

Lake-Shallow

Ecological Systems
Not defined

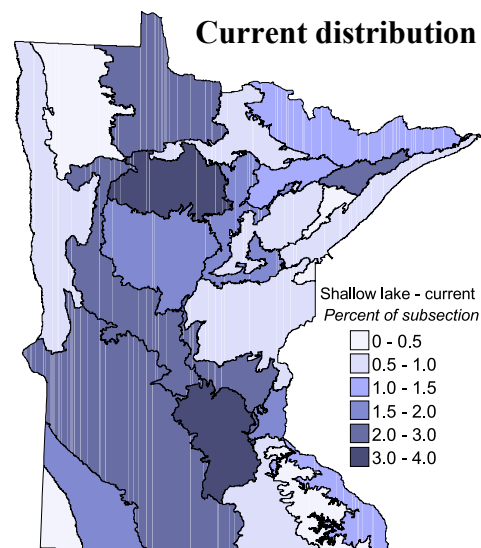
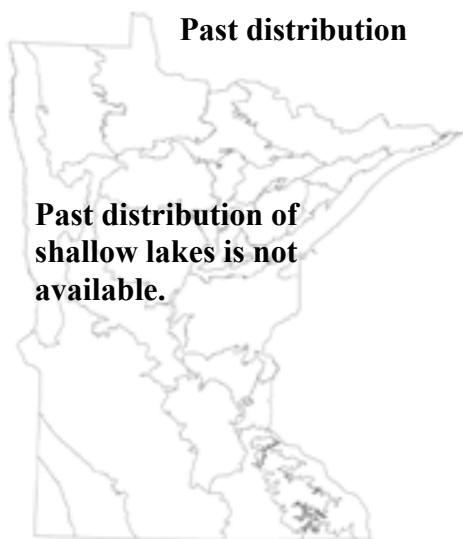
Native Plant Community Types (NPC)
Aquatic systems are not classified in the native plant communities system.

NPC Codes
None



M. Lee MN DNR

Duck Slough, Stearns County.



Source: MN DNR Shallow Lakes Program 2005

General Description

Shallow lakes are permanent or semi-permanent water bodies less than 15 feet (5 meters) deep, and can be further classified into four types based on surface area and alkalinity (Table 6.3; Valley et al. 2004).

Table 6.3. Lake Classification Parameters

Area	Small: < 500 acres (200 hectares)	Large: > 500 acres (200 hectares)
Alkalinity	Alkaline: >100 ppm mg/L CaCO ₃	Not Alkaline: < 100 ppm mg/L CaCO ₃

Shallow lakes have abundant aquatic plant growth due to high nutrient content (phosphorus, nitrogen, and minerals) and the high sunlight availability in shallow water. Stands of emergent and floating-leaved aquatic plants such as cattails (*Typha* spp.), bulrush (several genera), water lily (*Nymphaea* spp.) and reeds (several genera), as well as submerged plants, such as coontail, are usually present throughout the entire basin, creating an extended littoral zone. These plants provide excellent food and habitat for zooplankton, insects, fish, waterfowl, and other wildlife. Aquatic vegetation also anchors sediments, maintaining water clarity (Conroy 2005).

Sediment and nutrients in shallow lakes, unlike in deeper lakes, are constantly mixing. Shallow lakes lack temperature stratification, and wind-wave action easily penetrates to the bottom of the shallow basin.

Shallow lakes can often benefit from periods of low water that stimulate beneficial aquatic plant growth. Persistent and high water levels restrict plant growth and reduce water quality, allowing significant algal growth. Low water conditions can help set the stage for winterkills that can decrease or eliminate populations of rough fish species, such as carp and black bullhead. While shallow lakes can support populations of game fish, low levels of dissolved oxygen and winterkills tend to limit their numbers.

Chemical, nutrient, and sediment inputs from agricultural practices and runoff from impervious sources, such as roads, parking lots, and roofs, can seriously degrade shallow lake habitats. Due to the low volume of water, shallow lakes can be more susceptible to such runoff than deep-water lakes. Surface water use can sometimes be as important as land use management in maintaining a healthy shallow lake. Aquatic vegetation can suffer from too many docks, boats, and outboard motors on a lake. Since settlement by people of European descent, hundreds of thousands of acres of Minnesota's shallow lakes have been ditched and drained.

Examples of Important Features for Species in Greatest Conservation Need

Shallow lakes are well recognized for their importance as breeding areas for waterfowl species, such as the **lesser scaup, northern pintail, and common moorhen**. They are also important for many other species.

Least bitterns, American bitterns, marsh wrens, and Virginia rails require emergent marshes as breeding habitat. Least bitterns show a strong association with cattails, preferring dense, tall stands interspersed with woody vegetation and open water. American bitterns use similar habitats but use less densely vegetated sites in shallower water. Both bitterns tend to be limited to wetlands greater than 4 acres (10 hectares) in size. Virginia rails need a mixture of emergent vegetation of cattails or bulrushes, open water, and mud flats for foraging. They frequent younger, earlier successional marshes, avoiding older marshes with dense vegetation.

Forster's terns require large deep-water marshes with considerable open water. Muskrat houses or floating mats of vegetation are important nest sites.

Management Options to Support Species in Greatest Conservation Need

- Prevent loss or degradation of all types of shallow lakes.
- Preserve shallow lakes and wetlands, especially in the Eastern Broadleaf Forest and Prairie Parkland provinces.
- Focus on protecting larger shallow lakes (> 4 acres (10 hectares)) and shallow lake and wetland complexes.
- Restore large complexes of shallow lakes and wetlands, with attention to the habitat features required by SGCN.
- Manage for a natural water regime in shallow lakes.
- Manage the invasions of invasive non-native plants in shallow lakes (for example, purple loosestrife).
- Protect known nesting areas of Forster's terns.
- Enforce wetland protection regulations ("no-net loss") as they pertain to shallow lakes.