.2	4.9	3					10	60	20	10			
7	3	6.2	7.8	1.6	2					35	5	20	40			
7	4	7.8	15	7.2						100						
8	1	0	1	1	2					30			70			
8	2	1	3	2	3					5	50	30	15			
8	3	3	7.1	4.1	1					50	10	30	10			
8	4	7.1	15	7.9						100						
9	1	0	15	15						100						
10	1	0	3.7	3.7	1					90	10					
10	2	3.7	15	11.3						100						

Figure 18. UEC8 Spawning Substrate Transects Map

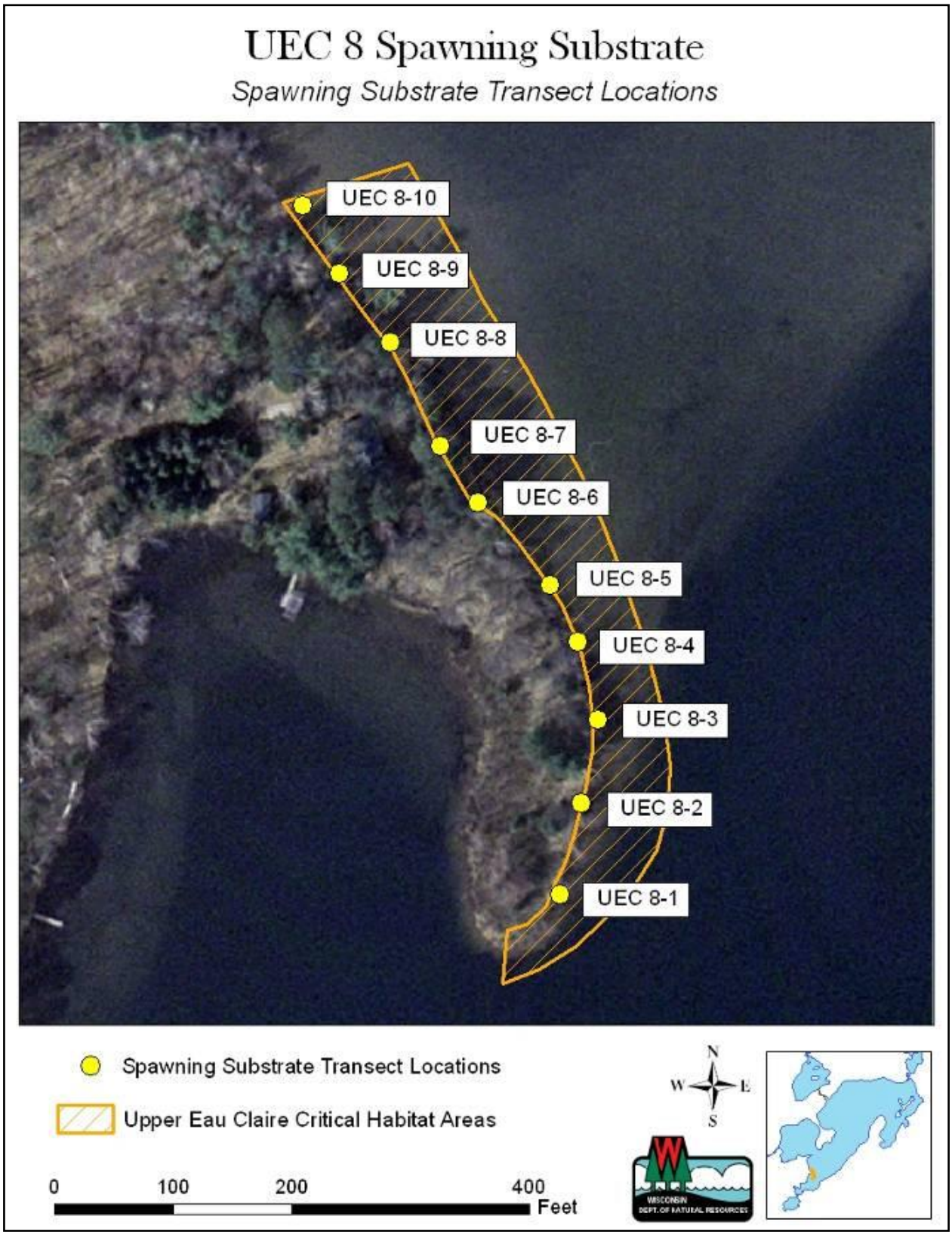


Table 26. Shoreline Assessment of UEC8				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	1	7.3		
Accessory Structures	1	7.3		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
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 Eau Claire Lake Critical Habitat Site UEC9

Critical habitat site UEC9 is a Sensitive Area that was designated because of its Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat. UEC is 10.35 acres in size and is located on the South end of the lake.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 27 and 28. Table 29 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC9.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

According to the shoreline inventory, there is some riprap in UEC9. The wave energy is moderate. Riprap should not be permitted, and alternative bank stabilization methods should be used instead if evidence of erosion develops.

Implement slow-no-wake ordinance in this bay to protect shorelines and aquatic habitat.

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 27. UEC9 Aquatic Plants				
Scientific Name	**Common Name**	**Plant Type**	**FQI Coefficient**	**Relative Frequency**
Carex sp	Sedges	Emergent	-	2.9
Sagittaria sp	Arrowhead	Emergent	-	2.2
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent	4	0.7
Typha latifolia	Broad-leaved cattail	Emergent	1	0.7
Nymphaea odorata	White water lily	Floating Leaf	6	0.7
Iris versicolor	Northern blue flag	Forb	5	Visual
Myrica gale	Sweet gale	Shrub	9	0.7
Ceratophyllum demersum	Coontail	Submergent	3	2.2
Chara	Muskgrasses	Submergent	7	15.1
Eleocharis acicularis	Needle spikerush	Submergent	5	4.3
Elodea canadensis	Common waterweed	Submergent	3	5
Heteranthera dubia	Water star-grass	Submergent	6	0.7
Juncus palocarpus f. submersus	Brown-fruited rush	Submergent	8	1.4
Megalodonta beckii	Water marigold	Submergent	8	4.3
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	7.9
Najas flexilis	Bushy pondweed	Submergent	6	7.9
Nitella	Nitella	Submergent	7	13.7
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	0.7
Potamogeton diversifolius	Common snail-seed pondweed	Submergent	8	0.7
Potamogeton foliosus	Leafy pondweed	Submergent	6	2.9
Potamogeton gramineus	Variable pondweed	Submergent	7	7.9
Potamogeton praelongis	White-stem pondweed	Submergent	8	0.7
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent	5	2.9
Potamogeton robbinsii	Robbins pondweed	Submergent	8	2.9
Potamogeton zosteriformis	Flat-stem pondweed	Submergent	6	5.8
Stuckenia pectinata	Sago pondweed	Submergent	3	0.7
Vallisneria americana	Wild celery	Submergent	6	4.3

Table 28. UEC9 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**UEC9**
Total number of points sampled	95
Total number of sites with vegetation	67
Total number of sites shallower than maximum depth of plants	94
Frequency of occurrence at sites shallower than maximum depth of plants	71.277
Simpson Diversity Index	0.9233
Maximum depth of plants (Feet)	25
Number of sites sampled using rake on Rope (R)	9
Number of sites sampled using rake on Pole (P)	86
Average number of all species per site (shallower than max depth)	1.49
Average number of all species per site (veg. sites only)	2.09
Average number of native species per site (shallower than max depth)	1.49
Average number of native species per site (veg. sites only)	2.09
Species Richness	26
Species Richness (including visuals)	27
Floristic Quality Index	29.80

Figure 19. UEC9 Aquatic Plant Diversity Map

Table 29. Shoreline Assessment of UEC9				
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 Eau Claire Lake Critical Habitat Site UEC10

Critical habitat site UEC10 is a Sensitive Area that was designated because of its Emergent and Floating Leaf Vegetation and Extensive Riparian Wetland. UEC10 is 14.54 acres in size and is located on the South end of the lake near the channel to Devils Lake.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 30 and 31. Table 32 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC10.

Prioritize for permanent land protection.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

Implement slow-no-wake ordinance or marker buoys in this bay to protect shorelines and aquatic habitat.

Do not actively manage aquatic plants, including floating bogs, unless an aquatic invasive species should establish.

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

Table 30. UEC10 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Eleocharis palustris	Creeping spikerush	Emergent	6	Visual
Equisetum fluviatile	Water horsetail	Emergent	7	0.6
Pontederia cordata	Pickerelweed	Emergent	9	Visual
Sagittaria sp	Arrowhead	Emergent	-	8.4
Schoenoplectus acutus	Hardstem bulrush	Emergent	5	1.1
Typha latifolia	Broad-leaved cattail	Emergent	1	Visual
Typha sp	Cattail	Emergent	1	Visual
Brasenia schreberi	Watershield	Floating Leaf	7	4.5
Nuphar variegata	Spatterdock	Floating Leaf	6	3.9
Nymphaea odorata	White water lily	Floating Leaf	6	7.3
Potamogeton natans	Floating-leaf pondweed	Floating Leaf	5	1.7
Sparganium fluctuans	Floating-leaf-bur-reed	Floating Leaf	10	1.7
Utricularia intermedia	Flat-leaf bladderwort	Free Floating	9	0.6
Utricularia minor	Small bladderwort	Free Floating	10	1.7
Utricularia vulgaris	Common bladderwort	Free Floating	7	2.2
Ceratophyllum demersum	Coontail	Submergent	3	0.6
Chara	Muskgrasses	Submergent	7	13.5
Eleocharis acicularis	Needle spikerush	Submergent	5	9.0
Elodea canadensis	Common waterweed	Submergent	3	2.2
Heteranthera dubia	Water star-grass	Submergent	6	2.2
Megalodonta beckii	Water marigold	Submergent	8	3.9
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	2.2
Najas flexilis	Bushy pondweed	Submergent	6	3.9

Nitella	Nitella	Submergent	7	1.1
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	3.4
Potamogeton epihydrus	Ribbon-leaf pondweed	Submergent	8	0.6
Potamogeton friesii	Frie's pondweed	Submergent	8	0.6
Potamogeton gramineus	Variable pondweed	Submergent	7	7.3
Potamogeton obtusifolius	Blunt-leaf pondweed	Submergent	9	1.1
Potamogeton praelongis	White-stem pondweed	Submergent	8	1.7
Potamogeton pusillus	Small pondweed	Submergent	7	3.4
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent	5	0.6
Potamogeton robbinsii	Robbins pondweed	Submergent	8	2.2
Potamogeton zosteriformis	Flat-stem pondweed	Submergent	6	3.4
Stuckenia pectinata	Sago pondweed	Submergent	3	Visual
Vallisneria americana	Wild celery	Submergent	6	3.4

Table 31. UEC10 Aquatic Plant Sampling Summary Statistics

SUMMARY STATISTICS	**UEC10**
Total number of points sampled	55
Total number of sites with vegetation	49
Total number of sites shallower than maximum depth of plants	55
Frequency of occurrence at sites shallower than maximum depth of plants	89.091
Simpson Diversity Index	0.9405
Maximum depth of plants (Feet)	7
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	55
Average number of all species per site (shallower than max depth)	3.31
Average number of all species per site (veg. sites only)	3.71
Average number of native species per site (shallower than max depth)	3.31
Average number of native species per site (veg. sites only)	3.71
Species Richness	31
Species Richness (including visuals)	36
Floristic Quality Index	37.70

Figure 20. UEC10 Aquatic Plant Diversity Map

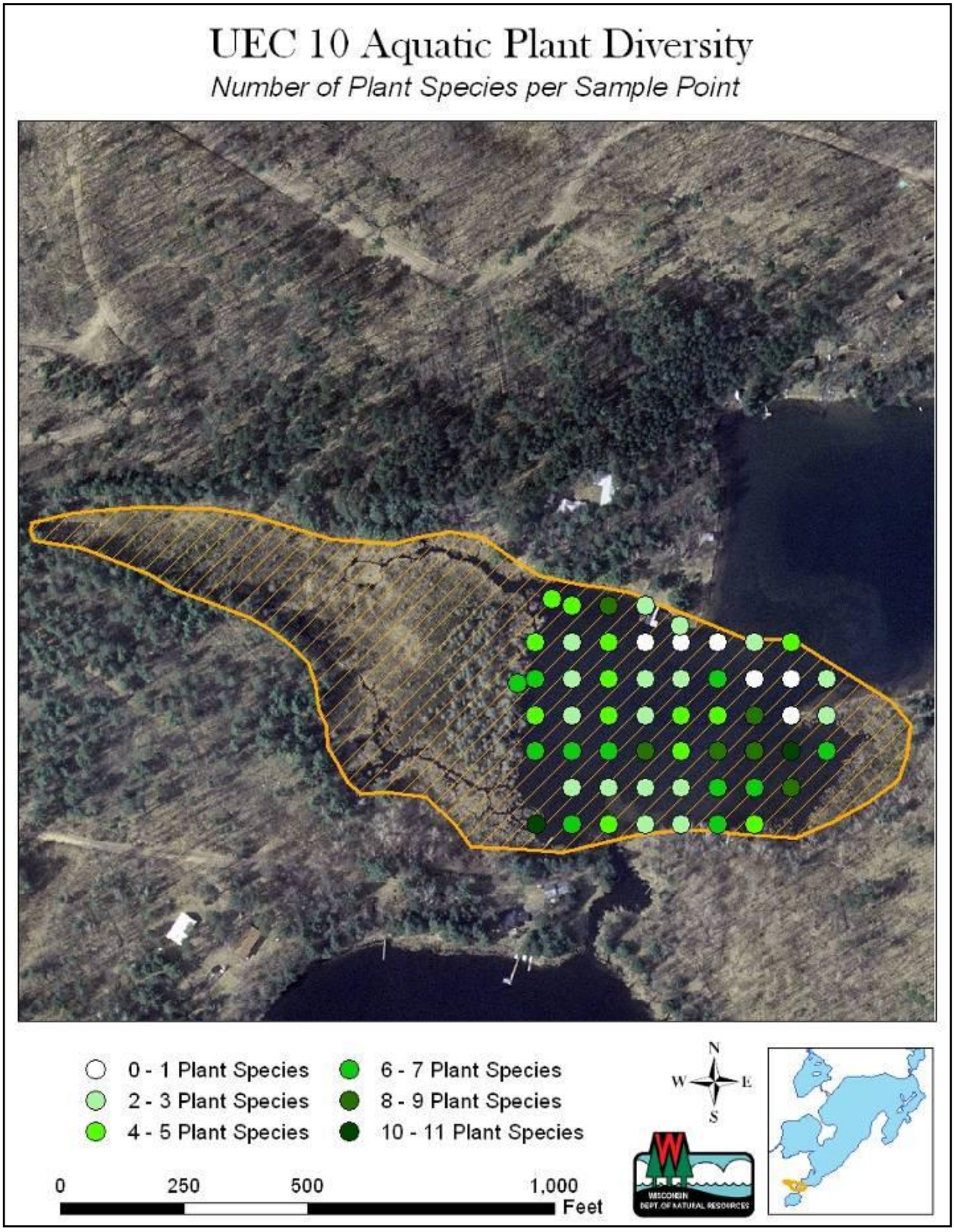


Table 32. Shoreline Assessment of UEC10				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	0	0		
Accessory Structures	1	3.1		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
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 Eau Claire Lake Critical Habitat Site UEC11

Critical habitat site UEC11 is a Public Rights Feature that was designated because of its Spawning Substrate. UEC11 is 24.73 acres in size and is located along the Southeast shore. UEC11 is heavily used by spawning walleye.

Spawning Substrate was sampled using a standardized transect method and a summary of the results can be found in Table 33. Table 34 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC11.

Prioritize for permanent land protection.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

According to the shoreline inventory, there is some riprap in UEC11, and it is not recommended because it could disturb spawning substrates. The wave energy is moderate. Alternative bank stabilization methods should be used instead of hard armoring like riprap.

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.

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

Leave fallen trees in the water.

Table 33. UEC11 Spawning Substrate Sampling Transect Data

Transect Number	Quadrat Number	Band Start	Band End	Band Width (m)	Embeddedness	Marl	Detritus	Clay	Silt	Sand	Fine Gravel	Coarse Gravel	Cobble / Rubble	Small Boulder	Large Boulder	Bedrock
1	1	0	5.8	5.8	4					20	45	25	10			
2	1	0	3.3	3.3	3					20	20	20	40			
3	1	0	0.6	0.6	5						10	20	70			
4	1	0	0.5	0.5	4					20	10	20	50			
5	1	0	1.5	1.5	4					5	75	20				
6	1	0	1.4	1.4	5					5	10	25	60			
7	1	0	2.1	2.1	3					35	20	40	5			
8	1	0	0.5	0.5	1					90	10					
9	1	0	0.5	0.5	4					30		60	10			
10	1	0	0.6	0.6	5					5	5	50	40			
1	2	5.8	13.6	7.8						100						
2	2	3.3	8	4.7	1					80		10	10			
3	2	0.6	1.4	0.8	2					50	15	10	25			
4	2	0.5	1.1	0.6						100						
5	2	1.5	2.2	0.7	2					35	10	30	25			
6	2	1.4	4	2.6	2					20	30	10	40			
7	2	2.1	15	12.9						100						
8	2	0.5	3	2.5	2					25	70	5				
9	2	0.5	1	0.5	2					85		10	5			
10	2	0.6	1.4	0.8	2					50	5	15	30			
2	3	8	15	7						100						
3	3	1.4	2.7	1.3	3					5	25	10	60			
4	3	1.1	3.5	2.4	3					10	30	50	10			
5	3	2.2	5.2	3	3					10	30	30	30			
6	3	4	11.5	7.5						100						
8	3	3	12.9	9.9						100						
9	3	1	3	2	3					10	20	30	40			
10	3	1.4	3.3	1.9	2					10	30	40	20			
3	4	2.7	15	12.3						100						
4	4	3.5	15	11.5						100						
5	4	5.2	14	8.8						100						
9	4	3	5.3	2.3	1					80	20					
10	4	3.3	11.7	8.4	1					60	40					
9	5	5.3	12.6	7.3						100						
10	5	11.7	15	3.3						100						

Figure 21. UEC11 Spawning Substrate Transects Map

Table 34. Shoreline Assessment of UEC11				
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 Eau Claire Lake Critical Habitat Site UEC12

Critical habitat site UEC12 is a Sensitive Area that was designated because of its Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat. UEC12 is 2.00 acres in size and is located in a bay on the East side of the lake. UEC12 includes some of the most zoning non-compliant shoreline on the entire lake.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 35 and 36. Table 37 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC12.

Implement slow-no-wake ordinance or marker buoys in this bay to protect shorelines and aquatic habitat.

Do not actively manage aquatic plants, including floating bogs, unless an aquatic invasive species should establish.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

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

Table 35. UEC12 Aquatic Plants				
Scientific Name	**Common Name**	**Plant Type**	**FQI Coefficient**	**Relative Frequency**
Carex hystericina	Bottlebrush sedge	Emergent	3	4.4
Sagittaria sp	Arrowhead	Emergent	-	4.4
Schoenoplectus pungens	3-square rush	Emergent	5	1.5
Brasenia schreberi	Watershield	Floating Leaf	7	2.9
Nuphar variegata	Spatterdock	Floating Leaf	6	Visual
Nymphaea odorata	White water lily	Floating Leaf	6	2.9
Polygonum amphibium	Water smartweed	Floating Leaf	5	1.5
Myrica gale	Sweet gale	Shrub	9	1.5
Chara	Muskgrasses	Submergent	7	13.2
Elatine minima	Waterwort	Submergent	9	1.5
Eleocharis acicularis	Needle spikerush	Submergent	5	5.9
Elodea canadensis	Common waterweed	Submergent	3	4.4
Heteranthera dubia	Water star-grass	Submergent	6	1.5
Megalodonta beckii	Water marigold	Submergent	8	1.5
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	1.5
Myriophyllum tenellum	Dwarf water-milfoil	Submergent	10	1.5
Najas flexilis	Bushy pondweed	Submergent	6	10.3
Nitella	Nitella	Submergent	7	2.9
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	2.9
Potamogeton foliosus	Leafy pondweed	Submergent	6	2.9
Potamogeton pusillus	Small pondweed	Submergent	7	1.5
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent	5	5.9
Potamogeton robbinsii	Robbins pondweed	Submergent	8	2.9
Potamogeton zosteriformis	Flat-stem pondweed	Submergent	6	4.4
Ranunculus aquatilis	Stiff water crowfoot	Submergent	7	4.4
Vallisneria americana	Wild celery	Submergent	6	11.8

Table 36. UEC12 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**UEC12**
Total number of points sampled	25
Total number of sites with vegetation	23
Total number of sites shallower than maximum depth of plants	25
Frequency of occurrence at sites shallower than maximum depth of plants	92
Simpson Diversity Index	0.9343
Maximum depth of plants (Feet)	8
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	25
Average number of all species per site (shallower than max depth)	2.80
Average number of all species per site (veg. sites only)	3.04
Average number of native species per site (shallower than max depth)	2.80
Average number of native species per site (veg. sites only)	3.04
Species Richness	25
Species Richness (including visuals)	26
Floristic Quality Index	32.20

Figure 22. UEC12 Aquatic Plant Diversity Map

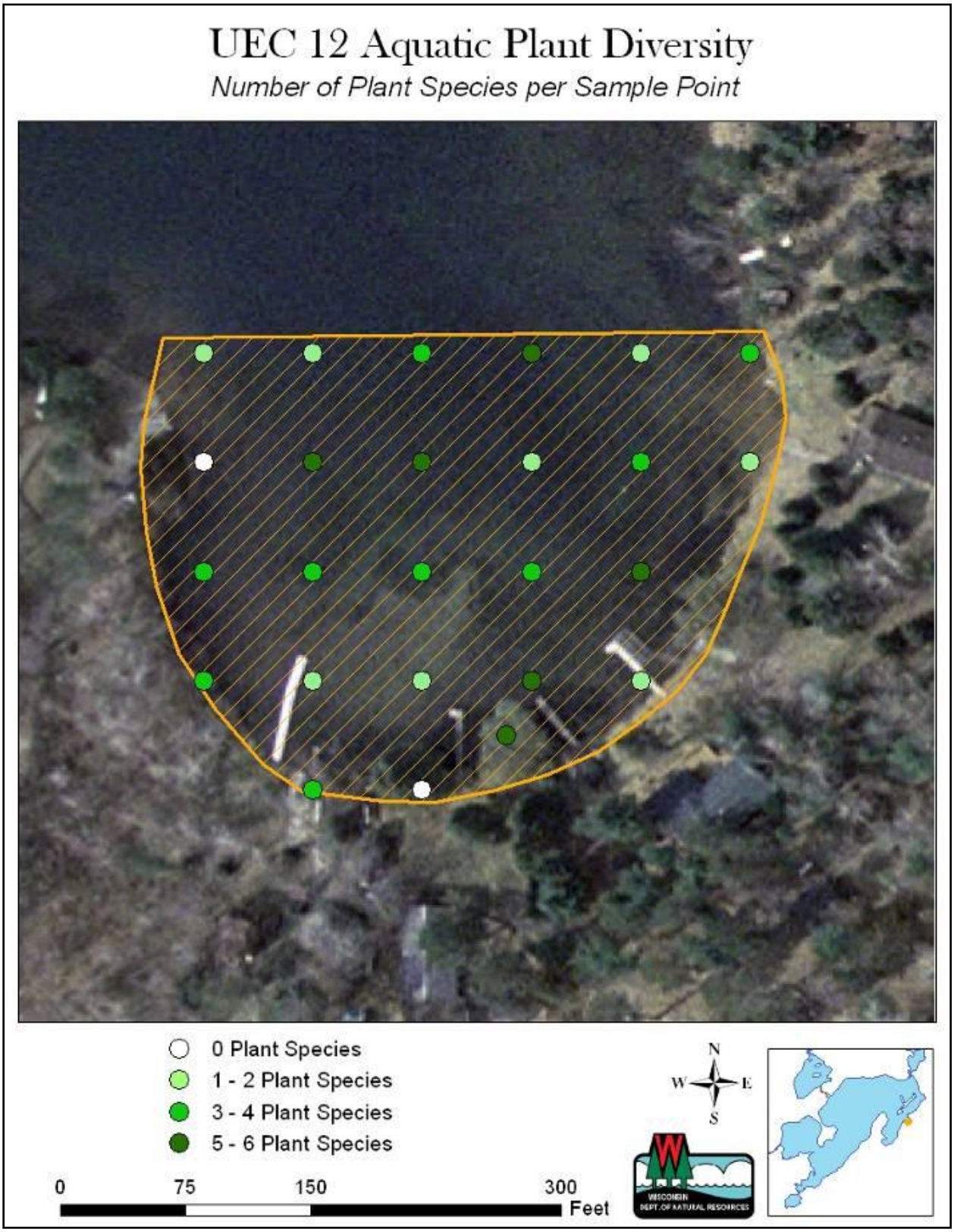


Table 37. Shoreline Assessment of UEC12				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	3	21.5		
Accessory Structures	2	14.3		
Commercial Buildings	0	0		
Riparian Zone				
Homes	1	7.2		
Accessory Structures	4	28.6		
Commercial Buildings	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 Eau Claire Lake Critical Habitat Site UEC13

Critical habitat site UEC13 is a Public Rights Feature that was designated because of its Woody Habitat and Spawning Substrate. UEC13 is 1.82 acres in size and is located on the East side of the lake.

Woody Habitat was sampled using a standardized transect method and a summary of the results can be found in Table 38. Big logs are defined as being greater than 10 cm (3.9 inches) in diameter and 150 cm (59 inches) in length. Small logs are defined as being 5-10 cm (2-3.9 inches) in diameter and greater than 150 cm (59 inches) in length. Spawning Substrate was sampled using a standardized transect method and a summary of the results can be found in Table 39. Table 40 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC13.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

According to the shoreline inventory, there is no riprap in UEC13. Riprap is not necessary because the wave energy is low this site. Low-energy sites are typically not eligible/authorized for riprap permits. If shoreline erosion is a problem, overland runoff from rooftops, driveways, and lawns or reckless motorboat use are the most likely causes.

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.

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

Leave fallen trees in the water.

Table 38. UEC13 Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
UEC13-1	0	0	65.6	20	0.0	0.0
UEC13-2	0	1	65.6	20	0.0	80.5
UEC13-3	1	4	65.6	20	80.5	322.0
UEC13-4	1	5	65.6	20	80.5	402.4
UEC13 Total	2	10	262.4	80	40.2	201.2

Table 39. UEC13 Spawning Substrate Sampling Transect Data

Transect Number	Quadrat Number	Band Start	Band End	Band Width (m)	Embeddedness	Marl	Detritus	Clay	Silt	Sand	Fine Gravel	Coarse Gravel	Cobble / Rubble	Small Boulder	Large Boulder	Bedrock
1	1	0	9.5	9.5						100						
2	1	0	1.7	1.7	2					20	10	20	50			
2	2	1.7	5.8	4.1	2					75	15	10				
2	3	5.8	11.3	5.5						100						
3	1	0	1.6	1.6	2					20	10	40	30			
3	2	1.6	3	1.4	3					10	20	70				
3	3	3	4.6	1.6	2					40	30	30				
3	4	4.6	15	10.4						100						
4	1	0	2	2	2					50		10	40			
4	2	2	4	2	2					85	15					
4	3	4	13.3	9.3	1					95	5					
4	4	13.3	15	1.7	3					90			10			
5	1	0	0.5	0.5	1					85	10	5				
5	2	0.5	2.6	2.1	1					10	60	10	20			
5	3	2.6	12.8	10.2						100						
6	1	0	12.7	12.7						100						
7	1	0	12.7	12.7						100						
8	1	0	8.3	8.3						100						
8	2	8.3	12	3.7			10			90						
9	1	0	9	9						100						
9	2	9	12.8	3.8			30			70						
10	1	0	6.5	6.5						100						
10	2	6.5	9.9	3.4			100									

Figure 23. UEC13 Spawning Substrate Transects Map

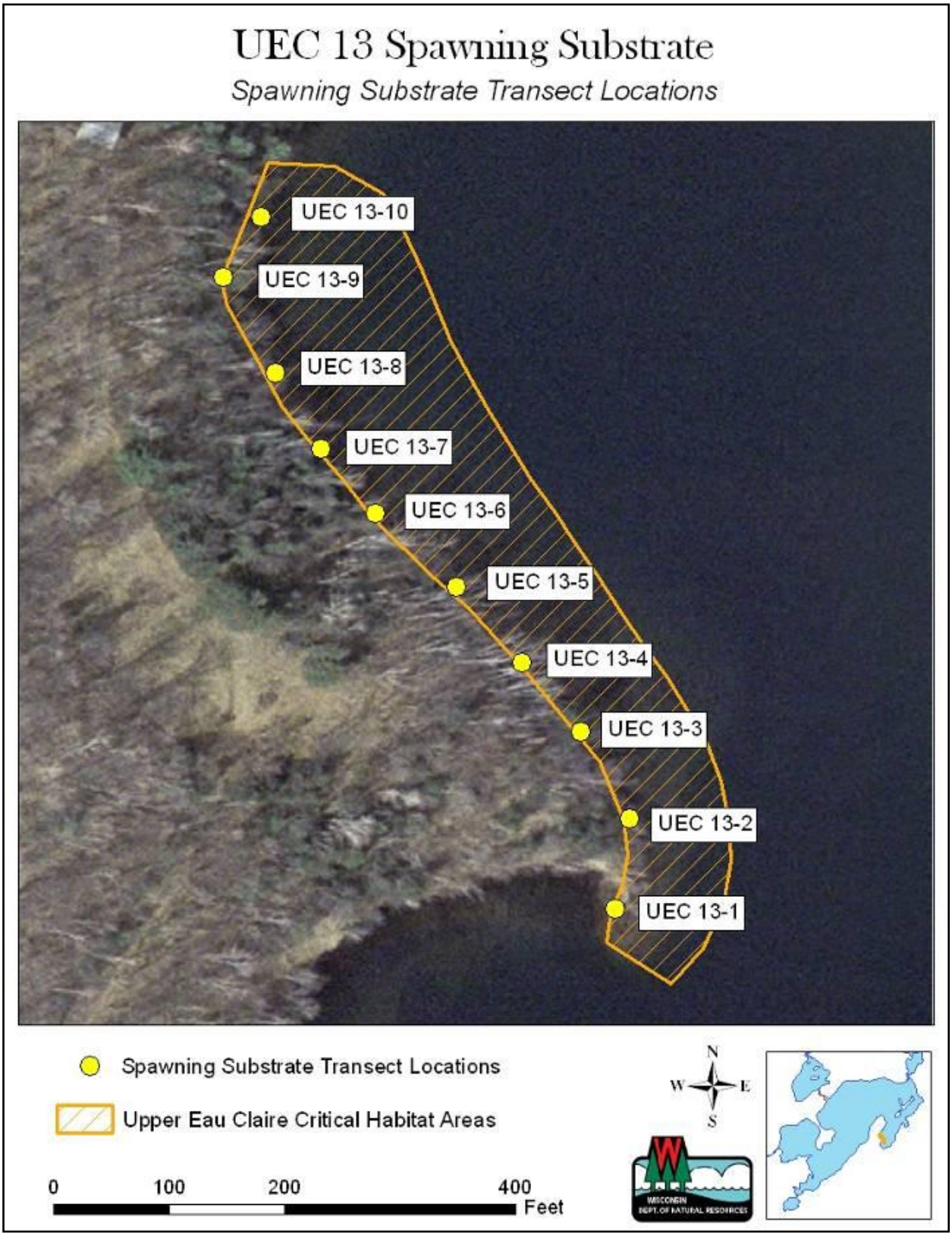


Figure 24. UEC13 Woody Habitat Transects Map

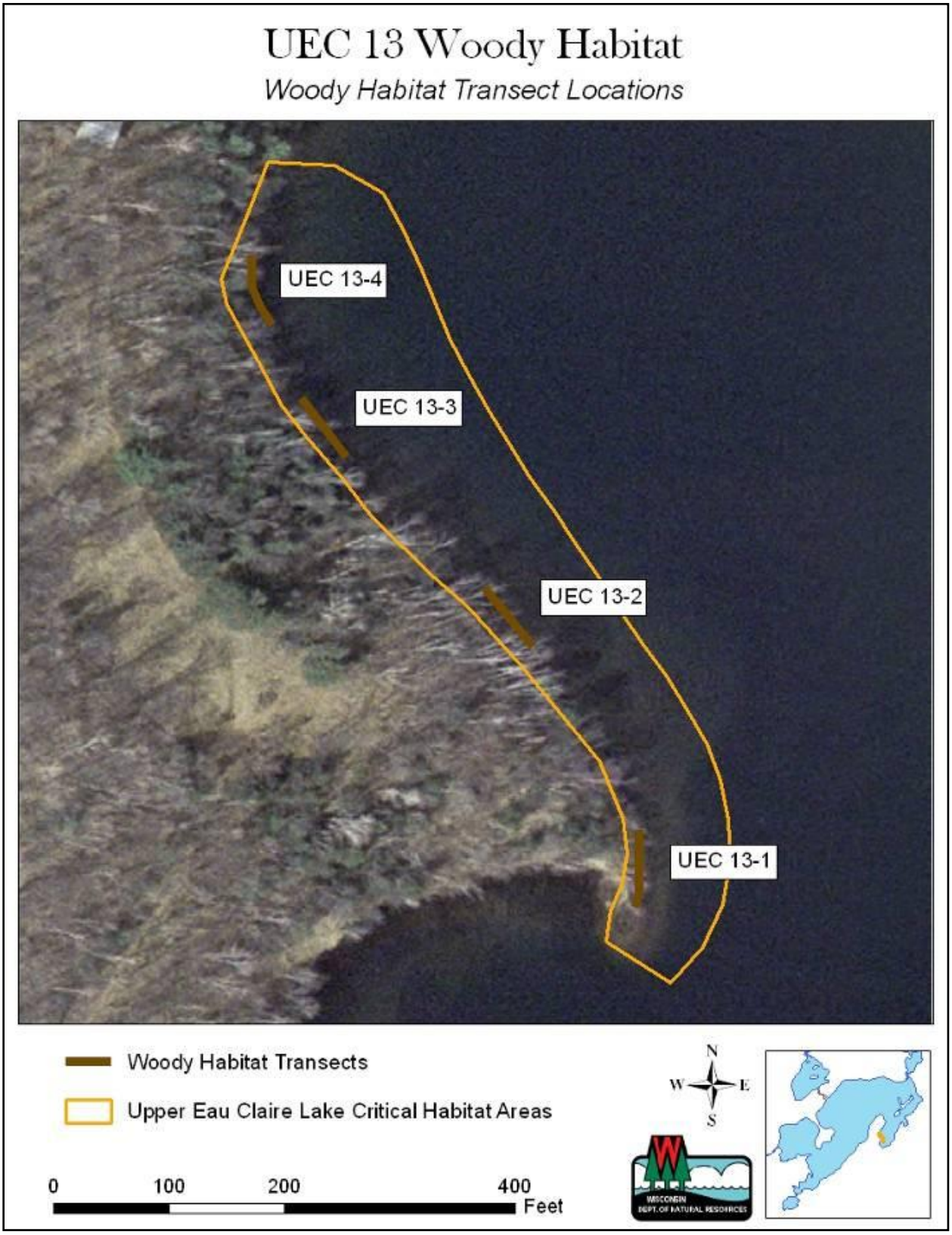


Table 40. Shoreline Assessment of UEC13				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	1	6.4		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	3	19.3		
Commercial Buildings	0	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 Eau Claire Lake Critical Habitat Site UEC14

Critical habitat site UEC14 is a Sensitive Area that was designated because of its Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat and its Emergent and Floating Leaf Vegetation. UEC14 is 4.44 acres in size and is located in a bay on the East side of the lake.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 41 and 42. Table 43 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC14.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

Implement slow-no-wake ordinance or marker buoys in this bay to protect shorelines and aquatic habitat.

Curly-leaf pondweed, an aquatic invasive plant species, was found in 2008. Staff did not observe any curly-leaf pondweed during follow-up monitoring in 2009.

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

Table 41. UEC14 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Carex rostratta	Beaked sedge	Emergent	10	0.7
Eleocharis palustris	Creeping spikerush	Emergent	6	2.2
Sagittaria sp	Arrowhead	Emergent	-	3
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent	4	0.7
Typha sp	Cattail	Emergent	1	Visual
Brasenia schreberi	Watershield	Floating Leaf	7	1.5
Nymphaea odorata	White water lily	Floating Leaf	6	0.7
Myrica gale	Sweet gale	Shrub	9	0.7
Chara	Muskgrasses	Submergent	7	4.5
Elatine minima	Waterwort	Submergent	9	1.5
Eleocharis acicularis	Needle spikerush	Submergent	5	3.7
Elodea canadensis	Common waterweed	Submergent	3	11.2
Filamentous algae	Filamentous algae	Submergent	-	Visual
Heteranthera dubia	Water star-grass	Submergent	6	1.5
Megalodonta beckii	Water marigold	Submergent	8	3
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	6.7
Najas flexilis	Bushy pondweed	Submergent	6	2.2
Nitella	Nitella	Submergent	7	2.2
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	11.9
Potamogeton crispus	Curly-leaf pondweed	Submergent	-	Visual
Potamogeton diversifolius	Common snail-seed pondweed	Submergent	8	0.7
Potamogeton foliosus	Leafy pondweed	Submergent	6	2.2
Potamogeton gramineus	Variable pondweed	Submergent	7	0.7
Potamogeton illinoensis	Illinois pondweed	Submergent	6	0.7
Potamogeton praelongis	White-stem pondweed	Submergent	8	1.5
Potamogeton pusillus	Small pondweed	Submergent	7	0.7

Potamogeton richardsonii	Clasping-leaf pondweed	Submergent	5	Visual
Potamogeton robbinsii	Robbins pondweed	Submergent	8	9.7
Potamogeton zosteriformis	Flat-stem pondweed	Submergent	6	13.4
Ranunculus aquatilis	Stiff water crowfoot	Submergent	7	0.7
Vallisneria americana	Wild celery	Submergent	6	11.2

Table 42. UEC14 Aquatic Plant Sampling Summary Statistics

SUMMARY STATISTICS	**UEC14**
Total number of points sampled	48
Total number of sites with vegetation	45
Total number of sites shallower than maximum depth of plants	48
Frequency of occurrence at sites shallower than maximum depth of plants	93.75
Simpson Diversity Index	0.9201
Maximum depth of plants (Feet)	9.5
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	48
Average number of all species per site (shallower than max depth)	2.88
Average number of all species per site (veg. sites only)	3.07
Average number of native species per site (shallower than max depth)	2.88
Average number of native species per site (veg. sites only)	3.07
Species Richness	27
Species Richness (including visuals)	31
Floristic Quality Index	34.40

Figure 25. UEC14 Aquatic Plant Diversity Map

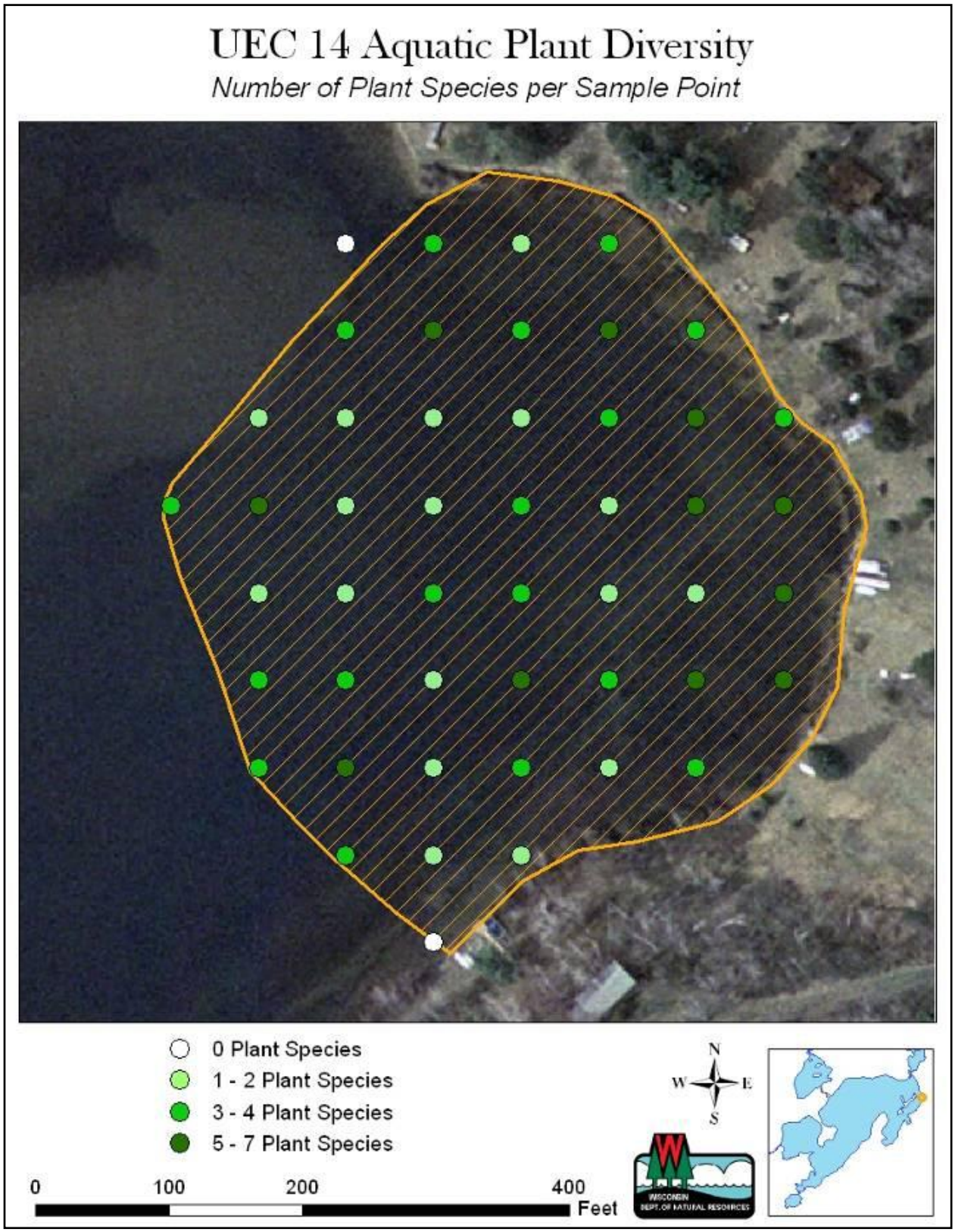


Table 43. Shoreline Assessment of UEC14				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	6	33.3		
Accessory Structures	2	11.1		
Commercial Buildings	0	0		
Riparian Zone				
Homes	1	5.6		
Accessory Structures	0	0		
Commercial Buildings	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 Eau Claire Lake Critical Habitat Site UEC15

Critical habitat site UEC15 is a Sensitive Area that was designated because of its Rush Beds. UEC15 is 4.68 acres in size and is located along the shoreline between 3-in-1 Island and the channel to Smith Lake. UEC15 includes some of the most zoning non-compliant shoreline on the entire lake.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 44 and 45. Table 46 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC15.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

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.

Overhanging vegetation and floating, emergent, and submersed aquatic plants should be protected to provide cover, especially since much of it has historically been removed.

Leave fallen trees in the water.

Table 44. UEC15 Aquatic Plants				
Scientific Name	**Common Name**	**Plant Type**	**FQI Coefficient**	**Relative Frequency**
Eleocharis palustris	Creeping spikerush	Emergent	6	8.9
Sagittaria sp	Arrowhead	Emergent	-	3.6
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent	4	7.1
Chara	Muskgrasses	Submergent	7	32.1
Elatine minima	Waterwort	Submergent	9	5.4
Eleocharis acicularis	Needle spikerush	Submergent	5	28.6
Juncus palocarpus f. submersus	Brown-fruited rush	Submergent	8	1.8
Myriophyllum tenellum	Dwarf water-milfoil	Submergent	10	5.4
Potamogeton gramineus	Variable pondweed	Submergent	7	5.4
Ranunculus aquatilis	Stiff water crowfoot	Submergent	7	1.8

Table 45. UEC15 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**UEC15**
Total number of points sampled	46
Total number of sites with vegetation	27
Total number of sites shallower than maximum depth of plants	45
Frequency of occurrence at sites shallower than maximum depth of plants	60
Simpson Diversity Index	0.791454
Maximum depth of plants (Feet)	3.5
Number of sites sampled using rake on Rope (R)	1
Number of sites sampled using rake on Pole (P)	45
Average number of all species per site (shallower than max depth)	1.24
Average number of all species per site (veg. sites only)	2.07
Average number of native species per site (shallower than max depth)	1.24
Average number of native species per site (veg. sites only)	2.07
Species Richness	10
Species Richness (including visuals)	10
Floristic Quality Index	21.00

Figure 26. UEC15 Aquatic Plant Diversity Map

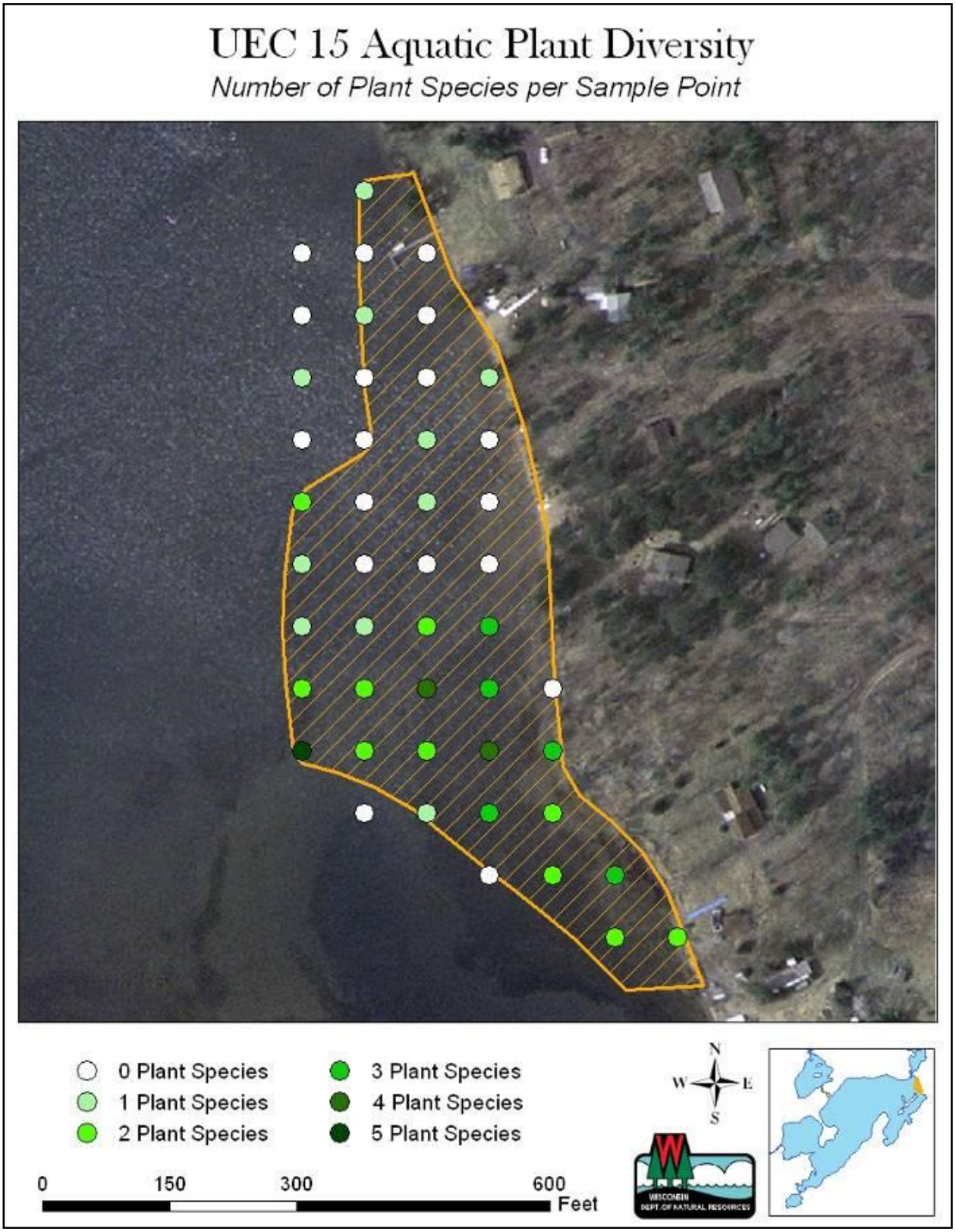


Figure 27. UEC15 Rushes Map

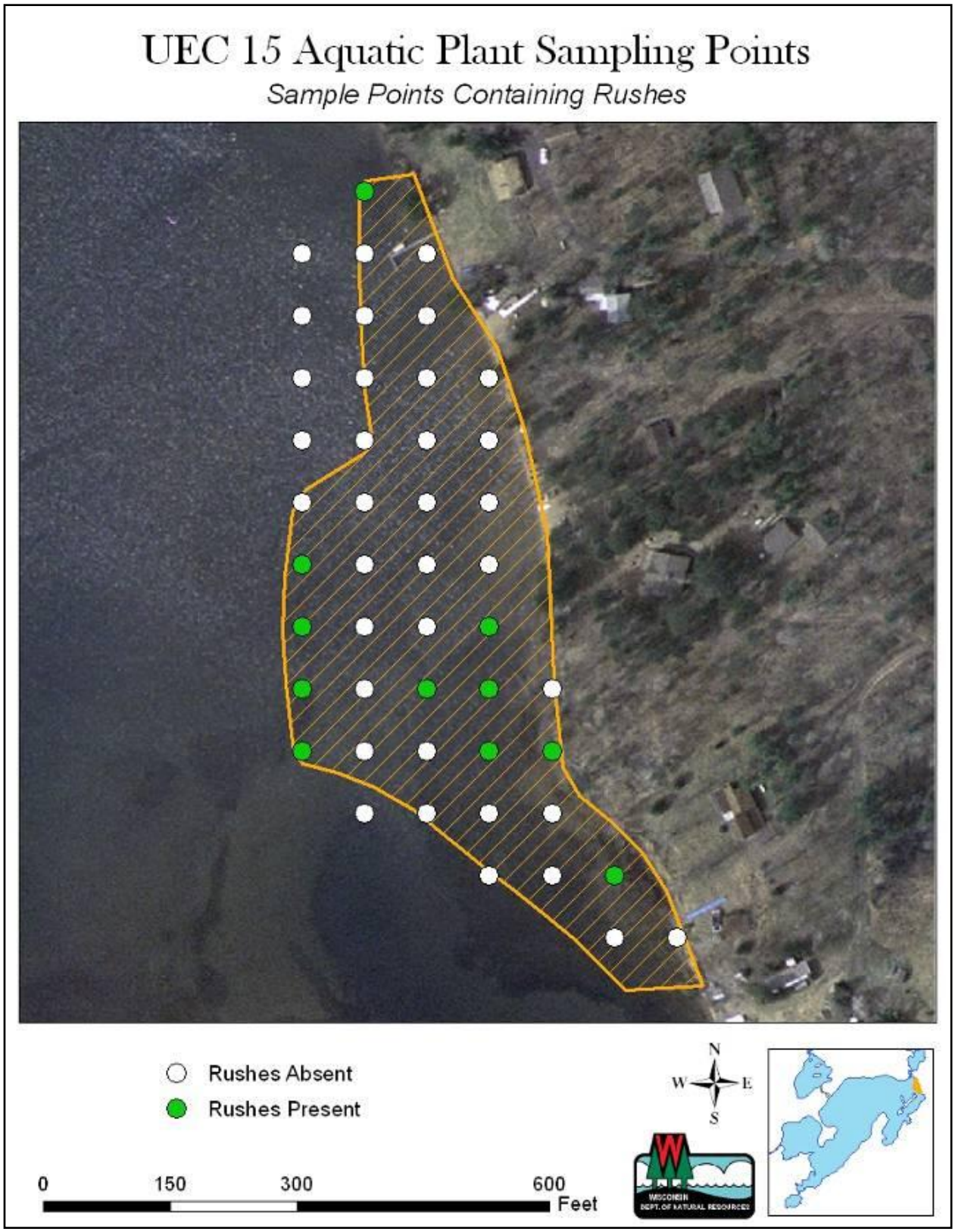


Table 46. Shoreline Assessment of UEC15				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	4	20.1		
Accessory Structures	4	20.1		
Commercial Buildings	0	0		
Riparian Zone				
Homes	1	5.0		
Accessory Structures	6	30.2		
Commercial Buildings	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 Eau Claire Lake Critical Habitat Site UEC16

Critical habitat site UEC16 is a Sensitive Area that was designated because of its Rush Beds. UEC16 is 0.87 acres in size and is located near the channel to Smith Lake.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 47 and 48. Table 49 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC16.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

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.

Table 47. UEC16 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Eleocharis palustris	Creeping spikerush	Emergent	6	Visual
Schoenoplectus pungens	3-square rush	Emergent	5	3.4
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent	4	10.3
Typha sp	Cattail	Emergent	1	Visual
Ceratophyllum demersum	Coontail	Submergent	3	6.9
Chara	Muskgrasses	Submergent	7	3.4
Eleocharis acicularis	Needle spikerush	Submergent	5	Visual
Elodea canadensis	Common waterweed	Submergent	3	10.3
Heteranthera dubia	Water star-grass	Submergent	6	3.4
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	6.9
Najas flexilis	Bushy pondweed	Submergent	6	10.3
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	3.4
Potamogeton gramineus	Variable pondweed	Submergent	7	3.4
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent	5	3.4
Potamogeton robbinsii	Robbins pondweed	Submergent	8	3.4
Potamogeton zosteriformis	Flat-stem pondweed	Submergent	6	10.3
Ranunculus aquatilis	Stiff water crowfoot	Submergent	7	3.4
Vallisneria americana	Wild celery	Submergent	6	17.2

Table 48. UEC16 Aquatic Plant Sampling Summary Statistics

SUMMARY STATISTICS	UEC16
Total number of points sampled	13
Total number of sites with vegetation	11
Total number of sites shallower than maximum depth of plants	12
Frequency of occurrence at sites shallower than maximum depth of plants	91.667
Simpson Diversity Index	0.908
Maximum depth of plants (Feet)	27
Number of sites sampled using rake on Rope (R)	2
Number of sites sampled using rake on Pole (P)	11
Average number of all species per site (shallower than max depth)	2.42
Average number of all species per site (veg. sites only)	2.64
Average number of native species per site (shallower than max depth)	2.42
Average number of native species per site (veg. sites only)	2.64
Species Richness	15
Species Richness (including visuals)	18
Floristic Quality Index	23.30

Figure 28. UEC16 Aquatic Plant Diversity Map

Figure 29. UEC16 Rushes Map

Table 49. Shoreline Assessment of UEC16				
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 Eau Claire Lake Critical Habitat Site UEC17

Critical habitat site UEC17 is a Sensitive Area that was designated because of its Rush Beds. UEC17 is 0.73 acres in size and is located along the northern shoreline of the lake.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 50 and 51. Table 52 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC17.

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.

Table 50. UEC17 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Schoenoplectus pungens	3-square rush	Emergent	5	14.3
Chara	Muskgrasses	Submergent	7	23.8
Eleocharis acicularis	Needle spikerush	Submergent	5	19
Juncus palocarpus f. submersus	Brown-fruited rush	Submergent	8	9.5
Myriophyllum tenellum	Dwarf water-milfoil	Submergent	10	4.8
Najas flexilis	Bushy pondweed	Submergent	6	19
Potamogeton gramineus	Variable pondweed	Submergent	7	4.8
Vallisneria americana	Wild celery	Submergent	6	4.8

Table 51. UEC17 Aquatic Plant Sampling Summary Statistics

SUMMARY STATISTICS	UEC17
Total number of points sampled	10
Total number of sites with vegetation	9
Total number of sites shallower than maximum depth of plants	10
Frequency of occurrence at sites shallower than maximum depth of plants	90
Simpson Diversity Index	0.8345
Maximum depth of plants (Feet)	3.5
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	10
Average number of all species per site (shallower than max depth)	2.10
Average number of all species per site (veg. sites only)	2.33
Average number of native species per site (shallower than max depth)	2.10
Average number of native species per site (veg. sites only)	2.33
Species Richness	8
Species Richness (including visuals)	8
Floristic Quality Index	19.10

Figure 30. UEC17 Aquatic Plant Diversity Map

Figure 31. UEC17 Rushes Map

Table 52. Shoreline Assessment of UEC17				
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 Eau Claire Lake Critical Habitat Site UEC18

Critical habitat site UEC18 is a Sensitive Area that was designated because of its Rush Beds. UEC18 is 1.14 acres in size and is located along the Northern shoreline.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 53 and 54. Table 55 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC18.

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.

Table 53. UEC18 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Schoenoplectus pungens	3-square rush	Emergent	5	16.0
Chara	Muskgrasses	Submergent	7	28.0
Eleocharis acicularis	Needle spikerush	Submergent	5	16.0
Myriophyllum tenellum	Dwarf water-milfoil	Submergent	10	8.0
Potamogeton gramineus	Variable pondweed	Submergent	7	12.0
Vallisneria americana	Wild celery	Submergent	6	20.0

Table 54. UEC18 Aquatic Plant Sampling Summary Statistics

SUMMARY STATISTICS	UEC18
Total number of points sampled	16
Total number of sites with vegetation	12
Total number of sites shallower than maximum depth of plants	15
Frequency of occurrence at sites shallower than maximum depth of plants	80
Simpson Diversity Index	0.8096
Maximum depth of plants (Feet)	4.5
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	16
Average number of all species per site (shallower than max depth)	1.67
Average number of all species per site (veg. sites only)	2.08
Average number of native species per site (shallower than max depth)	1.67
Average number of native species per site (veg. sites only)	2.08
Species Richness	6
Species Richness (including visuals)	6
Floristic Quality Index	16.30

Figure 32. UEC18 Aquatic Plant Diversity Map

Figure 32. UEC18 Rushes Map

Table 55. Shoreline Assessment of UEC18

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 Eau Claire Lake Critical Habitat Site UEC19

Critical habitat site UEC19 is a Sensitive Area that was designated because of its Rush Beds. UEC19 is 9.18 acres in size and located along the Northern shoreline.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 56 and 57. Table 58 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC19.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

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.

Table 56. UEC19 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Sagittaria sp	Arrowhead	Emergent	-	1.6
Schoenoplectus pungens	3-square rush	Emergent	5	18.4
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent	4	3.2
Ceratophyllum demersum	Coontail	Submergent	3	0.8
Chara	Muskgrasses	Submergent	7	22.4
Eleocharis acicularis	Needle spikerush	Submergent	5	8.0
Elodea canadensis	Common waterweed	Submergent	3	0.8
Juncus palocarpus f. submersus	Brown-fruited rush	Submergent	8	1.6
Megalodonta beckii	Water marigold	Submergent	8	0.8
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	1.6
Myriophyllum tenellum	Dwarf water-milfoil	Submergent	10	5.6
Najas flexilis	Bushy pondweed	Submergent	6	8.8
Nitella	Nitella	Submergent	7	0.8
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	0.8
Potamogeton friesii	Frie's pondweed	Submergent	8	0.8
Potamogeton gramineus	Variable pondweed	Submergent	7	18.4
Potamogeton zosteriformis	Flat-stem pondweed	Submergent	6	0.8
Vallisneria americana	Wild celery	Submergent	6	4.8

Table 57. UEC19 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**UEC19**
Total number of points sampled	89
Total number of sites with vegetation	65
Total number of sites shallower than maximum depth of plants	89
Frequency of occurrence at sites shallower than maximum depth of plants	73.034
Simpson Diversity Index	0.8603
Maximum depth of plants (Feet)	13
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	89
Average number of all species per site (shallower than max depth)	1.40
Average number of all species per site (veg. sites only)	1.92
Average number of native species per site (shallower than max depth)	1.40
Average number of native species per site (veg. sites only)	1.92
Species Richness	18
Species Richness (including visuals)	18
Floristic Quality Index	26.00

Figure 33. UEC19 Aquatic Plant Diversity Map

Figure 34. UEC19 Rushes Map

Table 58. Shoreline Assessment of UEC19				
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 Eau Claire Lake Critical Habitat Site UEC20

Critical habitat site UEC20 is a Public Rights Feature that was designated because of its Spawning Substrate. UEC20 is 2.43 acres in size and is located near the channel to Birch Lake.

Spawning Substrate was sampled using a standardized transect method and a summary of the results can be found in Table 59. Table 60 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC20.

Take added precaution with road maintenance (e.g. plowing) and improvement activities to be certain sediments and runoff do not enter the lake, both of which could shallow the channel and smother important spawning substrates. Implement runoff best management practices to filter runoff and/or redirect it away from the lake.

Riprap in is not recommended in UEC 20 because it could disturb spawning substrates. The wave energy is moderate. Alternative bank stabilization methods should be used instead of hard armoring like riprap.

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.

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

Leave fallen trees in the water.

Table 59. UEC20 Spawning Substrate Sampling Transect Data

Transect Number	Quadrat Number	Band Start	Band End	Band Width (m)	Embeddedness	Marl	Detritus	Clay	Silt	Sand	Fine Gravel	Coarse Gravel	Cobble / Rubble	Small Boulder	Large Boulder	Bedrock
1	1	0	2.1	2.1	3					20	25	10	45			
2	1	0	1.8	1.8	3					5	45	30	20			
3	1	0	1	1	3					10	15		75			
4	1	0	1.6	1.6	3					10	20	20	50			
5	1	0	1.5	1.5	2					20	40	40				
6	1	0	1.6	1.6	3					50		20	30			
7	1	0	7.5	7.5						100						
8	1	0	2	2	5					30	20	30	20			
9	1	0	1.5	1.5	4					10	30	50	10			
10	1	0	1.6	1.6	4					10	15	5	70			
1	2	2.1	3.5	1.4	1					60	10	20	10			
2	2	1.8	8.7	6.9						100						
3	2	1	15	14						100						
4	2	1.6	5.7	4.1	1					70	30					
5	2	1.5	15	13.5	1					95	5					
6	2	1.6	15	13.4						100						
7	2	7.5	15	7.5	1					60	40					
8	2	2	8	6	1					80	20					
9	2	1.5	3.1	1.6	1					90	10					
10	2	1.6	3.1	1.5	1					95	5					
1	3	3.5	9.3	5.8						100						
2	3	8.7	15	6.3	5							100				
4	3	5.7	15	9.3						100						
8	3	8	15	7						100						
9	3	3.1	14.5	11.4	5							30	70			
10	3	3.1	13.2	10.1	5							30	70			
1	4	9.3	15	5.7	5							100				
9	4	14.5	15	0.5						100						
10	4	13.2	15	1.8						100						

Figure 35. UEC20 Spawning Substrate Transects Map

Table 60. Shoreline Assessment of UEC20				
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 Eau Claire Lake Critical Habitat Site UEC21

Critical Habitat site UEC21 was designated a Sensitive Area because of its Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat. UEC21 is an off-shore aquatic plant bed that is 8.39 acres in size and is located along the East shore of Outlet Bay.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 61 and 62. Table 63 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC21.

Implement slow-no-wake ordinance or marker buoys in this bay to protect shorelines and aquatic habitat.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

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

Table 61. UEC21 Aquatic Plants				
Scientific Name	**Common Name**	**Plant Type**	**FQI Coefficient**	**Relative Frequency**
Ceratophyllum demersum	Coontail	Submergent	3	6.0
Chara	Muskgrasses	Submergent	7	6.9
Eleocharis acicularis	Needle spikerush	Submergent	5	0.9
Elodea canadensis	Common waterweed	Submergent	3	9.7
Megalodonta beckii	Water marigold	Submergent	8	1.8
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	9.7
Myriophyllum tenellum	Dwarf water-milfoil	Submergent	10	0.5
Najas flexilis	Bushy pondweed	Submergent	6	1.8
Najas guadalupensis	Southern water-nymph	Submergent	7	1.4
Nitella	Nitella	Submergent	7	0.5
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	2.3
Potamogeton friesii	Frie's pondweed	Submergent	8	2.3
Potamogeton gramineus	Variable pondweed	Submergent	7	2.8
Potamogeton obtusifolius	Blunt-leaf pondweed	Submergent	9	0.5
Potamogeton praelongis	White-stem pondweed	Submergent	8	3.2
Potamogeton pusillus	Small pondweed	Submergent	7	1.4
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent	5	9.7
Potamogeton robbinsii	Robbins pondweed	Submergent	8	20.7
Potamogeton zosteriformis	Flat-stem pondweed	Submergent	6	12.0
Vallisneria americana	Wild celery	Submergent	6	6.0

Table 62. UEC21 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**UEC21**
Total number of points sampled	90
Total number of sites with vegetation	72
Total number of sites shallower than maximum depth of plants	90
Frequency of occurrence at sites shallower than maximum depth of plants	80
Simpson Diversity Index	0.8985
Maximum depth of plants (Feet)	11
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	90
Average number of all species per site (shallower than max depth)	2.41
Average number of all species per site (veg. sites only)	3.01
Average number of native species per site (shallower than max depth)	2.41
Average number of native species per site (veg. sites only)	3.01
Species Richness	20
Species Richness (including visuals)	20
Floristic Quality Index	30.00

Figure 36. UEC21 Aquatic Plant Diversity Map

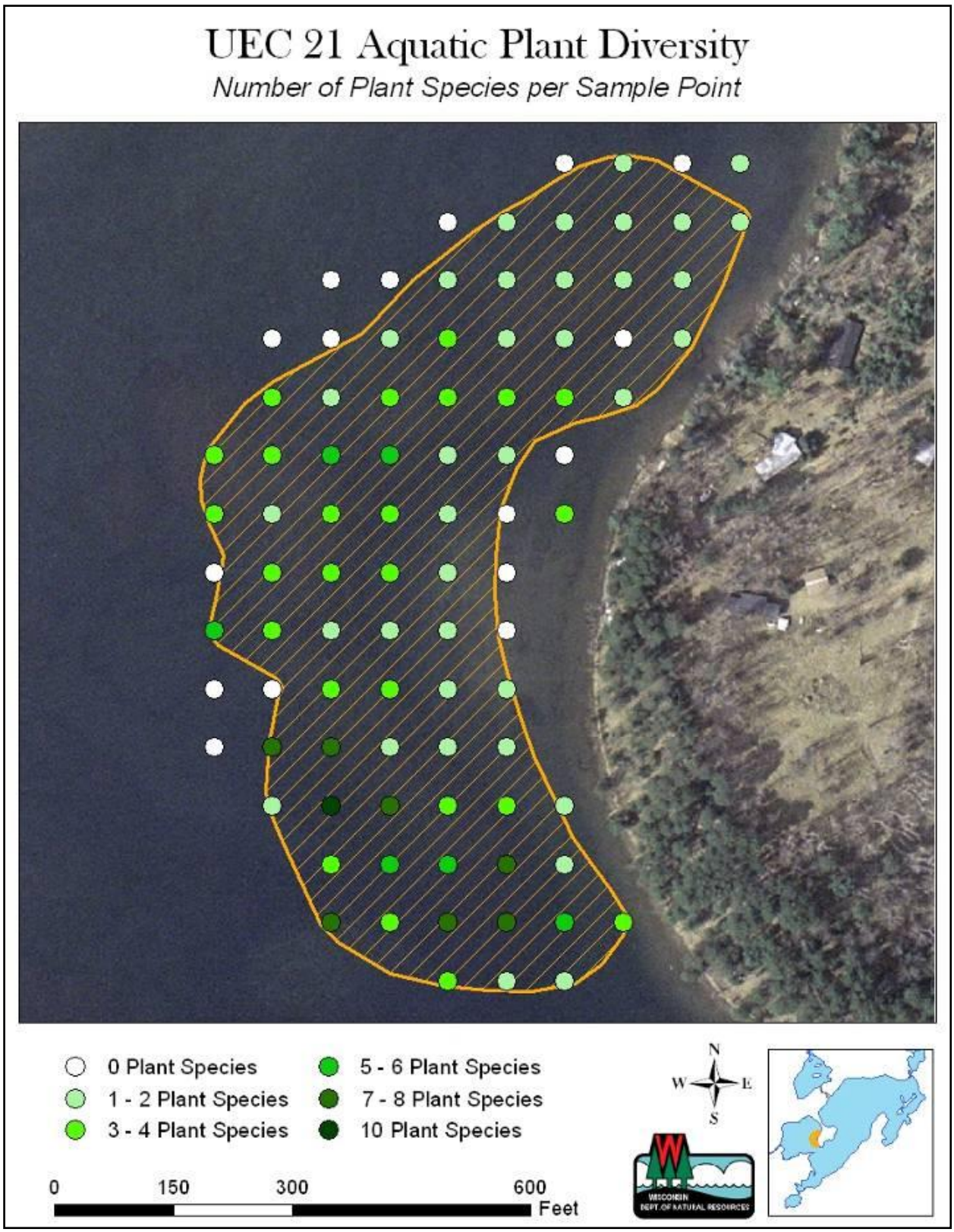


Table 63. Shoreline Assessment of UEC21				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	4	21.6		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	6	32.2		
Commercial Buildings	0	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 Eau Claire Lake Critical Habitat Site UEC22

Critical Habitat site UEC22 is a Sensitive Area that was designated because of its Rush Beds. UEC22 is 0.39 acres in size and located along the shoreline just east of the public boat launch.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 64 and 65. Table 66 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of UEC22.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

According to the shoreline inventory, there is riprap in UEC22. Riprap is not necessary because the wave energy is low for this site. Low-energy sites are typically not eligible/authorized for riprap permits. If shoreline erosion is a problem, overland runoff from rooftops, driveways, and lawns or reckless motorboat use are the most likely causes.

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.

Table 64. UEC22 Aquatic Plants				
Scientific Name	**Common Name**	**Plant Type**	**FQI Coefficient**	**Relative Frequency**
Carex sp	Sedges	Emergent	-	Visual
Schoenoplectus pungens	3-square rush	Emergent	5	12.5
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent	4	12.5
Eleocharis acicularis	Needle spikerush	Submergent	5	25.0
Najas flexilis	Bushy pondweed	Submergent	6	Visual
Potamogeton gramineus	Variable pondweed	Submergent	7	50.0

Table 65. UEC22 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**UEC22**
Total number of points sampled	6
Total number of sites with vegetation	5
Total number of sites shallower than maximum depth of plants	6
Frequency of occurrence at sites shallower than maximum depth of plants	83.333
Simpson Diversity Index	0.656
Maximum depth of plants (Feet)	3
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	6
Average number of all species per site (shallower than max depth)	1.33
Average number of all species per site (veg. sites only)	1.60
Average number of native species per site (shallower than max depth)	1.33
Average number of native species per site (veg. sites only)	1.60
Species Richness	4
Species Richness (including visuals)	6
Floristic Quality Index	12.10

Table 66. Shoreline Assessment of UEC22				
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		

Figure 37. UEC22 Aquatic Plant Diversity Map

Figure 38. UEC22 Rushes Map

Appendix 1. Personnel and dates of Critical Habitat Designation, Upper Eau Claire Lake, Bayfield 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 and Hearing for Proposed Critical Habitat Designation

The Department of Natural Resources has located areas that meet the criteria for Critical Habitat Designation on the Eau Claire Chain of Lakes in Bayfield and Douglas Counties. A public information meeting and hearing has been scheduled to discuss the proposed Critical Habitat Sites on Birch Lake, Bony Lake, Cranberry Lake, Devils Lake, Lower Eau Claire Lake, Middle Eau Claire Lake, Robinson Lake, Shunenberg Lake, Smith Lake, Sweet Lake, and Upper Eau Claire Lake in Bayfield and Douglas Counties.

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.

The public informational meeting will be held Saturday, May 15, at 9:00 am at the Barnes Town Hall, 3360 Co Hwy N, Barnes, in Bayfield County. 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.

A public hearing will follow the informational meeting at 11:00 am for persons wishing to present oral testimony. During the hearing, the public can provide factual information about the waterway or the areas proposed for designations in light of the standards below.

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 tentative determination that specific locations in the Eau Claire Chain of Lakes 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 identified locations are eligible for Critical Habitat Designation, and if approved, they will be sufficiently preserved to ensure healthy aquatic systems and protected to maintain the cultural/aesthetic value of lakes to Wisconsin.
Critical Habitat Designation means that special permit conditions or denial of permits 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, piers, and docks. Furthermore, in designated Critical Habitat Areas, manual removal of 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.

Response to Public Comments on Critical Habitat Designations

Location: Eau Claire Chain of Lakes in Bayfield and Douglas Counties
Public Hearing Held: May 15, 2010 at Barnes Town Hall, Barnes, WI
Comment Period Ended: July 31, 2010

Thank you to everyone who took the time to submit oral and written comments. Seven individuals provided oral comments during the May 15 public hearing. Ten individuals submitted hearing forms but did not speak. During the comment period, the Department received 14 written comments. We organized descriptive comments into the general categories listed below, followed by specific comments and responses.

Category #1 – Comments related to the boundaries and justifications for each Critical Habitat Area

Comment 1 – This comment is in regards to UEC 20 on Upper Eau Claire Lake. The person disagreed that the shoreline to the south of the channel leading to Birch Lake offers any spawning habitat. They went on to say that the area experiences very, very intense pressure from swimmers and boaters as it is primarily sand bottom is this area.

Response 1 – The Barnes Conservation Club in cooperation with the Wisconsin DNR constructed an off shore spawning reef in this area. The intent of the designation in this area is to protect this off shore reef from becoming covered with silt and sand. Electrofishing surveys have documented walleye spawning in this site.

Comment 2 – Some individuals requested that DNR add Critical Habitat Areas to include the Fish Sticks projects.

Response 2 – Critical habitat sites were identified based on the features present during the survey. Fish Sticks projects are ongoing and will be captured if future surveys occur. Property owners who participate in Fish Sticks projects enter into agreements that the habitat structures will remain.

Comment 3 – This comment is in regards to BON 5 on Bony Lake. It was suggested that the DNR add the justifications of Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat and Extensive Riparian Wetland to this area.

Response 3 – The aquatic plant sampling work done by the DNR and the Wetland Delineation work that was done on the Loon Echo Bay Condo property when a Bayfield County Conditional Use Permit was requested provide evidence to support adding these two justifications.

Comment 4 – The submerged island off of Pickle barrel Point on Middle Eau Claire Lake should be added as a Critical Habitat Area because there used to be bulrushes growing there in the shallow water.

Response 4 – A review of historical data and information did not result in evidence that would warrant adding this site. This comment will be considered for future reference and surveys. DNR welcomes any maps, historical narratives, or other evidence documenting the habitat features.

Category #2 – Comments related to our Management Recommendations

Comment 1 – One person would like to see the island on Upper Eau Claire Lake closed to camping due to the partying and erosion from foot traffic.

Response 1 – In the report, we recommended that the foot paths and stairways be repaired to help mitigate the foot traffic and erosion issues. DNR promotes public access and recreational opportunities. This is the only public camping site in the Eau Claire Lakes area.

Comment 2 – A few people commented on the excessive partying and swimming occurring at the mouth of the Eau Claire River and "Pickle Barrel Point," both on Middle Eau Claire Lake.

Response 2 – Swimming is a form of recreation protected by the Public Trust Doctrine. We cannot restrict this right as long as they are not trespassing. Law enforcement should be contacted if trespassing or rowdy behavior occurs.

Comment 3 – A few individuals commented that they disagree that riprap should not be used in certain Critical Habitat Areas.

Response 3 – Riprap is an unnatural structure that creates a physical barrier between the lake and upland areas, and often transfers erosion problems further along the shoreline. Even though properly installed riprap can prevent shoreline erosion, it often does not address the root causes of the shoreline erosion, usually disturbances and impervious surfaces upland from the lake. Naturally vegetated shorelines are the best for reducing erosion.

Natural shorelines along the lakes of Northern Wisconsin are wooded ecosystems. Terrestrial and aquatic animals have evolved with this ecosystem and it is essential to their life cycles. Shifting the near shore cover from vegetation to rock diminishes the ability of the ecosystem to sustain itself.

Comment 4 – One person commented that we add into our Management Recommendations a recommendation that the rivers and channels between the lakes on the Eau Claire Chain be reclassified to a more protective classification.

Response 4 – The Recommendations have been added to the reports.

Category #3 – Comments related to the shoreline restorations that have occurred since the initial field work in 2008

Comment 1 – Some individuals requested that DNR update the shoreline data to reflect the shoreline restorations that have occurred since 2008. Rip rap and seawalls have been removed and some lawns have been replanted since DNR conducted field work.

Response 1 – The recommendations regarding the removal of riprap have been removed from the reports. The riprap and lawn data remains in the tables however, and an asterisk has been added with a footnote stating that shoreline restoration work has occurred since the initial field work. This data is a snapshot in time, and we intend to revisit the lake in the future to make comparisons.

Category #4 – Comments related to navigable channel from Middle Eau Claire Lake to Bony Lake

Comment 1 – Some individuals commented that the channel from Middle Eau Claire Lake to Bony Lake needs to remain navigable as there is no public access on Bony Lake.

Response 1 – The channel between Bony and Middle Eau Claire Lakes is considered navigable.
Public lakes, rivers, and streams that have a bottom (bed) and side (bank), and enough water to float any boat, skiff, or canoe of the shallowest draft on a reoccurring basis are considered navigable. Occasionally, barriers such as wood or plant debris may impede actual navigation, but waters are public even when multiple portages are required to get around obstructions. A waterway does not need to be regularly used for recreational or other general purposes, but is a public waterway based on its *capacity* to be navigable and public. Provided a small boat can float, it is considered navigable. In other words, there is no requirement that the channel provide navigability to large watercraft or boats with inboard motors.

Category #5 – Comments related to Private Property Rights and Current Regulation

Comment 1 – It was stated that government is consistently imposing new regulation, restrictions, laws and taxes on citizens and that Critical Habitat Designations are a ruse of propaganda by the DNR to make a new power grab and infringe on our property rights.

Response 1 – The Critical Habitat Designation program is not designed to infringe upon the *private* rights of riparian citizens. Instead, the Designations are designed to protect the *public* rights held within the Public Trust Doctrine for all citizens, including those yet unborn.

Wisconsin law recognizes that owners of lands bordering lakes and rivers - "riparian" owners - hold rights in the water next to their property. These riparian rights include the use of the shoreline, reasonable use of the water, and a right to access the water. However, the Wisconsin State Supreme Court has ruled that when conflicts occur

between the rights of riparian owners and public rights, the public's rights are primary and the riparian owner's secondary.

Comment 2 – County Zoning and the new statewide NR 115 Shoreland Zoning Ordinance are already in place to protect these lakes. If an effort was put into enforcing the regulations which are already on the books, the lakes would be protected.

Response 2 – The county zoning ordinances are specifically for the shoreland zone above the ordinary high water mark (OHWM). The counties only have jurisdiction above the OHWM. The DNR, and thus Critical Habitat Designations, only have jurisdiction below the OHWM.
The counties can and are encouraged to use our reports to further protect terrestrial areas.

Comment 3 - Why are some of the areas listed as "some of the most zoning non-compliant areas on the lake" and still be listed as Critical habitat areas with a long list of vegetation and fish habitat. Wouldn't those areas have been destroyed?

Response 3 – Not necessarily. CHDs document in-lake habitat, scenic beauty, and wildlife features. It is correct that how people care for their properties can affect all of these things, but overall the Eau Claire Chain shoreline is in good shape. Eventually the cumulative impacts of unhealthy shoreline and land use management can tip the in-lake features out of balance. When this occurs, native fish and wildlife reproduction are reduced or stop altogether, natural scenic beauty diminishes, and water quality declines.

Comment 4 – It is important property owners have a right to enjoy the lake, including having a swimming area.

Response 4 – Property owners certainly deserve to enjoy the lakes. As such, DNR rules provide property owners an area up to 30 feet wide along their shoreline and out into the water where they may manually remove aquatic plants without a permit. Please note this 30-foot corridor correlates to the 30-foot access and viewing corridor that is allowed on the landward property through county zoning, as well.

Category #6 – Comments related to the support for the Critical Habitat Designation

Comment 1 – Many individuals commented on how they support the Designation. Most commented on how much the lakes have changed since they first started visiting the chain and they fully support protecting what is left for future generations.

Response 1 – Thank you for your support.

Comment 2 – Over the last 30 years I have seen the water quality decline on the whole Eau Claire Chain, (Sweet Lake & Upper Eau Claire in particular). I am pleased to see a

proposal to maintain/improve shorelines/water quality for future generations. I feel that private property rights should not trump our children's right to clean lakes and rivers.

Response 2 – As previously stated, the Critical Habitat Program is rooted in the Public Trust Doctrine, which protects the public rights of all citizens including those yet unborn. The science shows shoreline disturbance impacts lake health. Critical Habitat Designation is a tool to protect and improve lake health. The tool is more powerful with community support.

Category #7 – Why did the DNR choose to Designate the Eau Claire Chain?

Comment 1 – Why did the DNR choose to do Critical Habitat Designations on the Eau Claire Chain of Lakes?

Response 1 – There are multiple reasons to do the Critical Habitat Designations on the Eau Claire Chain. First of, the Department knows these lakes are really special and would like to keep them that way. The lakes are classified as Outstanding Resource Waters (ORW), muskellunge recruitment waters, walleye recruitment waters, and have exceptional water quality. Also, both the Town of Barnes Comprehensive Plan and the Eau Claire Lakes Management Plan contain recommendations to have a Critical Habitat Designation completed on the Eau Claire Chain of Lakes.

However, the Eau Claire Chain is not alone in the Critical Habitat Process. The DNR has done Sensitive Area Designations on many lakes statewide. Legislative Act 118, which changed the program from Sensitive Area Designations focusing only on aquatic plants to Critical Habitat Designations considering all public rights features. Currently, several lakes in the area are in the process of having Critical Habitat Designations done as well. Some of those lakes include Amnicon Lake, Upper St. Croix Lake, Gordon Flowage, Minong Flowage, Nancy Lake, Granite Lake, and Beaver Dam Lake.

Closing Statement

While the purpose of the Critical Habitat Designations is to guide state decisions for the public waterway and inform lakeshore owners about the high quality habitat in the lake, we value the input given from local citizens and organizations during the process. State statutes grant primary management responsibilities over navigable waters to the DNR (except planning, land, acquisition, and boating ordinance development, where local units of government hold authority). As such, the DNR reviews all state permit applications relating to shoreline activities. Since the Critical Habitat Designations affect the state permit process, it does not significantly affect regulations administered by local units of government unless they choose to alter their local regulations and ordinances to utilize the Designations.