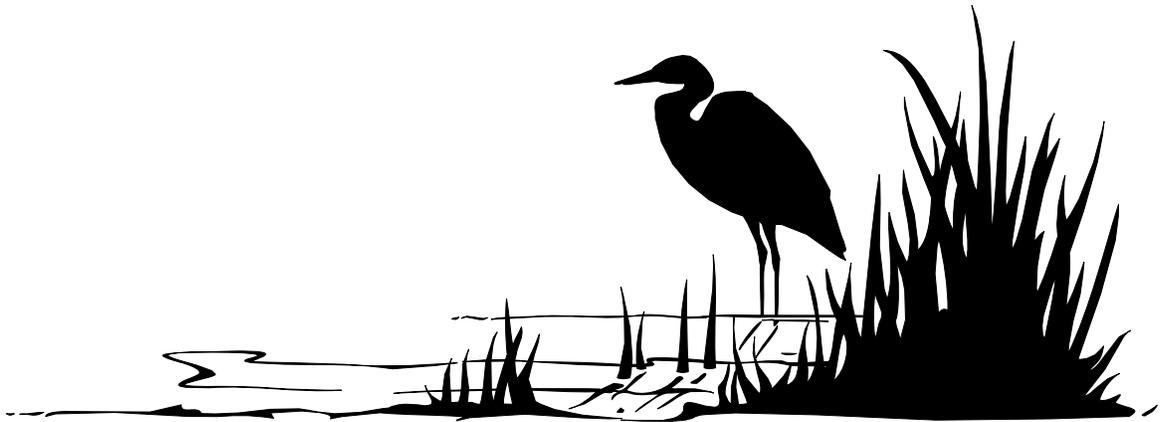


SPIRIT LAKE SENSITIVE AREA SURVEY REPORT AND MANAGEMENT GUIDELINES



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

Spirit Lake (Burnett Co.) Integrated Sensitive Area Survey Report

Date of Survey: 29 July 1998

Number of Sensitive Areas: 8

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Lake Sensitive Area Survey results identified eight areas that merit special protection of the aquatic habitat. Most of Spirit Lake's littoral zone is considered a sensitive area. These areas of aquatic vegetation 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.

Wild rice (*Zizania sp.*) was documented in sensitive areas "A and B". Wild rice holds very important niche in the lake ecosystem from both a human and wildlife standpoint. Care should be taken to allow for the proliferation of this rice stand.

During this survey there were multiple occurrences of **Purple Loosestrife** (Sites B, C, E, F, G and H). 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 Spirit 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 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 Spirit 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.**

Resource Value of Site A

Sensitive area A is located along the southern shoreline of Spirit Lake. This area encompasses approximately 1,000 feet of shore.

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 A includes: **Emergents;** wild rice (*Zizania aquatica*), arrowhead (*Sagittaria* sp.), hardstem bulrush (*Scirpus acutus*), river bulrush (*Scirpus fluviatilis*), bur-reed (*Sparganium* sp.) and broad leaf cattail (*Typha latifolia*). **Submergents;** wild celery (*Vallisneria americana*), coontail (*Ceratophyllum demersum*), muskgrass (*Chara* sp.), elodea, northern milfoil (*Myriophyllum sibiricum*), large leaf pondweed (*Potamogeton amplifolius*), variable leaf pondweed (*P. gramineus*), illinois pondweed (*P. illinoensis*), sago pondweed (*P. pectinatus*), floating leaf pondweed (*P. natans*), clasping leaf pondweed (*P. richardsonii*), robbin's pondweed (*P. robbinsii*) and flat stem pondweed (*P. zosteriformis*).

Chemical treatments and mechanical removal efforts should be limited to navigation channels only.

Resource Value of Site B

Sensitive area B is located along the southern shoreline of Spirit Lake. This area encompasses approximately 2,000 feet of shore.

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; purple loosestrife*** (*Lythrum salicaria*), wild rice (*Zizania aquatica*), bur-reed (*Sparganium* sp.), broadleaf cattail (*Typha latifolia*) and arrowhead (*Sagittaria* sp.). **Floating;** white water lily (*Nymphaea odorata*). **Submergents;** wild celery (*Vallisneria americana*), coontail (*Ceratophyllum demersum*), muskgrass (*Chara* sp.), elodea, northern milfoil (*Myriophyllum sibiricum*), illinois pondweed (*Potamogeton illinoensis*), large leaf pondweed (*P. amplifolius*), curly leaf pondweed (*P. crispus*), variable leaf pondweed (*P. gramineus*), floating leaf pondweed (*P. natans*), clasping leaf pondweed (*P. richardsonii*), robbin's pondweed (*P. robbinsii*) and flat stem pondweed (*P. zosteriformis*).

Chemical treatments and mechanical removal efforts should be limited to navigational channels only.

Resource Value of Site C

Sensitive area C is located southwestern shoreline of Spirit Lake. This area encompasses the approximately 1,200 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 C includes: **Emergents; purple loosestrife*** (*Lythrum salicaria*), arrowhead (*Sagittaria* sp.), hardstem bulrush (*Scirpus acutus*), river bulrush (*Scirpus fluviatilis*), bur-reed (*Sparganium* sp.) and broadleaf cattail (*Typha latifolia*). **Floating;** great duckweed (*Spirodela polyrhiza*) and white water lily (*Nymphaea odorata*). **Submergents;** wild celery (*Vallisneria americana*), coontail (*Ceratophyllum demersum*), elodea, water star grass (*Zosterella dubia*), northern milfoil (*Myriophyllum sibiricum*), large leaf pondweed (*Potamogeton amplifolius*), curly leaf pondweed (*P. crispus*), variable leaf pondweed (*P. gramineus*), illinois pondweed (*P. illinoensis*), floating leaf pondweed (*P. natans*), clasping leaf pondweed (*P. richardsonii*), robbin's pondweed (*P. robbinsii*) and flat stem pondweed (*P. zosteriformis*).

Chemical treatments and mechanical removal efforts should be limited to navigational channels only.

Resource Value of Site D

Sensitive area D is located along the southwestern shore of Spirit Lake. This area encompasses approximately 800 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 D includes: **Emergents;** giant reed grass (*Phragmites* sp.) and hardstem bulrush (*Scirpus acutus*). **Submergents;** wild celery (*Vallisneria americana*), coontail (*Ceratophyllum demersum*), muskgrass (*Char* sp.), elodea, northern milfoil (*Myriophyllum sibiricum*), large leaf pondweed (*Potamogeton amplifolius*), variable leaf pondweed (*P. gramineus*), illinois pondweed (*P. illinoensis*), clasping leaf pondweed (*P. richardsonii*), robbin's pondweed (*P. robbinsii*) and flat stem pondweed (*P. zosteriformis*).

Chemical treatments and mechanical removal efforts should be limited to navigational channels only.

Resource Value of Site E

Sensitive area E is located along the northwestern shore of Spirit Lake. This area encompasses approximately 2,500 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 E includes: **Emergents;** purple loosestrife* (*Lythrum salicaria*), hardstem bulrush (*Scirpus acutus*), river bulrush (*Scirpus fluviatilis*) and narrow leaf cattail (*Typha angustifolia*). **Floating;** spatterdock (*Nuphar variegata*). **Submergents;** wild celery (*Vallisneria americana*), coontail (*Ceratophyllum demersum*), water star grass (*Zosterella dubia*), elodea, northern milfoil (*Myriophyllum sibiricum*), bushy pondweed

(*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), variable leaf pondweed (*P. gramineus*), illinois pondweed (*P. illinoensis*), clasping leaf pondweed (*P. richardsonii*), robbin's pondweed (*P. robbinsii*) and flat stem pondweed (*P. zosteriformis*).

Chemical treatments and mechanical removal efforts should be limited to navigational channels only.

Resource Value of Site F

Sensitive area F is located along the northern shore of Spirit Lake. This area encompasses approximately 2,500 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; purple loosestrife*** (*Lythrum salicaria*), hardstem bulrush (*Scirpus acutus*) and river bulrush (*Scirpus fluviatilis*). **Submergents;** wild celery (*Vallisneria americana*), coontail (*Ceratophyllum demersum*), water star grass (*Zosterella dubia*), elodea, northern milfoil (*Myriophyllum sibiricum*), large leaf pondweed (*Potamogeton amplifolius*), variable leaf pondweed (*P. gramineus*), illinois pondweed (*Potamogeton illinoensis*), clasping leaf pondweed (*P. richardsonii*), robbin's pondweed (*P. robbinsii*) and flat stem pondweed (*P. zosteriformis*).

Chemical treatments and mechanical removal efforts should be limited to navigational channels only.

Resource Value of Site G

Sensitive area G is located along the point on the northern shore of Spirit Lake. This area encompasses approximately 1,500 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 G includes: **Emergents; purple loosestrife*** (*Lythrum salicaria*), hardstem bulrush (*Scirpus acutus*), pickerelweed (*Pontederia cordata*), narrow leaf cattail (*Typha angustifolia*), broad leaf cattail (*Typha latifolia*) and river bulrush (*Scirpus fluviatilis*). **Floating;** spatterdock (*Nuphar variegata*) and white water lily (*Nymphaea odorata*). **Submergents;** wild celery (*Vallisneria americana*), coontail (*Ceratophyllum demersum*), elodea, northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), variable leaf pondweed (*P. gramineus*), illinois pondweed (*P. illinoensis*), sago pondweed (*P. pectinatus*), clasping leaf pondweed (*P. richardsonii*), robbin's pondweed (*P. robbinsii*) and flat stem pondweed (*P. zosteriformis*).

Chemical treatments and mechanical removal efforts should be limited to navigational channels only.

Resource Value of Site H

Sensitive area H is located along the northeastern shore of Spirit Lake. This area encompasses approximately 4,500 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 H includes: **Emergents; purple loosestrife*** (*Lythrum salicaria*), giant reed grass (*Phragmites* sp.), pickerelweed (*Pontederia*

cordata), hardstem bulrush (*Scirpus acutus*), river bulrush (*Scirpus fluviatilis*), narrow leaf cattail (*Typha angustifolia*) and broad leaf cattail (*Typha latifolia*). **Floating:** spatterdock (*Nuphar variegata*) and white water lily (*Nymphaea odorata*). **Submergents:** wild celery (*Vallisneria americana*), coontail (*Ceratophyllum demersum*), muskgrass (*Chara* sp.), elodea, northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), variable leaf pondweed (*P. gramineus*), illinois pondweed (*P. illinoensis*), clasping leaf pondweed (*P. richardsonii*), robbin's pondweed (*P. robbinsii*) and flat stem pondweed (*P. zosteriformis*).

Chemical treatments and mechanical removal efforts should be limited to navigational channels only.