

# **Lake Management**

## **Sensitive Area Designation**

### **Goose Lake, Adams County**

#### **I. Introduction**

As development expands and recreation increases on the lakes in the state, the characteristics that attracted both residents and visitors to a lake can be lost. Besides the impact to the human population, the increase in development and recreation has a negative impact on the fish and wildlife population. Designating sensitive areas can preserve the areas that are most important to preserving the integrity of the aquatic ecosystem.

Designation of sensitive areas within lakes provide a holistic approach to the protection of those sites within a lake that are most important for preserving the very character and qualities of the lake that initially attracted development on the lake. These sites are those sensitive and fragile areas that support the wildlife and fish habitat, provide the mechanisms that protect the water quality in the lake, harbor quality plant communities and preserve the places of serenity and aesthetic beauty for the enjoyment of lake residents and visitors. The sensitive area designations will provide a framework for management decisions that impact the ecosystem of the lake.

A Sensitive Area Study was conducted August 14, 2001 at Goose Lake, Adams County (T15N R7E S10, 11).

The study team included:

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Goose Lake is a 81-acre lake with a maximum depth of 18 ft. The southwest basin of the lake provides the deep water habitat. The north and west basins are actually deep marshes. One island partially separates the west basin and a peninsula partially separates the north basin.

## **II. Sensitive Area GL1 – West Basin**

This basin averages 5 feet in depth and contains near-shore habitat, shoreline habitat and shallow water habitat (see map). The basin provides visual and sound buffers and an area of outstanding beauty for lake residents and visitors.

The shoreline of this basin is undeveloped at the time but lots have been platted along the west shore and are being sold. Currently it is about 80% wooded and 20 % wetland. Woody material is present in the shallow zone for habitat. The wetlands contain wet meadows, shrub and evergreen wetlands and deep marsh wetlands.

### **The Plant Community:**

The plant community in this area consists of sedge, Illinois pondweed, yellow pond lily and white water lily as the most abundant species. Other commonly occurring species were: marsh fern, blue-joint grass, bulrush, spike-rush, tag alder, willow, dogwood, bur-reed, watershield, small bladderwort, northern milfoil, Eurasian watermilfoil, water bulrush, clasping-leaf pondweed and flat-stem pondweed. Purple loosestrife was also present.

### **Water Quality**

Maintaining the integrity of this sensitive area is important protecting the water quality of Goose Lake. The submerged and floating-leaf vegetation in this area take up nutrients into their tissues that would otherwise be available for algae growth. The emergent vegetation on the west shore are filtering water that runs off the steep west shore. The submergent vegetation is protecting the lake bottom from resuspension of the fertile muck and peat sediments by boat traffic and wind action, thus maintaining clarity.

### **Fish Habitat**

The fallen woody debris along the shore and mosaic of submerged vegetation and floating-leaf vegetation with open area provides a diversity of habitat and feeding opportunities for the fish community. This basin provides spawning, nursery, feeding and cover for northern pike, large-mouth bass, perch and panfish, suckers and bullheads.

### **Wildlife Habitat**

The variety of emergent vegetation, floating-leaf vegetation, shrubs and snag trees provide cover and feeding areas for upland wildlife; shelter, cover, nursery and feeding areas for beaver, otter, muskrat and mink; cover, nesting and feeding for raptors, ducks, songbirds and possibly geese; cover, feeding and nesting for amphibians and reptiles.

The healthy aquatic plant community may be preventing the dominance of Eurasian watermilfoil.

## **Recommendations**

- 1) Post Eurasian milfoil signs at the boat landing.
- 2) Monitor the Eurasian milfoil and take action if it should start to dominate.
- 3) Treat the purple loosestrife.

- 4) Maintain the aquatic vegetation in an undisturbed condition for wildlife habitat, fish cover and water quality protection.
- 5) Do not remove fallen trees along shoreline.
- 6) Maintain shoreline vegetation, shrubs and snag trees for wildlife habitat, natural beauty and water quality protection.
- 7) Install nest boxes
- 8) Protect emergent vegetation and minimize plant removal
- 9) Basin should be a “no-wake zone”

### **III. Sensitive Area GL2 – North Basin**

This basin averages 6.5 feet in depth and contains near-shore habitat, shoreline habitat and shallow water habitat. The basin provides visual and sound buffers and an area of outstanding beauty for lake residents and visitors.

The shoreline of this basin is undeveloped at the time but lots have been platted along the west shore and are being sold. Currently it is about 50% wooded and 50 % wetland. The wetlands contain wet meadows, shrub wetlands, tamarack bog and deep marsh wetlands.

#### **The Plant Community:**

The plant community in this area (see map) consists of dogwood, sedge, water bulrush, common bladderwort, Illinois pondweed, white water lily and yellow pond lily as the most abundant species. Other common species were: marsh fern, bulrush, spike-rush, blueflag iris, smartweed, tag alder, tamarack, cattail, bulrush, watershield, water buttercup, small bladderwort, Eurasian watermilfoil, bushy pondweed, floating-leaf pondweed, clasping-leaf pondweed and flat-stem pondweed. Filamentous algae was also present.

#### **Water Quality**

Maintaining the integrity of this sensitive area is important protecting the water quality of Goose Lake. The submerged and floating-leaf vegetation in this area ties up nutrients in their tissues that would otherwise be available for algae growth. The emergent vegetation on the west shore are filtering water that runs off the steep west shore. The submergent vegetation is protecting the lake bottom from resuspension of the fertile muck and peat sediments by boat traffic and wind action, thus maintaining clarity.

#### **Fish Habitat**

The emergent vegetation and mosaic of submerged vegetation and floating-leaf vegetation with open area provides a diversity of habitat and feeding opportunities for the fish community. This basin provides spawning, nursery, feeding and cover for northern pike, large-mouth bass, perch and panfish, suckers and bullheads.

#### **Wildlife Habitat**

The variety of emergent vegetation, floating-leaf vegetation, shrubs and snag trees provide cover and feeding areas for upland wildlife; shelter, cover, nursery and feeding areas for beaver, otter, muskrat and mink; cover, nesting and feeding for raptors, ducks, songbirds and possibly geese; cover, feeding and nesting for amphibians and reptiles.

The healthy aquatic plant community may be preventing the dominance of Eurasian watermilfoil.

### **Recommendations**

- 1) Post Eurasian milfoil signs at the boat landing.
- 2) Monitor the Eurasian milfoil and take action if it should start to dominate.
- 3) Maintain the aquatic vegetation in an undisturbed condition for wildlife habitat, fish cover and water quality protection.

- 4) Maintain shoreline vegetation, shrubs and snag trees for wildlife habitat, water quality protection and natural beauty.
- 5) Install nest boxes
- 6) Protect emergent vegetation and minimize plant removal
- 7) Basin should be a “no-wake zone”