

ESTUARIES & COASTAL WETLANDS OF LAKE SUPERIOR

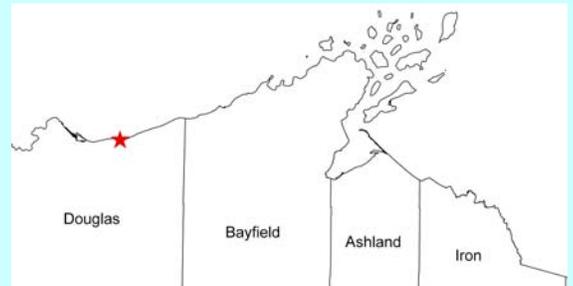
Middle River Estuary

Approximate Size: 20 acres*

Ownership: Town of Lakeside, Private

Year Last Surveyed by WDNR/NHI: 2012

GLCWC Classification: Barred Drowned River Mouth



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Site Description

The Middle River is a warm-water stream in north central Douglas County. The town of Lakeside owns property at the river mouth, providing public access to the river, lake, and public beach. Scattered rural residential homes on large acreages occupy remaining lands along the first quarter-mile of river. Young aspen-birch (*Populus-Betula*) forest lies west of the river, while more mature mixed conifer-deciduous forest lies east of the river.

A small sand formation partially bars the river at its juncture with Lake Superior. The sand bar east of the river is dominated by beach grass (*Ammophila breviligulata*), while the beach to the west is unvegetated, has eroding banks, and is littered with woody storm deposits. Disturbed Northern Sedge Meadow and Alder Thicket occur at the river mouth and just upstream; these areas are littered with woody flotsam, have moderate native floral diversity, and numerous invasive plants. Open wetlands transition to a narrow margin of speckled alder (*Alnus incana*), bayberry willow (*Salix myricoides*) and Bebb's willow (*Salix bebbii*), and then to young aspen-birch forest in the uplands. A short distance upstream, a 6.5-acre area harbors wetlands with higher floral diversity and fewer signs of disturbance than those near the river mouth.

The higher-quality Northern Sedge Meadow and Emergent Marsh areas a short distance upstream from the river mouth are dominated by lake sedge (*Carex lacustris*), tussock sedge (*C. stricta*), common yellow lake sedge (*C. utriculata*), and soft-stem bulrush (*Schoenoplectus tabernaemontani*), with other common species such as swamp milkweed (*Asclepias incarnata*), sweet flag (*Acorus calamus*), marsh cinquefoil (*Comarum palustre*), sweet gale (*Myrica gale*), and common arrowhead (*Sagittaria latifolia*). An abandoned channel near the river's mouth harbors abundant emergent and submergent plants, including common arrowhead, soft-stem bulrush, bull-head pond-lily (*Nuphar variegata*), stiff arrowhead (*Sagittaria rigida*), common bur-reed (*Sparganium eurycarpum*), and Richardson's pondweed (*Potamogeton richardsonii*). Only scattered aquatic vegetation was found in the main channel of the river.

*Area includes river mouth, first quarter-mile of river, associated wetlands and immediately adjacent uplands.

Threats

Non-native invasive plants noted here include Canada thistle (*Cirsium arvense*), dame's rocket (*Hesperis matronalis*), hemp-nettle (*Galeopsis tetrahit*), reed canary grass (*Phalaris arundinacea*), queen-of-the-meadow (*Filipendula ulmaria*), and garden valerian (*Valleriana officinalis*). Invasive plants can out-compete native plants by monopolizing light, water, and nutrients, and can have negative impacts on soils and nutrient cycling. Across the Lake Superior clay plain, water quality and wetland function are known to be adversely affected by open lands (e.g., developed land, agriculture, young forest) and positively affected by older forests and conifers. Land use analysis of the watershed and associated water quality monitoring could facilitate better understanding of this site's aquatic and wetland resources.

Additional Comments

The Lake Superior Binational Program identified the Middle River as important to the integrity of the Lake Superior ecosystem for coastal wetlands and fish spawning/nursery grounds, especially brown and rainbow trout.

Abbreviations and Helpful References

GLCWC - Great Lakes Coastal Wetland Classification.- http://glc.org/wetlands/pdf/wetlands-class_rev1.pdf

Lake Superior Binational Program - <http://www.epa.gov/glnpo/lakesuperior/>

WDNR Coastal Wetlands webpages - <http://dnr.wi.gov>, Keyword: "coastal wetlands"

WDNR/NHI - Wisconsin Department of Natural Resources, Natural Heritage Inventory Program.
<http://dnr.wi.gov>, Keyword: "natural heritage"

"Managing Woodlands on Lake Superior's Red Clay Plain" - WDNR publication #PUB-FR-385 2007.
<http://dnr.wi.gov>, Keyword: "bmp landowner"



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The beach to the west of the Middle River's mouth is unvegetated and is littered with woody debris (left). This debris is also abundant in the water and wetlands at the river mouth. Swamp milkweed is common in Northern Sedge Meadow areas, providing important nectar food for butterflies (right).

Suggested Citation

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