Fact Sheet

Royal Botanical Gardens CANADA

2024 Marsh Status

Quick Facts

Two Wetland Systems, Cootes Paradise and Grindstone Marsh

Total Wetland Area: 410 hectares

Total Shoreline: ~30km

Most Common Species

Plant: Leafy Pondweed

Amphibian: Gray Treefrog

Fish: Goldfish

Bird: Red-winged Blackbird

Plant Species

Emergent Species

American Bulrush
Blueflag Iris
Broad-leaved Cattail
Broad-leaved Arrowhead
Common Reed
Lakebank Sedge
Flowering Rush
Giant Burred
Hardstem Bulrush
Narrow-leaved Cattail
Narrow-leaved Arrowhead
Pickerel Weed
River Bulrush
Prairie Cordgrass
Softstem Bulrush
Southern Wild Rice
Sweetflag
Water Arum
Watercress
Water Plantain
Water Smartweed
Water Loosestrife
Yellow Iris

Submergent Species

Brittle Naiad
Common Bladderwort
Canada Waterweed
Coontail
Curly-leaved Pondweed
Eurasian Milfoil
Eel Grass
Flat stemmed Pondweed
Floating-leaved Pondweed
Horned Pondweed
Leafy Pondweed
Long-leaf Pondweed
Sago Pondweed

Floating Leaf Species

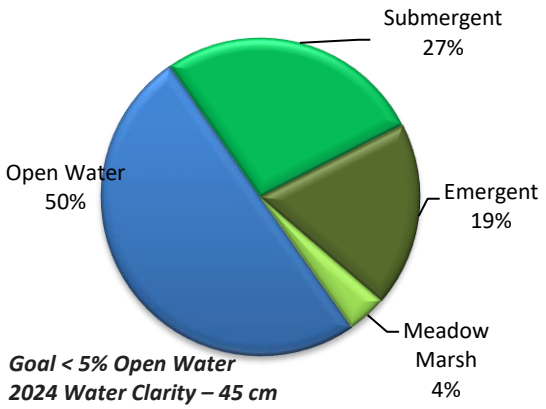
Greater Duckweed
Lesser Duckweed
Star Duckweed
White Water lily
Yellow Water Lily

Marsh Restoration Progress

2024 marked a fourth consecutive year of positive habitat recovery for Cootes Paradise Marsh with extensive aquatic plant growth. Grindstone Marsh continued as largely degraded but within improving habitat areas and with pockets of healthy habitat. Ongoing recovery is tied to the cleaner Spencer Creek water diluting pollution and low levels of Common Carp. Lake water levels were average with Spencer Cr continuing its dilution effect into the fall. The marsh plants were dominated by cattails, Leafy Pondweed and Eurasian Milfoil. Water lilies also notably expanded

In Cootes Paradise the growing season began with extensive rafting algae as the marsh regenerated life. By late spring dense patches of submergent plants were found throughout the marsh, with Leafy Pondweed and Curly-leaved Pondweed the most common. The meadow marsh ponds, all without carp, were clear water, and grew a diversity of plant species including hundreds of wild rice plants. West Pond improved, but with substantial patchy algae rafts. White Waterlily continued to recover from the 2020 spill, covering much of the pond by seasons end. This pond is hypereutrophic fed by the treated sewage effluent of the community of Dundas. Water lily coverage expanded to cover about a two-thirds of the pond and follows a near 100% loss. Aquatic plants continue to struggle in the dense algae, while a American Lotus appeared. Grindstone Creek Marsh is a mixture of habitat situations including sites exposed to water quality stressors and carp, semi protected areas, meadow marsh and protected ponds. In 2024 the ponds continued as a rich diversity of plants, dominated by white waterlily, burreed, and cattail and with clear water. The semi protected areas associated with berms constructed of Christmas trees and soil had improvements to the plants including cattail and water lily expansions with variable aquatic plant growth due to carp gaining access via beaver tunnelling. White waterlily is established as the dominant plant. The area by Carrolls Bay, the largest part of the marsh continued to exhibit no plant growth other than algae in the form of phytoplankton and a few scattered waterlilies.

2024 Wetland Habitat Areas



Goal < 5% Open Water
2024 Water Clarity – 45 cm

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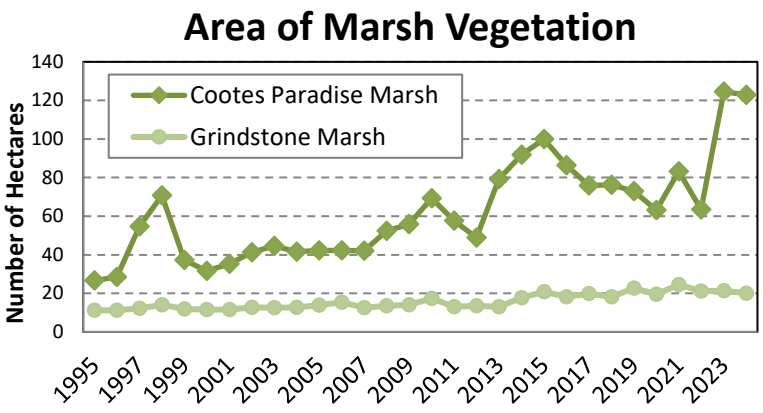
Marsh Vegetation Trends

In a healthy marsh, water level fluctuations create the pattern of submergent, emergent and meadow marsh plants. By 1990 virtually all submergent and emergent plants were lost from Cootes Paradise Marsh, the water was hypereutrophic, muddy, and ecosystems had collapsed, with attempts of carp management abandoned. Grindstone Marsh was only in slightly better condition, with patches of plants found only in the outer marsh. A century of inflowing sewage, watershed erosion and invasive species had destroyed them. In 1997 through the RAP a new barrier to exclude large carp became functional at the entrance to Cootes Paradise. A barrier for the Valley Inn area of Grindstone Marsh was never installed. RBG constructed an alternate system in the area, completed in 2001. The unprotected area of the marsh no longer hosts marsh plants.



Since 1997 Cootes Paradise aquatic plant growth varies from year to year. Extensive rafts of algae still overwhelm the plants, from the excess nutrients inflowing. The common species change by season. In spring 2024 the pondweeds *Potamogeton folisus and P. crispis* were most common, while in summer *Myriophyllum spicatum and Ceratopyllum demersum* were common. White Waterlily (*N.tuberosa*) expanded to ~6% of marsh. Wild rice (*Z.aquatica*) also grew in several areas.

In Grindstone Marsh's carp excluded areas submergent aquatic plants were variable. White Waterlily dominates covering ~20% of the area, with 19 plant species present. A small number of wild rice grew in some of the meadow marsh area ponds. In the outer marsh by Carroll's Bay where carp are not excluded and excess sediment flows in, only one small patch of whitewater lily remains. Emergent plants in carp protected areas are thriving, dominated by cattails (*Typha sp*.) and Giant Burreed (*S.eurycarpum).*

Recovery Targets Technical Status (0% meeting objectives)

Measure	Location	Objective	1995 Averages	2024 Averages
Vegetated Area	Cootes Paradise	230 ha	26.59 ha	122 ha
	Grindstone Marsh	40 ha	11.26 ha	20 ha
Water Clarity	Cootes Paradise	> 100 cm	< 30 cm	52 cm
	Grindstone Marsh			35 cm
Total Phosphorus	Cootes Paradise	< 30 µg/L	270 µg/L	85 µg/L
	Grindstone Marsh			158 µg/L
Total Suspended Sediment	Cootes Paradise	< 25 mg/L	65 mg/L	16 mg/L
	Grindstone Marsh			34 mg/L
E. coli	Cootes Paradise	< 200 coliforms/100 mL	> 10,000 coliforms/100 mL	173/100 mL
	Grindstone Marsh			97/100 mL
Water Cycle	Cootes Paradise	Natural Pattern	Plan 1958D	Plan 2014 Flooding deviations
	Grindstone Marsh			
Carp Density	Cootes Paradise	< 20 kg/ha	800 kg/ha	~9 kg/ha
	Grindstone Marsh			0-150 kg/ha

Remedial Action Plan

RAP - A Remedial Action Plan is a coordinated multi stakeholder plan to recover ecosystem function at a highly degraded Great Lakes site. Overall, there are 43 Areas of Concern (AOCs) including Hamilton, designated as an AOC in 1987 within the Canada-United States Great Lakes Water Quality Agreement. The agreement recognizes the importance of the Great Lakes to the social, environmental health and economic livelihood of both countries and obligates the three levels of government in Canada to complete the needed actions for recovery. Work on defining the "State of the Harbour Area" was summarized in 1u992, and remedial action was initiated. Locally the Bay Area Implementation Team (BAIT), a group of 15 area agencies reviews information and directs the remedial actions in five year work plans. Completion dates for the needed actions are undetermined and the 2015 target year for delisting has past. Measures of status and progress are set for the harbour, Cootes Paradise and Grindstone Marsh as well as the main inflowing streams and sewage control system are also put in context.