

Field Report - St. Croix River Walk

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On May 23, 2026, a field walk was conducted along the dyke system of the St. Croix River in Nova Scotia. The conditions were notably windy due to strong northerly winds, and the tide was observed falling throughout the duration of the walk, gradually exposing more of the adjacent salt marsh landscape.

At the outset of the walk, the group discussed the anadromous fish species historically associated with the St. Croix River. The river once supported strong runs of Atlantic Salmon and American Shad, both of which migrated upstream to spawn. These populations declined sharply following the construction of three hydro-generating dams in the 1930s, which restricted fish passage and altered the river's natural flow regime.



A key feature of this system is the aboiteaux - wooden one-way sluice structures that allow freshwater to drain from the land while preventing seawater from entering during high tide.



These structures were observed along the route, including numbered installations that suggest long-term maintenance and systematic water management.



Over time, this engineering has allowed soil behind the dykes to gradually desalinate, resulting in highly fertile agricultural land.

Adjacent to the dykes, the salt marsh ecosystem showed characteristic vegetation typical of the Bay of Fundy tidal environment. Saltmeadow cordgrass was noted in higher marsh zones. Field horsetail and reed canary grass were observed along the dyke pathways. Apple trees were in bloom in nearby areas. As we moved through patches of ankle-height native reed canary grass, deer ticks were notably abundant, with many participants picking up one or more during the walk.



Signs of insect activity were also present, including eastern tent caterpillars and their characteristic silken tents in the branches of host trees.



On the upland side of the walk, prominent gypsum exposures were observed. Nova Scotia is a significant global producer of gypsum, contributing a substantial portion of Canada's supply and a notable share of global production. Gypsum is a

sedimentary evaporite mineral primarily used in the production of drywall and plasterboard. Its presence in the region reflects an important geological history that contrasts with the present-day cool, humid climate. Evaporites such as gypsum typically form in hot, arid environments where seawater evaporation exceeds inflow, leading to mineral precipitation.



The explanation for this contradiction lies in the region's deep geological past. During the Carboniferous Period, approximately 340–350 million years ago, Nova Scotia was situated near the equator as part of the supercontinent Pangaea. At that time, a shallow inland sea known as the

Windsor Sea periodically flooded the region. Repeated cycles of flooding and evaporation led to the accumulation of thick gypsum deposits, in some areas reaching up to 100 meters in thickness. Subsequent geological change brought wetter conditions, supporting extensive forests that later contributed to coal formation and other fossil-bearing deposits.

It was in this same area - near the gypsum walls - that we also noted the presence of Poison Ivy, an important safety consideration for anyone exploring the site. The plant was growing at the base of the gypsum exposure, blending into surrounding vegetation.

Wildlife observations added further richness to the experience. Two bald eagles were seen in the area, at times being mobbed by crows, while a red-tailed hawk was observed perched on a power line overlooking the marsh. Barn swallows were also noted, likely nesting under the nearby bridge.

Vegetation in the surrounding landscape included poplar species, an important native group supporting a variety of wildlife, as well as cottonwood, a soft hardwood commonly used by beavers but generally not considered suitable for high-quality firewood.

Overall, the walk highlighted the strong interconnectedness of human engineering, ecological systems, and geological processes within the St. Croix River landscape.

