Middle 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:

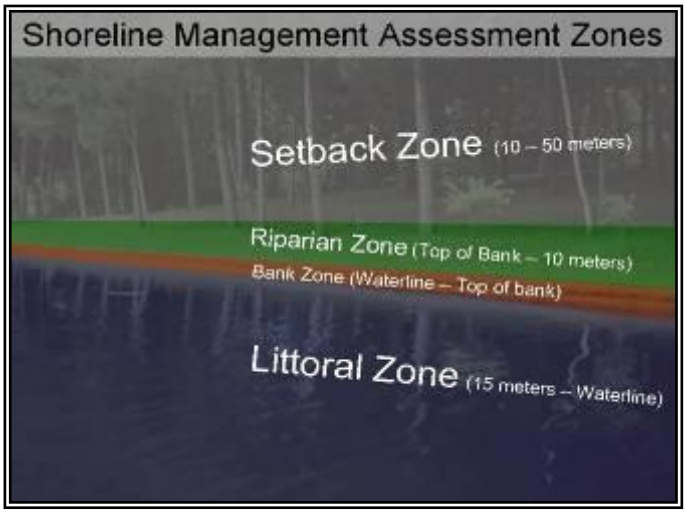
1) Resource protection through science based regulatory review.
2) Community-based resource protection through community education, planning and zoning.
3) As a guide to land-trusts and others acquiring land and conservation easements.
4) A mechanism to track long-term changes in these habitats.

Methods

Critical Habitat Designation occurred on Middle Eau Claire Lake in Bayfield County during 2007 and 2008. Middle Eau Claire Lake, which is a 902 acre lake with a max depth of 66 feet, is part of the Eau Claire Chain of Lakes and is located between Lower Eau Claire Lake and Upper Eau Claire Lake. Access to Middle Eau Claire Lake is via a public boat launch located off Highway 27.

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

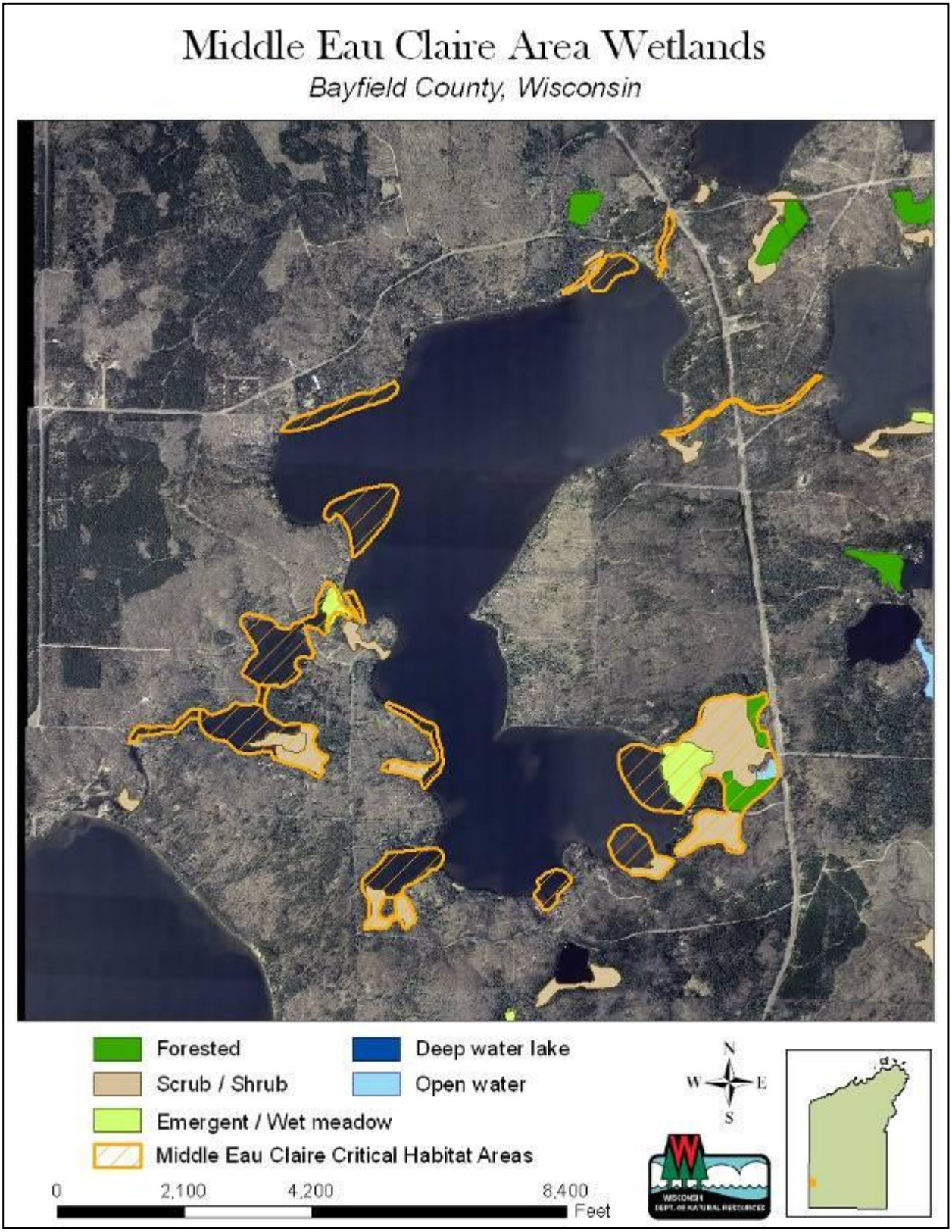
Sixteen areas are designated as Critical Habitat on Middle Eau Claire Lake for a total of 235.5 acres (Figure 1; Tables 1 and 2). Eleven areas are classified as Sensitive Areas and five areas are classified as Public Rights Features.

Figure 2. Middle Eau Claire Lake Critical Habitat Map

Table 1. Middle Eau Claire Lake Critical Habitat Polygon Justifications							
Critical Habitat Polygon ID	**Acres**	**Justification**	**Justification**	**Justification**	**Justification**	**Justification**	**Classification**
MEC1	3.7	7	11	-	-	-	Public Rights Feature
MEC2	29.2	1	3	6	7	11	Sensitive Area
MEC3	1.1	7	11	-	-	-	Public Rights Feature
MEC4	28.7	1	3	6	7	11	Sensitive Area
MEC5	12.7	3	6	-	-	-	Sensitive Area
MEC6	5.6	2	3	6	-	-	Sensitive Area
MEC7	21.5	2	3	6	-	-	Sensitive Area
MEC8	8.5	4	7	6	-	-	Sensitive Area
MEC9	1.3	4	-	-	-	-	Sensitive Area
MEC10	16.7	8	-	-	-	-	Public Rights Feature
MEC11	9.3	8	-	-	-	-	Public Rights Feature
MEC12	1.6	6	-	-	-	-	Sensitive Area
MEC13	5.9	1	-	-	-	-	Sensitive Area
MEC14	2.1	3	2	7	11	-	Sensitive Area
MEC15	4.2	8	7	9	-	-	Public Rights Feature
MEC16	83.4	2	6	3	-	-	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. Middle Eau Claire Lake Area Wetlands Map



Middle Eau Claire Lake Critical Habitat Site MEC1
Critical habitat site MEC1 is a Public Rights Feature that was designated because of its Woody Habitat and Navigational Thoroughfare. It is 3.74 acres in size and is the Eau Claire River segment located immediately upstream of the Dam on River Road.

Woody Habitat was sampled using a standardized transect method and a summary of the results can be found in Tables 3 and 4. 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 5 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of MEC 1.

Special Note: This area is regulated as a fish refuge from April 15th to May 15th each year due to its importance to both spawning walleye and muskellunge. Large concentrations of white suckers also use the river for spawning in spring which constitutes an important part of the forage base for the lake.

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 MEC1. 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.

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. MEC1 North Woody Habitat Sampling Transects						
Transect	**# Big Logs**	**# Small Logs**	**Transect Length (feet)**	**Transect Length (m)**	**Big Logs per Mile**	**Small Logs per Mile**
MEC1 North-1	3	5	98.4	30	161.0	268.3
MEC1 North-2	2	9	98.4	30	107.3	482.9
MEC1 North-3	3	0	98.4	30	161.0	0.0
MEC1 North-4	1	12	98.4	30	53.7	643.9
MEC1 North Total	9	26	393.6	120	120.7	348.8

Table 4. MEC1 South Woody Habitat Sampling Transects						
Transect	**# Big Logs**	**# Small Logs**	**Transect Length (feet)**	**Transect Length (m)**	**Big Logs per Mile**	**Small Logs per Mile**
MEC1 South-1	0	0	98.4	30	0.0	0.0
MEC1 South-2	1	0	98.4	30	53.7	0.0
MEC1 South-3	4	5	98.4	30	214.6	268.3
MEC1 South-4	2	4	98.4	30	107.3	214.6
MEC1 South Total	7	9	393.6	120	93.9	120.7

Figure 4. MEC1 Woody Habitat Transects Map

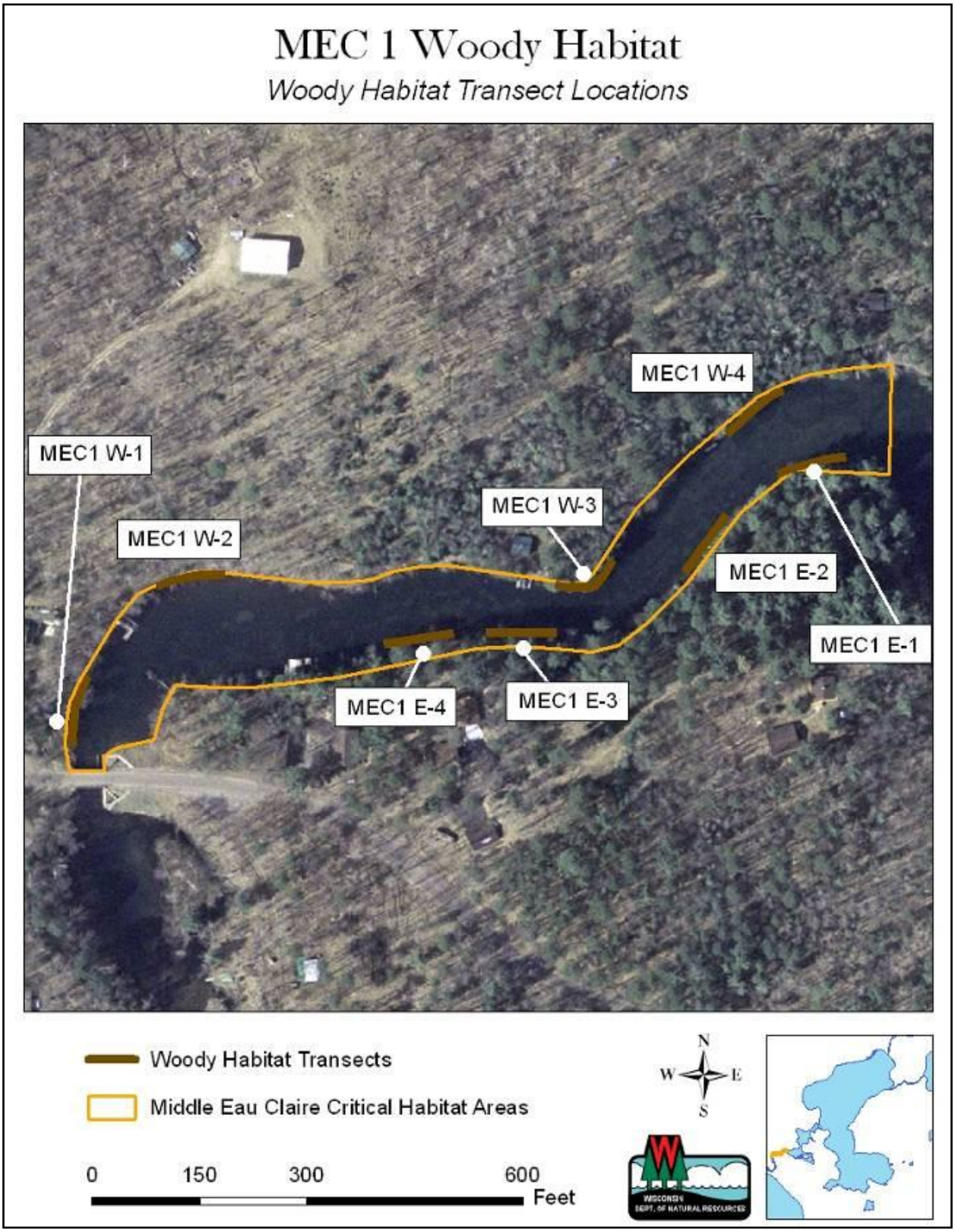


Table 5. Shoreline Assessment of MEC1				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	7	13.75		
Accessory Structures	7	13.75		
Commercial Buildings	0	0		
Riparian Zone				
Homes	2	3.9		
Accessory Structures	13	25.5		
Commercial Buildings	0	0		
Natural vegetation			2647	98.4
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			43	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			2690	100
Bank Zone				
Natural Bank			2640	98.1
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			16.7	0.2
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			16.7	0.2
Seawalls			16.7	0.2
Total Shoreline			2690	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	14	27.5		
Boat Lifts	14	27.5		
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		

Middle Eau Claire Lake Critical Habitat Site MEC2
Critical habitat site MEC2 is a Sensitive Area that was designated because of its Bio-Diverse Submerged Aquatic Vegetation, Emergent and Floating Leaf Vegetation, Extensive Riparian Wetland, Woody Habitat, and Navigational Thoroughfare. MEC2 is 29.2 acres is the Eau Claire River segment between River Road and South Shore Road.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 6 and 7. Woody Habitat was sampled using a standardized transect method and a summary of the results can be found in Tables 8 and 9. 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 10 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of MEC2.

Special Note: This area is regulated as a fish refuge from April 15th to May 15th each year due to its importance to both spawning walleye and muskellunge. Large concentrations of white suckers also use the river for spawning in spring which constitutes an important part of the forage base for the lake.

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 MEC2. 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.

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.

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

Table 6. MEC2 Aquatic Plants				
Scientific Name	**Common Name**	**Plant Type**	**FQI Coefficient**	**Relative Frequency**
Carex lasiocarpa	Woolly-fruit sedge	Emergent	9	0.9
Dulichium arundinaceum	Three-way sedge	Emergent	9	Visual
Eleocharis sp	Spikerush	Emergent	-	1.2
Sagittaria sp	Arrowhead	Emergent	-	3.3
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent	4	0.6
Sparganium sp	Bur-reed	Emergent	-	0.3
Typha sp	Cattail	Emergent	1	2.7
Brasenia schreberi	Watershield	Floating Leaf	7	7.6
Nuphar variegata	Spatterdock	Floating Leaf	6	6.4
Nymphaea odorata	White water lily	Floating Leaf	6	11.6
Potamogeton natans	Floating-leaf pondweed	Floating Leaf	5	3.3
Utricularia vulgaris	Common bladderwort	Free Floating	7	2.4
Ceratophyllum demersum	Coontail	Submergent	3	7.3
Chara	Muskgrasses	Submergent	7	11.2
Eleocharis acicularis	Needle spikerush	Submergent	5	0.6
Elodea canadensis	Common waterweed	Submergent	3	7.9
Heteranthera dubia	Water star-grass	Submergent	6	1.2
Megalodonta beckii	Water marigold	Submergent	8	3.3
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	1.2
Najas flexilis	Bushy pondweed	Submergent	6	4.9
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	0.6
Potamogeton foliosus	Leafy pondweed	Submergent	6	0.3
Potamogeton gramineus	Variable pondweed	Submergent	7	0.3
Potamogeton illinoensis	Illinois pondweed	Submergent	6	0.3
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent	5	2.7
Potamogeton robbinsii	Robbins pondweed	Submergent	8	3.6
Potamogeton zosteriformis	Flat-stem pondweed	Submergent	6	4.9
Schoenoplectus subterminalis	Water bulrush	Submergent	9	3.0
Stuckenia pectinata	Sogo pondweed	Submergent	3	0.3
Vallisneria americana	Wild celery	Submergent	6	5.8

Table 7. MEC2 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**MEC2**
Total number of points sampled	94
Total number of sites with vegetation	93
Total number of sites shallower than maximum depth of plants	94
Frequency of occurrence at sites shallower than maximum depth of plants	98.936
Simpson Diversity Index	0.936
Maximum depth of plants (Feet)	9
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	94
Average number of all species per site (shallower than max depth)	3.51
Average number of all species per site (veg. sites only)	3.55
Average number of native species per site (shallower than max depth)	3.51
Average number of native species per site (veg. sites only)	3.55
Species Richness	29
Species Richness (including visuals)	30
Floristic Quality Index	31.18

Table 8. MEC2 North Woody Habitat Sampling Transects						
Transect	**# Big Logs**	**# Small Logs**	**Transect Length (feet)**	**Transect Length (m)**	**Big Logs per Mile**	**Small Logs per Mile**
MEC2 North-1	1	2	65.6	20	80.5	161.0
MEC2 North-2	1	5	65.6	20	80.5	402.4
MEC2 North-3	1	2	65.6	20	80.5	161.0
MEC2 North-4	0	0	65.6	20	0.0	0.0
MEC2 North Total	3	9	262.4	80	60.4	181.1

Table 9. MEC2 South Woody Habitat Sampling Transects						
Transect	**# Big Logs**	**# Small Logs**	**Transect Length (feet)**	**Transect Length (m)**	**Big Logs per Mile**	**Small Logs per Mile**
MEC2 South-1	0	1	98.4	30	0.0	53.7
MEC2 South-2	3	4	98.4	30	161.0	214.6
MEC2 South-3	1	4	98.4	30	53.7	214.6
MEC2 South-4	1	3	98.4	30	53.7	161.0
MEC2 South Total	5	12	393.6	120	67.1	161.0

Figure 5. MEC2 Aquatic Plant Diversity Map

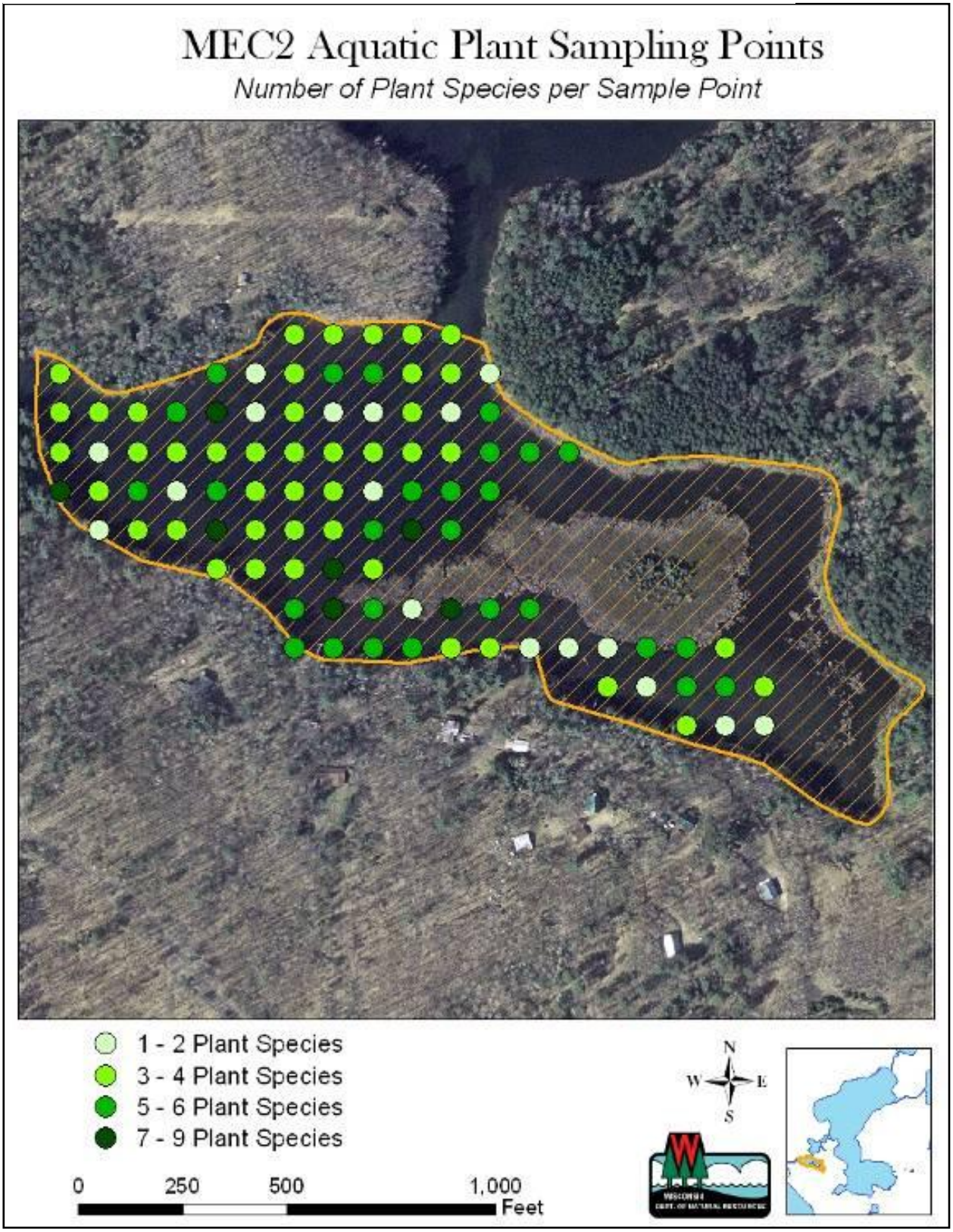


Figure 6. MEC2 Woody Habitat Transects Map

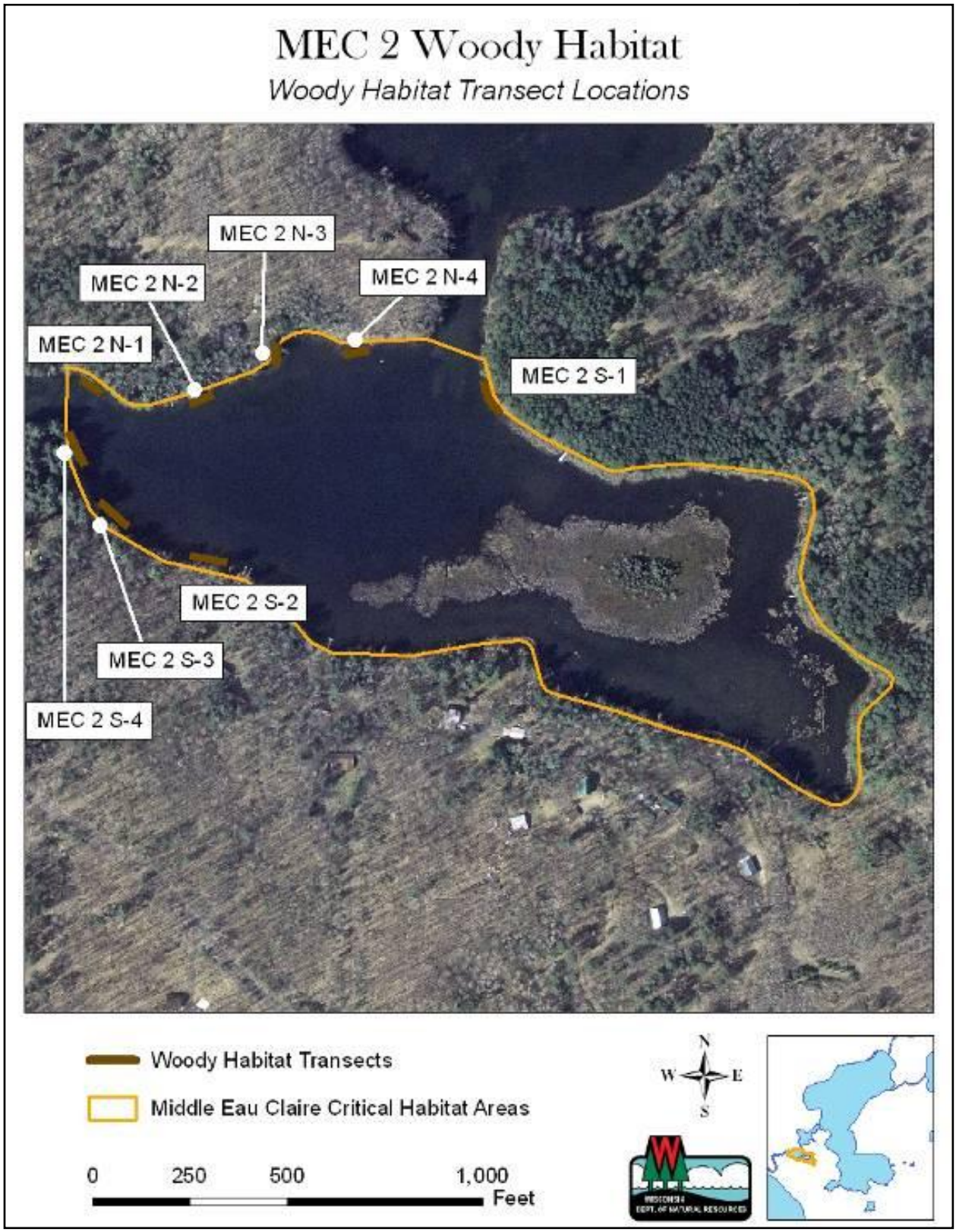


Table 10. Shoreline Assessment of MEC2				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	8	15.2		
Accessory Structures	3	5.7		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	7	13.3		
Commercial Buildings	0	0		
Natural vegetation			2526	90.6
Shrub Layer Removed			16.4	0.6
Shrub & Ground Cover Removed			0	0
Established Lawn			246	8.8
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			2788	100
Bank Zone				
Natural Bank			2755	98.8
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			33	1.2
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			2788	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	15	28.4		
Boat Lifts	2	3.8		
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		

Middle Eau Claire Lake Critical Habitat Site MEC3
Critical habitat site MEC3 is a Public Rights Feature that was designated because of its Woody Habitat and Navigational Thoroughfare. It is 1.11 acres in size and is the Eau Claire River segment located in the narrows between River Road and South Shore Road.

Woody Habitat was sampled using a standardized transect method and a summary of the results can be found in Tables 11 and 12. 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 13 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of MEC3.

Special Note: This area is regulated as a fish refuge from April 15th to May 15th each year due to its importance to both spawning walleye and muskellunge. Large concentrations of white suckers also use the river for spawning in spring which constitutes an important part of the forage base for the lake.

Prioritize for permanent land protection.

According to the shoreline inventory, there is no riprap in MEC3. 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.

Dredging should not be allowed.

Enforce current slow-no-wake ordinance.

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 11. MEC3 East Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
MEC3 East-1	0	0	32.8	10	0.0	0.0
MEC3 East-2	0	2	32.8	10	0.0	322.0
MEC3 East-3	0	3	32.8	10	0.0	482.9
MEC3 East-4	1	1	32.8	10	161.0	161.0
MEC3 East Total	1	6	131.2	40	40.2	241.5

Table 12. MEC3 West Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
MEC3 West-1	0	0	32.8	10	0.0	0.0
MEC3 West-2	3	6	32.8	10	482.9	965.9
MEC3 West-3	1	1	32.8	10	161.0	161.0
MEC3 West-4	0	1	32.8	10	0.0	161.0
MEC3 West Total	4	8	131.2	40	161.0	322.0

Figure 7. MEC3 Woody Habitat Transects Map

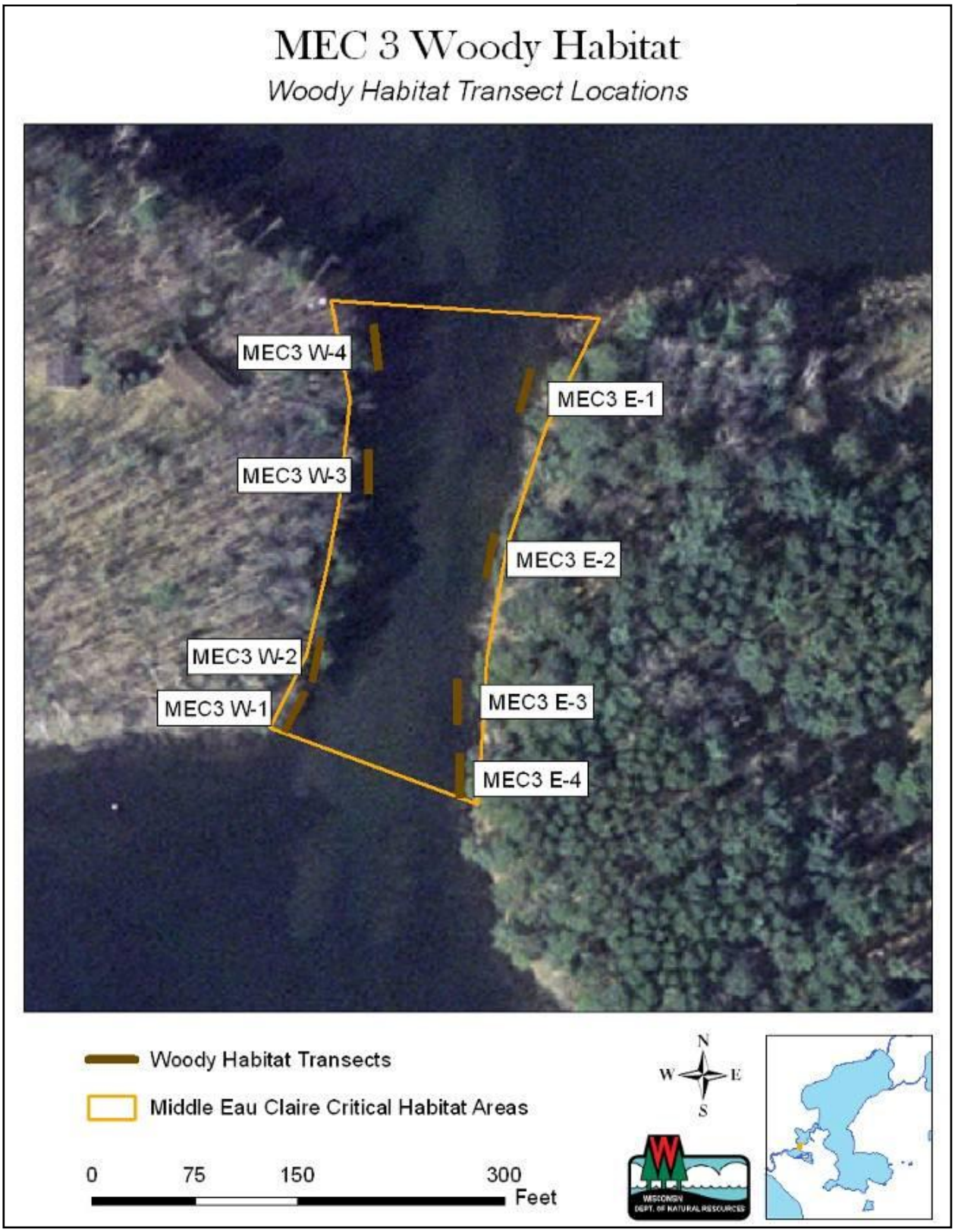


Table 13. Shoreline Assessment of MEC3				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			705	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			705	100
Bank Zone				
Natural Bank			705	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			705	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		

Middle Eau Claire Lake Critical Habitat Site MEC4

Critical habitat site MEC4 is a Sensitive Area that was designated because of its Bio-Diverse Submerged Aquatic Vegetation, Emergent and Floating Leaf Vegetation, Extensive Riparian Wetland, Woody Habitat, and Navigational Thoroughfare. MEC4 is 31.3 acres in size and includes the Eau Claire River from Middle Eau Claire Lake to the narrow section downstream of River Road.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 14 and 15. Woody Habitat was sampled using a standardized transect method and a summary of the results can be found in Tables 16 and 17. 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 18 summarizes the current management practices within the Setback, Riparian, Bank, and Littoral Zones of MEC4.

Special Note: This area is regulated as a fish refuge from April 15th to May 15th each year due to its importance to both spawning walleye and muskellunge. Large concentrations of white suckers also use the river for spawning in spring which constitutes an important part of the forage base for the lake.

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 no riprap in MEC4. 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.

Do not alter or disturb wetland by filling, excavation, and/or placing structures such as boardwalks.

Dredging should not be allowed.

Enforce current slow-no-wake ordinance.

Unless an aquatic invasive plant species appears, limit aquatic plant control to manual removal (i.e. only hand removal or raking, no herbicides nor mechanical devices) for a navigation lane up to 30 feet wide to access piers.

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 14. MEC4 Aquatic Plants				
Scientific Name	**Common Name**	**Plant Type**	**FQI Coefficient**	**Relative Frequency**
Dulichium arundinaceum	Three-way sedge	Emergent	9	0.3
Equisetum fluviatile	Water horsetail	Emergent	7	0.8
Sagittaria sp	Arrowhead	Emergent	-	6.9
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent	4	0.3
Sparganium natans	Small bur-reed	Emergent	5	0.3
Typha sp	Cattail	Emergent	1	2.8
Brasenia schreberi	Watershield	Floating Leaf	7	4.3
Nuphar variegata	Spatterdock	Floating Leaf	6	3.6
Nymphaea odorata	White water lily	Floating Leaf	6	8.9
Potamogeton natans	Floating-leaf pondweed	Floating Leaf	5	4.8
Utricularia gibba	Creeping bladderwort	Free Floating	9	0.5
Utricularia vulgaris	Common bladderwort	Free Floating	7	0.3
Ceratophyllum demersum	Coontail	Submergent	3	1.3
Chara	Muskgrasses	Submergent	7	17.6
Eleocharis acicularis	Needle spikerush	Submergent	5	1.0
Elodea canadensis	Common waterweed	Submergent	3	8.9
Heteranthera dubia	Water star-grass	Submergent	6	4.1
Megalodonta beckii	Water marigold	Submergent	8	4.8
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	1.3
Najas flexilis	Bushy pondweed	Submergent	6	2.8
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	0.8
Potamogeton epihydrus	Ribbon-leaf pondweed	Submergent	8	Visual
Potamogeton gramineus	Variable pondweed	Submergent	7	0.8
Potamogeton pusillus	Small pondweed	Submergent	7	3.6
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent	5	1.0
Potamogeton robbinsii	Robbins pondweed	Submergent	8	2.3
Potamogeton zosteriformis	Flat-stem pondweed	Submergent	6	7.9
Ranunculus aquatilis	Stiff water crowfoot	Submergent	7	0.3
Vallisneria americana	Wild celery	Submergent	6	8.1

Table 15. MEC4 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**MEC4**
Total number of points sampled	116
Total number of sites with vegetation	112
Total number of sites shallower than maximum depth of plants	116
Frequency of occurrence at sites shallower than maximum depth of plants	96.55
Simpson Diversity Index	0.922
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)	116
Average number of all species per site (shallower than max depth)	3.42
Average number of all species per site (veg. sites only)	3.54
Average number of native species per site (shallower than max depth)	3.42
Average number of native species per site (veg. sites only)	3.54
Species Richness	28
Species Richness (including visuals)	29
Floristic Quality Index	32.50

Table 16. MEC4 Northwest Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
MEC4 NW-1	2	1	164	50	64.4	32.2
MEC4 NW-2	1	9	164	50	32.2	289.8
MEC4 NW-3	1	3	164	50	32.2	96.6
MEC4 NW-4	1	8	164	50	32.2	257.6
MEC4 NW Total	5	21	656	200	40.2	169.0

Table 17. MEC4 Southeast Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
MEC4 SE-1	0	1	164	50	0.0	32.2
MEC4 SE-2	0	5	164	50	0.0	161.0
MEC4 SE-3	0	6	164	50	0.0	193.2
MEC4 SE-4	4	6	164	50	128.8	193.2
MEC4 SE Total	4	18	656	200	32.2	144.9

Figure 8. MEC4 Aquatic Plant Diversity Map

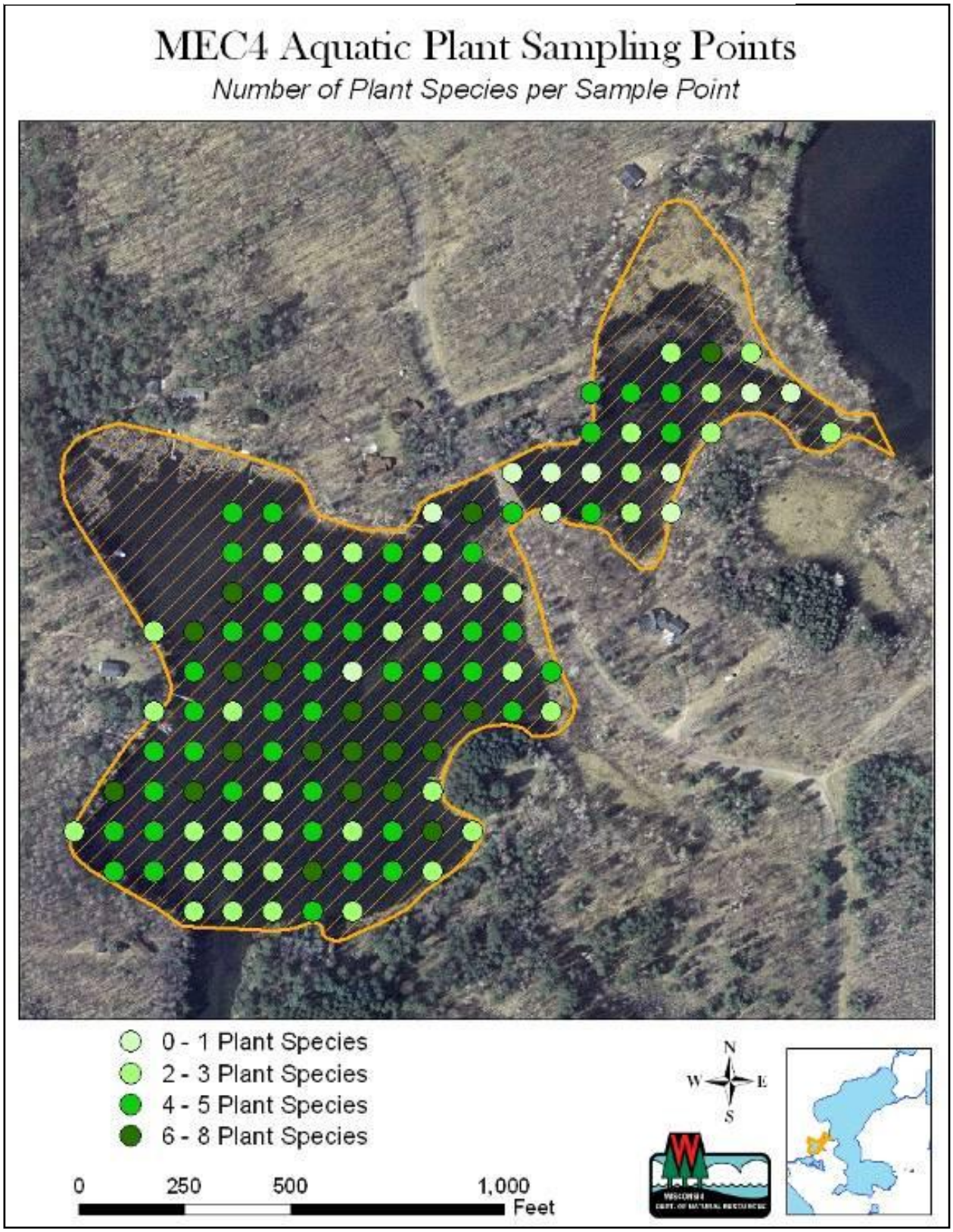


Figure 9. MEC4 Woody Habitat Transects Map

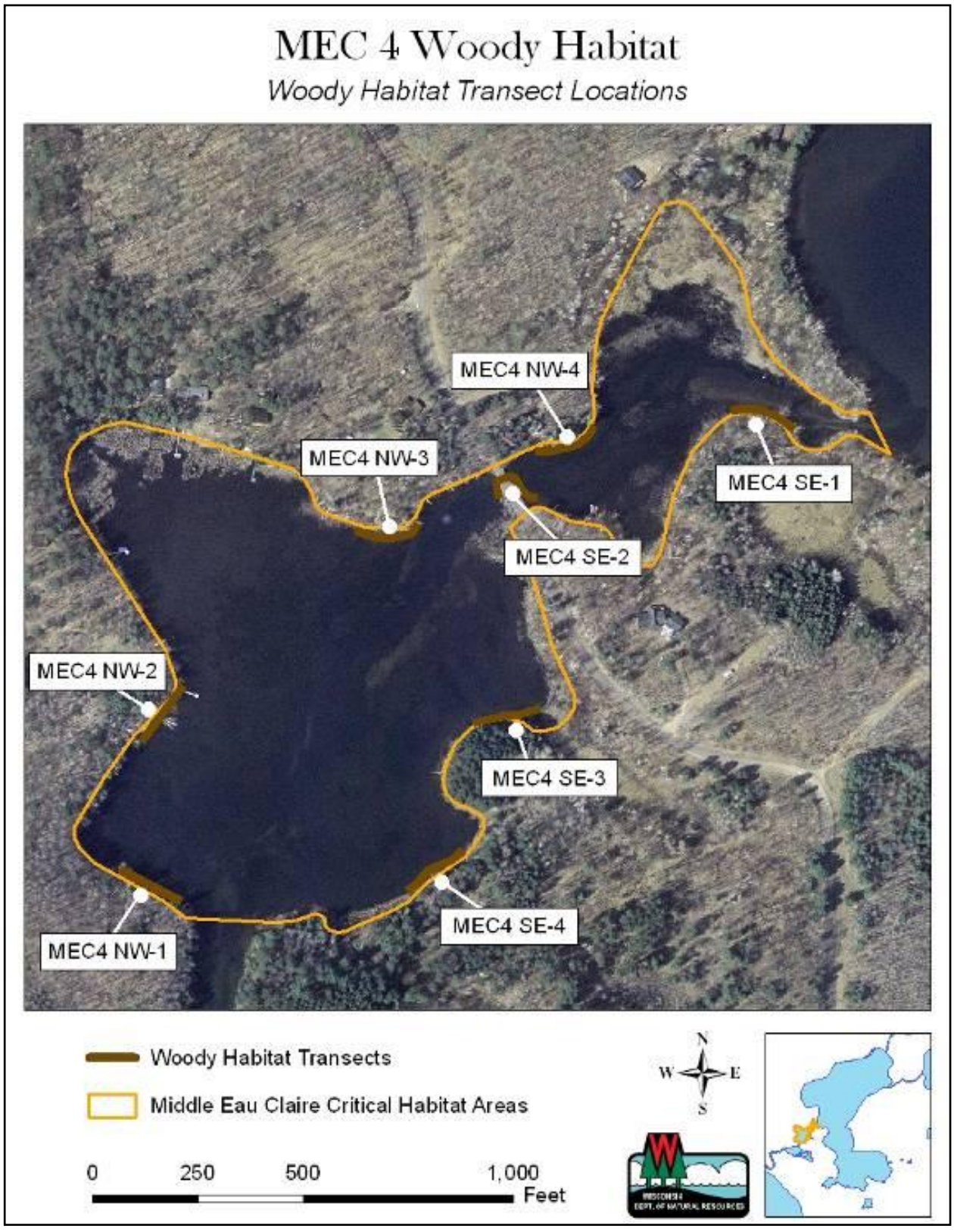


Table 18. Shoreline Assessment of MEC4				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	12	9.8		
Accessory Structures	5	4.1		
Commercial Buildings	0	0		
Riparian Zone				
Homes	4	3.3		
Accessory Structures	8	6.5		
Commercial Buildings	0	0		
Natural vegetation			5849	90.5
Shrub Layer Removed			66	1.0
Shrub & Ground Cover Removed			82	1.3
Established Lawn			335	5.2
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			130	2.0
Other			0	0
Not Visible			0	0
Total Shoreline			6462	100
Bank Zone				
Natural Bank			6412	99.2
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			50	0.8
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			6462	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	17	13.9		
Boat Lifts	4	3.3		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	1	0.8		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Middle Eau Claire Lake Critical Habitat Site MEC5
Critical habitat site MEC5 is a Sensitive Area that was designated because of its Extensive Rush Bed, Emergent and Floating Leaf Vegetation and Extensive Riparian Wetland. MEC5 is 12.7 acres in size and is located just south of the Public Access.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 19 and 20. Table 21 summarizes the current management practices within the Setback, Riparian, Bank, and Littoral Zones of MEC5.

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.

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.

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

Table 19. MEC5 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Alnus sp	Alder	Emergent	-	0.9
Eleocharis palustris	Creeping spikerush	Emergent	6	4.3
Myrica gale	Sweet gale	Emergent	9	0.9
Schoenoplectus acutus	Hardstem bulrush	Emergent	5	18.8
Typha sp	Cattail	Emergent	1	1.7
Nuphar variegata	Spatterdock	Floating Leaf	6	5.1
Nymphaea odorata	White water lily	Floating Leaf	6	4.3
Potamogeton natans	Floating-leaf pondweed	Floating Leaf	5	0.9
Ceratophyllum demersum	Coontail	Submergent	3	1.7
Chara	Muskgrasses	Submergent	7	6.8
Elodea canadensis	Common waterweed	Submergent	3	8.5
Heteranthera dubia	Water star-grass	Submergent	6	5.1
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	1.7
Najas flexilis	Bushy pondweed	Submergent	6	17.1
Potamogeton foliosus	Leafy pondweed	Submergent	6	17.1
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent	5	0.9
Potamogeton robbinsii	Robbins pondweed	Submergent	8	Visual
Potamogeton zosteriformis	Flat-stem pondweed	Submergent	6	Visual
Stuckenia pectinata	Sogo pondweed	Submergent	3	2.6
Vallisneria americana	Wild celery	Submergent	6	1.7

Table 20. MEC5 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**MEC5**
Total number of points sampled	74
Total number of sites with vegetation	59
Total number of sites shallower than maximum depth of plants	74
Frequency of occurrence at sites shallower than maximum depth of plants	79.72973
Simpson Diversity Index	0.883191
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)	74
Average number of all species per site (shallower than max depth)	1.58
Average number of all species per site (veg. sites only)	1.98
Average number of native species per site (shallower than max depth)	1.58
Average number of native species per site (veg. sites only)	1.98
Species Richness	18
Species Richness (including visuals)	20
Floristic Quality Index	23.86

Figure 10. MEC5 Aquatic Plant Diversity Map

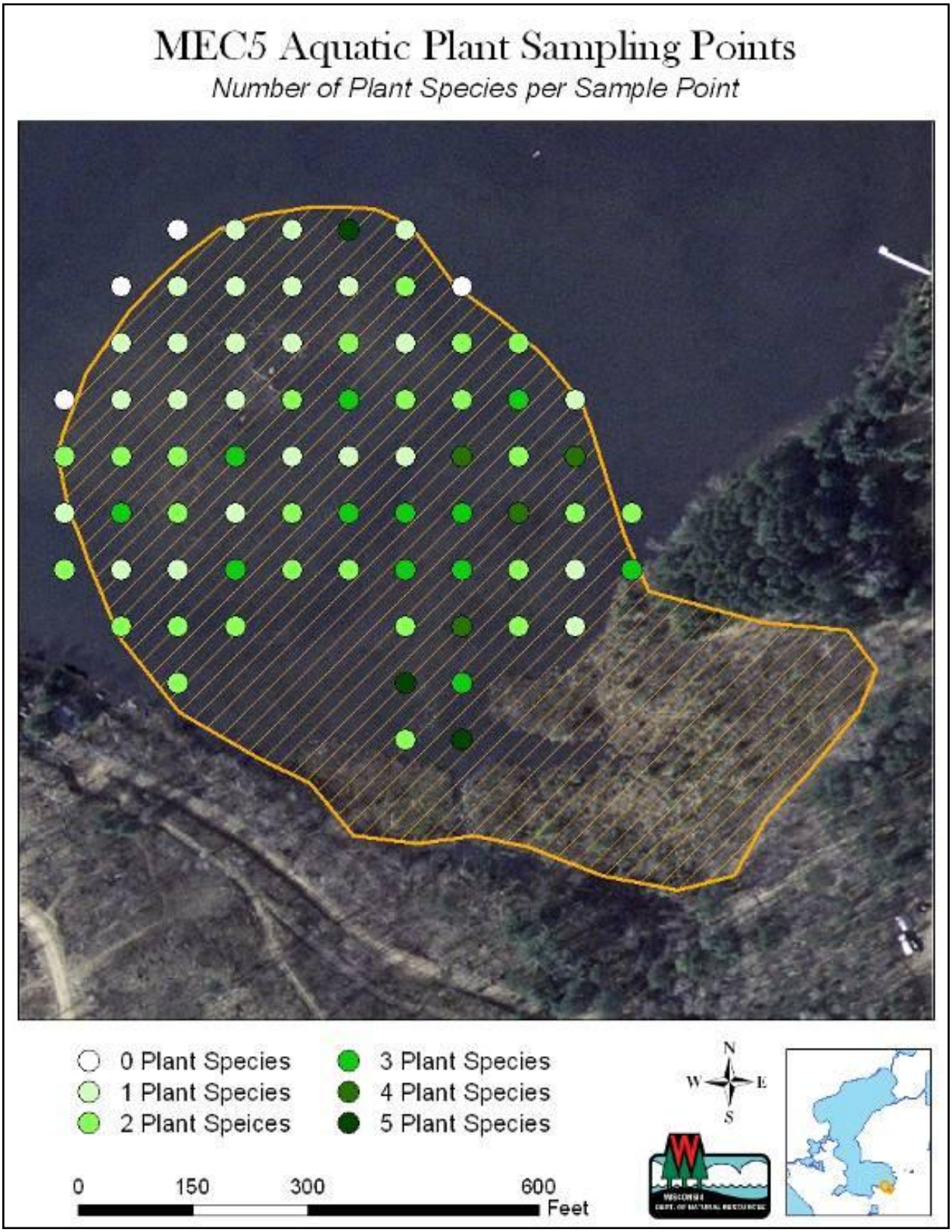


Figure 11. MEC5 Aquatic Plant Diversity Map

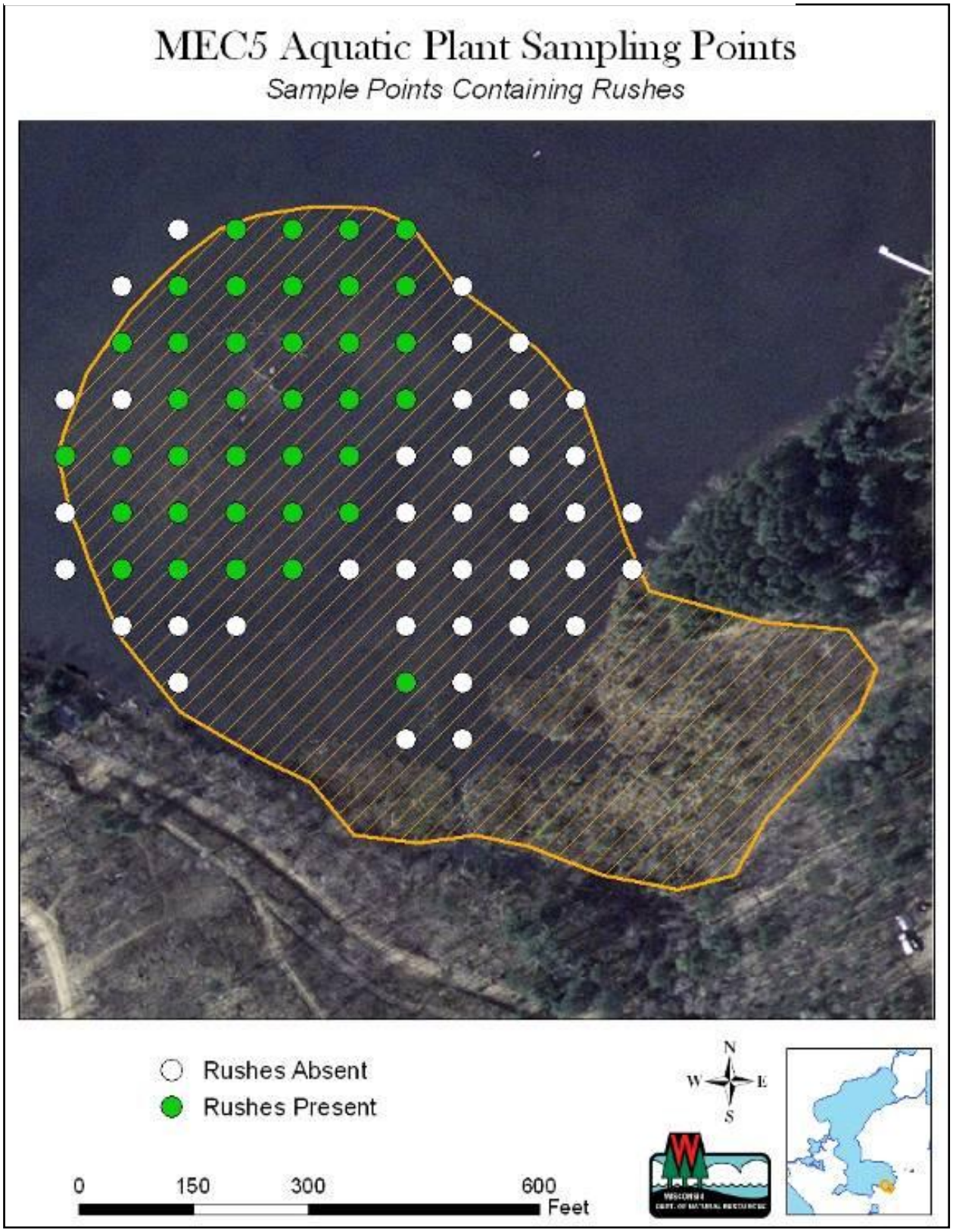


Table 21. Shoreline Assessment of MEC5				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	0	0		
Accessory Structures	1	7.5		
Commercial Buildings	0	0		
Riparian Zone				
Homes	1	7.5		
Accessory Structures	4	30.0		
Commercial Buildings	0	0		
Natural vegetation			540	76.6
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			165	23.4
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			705	100
Bank Zone				
Natural Bank			575	81.6
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			130	18.4
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			705	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	1	7.5		
Boat Lifts	1	7.5		
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		

Middle Eau Claire Lake Critical Habitat Site MEC6
Critical habitat site MEC6 is a Sensitive Area that was designated because of its Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat, Emergent and Floating Leaf Vegetation, and Extensive Riparian Wetland. MEC6 is 5.6 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 22 and 23. Table 24 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of MEC 6.

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 MEC6. The wave energy is moderate. Riprap should not be permitted, and alternative bank stabilization methods should be used instead if evidence of erosion develops.

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

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

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

Table 22. MEC6 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Typha sp	Cattail	Emergent	1	Visual
Nuphar variegata	Spatterdock	Floating Leaf	6	2.1
Nymphaea odorata	White water lily	Floating Leaf	6	1.0
Ceratophyllum demersum	Coontail	Submergent	3	17.7
Chara	Muskgrasses	Submergent	7	4.2
Elodea canadensis	Common waterweed	Submergent	3	27.1
Heteranthera dubia	Water star-grass	Submergent	6	3.1
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	3.1
Myriophyllum tenellum	Dwarf water-milfoil	Submergent	10	2.1
Najas flexilis	Bushy pondweed	Submergent	6	7.3
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	1.0
Potamogeton foliosus	Leafy pondweed	Submergent	6	3.1
Potamogeton illinoensis	Illinois pondweed	Submergent	6	1.0
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent	5	2.1
Potamogeton robbinsii	Robbins pondweed	Submergent	8	3.1
Potamogeton zosteriformis	Flat-stem pondweed	Submergent	6	12.5
Vallisneria americana	Wild celery	Submergent	6	9.4

Table 23. MEC6 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**MEC6**
Total number of points sampled	49
Total number of sites with vegetation	38
Total number of sites shallower than maximum depth of plants	49
Frequency of occurrence at sites shallower than maximum depth of plants	77.55102
Simpson Diversity Index	0.85829
Maximum depth of plants (Feet)	14
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	49
Average number of all species per site (shallower than max depth)	1.96
Average number of all species per site (veg. sites only)	2.53
Average number of native species per site (shallower than max depth)	1.96
Average number of native species per site (veg. sites only)	2.53
Species Richness	16
Species Richness (including visuals)	17
Floristic Quality Index	24.01

Figure 12. MEC6 Aquatic Plant Diversity Map

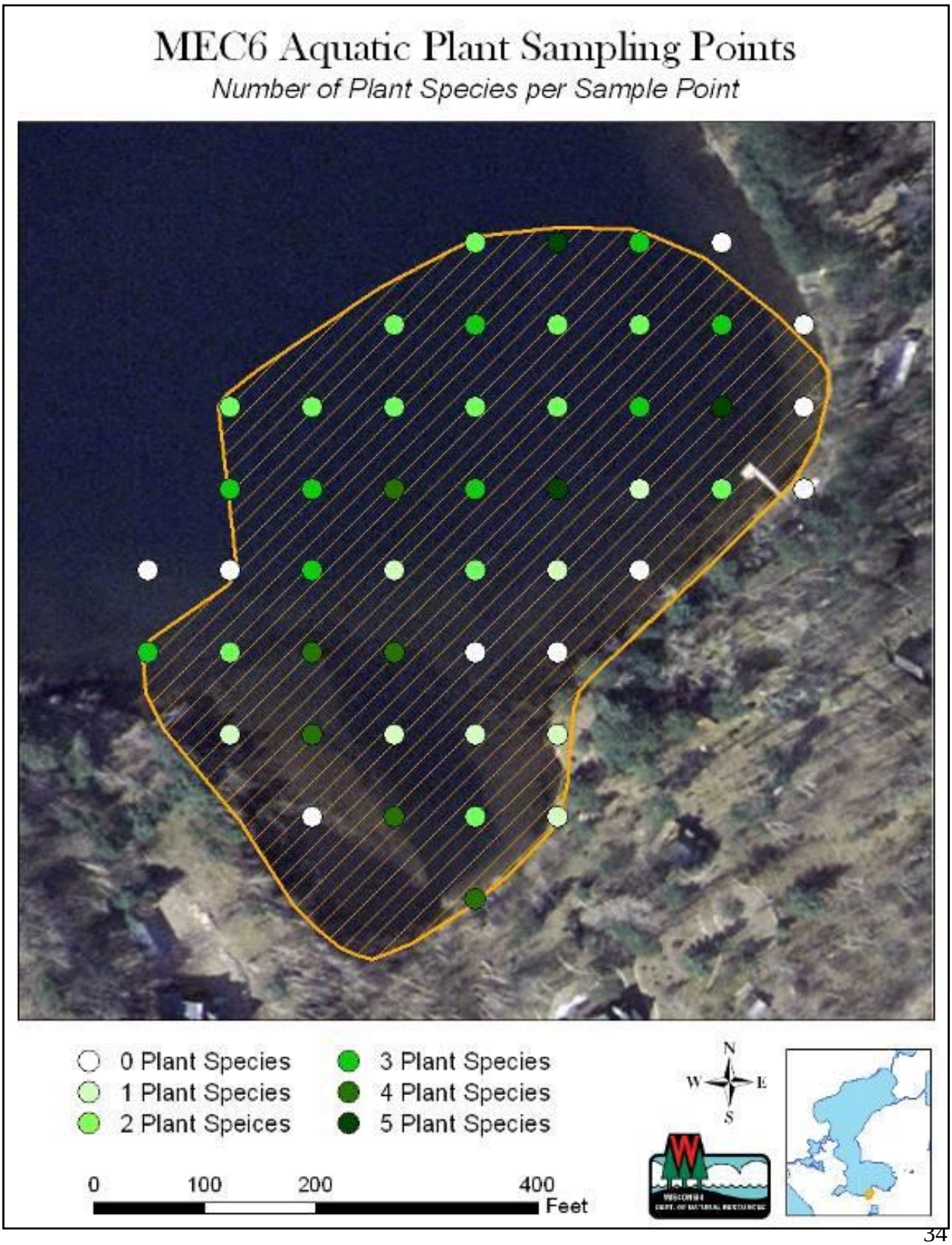


Table 24. Shoreline Assessment of MEC6				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	7	41.8		
Accessory Structures	5	29.8		
Commercial Buildings	0	0		
Riparian Zone				
Homes	1	6.0		
Accessory Structures	11	65.6		
Commercial Buildings	0	0		
Natural vegetation			541	61.1
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			180	20.3
Established Lawn			164	18.5
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			885	100
Bank Zone				
Natural Bank			804	90.8
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			66	7.5
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			15	1.7
Seawalls			0	0
Total Shoreline			885	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	7	41.8		
Boat Lifts	4	23.9		
Swims Rafts/ Trampolines	1	6.0		
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		

Middle Eau Claire Lake Critical Habitat Site MEC7
Critical habitat site MEC7 is a Sensitive Area that was designated because of its Submerged Aquatic Vegetation Important for Fish and Wildlife Habitat, Emergent and Floating Leaf Vegetation, and Extensive Riparian Wetland. MEC7 is 21.5 acres in size and is located in the bay on the Southwest area of the lake.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 25 and 26. Table 27 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of MEC7.

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.

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

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

Table 25. MEC7 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Carex sp	Sedges	Emergent	-	0.6
Eleocharis palustris	Creeping spikerush	Emergent	6	0.6
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent	4	1.2
Typha sp	Cattail	Emergent	1	0.6
Nuphar variegata	Spatterdock	Floating Leaf	6	0.6
Nymphaea odorata	White water lily	Floating Leaf	6	2.4
Potamogeton natans	Floating-leaf pondweed	Floating Leaf	5	0.6
Ceratophyllum demersum	Coontail	Submergent	3	10.7
Chara	Muskgrasses	Submergent	7	0.6
Elodea canadensis	Common waterweed	Submergent	3	17.2
Megalodonta beckii	Water marigold	Submergent	8	8.9
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	5.9
Najas flexilis	Bushy pondweed	Submergent	6	3.6
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	5.3
Potamogeton robbinsii	Robbins pondweed	Submergent	8	3.6
Potamogeton zosteriformis	Flat-stem pondweed	Submergent	6	14.8
Vallisneria americana	Wild celery	Submergent	6	23.1

Table 26. MEC7 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**MEC7**
Total number of points sampled	91
Total number of sites with vegetation	70
Total number of sites shallower than maximum depth of plants	91
Frequency of occurrence at sites shallower than maximum depth of plants	76.92308
Simpson Diversity Index	0.866426
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)	93
Average number of all species per site (shallower than max depth)	1.87
Average number of all species per site (veg. sites only)	2.43
Average number of native species per site (shallower than max depth)	1.87
Average number of native species per site (veg. sites only)	2.43
Species Richness	17
Species Richness (including visuals)	17
Floristic Quality Index	22.25

Figure 13. MEC7 Aquatic Plant Diversity Map

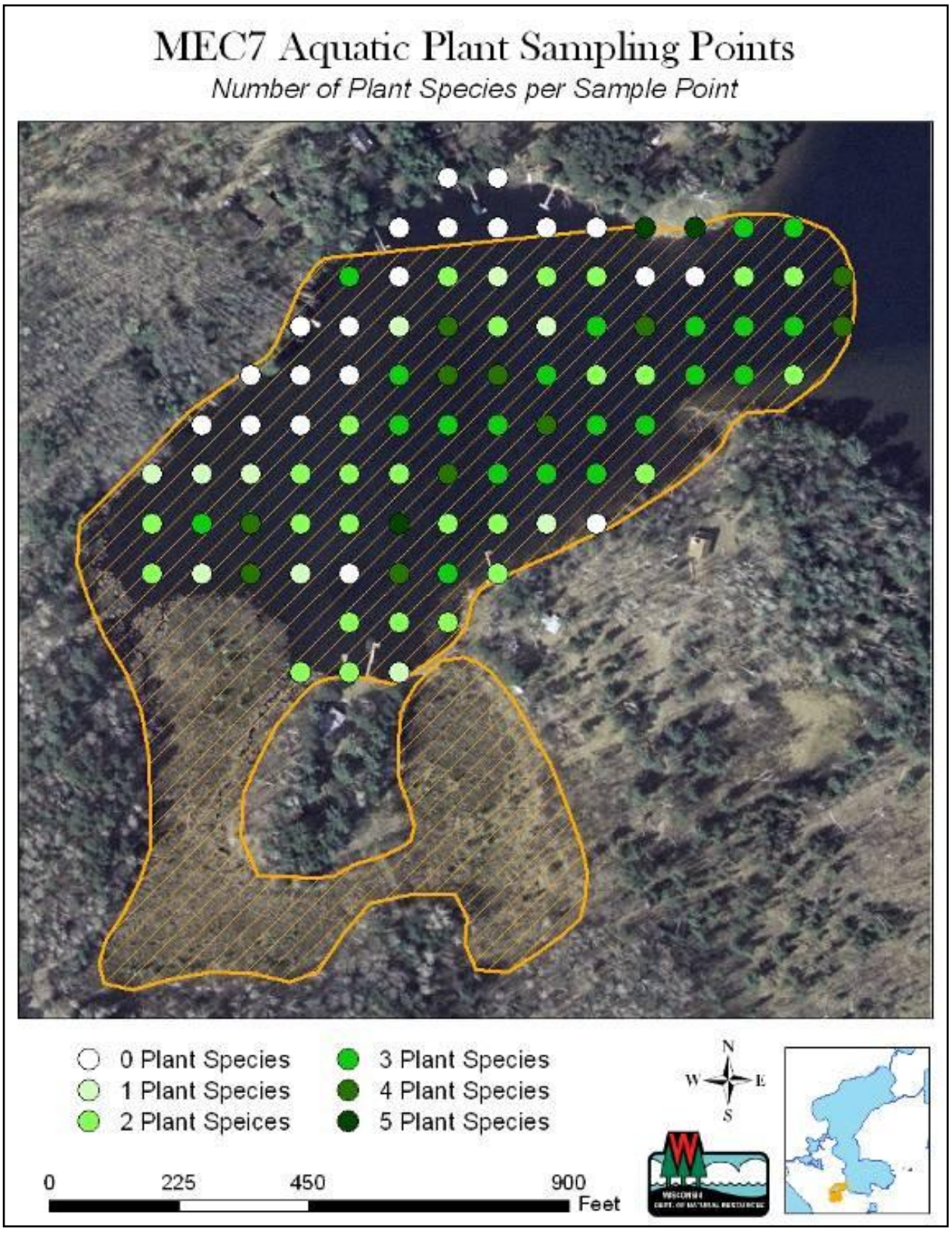


Table 27. Shoreline Assessment of MEC7				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	9	15.7		
Accessory Structures	8	14.0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	1	1.7		
Accessory Structures	6	10.5		
Commercial Buildings	0	0		
Natural vegetation			2493	82.6
Shrub Layer Removed			279	9.2
Shrub & Ground Cover Removed			0	0
Established Lawn			197	6.5
Pastureland			0	0
Row Crop			0	0
Beach			49	1.6
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			3018	100
Bank Zone				
Natural Bank				
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn				
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			3975	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	11	19.2		
Boat Lifts	6	10.5		
Swims Rafts/ Trampolines	1	1.7		
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		

Middle Eau Claire Lake Critical Habitat Site MEC8
Critical habitat site MEC8 is a Sensitive Area that was designated because of its Rush Beds, Woody Habitat, and Extensive Riparian Wetland. MEC8 is 8.5 acres in size and is located along a point on the West side of Middle Eau Claire Lake across from 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 28 and 29. Woody Habitat was sampled using a standardized transect method and a summary of the results can be found in Table 30. 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 31 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of MEC8.

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.

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.

Table 28. MEC8 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent	4	17.5
Typha sp	Cattail	Emergent	1	Visual
Ceratophyllum demersum	Coontail	Submergent	3	10.5
Chara	Muskgrasses	Submergent	7	1.8
Elodea canadensis	Common waterweed	Submergent	3	3.5
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	19.3
Najas flexilis	Bushy pondweed	Submergent	6	22.8
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	3.5
Potamogeton foliosus	Leafy pondweed	Submergent	6	1.8
Potamogeton zosteriformis	Flat-stem pondweed	Submergent	6	7.0
Schoenoplectus subterminalis	Water bulrush	Submergent	9	3.5
Vallisneria americana	Wild celery	Submergent	6	8.8

Table 29. MEC8 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**MEC8**
Total number of points sampled	55
Total number of sites with vegetation	32
Total number of sites shallower than maximum depth of plants	55
Frequency of occurrence at sites shallower than maximum depth of plants	58.18182
Simpson Diversity Index	0.851954
Maximum depth of plants (Feet)	14
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)	1.04
Average number of all species per site (veg. sites only)	1.78
Average number of native species per site (shallower than max depth)	1.04
Average number of native species per site (veg. sites only)	1.78
Species Richness	11
Species Richness (including visuals)	12
Floristic Quality Index	18.76

Table 30. MEC8 Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
MEC8-1	0	0	131.2	40	0.0	0.0
MEC8-2	2	3	131.2	40	80.5	120.7
MEC8-3	2	2	131.2	40	80.5	80.5
MEC8-4	2	3	131.2	40	80.5	120.7
MEC8 Total	6	8	524.8	160	60.4	80.5

Figure 14. MEC8 Aquatic Plant Diversity Map

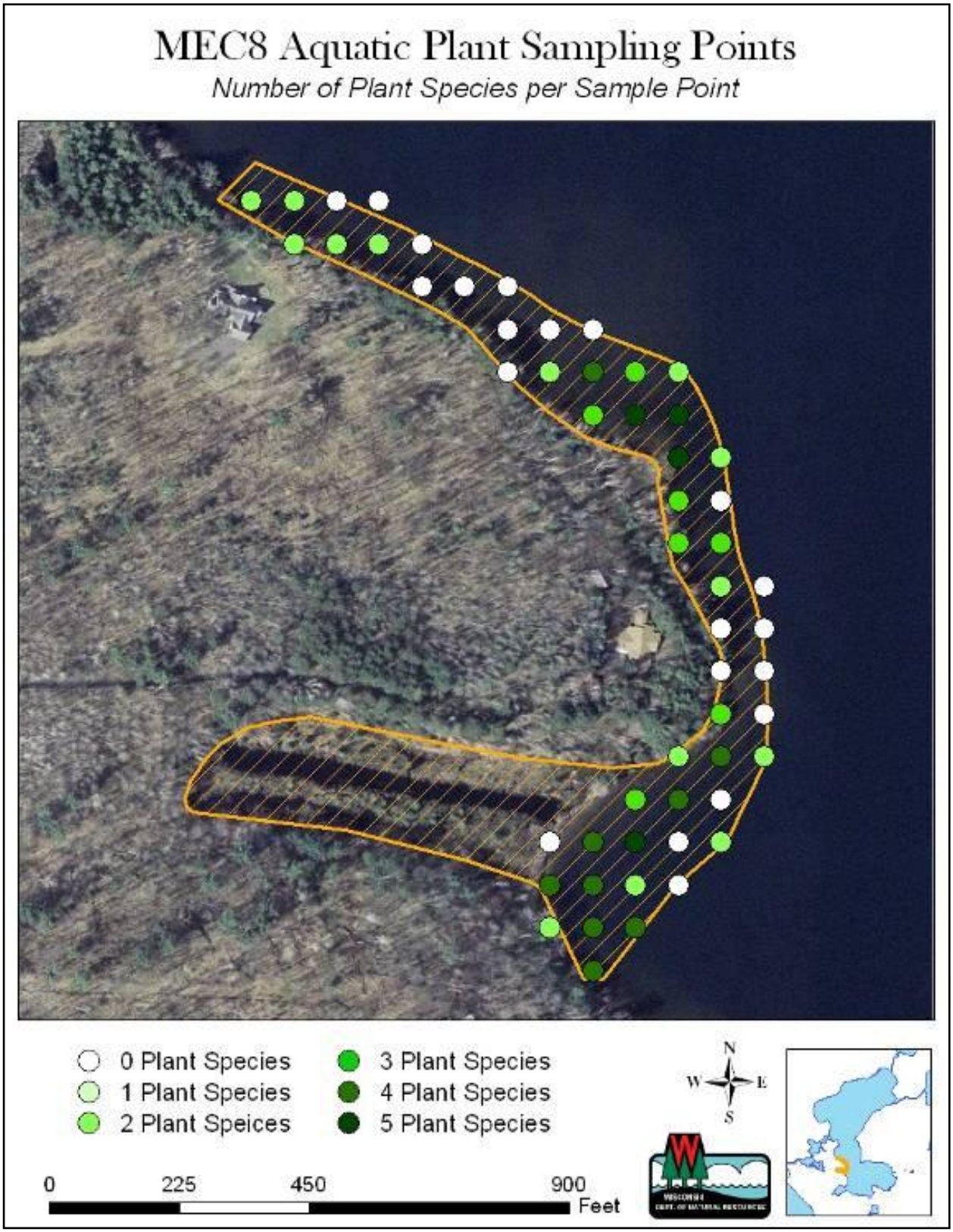


Figure 15. MEC8 Aquatic Plant Diversity Map

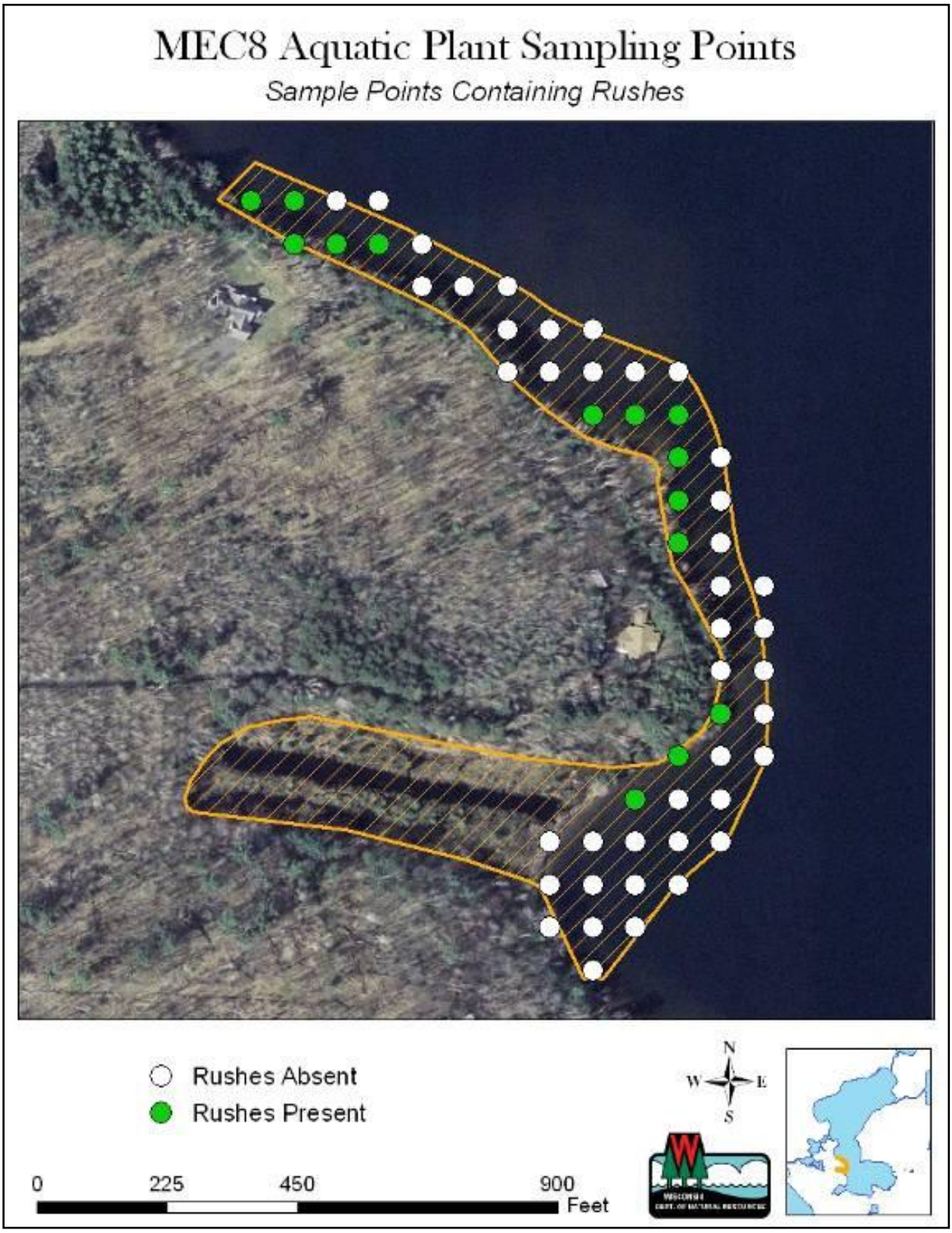


Figure 16. MEC1 Woody Habitat Transects Map

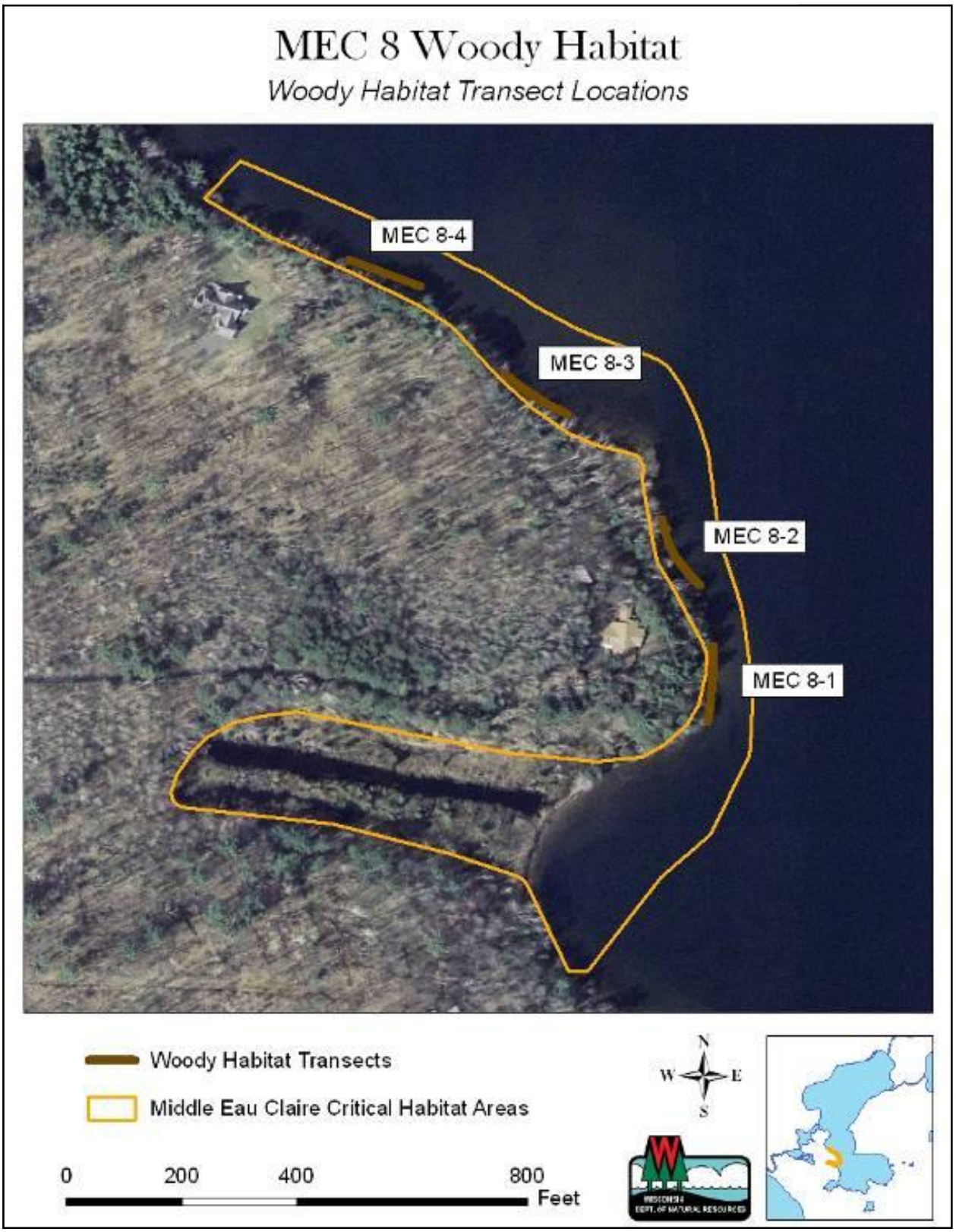


Table 31. Shoreline Assessment of MEC 8				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	2			
Accessory Structures	1			
Commercial Buildings	0	0		
Riparian Zone				
Homes	0			
Accessory Structures	1			
Commercial Buildings	0	0		
Natural vegetation			1788	88.6
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			0	0
Established Lawn			230	11.4
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			2017	100
Bank Zone				
Natural Bank			1902	94.3
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			115	5.7
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			2017	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	3	7.9		
Boat Lifts	3	7.9		
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		

Middle Eau Claire Lake Critical Habitat Site MEC 9
Critical habitat site MEC9 is a Sensitive Area that was designated because of its Rush Beds. MEC9 is 1.3 acres in size and is located along the Western shore of Middle Eau Claire Lake near the outlet.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 32 and 33. Table 34 summarizes the current management practices within the Setback, Riparian, Bank, and Littoral Zones of MEC 9.

Prioritize for permanent land protection.

According to the shoreline inventory, there is no riprap in MEC 9, and it is not necessary because the rushes are already providing superior shoreline protection. 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.

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

Table 32. MEC9 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent	4	55.0
Eleocharis acicularis	Needle spikerush	Submergent	5	15.0
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	10.0
Najas flexilis	Bushy pondweed	Submergent	6	5.0
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	5.0
Potamogeton gramineus	Variable pondweed	Submergent	7	10.0

Table 33. MEC9 Aquatic Plant Sampling Summary Statistics

SUMMARY STATISTICS	MEC9
Total number of points sampled	16
Total number of sites with vegetation	13
Total number of sites shallower than maximum depth of plants	15
Frequency of occurrence at sites shallower than maximum depth of plants	86.67
Simpson Diversity Index	0.65
Maximum depth of plants (Feet)	4
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)	1.33
Average number of all species per site (veg. sites only)	1.54
Average number of native species per site (shallower than max depth)	1.33
Average number of native species per site (veg. sites only)	1.54
Species Richness	6
Species Richness (including visuals)	6
Floristic Quality Index	14.70

Figure 17. MEC9 Aquatic Plant Diversity Map

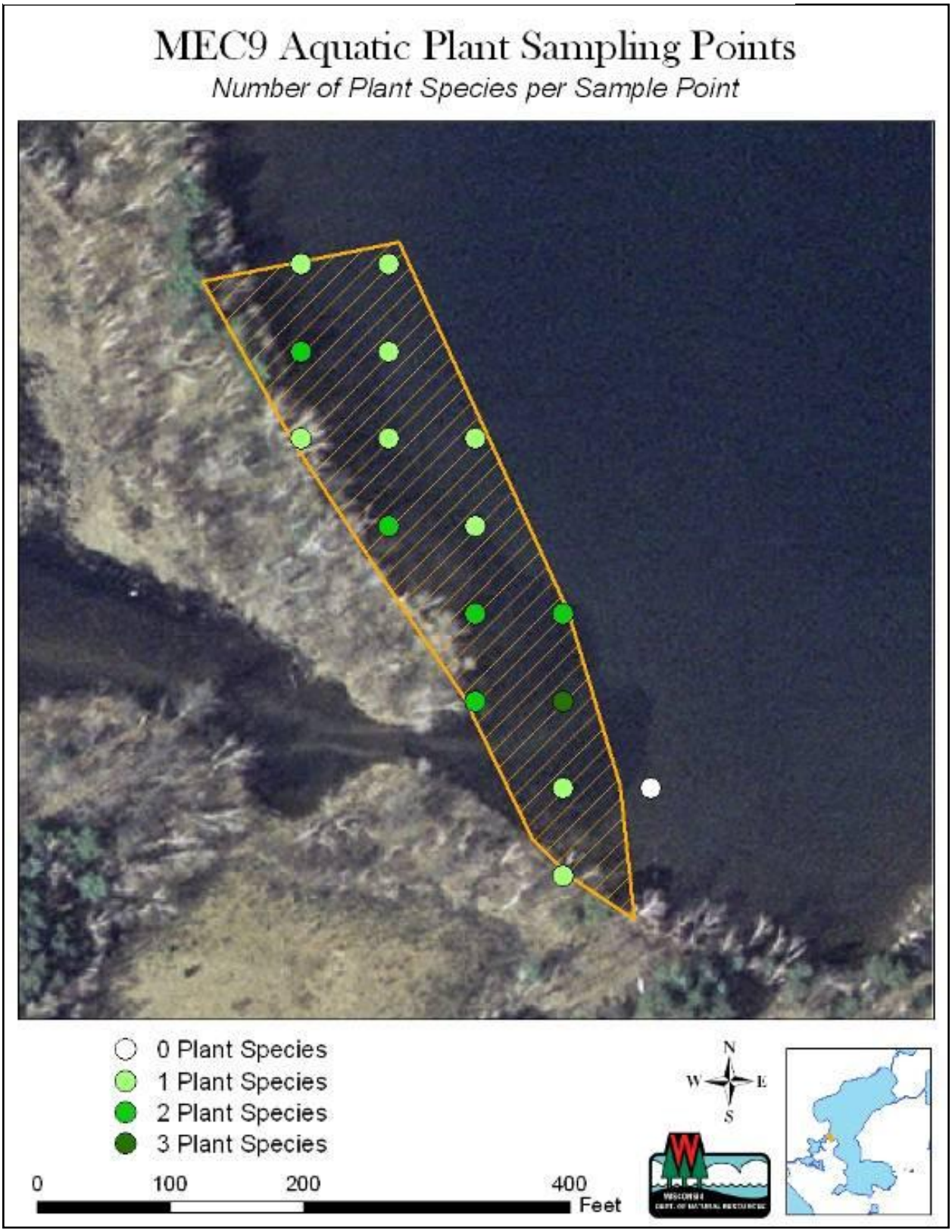


Figure 18. MEC9 Rushes Map

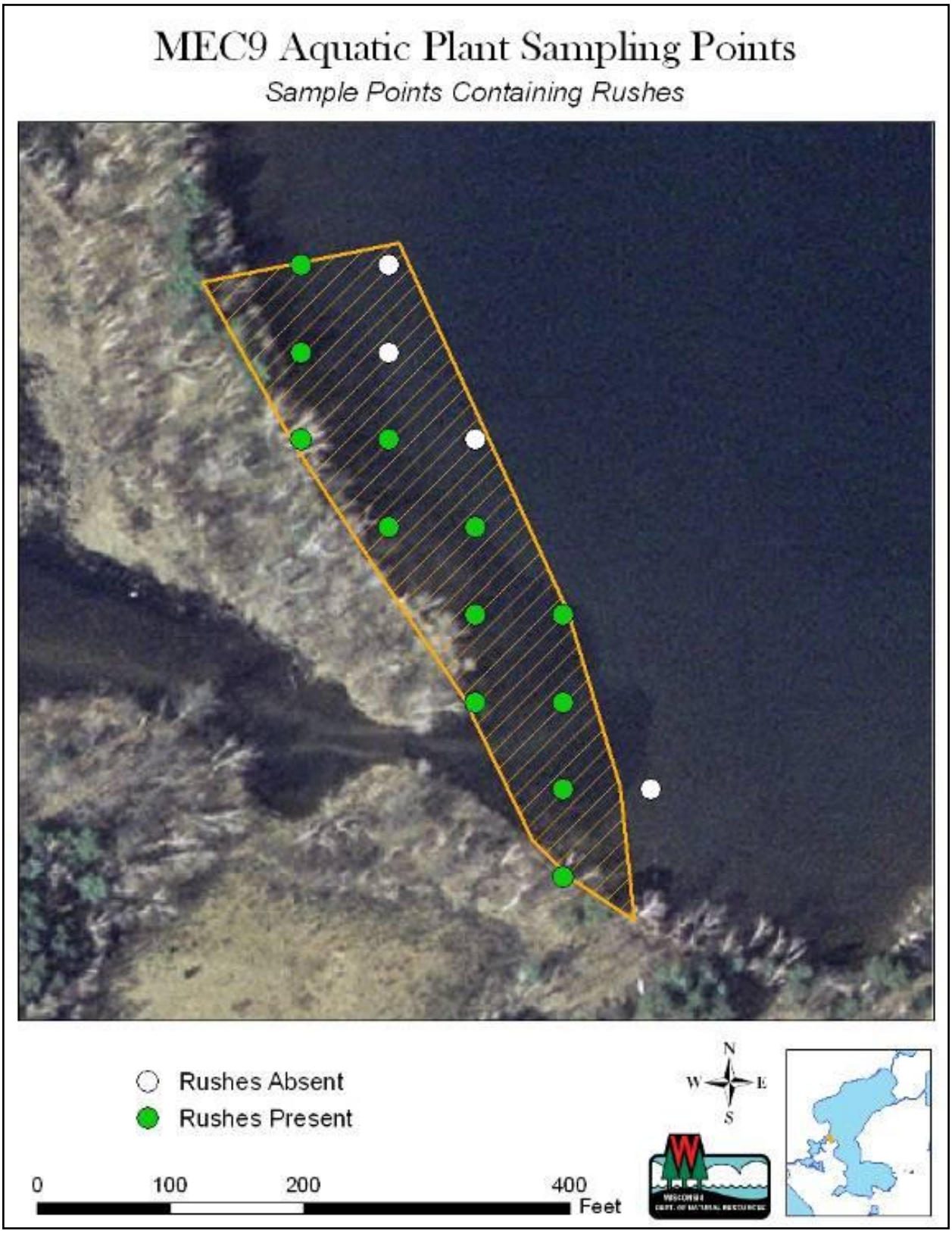


Table 34. Shoreline Assessment of MEC9				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			525	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			525	100
Bank Zone				
Natural Bank			525	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			525	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		

Middle Eau Claire Lake Critical Habitat Site MEC10
Critical habitat site MEC10 Public Rights Feature that was designated because of its Spawning Substrate. MEC10 is 16.7 acres in size and located along the long shallow point on the West side of Middle Eau Claire Lake. This site is a premier walleye spawning area for the lake.

Spawning Substrate was sampled using a standardized transect method and a summary of the results can be found in Table 35. Table 36 summarizes the current management practices within the Setback, Riparian, Bank, and Littoral Zones of MEC 10.

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 a little riprap in MEC10, 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 35. MEC10 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	3	3	3					30	30	40				
1	2	3	4	1	1					50		50				
1	3	4	7	3	1					60	20	20				
1	4	7	15	8						100						
2	1	0	1.3	1.3	2					40		60				
2	2	1.3	3.4	2.1	4					10	30	60				
2	3	3.4	14	10.6						100						
2	4	14	15	1	1					50	50					
3	1	0	3	3	2					20	20	60				
3	2	3	5	2	2					30	20	50				
3	3	5	15	10	4					95		5				
4	1	0	2	2	3					15	10	75				
4	2	2	3.5	1.5	4					10	10	80				
4	3	3.5	6	2.5	2					50	30	20				
4	4	6	8.3	2.3	4					70	25	5				
4	5	8.3	15	6.7	1					95		5				
5	1	0	10	10	5				20	30	40	10				
5	2	10	15	5						100						
6	1	0	0.7	0.7	2					20			80			
6	2	0.7	15	14.3						100						
7	1	0	1.3	1.3	2					40			60			
7	2	1.3	4.5	3.2	2					95		5				
7	3	4.5	7.8	3.3	2					30	50	20				
7	4	7.8	15	7.2						100						
8	1	0	1.5	1.5	5					5			95			
8	2	1.5	7.5	6	1					85	10	5				
8	3	7.5	11.5	4	2					40	10	50				
8	4	11.5	15	3.5	1					95	5					
9	1	0	1.5	1.5										50	50	
9	2	1.5	3	1.5						100						
9	3	3	10	7			100									
9	4	10	15	5						100						
10	1	0	1	1	5								90		10	
10	2	1	2.5	1.5	2					90	10					
10	3	2.5	15	12.5	1					95	5					

Figure 19. MEC10 Spawning Substrate Transects Map

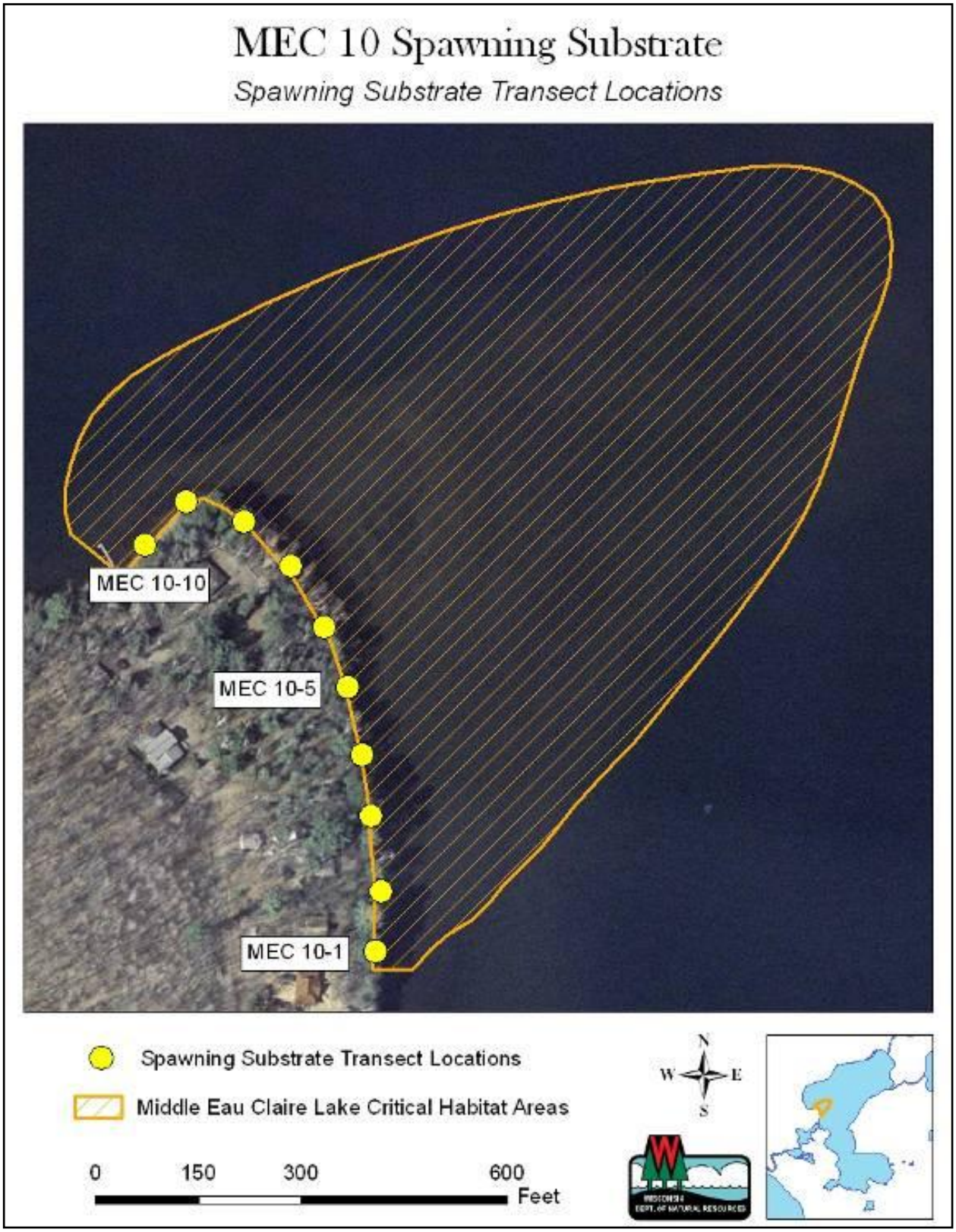


Table 36. Shoreline Assessment of MEC10				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	3	16.1		
Accessory Structures	2	10.7		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0			
Accessory Structures	2			
Commercial Buildings	0	0		
Natural vegetation			820	83.3
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			0	0
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			820	83.3
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			50	16.7
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			984	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	3	16.1		
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		

Middle Eau Claire Lake Critical Habitat Site MEC11
Critical habitat site MEC11 is a Public Rights Feature that was designated because of its Spawning Substrate. MEC11 is 9.3 acres in size and located along the Northwest shore of Middle Eau Claire Lake. Walleye spawn along this shoreline.

Spawning Substrate was sampled using a standardized transect method and a summary of the results can be found in Table 37. Table 38 summarizes the current management practices within the Setback, Riparian, Bank, and Littoral Zones of MEC 11.

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.

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 37. MEC11 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	2	1					70	30					
1	2	2	4	2						100						
1	3	4	11.5	7.5	2					85	10	5				
2	1	0	2	2	3					10	30	40	20			
2	2	2	6	4	3					85		5	10			
2	3	6	9	3	2					60	40					
3	1	0	6.7	6.7	5					15	15	60	10			
3	2	6.7	15	8.3	3					20	60	10	10			
4	1	0	2.5	2.5	3					60	40					
4	2	2.5	15	12.5						100						
5	1	0	2	2	4					30	70					
5	2	2	15	13						100						
6	1	0	2.1	2.1	4					15	70	10	5			
6	2	2.1	14	11.9						100						
7	1	0	3	3	4					30	40	30				
7	2	3	15	12						100						
8	1	0	2.8	2.8	4					20	20	60				
8	2	2.8	15	12.2						100						
9	1	0	4.2	4.2	4					5	25	20	50			
9	2	4.2	14.3	10.1	2					80	20					
10	1	0	4.4	4.4	4					10	25	5	60			
10	2	4.4	15	10.6	3					30	70					

Figure 20. MEC11 Spawning Substrate Transects Map

Table 38. Shoreline Assessment of MEC11				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes				
Accessory Structures				
Commercial Buildings	0	0		
Riparian Zone				
Homes				
Accessory Structures				
Commercial Buildings	0	0		
Natural vegetation				
Shrub Layer Removed				
Shrub & Ground Cover Removed				
Established Lawn				
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				100
Bank Zone				
Natural Bank				
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn				
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline				100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers				
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		

Middle Eau Claire Lake Critical Habitat Site MEC12
Critical habitat site MEC12 is a Sensitive Area that was designated because of its Extensive Riparian Wetland. MEC12 is 1.6 acres in size and is located along the Northern shore of Middle Eau Claire Lake.

Table 39 summarizes the current management practices within the Setback, Riparian, Bank, and Littoral Zones of MEC 12.

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 disturb wetland with filling, cutting, or any other modifications.

Figure 21. MEC12 Riparian Wetlands Map

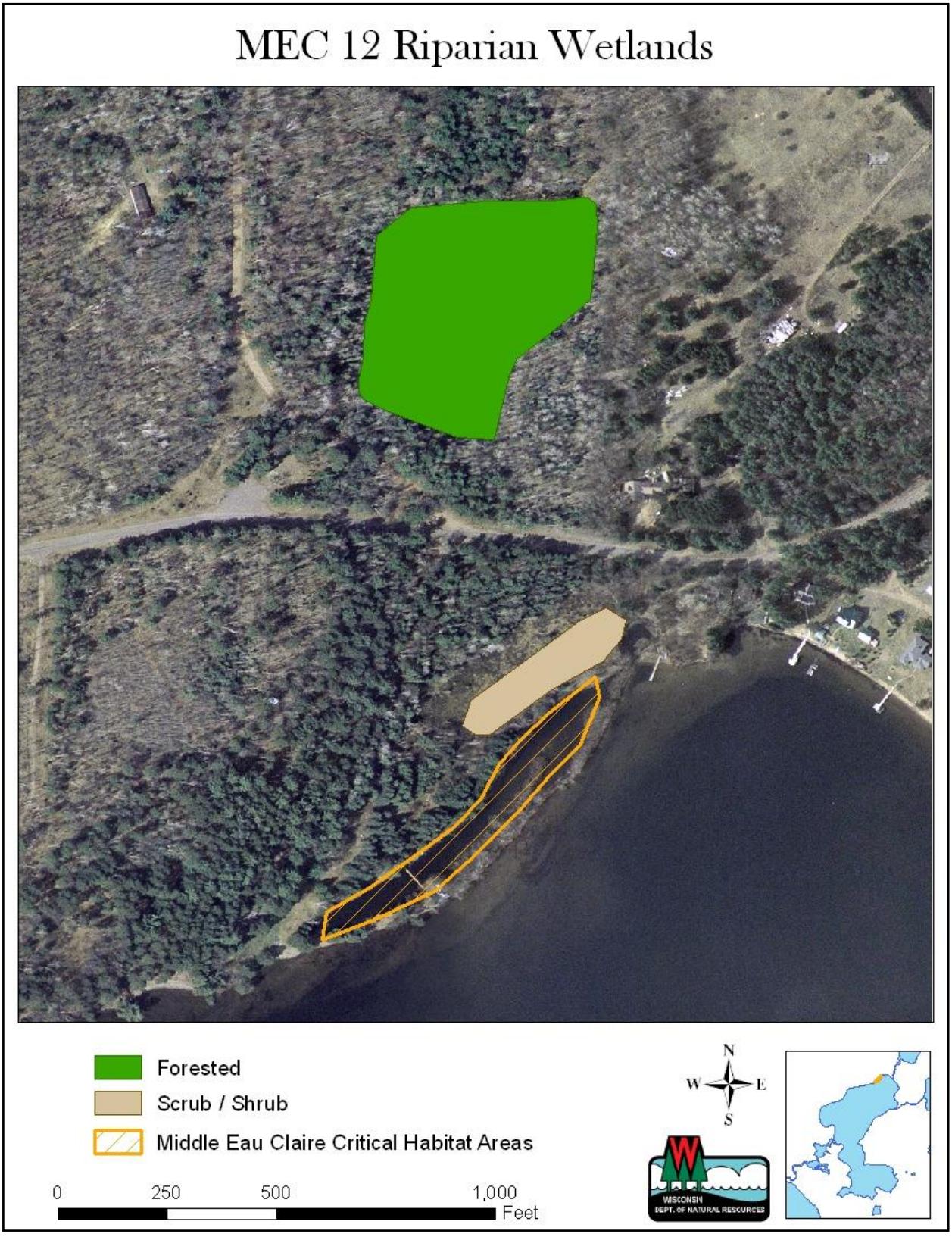


Table 39. Shoreline Assessment of MEC12				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	1	6.4		
Accessory Structures	1	6.4		
Commercial Buildings	0	0		
Natural vegetation			754	92.0
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			0	0
Established Lawn			66	8.0
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			820	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			820	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	2	12.9		
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		

Middle Eau Claire Lake Critical Habitat Site MEC13
Critical habitat site MEC13 is a Sensitive Area that was designated because of its Bio-Diverse Submerged Aquatic Vegetation. MEC13 is 5.9 acres in size and is located along the Northern shore of Middle Eau Claire Lake.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 40 and 41. Table 42 summarizes the current management practices within the Setback, Riparian, Bank, and Littoral Zones of MEC 13.

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.

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

Table 40. MEC13 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Ceratophyllum demersum	Coontail	Submergent	3	7.3
Chara	Muskgrasses	Submergent	7	1.2
Eleocharis acicularis	Needle spikerush	Submergent	5	2.4
Elodea canadensis	Common waterweed	Submergent	3	28.0
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	13.4
Najas flexilis	Bushy pondweed	Submergent	6	17.1
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	4.9
Potamogeton foliosus	Leafy pondweed	Submergent	6	1.2
Potamogeton pusillus	Small pondweed	Submergent	7	7.3
Potamogeton zosteriformis	Flat-stem pondweed	Submergent	6	7.3
Vallisneria americana	Wild celery	Submergent	6	9.8

Table 41. MEC13 Aquatic Plant Sampling Summary Statistics

SUMMARY STATISTICS	MEC13
Total number of points sampled	49
Total number of sites with vegetation	45
Total number of sites shallower than maximum depth of plants	49
Frequency of occurrence at sites shallower than maximum depth of plants	91.83673
Simpson Diversity Index	0.84533
Maximum depth of plants (Feet)	15
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	49
Average number of all species per site (shallower than max depth)	1.67
Average number of all species per site (veg. sites only)	1.82
Average number of native species per site (shallower than max depth)	1.67
Average number of native species per site (veg. sites only)	1.82
Species Richness	11
Species Richness (including visuals)	11
Floristic Quality Index	19.00

Figure 22. MEC13 Aquatic Plant Diversity Map

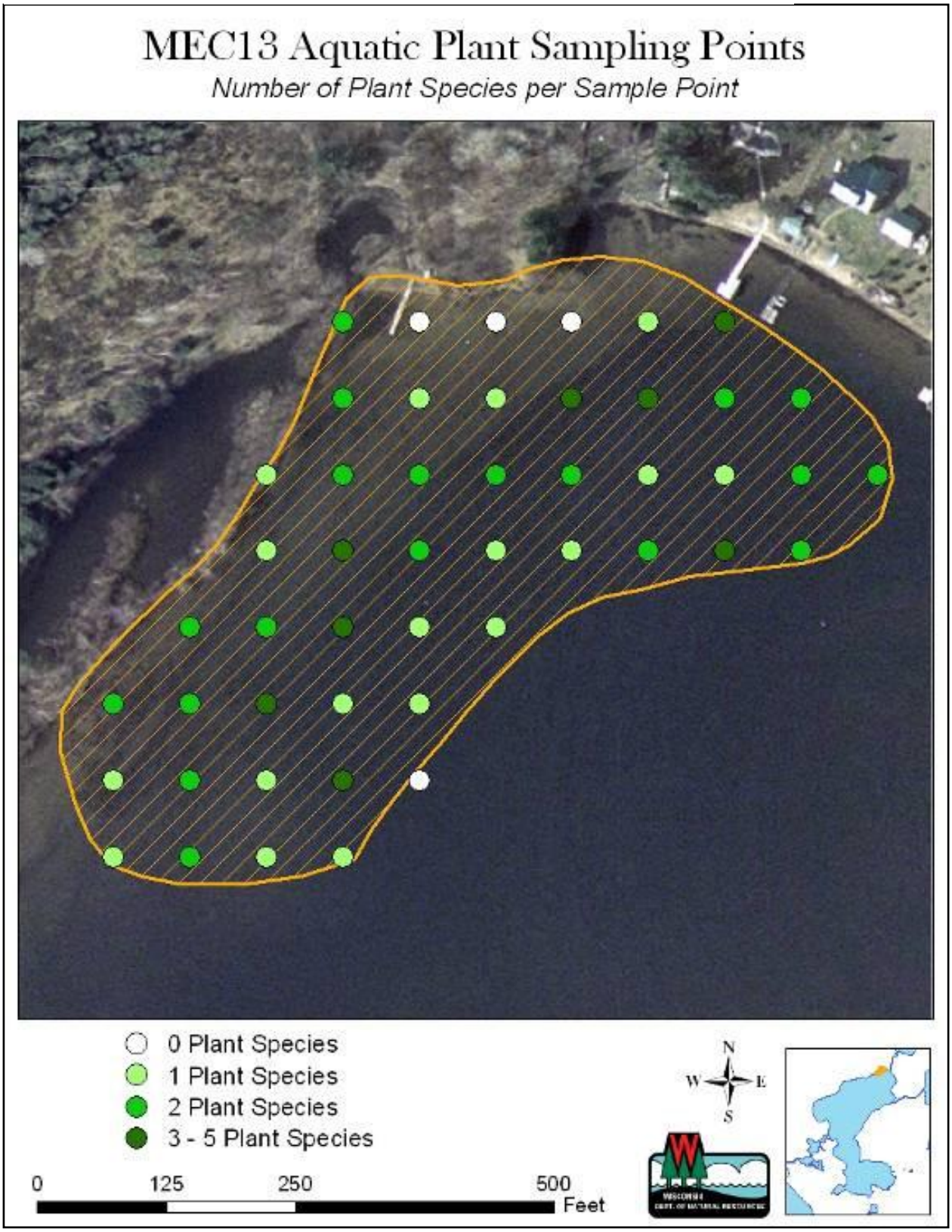


Table 42. Shoreline Assessment of MEC13				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	4	25.8		
Accessory Structures	4	25.8		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	1	6.4		
Commercial Buildings	0	0		
Natural vegetation			508	62.0
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			0	0
Established Lawn			197	24.0
Pastureland			0	0
Row Crop			0	0
Beach			115	14.0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			820	100
Bank Zone				
Natural Bank			787	96.0
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			33	4.0
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			820	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	5	32.2		
Boat Lifts	3	19.3		
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		

Middle Eau Claire Lake Critical Habitat Site MEC14

Critical habitat site MEC14 is a Sensitive Area that was designated because of its Emergent and Floating Leaf Vegetation, Submersed Aquatic Vegetation, Woody Habitat, and Navigational Thoroughfare. MEC14 is 2.1 acres in size and includes Bony Creek between Middle Eau Claire Lake and the Highway 27 Bridge.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 43 and 44. Woody Habitat was sampled using a standardized transect method and a summary of the results can be found in Tables 45 and 46. 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 47 summarizes the current management practices within the Setback, Riparian, Bank, and Littoral Zones of MEC 14.

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.

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

According to the shoreline inventory, there is riprap in MEC14. 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.

Enforce current slow-no-wake ordinance.

Dredging should not be allowed.

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.

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

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

Table 43. MEC14 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Carex sp	Sedges	Emergent	-	18.5
Dulichium arundinaceum	Three-way sedge	Emergent	9	3.7
Eleocharis palustris	Creeping spikerush	Emergent	6	3.7
Juncus palocarpus f. submersus	Brown-fruited rush	Emergent	8	Visual
Sagittaria sp	Arrowhead	Emergent	-	3.7
Schoenoplectus acutus	Hardstem bulrush	Emergent	5	3.7
Schoenoplectus tabernaemontani	Softstem bulrush	Emergent	4	29.6
Typha sp	Cattail	Emergent	1	11.1
Nymphaea odorata	White water lily	Floating Leaf	6	7.4
Potamogeton gramineus	Variable pondweed	Submergent	7	3.7
Potamogeton robbinsii	Robbins pondweed	Submergent	8	3.7
Vallisneria americana	Wild celery	Submergent	6	11.1

Table 44. MEC14 Aquatic Plant Sampling Summary Statistics

SUMMARY STATISTICS	MEC14
Total number of points sampled	24
Total number of sites with vegetation	17
Total number of sites shallower than maximum depth of plants	24
Frequency of occurrence at sites shallower than maximum depth of plants	70.833
Simpson Diversity Index	0.8395
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)	24
Average number of all species per site (shallower than max depth)	1.13
Average number of all species per site (veg. sites only)	1.59
Average number of native species per site (shallower than max depth)	1.13
Average number of native species per site (veg. sites only)	1.59
Species Richness	11
Species Richness (including visuals)	12
Floristic Quality Index	18.97

Figure 23. MEC14 Aquatic Plant Diversity Map

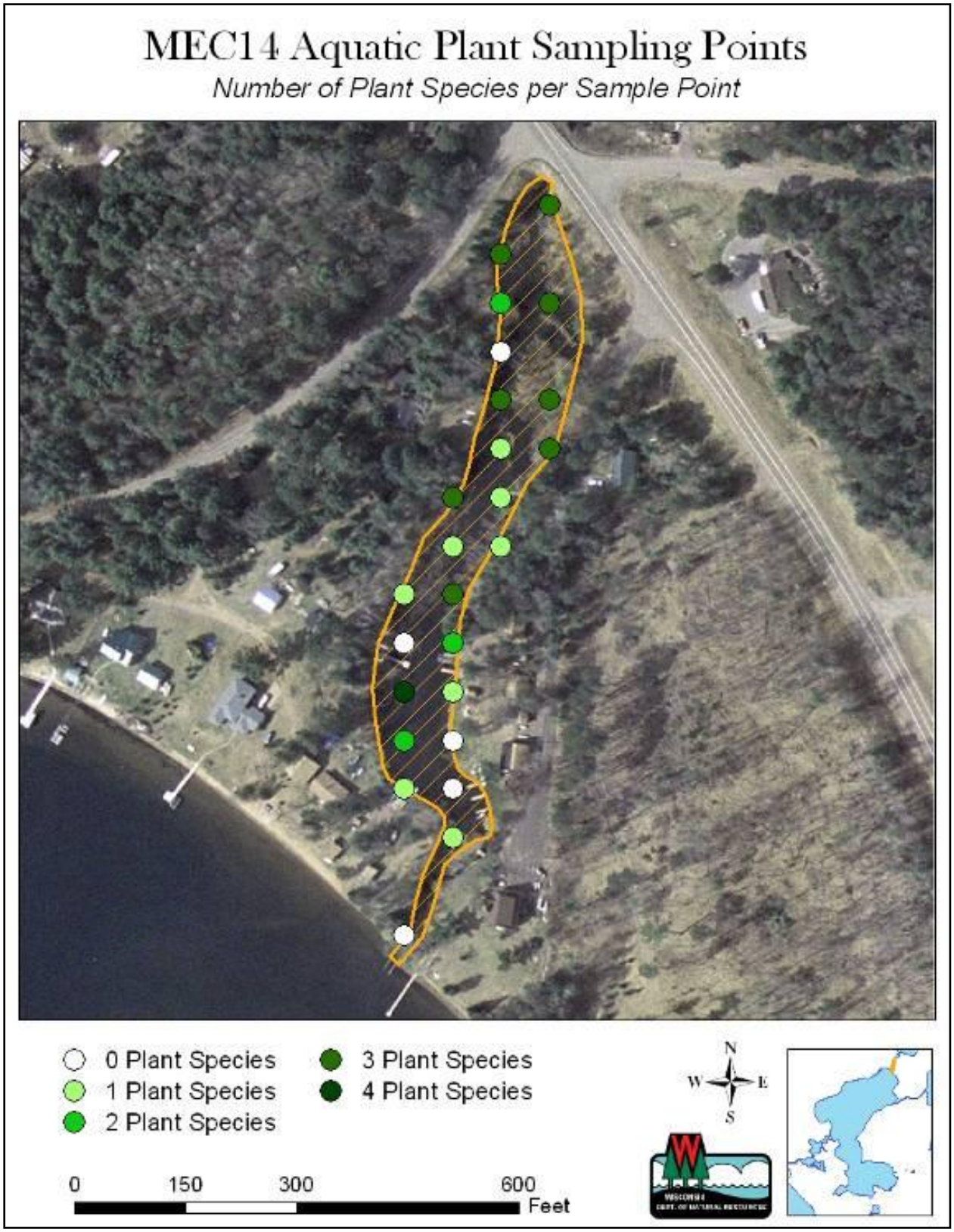


Figure 24. MEC14 Woody Habitat Transects Map

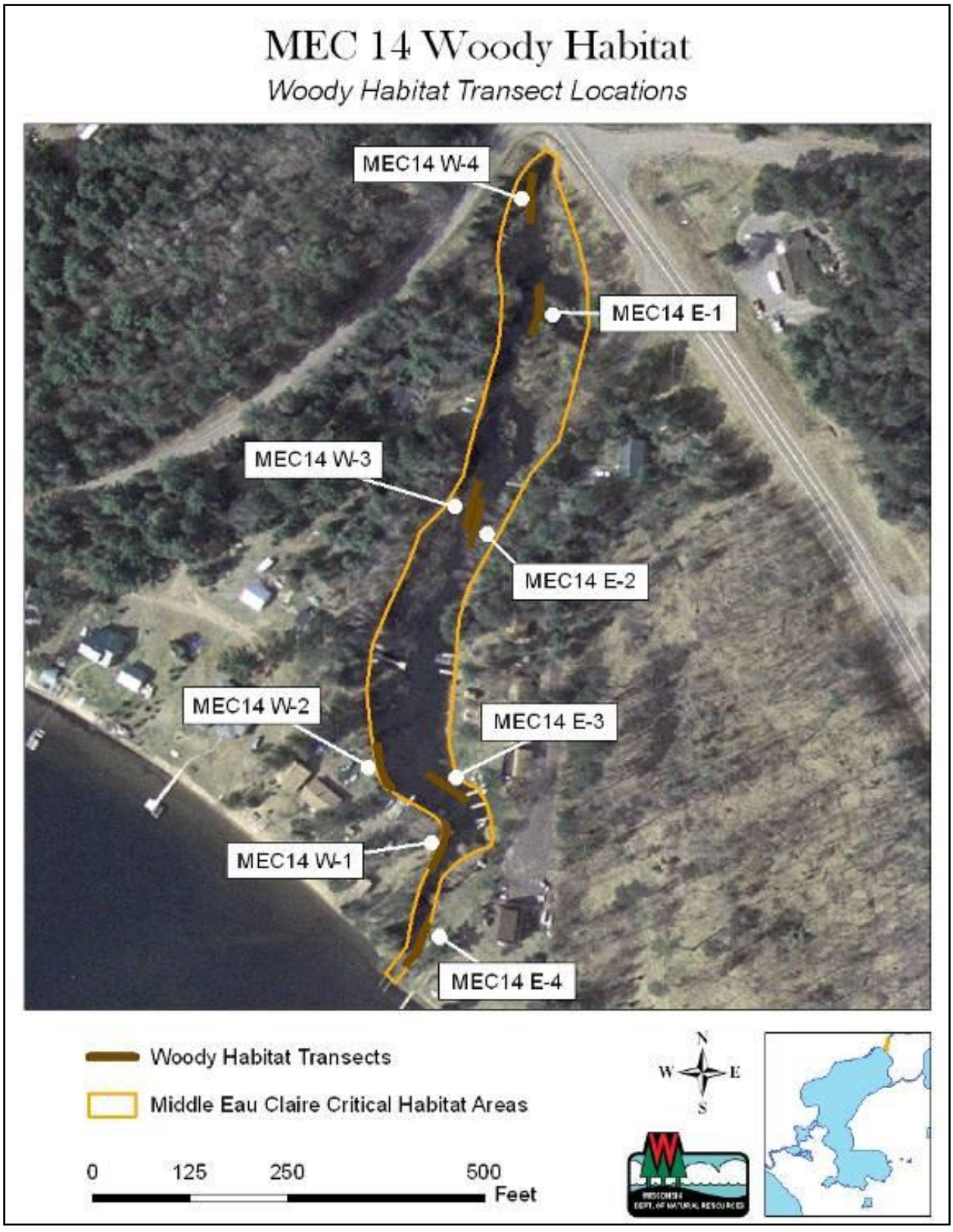


Table 45. MEC14 East Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
MEC14 East-1	0	0	65.6	20	0.0	0.0
MEC14 East-2	0	1	65.6	20	0.0	80.5
MEC14 East-3	1	1	65.6	20	80.5	80.5
MEC14 East-4	0	0	65.6	20	0.0	0.0
MEC14 East Total	1	2	262.4	80	20.1	40.2

Table 46. MEC14 West Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
MEC14 West-1	0	0	65.6	20	0.0	0.0
MEC14 West-2	1	0	65.6	20	80.5	0.0
MEC14 West-3	0	0	65.6	20	0.0	0.0
MEC14 West-4	0	0	65.6	20	0.0	0.0
MEC14 West Total	1	0	262.4	80	20.1	0.0

Table 47. Shoreline Assessment of MEC14				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	11	26.2		
Accessory Structures	9	21.5		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	5	11.9		
Commercial Buildings	0	0		
Natural vegetation			1099	49.6
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			0	0
Established Lawn			787	35.5
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			328	14.8
Other			0	0
Not Visible			0	0
Total Shoreline			2214	100
Bank Zone				
Natural Bank			1689	76.3
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			426	19.2
Pea Gravel Blanket			0	0
Established Lawn			66	3.0
Artificial Beach			0	0
Seawalls			33	1.5
Total Shoreline			2214	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	9	21.5		
Boat Lifts	1	2.4		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	2	4.8		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Middle Eau Claire Lake Critical Habitat Site MEC15
Critical habitat site MEC15 is a Public Rights Feature that was designated because of its Spawning Substrate, Woody Habitat, and Water Quality Features. MEC15 is 4.2 acres in size and located along the Eau Claire River between Middle Eau Claire and Upper Eau Claire Lakes.

Woody Habitat was sampled using a standardized transect method and a summary of the results can be found in Tables 48 and 49. 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 50. Table 51 summarizes the current management practices within the Setback, Riparian, Bank, and Littoral Zones of MEC 15.

Special Note: This area is regulated as a fish refuge from April 15th to May 15th each year due to its importance to both spawning walleye and muskellunge. Large concentrations of white suckers also use the river for spawning in spring which constitutes an important part of the forage base for the lakes.

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

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.

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

According to the shoreline inventory, there is no riprap in MEC15. 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.

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

Table 48. MEC15 North Woody Habitat Sampling Transects						
Transect	**# Big Logs**	**# Small Logs**	**Transect Length (feet)**	**Transect Length (m)**	**Big Logs per Mile**	**Small Logs per Mile**
MEC15 North-1	1	0	164	50	32.2	0.0
MEC15 North-2	1	18	164	50	32.2	579.5
MEC15 North-3	18	19	164	50	579.5	611.7
MEC15 North-4	6	9	164	50	193.2	289.8
MEC15 North Total	26	46	656	200	209.3	370.2

Table 49. MEC15 South Woody Habitat Sampling Transects						
Transect	**# Big Logs**	**# Small Logs**	**Transect Length (feet)**	**Transect Length (m)**	**Big Logs per Mile**	**Small Logs per Mile**
MEC15 South-1	9	13	164	50	289.8	418.5
MEC15 South-2	6	26	164	50	193.2	837.1
MEC15 South-3	8	28	164	50	257.6	901.5
MEC15 South-4	3	6	164	50	96.6	193.2
MEC15 South Total	26	73	656	200	209.3	587.6

Table 50. MEC15 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	1	1			10			90						
1	2	1	12.5	11.5						100						
1	3	12.5	19	6.5			5			95						
2	1	0	2.5	2.5			20			80						
2	2	2.5	15	12.5						100						
2	3	15	18.5	3.5			5			95						
3	1	0	2	2			30			70						
3	2	2	7	5			5			95						
3	3	7	18	11						100						
3	4	18	22.2	4.2			15			85						
4	1	0	12	12			5			95						
4	2	12	18	6						100						
4	3	18	21.5	3.5			15		40	45						
5	1	0	4	4			20			80						
5	2	4	12.5	8.5						100						
5	3	12.5	15	2.5			15			85						
6	1	0	3.5	3.5			20			80						
6	2	3.5	10	6.5	1					90	10					
6	3	10	14.5	4.5			5			95						
6	4	14.5	17	2.5			30		70							
7	1	0	3	3			20			80						
7	2	3	6	3			5			95						
7	3	6	11	5	1		5			90	5					
7	4	11	14	3						100						
7	5	14	18.3	4.3			20			80						
8	1	0	4.5	4.5			10			90						
8	2	4.5	11	6.5	1		5			50	40	5				
8	3	11	15.7	4.7	3					30	40	30				
9	1	0	2	2			10			90						
9	2	2	5	3	1		5			75	20					
9	3	5	9	4						100						
9	4	9	12.5	3.5			30			70						
9	5	12.5	14.2	1.7			20		80							
10	1	0	3	3			10			90						
10	2	3	10.5	7.5	1		5			90	5					

10	3	10.5	13.3	2.8			10			90						
11	1	0	3.5	3.5			20			80						
11	2	3.5	6.5	3			100									
11	3	6.5	7.5	1						100						
11	4	7.5	10.6	3.1	2					50	40	10				
11	5	10.6	11.5	0.9			10		45	45						
12	1	0	1	1	1		50			40	10					
12	2	1	7	6	2					30	30	40				
12	3	7	10.7	3.7			5			95						

Figure 25. MEC15 Spawning Substrate Transects Map

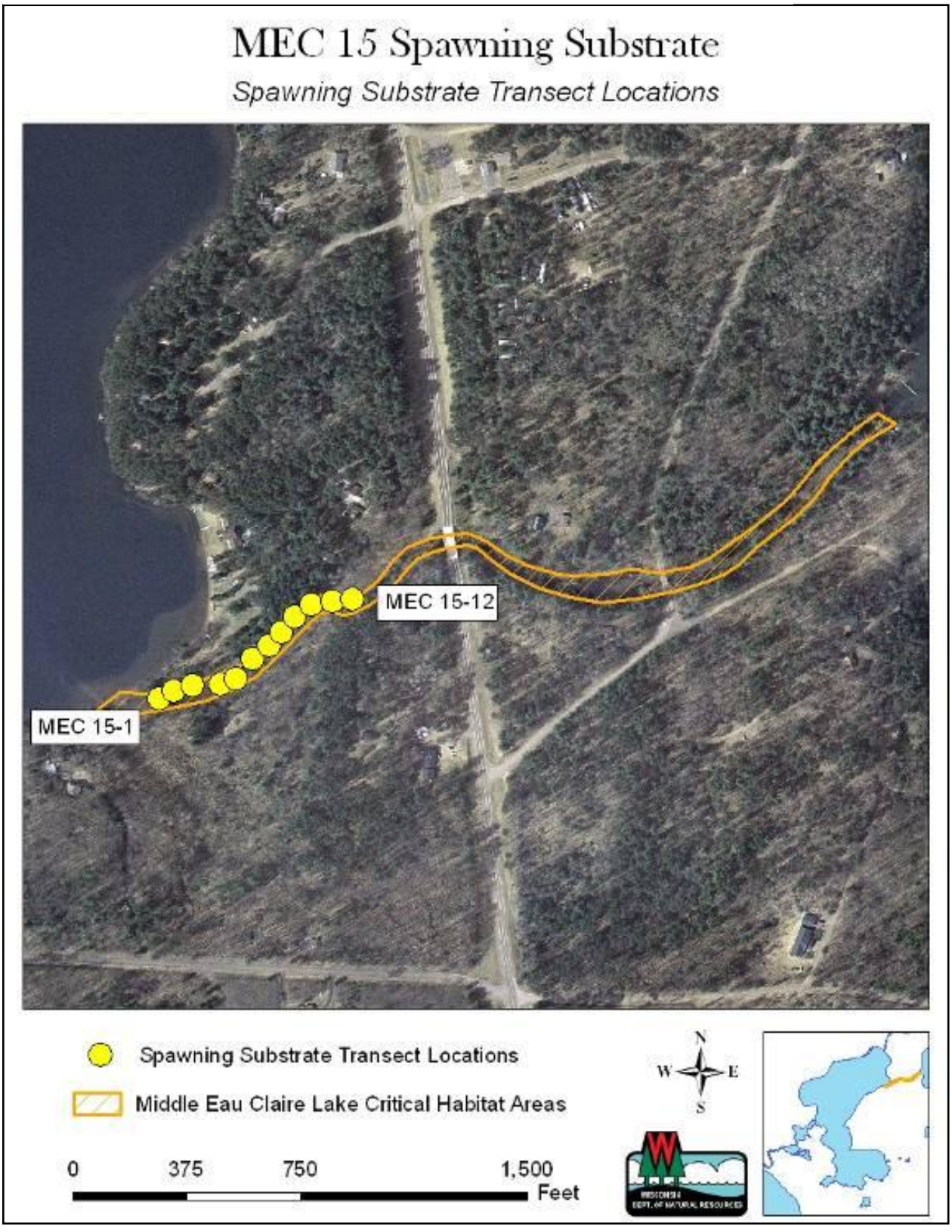


Figure 26. MEC15 Woody Habitat Transects Map

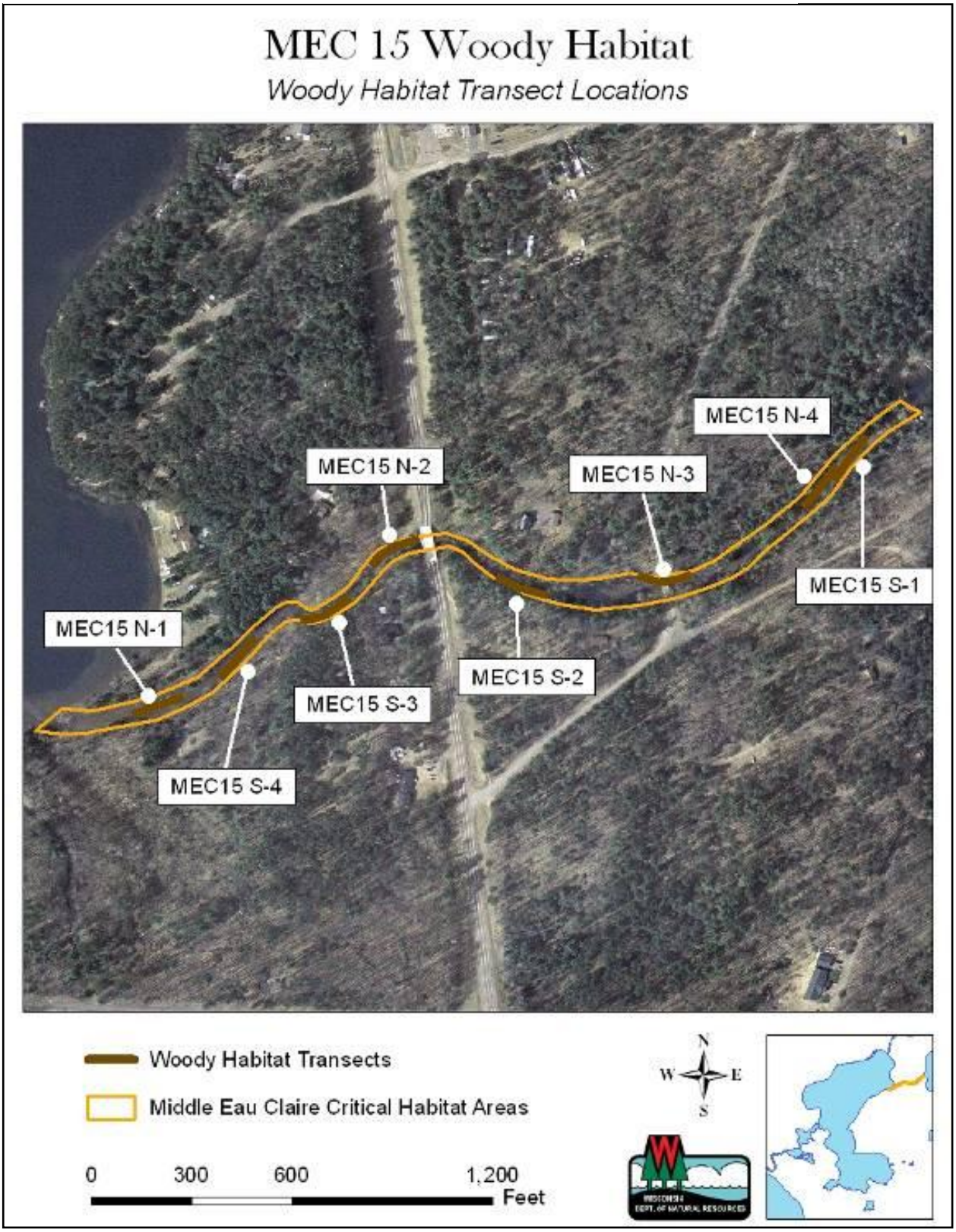


Table 51. Shoreline Assessment of MEC15				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	6	5.2		
Accessory Structures	8	7.0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	3	2.6		
Commercial Buildings	0	0		
Natural vegetation			5724	94.3
Shrub Layer Removed			33	0.5
Shrub & Ground Cover Removed			98	1.6
Established Lawn			213	3.5
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			6068	100
Bank Zone				
Natural Bank			6019	99.2
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			49	0.8
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			6068	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	3	2.6		
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	3	2.6		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Middle Eau Claire Lake Critical Habitat Site MEC16
Critical habitat site MEC16 is a Sensitive Area that was designated because of its Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat, Extensive Riparian Wetland, and Emergent and Floating Leaf Vegetation. MEC16 is 83.4 acres in size and is located near the Public Boat Launch. This is an important muskellunge spawning area, and most of the shoreline is already in public ownership.

Aquatic Plants were sampled using a standardized Point Intercept method and a summary of the results can be found in Tables 52 and 53. Table 54 summarizes the current management practices within the Setback, Riparian, Bank, and Littoral Zones of MEC 16.

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

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

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 52. MEC16 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Alnus sp	Alder	Emergent	-	0.6
Carex sp	Sedges	Emergent	-	Visual
Myrica gale	Sweet gale	Emergent	9	2.2
Pontederia cordata	Pickerelweed	Emergent	9	Visual
Sparganium sp	Bur-reed	Emergent	-	Visual
Typha sp	Cattail	Emergent	1	0.6
Nuphar variegata	Spatterdock	Floating Leaf	6	4.4
Nymphaea odorata	White water lily	Floating Leaf	6	0.6
Potamogeton natans	Floating-leaf pondweed	Floating Leaf	5	0.6
Ceratophyllum demersum	Coontail	Submergent	3	3.9
Chara	Muskgrasses	Submergent	7	4.4
Elodea canadensis	Common waterweed	Submergent	3	33.3
Heteranthera dubia	Water star-grass	Submergent	6	0.6
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	3.9
Najas flexilis	Bushy pondweed	Submergent	6	11.1
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	5.6
Potamogeton foliosus	Leafy pondweed	Submergent	6	22.2
Potamogeton robbinsii	Robbins pondweed	Submergent	8	0.6
Potamogeton zosteriformis	Flat-stem pondweed	Submergent	6	4.4
Vallisneria americana	Wild celery	Submergent	6	1.1

Table 53. MEC16 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**MEC16**
Total number of points sampled	83
Total number of sites with vegetation	78
Total number of sites shallower than maximum depth of plants	83
Frequency of occurrence at sites shallower than maximum depth of plants	93.9759
Simpson Diversity Index	0.814321
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)	83
Average number of all species per site (shallower than max depth)	2.17
Average number of all species per site (veg. sites only)	2.31
Average number of native species per site (shallower than max depth)	2.17
Average number of native species per site (veg. sites only)	2.31
Species Richness	17
Species Richness (including visuals)	20
Floristic Quality Index	24.50

Figure 27. MEC1 Woody Habitat Transects Map

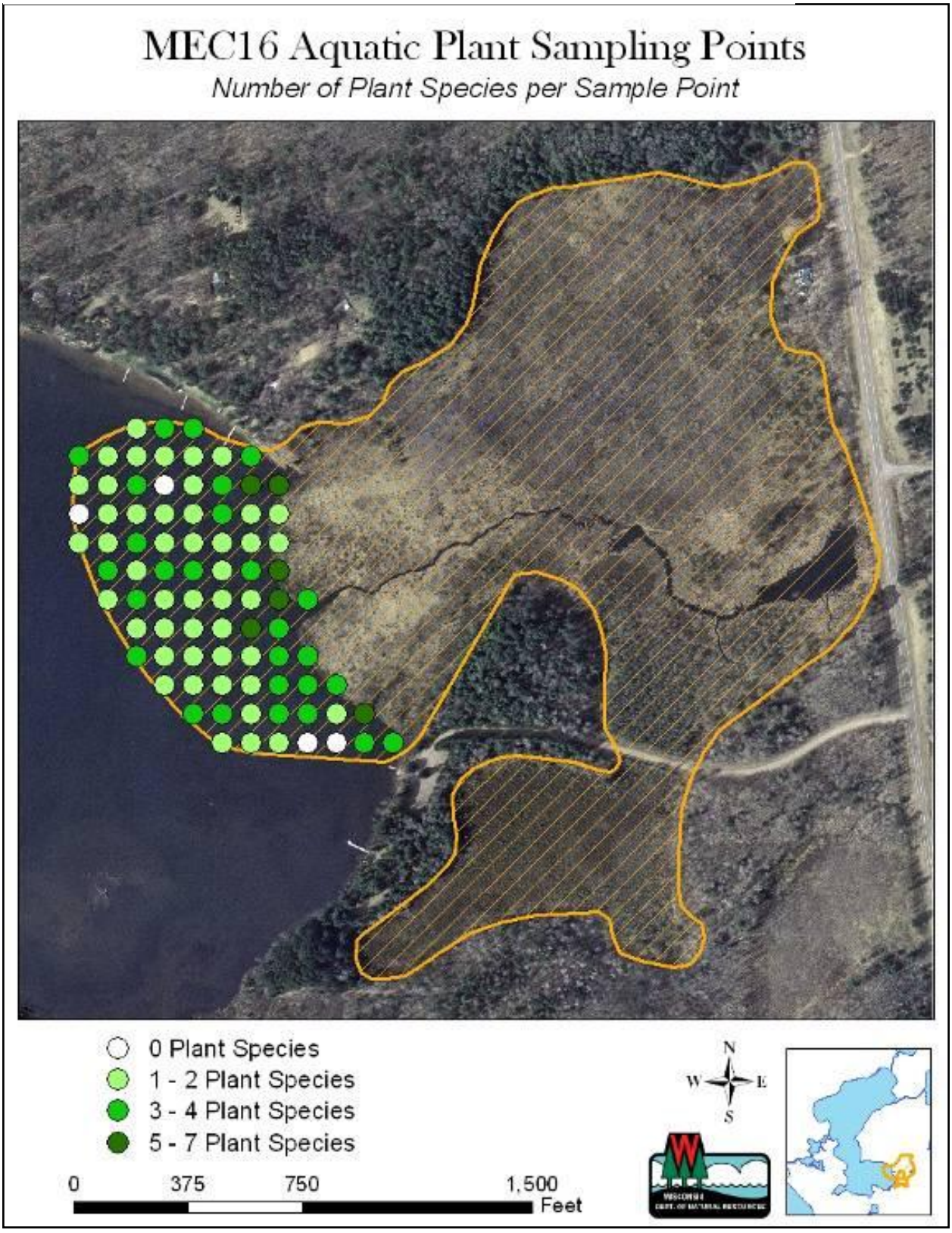


Table 54. Shoreline Assessment of MEC16				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			1312	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			1312	100
Bank Zone				
Natural Bank			1312	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			1312	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		

Appendix 1. Personnel and dates of Critical Habitat Designation, Middle Eau Claire Lake, Bayfield County

Critical Habitat Designations occurred on 8/28/2007 by Scott Toshner, Pamela Toshner, and Alex Smith.

Shoreline management inventories occurred on 9/23/2008 by Alex Smith and Debbie Konkel.

Aquatic plant sampling occurred on 8/11/2008, 8/12/2008, and 8/18/2008 by Alex Smith, Paul Riordan, and Debbie Konkel.

Woody habitat sampling occurred on 10/11/2007, 10/17/2007, 5/28/2008, 5/29/2008, 6/10/2008, 9/23/2008 by Alex Smith and Paul Riordan.

Spawning substrate sampling occurred on 5/28/2008, 5/29/2008, and 5/28/2009 by Alex Smith, Debbie Konkel, 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.