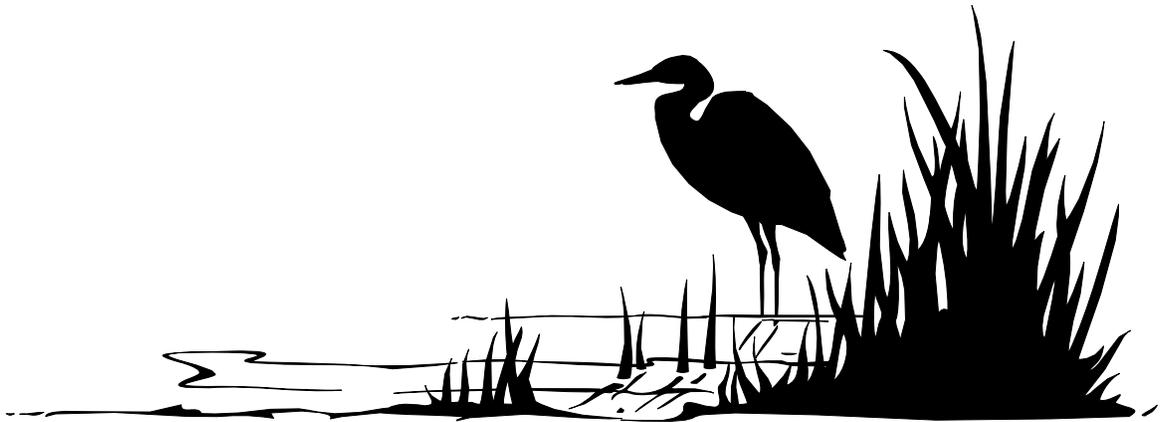


LONG LAKE SENSITIVE AREA SURVEY REPORT AND MANAGEMENT GUIDELINES



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

Long Lake (Washburn Co.) Integrated Sensitive Area Survey Report

Date of Survey: August 1998

Number of Sensitive Areas: 32

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Lake Sensitive Area Survey results identified thirty two areas that merit special protection of the aquatic habitat. These designated sensitive areas of aquatic vegetation in Long 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.

Wild rice (*Zizania sp.*) was documented in sensitive areas "A, C, E, F, K, L, N, O, P and #2". 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 these rice stands.

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 Long 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 Long 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 four areas which provide the necessary habitat for the spawning success of walleyes (sites M, Q, S, V and Z). 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 is located in the northern end of Long Lake, near the narrows (T.38N, R10W, S.19). 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, floating and submergent plant community structure of Sensitive area A includes: **Emergent**; wild rice (*Zizania aquatica*). **Floating leafed**; watermeal (*Wolffia* sp.), white water lily (*Nymphaea odorata*) and yellow pond lily (*Nuphar advena*). **Submergents**; elodea (*Elodea canadensis*), coontail (*Ceratophyllum demersum*), northern milfoil (*Myriophyllum sibiricum*), busy pondweed (*Najas flexilis*), richardsons pondweed (*Potamogeton richardsonii*), large leaf pondweed (*P. amplifolius*), sago pondweed (*P. pectinatus*), white stem pondweed (*P. praelongus*), clasping leaf pondweed (*P. richardsonii*), robbin's pondweed (*P. robbinsii*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site B

Sensitive area B is located in the far northern end of Long Lake (T38N, R10W, S.17). This area encompasses approximately 700 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 submergent plant community structure of Sensitive area B includes: **Submergents;** elodea (*Elodea canadensis*), coontail (*Ceratophyllum demersum*), northern milfoil (*Myriophyllum sibiricum*), large leaf pondweed (*P. amplifolius*), white stem pondweed (*P. praelongus*), richardsons pondweed (*Potamogeton richardsonii*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site C

Sensitive area C is located the extreme northern end of Long Lake (T38N, R10W, S.16). This area encompasses approximately 1,600 feet of shoreline and the entrance of Slim Creek.

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: **Emergent;** wild rice (*Zizania aquatica*). **Floating leafed;** yellow water lily (*Nuphar advena*). **Submergents;** elodea (*Elodea canadensis*), coontail (*Ceratophyllum demersum*), richardsons pondweed (*Potamogeton richardsonii*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site D

Sensitive area D is located in the northern end of Long Lake (T38N, R10W, S.19&20). This area encompasses approximately 1,600 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 submergent plant community structure of Sensitive area D includes: **Submergents;** coontail (*Ceratophyllum demersum*), northern milfoil (*Myriophyllum sibiricum*), large leaf pondweed (*Potamogeton amplifolius*), clasping leaf pondweed (*P. richardsonii*), white stem pondweed (*P. praelongus*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site E

Sensitive area E is located in the northern end of Long Lake, encompassing the entrance of Mud Lake (T38N, R10W, S.19&30). This area covers approximately 3,000 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 E includes: **Emergent;** wild rice (*Zizania aquatica*). **Floating leafed;** yellow pond lily (*Nuphar advena*), white water lily (*Nymphaea odorata*), great duckweed (*Spirodela polyrhiza*) and watermeal (*Wolffia* sp.). **Submergents;** coontail (*Ceratophyllum demersum*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), sago pondweed (*P. pectinatus*) and clasping leaf pondweed (*Potamogeton richardsonii*).

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

Resource Value of Site F

Sensitive area F is located in the northern end of Mud Lake and the connecting waterway to Long Lake (T38N, R10W, S.30). This area encompasses approximately 8,000 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 F includes: **Emergent;** wild rice (*Zizania aquatica*). **Floating leafed;** duckweed (*Lemna* sp.), great duckweed (*Spirodela polyrhiza*), watermeal (*Wolffia* sp.), white water lily (*Nymphaea odorata*) and yellow pond lily (*Nuphar advena*). **Submergents;** coontail (*Ceratophyllum demersum*), sago pondweed (*Potamogeton pectinatus*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site G

Sensitive area G is located in the "Narrows" of Long Lake (T38N, R11W, S.24&25). This area encompasses approximately 10,000 feet of shoreline.

This area provides important habitat for centrarchid (bass and panfish) 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 G includes: **Floating leafed;** yellow pond lily (*Nuphar advena*). **Submergents;** coontail (*Ceratophyllum demersum*), northern milfoil (*Myriophyllum sibiricum*), large leaf pondweed (*Potamogeton amplifolius*), sago pondweed (*P.*

pectinatus), clasping leaf pondweed (*P. richardsonii*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site H

Sensitive area H is located in the northern end of Mud Lake and the connecting waterway to Long Lake (T38N, R11W, S.26). This area encompasses approximately 600 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 H includes: **Emergent;** hardstem bulrush (*Scirpus acutus*). **Submergents;** coontail (*Ceratophyllum demersum*), northern milfoil (*Myriophyllum sibiricum*), large leaf pondweed (*Potamogeton amplifolius*), clasping leaf pondweed (*P. richardsonii*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site I

Sensitive area I is located in the "narrows" of Long Lake (T38, R11W, S.35 and T37N, R11W, S.2). This area encompasses approximately 7,000 feet of shoreline.

This area provides important habitat for centrarchid (bass and panfish) 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 submergent plant community structure of Sensitive area I includes: **Submergents;** coontail (*Ceratophyllum demersum*), northern milfoil (*Myriophyllum sibiricum*) and large leaf pondweed (*Potamogeton amplifolius*)

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

Resource Value of Site J

Sensitive area J is located in the southern portion of the "narrows" in Long Lake (T37N, R11W, S.2). This area encompasses approximately 1,600 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 J includes: **Emergent;** hardstem bulrush (*Scirpus acutus*) and pickerelweed (*Pontederia cordata*). **Floating;** duckweed (*Lemna* sp.), great duckweed (*Sprodelia polyrhiza*), yellow pond lily (*Nuphar advena*), white water lily (*Nymphaea odorata*) and watermeal (*Wolffia* sp.). **Submergents;** coontail (*Ceratophyllum demersum*), elodea (*Elodea canadensis*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), sago pondweed (*P. pectinatus*), clasping leaf pondweed (*P. richardsonii*), flat stem pondweed (*P. zosteriformis*) and wild celery (*Vallisneria americana*).

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

Resource Value of Site K

Sensitive area K is located in the southern portion of the "narrows" in Long Lake (T37N, R11W, S.2&3). This area encompasses approximately 3,200 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 K includes: **Emergent;** wild rice (*Zizania aquatica*), narrow leaf cattail (*Typha angustifolia*), hardstem bulrush (*Scirpus acutus*) and pickerelweed (*Pontederia cordata*). **Floating;** duckweed (*Lemna* sp.), great duckweed (*Sprodelia polyrhiza*), yellow pond lily (*Nuphar advena*), white water lily (*Nymphaea odorata*) and watermeal (*Wolffia* sp.). **Submergents;** coontail (*Ceratophyllum demersum*), elodea (*Elodea canadensis*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), floating leaf pondweed (*P. natans*), sago pondweed (*P. pectinatus*), clasping leaf pondweed (*P. richardsonii*), robbin's pondweed (*P. robbinsii*), flat stem pondweed (*P. zosteriformis*) and wild celery (*Vallisneria americana*).

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

Resource Value of Site L

Sensitive area L is located in the central portion of Long Lake (T37N, R11W, S.3&10). This area encompasses approximately 2,000 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 L includes: **Emergent;** wild rice (*Zizania aquatica*), narrow leaf cattail (*Typha angustifolia*), hardstem bulrush (*Scirpus acutus*), soft stem bulrush (*Scirpus validus*) and pickerelweed (*Pontederia cordata*). **Floating;** duckweed (*Lemna* sp.), great duckweed (*Sprodelia polyrhiza*), yellow pond lily (*Nuphar advena*), white water lily (*Nymphaea odorata*) and watermeal (*Wolffia* sp.). **Submergents;** coontail (*Ceratophyllum demersum*), elodea (*Elodea canadensis*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), floating leaf pondweed (*P. natans*), sago pondweed (*P. pectinatus*), clasping leaf pondweed (*P. richardsonii*), flat stem pondweed (*P. zosteriformis*) and wild celery (*Vallisneria americana*).

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

Resource Value of Site M

Sensitive area M is located central portion of Long Lake and covers approximately 1,000 feet (T37N, R11W, S.14). 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 N

Sensitive area N is located in the southeastern portion of Long Lake (T37N, R11W, S.14). This area encompasses approximately 1,600 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 N includes: **Emergent**; sedge (*Carex* sp.), wild rice (*Zizania aquatica*), broadleaf cattail (*Typha latifolia*), bur-reed (*Sparganium* sp.), hardstem bulrush (*Scirpus acutus*), arrowhead (*Sagittaria* sp.) and pickerelweed (*Pontederia cordata*). **Floating**; duckweed (*Lemna* sp.), great duckweed (*Sprodelia polyrhiza*), yellow pond lily (*Nuphar advena*), white water lily (*Nymphaea odorata*) and watermeal (*Wolffia* sp.). **Submergents**; coontail (*Ceratophyllum demersum*), muskgrass (*Chara* sp.), elodea (*Elodea canadensis*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), floating leaf pondweed (*P. natans*), white stem pondweed (*P. praelongus*), clasping leaf pondweed (*P. richardsonii*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site O

Sensitive area O is located in the southeastern portion of Long Lake (T37N, R11W, S.11&14). This area encompasses approximately 1,600 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 O includes: **Emergent**; sedge (*Carex* sp.), wild rice (*Zizania aquatica*), broadleaf cattail (*Typha latifolia*), bur-reed (*Sparganium* sp.), hardstem bulrush (*Scirpus acutus*), arrowhead (*Sagittaria* sp.) and pickerelweed (*Pontederia cordata*). **Floating**; duckweed (*Lemna* sp.), great duckweed (*Sprodelia polyrhiza*), yellow pond lily (*Nuphar advena*), white water lily (*Nymphaea odorata*) and watermeal (*Wolffia* sp.). **Submergents**; coontail (*Ceratophyllum demersum*), muskgrass (*Chara* sp.), elodea (*Elodea*

canadensis), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), sago pondweed (*P. pectinatus*), robbin's pondweed (*P. robbinsii*), floating leaf pondweed (*P. natans*), white stem pondweed (*P. praelongus*), clasping leaf pondweed (*P. richardsonii*), flat stem pondweed (*P. zosteriformis*) and wild celery (*Vallisneria americana*).

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

Resource Value of Site P

Sensitive area P is located in the southeastern portion of Long Lake (T37N, R11W, S.12). This area encompasses approximately 300 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 P includes: **Emergent;** sedge (*Carex* sp.), wild rice (*Zizania aquatica*), broadleaf cattail (*Typha latifolia*), bur-reed (*Sparganium* sp.), hardstem bulrush (*Scirpus acutus*), arrowhead (*Sagittaria* sp.) and pickerelweed (*Pontederia cordata*). **Floating;** duckweed (*Lemna* sp.), great duckweed (*Sprodelia polyrhiza*), yellow pond lily (*Nuphar advena*), white water lily (*Nymphaea odorata*) and watermeal (*Wolffia* sp.). **Submergents;** coontail (*Ceratophyllum demersum*), elodea (*Elodea canadensis*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), floating leaf pondweed (*P. natans*), clasping leaf pondweed (*P. richardsonii*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site Q

Sensitive area Q is located central portion of Long Lake and covers approximately 1,000 feet (T37N, R11W, S.23). 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 R

Sensitive area R is located in the central portion of Long Lake (T37N, R11W, S.26). This area encompasses approximately 300 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 R includes: **Emergent;** broadleaf cattail (*Typha latifolia*), bur-reed (*Sparganium* sp.), hardstem bulrush (*Scirpus acutus*) and pickerelweed (*Pontederia cordata*). **Floating;** yellow pond lily (*Nuphar advena*), white water lily (*Nymphaea odorata*). **Submergents;** coontail (*Ceratophyllum demersum*), muskgrass (*Chara* sp.), elodea (*Elodea canadensis*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), floating leaf pondweed (*P. natans*), white stem pondweed (*P. praelongus*), clasping leaf pondweed (*P. richardsonii*), robbin's pondweed (*P. robbinsii*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site S

Sensitive area S is located central portion of Long Lake and covers approximately 1,000 feet (T37N, R11W, S.23). 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 T

Sensitive area T is located in the central portion of Long Lake (T37N, R11W, S.26). 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, floating and submergent plant community structure of Sensitive area T includes: **Emergent;** broadleaf cattail (*Typha latifolia*), bur-reed (*Sparganium* sp.), hardstem bulrush (*Scirpus acutus*) and pickerelweed (*Pontederia cordata*). **Floating;** yellow pond lily (*Nuphar advena*), white water lily (*Nymphaea odorata*). **Submergents;** coontail (*Ceratophyllum demersum*), muskgrass (*Chara* sp.), elodea (*Elodea canadensis*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), floating leaf pondweed (*P. natans*), white stem pondweed (*P. praelongus*), clasping leaf pondweed (*P. richardsonii*), robbin's pondweed (*P. robbinsii*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site U

Sensitive area U is located in the central portion of Long Lake (T37N, R11W, S.22). This area encompasses approximately 400 feet of shoreline.

This area provides important habitat for centrarchid (bass and panfish) 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 U includes: **Emergent;** broadleaf cattail (*Typha latifolia*), bur-reed (*Sparganium* sp.), arrowhead (*Sagittaria* sp.), hardstem bulrush (*Scirpus acutus*) and pickerelweed (*Pontederia cordata*). **Floating;** duckweed (*Lemna* sp.), great duckweed (*Spirodela polyrhiza*), watermeal (*Wolffia* sp.), yellow pond lily (*Nuphar advena*), white water lily (*Nymphaea odorata*). **Submergents;** coontail (*Ceratophyllum demersum*), elodea (*Elodea canadensis*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), floating leaf pondweed (*P. natans*), sago pondweed (*P. pectinatus*), white stem pondweed (*P. praelongus*), clasping leaf pondweed (*P. richardsonii*), robbin's pondweed (*P. robbinsii*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site V

Sensitive area V is located central portion of Long Lake and covers approximately 1,000 feet (T37N, R11W, S.22). 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 W

Sensitive area W is located in the central portion of Long Lake (T37N, R11W, S.15). This area encompasses approximately 200 feet of shoreline.

This area provides important habitat for centrarchid (bass and panfish) 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 W includes: **Floating**; yellow pond lily (*Nuphar advena*), white water lily (*Nymphaea odorata*). **Submergents**; coontail (*Ceratophyllum demersum*), elodea (*Elodea canadensis*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), sago pondweed (*P. pectinatus*), white stem pondweed (*P. praelongus*), clasping leaf pondweed (*P. richardsonii*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site X

Sensitive area X is located in the central portion of Long Lake (T37N, R11W, S.16&15). This area encompasses approximately 800 feet of shoreline.

This area provides important habitat for centrarchid (bass and panfish) 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 X includes: **Emergent**; pickerelweed (*Pontederia cordata*), hardstem bulrush (*Scirpus acutus*) and bur-reed (*Sparganium* sp.). **Floating**;

duckweed (*Lemna* sp.), forked duckweed (*Lemna trisulca*), great duckweed (*Spirodela polyrhiza*), watermeal (*Wolffia* sp.), yellow pond lily (*Nuphar advena*), white water lily (*Nymphaea odorata*). **Submergents;** coontail (*Ceratophyllum demersum*), elodea (*Elodea canadensis*), water stargrass (*Zosterella dubia*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), curly leaf pondweed (*P. crispus*), variable pondweed (*P. gramineus*), floating leaf pondweed (*P. natans*), sago pondweed (*P. pectinatus*), white stem pondweed (*P. praelongus*), clasping leaf pondweed (*P. richardsonii*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site Y

Sensitive area Y is located in the central portion of Long Lake (T37N, R11W, S.16). This area encompasses approximately 800 feet of shoreline.

This area provides important habitat for centrarchid (bass and panfish) 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 Y includes: **Emergent;** pickerelweed (*Pontederia cordata*), arrowhead (*Sagittaria* sp.), and bur-reed (*Sparganium* sp.). **Floating;** yellow pond lily (*Nuphar advena*) and white water lily (*Nymphaea odorata*). **Submergents;** coontail (*Ceratophyllum demersum*), elodea (*Elodea canadensis*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), floating leaf pondweed (*P. natans*), sago pondweed (*P. pectinatus*), clasping leaf pondweed (*P. richardsonii*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site Z

Sensitive area Z is located central portion of Long Lake and covers approximately 1,000 feet (T37N, R11W, S.10). 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 #1

Sensitive area #1 is located in the central portion of Long Lake (T37N, R11W, S.10). This area encompasses approximately 1,600 feet of shoreline.

This area provides important habitat for centrarchid (bass and panfish) and walleye 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 #1 includes: **Emergent;** water arum (*Calla palustris*), arrowhead (*Sagittaria* sp.), hardstem bulrush (*Scirpus acutus*) and bur-reed (*Sparganium* sp.). **Floating;** duckweed (*Lemna* sp.), great duckweed (*Spirodela polyrhiza*), watermeal (*Wolffia* sp.) and yellow pond lily (*Nuphar advena*). **Submergents;** coontail (*Ceratophyllum demersum*), muskgrass (*Chara* sp.), elodea (*Elodea canadensis*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), stonewort (*Nitella* sp.), large leaf pondweed (*Potamogeton amplifolius*), variable pondweed (*P. gramineus*), floating leaf pondweed (*P. natans*), sago pondweed (*P. pectinatus*), clasping leaf pondweed (*P. richardsonii*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site #2

Sensitive area #2 is located in the central portion of Long Lake (T37N, R11W, S.3). This area encompasses approximately 3,600 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 #2 includes: **Emergent;** wild rice (*Zizania aquatica*), sedges (*Carex* sp.), rushes (*Juncus* sp.), pickerelweed (*Pontederia cordata*), arrowhead (*Sagittaria* sp.), hardstem bulrush (*Scirpus acutus*), broad leaf cattail (*Typha latifolia*) and bur-reed (*Sparganium* sp.). **Floating;** duckweed (*Lemna* sp.), great duckweed (*Spirodela polyrhiza*), watermeal (*Wolffia* sp.) white water lily (*Nymphaea odorata*) and yellow pond lily (*Nuphar advena*). **Submergents;** coontail (*Ceratophyllum demersum*), elodea (*Elodea canadensis*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), floating leaf pondweed (*P. natans*), sago pondweed (*P. pectinatus*), clasping leaf pondweed (*P. richardsonii*), robbin's pondweed (*P. robbinsii*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site #3

Sensitive area #3 is located in the southern end of the "narrows" on Long Lake (T37N, R11W, S.3). This area encompasses approximately 800 feet of shoreline.

This area provides important habitat for centrarchid (bass and panfish) 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 #3 includes: **Emergent;** pickerelweed (*Pontederia cordata*), hardstem bulrush (*Scirpus acutus*) and bur-reed (*Sparganium* sp.). **Floating;** duckweed (*Lemna* sp.), great duckweed (*Spirodela polyrhiza*), watermeal (*Wolffia* sp.) white water lily (*Nymphaea odorata*) and yellow pond lily (*Nuphar advena*). **Submergents;** wild celery (*Vallisneria americana*), coontail (*Ceratophyllum demersum*), elodea (*Elodea canadensis*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), sago pondweed (*P. pectinatus*), clasping leaf pondweed (*P. richardsonii*), robbin's pondweed (*P. robbinsii*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site #4

Sensitive area #4 is located in the central portion of Long Lake (T37N, R11W, S.2). This area encompasses approximately 600 feet of shoreline.

This area provides important habitat for centrarchid (bass and panfish) 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 #4 includes: **Floating;** duckweed (*Lemna* sp.), great duckweed (*Spirodela polyrhiza*), watermeal (*Wolffia* sp.) and yellow pond lily (*Nuphar advena*). **Submergents;** coontail (*Ceratophyllum demersum*), elodea (*Elodea canadensis*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), sago pondweed (*P. pectinatus*), clasping leaf pondweed (*P. richardsonii*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site #5

Sensitive area #5 is located in the "narrows" in Long Lake (T38N, R11W, S.35). This area encompasses approximately 1,600 feet of shoreline.

This area provides important habitat for centrarchid (bass and panfish) 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 #5 includes: **Floating**; white water lily (*Nymphaea odorata*) and yellow pond lily (*Nuphar advena*). **Submergents**; coontail (*Ceratophyllum demersum*), elodea (*Elodea canadensis*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), sago pondweed (*P. pectinatus*), clasping leaf pondweed (*P. richardsonii*) and flat stem pondweed (*P. zosteriformis*).

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

Resource Value of Site #6

Sensitive area #6 is located in the northern portion of the "narrows" in Long Lake (T38N, R11W, S.24&19). This area encompasses 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 #6 includes: **Emergent;** hardstem bulrush (*Scirpus acutus*), soft stem bulrush (*Scirpus validus*) and bur-reed (*Sparganium* sp.). **Floating;** duckweed (*Lemna* sp.), great duckweed (*Spirodela polyrhiza*), watermeal (*Wolffia* sp.), white water lily (*Nymphaea odorata*) and yellow pond lily (*Nuphar advena*). **Submergents;** coontail (*Ceratophyllum demersum*), elodea (*Elodea canadensis*), northern milfoil (*Myriophyllum sibiricum*), bushy pondweed (*Najas flexilis*), large leaf pondweed (*Potamogeton amplifolius*), sago pondweed (*P. pectinatus*), clasping leaf pondweed (*P. richardsonii*), robbin's pondweed (*P. robbinsii*) and flat stem pondweed (*P. zosteriformis*).

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