

ESTUARIES & COASTAL WETLANDS OF LAKE SUPERIOR

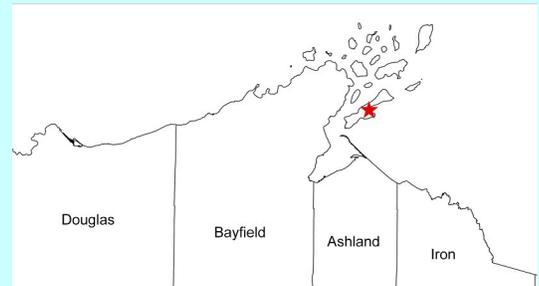
Big Bay Wetlands

Approximate Size: 970 (wetland area: 730 acres)*

Ownership: WDNR/Private

Year Last Surveyed by WDNR/NHI: 2014

GLCWC Classification: Barrier Beach Lagoon



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Site Description

Big Bay is a large east-facing embayment on Lake Superior along the eastern coast of Madeline Island, the largest of the Apostle Islands. The embayment contains a coastal barrier spit, beach and dunes, northern dry forest, lagoon, and a diverse array of peatlands. The lagoon is bordered by Shore Fen, Poor Fen, Alder Thicket, and Tamarack (poor) Swamp. An abandoned sandspit, now three-quarters of a mile inland from Lake Superior, separates a distinctive, much more acid complex of peatland types (that include Open Bog, Muskeg, and Black Spruce Swamp) from the more minerotrophic types to the east.

The Shore Fen occurs on a floating mat bordering the lagoon and is composed of native wire-leaved sedges (*Carex lasiocarpa*, *C. exilis*, and *Cladium mariscoides*), sweet gale (*Myrica gale*), and bogbean (*Menyanthes trifolia*). Away from the lagoon the more firmly grounded Poor Fen consists of Sphagnum mosses, ericaceous shrubs, and a different complement of sedges. Tamaracks form a nearly closed forest of 4"-11" diameter trees near the interior spit.

To the west of the interior spit, which supports a narrow band of boreal conifer-hardwood forest, is diverse highly patterned acidic peatland. The interior is quite open, with deep, hummocky Sphagnum mosses, ericads, and a depauperate vascular flora representative of a truly ombrotrophic community. Among the few herbs present are the wire leaved and bog sedges (*Carex oligosperma*, *C. pauciflora*, and *C. magellanica*), tussock cotton-grass (*Eriophorum vaginatum*), and round-leaved sundew (*Drosera rotundifolia*). Stunted black spruce are abundant. To the east there is a closed stand of mature black spruce with a nearly level Sphagnum carpet. Large tamarack ring the bog and spruce swamp, and a wet moat-like zone of alder, black ash, and lake sedge (*Carex lacustris*) occurs at the upland margins. This may be the only coastal wetland on Lake Superior where fens adjoin a true ombrotrophic bog.

*Acreages are rough estimates based on GIS and aerial photographs and do not reflect ownership or management boundaries.

Threats

No non-native invasive plants were noted in 1997 or 2014 surveys; however surveys were not comprehensive. Periodic monitoring for invasive species is recommended. This site features one of the least disturbed of the coastal estuaries, and could serve as a reference site.

Additional Comments

This site is rich in rare and uncommon species and contains undisturbed, sometimes large examples of many natural communities. Some species are at the southern edge of their range in the state; monitoring for impacts of climate change or changes in the Lake Superior water level would be beneficial.

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/>

National Park Service Apostle Islands National Lakeshore - <http://www.nps.gov/apis/>

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 guides"



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Scattered tamaracks over leatherleaf on a boggy island adjacent to the lagoon (left). A monitoring plot in the Shore Fen dominated by wiregrass (right).

Suggested Citation

Epstein, E.J., A. Galvin, and W.A. Smith. 2002. Site Description for Big Bay Wetlands. Originally published in: "A Data Compilation and Assessment of Coastal Wetlands of Wisconsin's Great Lakes." PUBL ER-803 2002; updated by R.P. O'Connor in 2015. <http://dnr.wi.gov>, Keyword: "coastal wetlands big bay"



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