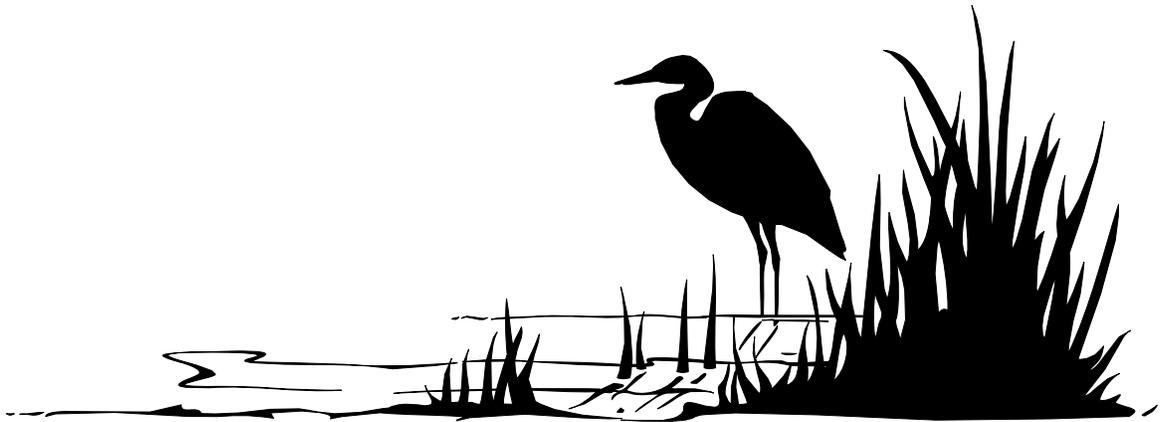


HALF MOON LAKE SENSITIVE AREA SURVEY REPORT AND MANAGEMENT GUIDELINES



**This document is to be used
with its companion document
"Guidelines for protecting, maintaining,
and understanding lake sensitive areas"**

Half Moon Lake (Polk Co.)

Integrated Sensitive Area Survey Report

Date of Survey: 12 August 1993
Site Revisited: 08 August 2001

Number of Sensitive Areas: 6

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Lake Sensitive Area Survey results identified six areas that merit special protection of the aquatic habitat. These areas of aquatic vegetation or rock substrate on Half Moon Lake offer critical or unique fish and wildlife habitat. These habitats provide the necessary seasonal or life stage requirements of the associated fisheries, and the aquatic vegetation offers water quality or erosion control benefits to the body of water.

During this survey there were no documented occurrences of Purple Loosestrife. However, the threat of Purple Loosestrife is always a concern and should be dealt with immediately. Methods for control are to remove the entire plant before it produces seeds or by cutting the flower head and spraying with an approved herbicide. You should contact the Department before any of these methods are implemented.

The reader should consider that any buffer that does not extend back from the waters edge at least 35' is not providing adequate protection for water quality and should be expanded to at least 35'. Local zoning ordinances and lakes classification systems have tried to provide better guidelines pertaining to buffer widths and set backs based on lake type. Landowners are encouraged to go beyond the minimum requirements laid out by zoning and consider extending buffer widths to beyond 35' and integrating other innovative ways to capture and reduce the runoff flowing off from their property while improving critical shoreline habitat. Berms and low head retention areas can greatly increase the effective capture rate from developed portions in addition to that portion captured within the buffer.

Site conditions may dictate that a buffer has to be much wider than 35' to be effective at capturing the sediments and nutrients running off the developed portions of the shoreline. If the shoreline is steeply sloped (>7% slope) greater widths should definitely be used.

No mowing should take place within the buffer area (with the exception of a narrow access trail and small picnic area), and trees and shrubs should not be cut down even when they become old and die; because they provide important woody debris habitat within the buffer zone as well as aquatic habitat when they fall into the lake.

The following is a brief summary of the Half Moon Lake sensitive area sites and the management guidelines. Also, the "Guidelines for Protecting, Maintaining, and Understanding Sensitive Areas" provides management guidelines and considerations for different lake sensitive areas (Attached).

I. Aquatic Plant Sensitive Areas

Sensitive areas A, B, C, D and F contain aquatic plant communities, which provide important fish and wildlife habitat as well as important shoreline stabilization functional values. Sensitive areas provide important enough habitat for the Half Moon Lake ecosystem that conservation easements, deed restrictions, or zoning should be used to protect them. Management guidelines for aquatic plant sensitive areas are (unless otherwise specifically stated):

1. Limit aquatic vegetation removal to navigational channels no greater than 25 feet wide where necessary, the narrower the better. These channels should be kept as short in length as possible and it is recommended that people do not completely eliminate aquatic vegetation within the navigation channel; but instead only remove what is necessary to prevent fouling of propellers to provide access to open water areas. Chemical treatments should be discouraged and if a navigational channel must be cleared, pulling by hand is preferable over mechanical harvesters where practical.
2. Prohibit littoral zone alterations covered by Wisconsin Statutes Chapter 30, unless there is clear evidence that such alterations

would benefit the lake's ecosystem. Rock riprap permits should not be approved for areas that already have a healthy native plant community stabilizing the shoreline and property owners should not view riprap as an acceptable alternative in these situations.

3. Leave large woody debris, logs, trees, and stumps, in the littoral zone to provide habitat for fish, wildlife, and other aquatic organisms.
4. Leave an adequate shoreline buffer of un-mowed natural vegetative cover and keep access corridors as narrow as possible (preferable less than 30 feet or 30% of any developed lot which ever is less).
5. Prevent erosion, especially at construction sites. Support the development of effective county erosion control ordinances. The proper use of Best Management Practices (BMP's) will greatly reduce the potential of foreign materials entering the waterway (i.e. silt, nutrients).
6. Strictly enforce zoning ordinances and support development of new zoning regulations where needed.
7. Eliminate nutrient inputs to the lake caused by lawn fertilizers, failing septic systems, and other sources.
8. Control exotic species such as purple loosestrife.

II. Gravel and Coarse Rock Rubble Spawning Areas

The Department documented one area which provides the necessary habitat for the spawning success of walleyes (sites E). Walleyes require a gravel or cobble substrate with little or no fine sediment usually along a sharp drop-off from shore. It is critical that no alterations of the gravel or rock substrate occur at these sites, unless such alterations would improve walleye spawning, Chapter 30, Wisconsin Statutes, regulates such alterations. It is essential that proper erosion control is implemented during near shore construction (silt fence, berms, vegetative buffers) and that these valuable areas remain free of most structures (boat houses) to retain the suitable habitat for walleye spawning. Permanent vegetative buffers (>35 feet) along the shoreline will aid in decreasing the amount runoff and fine sediment from entering this habitat. These areas are not considered aquatic plant sensitive areas in accordance with NR 107 Wisconsin Administrative Code, but are necessary to mention in this management/informational document.

Resource Value of Site A

Sensitive area A consists of the shoreline at the northwestern end of Half Moon Lake, encompassing the public boat launch and swimming beach. This area includes approximately 4,000 feet of shoreline.

This area provides important habitat for centrarchid (bass and panfish) and esocid (northern pike) spawning and nursery areas. This area also provides important habitat for forage species. Wildlife also are reliant upon this area for habitat. Eagles, loons, herons, waterfowl, songbirds, furbearers, turtles, and amphibians benefit from this valuable habitat.

The emergent, floating and submergent plant community structure of Sensitive area A includes: **Emergents;** cattails (*Typha sp.*), pickerel weed (*Pontederia cordata*), bulrush (*Scirpus sp.*) and arrowhead (*Sagittaria sp.*). **Floating leafed;** yellow pond lily (*Nuphar advena*) and white water lily (*Nymphaea odorata*). **Submergents;** elodea, wild celery (*Vallisneria americana*), coontail (*Ceratophyllum demersum*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed/slender water nymph (*Najas flexis*), clasping leaf pondweed (*Potamogeton perfoliatus*), flat stem pondweed (*P. zosteriformis*), large leaf pondweed (*P. amplifolius*), leafy pondweed (*P. foliosus*), variable pondweed (*P. gramineus*), robbin's pondweed (*P. robbinsii*), muskgrass (*Chara sp.*) and water marigold (*Bidens beckii*)

Chemical treatments should only be allowed at the public swimming area. Mechanical harvesting should only be allowed for navigation channels and the public boat launch.

Resource Value of Site B

Sensitive area B consists of approximately 1000 feet of shoreline along the western shore of Half Moon Lake.

This area provides important habitat for centrarchid (bass and panfish) and esocid (northern pike) spawning and nursery areas. This area also provides important habitat for forage species. Wildlife also are reliant upon this

area for habitat. Eagles, loons, herons, waterfowl, songbirds, furbearers, turtles, and amphibians benefit from this valuable habitat.

The emergent, floating and submergent plant community structure of Sensitive area B includes: **Emergents;** pickerel weed (*Pontederia cordata*). **Floating leafed;** white water lily (*Nymphaea odorata*). **Submergents;** wild celery (*Vallisneria americana*), northern milfoil (*Myriophyllum sibiricum*), large leaf pondweed (*Potamogeton amplifolius*), variable pondweed (*P. gramineus*), floating leaf pondweed (*P. natans*) and muskgrass (*Chara sp.*)

Chemical treatments and mechanical harvesting should not be allowed in this area.

Resource Value of Site C

Sensitive area C consists of approximately 900 feet of shoreline along the southwestern shore of Half Moon Lake.

This area provides important habitat for centrarchid (bass and panfish) and esocid (northern pike) spawning and nursery areas. This area also provides important habitat for forage species. Wildlife also are reliant upon this area for habitat. Eagles, loons, herons, waterfowl, songbirds, furbearers, turtles, and amphibians benefit from this valuable habitat.

The emergent, floating and submergent plant community structure of Sensitive area C includes: **Emergents;** pickerelweed (*Pontederia cordata*) and bulrush (*Scirpus sp.*). **Floating leafed;** spatterdock (*Nuphar variegata*) and white water lily (*Nymphaea odorata*). **Submergents;** wild celery (*Vallisneria americana*), northern milfoil (*Myriophyllum sibiricum*), large leaf pondweed (*Potamogeton amplifolius*), variable pondweed (*P. gramineus*), fern pondweed (*P. robbinsii*), coontail (*Ceratophyllum demersum*), flat-stem pondweed (*P. zosteriformis*) and muskgrass (*Chara sp.*).

Chemical treatments should not be allowed in this area. Mechanical harvesting should only be allowed for navigational channels.

Resource Value of Site D

Sensitive area D consists of approximately 350 feet of shoreline along the southern end of Half Moon Lake, encompassing a small public boat launch.

This area provides important habitat for centrarchid (bass and panfish) and esocid (northern pike) spawning and nursery areas. This area also provides important habitat for forage species. Wildlife also are reliant upon this area for habitat. Eagles, loons, herons, waterfowl, songbirds, furbearers, turtles, and amphibians benefit from this valuable habitat.

The floating and submergent plant community structure of Sensitive area D includes: **Emergents:** pickerelweed (*Pontederia cordata*). **Floating leafed:** spatterdock (*Nuphar variegata*) and white water lily (*Nymphaea odorata*). **Submergents:** wild celery (*Vallisneria americana*), northern milfoil (*Myriophyllum sibiricum*), large leaf pondweed (*Potamogeton amplifolius*), fern pondweed (*P. robbinsii*), flat-stem pondweed (*P. zosteriformis*), bushy pondweed (*Najas flexilis*), pipewort (*Eriocaulon aquaticum*), and variable pondweed (*P. gramineus*),

Chemical treatments should not be allowed in this area. Mechanical harvesting should only be allowed for navigation channels.

Resource Value of Site E

Sensitive area E is located along the eastern shore of Half Moon Lake and covers approximately 7,200 feet of shoreline. This area is considered high quality walleye spawning habitat. Consisting of rock and cobble substrate will little or no fine sediment.

No dredging, structures or deposits should occur in this area to retain the high quality spawning habitat characteristics.

Resource Value of Site F

Sensitive area F is located adjacent to Area A on the northern end of Half Moon Lake. This area encompasses approximately 1600 feet of shoreline.

This area provides important habitat for centrarchid (bass and panfish) and esocid (northern pike) spawning and nursery areas. This area also provides important habitat for forage species. Wildlife also are reliant upon this area for habitat. Eagles, loons, herons, waterfowl, songbirds, furbearers, turtles, and amphibians benefit from this valuable habitat.

The emergent and submergent plant community structure of Sensitive area F includes: **Emergents;** bulrush (*Scirpus sp.*) and pickerel weed (*Pontederia cordata*). **Submergents;** wild celery (*Vallisneria americana*) and large leaf pondweed (*Potamogeton amplifolius*).

Chemical treatments should not be allowed in this area. Mechanical harvesting should be limited to navigational channels.