# The History and Distribution of Lake Whitefish *Coregonus clupeaformis* (Mitchill, 1818) in Nova Scotia and New Brunswick, Canada, with Supplementary Notes on Regional Coregonids.

Samuel N. Andrews[1,2], Colin F. Buhariwalla[3], Micheal J. Dadswell[2], Jeremiah Wood[4], Elizabeth M.T. Bateman[2], Elliot A. Cederberg[2], Matt Warner[2], John L. MacMillan[3], Kathryn Collet[5], Abbey Greer[5], Michael. J.W. Stokesbury[2]

[1]*Ducks Unlimited Canada, 64 Highway 6, Amherst, B4H 3Y4, Nova Scotia*

[2]*Acadia University, Department of Biology, 33 Westwood Avenue, Wolfville, B4P 2R6, Nova Scotia*

[3]*Nova Scotia Department of Fisheries and Aquaculture: Inland Fisheries Division, 91 Beeches Rd., Pictou, B0K 1H0, Nova Scotia*

[4]*Maine Department of Inland Fisheries and Wildlife, Ashland Regional Headquarters, 63 Station St, Ashland, Maine, 04732*

[5]*New Brunswick Department of Natural Resources and Energy Development, Hugh John Flemming Forestry Complex, 1350 Regent St, Fredericton, E3C 2G6, New Brunswick*

**Key words:** Hatchery stocking, zoogeography, native species, continental shelf refugia, post-glacial dispersal

**Contact:** Samuel.Andrews@acadiau.ca

**Abstract**

Whitefishes (*Coregonus* and *Prosopium*) naturally occur in the Canadian maritime provinces of Nova Scotia and New Brunswick. Whitefishes were first described in tributaries of the upper Saint John River, New Brunswick in the late 1850s prior to hatchery stocking, but it was not until the 1990s that populations were confirmed in Nova Scotia. As a result of their suspected absence in the east, the federal government of Canada sought to prioritise stocking Lake Whitefish (*Coregonus clupeaformis*) in the maritime provinces through the country's earliest federally run hatcheries. From 1878-1901, nearly 80 million Lake Whitefish fry were spread across Nova Scotia and New Brunswick. These efforts eclipsed all other hatchery reared species at the time, but all attempted introductions are thought to have failed. From 1964 onward, whitefishes were discovered across Nova Scotia, but there was uncertainty regarding their origin. However, modern research now demonstrates that a genetically distinct lineage of Lake Whitefish occurs in the maritime provinces. This lineage originated from a distinct eastern glacial refugium which explains their discrete eastern distribution, but surveys and studies are lacking. The goal of this review is to provide baseline data on origin, distribution, and history of Lake Whitefish throughout the Maritimes that will facilitate continued research, allow for the identification of undocumented populations, and support the protection of those so far known. As invasive species spread, climates warm, and new recreational fisheries develop, the resilience of Lake Whitefish populations should become a growing conservation and management consideration among the region's small yet distinct eastern assemblage of native cold-water fishes.

## Introduction

The genus *Coregonus* is the most speciose within the family Salmonidae and has a northern circumpolar distribution (Bernatchez 1995) that includes freshwater, euryhaline, and anadromous ciscoes and whitefishes (Scott and Crossman 1973; Svärdson 1979; Bernatchez et al. 2010). This diverse group of fishes is highly adaptable with noted variation in diet, spawning habitat, and use of marine waters, even among conspecifics. In North America, 18 coregonid species are recognized of which the Lake Whitefish (*Coregonus clupeaformis* Mitchill 1818) may be the most well known and widely distributed, ranging from the Lake Erie and Michigan basins in the south to the northern tributaries of Alaska (Scott and Crossman 1973). From this western point, the Lake Whitefish occurs as far east as the Atlantic coast of Nova Scotia (Bernatchez and Dodson 1991). Lake Whitefish is most common in deep, well oxygenated, oligotrophic lakes (Wood 2016), but it is also found in rivers, estuaries, and marine waters, particularly in the coastal tributaries of Hudson Bay and Arctic Ocean drainages (Scott and Crossman 1973). Among North American coregonids, the Lake Whitefish is one of three species native to the Canadian Maritime

Provinces (MP). In the province of New Brunswick (NB), Lake Whitefish occur alongside the Round Whitefish (*Prosopium cylindraceum* Pallas, 1784) along the northern provincial border, while in Nova Scotia (NS), the only other coregonid is the critically endangered and endemic Atlantic Whitefish (*Coregonus huntsmani* Scott, 1987; Edge and Gilhen 2001). Due to the morphological plasticity and diversity of the genus *Coregonus* and difficulty in distinguishing member species (Scott and Scott 1988), the eastern-most natural distribution of Lake Whitefish has only recently been defined (Bernatchez and Dodson 1990, 1991; Edge and Gilhen 2001).

Lake Whitefish have been documented and described in NB since the 1850s, largely in the Saint John River Basin (Perley 1852), but in NS, the absence of early records suggested that no Coregonids were known in that province. This perceived absence and the high value of Lake Whitefish as a commercial food species elsewhere in Canada incentivised intensive stocking efforts across the MP (Pope 1879). These stocking efforts and the introduced fish did not last, and Lake Whitefish supplementation programs in the MP were abandoned as early as the turn of the 20th century. Nearly 125 years after stocking was attempted, native populations of Lake Whitefish were discovered in NS and its native ancestry in the MP has since been confirmed (Bernatchez and Dodson 1990, 1991). Despite this discovery, our knowledge of local distribution, basic ecology, and conservation status of Lake Whitefish is lacking. Furthermore, the persistence of several Lake Whitefish populations in NS has not been confirmed in over 20 years, and in many more locations far more time has elapsed since the most recent survey or report. In NB, significant documented Lake Whitefish disappearances have been left unexamined. These data gaps in both provinces have remained despite the known impacts of climate change and invasive species introduction that threaten native cold-water fishes region-wide (Curry and Gautreau 2010).

To inform future study of Lake Whitefish in the MP, this review compiles all available data on the Lake Whitefish including post glacial distribution, historical stocking efforts, population ancestry, and present occurrence in NS and NB. These data have been assembled into a series of tables and maps detailing the timing and magnitude of documented introductions while reporting the spatial distribution of stocked and native populations, the latter of which were identified both prior to and after the stocking occurred. Round Whitefish and Atlantic Whitefish are also described regionally when required to better understand Lake Whitefish history, distribution, and identification. While the presented data are comprehensive of what is known and reported to date, a significant gap exists between this writing (2025) and even the most recent partial surveys (Murray 2005, NSDFA unpublished data). Therefore, modern persistence of identified populations in most locations and particularly in NS is almost entirely unknown. Though, in the absence of alternative data sources, these data must be considered accurate until updated assessments become available. The goal of this review is to provide baseline data to assist all future study and exploration of Lake Whitefish in the MP and we encourage all future authors to confirm or update the species occurrence here presented alongside their findings.

## Description of the Study Area

This review focuses on lakes of the Canadian MPs (including NS and NB) but omits Prince Edward Island (PEI) due to its lack of suitable habitat and absence of Lake Whitefish occurrence or stocking. The MPs that support whitefishes occupy a temperate coastal ecozone characterized by mild winters and cool summers with mean annual temperatures raging from -2 to 15.5°C in coastal regions (Webb and Marshall 1999) and with less seasonal temperature moderation as one travels inland. Lakes in Nova Scotia are usually small, shallow, and oligotrophic, often appearing darkly stained or tannic due to a high humic concentration drawn from organic material decay in wetland soils (Davis and Browne 1996). These darkly stained tannic waters are synonymous with low pH (Kerekes et al. 1982) from the production of natural organic acids. These conditions were in many regions exacerbated by the effects of acid rain in the 1970s (Clair et al. 2007). Darkly stained lakes subject to limited light penetration frequently establish shallow thermoclines that maintain cold-water refugia even within confined or shallow basins (Heiskanen et al. 2015).

In NS, the northwestern portion of the province, including much of Cape Breton, is composed of sedimentary rock such as limestone that is more easily weathered to provide a buffer against declining pH (Davis and Browne 1996). In southwestern and eastern regions, shallow granite and shale bedrock covered with thin acidic soils provide little buffering capacity and low pH (≤ 4.5) is reported in these acidification sensitive regions (Shilts 1981; Clair et al. 2007; Curry and Gautreau 2010). Low pH is linked to impacts to aquatic ecosystems (Kerekes et al. 1982), declines in native salmonids (Watt 1987) and reductions in other inland and anadromous fishes (White 1992), loss of species diversity (Kelso et al. 1986), and may also impact Lake Whitefish (Edge 1987; Goodchild 2001). Throughout NS, freshwater obligate and euryhaline fish diversity is low (Curry 2007) leading to limited competition amongst native species. This condition may have left native fishes vulnerable to predation and competition by aquatic invasive species such as Smallmouth Bass (*Micropterus dolomieu* Lacépède, 1802) and Chain Pickerel (*Esox niger* Lesueur, 1818), particularly in the south of the province where warmwater invasives are most prevalent (LeBlanc 2010).

Similar environmental conditions exist in NB including low pH and the lack of natural buffering capacity in the southwest of the province (Clair et al. 2007). However, Lake Whitefish have much greater access to large rivers, deep lakes, and interconnected lake systems in NB than are available in NS. In some of these larger systems, dams now block migration routes resulting in population decline. NB has a higher diversity of freshwater obligate fishes than NS (Curry 2007) but has also fostered more warm water invasive species of which many are regarded as key sportfish across several inland lakes, the Saint John River, and the Saint Croix River. The Saint John River where Lake Whitefish were first reported in the province also supports a significant estuary with saltwater measurable upstream to the village of Gagetown (Carter and Dadswell 1983), possibly offering refuge from freshwater obligate invasive species concentrated further upstream (Zelman et al. 2023).

**Nomenclature**

Hebda (2019) reports several names used to describe the Lake Whitefish, but across historical Maritime literature only a small number are repeated. Gizzard-fish is used by Perley (1851) and Smith (1969) in reference to the thick walled and gizzard-like stomach of the Lake Whitefish. The French name Poisson Pointu (English: sharp fish) is also reported by Perley (1851) and was used by early Acadian fishers that pursued the species in both Lake Témiscouata, Québec, and the Madawaska River, NB, and likely describe the small, tapered head or pointed fins of the species because Lake Whitefish possess no rigid spines. The Sault Whitefish (*Coregonus labradoricus* Richarson, 1836) is used by Cox (1896b) and Piers (1924) and suggested a northern form or sub-species of the Lake Whitefish. Although Lake Whitefish in the MP are the same species as occurs in the rest of North America despite meristic differences (Edge 1987; Edge et al. 1991; Hasselman 2003; Hasselman et al. 2009). Following discoveries of phenotypic plasticity of the species relating to gill raker and lateral line scale counts several Latin names were consolidated into *Coregonus clupeaformis* and the suggestion of subspecies was abandoned.

Modern vernacular in the MP often refers to the species simply as "whitefish", offering no distinction between the Lake Whitefish and the Round Whitefish that occupy an overlapping distribution in northern and southeastern New Brunswick. Reference to the Round Whitefish would likely be minimal as this planktivorous species is almost never caught by anglers in lakes in the neighbouring state of Maine, though Maine once supported a recreational spring river fishery for the species (Jeremiah Wood, unpubl. data). In contrast, the Atlantic Whitefish in Nova Scotia is commonly referred to specifically due to their conservation status (DFO 2006, 2018; COSEWIC 2010; COSEWIC 2022) and longstanding awareness campaigns. In French "Grand Corégone" is most common and refers to the Lake Whitefish specifically.

**Whitefish Morphology**

Scott and Crossman (1973) state that the genus *Coregonus* is "*taxonomically, the most perplexing of all Canadian freshwater fishes*", a statement mostly relating to the difficulty of identifying cisco species due to high variability in gill raker counts and morphology, but the identification of whitefish in the MP has similarly resulted in considerable confusion (Edge and Gilhen 2001). Whitefish are subject to pronounced morphological variation (Fig. 1; Svärdson 1979; Edge 1987; Edge et al. 1991) and diagnostic features such as gill raker number and length, and lateral line scale count can vary widely (Lindsey 1981; Edge 1987; Edge et al. 1991). Individual size and growth rate can also change based on environment, mode of feeding, and individual lake (Scott and Crossman 1973; Goodchild 2001). In addition to broad intraspecies variation of the genus *Coregonus*, three species of whitefish are present in the MP that are of note for local identification purposes (Fig. 1).

Lake Whitefish and Atlantic Whitefish are the only two coregonids found in NS (Edge 1987; Edge et al. 1991). At present, Atlantic Whitefish are only known to persist in Hebb Lake, Minamkeak Lake, and Millipsigate Lake at the head of the Petite Rivière watershed, Lunenburg County (DFO 2018). Following the likely extirpation of this species from the Tusket and Annis rivers, it no longer overlaps spatially with Lake Whitefish in NS (Edge 1984, 1987; Edge and Gilhen 2001). In the neighbouring province of NB, the Atlantic Whitefish is absent, but the Round Whitefish occupies an overlapping distribution with Lake Whitefish in the northwest of the province. There it is found in the Saint Croix River Basin, and upper Saint John River basin through Madawaska and Victoria Counties (Scott and Crossman 1959; Gautreau and Curry 2020; DNRED unpubl. data) in addition to Restigouche County in the Restigouche River basin (Gautreau and Curry 2020, DNRED unpubl. data). Characteristics for identifying the Lake Whitefish and distinguishing among the species pairs in each respective province are as follows.

Lake Whitefish (Fig. 1) have large clearly defined cycloid scales and a straight and clearly visible lateral line commonly expressing 70-85 scales in most Maritime populations (Edge 1987). However, lateral line scale counts may be as high as 90 among populations in the upper Saint John River basin (Hasselman 2003). The body is coloured greenish grey dorsally, changing to silver-grey on the sides, and fading to a white ventral surface (Kerekes 1975; Goodchild 2001). The body is deepest just before the dorsal fin (Scott and Crossman 1973) and is slightly laterally compressed (Scott 1967). The dorsal fin is small, pointed, and soft rayed, and an opaque adipose fin is present along with a deeply forked and dark grey caudal fin. The pectoral fins, the mid-ventral abdominal fins, and the anal fin can range in colour from grey to faded yellow and are also soft-rayed. Lake Whitefish have a pointed overhung snout with a slightly sub-terminal mouth. Small teeth are present in juveniles, but no teeth are expressed by adults (Goodchild 2001). The maxillary extends to the anterior edge of the eye/pupil (Scott and Crossman 1973). During spawning, nuptial tubercles develop in both sexes but are most pronounced in males (Goodchild 2001). Additional morphometric and meristic counts for Lake Whitefish in the MP are detailed by Edge (1987; Edge et al. 1991; Hasselman 2003). While regionally the species can grow to 62 cm FL and 4.5 kg, as reported from the largest of 130 Lake Whitefish sampled in the Saint John River by Dadswell (1975), it generally maintains a relatively small average size in the MP (< 50 cm; Lanman 1874; Smith 1952; Dadswell 1975).

In contrast, the Atlantic Whitefish (Fig.1), which is only found in NS, has a terminal mouth with small well-developed teeth on the premaxillaries, vomer, palantines, dentary, and tongue that are expressed in juveniles and retained as adults (Scott and Crossman 1973; Edge and Gilhen 2001; Hasselman 2003). In comparison to the Lake Whitefish, the snout is rounded, but its inferior lower jaw renders this character hard to reliably distinguish from a true sub-terminal position (Hasselman 2003). The elongate body is slightly laterally compressed (Scott and Crossman 1973) and sports similar colouration to the Lake Whitefish with silvery sides and a dark back (Edge and Gilhen 2001). Lateral line scales counts are perhaps the most reliable external identifying feature as the Atlantic Whitefish never expresses fewer than 88 lateral line scales (typically 91-100) separating it from all Nova Scotian populations of Lake Whitefish (Edge 1987, 1991; Edge and Gilhen 2001; Goodchild 2001; Hasselman 2003). While not observable in live specimens, Atlantic Whitefish also have 64-67 vertebrae as compared to the 58-64 of the Lake Whitefish (Edge 1987; Edge et al. 1991; Edge and Gilhen 2001) and these counts have been proven a reliable discriminatory character by taxonomists (Hasselman 2003).

The Round Whitefish by comparison (Fig. 1) is generally small (20-30 cm), has a long slender body that is cylindrical in cross section and is green to bronze along the back, silver laterally, and white along the ventral side (Scott and Crossman 1973). Scales are well defined with dark borders and 74-108 lateral line scales are present, thus overlapping with counts for Lake Whitefish (Scott and Crossman 1973). The fins are pale amber in colour, but the dorsal and caudal fin can take on a sooty black shade and the adipose may appear brown and spotted providing a useful identification character (Scott and Crossman 1973). When depressed, the tip of the dorsal fin does not extend past its posterior base as it does in Lake Whitefish (Gautreau and Curry 2020). Parr of the Round Whitefish are often spotted.

Dwarf forms of the Lake Whitefish were identified in at least 22 lakes in Maine by Fenderson (1964), 28 by Edge (1987; Edge et al. 1991), and updated to 29 by Wood (2016) who reported an additional population in Glazier Lake in 2017 for a total of 30 (Jeremiah Wood unpubl. data). All records were reported in the Allagash and Aroostook drainages of the Saint John River basin and dwarf forms are thought to be almost exclusive to that system. Though a dwarf population exists in Lake Témiscouata, Québec (Edge 1987; Edge et al. 1991) where they occur in sympatry with the standard form yet maintain reproductive isolation (Fenderson 1964; Kirkpatrick and Selander 1979; Bernatchez and Dodson 1990, 1991). An additional dwarf population is likely to exist in Scots Lake, Halifax County, Nova Scotia as described by Semple (1973; NSDFA Unpublished Data; mean fork length 21.1 cm, maturing at age 1 -3) suggesting that the purported Allagash distribution may be partially a product of survey effort. These dwarf Lake Whitefish are generally indistinguishable morphologically from a small Lake Whitefish apart from having more numerous and tightly packed gill rakers (Bernatchez et al. 2010) and an earlier age of spawning maturity (generally maturing at age 1-2; Edge 1987; Edge et al. 1991). Behaviorally, the two forms differ in swimming depth and burst acceleration (Rogers et al. 2002). In NB, Glazier Lake and Beau Lake support both the normal and the dwarf forms in sympatry (Jeremiah Wood unpubl. data updating Wood 2016). A lack of thorough assessment in other areas precludes the description of other dwarf populations that might occur in the MP.

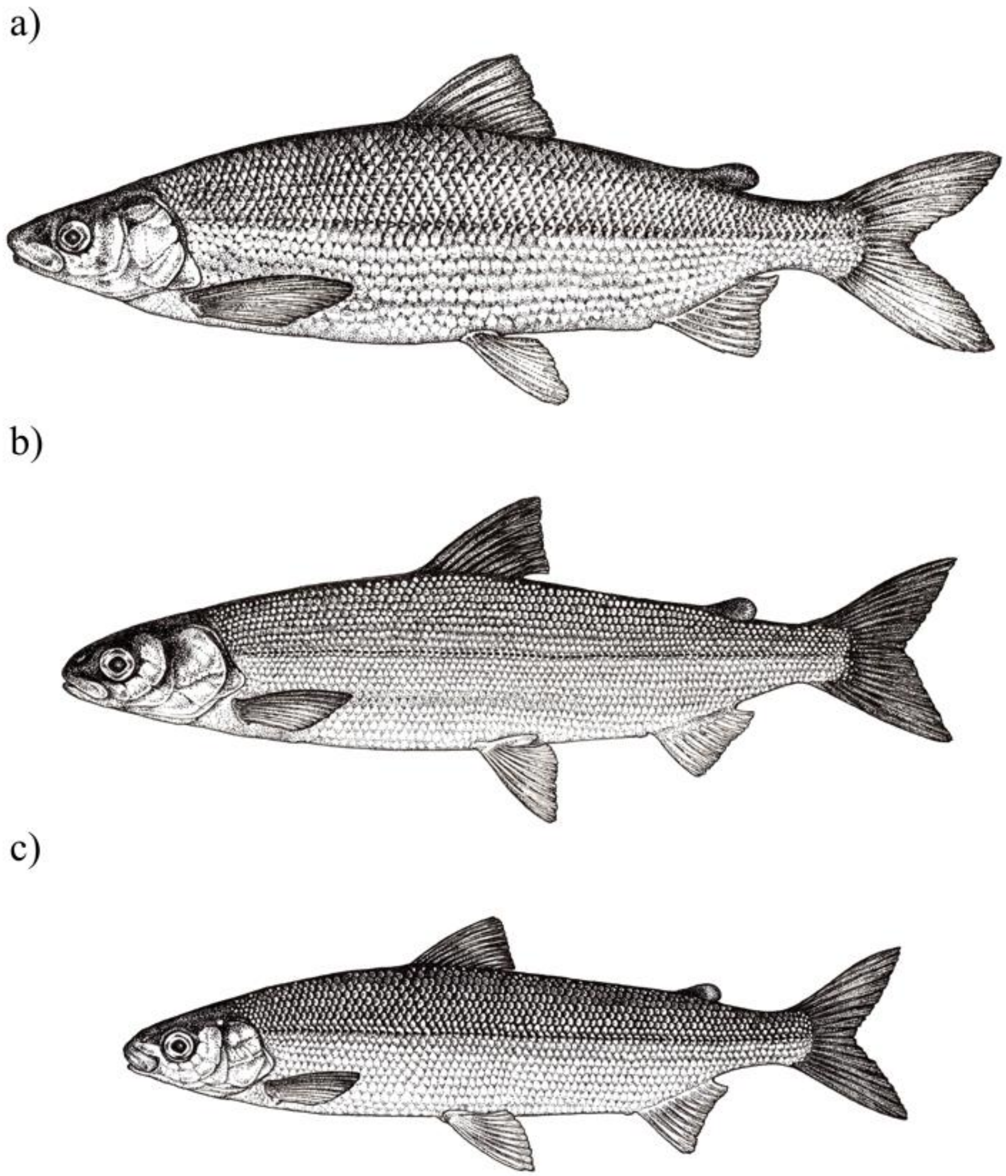


**Figure 1:** Scientific illustration of the three whitefish species found in the Canadian Maritime Provinces including a) the Lake Whitefish (*Coregonus clupeaformis*) [dwarf and normal morphs], b) the Atlantic Whitefish (*Coregonus huntsmani*), and c) the Round Whitefish (*Prosopium cylindraceum*). Illustrations by E.M.T Bateman.

**Methods**

Lake Whitefish in the MP have a disjointed history that includes naturalist accounts and stocking reports from the mid to late 1800s followed by modern surveys and literature from the late 1900s with sparse data available in between. As a result, available literature forms no clear link between introduced and native origin populations or past and present distribution critical for managers and ongoing research efforts. In this review, we 1) compiled reports of the early occurrence and distribution of Lake Whitefish in the MP reported prior to the onset of stocking, 2) provided a detailed account of the stocking efforts and locations stocked throughout NS and NB, 3) summarized data for Lake Whitefish population ancestry and origin where available, and 4) identified the current distribution of Lake Whitefish populations in the MP. Where necessary for species identification and progression of the historical narrative, data from Round Whitefish and Atlantic Whitefish are included, but these are not comprehensive for the region. The methods used to compile and display these data for this review are as follows.

**Historical Distribution**

Pre-stocking occurrence data for Lake Whitefish is only available for NB as the species was not discovered in NS until several decades after stocking concluded. To summarize Lake Whitefish presence in NB, early naturalist writings, fisheries observations, and distributional notes that pre-dated the first years of stocking (1879 in NS and 1886 in NB) were compiled. Within these documents, possible confusion exists between Lake Whitefish and Round Whitefish as the latter species was never identified overtly in historical literature. Fortunately, modern surveys demonstrate species overlap only in the northern portion of the province (Saint John River, Saint Croix River, and Restigouche River basins; Gautreau and Curry 2020; NBDNRED unpubl. data) and therefore, mistaken or unspecified Coregonid identity by early naturalists was deemed largely inconsequential. Furthermore, early accounts of "whitefish" occurring naturally in NB only overlapped with stocking that occurred in Grand Lake, Queens County, on the Saint John River which supports an irrefutable and formerly abundant native population (Perley 1851; Smith 1970), thereby simplifying our assessment of population ancestry. The Round Whitefish is not known from Grand Lake, Queens County, or elsewhere in the lower Saint John River.

**Stocking History**

Lake Whitefish stocking records were transcribed from the annual Department of Marine and Fisheries reports from 1878 (Pope 1979) to 1901 (Sutherland 1902) and crosschecked with summary tables that were similarly extracted by Bradford and Mahaney (2004)**.** These records were first tabulated by year and stocking location (Table 1, 2) and then merged to form a stocking summary by lake detailing the range of years stocked, the total number of stocking years, and the total number of Lake Whitefish released (Table 3, 4). A second data frame was then created to provide details on each stocked location by province. This table includes county and watershed data extracted from provincial data layers on Google Earth Pro, latitude and longitude extracted from Google Earth Pro, lake depth extracted from provincial lake map databases when available, and lake area calculated using lake polygon layers for NS and NB in Arc GIS Pro (ESRI 2024). Once summarised, stocked lakes were mapped using GIS and then compared with reconstructed maps of the Laurentide ice sheet to examine post glacial zoogeography (Dalton et al. 2023).

In addition to the stocking history of Lake Whitefish, the recent history of provincially led hatchery introductions of trout within known whitefish lakes was also compiled. Extensive stocking records exist in federal reports going back to the mid 1800s, but for the purpose of this review only the more recent provincial stocking records were used (Nova Scotia Department of Fisheries and Aquaculture [NSDFA], unpublished data). These records extended back to 1976 in both NS and NB and provided a satisfactory though incomplete assessment of possible hatchery effects on native Lake Whitefish populations. Provincial hatchery stocking records were summarized by lake to detail the number of years stocked, the number of hatchery reared trout released, and the species. Concurrently, the presence of invasive species including Chain Pickerel or Smallmouth Bass in each lake was also noted from provincial databases in both NS and NB where available.

**Lake Whitefish Ancestry and Origin**

The ancestry and origin of Lake Whitefish in the MP has long been a topic of debate. This is particularly true in NS where the species was not identified until long after stocking efforts had concluded which initially implied an introduced origin. To report on Lake Whitefish ancestry and origin, we collected all available literature relating to morphometric and genetic analysis comparing Lake Whitefish populations within the MP to western Lake Whitefish populations that sourced regional hatcheries. Surveyed lakes, sampled fish, and reported ancestry from genetic analysis were cross referenced against reported stocking locations to assess possible origin and these data were entered into lake summary tables (Table 5, 6). Genetic data for Lake Whitefish populations in NB were sparse compared to NS, but accounts of occurrence pre-dating stocking coupled with limited stocking overlap served to confirm population ancestry in this region.

The classification of the Atlantic Whitefish as a separate species from the Lake Whitefish forms a key point of intersection in NS. Therefore, we also compiled all early observations of the Atlantic Whitefish, including those which occurred prior to its initial classification. These data include morphometric and meristic analyses to the point of distinction of the Atlantic Whitefish to more clearly outline and distinguish early Lake Whitefish discoveries.

**Current Distribution**

Based on available data, the assessment of Lake Whitefish distribution was approached differently in each province. In NS, several surveys from the mid to late 1900s identified Lake Whitefish incidentally as the species was initially suspected to be absent from the province. Following local recognition in NS, surveys to procure samples for morphological studies often reported novel populations expanding evidence of occurrence. In a small number of locations, these historical reports were supplemented by modern surveys by the NSDFA and verified angler captures. Many locations where Lake Whitefish are reported in NS have also been left un-surveyed for decades since their first discovery. Without new data these locations must also be considered current.

In NB, most available data on species distribution resulted from reports in the historical literature and records of occurrence spanning from 1958 – 1987 kept by the New Brunswick Department of Natural Resources and Energy Development (NBDNRED). Due to a lack of recent surveys in many locations outside of lakes bordering the State of Maine, these records must also be considered current. While reporting on the distributions of Lake Whitefish in both provinces using historical data, we acknowledge that inaccuracies are possible where un-surveyed populations may no longer persist following the impacts of invasive species, acidification, and dams in several locations.

**Lake Whitefish Stocking in Canada**

Samuel Wilmot began his first experiments in fish culture in 1865, and one year later in 1866, he built what would become Ontario's first fish hatchery in Newcastle on the shores of Lake Ontario near its confluence with Wilmot Creek (Smith 1875; Lasenby et al. 2001; Morrison and Peiman 2021). The hatchery supported Wilmot's early attempts to restore Atlantic Salmon (*Salmo salar* Linnaeus, 1858) in Lake Ontario and after receiving federal support in 1867, the Newcastle Hatchery became Canada's first federal fish hatchery in 1868 (Prince 1906; note that Ontario, Québec, NS, and NB had only joined to form Canada through confederation in 1867 at which time the federal government gained jurisdiction over fisheries). Following confederation, Samuel Wilmot was given the title of fisheries overseer by the Minister of Marine and Fisheries in 1868 and was charged with operating the Newcastle Hatchery (McCullough 2003; Kight 2007; Morrison and Peiman 2021). The Newcastle Hatchery was born of Wilmot's efforts to recover Atlantic Salmon locally, but federal interests were to sustain commercial fisheries of which the Lake Trout (*Salvelinus namaycush,* Walbaum, 1792) and Lake Whitefish were the most valuable species (Evermann and Goldsborough 1907; Knight 2007). Wilmot had successfully hatched Lake Whitefish in 1867 and 1868 (Prince 1906; Lasenby et al. 2001), and in accordance with federal interest he began propagating Lake Whitefish at the Newcastle hatchery in 1871, adding Lake Trout in 1872 (Knight 2007). From 1875 – 1900, Wilmot focused primarily on producing those two species which would outnumber Atlantic Salmon production at the hatchery by 1877 (Knight 2007). To support these efforts, Wilmot built a Lake Whitefish hatchery in Sandwich, Ontario on the shores of the Detroit River in 1875-76 (Whitcher 1876; Prince 1906; Lasenby et al. 2001; Knight 2007) and further enlarged the Newcastle Hatchery (Prince 1906). The Sandwich Hatchery sourced its eggs from wild spawning fish harvested by the Bois Blanc Island and Fighting Island Fisheries in the Detroit River (Prince 1906; Whitcher 1978). Using this nearby source, the Sandwich Hatchery became a prolific supplier of Lake Whitefish eggs and fry that were generally transferred from this location in February in the eyed stage for broader distribution and hatching (Prince 1906).

**Whitefish Stocking in Nova Scotia**

On 1 July 1876, Samuel Wilmot was appointed Superintendent of Fish Culture in Canada (McCullough 2003; Knight 2007; Morrison and Peiman 2021) and in that year he opened NS's first fish hatchery in Bedford on the Sackville River to support the propagation of Atlantic Salmon (Whitcher 1876). Despite the intended purpose of the Bedford Hatchery (Wilmot 1978), it immediately began to receive shipments of Lake Whitefish eggs from Ontario in 1877 (Pope 1879). The early shipments of Lake Whitefish eggs arrived from Newcastle by rail likely having been first transferred from the Sandwich operation, though later shipments often arrived directly from the Sandwich hatchery. From 1877 to 1901, the Bedford Hatchery in NS received shipments totalling 42,230,000 Lake Whitefish eggs from both the Newcastle Hatchery and the Sandwich Hatchery that were then hatched and distributed by rail to accessible points throughout the province (Bradford and Mahaney 2004). Many of these locations were near the City of Halifax, and along the western and northern shores of NS, largely by means of rail (Pope 1879; Bradford and Mahaney 2004; Fig 2).

At the onset of this intensive stocking effort, James. C. Pope, the Minister of Marine and Fisheries at the time, made his intentions in NS clear, stating that by "*extending the operations to the hatching of both whitefish and salmon trout* [Lake Trout]", "*the great number and extent of the inland lakes of this Province now useless and of no value whatever, as they contain few, if any, commercial fish, and it appears a very desirable object to stock, if possible, these lakes with those valuable fish. By doing so the value of the fisheries of Nova Scotia would largely increase, and an extensive inland fishery would be created which would afford remunerative employment and a partial means of subsistence to hundreds of people living at a distance from the seacoast.*" (Pope 1879). In addition to being an economically valuable commercial species in Ontario, the Lake Whitefish was also noted to be a popular food fish and winter staple in the neighbouring province of NB for both the First Nations and French colonists (Perley 1851,1852; Adams 1873; Lanman 1874; Piers 1924; Meth 1973). Lake Whitefish harvest in the upper Saint John River was thus pursued nearly to the point of its destruction (Cox 1896a). Lake Whitefish were of further interest in NS as the province was suspected to be devoid of the species (Evermann and Smith 1896; Perley 1852; Lanman 1874; Evermann and Smith 1896; Piers 1924) and Pope (1879) clearly saw them as a desirable addition.

In the first year of stocking (1878), Lake Whitefish fry were only introduced to (Shubenacadie) Grand, Lily, and Sandy lakes, Halifax County; and Folly Lake, Colchester County (Pope 1979; Table 1). Stocking was again recorded in Sandy Lake in 1886 (Foster 1887; Table 1) after which the extent and number of introductions increased sharply. When Lake Whitefish stocking efforts increased, introductions were first reported in Halifax County near the Bedford Hatchery in 1887 and 1888 during which 2,850,000 (Foster 1888) and 2,800,000 (Tupper 1889) fry were released respectively. In 1889, 500,000 Lake Whitefish eggs were transferred to an auxiliary hatchery in Kempt, Queens County that was reported to have been owned by a local fishing club (Kerekes 1975; Edge 1987), and 120,000 eggs were sent to a second auxiliary hatchery in Lochaber, Antigonish County (Tupper 1890). These eggs were likely hatched as fry for distribution in 1890. The fate of those supplied to the Lochaber hatchery was unrecorded, but those sent to Kempt were reported stocked in Kejimkujik Lake and possibly Minard Lake (Veilleux 1964). Details regarding these releases are sparse and there is little information to suggest if other lakes were stocked near Kejimkujik or Lochaber or how many Lake Whitefish may have been released (Table 1, 3, 5). While Veilleux (1964) mentions stocking of Lake Whitefish in Lake Rossignol, possibly in reference to the Kempt hatchery, this lake was also reported stocked with 500,000 fry by the Bedford Hatchery in 1889 (Tupper 1890; Table 1, 3) and it is unclear whether these records represent two distinct stocking events.

In subsequent years, introductions were recorded in the counties of Annapolis, Antigonish, Kings, and Queens until 1894; thereafter adding Digby, Yarmouth, and Inverness Counties in 1895, and Pictou County in 1900. Most of these efforts to distribute the Lake Whitefish were made by rail, and thus the pattern of distribution follows the early rail line to Halifax and along the western shore of the province (Bradford and Mahaney 2004). Following 17 years of stocking in Nova Scotia (1878, 1886 – 1901), Lake Whitefish fry had been distributed to 33 lakes. Among these Paradise Lake, Annapolis County, was the most heavily stocked, receiving >5,250,000 fry over the course of ten consecutive years of stocking (1891 – 1901, Table 1, 3). Short-lived, fisheries for Lake Whitefish were reported in some systems shortly after stocking (Murray 2005), but the excitement around the species and their potential to support the local economy faded as quickly as did the catches. All efforts to create self sustaining populations of Lake

Whitefish in NS were reported to have "*utterly failed*" (Piers 1924; see also Murray 2005) and no further attempts were made to stock the species in NS after 1901.

Lasenby et al. (2001) remarks that at the time of stocking in the late 1800s that Lake Whitefish and Lake Herring (i.e. Cisco; *sp.*) were not distinguished as separate species and both were given the name *Coregonus albus*. The Great Lakes hatcheries that shipped "Lake Whitefish" to the MP and beyond are home to five extant species of Cisco, though as many as eight species were historically described in the Great Lakes within this taxonomically complex group (Eshenroder et al. 2016). Any number of these could have been introduced to the MP under the guise of "Whitefish". However, no subsequent captures have confirmed whether this species mixing occurred. Lake Whitefish and Cisco spawning runs known in the lower Detroit River near the Sandwich Hatchery collapsed by the early 1900s due to overfishing, pollution (Hartman 1973), and destruction of habitat following construction of the Livingstone Shipping Channel (Roseman et al. 2007). Following this collapse, 1910 was reported as the last year of Lake Whitefish propagation at the Sandwich hatchery during which time eggs were probably sources from waters further afield (Lasenby et al. 2001). The Lake Whitefish which spawned in the Detroit River was reported as destroyed in 1900 to siltation and smothering of their spawning shoals (Trautman 1957).

**Nova Scotia Post-Stocking Whitefish Surveys and Observations**

It was not until 1919, 18 years after Lake Whitefish stocking had ceased in NS, that the first whitefish was recorded in the province. At this time two coregonids were reported captured from the mouth of the Sissiboo River, Digby County, and were initially identified as Round Whitefish (Vladykov and Mckenzie 1935). But these were almost undoubtedly the first records of the Atlantic Whitefish, later known from the Tusket and Annis rivers to the south (Bradford et al. 2004). On 9 May 1923, Piers (1924) reported a whitefish angled at the spillway of the dam located at the outlet of Milipsigate Lake, near the town of Bridgewater, Lunenburg County. Piers (1924) first referred to the specimen as "*a variant of Coregonus labridoricus*" suggesting a purported northwestern form of Lake Whitefish, but the specimen possessed a high lateral line scale count and differences in form that separated it from other Coregonids. Following assessment, that specimen was recognized as the first identified Atlantic Whitefish and not the Lake Whitefish, which was then only regionally known from the province of NB (Piers 1924; Gilhen 1974).

A subsequent account of *C. clupeaformis* (Lake Whitefish) captured from the Tusket River, Yarmouth County, on 10 April, 1951 (Smith 1952) was also revealed to be an Atlantic Whitefish as reported in Scott and Crossman (1973), Leim and Scott (1966), Scott (1967), and later confirmed by meristic and morphometric analysis by Edge (1987; Edge et al. 1991). As a result, the occurrence of the Lake Whitefish in Yarmouth and Lunenburg Counties as described by Dymond (1947), Livingstone

(1951), and Smith (1952) were incorrect, and all instances were similarly Atlantic Whitefish (Edge 1987; Edge et al. 1991). Leim and Day (1959) also report a Lake Whitefish that was likely a misidentified Atlantic Whitefish captured in saltwater of a wharf in Wedgeport, NS, on 8 July 1954, and another similar misidentified observation was reported in Halls Harbour, NS, on 31 May 1958 in fully marine water (Edge 1987; Edge et al. 1991).

The first true observations of Lake Whitefish in NS were reported from 8-11 July 1964 during a survey of Kejimkujik Lake (Veilleux 1964). Collected Lake Whitefish were captured using a 5 cm stretch mesh gill net set at depths ranging from 3-14 m (Veilleux 1964). At the time and still today (2025), it is unclear if these captures represent a native population of Lake Whitefish, or rather if they resulted from a surviving stocked population (see Table 1). Edge (1987; Edge et al. 1991) notes that Lake Whitefish were stocked in Kejimkujik National Park by a fishing club, and Veilleux (1964) confirms that both Kejimkujik Lake, Lake Rossignol located downstream, and the nearby Minard Lake were stocked ~60 years prior to the 1964 surveys (stocking almost certainly occurred in 1890; Tupper 1890) with fish sourced from a small auxiliary hatchery in Kempt, NS (transferred from the Bedford hatchery; Tupper 1890; Veilleux 1964; Kerekes 1975; Table 1). During subsequent surveys of park waters from 1970-1972 (Note that Kejimkujik National Park was first established in 1969), Lake Whitefish were confirmed in Mountain, Peskowesk, and Cobrielle lakes (Kerekes 1975; species confirmed by W.B. Scott). Lake Whitefish were also reported in 1974 in Minard Lake just outside park boundaries (Gilhen 1974). Within the park, Kerekes (1975) notes that only Kejimkujik and Mountain Lake are deep enough to meet the cold-water habitat requirements of Lake Whitefish, and the species was suspected to move from deep waters in Mountain Lake to access Peskowesk and Cobrielle during cooler water periods. Spawning was noted in Mountain Lake in December and the maximum size of the species among fish captured in Kejimkujik National Park was reported as 30 cm (250 g; Veilleux 1964; Kerekes 1975).

The confirmation of Lake Whitefish in NS both in and around waters of Kejimkujik National Park (Veilleux 1964) was realized too late to be included in "The Freshwater Fishes of Canada" by Scott and Crossman (1973), as this seminal text on the freshwater fishes and their distribution in Canada only mentions observations of Atlantic Whitefish in NS. Perhaps ironically, that same year would begin a flurry of Lake Whitefish discoveries across the province. Semple (1973) reported Lake Whitefish in Scots Lake/Scotch Pond, Halifax County in that year which is located distant from any stocking locations and the identified population was documented in detail, including their spawning period, maturation, and size. Smith (1974) reported the occurrence of Lake Whitefish in Pringle Lake, Guysborough County, following surveys in 1973 (later confirmed by Ives 1975; Alexander 1986), but the proximity of this lake to Goshen Lake (1.5 km) that was stocked in 1899 and 1890 (Davies 1900, 1901; Table 1) leaves questions regarding their origin. Subsequent lake surveys in 1973, also revealed Lake Whitefish in Narrow Lake

(Ives 1975, confirmed by Alexander 1986) which could still present a nearby transfer from Goshen Lake (9.5 km away) but is situated in a separate watershed. Lake surveys conducted from 1964-1981 by Alexander (1986) also include 13 Lake Whitefish confirmations among 781 survey locations that were identified from 1964-1980 (which overlap with some previously described such as by Veilleux 1964). Further occurrence of Lake Whitefish in the Mira River was relayed to the author by J. Gilhen, a former curator of the Nova Scotia Museum of Natural History.

Due to frequent prior misidentifications of Lake Whitefish in the region (see Piers 1924; Smith 1952; Dymond 1947; Livingstone 1951; Leim and Day 1959), samples collected by Alexander (1986) from Pringle Lake were sent to the Royal Ontario Museum for comparison to the Atlantic Whitefish (then referred to as the "Acadian Whitefish") which had been collected in 1973 (see Scott 1967; Edge 1987; Edge et al. 1991). In this instance, the species had not been misidentified, and the collected specimens were indeed Lake Whitefish, representing the easternmost occurrence of this species so far described at the time (Alexander 1986). Alexander et al. (1986), however, wrote with uncertainty regarding whether the collected (and now confirmed) Lake Whitefish were native to NS or resulted from unreported hatchery introductions or subsequent private introductions (see also Edge 1987; Edge et al. 1991) because historical reports had made no prior indication of their natural occurrence in the province. Despite these concerns, several of the lakes sampled by Alexander et al. (1986) such as Chezzetcook Lake, Halifax County, Eden Lake, Pictou County, and Little Mushamush, Lunenburg County, were all far removed from documented stocking locations (Table 1, 3).

Even following the discovery of several populations of Lake Whitefish by the late 1980s, the species remained largely unknown in NS. Scott and Crossman (1988) only states that the Lake Whitefish occurs "*less commonly in some Nova Scotia lakes*", and a book published by J. Gourlay (1995) intending to highlight non-traditional freshwater sport fishes in NS makes no mention of the species at all. Evidently, Lake Whitefish never became a focal point of the NS fishery as Pope (1879) had envisioned over a century prior, but scientific interest was growing regarding the origin of Lake Whitefish in NS. In years to follow, researchers began to study Lake Whitefish in more detail, first comparing their morphometrics and meristics to those of Atlantic Whitefish (Edge 1987; Edge et al. 1991; Hasselman 2003; Hasselman et al. 2009), and later by assessing population ancestry using genetic methods (Bernatchez and Dodson 1990; Bernatchez et al. 1996). Through these studies, additional lakes in NS were surveyed to collect samples of the two Coregonid species for comparison (Bradford et al. 2004).

The most interesting lakes documented to support Lake Whitefish are perhaps those at the headwaters of the Tusket River. Lake Whitefish were confirmed in Ogden, Parr, Petes, Mink, and Kempt Back Lake by Bradford et al. (2004) and are suspected to have remained in those lakes and separate from the river-dwelling Atlantic Whitefish until the extirpation of the latter species in ~1982 (Bradford et al.

2004). Bradford et al. (2004) also suggests that some unverified local reports of Lake Whitefish in the Annis and Tusket rivers may have been Atlantic Whitefish. The status of Lake Whitefish in Tusket River is currently unknown (last reported during surveys in 2002) following the introduction of Chain Pickerel (first reported in Snare Lake in 1948; NSDFA unpubl. data) and acidification of surface waters in NS (Watt 1987; White 1992). Most recently in 2017, a Lake Whitefish was captured for the first time during a routine survey of Conrod Lake, Halifax County (Table 5; NSDFA unpubl. data). Conrod Lake lies adjacent to Chezzetcook Lake where the species was found in 1974 (Alexander et al. 1986) and near Scots Lake where Lake Whitefish were described in 1973 (Semple 1973) and later confirmed by NSFDA in 2008 (NSFDA Unpublished data) suggesting more populations remain to be discovered.

Following survey efforts spanning 60 years from 1964 to present (2025), Lake Whitefish have so far been identified in 35 lakes in NS (Table 5). Collection of these data revealed populations distributed from Porcupine Lake, Yarmouth County to the Salmon River, Cape Breton County (Table 5). Known Lake Whitefish populations have a clustered distribution in the Atlantic facing watersheds of NS (Fig. 2) and Lanman (1874) noted that Lake Whitefish are not observed in any systems draining into the Gulf of St Lawrence. This is likely a product of their glacial refuges and post-glacial colonization routes (Edge 1987; Schmidt 1986; Dalton et al. 2023) and closely mirrors the distribution of Lake Trout in the MP described by (Warner et al. 2023). The continued existence of Lake Whitefish in the south of NS, however, is uncertain as this region remains the epicenter of invasive species spread and acidification of surface waters, along with being one of the least studied regions of the province. White (1992) suggested that Lake Whitefish inhabit too few lakes to determine their pH tolerance based on surveys conducted in 1983 and 1987 but following the loss of salmonids from southern NS due to acidification (Watt et al. 1983; Watt 1987), impacts to both Lake Whitefish and Atlantic Whitefish are possible. Lake Whitefish typically spawn in late fall and winter in streams or over cobble/gravel lake shoals (Whitaker and Wood 2001), a time of year when pH levels are most alkaline (Watt et al. 1983; Edge and Gilhen 2001). At this time early developmental stages may be most sensitive to acidification both during incubation and immediately post-hatch (Edge 1987), but the emergence of larvae in spring (Whitaker and Wood 2001) may provide some temporal ecological buffer to low pH.

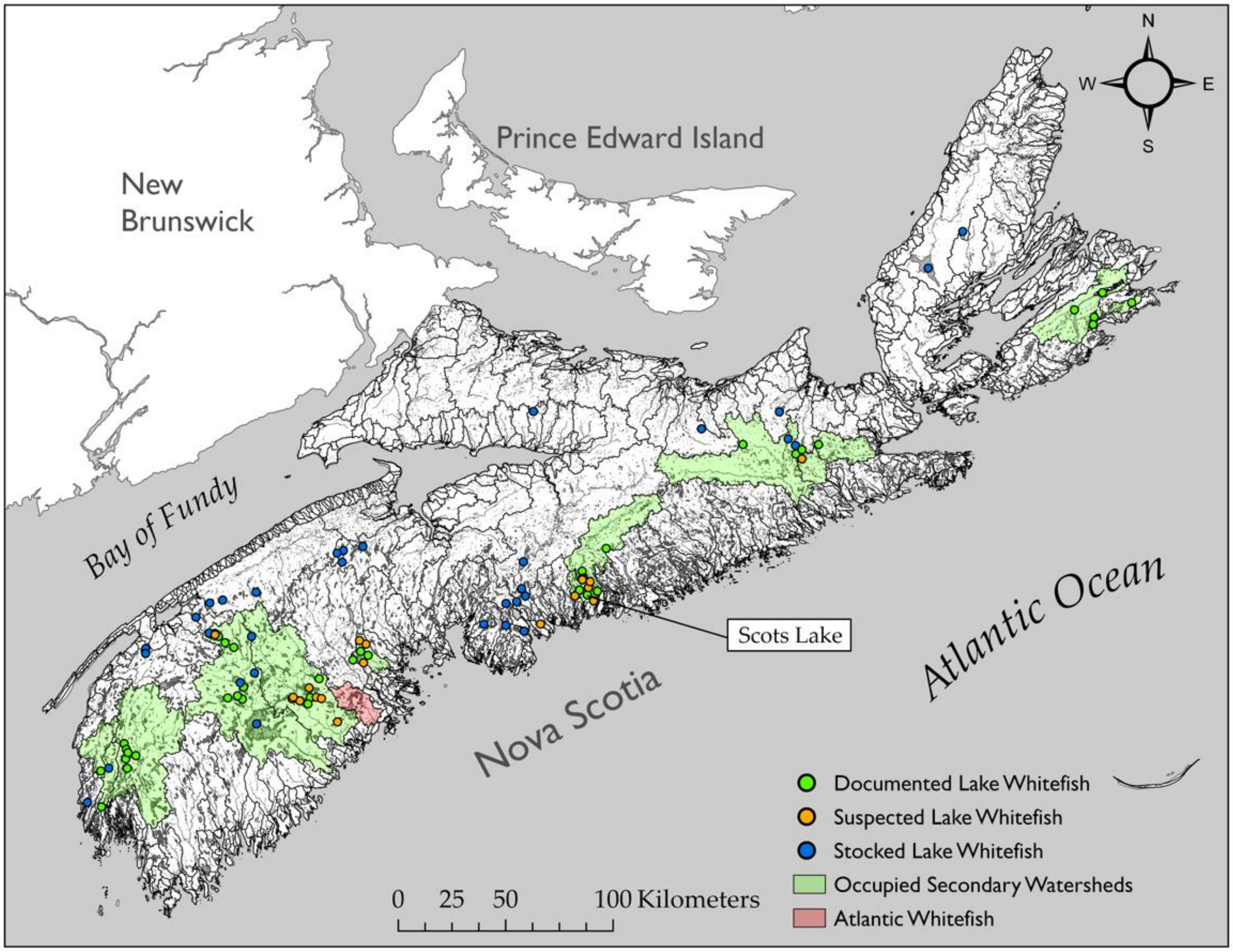


**Figure 2:** Map of Lake Whitefish stocking and present distribution in Nova Scotia, Canada. Blue points represent the location of lakes stocked from 1877 – 1901. Green points represent locations where Lake Whitefish populations have been confirmed, and orange points are locations suspected to sustain Lake Whitefish due to close connections with lakes with known populations. The watershed highlighted in red is the Petite Riviere and is currently (2025) the only region known to support Nova Scotia's endemic populations of Atlantic Whitefish (*Coregonus huntsmani*) within Hebb, Minamkeak, and Milipsigate lakes following their likely extirpation in the Tusket and Annis Rivers in the south of the province. Scots Lake, Halifax County, Nova Scotia supports a suspected dwarf lake Whitefish population in Nova Scotia.

**Whitefish Stocking in New Brunswick**

Bradford and Mahaney (2004) report that 196 million Lake Whitefish fry hatched from eggs sourced from "*federal hatcheries on the lower Great Lakes*" were reared and released in waters across Canada from 1878-1914. Of these, 37,470,900 eggs (nearly 20% of the total produced) were sent to NB to hatch and be released over a period of 16 years spanning 1886 - 1901 (Table 2). Lake Whitefish were the only Coregonid stocked in NB (apart from possibly mistaken Ciscoes; Lasenby et al. 2001), and Lake

Whitefish eggs sent to NB were received by the "Saint John River hatchery" located at Rapide des Femmes 5 km downstream from Grand Falls. The hatchery building and associated dam had been constructed in the summer of 1879 at the cost of $2,100 and was opened by Samuel Wilmot in October 1879 (Pope 1879). This site was ideal for receiving and distributing Lake Whitefish eggs and fry as Samuel Wilmot described that "*the railway runs through the property only a few yards from the hatchery*" and from this point, eggs and fry could be transported along the Saint John River by means of boat, rail, or road (Pope 1879). Like the Bedford hatchery in NS, the Saint John River hatchery at Grand Falls was constructed with the intention of producing Atlantic Salmon for release directly into the Saint John River. Within nine years of establishment and only one year into the whitefish stocking program, the output of Lake Whitefish at this establishment would greatly outnumber all other species including Atlantic Salmon.

The first point of introduction of hatchery reared Lake Whitefish to NB was in Lakeville/Sommerville Lake (Williamstown Lake), Carleton County, where 650,000 Lake Whitefish fry were released in 1886 (Table 2; Fig. 3), but in the following year stocking quickly expanded to include lakes in Charlotte, Victoria, and York counties in regions south of the Saint John River. Stocking was recorded in Madawaska County in 1893, adding Albert County in 1896. Stocking was generally focused on large lakes in the southwest of the province with Lake George, Oromocto Lake, and Harvey Lake receiving over 3 million Lake Whitefish fry each before the whitefish stocking program ended in 1901 (Table 2).

**New Brunswick Post-Stocking Whitefish Surveys**

Lake Whitefish were first noted in NB by Perley (1851) in the Madawaska River at the falls near this tributary's confluence with the Saint John River. In this location Perley (1851) reported that Lake Whitefish could be captured in summer but were commonly harvested in autumn. Lake Whitefish were also documented in the Tobique Lakes connected to the Saint John River by Adams (1873), but no mention of specific lake names was made. The species was captured in spring in Grand Lake of the Saint John River and in the river's main stem between Grand Lake (Jemseg River) and the City of Fredericton (Perley 1851; Evermann and Goldsborough 1907). In these systems, Lake Whitefish appeared in shallow lake margins during cooler water periods, though were reported to occupy deeper water in summer (Perley 1851; Adams 1873). While Perley (1851) makes passing mention of Lake Whitefish in the downstream reaches of the Saint John River, Lanman (1874) describes its occurrence through the "*whole extent*" of that system. Perley (1852) and Lanman (1874) even describe the capture of Lake Whitefish in the Saint John Harbour in spring. Here, Lake Whitefish occurrence was likely supported by high volumes of freshwater causing a local reduction in surface salinity during the annual freshet for which that system is known (Newton and Burrell 2015). Cox (1893) and Meth (1972) also mention Lake Whitefish occurrence downstream in autumn, though not necessarily to the harbour mouth. This observation is supported by Dadswell (1975) who reported that the entire population occupies the inshore estuary in autumn and spends the summer in Belleisle Bay which has a salinity ranging 2.5 – 4.6 ppt through much of its basin (Andrews et al. 2020).

Lake Whitefish were also reported in downstream regions in both Darlings' Lake in Kennebecasis Bay and the Nerepis River branching from the main stem of the Saint John River at Grand Bay (Fig. 3). The Nerepis River likely supported a spawning migration based on the descriptions made by Perley (1852). Adams (1873) suggested that the Saint John River may host both a freshwater obligate form of the Lake Whitefish and another which inhabited the estuary, though subsequent reports and analysis by Adams (1873) suggest no difference between these types other than colouration. Despite this conclusion, Edge (1987) confirms the capture of a Lake Whitefish in Black's Harbour, NB in 1958 in fully marine waters (see also Leim and Day 1959; Scott and Crossman 1957; Edge 1987; Fig. 3). Scott and Crossman (1959) also report a Lake Whitefish captured between 18-27 m depth in the lower Saint John River by Dadswell (1975), a region below the halocline with salinities measuring ~20 ppt (Carter and Dadswell 1983). Lake Whitefish are known to form anadromous populations (Dadswell 1975; Morin et al. 1981) and there is high likelihood that this behaviour is also present in the estuary of the Saint John River that receives significant tidal exchange from the Bay of Fundy. As surface temperatures cooled in Saint John River in autumn (mid September - October), Lake Whitefish were observed to seek tributary streams to spawn, an activity primarily conducted at night (Perley 1851,1852; Lanman 1874).

In later years, Lake Whitefish were also reported from Beau Lake (Kendall 1914) in the upper reaches of the Saint John River, and while Lake Whitefish presence in the adjoining Glazier Lake was falsely reported by Evermann and Goldsborough (1907) in reference to Kendall 1903, it was confirmed in 1972 by Meth (1973; DDT levels in Lake Whitefish were simultaneously reported as 0.220 - 0.252 ppm in that location in 1972). Smith (1969) also mentions the occurrence of Lake Whitefish in the Green River, and it was later confirmed upstream in the First and Third Green River lakes (Keachie and Cote 1973). Lac Baker was also reported to support the species (Meth 1973; Hyatt 1970 in Meth 1973). When the Saint John River began to be developed for hydropower, Lake Whitefish were observed at both the Beechwood Generating Station and the Mactaquac Generating Station following their respective completion dates in 1957 and 1968 (Smith 1979; Table 7, 8). By 1990, catches of Lake Whitefish in the bypass facility at Beechwood Dam had dwindled to zero (Beaumaster et al. 2020), while catches declined even more precipitously at Mactaquac (Smith 1979; Ingram 1980; Table 7, 8). At that location, the number of observed Lake Whitefish dropped from 2,440 fish in 1968 (Smith 1970 states 2,351 fish) to just 15 in 1971 (Meth 1973; Smith 1979; Ingram 1980), and from 2005 – present (2025), not a single Lake Whitefish has been captured or observed at the dam.

Smith (1970) reports that Lake Whitefish arriving to the Mactaquac facility did so in late October and November, consistent with an upstream spawning migration that was "*usually still in progress when collection facilities were closed for the season*". This observation simultaneously explained the lack of consistent fish lift captures of Lake Whitefish in autumn and the most likely reason for their disappearance (Smith 1970, 1979; Table 8). When present, Lake Whitefish were observed in the fish lift starting in October and this pattern of autumn captures was consistent through later years (Table 7, 8). Initially it was suspected that Lake Whitefish blocked by the Mactaquac Dam re-routed to the Keswick River (Meth 1974). Gravid fish were also captured near the mouth of Oromocto River located 35 km downstream (Meth 1972), but this location possibly supported a separate population (which has not been observed since). A similarly timed spawning migration was also intercepted in Salmon River, a tributary at the upstream end of Grand Lake, Queens County in 1969 (Smith 1970), that was also first and last reported in 1971 and 1972 (Meth 1972, 1974).

Most early accounts of Lake Whitefish originated from the Saint John River which undoubtedly supported the regions largest population, but Lake Whitefish in NB were not exclusive to that watershed. Kendall (1903) described the Lake Whitefish broadly from the St. Croix River but provided no specifics on inhabited lakes. In 1950, specimens of Lake Whitefish were collected in a 5.1 cm stretched mesh gill net set at the bottom of Kerr Lake, Charlotte County, at a depth of 7.5 m (Smith 1952), suggesting for the first time in regional literature that the species might also occur outside of the Saint John and St. Croix River basins.

Among records of Lake Whitefish in NB, two reports are of note. The first being reports of Lake Whitefish in the Restigouche River (see Cox 1893; Scott and Crossman 1959) and in McDougall Lake, Restigouche County (NBDNRED unpubl. data; Fig. 3). These observations could possibly have been misidentified Round Whitefish known to occupy the region or could represent Lake Whitefish originating from a different glacial refugium than those elsewhere in the MP (i.e., the Mississippian glacial refuge; Curry 2007; Curry and Gautreau 2010). The second report is that of the occurrence of Lake Whitefish in Logan Lake in the headwaters of the Miramichi River basin (NBDNRED unpubl. data; Fig. 3). Logan Lake similarly does not match the post-glacial distribution of the species in the MP that typically occur only in Atlantic-facing watersheds. However, Lake Whitefish in this location may have been separated from populations in the Tobique River watershed during post-glacial isostatic rebound. If the record from Logan Lake is correct, this populations may provide important clues regarding regional zoogeography and post-glacial dispersal of the inland fishes of NB.

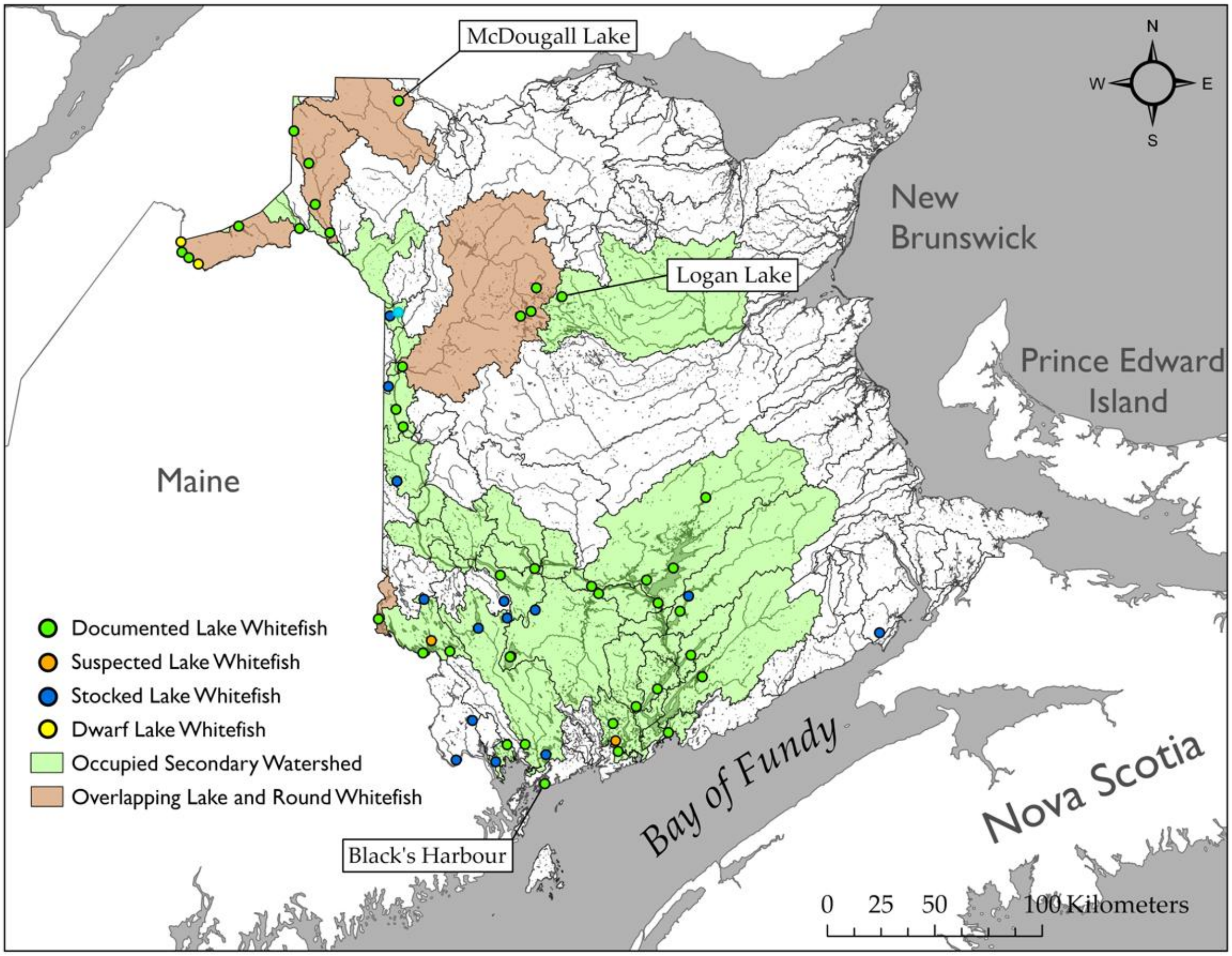


**Figure 3:** Map of Lake Whitefish (*Coregonus clupeaformis*) stocking and present distribution in New Brunswick, Canada. Green points indicate locations where Lake Whitefish are confirmed, yellow points indicate lakes supporting dwarf Lake Whitefish, and blue points represent the location of lakes stocked from 1886 - 1901. Watersheds highlighted in green are currently occupied by Lake Whitefish while those in brown support a shared distribution between Lake Whitefish and Round Whitefish (data from the New Brunswick Department of Natural Resources and Energy Development). Lake Whitefish in McDougall Lake could be misidentified Round Whitefish (*Prosopium cylindraceum*) and a record from Logan Lake is the only Lake Whitefish population downstream from Grand Falls occurring outside of an Atlantic-facing watershed. Black's Harbour marks the occurrence of a Lake Whitefish observation in non-estuarine marine waters.

**Morphometrics and Meristics of Whitefish in the Maritime Provinces**

Edge (1987; Edge et al. 1991) was the first author to produce a detailed morphometric comparison between the Atlantic Whitefish and the Lake Whitefish in NS (n=6 populations), NB (n=5 populations), Québec, and Maine, and to further document intraspecific variation amongst the latter species. This analysis of meristic characters by Edge (1987; Edge et al. 1991) within NS and NB identified specimens from Mira River (Salmon River), NS and Kerr Lake, NB as distinct based on low lateral line scale counts. Edge (1987) also noted high gill rakers counts in Lake Whitefish collected from Pringle Lake, NS (mean 30.9), possibly due to a planktivorous diet, but observed that Lake Whitefish from the Mira River had low gill raker counts that may indicate benthic feeding. Following this assessment, Edge (1987) suggested that based on gill raker counts most population from NS and NB seemed to group separately. Lake Whitefish from the Mira River were also suggested as "*sufficiently distinct to be described as a subspecies*" due to lower lateral line scale (64-75, mean 70.1) and gill raker counts (20-24, mean 22.6) when compared to other assessed populations (Edge 1987; Edge et al. 1991; Goodchild 2001). The genus *Coregonus*, however, is known for its phenotypic plasticity, particularly in gill raker number and form (Loch 1974; Svardson 1979; Lindsey 1981) that, while hereditary, can be strongly influenced by habitat type and foraging strategy within a few generations (Lindsey 1981). Therefore, these characters have been considered unreliable for differentiating populations (Goodchild 2001). Upon further assessment, the Mira River population of Lake Whitefish has demonstrated no genetic difference from other NS populations (Bernatchez and Dodson 2001; Goodchild 2001) despite morphological differences.

When describing all three Maritime Coregonids, Hasselman (2003) reports that a combination of the length of the longest gill rakers, the lateral line scale count, and the pectoral fin length was able to correctly distinguish among the various species. Detailed morphometrics and meristics for the three species examined are found in Hasselman (2003). Morphometric analysis by Hasselman (2003; Hasselman et al. 2009) also identified distinctive phenotypic variation in Lake Whitefish populations between Kerr Lake, NB and three other populations that included Lake George, Mira River in NS, and Saint John River in NB. Murray (2005) noted high Fst values between Lake Whitefish populations in Maritime drainages. Conversely, Lake Whitefish in the Saint John River, NB (sampled at Mactaquac Dam) and the Mira River, NS were found to have the least genotypic differentiation but the greatest phenotypic differences (Murray 2005).

**Ancestry of Whitefish in the Maritime Provinces**

Atlantic Whitefish and Round Whitefish have always been considered native to the MP due to a lack of historical stocking, but the ancestry of Lake Whitefish was not so clear. Following detailed meristic analysis of multiple Lake Whitefish populations by Edge (1987; Edge et al. 1991; Hasselman 2003; Hasselman et al. 2009), questions remained about whether the Lake Whitefish observed in NS were native to the province or remnants of past stocking efforts (see also Curry and Gautreau 2010). As recently as 1996, Davis and Browne (1996) wrote without evidence that the Lake Whitefish was an introduced species in NS, and to a degree it was, but these statements disregarded several studies already addressing the local origin and ancestry of this species.

Bernatchez and Dodson (1990) used restriction-fragment length polymorphism in mitochondrial DNA to study several populations of Lake Whitefish in Maine, NS, and NB. Their findings first made a distinction between western Lake Whitefish that dispersed from a Mississippian glacial refuge following glacial retreat at the end of the Pleistocene epoch and those arriving from an isolated Atlantic refugium. They suspected that those populations from the Atlantic refugium now occupy waters ranging from Maine's Allagash Basin through to Cape Breton, NS. The Atlantic glacial refugium likely encompassed an unglaciated plain around the present-day Hudson and Susquehanna River basins (Schmidt 1986; Fig. 4). Initial hypotheses perceived that the only region of overlap between these two clonal groups (Atlantic and Mississipian) was the Allagash Basin of the Saint John River drainage in Maine where sympatric populations from two glacial refuges exist (Bernatchez and Dodson 1990, Bernatchez et al. 1996; Fig. 4). In this overlapping region, Lake Whitefish suspected to have originated from the western (Mississippian) assemblage appeared to exhibit only a normal size phenotype, while those thought to originate from the eastern (Atlantic) assemblage appeared to exhibit either a normal or a dwarf phenotype that occasionally formed a sympatric pair. Bernatchez and Dodson (1990) theorised that these dwarf and normal phenotype pairs (see also Fenderson 1964) developed through sympatric speciation in the Allagash Basin while remaining reproductively isolated within individual lakes. Within NB, these dwarf/normal pairs are only known in two lakes including Glazier Lake and Beau Lake in the upper Saint John River on the Maine/NB border (Wood 2016, J. Wood unpubl data). Based on the degree of sequence divergence, it was suggested as a conservative estimate that Lake Whitefish in the MP suspected to have originated from the Atlantic refugium last shared a common ancestor with Lake Whitefish from the Mississippian (western) group 150,000 years ago (Bernatchez and Dodson 1990). This timespan considered a relatively recent divergence among Lake Whitefish clades (Bernatchez and Dodson 1991).

In a 1991 publication Bernatchez and Dodson (1991) corrected their previous findings for the MP after characterising four distinct assemblages of Lake Whitefish identifiable across North America which they described as the Beringian (i.e., Yukon/Alaska origin), Mississippian, Atlantic, and Acadian lineages. Among these, Lake Whitefish in NS, NB, some parts of southern Québec, and the northeastern USA through to New England (Bodaly et al. 1992) comprised a unique clade based on the analysis of mitochondrial DNA. This group of Lake Whitefish was deemed to be the "Acadian" lineage by Bernatchez and Dodson (1991; to avoid confusion with the Atlantic Whitefish [*Coregonus huntsmani*] once known as the "Acadian Whitefish" we will use the term "Scotian" or "Scotian lineage" to describe this eastern group of Lake Whitefish [*Coregonus clupeaformis*] occurring in the MP throughout the remainder of this article). Within this re-evaluation, Bernatchez and Dodson (1991) found no evidence of the "Scotian" haplotype identified in the MP in other lakes known to have been sourced from the Atlantic refugium (e.g. Lake Champlain, New York State; Bernatchez and Dodson 1994). Furthermore, these new data suggested that Lake Whitefish from the Mississipian refuge only overlapped with those from the Atlantic refuge in the lower St. Lawrence River and Eastern Québec (Fig. 4) but reported no overlap between the Mississipian and the "Scotian" lineages (Bernatchez and Dodson 1991). Previous reports of overlapping clades in the Allagash Basin were thus more likely the intersection of the Atlantic and "Scotian" groups that only meet in Northern Maine and Québec (Bernatchez and Dodson 1991; Pigeon et al. 1997; Mee et al. 2015). The "Scotian" assemblage of Lake Whitefish thus constitutes a distinct group native to the MP and neighbouring eastern regions (Bernatchez and Dodson 1991, 1994, Bernatchez and Wilson 1998) which has maintained reproductive isolation from other Lake Whitefish groups from discrete glacial origins even when found in sympatry in eastern lakes (Lu and Bernatchez 1998, 1999, COSEWIC 2008).

Identifying a distinct "Scotian" group of Lake Whitefish was an important first step in re-defining the origin of Lake Whitefish in the MP, but Bernatchez and Dodson (1990, 1991) only examined Grand Lake, in Queens County, NB, and Mira River, in Cape Breton, NS during their analysis. Murray (2005), however, was the first to consider the possible implications of historical stocking and to discuss the introduction of Ontario-origin (Detroit River) Lake Whitefish to the MP. Murray (2005) assayed 13 Lake Whitefish populations (12 in NS and 1 in NB; Fig. 2, Table 5, 6) using 11 microsatellite loci and included samples from Lake Ontario (a possible stocking source) and MacAlpine Lake, Nunavut, as two representatives of the Mississippian lineage. This study demonstrated that whitefish sampled from the MP were more closely related to each other within the range of the proposed "Scotian" lineage than to the Mississippian group, mirroring findings by Bernatchez and Dodson (1990, 1991). Based on these results, Murray (2005) concluded that stocking had been unsuccessful (see also Piers 1924), but apart from Grand Lake, Queens County, NB, which supported a significant native population prior to being stocked, population ancestry had not actually been assessed in stocked waters. Lakes within and adjacent to Kejimkujik National Park (likely stocked in 1890) and those near Goshen Lake in Guysborough County (stocked in 1899 and 1900) that might retain stocked genetics were missed (Davies 1900, 1901; Table 1). Though possibly apart from these regions there is little chance that any stocked whitefish remained in NS to be sampled (Fig. 2).

**Glacial Refuges and Origin of the "Scotian" lineage of Lake Whitefish**

Following on the findings of (Bernatchez and Dodson 1991) it was hypothesised that the "Scotian" lineage of Lake Whitefish found in the MP and Maine arrived from eastern continental shelf areas that remained above sea level and ice free during the last glacial maxima (Fulton and Andrews 1987; Bodaly et al. 1992). Evidence for this hypothesised eastern origin is robust in part because the known distribution of the "Scotian" of Lake Whitefish (Fig. 2, 3, 4) is concentrated in and nearly exclusive to eastern draining watersheds of the MP. Three possible eastern refugia are described by Curry (2007) and include: 1) a southern Georges Banks Refugium (Whitmore et al. 1967; Shaw 2006), 2) a Sable Island Banks or "Scotian" Refugium (Catling et al. 1985; Davis and Browne 1996, 1998), and 3) a Northeastern Grand Banks Refugium east of Newfoundland (NFLD; Schmidt 1986; Curry and Gautreau 2010; Fig. 4). Among these regions, the Northeastern Banks of NFLD is often suggested as being the most likely origin for many eastern fishes (Schmidt 1986; Bernatchez and Dodson 1991; Curry 2007; Curry and Gautreau 2010; Fig. 4), but the precise post-glacial origin for some species is still subject to some debate and we believe it is incorrect for the whitefish. The Atlantic Glacial Coastal refugium (i.e., Atlantic Refugium) which overlapped with present day Cape Cod and occurred next to Georges Bank (Curry 2007; Fig. 4) is not included here because Lake Whitefish distinct from the "Scotian" have been identified separately as having originated from this refugium and occur sparsely in central Maine but not as far as the MPs (Bernatchez and Dodson 1991).

Tangential to the three regions described, some authors have also suggested that a glacially de-watered continental shelf could even have presented a near continuous land mass as a possible refuge (Wright 1989). However, modern assessment has led to the hypothesis that ice extending to and even past the continental shelf edge was possible (Dalton et al. 2020, 2023). For simplicity of argument, we will pursue the hypothesis of the three discrete refugia. Dalton et al. (2020, 2023) provides extensive and robust geochronological data sets regarding ice cover of modern landforms, but little data is presented describing ice extent beyond those coastlines. Furthermore, the presence of significant ice streams along the Laurentian and Fundian channels (Piper and MacDonald 2001; Shaw 2006; Shaw et al. 2006; Fig. 4) would have roughly split a continuous land mass into the three isolated refuges as previously described.

Beginning in the south, clear evidence suggests that Georges Bank remained ice free during the Wisconsian glacial maximum. This evidence includes fine lacustrine sediments characteristic of freshwater habitats and glacial moraines which provide evidence of ice margin contact on the western edge of the bank (Pratt and Schlee 1969). These data compliment the discovery of numerous fossils teeth of both Mastodon and Mammoth (*M. americanum, and Mammuthus sp*; Whitmore et al. 1967) dredged from the sea floor indicating the presence of numerous large herbivores. The existence of such large mammals at sufficient abundance to leave discoverable fossils suggest that forests and grasslands once covered Georges Bank. Therefore, sufficient freshwater was available to support vegetation growth and probably freshwater obligate fishes until Georges Bank became inundated by rising sea levels. To the north, the Northeastern Banks of NFLD also remained ice free based on evidence from geochronological data (Dalton et al. 2023) and probably provided refuge to some salt tolerant and anadromous fishes that dispersed widely from this location (Bernatchez and Dodson 1991; Curry 2007; Curry and Gautreau 2010). However, the occurrence of Lake Whitefish from the "Scotian" lineage or Atlantic Whitefish seems unlikely in either of these refugia.

During glacial retreat beginning 18,000 years BP (Curry 2007), both the Northeastern Grand Banks of NFLD and Georges Bank would have been isolated from NS (Fig. 4). Both regions were separated from the MP by significant expanses of cold and seasonally stratified marine waters (de Vernal et al. 2000) and partially blocked by significant streams of calving glacial ice (Shaw 2006). Calving glaciers formed ice streams that flowed rapidly seaward from the North American continent during glacial retreat (Shaw 2006). These glaciers extended to the ocean floor in a then shallow sea and their seaward displacement carved both the Laurentian Channel to the north of NS and the Fundian Channel to the south, sending huge plumes of sediment and ice into continental shelf waters (Shaw 2006; Dalton et al. 2020, 2023). To the south of NS, Georges Bank was overtopped between 11,000 - 8,000 years BP during which a shallow sea in the Gulf of Maine began to widen (Grant 1970). Thus, any freshwater obligate fishes on Georges Bank would have had to navigate low salinity surface waters of an otherwise hypersaline ocean to reach the mainland (Curry 2007). The closest landmass would have been the northeastern United States. At this point, and if successful, whitefish would most likely overlap with fishes of the Atlantic Coastal Refugium, but fishes from that refugium probably did not disperse as far as the MP (Curry 2007). Lake Whitefish and in particular the anadromous Atlantic Whitefish are tolerant to salt water (Scott and Crossman 1973), but dispersal from Georges Bank fails to explain why neither is found in the Northeastern United States that would have been far closer and more much more easily accessible.

The Northeastern Grand Banks most often provides the favoured hypothesis for an eastern Lake Whitefish refugium (Bernatchez and Dodson 1991, Curry 2007, Curry and Gautreau 2010), but is subject to similarly puzzling disjunctions in fish distribution. No whitefish species or freshwater obligate fishes of any type are native to the Island of NFLD (Curry 2007), which was not only the closest colonizable landmass, but one with an enormous abundance of suitable lakes. Atlantic Whitefish by comparison only occupy southern Nova Scotia where Lake Whitefish populations are also numerous. This distribution begs explaining how these species (particularly the Atlantic Whitefish) could have bypassed so much available habitat only to take up residence further south and how both species similarly avoid colonization of lakes in the Southern Gulf of St Lawrence. In contrast, Arctic Char (*Salvelinus alpinus,* Linnaeus, 1758) that originated from the Northeastern Grand Banks occur on NFLD but have not been found in NS

(Bernatchez and Dodson 1991; Brunner et al. 2001; Salisbury et al. 2019). This absence occurs even though Arctic Char would have been most well adapted to disperse through cold and saline marine waters that abounded during glacial retreat (Scott and Scott 1973). Notably, some assessments of the Northeastern Banks as a suitable refuge for Lake Whitefish had assumed that the species was introduced to NS and therefore not native to the province (Curry and Gautreau 2010), a conclusion that may have led to overlooked distributional clues.

Following this assessment, a "Scotian" group of Lake Whitefish is perhaps more likely to have survived in proglacial lakes in a Scotian Shelf refugium ahead of the ice front (Shaw 2006; Fig. 4). Upon glacial retreat, these lakes would have been transported onto the eastern Maritime coast following the forebulge and topography over which the retreating ice front passed (Dadswell 1974), probably avoiding the need for marine migration. This avenue of colonization would support the exclusive occurrence of Lake Whitefish in the eastern facing watersheds of NS, and the distribution of endemic populations of Atlantic Whitefish on that shore (DFO 2018). The distribution of "Scotian" Lake Whitefish is also identical to that of genetically distinct Lake Trout which occur exclusively in the MP and northern Maine (Warner et al. 2023, 2024). Since Lake Trout have the lowest salinity tolerance of the genus Salvelinus (Scott and Crossman 1973), marine colonization routes would have been extremely unlikely for this species, suggesting that it probably also shared the Scotian Shelf refugium with the two NS Coregonid species.

In NB, the "Scotian" lineage of Lake Whitefish also reached river basins spanning from the Saint John River to the St. Croix River (Fig. 4). To arrive at these locations, Lake Whitefish likely passed over NS and through the Bay of Fundy as glacial melt water transgressed in proglacial lakes over the land that was depressed by approximately 200 m from its present elevation upon glacial retreat (Quinlan and Beaumont 1982; Dalton et al. 2023). The Bay of Fundy, which had cleared of ice between 13,000 -12,500 years BP (Fader 2005), initially posed a marine barrier to Lake Whitefish movement. Isostatic rebound then outpaced sea level rise causing the bay to drain between 13,000 – 9,5000 years BP (Grant 1971; Fader et al. 1977; Fader 2005). Initially the bay become a freshwater lake fed by melting ice on the western Fundy shore (Stea and Mott 1998, Shaw et al. 2002). Near 11,000 years BP, sea level rise caused the gradual return of marine waters to the Bay which would soon provide a pathway for whitefish to enter NB through a rising but still dilute Bay of Fundy (Grant 1970, Shaw 2006). Migrating whitefish would have then met the Saint John River along the NB coastline which formed its present-day southern connection to the Bay of Fundy near 8,000 years BP (Curry 2007).

Near 9,500 years BP, eustatic sea level rise started to rapidly outpaced isostatic rebound, and by 7,000 years BP the Bay of Fundy was once again flooded with cold sea water (Fader 2005). Rising sea levels re-established the marine barrier to whitefish migration, once again separating NS and NB while widening of the Gulf of Maine (Grant 1970). Under this timeline, Lake Whitefish arriving the Saint John River near 8,000 years BP would have had approximately 3,000 – 4,000 years to follow on the heels of the retreating glacial ice in proglacial lakes to arrive in headwater lakes of the upper Saint John River. Proglacial lakes were one of the most effective means of widespread post-glacial dispersal of fishes during the Wisconsin glacial retreat throughout the holarctic (Segerstråle 1957; Dadswell 1972; Dadswell 1974). Isostatic rebound and dewatering of the land mass from 6,000 years BP to present (Curry 2007) that would have provided the mechanism to transport Lake Whitefish to the upper Saint John River and Maine's Alagash Basin (deglaciated between 14,500 – 11,000 years BP; Borns et al. 2004) where they are now found isolated in deep lake basins.

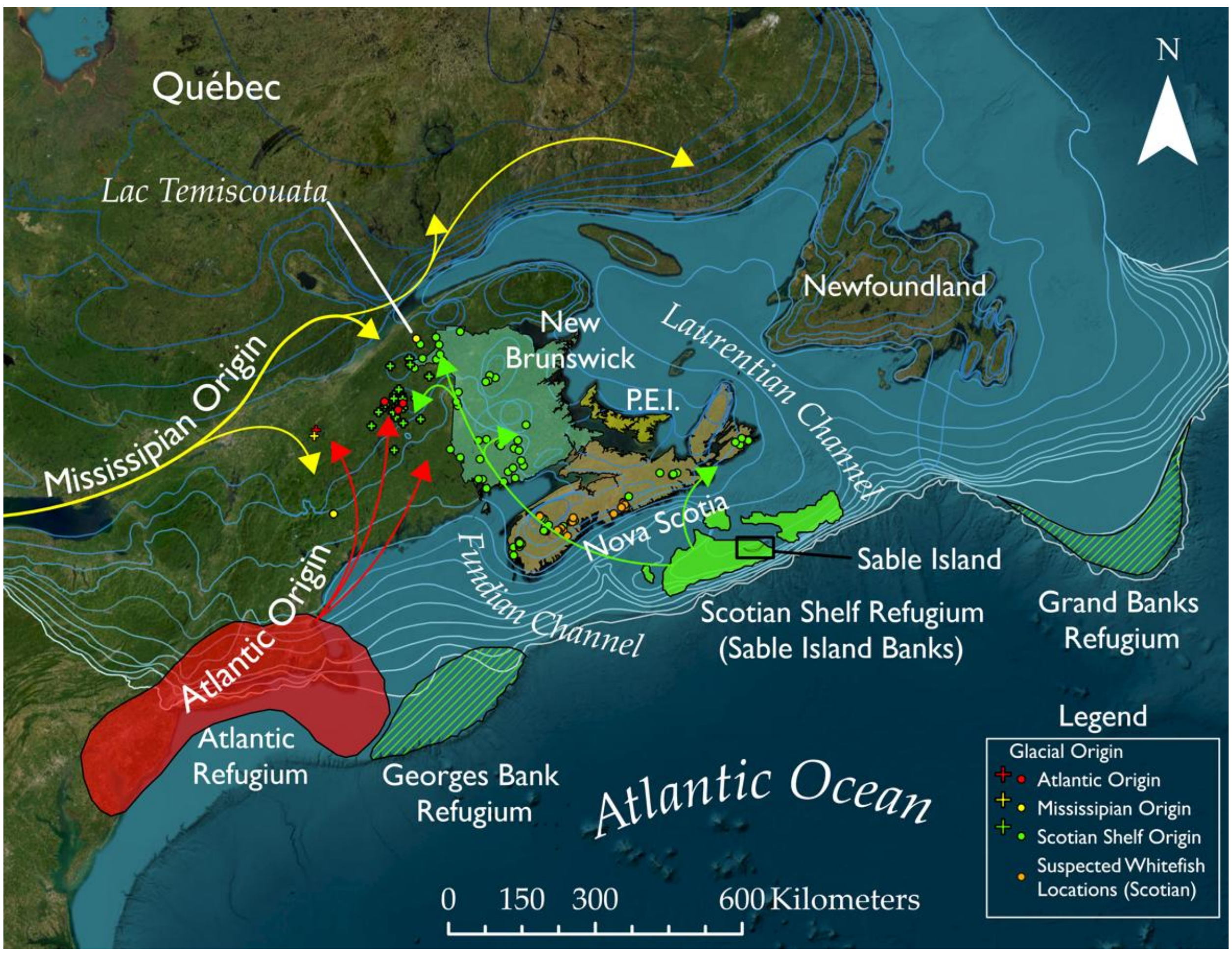


**Figure 4:** Map of the optimal 25,000-year (calibrated age before present) ice margin extracted from supplementary files in Dalton et al. (2023) showing the hypothesised ice edge in 1,000-year increments during retreat and the possible glacial refuges hypothesised to have existed in eastern North America during Wisconsin Glaciation. These locations include the Grand Banks and Georges Banks refugia (green hatched polygon), the Scotian Shelf Refugium (Sable Island Banks; solid green polygon) and the Atlantic refugium (red polygon) which was located near modern day Cape Cod and the mouth of the Hudson

River. Arrows emanating from the Mississipian Refuge (yellow), Atlantic Refuge (red), and the Scotian Refugium (green) show the hypothesised colonization routes of Lake Whitefish so far identified in the Canadian Maritime Provinces and State of Maine. Round points indicate documented Lake Whitefish populations with likely or known origin, while suspected populations are marked as orange circles. Where dwarf Lake Whitefish populations are recognized, those locations are marked as a "+" in similar colour to their suspected or known origins. Overlapping dwarf and normal populations extracted from (COSEWIC 2008, Lu and Bernatchez 1998, 1999, Wood 2016, Pigeon et al 1997).

Reflecting further, Atlantic Whitefish were found exclusively in watersheds draining to the Atlantic Ocean but survive only in the Petite Rivière, Lunenburg County (Bradford et al. 2024). This restricted distribution is surprising, because the anadromous life cycle and greater adaptation of this species to salt water should have provided more opportunity for it to disperse. Some authors have suggested that the Atlantic Whitefish may have sought refuge in a small deglaciated corner of southern NS (Edge 1987), but there is no data that suggests this hypothesized refuge existed (Dalton et al. 2023). Conversely, Atlantic Whitefish probably originated from a similar "Scotian" refugium as did the Lake Whitefish (Curry and Gautreau 2010). In contrast to the eastern origin of other coregonids of the MP, the Round Whitefish in NB arrived from the Mississipian glacial refugium (Morgan et al. 2018), once situated in the upper Mississippi valley where most of the freshwater obligate fishes in the MP and central North America originated (Dadswell 1972; Curry 2007; Curry and Gautreau 2010).

**Diet**

Lake Whitefish diet can vary considerably by lake and in NS has been reported to include Cladocera plankton (Pringle Lake, Guysborough County, NS; Edge 1987), benthic organisms including amphipods, Diptera larvae, isopods, sphaeriid clams (Lake George, Annapolis County, and Mira River Cape Breton County NS; Edge 1987), and gastropods (Saint John River, Dadswell 1975). Gilhen (1974) reported that Lake Whitefish are bottom feeders that graze on insect larvae and gastropods while occasionally capturing small fishes, including small Rainbow Smelt (*Osmerus mordax*) when present (J. Wood unpubl. data). In NB, Dadswell (1975) reported that adult Lake Whitefish in the Saint John River are benthic carnivores preying largely on gastropods while juveniles are planktivorous until a size of 20 cm. Dadswell (1975) observed the most feeding and highest gut fullness from October – June, suggesting greater feeding in the colder months and found other food items to include amphipods, insect larvae, and fish eggs at this time. Differences in diet and food resource competition are thought to be responsible for divergence in gill raker counts observed across circumpolar Lake Whitefish populations (Loch 1974; Svardson 1979; Lindsey 1981).

## Recreational Fishing Regulations

*Nova Scotia*

Goodchild (2001) reported that there was no catch or retention limit for Lake Whitefish in NS for the 1998 season. From 2002 to present (2025), there appears to be no targeted fishery, yet recreational angling regulations in NS allow a daily bag and possession limit of 8 Lake Whitefish with seasons corresponding to open seasons for recognized sportfish that span from April 1 to Sept 30 (Nova Scotia Anglers Handbook 2025). All lakes are open to summer angling, but Sucker Lake, Lunenburg County, and Pringle Lake, Guysborough County, are the only lakes reported to sustain Lake Whitefish that are open to winter fishing. There is no length restriction applied for retaining Lake Whitefish in NS and the species has been reported as only a minor recreational species in the province (Goodchild 2001).

*Atlantic Whitefish*

Following a federal Species at Risk Act (SARA) listing as endangered in 2003 (Bradford et al. 2004; the first species listing under SARA), the Atlantic Whitefish found exclusively in NS has become highly protected within its remaining native range. As a result, no fishing is permitted in Hebb, Minamkeak, or Milipsigate lakes, Lunenburg County. Furthermore, Atlantic Whitefish cannot be targeted or retained by recreational anglers and must be released immediately if captured accidentally (Nova Scotia Anglers Handbook 2025).

*New Brunswick*

In NB regulations pertaining to "Whitefish" do not distinguishing between Lake Whitefish and Round Whitefish and neither species is considered a sportfish. As a result, the recreational fishing season opens in accordance with the designated sportfish season in both inland and tidal waters across all recreational fishing areas and closes on Sept 15$^{th}$. Anglers in NB have a daily bag and possession limit of 8 "whitefish", but within a slot size ranging from 10 – 70 cm total length. This length limit encompasses the entire adult size range for both whitefish species in the province. The sole exception to these regulations is on boundary waters shared with the State of Maine where fishing is permitted for "whitefish" during both the summer and winter sportfishing season during which the daily bag and possession limit is 3 without length restrictions. NB also supports a recreational fishery for whitefish in waters designated as tidal (i.e, lakes, bays, and portions of tidally influenced inland waters where no sportfishing licence is required). These tidally influenced regions only support Lake Whitefish and are exclusive to the downstream reaches and tributary lakes of the Saint John River. The daily bag and possession limit for whitefish in these designated waters is 5 fish without length limitations (New Brunswick Regulations Summary 2025).

*Round Whitefish*

No distinction is made between Round Whitefish and Lake Whitefish in NB and this species is included within daily limits and length restrictions of the latter species. There appears to be no fishery for this species anywhere in NB and there are no reports of accidental captures by anglers.

**Overlap with Introduced Species**

Bolstering Atlantic Salmon (landlocked and anadromous populations) and Brook Trout (*Salvelinus fontinalis*) populations in provincial waters has been the central goal of federal and provincial run hatcheries since their initial establishment in the MP (Whitcher 1876). As interest in the potential of new species introductions to the MP developed, stocking efforts quickly expanded to include the Lake Whitefish (Pope 1879), Lake Trout (Warner et al. 2023), Brown Trout (*Salmo trutta*; Andrews et al. 2025), Rainbow Trout (*Oncorhynchus mykiss*), Smallmouth Bass (*Micropterus dolomieu*; Leblanc 2010), Chain Pickerel (*Esox niger*; Adams 1873; Mitchell 2012), Muskellunge *(Esox musquinongy;* Zelman et al. 2023) and, on rare occasion, Rainbow Smelt. Directed releases were conducted in many accessible waters with little information on the ecosystems to which they were introduced or impacts that may result (Warner et al. 2023; Andrews et al. 2025). It is unlikely that pre-occurrence of any native fishes, particularly the little-known and widely undocumented Coregonids, was considered by hatcheries in early years. Stocking efforts were politically driven by seeking to win public favour by satiating demand for stocked trout and salmon while attempting to create exciting new fisheries or bolster existing ones (Andrew et al. 2025). The continued deficit of information on native species distributions and interaction persists across the MP to the present day (2025) while stocking continues.

The impacts of stocked trout over Lake Whitefish populations are unknown, but both Lake Whitefish and Atlantic Whitefish have seemingly thrived in systems with low fish diversity and low trout abundance (Edge 1987; Edge and Gilhen 2001; Bradford et al. 2015). When surveyed by Edge (1987), Brook Trout were not captured in the lakes of the Petite Rivière with Atlantic Whitefish, nor were they found in any lake of the Mushamush River watershed in NS that seem to support a high number of Lake Whitefish lakes. However, Brook Trout do exist in both the Mushamush and Petite Riviere watershed at low abundance and have been stocked in Fancy Lake in the latter (Edge and Gilhen 2001). An examination of provincial stocking records in NS from 1976 – 2021 reveals that 25 of the 40 known Lake Whitefish lakes and 10 of the 16 suspected Lake Whitefish lakes (62.5% in both cases) have been stocked with at least one species of trout (Brook Trout or Rainbow Trout). Brown Trout may have arrived naturally to some locations (Andrews et al. 2025). Ten of these whitefish lakes (5 each of the known and suspected) were stocked with Brook Trout as recently as 2021 (Table 9). Among recently stocked locations, Eden Lake, a 223-hectare lake in Pictou County, was stocked with 174,672 Brook Trout over the examined period from 1976 – 2021 with unknown effect (Table 9). There is no recent account of Lake Whitefish from this lake, nor were they located following surveys in Pringle Lake or Narrow Lake by NSDFA in 2024. These two locations were planted with 23,941 and 89,426 Brook Trout respectively within the assessment period.

In NB, provincial stocking records maintained from 1976 - 2023 documents similar introductions of Brook Trout in 10 of 40 known and 1 of 2 suspected Lake Whitefish habitats (counting the main Saint John River as one location and omitting marine observations; Table 10). Among these locations, Lac Baker was stocked with 185,500 Brook Trout over 28 years with the most recent introduction occurring in 2023 (Table 10). Across reported Lake Whitefish locations, Lake Trout, Brown Trout, landlocked Atlantic Salmon, and Splake (Brook Trout x Lake Trout hybrid) were also introduced. Again, an examination of historic stocking records would most likely reveal a much greater number of introductions. The possible impacts or effects of these introductions are unknown due to a lack of survey in Lake Whitefish supporting waters.

In the State of Maine, the introduction of landlocked Rainbow Smelt has been linked to the broadscale collapse of Lake Whitefish populations (Wood 2016). Where Lake Whitefish population declines have occurred, Wood (2016) notes that recruitment failure can go unnoticed because adults continue to appear common due to their long lifespan (30-45 years). Feeding pelagically, Rainbow Smelt may prey on larval whitefish with the greatest effects reported in small lakes with low habitat complexity (Whitaker and Wood 2021), but impacts are not consistent. Some lines of thought suggest that complex habitats such as those available in East Grand Lake on the border of Maine and NB may serve to protect young whitefish amidst its deep basins and boulder-strewn substrate. Similarly in the Mira River in Cape Breton, NS, Lake Whitefish do not appear to be affected by co-occurrence with smelt (Edge 1987; Goodchild 2001). Resilient populations may benefit from habitat complexity that offers cover and greater food resources for juvenile whitefish or support more diverse fish communities maintaining possible predator controls on smelt (Whitaker and Wood 2021).

The detrimental effects of Rainbow Smelt on Atlantic Whitefish were apparently learned during an attempt to safeguard the endangered and endemic coregonid in Anderson Lake near Halifax, NS. Here the species was introduced to a small and highly protected lake within the confines of a Canadian Forces Base (CFB – Halifax) between 2005 - 2012 (Bradford et al. 2015). Landlocked Rainbow Smelt were identified within the lake prior to stocking Atlantic Whitefish, but at the time young Rainbow Smelt were deemed a beneficial pelagic food source (Bradford et al. 2015). After extensive efforts to monitor the introduced population failed, piscivorous Brook Trout and Rainbow Smelt were suggested to have had a negative effect on survival and reproduction (Bradford et al. 2015). Efforts to rear Atlantic Whitefish in Anderson Lake were abandoned in 2012 (Bradford et al. 2015) and no subsequent attempts have yet been made to introduce the species outside of their remaining native distribution in the Petite Rivière watershed.

Invasive Chain Pickerel and Smallmouth Bass are most prevalent in the lakes of southern NS (Nova Scotia Anglers Handbook 2024; Leblanc 2010; Mitchell et al. 2012) and are reported in 22 of the known and 7 of the suspected Lake Whitefish lakes in that province (Table 9). These invasives also overlap with the SARA listed Atlantic Whitefish. Smallmouth Bass were first confirmed in Milipsigate Lake in 2000 (LeBlanc 2010) and are now found in all three lakes containing the species (DFO 2024). Chain Pickerel were identified in both Hebb and Milipsigate Lakes in May 2013 (DFO 2018). Because of the overlap of these invasive within the world's last remaining habitats of the Atlantic Whitefish, eradication options such as rotenone application cannot be attempted, and electrofishing must be used to regulate predator populations (DFO 2018).

In NB, Smallmouth Bass are found in 20 of the 40 known Lake Whitefish waters while Chain Pickerel are found in 10 (Table 10). The two suspected whitefish locations are invaded by both species (Table 10). Lake Whitefish in the Saint John River are faced with additional threats from Muskellunge (*Esox masquinongy* Mitchill, 1824) introduced in a headwater lake in the 1970s (Zelman et al. 2023) and more recently Largemouth Bass (*Micropterus salmoides* Cuvier, 1828; Culberson et al. 2025) which are also found in St. Croix River watershed on the Maine/NB border.

**Discussion**

The occurrence of Lake Whitefish in the MP is exclusive to watersheds draining to the Atlantic Ocean (Goodchild 2001) apart from single occurrences in Restigouche and Miramichi counties. While several authors describe genetically distinct "Scotian" whitefish as originating from a Northeastern Banks Refugium, a more likely origin was perhaps nearer to Sable Island (see Shaw 2006) where numerous endemic terrestrial species persist today (e.g. COSWIC 2014). This pattern of distribution contrasts with many other freshwater obligate species occurring in the MP that likely survived Wisconsin glaciation in either an Atlantic or Mississipian glacial refugium (Fig. 4).

Within the distinctly eastern distribution of the "Scotian" Lake Whitefish, populations have been steadily discovered since initial observations were made in Kejimkujik Lake by Veilleux (1964), and several more populations are likely to exist regionally. This is particularly true in NS where Lake Whitefish have never been a priority species for sport fisheries or research. Lakes supporting known Lake Whitefish populations are often nestled in un-surveyed and interconnected lake chains that could easily host several additional populations (Table 5). As an example, Lake Whitefish were only discovered in Conrod Lake, Halifax County by NSDFA in 2017 (Fig. 5), but this lake is directly connected to Chezzetcook Lake where Whitefish were confirmed in 1974 (Alexander et al. 1986; Table 5). Lake Whitefish presence in adjacent waters including Thompson, Petepeswick, and Long Bridge lakes is likely (Table 5), as are several more in the un-surveyed lakes of Guysborough County. Even though many of these lakes are developed, it is not uncommon for Lake Whitefish to evade detection (Edge and Gilhen 2001), particularly due to their adherence to deep lake basins, a brief winter spawning period, and a diet of plankton and benthic macroinvertebrates minimizing the chance for incidental capture by anglers. In Kerr Lake, NB, Smith (1952) noted that Lake Whitefish had avoided detection by local anglers for years, and it was not until a suitably sized gill net was deployed at appropriate lake depths that the species was discovered. The lesser extent of eastern facing watersheds in NB may leave fewer regions to investigate, though lakes between the Saint John and Saint Croix River watersheds, particularly the Lepreau and Magaguadavic drainages are potential candidates for future exploration.


**Figure 5:** Photo of a Lake Whitefish (36.2 cm Fork Length) captured in Conrod Lake, Halifax County, Nova Scotia on 23 August 2017. The photographed specimen was the only individual captured and was taken in a 5 cm square mesh gill net set on the bottom along a slope extending from 9-15 m deep during

an overnight set. Bottom temperature along this depth range was 6.4 – 11.0°C. A thermocline was measured at 14 m and dissolved oxygen below the thermocline was 9.46 – 8.79 mg/l from 14 – 29.5 m. The maximum depth of Conrod Lake was 29.6 m where water temperature was recorded as 5.4°C.

The repeated discovery of new Lake Whitefish populations, particularly in NS, has not resulted in the species becoming more well studied. Since distinctions were made between the Lake Whitefish and the Atlantic Whitefish by Scott (1967) and the general question of Lake Whitefish origin in the MP was addressed, research interest has stagnated. Anglers in NS are generally unaware of the occurrence of Lake Whitefish in the province, and both research and public interest in NB remains similarly sparse. Once abundant populations in the Saint John River appear to have declined dramatically as evidenced by plummeting captures at the Mactaquac and Beechwood dams (Table 7). Lake Whitefish could also be extirpated from the Mactaquac Headpond following obstruction of upstream passage by the Mactaquac Dam and flooding of potential spawning habitat, but this has never been assessed. Spawning runs by Lake Whitefish in the lower Saint John River may also be highly reduced, but the extent of possible declines or continued occurrence have not been investigated. Following initial surveys in the MP, no Lake Whitefish-specific assessments have been completed, perhaps with the sole exception of border lakes which include East Grand Lake of the St. Croix River drainage and Beau and Glazier lakes of the Saint John River that have received periodic assessment by the State of Maine (Whitaker and Wood, 2021).

At present, data regarding the persistence or abundance of Lake Whitefish in the MP is unavailable in nearly all locations. While retention limits have generally remained high, angler interest in Lake Whitefish (except for US border lakes) is low, and perhaps due to lack of interest alone retention could be deemed inconsequential. Low angler retention in the MP might only provide superficial relief to Lake Whitefish populations while threats unrelated to harvest could be more critical to long term population survival. Introductions of native and non-native fishes have re-shuffled species distributions and unknowingly superimposed new competitors and predators over pre-existing Lake Whitefish populations with unknown consequences. Edge (1984) relates that the effects of Brook Trout introductions on Atlantic Whitefish populations are also unknown, but the former could be detrimental competitor to Lake Whitefish throughout the MP due to the magnitude of the stocking effort.

Similarly, Warner (1965) reported that in the NB-adjacent waters of Maine, Lake Whitefish suffered from the introduction of landlocked Atlantic Salmon and Rainbow Smelt. The State of Maine has raised serious concerns regarding the decline of its Lake Whitefish population, drawing links to the re-distribution of otherwise native fishes such as Rainbow Smelt often introduced by anglers as live bait (Whitaker and Wood 2021). Until competitive interactions between native Lake Whitefish and introduced but otherwise native trout, salmon, and smelt are confirmed and quantified, stocking any species over

Lake Whitefish populations should be considered with utmost caution. Warmwater invasive species are also spreading through waters of the MP. Lake Whitefish are susceptible to predation like other soft rayed Maritime species, but the tendency for Lake Whitefish to occupy cold bathypelagic waters and potentially reach an adult size refuge (Whitaker and Wood 2001) may somewhat prolong their persistence in invaded systems.

Dams have been noted as an impediment to the recovery the anadromous Atlantic Whitefish in the Petite Rivière watershed, NS (DFO 2006, 2018; COSEWIC 2010). Regarding Lake Whitefish, impoundments could provide a trade-off by increasing the volume of available cold-water refuge in exchange for impacting the integrity of shallow spawning habitat. Lake Whitefish persist in Conrod Lake, Nova Scotia despite the presence of a small dam and fishway that inevitably increased water levels within the lake. However, there is no documented need for passage by Lake Whitefish at this location. Large runs of Lake Whitefish seemingly vanished along with their spawning habitats in the Saint John River, but it is unreported if other dams such as the Madawaska Dam or the Tobique Narrows Dam had similar effect upstream. Spawning runs in unimpeded tributaries of the Saint John River such as Salmon and Nerepis Rivers must now bypass lumber processing and mining operations, but no recent surveys indicate if these spawning migrations persist at all. Much study is needed to determine not only the state and conservation status of Lake Whitefish in all MP waters, but first and foremost, to determine simply whether many of the populations described in this review still can still be found at all.

This is the first review to compile a complete list of historical Lake Whitefish stocking locations, known and suspected Lake Whitefish lakes, and provide details on overlap between Lake Whitefish, stocked trout, and other prevalent invasive species in the MP. Following this compilation of data and identification of the gaps therein, we can conclude that examinations of Lake Whitefish populations and their continued occurrence region wide are greatly needed. Lake Whitefish populations are disappearing across the State of Maine adjacent to our study area, prompting actions outlined in a 2001 management plan and updated in a 2016 status assessment (Wood 2016). Such actions are not possible in the MP where data on Lake Whitefish populations are available. Many locations such as Kejimkujik Lake, NS are now on the invasion front for Chain Pickerel and while other native species have been carefully monitored during an ensuing and precipitous post-invasion decline, Lake Whitefish in Kejimkujik National Park have remained completely unassessed. Once this species is gone, no data will be available apart from perhaps e-DNA remaining in lake sediment cores that could determine whether the species was native to the lake to inform restocking if such an option exists in the future. The intent of this review is to provide baseline data and background information necessary to inform future studies of Lake Whitefish in NS and NB. Nationally, this species is identified as a distinct group in the MP found nowhere else in North America, while regionally this species is worth studying and protecting as it forms a distinct component of the region's small but unique cold-water fish assemblage.

## Future Questions

1) Do undescribed Whitefish populations still occur in Nova Scotia and/or New Brunswick? Several un-surveyed lakes exist that have direct connections with those supporting confirmed Lake Whitefish populations. Some of these suspected lakes are listed in Table 5, but this list is unlikely to be exhaustive. Other populations may exist in lakes of Atlantic-facing watersheds in both provinces, particularly in Guysborough County, NS.
2) What is the origin of Lake Whitefish in Kejimkujik National Park? Stocking in this location was noted by Kerekes (1975) and Edge (1987), but no explanation exists as to why introductions may have been successful in this region and nowhere else in the MP. If Lake Whitefish within the park are native, these will be important to describe before these populations are lost to invasive Chain Pickerel if re-stocking native species becomes possible in the future.
3) Do Lake Whitefish persist in all lakes identified in this review (Table 2, 5)? Invasive species, stocking of native species, hydroelectric dams, reduced water quality, warming waters, and acidification of surface waters have broadly impacted lakes and rivers of the MP with unknown consequences for Lake Whitefish.
4) Do any stocked Lake Whitefish populations with genetics from the Detroit River persist in NS? Minard Lake near Kejimkujik National Park might be a key candidate for investigation.
5) How has the introduction of hatchery-reared Brook Trout, Brown Trout, and Rainbow Trout impacted Lake Whitefish population in the Maritime Provinces?
6) Apart from border waters where retention limits have been amended, is a daily bag and possession limit of 8 whitefish sustainable now or if fisheries develop in NS and NB?
7) How do Lake Whitefish in the lower Saint John River use the estuary? And are they a truly anadromous population as suggested by captures in both the Saint John Harbour and at Black's Harbour, New Brunswick?
8) How do Lake Whitefish in the Mira River, Nova Scotia, use the estuary? And like those in the Saint John River, are they a salt-tolerant anadromous population?
9) Where do Lake Whitefish in any Maritime population spawn, and what considerations must be met to protect those spawning habitats if needed?
10) Did the Lake Whitefish which occur in McDougall and Logan Lakes of the Restigouche and Miramichi River watersheds, NB, originate from the Atlantic glacial refugium?

11) Do the small Lake Whitefish found in Scots Lake and possibly the lakes of Kejimkujik National Park represent dwarf populations like those described in Maine?

**References**


Adams, A.L. 1873. Field and forest rambles, with notes and observations of the natural history of eastern Canada. Henry S. King and Co., London, UK. 333 pp.

Alexander, D.R., J.J. Kerekes, and B.C. Sabean. 1986. Description of selected lake characteristics and occurrence of fish species in 781 Nova Scotia lakes. Proceedings of the Nova Scotia Institute of Science 36(2):63–106.

Andrews, S.N., T. Linnansaari, R.A. Curry, N.M. Leblanc, and S.A. Pavey. 2020. Winter ecology of striped Bass (Morone saxatilis) near its northern limit of distribution in the Saint John River, New Brunswick. Environmental Biology of Fishes 103: 1343-1358.

Andrews, S.N., K.J. Colton, E.M.T Bateman, J.L. MacMillan, C.F. Buhariwalla, K. Collet, A. Greer, R McFarlane, M.J.W. Stokesbury. 2025. The history and distribution of Brown Trout Salmo *trutta Linnaeus*, 1758 in Nova Scotia, New Brunswick, and Prince Edward Island. Northeastern Naturalist 32 Monograph 26.

Beaumaster, R., A. Chateauvert, L Anderson, T Linnansaari, and R.A. Jones. 2020. Counts of fish captured from upstream fish passage facilities at Beechwood and Tobique Dams, New Brunswick, 1990-2019. Canadian Data Report of Fisheries and Aquatic Science 1328: iii + 23 p.

Bernatchez, L. 1995. A role for molecular systematics in defining evolutionary significant units in fishes. In Evolution and the aquatic ecosystem: defining unique units in population conservation. Edited by J.L. Nielsen and D.A. Powers. American Fisheries Society Symposium 17:114-132.

Bernatchez, L., and J.J. Dodson. 1990. Allopatric origin of sympatric populations of Lake Whitefish (*Coregonus clupeaformis*) as revealed by mitochondrial-DNA restriction analysis. Evolution. 44(5):1263-1271.

Bernatchez, L. and J.J. Dodson. 1991. Phylogeographic structure in mitochondrial DNA of the Lake Whitefish (*Coregonus clupeaformis*) and its relation to pleistocene glaciations. Evolution. 45(4), 1016-1033pp.

Bernatchez, L. and J.J. Dodson. 1994. Phylogenetic relationships among palearctic and nearctic whitefish (*Coregonus* sp.) populations as revealed by mitochondrial DNA variation. Canadian Journal of Fisheries and Aquatic Sciences 51(Suppl. 1): 240-251.

Bernatchez, L., J.A. Vuorinen, R.A. Bodaly, and J.J. Dodson 1996. Genetic evidence for reproductive isolation and multiple origins of sympatric trophic ecotypes of whitefish (*Coregonus*). Evolution 50(2):624-636.

Bernatchez, L., S. Renault, A.R. Whiteley, N. Derome, J. Jeukens, L. Landry, G. Lu, A.W. Nolte, K. Østbye, S.M. Rogers, and J. St-Cyr. 2010. On the origin of species: insights from the ecological genomics of Lake Whitefish. Philosophical Transactions of the Royal Society of London. Series B, Biological sciences. 365(1547): 1783-1800.

Bernatchez, l., and C.C. Wilson. 1998. Comparative phylogeography of Nearctic and Palearctic fishes. Molecular Ecology, 7(4), 431-452.

Bodaly, R.A., J.W. Clayton, C.C. Lindsey, and J. Vuorinen. 1992. Evolution of Lake Whitefish (*Coregonus clupeaformis*) in North America during the Pleiostocene: genetic differentiation between sympatric populations. Canadian Journal of Fisheries and Aquatic Sciences. 49:769-779.

Borns, H.W. Jr., L.A. Doner, C.C. Dorion. G.L. Jacobson. Jr, M.R. Kaplan, K.J. Kreutz. T.V. Lowell, W.B. Thompson, and T.K. Weddle. 2004. The Deglaciation of Maine, USA. Earth Science Faculty Scholarship. 276.

Bradford, R.G., and C.M.B. Mahaney. 2004. Distribution of Lake Whitefish (*Coregonus clupeaformis*) fry from the lower Great Lakes Federal Hatcheries to elsewhere in Canada and beyond (Years 1878 – 1914). Canadian Data Report of Fisheries and Aquatic Sciences No. 1149. Department of fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia.

Bradford, R.G., D.A. Longard, and P. Longue. 2004. Status, trend, and recovery considerations in support of an allowable harm assessment for Atlantic Whitefish (*Coregonus huntsmani*). Canadian Science Advisory Secretariat Research Document 2004/109.

Bradford, R.G., D. Themelis, P. LeBlanc, D.M Campbell, S.F. O'Neil, and J Whitelaw. 2015. Atlantic Whitefish (*Coregonus hunstmani*) stocking in Anderson Lake, Nova Scotia. Canadian Technical report of Fisheries and Aquatic Sciences 3142.

Brunner, P.C., M.R. Douglas, A. Osinov, C.C. Wilson, and L. Bernatchez. 2001. Holarctic phylogeography of Arctic Charr (*Salvelinus Alpinus* L.) inferred from mitochondrial DNA sequences. Evolution. 55(3), 573-586 p.

Catling, P. M., B. Freedman, and Z. Lucas. 1985. Vegetation and phytogeography of Sable Island, Nova Scotia. Proceedings of the Nova Scotia Institute of Science 24: 181-248.

Carter, J.C.H., and M.J. Dadswell. 1983. Seasonal and spatial distribution of planktonic crustacea in the lower Saint John River, a multibasin estuary in New Brunswick, Canada. Estuaries. 6(2) 142-153.

Clair, T.A., I.F. Dennis, D.A. Scruton, and M. Gilliss. 2007. Freshwater acidification research in Atlantic Canada: a review of results and predictions for the future. Environmental Reviews, 15:153-167.

COSEWIC. 2008. Designatable units at an appropriate scale for the Lake Whitefish *Coregonus clupeaformis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. X + 64 p.

COSEWIC. 2010. COSEWIC assessment and status report on the Atlantic Whitefish *Coregonus* huntsman in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. X +31 p.

COSEWIC. 2014. COSEWIC assessment and status report on the Sable Island Sweat Bee *Lasioglossum sablense* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 38 pp.

COSEWIC. 2022. COSEWIC Rapid review of classification on the Atlantic Whitefish *Coregonus huntsman* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii pp.

Costigan, J. 1895. Twenty-Seventh Annual Report of the Department of Marine and Fisheries 1894. Printed by Order of Parliament by S.E. Dawson, Printer to the Queen's Most Excellent Majesty, Ottawa, Ontario.

Costigan, J. 1896. Twenty-Eight Annual Report of the Department of Marine and Fisheries 1895. Printed by Order of Parliament by S.E. Dawson, Printer to the Queen's Most Excellent Majesty, Ottawa, Ontario.

Cox, P. 1893. Observations on the distribution and habits of some New Brunswick fishes. Bulletin of the Natural History Association of New Brunswick. no. 11, pp.33-42.

Cox, P. 1986a. History and present state of ichthyology of New Brunswick. Bulletin of the Natural History Society of New Brunswick. 13:62-75.

Cox, P. 1896b. Catalogue of the marine and freshwater fishes of New Brunswick. Bulletin of the Natural History Society of New Brunswick. 13:62-75

Culberson, A. E., B. Nakamoto, J. Lento, R.A. Curry, & P.M. Harrison. 2025. New bass on the block: Trophic interactions among invasive largemouth bass Micropterus salmoides and local sportfish. Journal of Fish Biology, 106(3), 784–796.

Curry, R.A. 2007. Late glacial impacts on dispersal and colonization of Atlantic Canada and Maine by Freshwater fishes. Quaternary Research 67: 225-233.

Curry, R.A., and M.D. Gautreau. 2010. Freshwater fishes of the Atlantic Maritime Ecozone. *In* Assessment of species diversity in the Atlantic Maritime ecozone. *Edited by* D.F. McAlpine and I.M. Smith. NRC Research Press, Ottawa, Canada. Pages 599–612.

Dadswell, M.J. 1972. Postglacial dispersal of four deepwater fishes on the basis of new distribution records in eastern Ontario and Western Quebec. Journal of the Fisheries Research board of Canada. 29:545-553.

Dadswell, M.J. 1974. Distribution, ecology, and postglacial dispersal of certain crustaceans and fishes in eastern North America. National Museum of Natural Sciences Publications in Zoology, No. 11. National Museum of Canada, Ottawa, Ontario. 117 p.

Dadswell, M.J. 1976. Notes on the biology and resource potential of whitefish in the St. John estuary. In: Baseline Survey and Living Resource Potential Study of the Saint John River Estuary, Volume III Fish and Fisheries. The Huntsman Marine Laboratory, St. Andrews, New Brunswick.

Dalton, A.S., M. Margold, C.R. Stokes, L. Tarasov, A.S. Dyke, R.S. Adams, S. Allard, H.E. Arends, N. Atkinson, J.W. Attig, P.J. Barnett, R.L. Barnett, M. Batterson, P. Bernatchez, H.W. Borns, A. Breckenridge, J.P. Briner, E. Brouard, J.E. Campbell, A.E. Carlson, J.J. Clague, B.B. Curry, R.A. Daigneault, H. Dubé-Loubert, D.J. Easterbrook, D.A. Franzi, H.G. Friedrich, S. Funder, M.S. Gauthier, A.S. Gowan, K.L. Harris, B. Hétu, T.S. Hooyer, C.E. Jennings, M.D. Johnson, A.E. Kehew, S.E. Kelley, D. Kerr, E.L. King, K.K. Kjeldsen, A.R. Knaeble, P. Lajeunesse, T.R. Lakeman, M. Lamothe, P. Larson, M. Lavoie, H.M. Loope, T.V. Lowell, B.A. Lusardi, L. Manz, I. McMartin, F.C. Nixon, S. Occhietti, M.A. Parkhill, D.J.W. Piper, A.G. Pronk, P.J.H. Richard, J.C. Ridge, M. Ross, M. Roy, A. Seaman, J. Shaw, R.R. Stea, J.T. Teller, W.B. Thompson, L.H. Thorleifson, D.J. Utting, J.J. Veillette, B.C. Ward, T.K. Weddle, and H.E. Wright, and 70 co-authors. 2020. An updated radiocarbon-based ice margin chronology for the last deglaciation of the North American ice sheet complex. Quaternary Science Reviews 234:106223.

Dalton, A.S., H.E. Dulfer, M. Margold, J. Heyman, J.J. Clague, D.G. Froese, M.S. Gautier, A.L.C. Hughes, C.E. Jennings, S.L. Norris, B.J. Stoker. 2023. Deglaciation of the North American ice sheet complex in calendar years based on a comprehensive database of chronological data: NADI-1. Quaternary Science Reviews. 321 (2023) 108345.

Davies, L.H. 1896. Twenty-Ninth Annual Report of the Department of Marine and Fisheries 1896. Printed by Order of Parliament by S.E. Dawson, Printer to the Queen's Most Excellent Majesty, Ottawa, Ontario.

Davies, L.H. 1897. Thirtieth Annual Report of the Department of Marine and Fisheries 1897. Printed by Order of Parliament, by S.E. Dawson, Printer to the Queen's Most Excellent Majesty, Ottawa, Ontario.

Davies, L.H. 1898. Thirty-First Annual Report of the Department of Marine and Fisheries 1898. Printed by Order of Parliament, by S.E. Dawson, Printer to the Queen's Most Excellent Majesty, Ottawa, Ontario.

Davies, L.H. 1900. Thirty-Second Annual Report of the Department of Marine and Fisheries 1899. Printed by Order of parliament by S.E. Dawson, Printer to the Queen's Most Excellent Majesty, Ottawa, Ontario.

Davies, L.H. 1901. Thirty-Third Annual Report of the Department of Marine and Fisheries 1900. Printed by Order or parliament by S.E. Dawson, printer to the Queen's Most Excellent Majesty, Ottawa, Ontario.

Davis, D.S., and S. Browne. 1996. The natural history of Nova Scotia, Volume One, Topics and Habitats. Revised Edition Nova Scotia Museum of Natural History

Davis, D.S., and S. Browne. 1998. The natural history of Nova Scotia. Revised Edition Nova Scotia Museum of Natural History.

De Varnal, A., C. Hillaire-Marcel, J. Turon, and J. Matthiessen. Reconstruction of sea-surface temperature, salinity, and sea-ice cover in the northerns North Atlantic during the last glacial maximum based on dinocyst assemblages. Canadian Journal of Earth Sciences, 37: 725-750 p.

DFO. 2006. Recovery Strategy for the Atlantic Whitefish (Coregonus huntsmani) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Ottawa: Fisheries and Oceans Canada. 42 pp.

DFO. 2018. Amended Recovery Strategy for the Atlantic Whitefish (*Coregonus huntsmani*) in Canada. Species at Risk Act recovery strategy Series. Fisheries and Oceans Canada, Ottawa. xiii + 62 pp.

DFO. 2024. Optimal strategy for invasive species control to ensure survival and recovery of Atlantic Whitefish in the Petite Rivière Lakes. DFO Canadian Science Advisory Secretariat Science Advisory Report. 2024/045.

Dymond, J.R. 1947. A list of the freshwater fishes of Canada east of the Rocky Mountains. Royal Ontario Museum of Zoology, Misc Publ., No. 1, 1-36.

Edge, T.A. 1984. Preliminary status of the Acadian Whitefish, *Coregonus canadensis*, in southern Nova Scotia. Canadian Field Naturalist 98(1):86-90.

Edge, T.A. 1987. The systematics, distribution, ecology and zoogeography of the endangered Acadian Whitefish, *Coregonus canadensis* Scott, 1967, in Nova Scotia, Canada. M.Sc. thesis, University of Ottawa, Ottawa, Ontario. 175 p.

Edge, T.A., D.E. MacAllister, S.U. Qadri. 1991. Meristic and morphometric variation between the endangered Acadian Whitefish, *Coregonus huntsmani*, and the Lake Whitefish, *Coregonus clupeaformis*, in the Canadian maritime Provinces and the State of Maine. Canadian Journal of Fisheries and Aquatic Sciences. 48: 2140-2151.

Edge, T.A., and J. Gilhen. 2001. Updated status report on the endangered Atlantic Whitefish, *Coregonus huntsmani*. Canadian Field Naturalist 115:635-651.

Eshenroder, R.L., P, Vecsei, O.T. Gorman, D.L. Yule, T.C. Pratt, N.E. Mandrak, D.B. Bunnell, and A.M. Muir. 2016. Ciscoes (*Coregonus*, subgenus Leucichthys) of the Laurentian Great Lakes and Lake Nipigon [online]. Available from: www.glfc.org/pubs/misc/Ciscoes_of_the_Laurentian_Great_Lakes_and_Lake_Nipigon.pdf [accessed 20 December 2024].

Esri 2024. ArcGIS Pro 3.3.1. Redlands, CA: Environmental Systems Research Institute.

Evermann, B.W., and H.M. Smith. 1896. The Whitefishes of North America. In: Report of the U.S. Commissioner of Fish and Fisheries for 1894. Pages 283-324.

Evermann, B.W., and E.L. Goldsborough. 1907. A checklist of the freshwater fishes of Canada. Proceedings of the Biological society of Washington, U.S. Bureau of Fisheries. 20: 89-120 pp.

Fader, G. B. J., King, L. H. and MacLean, B., 1977 Surficial geology of the eastern Gulf of Maine and the Bay of Fundy. Geological Survey of Canada paper 76-17, 23 p.

Fader, G. 2005. Glacial, post glacial, present and projected sea levels, Bay of Fundy. Atlantic Marine Geological Consulting ltd. Halifax, Nova Scotia. 20 pp.

Fenderson, C.O. 1964. Evidence of Subpopulations of Lake Whitefish, *Coregonus clupeaformis*, involving a dwarfed form. Maine Department of Inland Fisheries and Game, Orono, Maine.

Foster, G.E. 1887. Third annual report of the Deputy Minister of Fisheries for the year 1886. Printed by Order of parliament by MacLean, Roger & Co., Wellington Street, Ottawa, Ontario.

Foster, G.E. 1888. Fourth annual report of the Deputy Minister of Fisheries for the Year 1887. Printed by Order of parliament by MacLean, Roger & Co., Wellington Street, Ottawa, Ontario.

Fulton, R.J. and J.T. Andrews. Inception, Growth and Decay of the Laurentide Ice Sheet. 1987. Géographie physique et Quaternaire. 41(2): 179-180 pp.

Gautreau, M and R.A. Curry. 2020. Inland Fishes of New Brunswick. Canadian Rivers Institute. 208 pp.

Gilhen, J. 1974. Fishes of Nova Scotia's lakes and streams. Nova Scotia Museum, Halifax, N.S. v+40 p.

Goodchild. C.D. 2001. Status of the Mira River population of Lake Whitefish, *Coregonus clupeaformis*, in Canada. The Canadian Field-naturalist. 115(4), 623-634.

Gourlay, J.I. 1995. Missed opportunities, The angler's guide to non-traditional sport fishes in Nova Scotia. Land & Sea Limited, Dartmouth, Nova Scotia, Canada.

Grant, D.R. 1970. Recent coastal submergence of the Maritime provinces, Canada. Canadian Journal of Earth Sciences, 7(2), 676-689.

Grant, D. R. 1971. Glacial deposits, sea level changes and pre-Wisconsinan deposits in southwest Nova Scotia. Geological Survey of Canada paper 71-B: p. 110 – 113.

Hartman, W.L. 1972. Lake Erie: effects of exploitation, environmental changes, and new species on the fishery resources. Journal Fish. Res. Board Can. 29: 931-936.

Hasselman, D.J. 2004. Discrimination of adult and early life history stage Coregonid fishes in Maritime Canada. M.Sc. Thesis. Acadia University.

Hasselman, D.J., T.A. Edge, R.G. Bradford. 2009. Discrimination of the endangered Atlantic Whitefish from Lake Whitefish and Round Whitefish by use of external characters. North American Journal of Fisheries Management 29:1046-1057.

Hebda, A.J. 2019. List of the fish found in the freshwaters of Nova Scotia: A review of the taxonomy applied to these species with synonyms used in the literature relating to Nova Scotia including Mi'kmaw names for fish, Curatorial Report No. 108, Nova Scotia Museum, Halifax, 100 pages.

Hyatt, R.A. MS. 1970. A biological survey of Baker Lake, N.B., Can. Dept. Fish. & For., Fish. Serv., Resource Development Br., Halifax, N.S. MS Rept. 13 p. & figs. (Referenced in Meth 1973, not found)

Huntsman. A.G., 1922. The fishes of the Bay of Fundy. Contributions to Canadian Biology. 3:49-72 p.

Huntsman, A.G. 1953. Mortality of fish in the Tobique River, N.B. In: reports of the Consulting Director (1953), Fisheries Research Board of Canada Manuscript Report. 38-39 p.

Heiskanen, J.J., I. Mammarella, A. Ojala, V. Stepanenko, k. Erkkilä, H. Miettinen, H. Sandström, W. Eugster, M. Leppäranta, H. Järvinen, T. Vesala, and A. Nordbo. 2015. Effects of water clarity on lake stratification and lake-atmosphere heat exchange. Journal of Geophysical Research: Atmospheres. 120(15): 7412-7428 p.

Hyatt, R.A., MS 1970. A biological survey of baker Lake, N.B., Can Dept. Fish. & For., Fish. Serv., Resource Development Br., Halifax, N.S. MS Rept. 13 p. & figs.

Ingram, J.H. 1960. Atlantic Salmon investigation Beechwood Dam – Saint John River, N.B. Fishway and Area. Manuscript report (Canada. Fisheries Service. Maritimes Region. Resource Development Branch). 60-1.

Ingram, J.H. 1961. Atlantic Salmon investigation Beechwood Power Dam – Saint John River, N.B. fishway and area 1961. Manuscript report (Canada. Fisheries Service. Maritimes Region. Resource Development Branch). 61-1

Ingram, J.H. 1962. Summary of salmon investigation in upper Saint John River (Beechwood and Tobique fishways). Manuscript report (Canada. Fisheries Service. Maritimes Region. Resource Development Branch). 62-1.

Ingram, J.H. 1963. Atlantic Salmon investigation Beechwood and Tobique Power dam fishways Saint John River – New Brunswick. Manuscript report (Canada. Fisheries Service. Maritimes Region. Resource Development Branch). 63-3.

Ingram, J.H. 1980. Capture and distribution of Atlantic Salmon and other species at Mactaquac Dam and Hatchery, Saint John River, N.B., 1972 – 76. Canadian Data Report on Fisheries and Aquatic Sciences. No. 181. 74 p.

Ingram, J.H. 1981. Fish-count data at Beechwood Dam, fish-collection facilities, 1972-76. Canadian Data Report on Fisheries and Aquatic Sciences. No. 254. vii + 33 p.

Ingram, J.H. 1985. Capture and distribution of Atlantic Salmon in the Mactaquac area, Saint John River system, 1977-82. Canadian Data Report on Fisheries and Aquatic Sciences. No. 508. 508. vii + 59 p.

Ingram, J.H. 1987. Atlantic Salmon counts at Beechwood Dam fish-collection facilities, 1977-82. Canadian Data Report on Fisheries and Aquatic Sciences. No. 664. viii + 34 p.

Ingram, J.H. and B.V. Ensor. 1990. Capture and distribution of Atlantic Salmon in the Mactaquac area, Saint John River system 1983-1988. Canadian Data Report on Fisheries and Aquatic Sciences. No. 791: 55 p.

Ives, B.H. 1975. 1973 Surveys of eleven lakes in Antigonish and Guysborough Counties, Nova Scotia. Data Record Series No. MAR/D-75-10. Resource Development Branch, Fisheries and Marine Service, Department of the Environment, Halifax, Nova Scotia.

Keachie, P.M. and R. Côté. 1973. Toxic pollutants in the Saint John River Basin. A report prepared for the Saint John River Basin Board. Surveillance and Analysis Division Environmental Protection Service Halifax, Nova Scotia.

Kelso, J.R.M., C.K. Minnis, J.E. Gray, and M.L. Jones. 1986. Acidification of surface waters in eastern Canada and its relationship to aquatic biota. Canadian Special Publication of Fisheries and Aquatic Sciences. 87:42 p.

Kendall, W.C. 1903. Notes on some fresh-water fishes from Maine. Bulletin U.S. Fish Commission, Vol XXII, 1902-1903, pp.353-368.

Kendall, W.C. 1914. An annotated catalogue of the fishes of Maine. Proceedings of the Portland Society of Natural History., 4 (1), 1-198.

Kerekes, J. 1975. Distribution of fishes. Kejimkujik national Park, Aquatic resources inventory. Canadian Wildlife service. MS. Rep. 97 pp.

Kerekes, J., Howell, G., Beauchamps, S., and pollock, T.L. 1982. Characterization of three lake basins sensitive to acid precipitation in Central Nova Scotia. International Review of Hydrobiology. 67: 679-694.

Kirkpatrick, M., and R.K. Selander. 1979. Genetics of speciation in Lake Whitefishes in the Allegash Basin. Evolution. 33: 478-483.

Knight. W. 2007. Samuel Wilmot, fish culture, and recreational fisheries in late 19th century Ontario. Scientia Canadensis. 30(1).

Lanman, C. 1874. The Whitefish of eastern Maine and New Brunswick. Report of the Commissioner of Fish and Fisheries. Pages 84-86.

Lasenby, T.A., S.J. Kerr, and G.W. Hooper. 2001. Lake whitefish culture and stocking: an annotated bibliography and literature review. Fish and Wildlife Branch, Ontario Ministry of Natural Resources. Peterborough, Ontario. 72 p. + appendices.

LeBlanc, J.E. 2010. Geographic distribution of Smallmouth Bass, *Micropterus dolomieu*, In Nova Scotia: history of early introductions and factors affecting current range. DFO Canadian Science Advisory Secretariat Research Document 2010/028. Iv + 25 p.

Leim, A. H, and K. R. Day. 1959. Records of uncommon and unusual fishes from eastern Canadian waters, 1950-1958. 1. Fish. Res. Board Can. 16: 503-514.

Leim, A.H. and W.B. Scott. Leim. 1966. Fishes of the Atlantic Coast of Canada. Fisheries Research Board of Canada. Ottawa, ON, Canada. 485p.

Lindsey, C.C. 1981. Stocks are chameleons: plasticity in gill-rakers of coregonid fishes. Canadian Journal of Fisheries and Aquatic Sciences. 38:1497-1506.

Livingstone, D.A. 1953. The freshwater fishes of Nova Scotia. Proceedings of the Nova Scotia Institute of Science. 1950-1951, 23: 90 p.

Loch, J.S. 1974. Phenotypic variation in the Lake whitefish, *Coregonus clupeaformis*, induced by introduction into a new environment. Journal of the Fisheries Research Board of Canada 31:55-62

Lu, G., and Bernatchez, L. 1998. Experimental evidence for reduced hybrid viability between limnetic and benthic ecotypes of Lake Whitefish (*Coregonus clupeaformis* Mitchill). Proceedings of the Royal Society of London B – Biological Sciences 265: 1025 – 1030.

Lu, G., and Bernatchez, L. 1999. Correlated trophic specialization and genetic divergence in sympatric Lake Whitefish ecotypes (*Coregonus clupeaformis*): Support for the ecological speciation hypothesis. Evolution 53: 1491 – 1505.

Mandrack, N.E., R.A. Curry, P. Dumont, J.D. Reist, E.B. Taylor, and D.A. Watkinson. 2023. Zoogeography of the Freshwater Fishes of Canada. In C.T. Hasler, J.G. Inhoft, N.E. Mandrack, and S.J. Cooke [Eds.] Freshwater Fisheries in Canada: Historical and Contemporary Perspectives on the Resources and Their Management. American Fisheries Society.

McCullough, A.B. 2003. "WILMOT, SAMUEL," in *Dictionary of Canadian Biography*, vol. 12, University of Toronto/Université Laval, 2003–, accessed March 20, 2024, http://www.biographi.ca/en/bio/wilmot_samuel_12E.html.

Mee, J.A., L. Bernatchez, J.D. Reist, Sean M. Rogers, and E.B. Taylor. 2015. Identifying designatable units for intraspecific conservation prioritization: a hierarchical approach applied to the lake whitefish species complex (Coregonus spp.). Evolutionary Applications. 8(2015): 423-441.

Meth. F.F. 1972. Ecology and the Saint John River Basin V. Status of the Estuary. Dept of the Environment, Fisheries service, Resource Development Branch, Halifax, N.S.

Meth, F.F. 1973. Fishes of the upper and middle Saint John River. A report to the Saint John River Basin Board. Resource Development Branch, Fisheries and Marine Service, Canada Department of the Environment, Halifax, Nova Scotia.

Meth. F.F. 1974. Sport and commercial fisheries of the Saint John Estuary. The Saint John River Basin Board, report No. 7b.

Mitchell, S.C., J.E. LeBlanc, A.J. Heggelin. 2012. Impact of introduced Chain Pickerel (*Esox niger*) on lake fish communities in Nova Scotia, Canada. Report. Nova Scotia Department of Inland Fisheries and Aquaculture. 18 pp.

Morgan, T.D., C.F. Graham, A.G. McArthur, A.R. Raphenya, D.R. Boreham, R.G. Manzon, J.Y. Wilson, S.L. Lance, K.L. Howland, P.H. Patrick, and C.M. Somers. 2017. Genetic population structure of the round whitefish (*Prosopium cylindraceum*) in North America: multiple markers reveal glacial refugia and regional subdivision. Canadian Journal of Fisheries and Aquatic Sciences 75(6).

Morin, R., J.J. Dodson, and G. Power. 1981. The migrations of anadromous cisco (*Coregonus artedii*) and lake whitefish (*C. clupeaformis*) in estuaries of eastern James Bay. Canadian Journal of Zoology. 59:1600-1607.

Morrison, B.P. and K.S. Peiman. 2022. The role of hatcheries in the decline of Lake Ontario Atlantic Salmon. Canadian Journal of Fisheries and Aquatic Sciences. 79(6):994-1002.

Murray, K. 2005. Population genetic assessment of the endangered Atlantic whitefish, *Coregonus huntsmani*, and the lake whitefish, *C. clupeaformis*, in Atlantic Canada. Master's thesis. Dalhousie University, Halifax, Nova Scotia, Canada.

Newton, B., and B.C. Burrell. 2015. The April-May 2008 flood event in the Saint John River basin: causes, assessment and damages. Canadian Waters Resources Journal / Revue Canadienne des Ressources Hydriques, 41(1-2), 118-128.

Nova Scotia Department of Inland Fisheries and aquaculture. 2024. Nova Scotia Anglers' Handbook and 2024 Summary of Regulations. 71pp.

Perley, M.H. 1851. Catalogue (in part) of the fishes of New Brunswick and Nova Scotia. Government Emigration Office, Saint John, NB

Perley, M.H. 1852. Reports on the sea and river fisheries of New Brunswick. J. Simpson, Printer to the Queen's most excellent majesty, Fredericton, New Brunswick.

Piers, H. 1924. *Coregonus Labradorius*, The Sault Whitefish, an interesting addition to the freshwater fish fauna of Nova Scotia. Provincial Museum, Halifax, N.S.

Pigeon, D., Chouinard, A., and Bernatchez, L. 1997. Multiple modes of speciation involved in the parallel evolution of sympatric morphotypes of Lake Whitefish (*Coregonus clupeaformis*, Salmonidae). Evolution 51: 196 – 205.

Piper, J.W., and A. MacDonald. 2001. Timing and position of late Wisconsinan ice-margins on the upper slope seaward of Laurentian Channel. Géographie physique et Quaternaire. 55(2); 131-140p.

Pope, J.C.1879. Eleventh annual report of the Department of Marine and Fisheries being for the fiscal year ended 30th June 1878. Printed by Order of Parliament by MacLean, Roger & Co., Wellington Street, Ottawa, Ontario.

Pratt, R.M. and J. Schlee. 1969. Glaciation of the continental margin off New England. Geological Society of America Bulletin. V. 80, 2335 – 2342 pp.

Prince, E.E. 1906. The progress of fish culture in Canada 1905. Special Reports, Government Printing Bureau, Ottawa, Ontario.

Rogers, S.M., V. Gagnon, and L. Bernatchez. 2002. Genetically based phenotype-environment association for swimming behaviour in Lake Whitefish ecotypes (*Coregonus clupeaformis* Mitchill). Evolution. 56(11): 2322-2329.

Quinlan, G., and C. Beaumont. 1982. The deglaciation of Atlantic Canada as reconstructed from the postglacial relative sea-level record. Canadian Journal of Earth Sciences. 19(12).

Roseman, E.F., G.W. Kennedy, J. Boase, B.A. Manny, T.N. Todd, and W. Stott. 2007. Evidence of Lake Whitefish spawning in the Detroit River: implications for habitat and population recovery. Journal of Great Lakes Research, 33(2), 397-406.

Saia, M. 1995. Fishing Guide and Depth Maps to New Brunswick Lakes and Ponds. Smart Fisherman Publications, Saint John, NB, Canada. 10 pp.

Salisbury, S., G.R. McCracken, D. Keefe, R. Perry, D.E. Ruzzante. 2019. Extensive secondary contact among three glacial lineages of Arctic Char (*Salvelinus alpinus*) in Labrador and Newfoundland. Ecology and Evolution, 9: 2031-2045 p.

Schmidt, R.E. 1986. Zoogeography of the Northern Appalachians. In Charles, H. and C.O. Hocutt [Eds] Zoogeography of North American Freshwater fishes.

Scott, W.B. 1967. Freshwater fishes of eastern Canada. Second Edition. University of Toronto Press, Toronto, Ontario 137 pages.

Scott, W.B., and E.J. Crossman. 1959. The freshwater fishes of New Brunswick: A checklist with distributional notes. Royal Ontario Museum of Zoology and Paleontology Contributions 51. Toronto, ON, Canada. 45 pp.

Scott, W.B., and E.J. Crossman. 1973. The freshwaters fishes of Canada. Bulletin 184. Fisheries Research Board of Canada, Ottawa, ON, Canada. 966 pp.

Scott, W.B., and E.J. Crossman. 1988. The Atlantic Fishes of Canada. Canadian bulletin of the fisheries and aquatic sciences. 219:731p.

Segerstråle, S.G. 1957. The immigration of the glacial relicts of Northern Europe, with remarks on their prehistory. Societas Scientiarum Fennica, Commentationes Biologicae. 16(16):1-117.

Semple, J.R. 1973. The Lake Whitefish, (Coregonus clupeaformis Mitchill), of Scotch Pond, Petpeswick River, Nova Scotia. Transactions of the Canadian Society of environmental Biologists., Dec.

Shaw, J. 2006. Palaeogeography of Atlantic Canadian continental shelves from the last glacial maximum to the present, with an emphasis on Flemish Cap. Journal of Northwest Atlantic Fisheries Science, 37: 119–126.

Shaw, J., D.J.W. Piper, G.B.J. Fader, E.L. King, B.J. Todd, T. Bell, M.J, and D.G.E. Liverman. 2006. A conceptual model of the deglaciation of Atlantic Canada. Quaternary Science Reviews 25, 2059-2081.

Shilts, W.W. 1981. Sensitivity of bedrock to acid precipitation: modification by glacial processes. Paper 81-14. Geological Survey of Canada, Ottawa, ON.

Smith, A.J. 1875. Seventh Annual Report of the Department of Marine and Fisheries being for the Fiscal Year ended 30th June 1874. Printed by order of Parliament by MacLean, Roger & Co., Wellington Street, Ottawa, Ontario.

Smith, M.W. 1952. The Lake Whitefish in Kerr Lake, New Brunswick. Atlantic Biological Station, St. Andres, N.B. Journal of the Fisheries Research Board of Canada, 8(5), pp 340-346.

Smith. K.E.H. 1969. Compendium St. John River System, N.B. Resource Development Branch Manuscript Report No. 69-6. Environment Canada. 253pp.

Smith, K.E.H. 1970. Summary Report, Atlantic salmon investigation, Saint John River System, New Brunswick, 1969. Canada Dept. Fish. and Forestry, Fisheries Service, Resource Development Branch, Halifax, N. S. MS Report 70-12.

Smith, K.E.H. 1974. 1973 report. Resource Development Branch, Maritime Region, Halifax, Nova Scotia.

Smith, K.E.H. 1979. Capture and Distribution of all fish Species at Saint John River Power Dams, New Brunswick, From Construction Years to 1971. Canadian Data Report of Fisheries and Aquatic Sciences No. 171. Department of Fisheries and Oceans, Halifax, Nova Scotia.

Stea, R. R. & Mott, R. J. (1998). Deglaciation of Nova Scotia: Stratigraphy and chronology of lake sediment cores and buried organic sections. Géographie physique et Quaternaire, 52(1), 3–21.

Sutherland, J. 1902. Thirty-Fourth annual report of the Department of Marine and Fisheries 1901, Printed by Order of Parliament by S.E. Dawson, Printer to the Kings Most Excellent Majesty, Ottawa, Ontario.

Svärdson, G. 1979. Speciation of Scandinavian Coregonus. Report of the Institute of Freshwater Research, 57, 3-95.

Trautman, M.B. 1957. The fishes of Ohio. Ohio State University. Press, Columbus, Ohio. xviii + 683 p.

Tupper, C.H. 1889. Fifth annual report of the Department of Fisheries, Dominion of Canada for the Year 1888. Printed by Order of Parliament for the Queen's Printer and Controller of Stationary, A. Senecal, Superintendent of Printing, Ottawa, Ontario.

Tupper, C.H., 1890. Sixth Annual Report of the Department of Fisheries, Dominion of Canada, for the Calendar Year 1889. Printed by Order of Parliament by Brown Chamberlin, printer to the Queen's Most Excellent Majesty, Ottawa, Ontario

Tupper, C.H. 1891. Supplement No. 1 to the Annual Report of the Department of Fisheries, Fisheries Statements, and inspector's Reports for the Year 1890. Printed by Order of Parliament by Brown Chamberlin, Printer to the Queen's Most Excellent Majesty, Ottawa, Ontario.

Tupper, C.H. 1892. Annual Report of the Department of Fisheries of the Dominion of Canada 1891. Printed by Order of Parliament by S.E. Dawson, Printer to the Queen's Most Excellent Majesty, Ottawa, Ontario

Tupper, C.H. 1893. Supplement No. 4 to the Annual Report of the Department of Marine and Fisheries. Fisheries Statements and Inspector's Reports for the Year 1892. Printed by Order of Parliament by S.E. Dawson, Printer to the Queen's Most Excellent Majesty, Ottawa, Ontario.

Tupper, C.H. 1894. Twenty-Sixth Annual Report of the Department of Marine and Fisheries 1893. Printed by Order of Parliament by S.E. Dawson, Printer to the Queen's Most Excellent Majesty, Ottawa, Ontario.

Vadykov, V.D., and R.A. McKenzie. 1935. The marine fishes of Nova Scotia. Proceedings of the Nova Scotia Institute of Science. Atlantic Biological Station, St. Andrews, New Brunswick.

Veilleux, C. 1964. Limnological Surveys in Kejimkujik National Park. Canadian Wildlife Service, MS Reports, 38 p.

Warner, M.G., S.N. Andrews, J.L. MacMillan, A.G. Lowles, K. Collet, R.A. Curry, T. Linnansaari, and M.J.W. Stokesbury. 2023. Past and present distribution and identification of extant native Lake Trout (Salvelinus namaycush) Populations in the Canadian Maritime Provinces. Northeastern Naturalist. 30(Monograph 23):1-59p.

Warner, M.G., S.N. Andrews, B. Marcy-Quay, C.C. Solda, A.G. Lowles, M.J. Stokesbury. 2024. Lake Trout (*Salvelinus namaycush*) origin, behaviour, and habitat residency in Sherbrooke Lake, Nova Scotia, Canada. Environmental Biology of Fishes. 10: 1067-1088 pp.

Warner, K., and O.C. Fenderson. 1963. The salmon and trout fishery of Fish River lakes, Maine. Transactions of the American Fisheries Society. 92: 193-201.

Warner, K. 1965. Fishery management in the fish river drainage. Maine Department of Inland Fisheries and Game. Augusta, Maine. 59 pp.

Watt, W.D. 1987. A summary of the impact of acid rain on Atlantic Salmon (Salmo salar) in Canada. Water, Air, Soil Pollution., 35: 27-35.

Watt, W.D., C.D. Scott, and W.J. White. 1983. Evidence of acidification of some Nova Scotian rivers and its impact on Atlantic Salmon, Salmo salar. Canadian Journal of Fisheries and Aquatic Science. 40:462-473.

Webb, K.T. and Marshall, LB. 1999. Ecoregions and ecodistricts of Nova Scotia. Crops and Livestock Research Centre, Research Branch, Agriculture and Agri-Food Canada, Truro, Nova Scotia; Indicators and Assessment Office, Environmental Quality Branch, Environment Canada, Hull, Quebec. 39 pp. and 1 map.

Whitaker, D.S., and J. Wood. 2021. An investigation of Lake Whitefish recruitment, spawning, and early life history in Northern Maine: Final Report. Maine Department of Inland Fisheries & Wildlife, Fisheries and Hatcheries Division. 57p.

Whitcher, W.F. 1876. Eighth annual report of the Minister of Marine and Fisheries, for the Year 1875. Printed by MacLean, Roger & Co., Wellington Street, Ottawa, Ontario.

Whitcher, W.F. 1878. Tenth Annual Report of the Department of Marine and Fisheries being for the Fiscal Year Ending 31st December 1877. Printed by MacLean, Roger & Co., Wellington Street, Ottawa, Ontario.

White, W.J. 1992. Effects of pH on the zoogeographical distribution of freshwater fish in Nova Scotia. in B.L. Beattie [ed]. The Atlantic Region LRTAP Monitoring and Effects Working Group Report for 1991. Biological Sciences Branch, Department of Fisheries and Oceans, Halifax, Nova Scotia. pages 108-138.

Whitmore Jr, F.C., K.O. Emery, H.B.S. Cooke, D.J.P. Swift. 1967. Elephant teeth from the Atlantic continental shelf. USGS Staff – Published Research. 236.

Wilmot, S. 1877. Report on fish-breeding in the Dominion of Canada. Ottawa, Maclean, Roger & Co., 1878

Wood. J. 2001. Current Status of Lake Whitefish in Maine; an Update to the MDIFW's 2001 Whitefish Assessment. Fisheries Final report Series No. 16-01. Maine Department of Inland Fisheries & Wildlife Fisheries and Hatcheries Division.

Wood. J. 2016. Current Status of Lake Whitefish in Maine; an Update to MDIFW's 2001 whitefish assessment. fishery final report Series No. 16-01 Maine Department of Inland Fisheries & Wildlife Fisheries and Hatcheries Division.

Wrigth, B. 1989. The fauna of Sable Island. Curatorial Report Number 68, Nova Scotia Museum, Halifax. 93 p.

Zelman, K., P. Harrison, A.M. O'Sullivan, S. Andrews, S. Peake, T. Linnansaari, S.A. Pavey., and R.A. Curry. 2023. Reproductive ecology of muskellunge (Esox masquinongy), an introduced predator, in the lower Wolastoq/Saint John River, New Brunswick, Canada. Journal of Fish Biology. 102:643-654.

**Table 1:** Complete summary of Lake Whitefish (*Coregonus clupeaformis*) fry stocking in Nova Scotia including annual stocking details for each lake by year and county, the number of fry released during each stocking event, and the source hatchery of the stocked fish. Lake Whitefish introduced to Nova Scotia were sent from either the Newcastle or Sandwich Hatcheries in Ontario, the Sandwich hatchery source Lake Whitefish eggs from Lake Erie and the Detroit River and often sent stock to the Newcastle Hathery, though in early years it is possible that some whitefish eggs at the Newcastle Hatchery were sourced from Lake Ontario. All Lake Whitefish arriving from Ontario were received by the Bedford Hatchery in Halifax, Nova Scotia from which whitefish were stocked in local lakes or in some instances transferred to other hatcheries for distribution.

| Lake Name | County | Stocking Year | Number Released | Stocked Fish Origin | Source |
|---|---|---|---|---|---|
| Beeler's Lake | Annapolis | 1892 | 300,000 | Sandwich, ON | Tupper 1893 |
| Beeler's Lake | Annapolis | 1893 | 300,000 | Sandwich, ON | Tupper 1894 |
| George Lake | Annapolis | 1891 | 250,000 | Sandwich, ON | Tupper 1892 |
| La Rose Lake | Annapolis | 1896 | 500,000 | Newcastle and Sandwich, ON | Davies 1897 |
| Milford (Pits) Lake | Annapolis | 1889 | 200,000 | Sandwich, ON | Tupper 1890 |
| Paradise Lake | Annapolis | 1891 | 500,000 | Sandwich, ON | Tupper 1892 |
| Paradise Lake | Annapolis | 1892 | 300,000 | Sandwich, ON | Tupper 1893 |
| Paradise Lake | Annapolis | 1893 | 300,000 | Sandwich, ON | Tupper 1894 |
| Paradise Lake | Annapolis | 1894 | 1,000,000 | Sandwich, ON | Costigan 1895 |
| Paradise Lake | Annapolis | 1896 | 250,000 | Newcastle and Sandwich, ON | Davies 1897 |
| Paradise Lake | Annapolis | 1897 | 1,200,000 | Sandwich, ON | Davies 1898 |
| Paradise/Round Hill Lakes (Upper/lower Wrights) | Annapolis | 1898 | 700,000 | Sandwich, ON | Davies 1899 |
| Paradise Lake | Annapolis | 1899 | 700,000 | Sandwich, ON | Davies 1900 |
| Paradise Lake | Annapolis | 1900 | 500,000 | Sandwich, ON | Davies 1901 |
| Paradise Lake | Annapolis | 1901 | 500,000 | Sandwich, ON | Sutherland 1902 |
| Round Hill Lake (Upper/Lower Wrights Lake) | Annapolis | 1890 | 250,000 | Sandwich, ON | Tupper 1891 |
| Round Hill Lake (Upper/Lower Wrights Lake) | Annapolis | 1893 | 300,000 | Sandwich, ON | Tupper 1894 |
| Round Hill Lake (Upper/Lower Wrights Lake) | Annapolis | 1896 | 500,000 | Newcastle and Sandwich, ON | Davies 1897 |
| Lochaber Lake | Antigonish | 1889 | 300,000 | Sandwich, ON | Tupper 1890 |
| Lochaber Lake | Antigonish | 1894 | 700,000 | Sandwich, ON | Costigan 1895 |
| Lochaber Lake | Antigonish | 1901 | 500,000 | Sandwich, ON | Sutherland 1902 |
| St Joseph's Lake | Antigonish | 1894 | 1,000,000 | Sandwich, ON | Costigan 1895 |
| St Joseph's Lake | Antigonish | 1895 | 500,000 | Sandwich, ON | Costigan 1896 |
| Folly Lake | Colchester | 1878 | 20,000 | Newcastle, ON | Pope 1979 |
| Haines & Porters Lake | Digby | 1895 | 800,000 | Sandwich, ON | Costigan 1896 |
| Goshen Lake | Guysborough | 1899 | 200,000 | Sandwich, ON | Davies 1900 |
| Goshen Lake | Guysborough | 1900 | 500,000 | Sandwich, ON | Davies 1901 |
| Governor's Lake | Halifax | 1887 | 150,000 | Newcastle, ON | Foster 1888 |
| Governor's Lake | Halifax | 1889 | 200,000 | Sandwich, ON | Tupper 1890 |
| Grand Lake | Halifax | 1878 | 120,000 | Newcastle, ON | Pope 1979 |
| Grand Lake | Halifax | 1887 | 750,000 | Newcastle, ON | Foster 1888 |
| Grand Lake | Halifax | 1888 | 1,400,000 | Sandwich, ON | Tupper 1889 |
| Grand Lake | Halifax | 1889 | 500,000 | Sandwich, ON | Tupper 1890 |

| | | | | | |
|---|---|---|---|---|---|
| Grand Lake | Halifax | 1890 | 500,000 | Sandwich, ON | Tupper 1891 |
| Grand Lake | Halifax | 1891 | 500,000 | Sandwich, ON | Tupper 1892 |
| Grand Lake | Halifax | 1892 | 300,000 | Sandwich, ON | Tupper 1893 |
| Grand Lake | Halifax | 1893 | 300,000 | Sandwich, ON | Tupper 1894 |
| Hubley's Lake | Halifax | 1887 | 150,000 | Newcastle, ON | Foster 1888 |
| Hubley's Lake | Halifax | 1889 | 200,000 | Sandwich, ON | Tupper 1890 |
| Hubley's Lake | Halifax | 1891 | 250,000 | Sandwich, ON | Tupper 1892 |
| Hubley's Lake | Halifax | 1892 | 300,000 | Sandwich, ON | Tupper 1893 |
| Hubley's Lake | Halifax | 1893 | 300,000 | Sandwich, ON | Tupper 1894 |
| Lake Thomas | Halifax | 1893 | 300,000 | Sandwich, ON | Tupper 1894 |
| Lake William | Halifax | 1893 | 300,000 | Sandwich, ON | Tupper 1894 |
| Lily Lake | Halifax | 1878 | 10,000 | Newcastle, ON | Pope 1979 |
| Sandy Lake | Halifax | 1878 | 10,000 | Newcastle, ON | Pope 1979 |
| Sandy Lake | Halifax | 1886 | 50,000 | Newcastle, ON | Foster 1887 |
| Sandy Lake | Halifax | 1887 | 750,000 | Newcastle, ON | Foster 1888 |
| Sandy Lake | Halifax | 1888 | 700,000 | Sandwich, ON | Tupper 1889 |
| Sandy Lake | Halifax | 1889 | 200,000 | Sandwich, ON | Tupper 1890 |
| Sandy Lake | Halifax | 1890 | 500,000 | Sandwich, ON | Tupper 1891 |
| Sandy Lake | Halifax | 1891 | 250,000 | Sandwich, ON | Tupper 1892 |
| Sandy Lake | Halifax | 1894 | 300,000 | Sandwich, ON | Costigan 1895 |
| Sandy Lake | Halifax | 1895 | 200,000 | Sandwich, ON | Costigan 1896 |
| Sandy Lake | Halifax | 1896 | 250,000 | Newcastle and Sandwich, ON | Davies 1897 |
| Sandy Lake | Halifax | 1897 | 1,400,000 | Sandwich, ON | Davies 1898 |
| Sandy Lake | Halifax | 1900 | 200,000 | Sandwich, ON | Davies 1901 |
| Williams Lake | Halifax | 1887 | 900,000 | Newcastle, ON | Foster 1888 |
| Williams Lake | Halifax | 1888 | 700,000 | Sandwich, ON | Tupper 1889 |
| Williams Lake | Halifax | 1889 | 200,000 | Sandwich, ON | Tupper 1890 |
| Williams Lake | Halifax | 1890 | 500,000 | Sandwich, ON | Tupper 1891 |
| Williams Lake | Halifax | 1891 | 250,000 | Sandwich, ON | Tupper 1892 |
| Williams Lake | Halifax | 1892 | 300,000 | Sandwich, ON | Tupper 1893 |
| Williams Lake | Halifax | 1897 | 1,400,000 | Sandwich, ON | Davies 1898 |
| Williams Lake | Halifax | 1898 | 200,000 | Sandwich, ON | Davies 1899 |
| Williams Lake | Halifax | 1901 | 200,000 | Sandwich, ON | Sutherland 1902 |
| Neal's/Neilson Lake | Halifax | 1887 | 150,000 | Newcastle, ON | Foster 1888 |
| Lake Ainsley | Inverness | 1895 | 1,000,000 | Sandwich, ON | Costigan 1896 |
| Lake Ainsley | Inverness | 1896 | 500,000 | Newcastle and Sandwich, ON | Davies 1897 |
| Lake Ainsley | Inverness | 1898 | 700,000 | Sandwich, ON | Davies 1899 |
| Lake O'Law (First Lake) | Inverness | 1896 | 1,000,000 | Newcastle and Sandwich, ON | Davies 1897 |
| Lake O'Law (First Lake) | Inverness | 1898 | 700,000 | Sandwich, ON | Davies 1899 |
| Lake O'Law (First Lake) | Inverness | 1899 | 800,000 | Sandwich, ON | Davies 1900 |
| Lake O'Law (First Lake) | Inverness | 1900 | 800,000 | Sandwich, ON | Davies 1901 |
| Lake O'Law (First Lake) | Inverness | 1901 | 1,000,000 | Sandwich, ON | Sutherland 1902 |
| Aylesford Lake | Kings | 1890 | 250,000 | Sandwich, ON | Tupper 1891 |
| Gaspereau Lake | Kings | 1889 | 200,000 | Sandwich, ON | Tupper 1890 |

| | | | | | |
|---|---|---|---|---|---|
| Gaspereau Lake | Kings | 1892 | 300,000 | Sandwich, ON | Tupper 1893 |
| Lake George | Kings | 1893 | 300,000 | Sandwich, ON | Tupper 1894 |
| Loon Lake | Kings | 1893 | 300,000 | Sandwich, ON | Tupper 1894 |
| McPherson's Lake | Pictou | 1899 | 50,000 | Sandwich, ON | Davies 1900 |
| McPherson's Lake | Pictou | 1900 | 500,000 | Sandwich, ON | Davies 1901 |
| McPherson's Lake | Pictou | 1901 | 500,000 | Sandwich, ON | Sutherland 1902 |
| Kejimkujik Lake* | Queens | ~1900 | - | - | Veilleux 1964 |
| Minard Lake* | Queens | ~1900 | - | - | Kerekes 1975 |
| Lake Rossignol | Queens | 1889 | 500,000 | Sandwich, ON | Tupper 1890, Veilleux 1964 |
| Brazil Lake | Yarmouth | 1898 | 700,000 | Sandwich, ON | Davies 1899 |
| Brazil Lake | Yarmouth | 1899 | 800,000 | Sandwich, ON | Davies 1900 |
| Brazil Lake | Yarmouth | 1900 | 500,000 | Sandwich, ON | Davies 1901 |
| Brazil Lake | Yarmouth | 1901 | 500,000 | Sandwich, ON | Sutherland 1902 |
| Milton Lake (Lake Milo) | Yarmouth | 1895 | 500,000 | Sandwich, ON | Costigan 1896 |

***** 500,000 Lake Whitefish eggs were distributed to an auxiliary hatchery in the village of Kempt, Nova Scotia in 1889 (Tupper 1890) and likely distributed as fry in 1990. These were reported to have been released in Minard Lake and Kejimkujik Lake (Veilleux 1964; Kerekes 1975) but the numbers introduced and whether these two locations represent the full extent of the introductions from the Kempt Hatchery is unknown.

**Note:** In 1889 the Auxiliary hatchery in Lochaber, Nova Scotia was also sent a shipment of 120,000 Lake Whitefish eggs, but the destination of the fry resulting from this transfer is unknown therefor are not listed above.

**Table 2:** Detailed stocking history of New Brunswick lakes with Lake Whitefish (*Coregonus clupeaformis*) fry conducted by the Department of Marine and Fisheries from 1886 to 1901. Lake Whitefish eggs were sourced from the Newcastle and Sandwich hatcheries in Ontario that were primarily collected from Lake Erie and the Detroit River, though some broodstock could have originated from Lake Ontario in earlier years. Table includes the name of each stocked waterbody, county, stocking year, the number of fry released as well as hatchery origin, life state and source document. The hatchery in Sandwich Ontario sourced its Lake Whitefish eggs from the Detroit River, by also sent whitefish eggs to the Newcastle Hatchery on the shores of Lake Ontario. All Lake Whitefish fry in New Brunswick were received and distributed by the Saint John River Hatchery Located at Rapides des Femmes, Victoria County.

| Lake Name | County | Year | Number Released | Origin | Life Stage | Source |
|---|---|---|---|---|---|---|
| German Town Lake | Albert | 1896 | 320,000 | Sandwich, ON | Fry | Davies 1897 |
| Jones Lake | Carleton | 1891 | 180,000 | Sandwich, ON | Fry | Tupper 1892 |
| Jones Lake | Carleton | 1892 | 140,000 | Sandwich, ON | Fry | Tupper 1893 |
| Jones Lake | Carleton | 1893 | 320,000 | Sandwich, ON | Fry | Tupper 1894 |
| Jones Lake | Carleton | 1894 | 240,000 | Sandwich, ON | Fry | Costigan 1895 |
| Lakeville and Summerville Lakes (Williamstown Lake) | Carleton | 1886 | 650,000 | Newcastle, ON | Fry | Foster 1887 |
| Lakeville Lake (Williamstown Lake) | Carleton | 1888 | 466,662 | Sandwich ON | Fry | Tupper 1889 |
| Lakeville Lake (Williamstown Lake) | Carleton | 1889 | 350,000 | Sandwich, ON | Fry | Tupper 1890 |
| Lakeville Lake (Williamstown Lake) | Carleton | 1890 | 300,000 | Sandwich, ON | Fry | Tupper 1891 |
| Lakeville Lake (Williamstown Lake) | Carleton | 1893 | 320,000 | Sandwich, ON | Fry | Tupper 1894 |
| Lakeville Lake (Williamstown Lake) | Carleton | 1894 | 240,000 | Sandwich, ON | Fry | Costigan 1895 |
| Lakeville Lake (Williamstown Lake) | Carleton | 1896 | 240,000 | Sandwich, ON | Fry | Davies 1897 |
| Chamcook Lake | Charlotte | 1887 | 400,000 | Newcastle, ON | Fry | Foster 1888 |
| Foster Lake | Charlotte | 1889 | 350,000 | Sandwich, ON | Fry | Tupper 1890 |
| Foster Lake | Charlotte | 1891 | 240,000 | Sandwich, ON | Fry | Tupper 1892 |
| Foster Lake | Charlotte | 1892 | 220,000 | Sandwich, ON | Fry | Tupper 1893 |
| Foster Lake | Charlotte | 1893 | 320,000 | Sandwich, ON | Fry | Tupper 1894 |
| Foster Lake | Charlotte | 1898 | 640,000 | Sandwich, ON | Fry | Davies 1899 |
| Foster Lake | Charlotte | 1899 | 240,000 | Sandwich, ON | Fry | Davies 1900 |
| Foster Lake | Charlotte | 1897 | 320,000 | Sandwich, ON | Fry | Davies 1898 |
| Lake Utopia | Charlotte | 1892 | 220,000 | Sandwich, ON | Fry | Tupper 1893 |
| Mohanneous River/Mohannes Stream | Charlotte | 1900 | 320,000 | Sandwich, ON | Fry | Davies 1901 |
| Byran (Byram's) Pond | Madawaska | 1893 | 120,000 | Sandwich, ON | Fry | Tupper 1894 |
| Byran (Byram's) Pond | Madawaska | 1894 | 120,000 | Sandwich, ON | Fry | Costigan 1895 |
| Byran (Byram's) Pond | Madawaska | 1896 | 240,000 | Sandwich, ON | Fry | Davies 1897 |
| Grand Lake | Queen's | 1899 | 320,000 | Sandwich, ON | Fry | Davies 1900 |
| Washademoak Lake | Queen's | 1899 | 320,000 | Sandwich, ON | Fry | Davies 1900 |
| Beaulieu (Baulieu/Bolieu's) Pond | Victoria | 1899 | 240,000 | Sandwich, ON | Fry | Davies 1900 |
| Beaulieu (Baulieu/Bolieu's) Pond | Victoria | 1900 | 240,000 | Sandwich, ON | Fry | Davies 1901 |
| Beaulieu (Baulieu/Bolieu's) Pond | Victoria | 1901 | 240,000 | Sandwich, ON | Fry | Sutherland 1902 |
| Long Lake | Victoria | 1887 | 300,000 | Newcastle, ON | Fry | Foster 1888 |
| Long Lake | Victoria | 1889 | 300,000 | Sandwich, ON | Fry | Tupper 1890 |
| Long Lake | Victoria | 1893 | 160,000 | Sandwich, ON | Fry | Tupper 1894 |
| Long Lake | Victoria | 1894 | 240,000 | Sandwich, ON | Fry | Costigan 1895 |
| Long Lake | Victoria | 1895 | 720,000 | Sandwich, ON | Fry | Costigan 1896 |
| Long Lake | Victoria | 1896 | 560,000 | Sandwich, ON | Fry | Davies 1897 |
| Long Lake | Victoria | 1897 | 320,000 | Sandwich, ON | Fry | Davies 1898 |
| Long Lake | Victoria | 1901 | 240,000 | Sandwich, ON | Fry | Sutherland 1902 |
| Meadow Lake | Victoria | 1887 | 300,000 | Newcastle, ON | Fry | Foster 1888 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Pond at Hatchery | Victoria | 1899 | 320,000 | Sandwich, ON | Fry | Davies 1900 |
| Pond at Hatchery | Victoria | 1900 | 120,000 | Sandwich, ON | Fry | Davies 1901 |
| Pond at Hatchery | Victoria | 1901 | 400,000 | Sandwich, ON | Fry | Sutherland 1902 |
| Portage Lake | Victoria | 1887 | 300,000 | Newcastle, ON | Fry | Foster 1888 |
| Portage Lake | Victoria | 1889 | 200,900 | Sandwich, ON | Fry | Tupper 1890 |
| Portage Lake | Victoria | 1891 | 180,000 | Sandwich, ON | Fry | Tupper 1892 |
| Portage Lake | Victoria | 1892 | 140,000 | Sandwich, ON | Fry | Tupper 1893 |
| Rapids Des Femme | Victoria | 1888 | 155,582 | Sandwich ON | Fry | Tupper 1889 |
| Tomlinson Lake | Victoria | 1888 | 155,554 | Sandwich ON | Fry | Tupper 1889 |
| Baldhead Lake | York | 1897 | 320,000 | Sandwich, ON | Fry | Davies 1898 |
| Baldhead Lake | York | 1898 | 320,000 | Sandwich, ON | Fry | Davies 1899 |
| Baldhead Lake | York | 1899 | 240,000 | Sandwich, ON | Fry | Davies 1900 |
| Baldhead Lake | York | 1900 | 320,000 | Sandwich, ON | Fry | Davies 1901 |
| Baldhead Lake | York | 1901 | 320,000 | Sandwich, ON | Fry | Sutherland 1902 |
| Forest Lake | York | 1900 | 560,000 | Sandwich, ON | Fry | Davies 1901 |
| Foster Lake | York | 1901 | 320,000 | Sandwich, ON | Fry | Sutherland 1902 |
| Harvey Lake | York | 1888 | 466,662 | Sandwich ON | Fry | Tupper 1889 |
| Harvey Lake | York | 1889 | 350,000 | Sandwich, ON | Fry | Tupper 1890 |
| Harvey Lake | York | 1890 | 700,000 | Sandwich, ON | Fry | Tupper 1891 |
| Harvey Lake | York | 1891 | 480,000 | Sandwich, ON | Fry | Tupper 1892 |
| Harvey Lake | York | 1892 | 440,000 | Sandwich, ON | Fry | Tupper 1893 |
| Harvey Lake | York | 1893 | 560,000 | Sandwich, ON | Fry | Tupper 1894 |
| Harvey Lake | York | 1894 | 320,000 | Sandwich, ON | Fry | Costigan 1895 |
| Harvey Lake | York | 1895 | 480,000 | Sandwich, ON | Fry | Costigan 1896 |
| Harvey Lake | York | 1896 | 320,000 | Sandwich, ON | Fry | Davies 1897 |
| Harvey Lake | York | 1897 | 320,000 | Sandwich, ON | Fry | Davies 1898 |
| Harvey Lake | York | 1898 | 320,000 | Sandwich, ON | Fry | Davies 1899 |
| Harvey Lake | York | 1899 | 320,000 | Sandwich, ON | Fry | Davies 1900 |
| Harvey Lake | York | 1900 | 320,000 | Sandwich, ON | Fry | Davies 1901 |
| Harvey Lake | York | 1901 | 320,000 | Sandwich, ON | Fry | Sutherland 1902 |
| Lake George | York | 1892 | 220,000 | Sandwich, ON | Fry | Tupper 1893 |
| Lake George | York | 1893 | 240,000 | Sandwich, ON | Fry | Tupper 1894 |
| Lake George | York | 1894 | 320,000 | Sandwich, ON | Fry | Costigan 1895 |
| Lake George | York | 1895 | 480,000 | Sandwich, ON | Fry | Costigan 1896 |
| Lake George | York | 1896 | 320,000 | Sandwich, ON | Fry | Davies 1897 |
| Lake George | York | 1897 | 320,000 | Sandwich, ON | Fry | Davies 1898 |
| Lake George | York | 1898 | 640,000 | Sandwich, ON | Fry | Davies 1899 |
| Lake George | York | 1899 | 240,000 | Sandwich, ON | Fry | Davies 1900 |
| Lake George | York | 1900 | 320,000 | Sandwich, ON | Fry | Davies 1901 |
| Lake George | York | 1901 | 320,000 | Sandwich, ON | Fry | Sutherland 1902 |
| Magaguadavic Lake | York | 1887 | 400,000 | Newcastle, ON | Fry | Foster 1888 |
| Magaguadavic Lake | York | 1888 | 933,324 | Sandwich ON | Fry | Tupper 1889 |
| Magaguadavic Lake | York | 1889 | 350,000 | Sandwich, ON | Fry | Tupper 1890 |
| Magaguadavic Lake | York | 1890 | 700,000 | Sandwich, ON | Fry | Tupper 1891 |
| Magaguadavic Lake | York | 1891 | 240,000 | Sandwich, ON | Fry | Tupper 1892 |
| Oromocto Lake | York | 1888 | 622,216 | Sandwich ON | Fry | Tupper 1889 |
| Oromocto Lake | York | 1889 | 350,000 | Sandwich, ON | Fry | Tupper 1890 |
| Oromocto Lake | York | 1890 | 300,000 | Sandwich, ON | Fry | Tupper 1891 |
| Oromocto Lake | York | 1891 | 240,000 | Sandwich, ON | Fry | Tupper 1892 |
| Oromocto Lake | York | 1892 | 220,000 | Sandwich, ON | Fry | Tupper 1893 |
| Oromocto Lake | York | 1893 | 320,000 | Sandwich, ON | Fry | Tupper 1894 |
| Oromocto Lake | York | 1894 | 320,000 | Sandwich, ON | Fry | Costigan 1895 |
| Oromocto Lake | York | 1895 | 240,000 | Sandwich, ON | Fry | Costigan 1896 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Oromocto Lake | York | 1896 | 320,000 | Sandwich, ON | Fry | Davies 1897 |
| Oromocto Lake | York | 1897 | 320,000 | Sandwich, ON | Fry | Davies 1898 |
| Oromocto Lake | York | 1898 | 320,000 | Sandwich, ON | Fry | Davies 1899 |
| Oromocto Lake | York | 1899 | 240,000 | Sandwich, ON | Fry | Davies 1900 |
| Oromocto Lake | York | 1900 | 320,000 | Sandwich, ON | Fry | Davies 1901 |
| Oromocto Lake | York | 1901 | 320,000 | Sandwich, ON | Fry | Sutherland 1902 |
| Skiff Lake | York | 1887 | 400,000 | Newcastle, ON | Fry | Foster 1888 |
| Skiff Lake | York | 1889 | 350,000 | Sandwich, ON | Fry | Tupper 1890 |
| Yoho Lake | York | 1892 | 220,000 | Sandwich, ON | Fry | Tupper 1893 |
| Yoho Lake | York | 1893 | 240,000 | Sandwich, ON | Fry | Tupper 1894 |
| Yoho Lake | York | 1894 | 320,000 | Sandwich, ON | Fry | Costigan 1895 |
| Yoho Lake | York | 1895 | 240,000 | Sandwich, ON | Fry | Costigan 1896 |
| Yoho Lake | York | 1896 | 320,000 | Sandwich, ON | Fry | Davies 1897 |
| Yoho Lake | York | 1897 | 320,000 | Sandwich, ON | Fry | Davies 1898 |
| Yoho Lake | York | 1898 | 320,000 | Sandwich, ON | Fry | Davies 1899 |
| Yoho Lake | York | 1899 | 320,000 | Sandwich, ON | Fry | Davies 1900 |
| Yoho Lake | York | 1900 | 320,000 | Sandwich, ON | Fry | Davies 1901 |
| Yoho Lake | York | 1901 | 320,000 | Sandwich, ON | Fry | Sutherland 1902 |
| Pond at Hatchery (Grand Falls) | - | 1895 | 240,000 | Sandwich, ON | Fry | Costigan 1896 |
| Private Waters | - | 1897 | 240,000 | Sandwich, ON | Fry | Davies 1898 |
| Saint John River at Hatchery | - | 1891 | 60,000 | Sandwich, ON | Fry | Tupper 1892 |
| Saint John River at Hatchery | - | 1894 | 320,000 | Sandwich, ON | Fry | Costigan 1895 |

**Table 3:** Summary of Lake Whitefish (*Coregonus clupeaformis*) fry stocking by lake in the Province of Nova Scotia including water body name, county, primary and secondary watershed, latitude, longitude, depth (m), surface area (ha). Stocking details are also listed including the initial and final year of stocking, number of years stocked, and the total number of Lake Whitefish fry released during the stocking period.

| Water body name | County | Primary watershed | Secondary watershed | Latitude | Longitude | Depth (m) | Surface area (ha) | Initial year of stocking | Most recent year of stocking | # of years stocked | Number stocked |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Beeler's Lake | Annapolis | Annapolis River | Lequille River | 44.652 | -65.519 | 3 | 20.1 | 1892 | 1893 | 2 | 600,000 |
| George Lake | Annapolis | Herring Cove/ Medway River | Medway River | 44.578 | -65.190 | | 79 | 1891 | 1891 | 1 | 250,000 |
| La Rose Lakes | Annapolis | Annapolis River | Annapolis River | 44.713 | -65.441 | 5 | 53.8 | 1896 | 1896 | 1 | 500,000 |
| Milford (Pits/Pitts) Lake | Annapolis | Mersey River | Mersey River | 44.588 | -65.407 | 6 | 19.7 | 1889 | 1889 | 1 | 200,000 |
| Paradise Lake* | Annapolis | Annapolis River | Annapolis River | 44.764 | -65.170 | 9 | 396.4 | 1891 | 1901 | 10 | 5,250,000* |
| Round Hill Lake* (Upper/Lower Wrights Lake) | Annapolis | Annapolis River | Annapolis River | 44.727 | -65.365 | | 18.8/37 | 1890 | 1896 | 3 | 1,050,000* |
| Lochaber Lake | Antigonish | St Mary's River | St Mary's River | 45.422 | -62.029 | 52.4 | 307.2 | 1889 | 1901 | 3 | 1,500,000 |
| St Joseph's Lake | Antigonish | South/West | West River | 45.536 | -62.080 | 6 | 19.9 | 1894 | 1895 | 2 | 1,500,000 |
| Folly Lake | Cumberland | Salmon/Debert Rivers | Folly River | 45.540 | -63.546 | 33.5 | 78.9 | 1878 | 1878 | 1 | 20,000 |
| Haines Lake | Digby | Sissiboo/Bear River | Sissiboo River | 44.514 | -65.807 | 7 | 66.7 | 1895 | 1895 | 1 | 800,000 |
| Porters Lake | Digby | Sissiboo/Bear River | Sissiboo River | 44.493 | -65.808 | 7 | 326.7 | 1895 | 1895 | 1 | |
| Goshen Lake | Guysborough | Country Harbour | Country Harbour River | 45.377 | -61.978 | 8 | 12.1 | 1899 | 1900 | 2 | 700,000 |
| Governor's Lake | Halifax | Sackville River | Nine Mile River | 44.643 | -63.701 | 11 | 105.2 | 1887 | 1889 | 2 | 350,000 |
| Grand Lake (Shubenacadie Grand) | Halifax | Shubenacadie/ Stewiacke River | Shubenacadie River | 44.910 | -63.600 | 45 | 1841 | 1878 | 1893 | 8 | 4,370,000 |
| Hubley's Lake (Hubley Big Lake) | Halifax | Sackville River | Woodens River | 44.647 | -63.829 | 14 | 255.3 | 1887 | 1893 | 5 | 1,200,000 |
| Lake Thomas | Halifax | Shubenacadie/ Stewiacke River | Shubenacadie River | 44.798 | -63.609 | 14 | 111 | 1893 | 1893 | 1 | 300,000 |
| Lake William | Halifax | Shubenacadie/ Stewiacke River | Shubenacadie River | 44.767 | -63.586 | 28 | 339 | 1893 | 1893 | 1 | 300,000 |
| Lily Lake | Halifax | Sackville River | Shore Direct | 44.743 | -63.638 | 41.2 | 5 | 1878 | 1878 | 1 | 10,000 |
| Sandy Lake | Halifax | Sackville River | Sackville River | 44.735 | -63.701 | 19 | 74.5 | 1878 | 1900 | 12 | 4,810,000 |
| Williams Lake | Halifax | Sackville River | Shore Direct | 44.620 | -63.593 | 20 | 34.1 | 1887 | 1901 | 9 | 4,650,000 |
| Neal's/Neilson Lake | Halifax | - | - | - | - | - | - | 1887 | 1887 | 1 | 150,000 |
| Lake Ainsley | Inverness | Margaree River | Margaree River | 46.127 | -61.174 | 18 | 5,735.8 | 1895 | 1898 | 3 | 2,200,000 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lake O'Law (Frist Lake) | Inverness | Margaree River | Margaree River | 46.277 | -60.960 | 30 | 27.1 | 1896 | 1901 | 5 | 4,300,000 |
| Aylesford Lake | Kings | Gaspereau River | Gaspereau/Black River | 44.947 | -64.662 | 12 | 532 | 1890 | 1890 | 1 | 250,000 |
| Gaspereau Lake | Kings | Gaspereau River | Gaspereau/Black River | 44.965 | -64.548 | | 2,202.9 | 1889 | 1892 | 2 | 500,000 |
| Lake George | Kings | Gaspereau River | Gaspereau/Black River | 44.935 | -64.699 | 9 | 153 | 1893 | 1893 | 1 | 300,000 |
| Loon Lake | Kings | Gaspereau River | Gaspereau/Black River | 44.898 | -64.669 | 6 | 69.6 | 1893 | 1893 | 1 | 300,000 |
| McPherson's Lake | Pictou | East/Middle/ West River | East River Pictou | 45.468 | -62.545 | 13.4 | 13.4 | 1899 | 1901 | 3 | 1,050,000 |
| Kejimkujik Lake** | Queens | Mersey River | Mersey River | 44.383 | -65.250 | 17 | - | - | - | - | - |
| Minard Lake** | Queens | Mersey River | Mersey River | 44.425 | -65.168 | 6 | - | - | - | - | - |
| Lake Rossignol | Queens | Mersey River | Mersey River | 44.213 | -65.148 | | 15,105.2 | 1889 | 1889 | 1 | 500,000 |
| Brazil Lake | Yarmouth | Tusket River | Annis River | 44.008 | -65.998 | 11 | 99.7 | 1898 | 1901 | 4 | 2,500,000 |
| Milton Lake (Lake Milo) | Yarmouth | Tusket River | Ohio Millstream Brook | 43.861 | -66.115 | 10 | 58.7 | 1895 | 1895 | 1 | 500,000 |

*An additional 700,000 Lake Whitefish fry were reported stocked in Paradise/Round Hill Lakes that was not included within the presented totals.
** 500,000 Lake Whitefish eggs were distributed to an auxiliary hatchery in the village of Kempt, Nova Scotia in 1889 (Tupper 1890) and likely distributed as fry in 1990. These were reported to have been distributed Minard Lake and Kejimkujik Lake (Veilleux 1964; Kerekes 1975) but the numbers introduced and whether these two locations represent the extent of the introductions from the Kempt Hatchery is unknown.

**Table 4:** Details of lakes stocked with Lake Whitefish (*Coregonus clupeaformis*) in the Province of New Brunswick including lake name, county, primary and secondary watershed, latitude, longitude, depth (m) and surface area (ha), years stocked, and total number stocked.

| Water Body Name | County | Primary Watershed | Secondary Watershed | Latitude | Longitude | depth (m) | Surface Area (ha) | Initial Year of Stocking | Most Recent Year of Stocking | # of Years Stocked | Number Stocked |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Germantown Lake | Albert | Petitcodiac Composite | South Channel | 45.674 | -64.803 | - | - | 1896 | 1896 | 1 | 320,000 |
| Jones Lake | Carleton | - | - | - | - | - | - | 1891 | 1894 | 4 | 740,000 |
| Lakeville/Sommerville Lake (Williamstown Lake) | Carleton | Saint John River Basin | Big Presque Isle Stream Composite | 46.315 | -67.700 | 3.7 | 1733 | 1886 | 1896 | 6 | 2,566,662 |
| Chamcook Lake | Charlotte | West Fundy Composite | Bocabec River Composite | 45.145 | -67.091 | 41.91 | 338.6 | 1887 | 1887 | 1 | 400,000 |
| Foster Lake | Charlotte | St. Croix River Basin | Canoose Stream Composite | 45.317 | -67.231 | - | 48.5 | 1889 | 1901 | 7 | 1,870,000 |
| Lake Utopia | Charlotte | West Fundy Composite | Magaguadavic River | 45.176 | -66.793 | 28.35 | 1387.9 | 1892 | 1892 | 1 | 220,000 |
| Mohanneous Stream | Charlotte | St. Croix River Basin | Canoose Stream Composite | 45.151 | -67.325 | - | - | 1900 | 1900 | 1 | 320,000 |
| Byram's Pond | Madawaska | - | - | - | - | - | - | 1893 | 1896 | 3 | 480,000 |
| Grand Lake | Queens | Saint John River Basin | Jemseg River | 45.957 | -66.033 | 30.5 | 17067.2 | 1899 | 1899 | 1 | 320,000 |
| Washademoak Lake | Queens | Saint John River Basin | Washademoak Creek | 45.794 | -65.969 | 30 | 3122.8 | 1899 | 1899 | 1 | 320,000 |
| Beaulieu Pond | Victoria | - | - | - | - | - | - | 1899 | 1901 | 3 | 720,000 |
| Long Lake | Victoria | Saint John River Basin | Tobique River | 47.031 | -66.895 | 27.4 | 989 | 1887 | 1901 | 8 | 2,840,000 |
| Meadow Lake | Victoria | - | - | - | - | - | - | 1887 | 1887 | 1 | 300,000 |
| Pond at Hatchery (Grand Falls) | Victoria | Saint John River Basin | Boutot Brook Composite | 47.007 | -67.732 | - | - | 1899 | 1901 | 3 | 840,000 |
| Portage Lake | Victoria | - | - | - | - | - | - | 1887 | 1892 | 4 | 820,900 |
| Rapids Des Femme Pond/Creek | Victoria | Saint John River Basin | Boutot Brook Composite | 47.007 | -67.743 | - | - | 1888 | 1888 | 1 | 155,582 |
| Tomlinson Lake | Victoria | Saint John River Basin | Aroostook River | 46.711 | -67.761 | - | 9.75 | 1888 | 1888 | 1 | 155,554 |
| Baldhead Lake | York | - | - | - | - | - | - | 1897 | 1901 | 5 | 1,520,000 |
| Forest Lake | York | - | - | - | - | - | - | 1900 | 1901 | 2 | 880,000 |
| Harvey Lake | York | West Fundy Composite | Magaguadavic River | 45.747 | -67.028 | 13.6 | 695.6 | 1888 | 1901 | 14 | 5,716,662 |
| Lake George | York | Saint John River Basin | Pokiok Stream | 45.817 | -67.047 | 5.15 | 691.5 | 1892 | 1901 | 10 | 3,420,000 |
| Magaguadavic Lake | York | West Fundy Composite | Magaguadavic River | 45.704 | -67.200 | 10.69 | 2623.8 | 1887 | 1891 | 5 | 2,623,324 |
| Oromocto Lake | York | Saint John River Basin | Oromocto River | 45.586 | -67.004 | 13.72 | 4047.3 | 1888 | 1901 | 14 | 4,452,216 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Skiff Lake | York | St Croix River Basin | Spednic Lake | 45.822 | -67.527 | 17.68 | 627.26 | 1887 | 1889 | 2 | 750,000 |
| Yoho Lake | York | Saint John River Basin | Oromocto River | 45.781 | -66.861 | 13.69 | 126 | 1892 | 1901 | 10 | 2,940,000 |

**Table 5:** Observations of Lake Whitefish (*Coregonus clupeaformis*) in the Province of Nova Scotia including lake name, county, primary and secondary watershed, latitude, longitude, depth (m), surface area (ha), years of observation, ancestry (stocked or native) and data source. When lakes are indicated as stocked it does not rule out the possibility of a pre-existing native population. Lakes with a native ancestry marked as "?" are native populations that could have received unreported introductions of Lake Whitefish from nearby stocked lakes. Lakes < 10 m deep may be occupied during cold water periods by populations residing in deeper connected waters.

| Lake Name | County | Primary Watershed | Secondary Watershed | Lat | Long | Depth (m) | Surface area (ha) | Whitefish Observations | Stocked | Native | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boot Lake | Annapolis | Mersey River | Mersey River | 44.570 | -65.383 | 6 | 102.8 | 2001-2002 | Yes* | - | Hasselman 2003 |
| Eleven Mile Lake | Annapolis | Mersey River | Mersey River | 44.530 | -65.292 | 2.1 | 226.3 | 1975 | Yes* | - | Alexander et al. 1986 |
| Fisher Lake | Annapolis | Mersey River | Mersey River | 44.548 | -65.344 | 6 | 394.8 | - | Yes* | - | Located between Boot and Eleven Mile Lake |
| Geier Lake* | Annapolis | Mersey River | Mersey River | 44.577 | -65.396 | - | - | - | Yes* | - | Located between Liverpool Head and Boot Lake |
| Liverpool Head Lake | Annapolis | Mersey River | Mersey River | 44.581 | -65.404 | 6.9 | 13.2 | 1975 | Yes* | - | Alexander et al. 1986 |
| Milford (Pits/Pitts) Lake | Annapolis | Mersey River | Mersey River | 44.586 | -65.405 | 6.3 | 20.0 | 1975 | Yes | - | Alexander et al. 1986 |
| Grand Lake | Cape Breton | Salmon/Mira River | Gerratt Brook | 45.957 | -59.956 | 4.0 | 148.6 | 1980 | No | Yes | Alexander et al. 1986 |
| MacIntyres Lake | Cape Breton | Salmon/Mira River | Shore Direct | 45.902 | -60.185 | 12.8 | - | 1973, 2000-2002 | No | Yes | Hasselman 2003; Murray 2005; Hasselman et al. 2009; |
| MacLeods Lake | Cape Breton | Salmon/Mira River | Shore Direct | 45.886 | -60.181 | - | - | 2000-2002 | No | Yes | Hasselman 2003; Murray 2005; Hasselman et al. 2009; |
| Mira River | Cape Breton | Salmon/River Mira | Mira River | 46.003 | -60.129 | - | - | 1983, 2000-2002 | No | Yes | John Gilhen observation in Alexander et al. 1986; Edge 1987; Bernatchez and Dodson 1990; Edge et al. 1991; Hasselman 2003; Bradford et al. 2004b; Hasselman et al. 2009 |
| Salmon River | Cape Breton | Salmon River and Mira | Mira River | 45.935 | -60.302 | - | - | 1982 | No | Yes | Edge 1987; Edge et al. 1991, connected to Mira River |
| Eight Island Lake* | Guysborough | Country Harbour | Country Harbour River | 45.351 | -61.962 | 10.1 | 91.3 | - | No | - | Connected to Pringle Lake |
| G Lake | Guysborough | Country Harbour | Country Harbour River | 45.357 | -61.974 | 10 | 18.7 | 1985 | No | ? | NS Dept of Inland Fisheries |
| Narrow Lake | Guysborough | New Harbour / Salmon River | Salmon River | 45.397 | -61.849 | 11.0 | 24.4 | 1973 | No | ? | Ives 1975, Alexander et al. 1986 |
| Pringle Lake | Guysborough | Country Harbour | Country Harbour River | 45.377 | -61.949 | 26.0 | 58.3 | 1973 | No | ? | Smith 1974; Ives 1975; Alexander et al 1986; Edge 1987, 1991 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Big Shaw Lake | Halifax | Musquodoboit River | Musquodoboit River | 44.968 | -63.112 | 10 | 82.0 | 2000-2004 | No | Yes | Murray 2005 |
| Chezzetcook Lake | Halifax | Musquodoboit River | Chezzetcook River | 44.773 | -63.222 | 18.3 | 296.0 | 1974 | No | - | Alexander et al 1986; Bradford et al. 2004b |
| Conrod lake | Halifax | Musquodoboit River | Chezzetcook River | 44.776 | -63.258 | 29.6 | 134.9 | 2017 | No | - | NS Dept of Inland Fisheries |
| Gibraltar Lake | Halifax | Musquodoboit River | Musquodoboit River | 44.862 | -63.252 | 16.0 | 85.4 | 2000-2004 | No | Yes | Hasselman 2003; Murray 2005; Hasselman et al. 2009 |
| Long Bridge Lake* | Halifax | Musquodoboit River | Chezzetcook River | 44.787 | -63.208 | - | - | - | No | - | Connected to Chezzetcook Lake |
| Moose Lake* | Halifax | Musquodoboit River | Musquodoboit River | 44.843 | -63.251 | 7.6 | 15.4 | - | No | - | Connected to Gibraltar Lake |
| Morris Lake** | Halifax | Sackville River | Cow Bay River | 44.650 | -63.496 | 12.8 | 175.9 | 1999 | No | - | Unconfirmed angler report in Bradford et al. 2004b |
| Petepeswick Lake* | Halifax | Musquodoboit River | Chezzetcook River | 44.770 | -63.193 | - | 297.5 | - | No | - | Connected to Chezzetcook Lake |
| Pace(s) Lake* | Halifax | Musquodoboit | Little River, Petepeswick Inlet | 44.815 | -63.212 | 51.2 | 302.7 | - | No | - | Connected to Scots Lake |
| Scots (Scott, Scotch) Lake/Pond | Halifax | Musquodoboit River | Little River, Petepeswick Inlet | 44.791 | -63.180 | 18 | 15.0 | 1973 | No | Yes | Semple 1973, Murray 2005 |
| Thompson Lake * | Halifax | Musquodoboit River | Chezzetcook River | 44.768 | -63.295 | - | - | - | No | - | Connected to Conrod Lake |
| Big Mushamush Lake* | Lunenburg | Gold River | Mushamush River | 44.492 | -64.554 | 25.0 | 1,078 | - | No | - | Between Sucker, Caribou, and Little Mushamush Lake |
| Caribou Lake | Lunenburg | Gold River | Mushamush River | 44.526 | -64.549 | 50.0 | 268.5 | 1982, 2000-2002 | No | - | Edge 1987; Hasselman 2003; Hasselman et al. 2009 |
| Little Mushamush Lake | Lunenburg | Gold River | Mushamush River | 44.510 | -64.505 | 13.0 | 438.7 | 1980 | No | Yes | Alexander et al. 1986; Edge 1987; Edge et al. 1991; Hasselman 2003; Murray 2005; Hasselman et al. 2009 |
| Shingle Lake | Lunenburg | Herring Cove/Medway | Medway River | 44.408 | -64.789 | 14.0 | 468.2 | 2000 | No | Yes | Hasselman 2003; Bradford et al. 2004b; Murray 2005; Hasselman et al. 2009 |
| Sucker Lake | Lunenburg | Gold River | Mushamush River | 44.489 | -64.593 | 9.0 | 30.3 | 2013 | No | - | Verified Angler Report |
| West Whale Lake* | Lunenburg | Gold River | Mushamush River | 44.571 | -64.557 | - | - | - | No | - | Connected to Little Mushamush Lake |
| Whale Lake* | Lunenburg | Gold River | Mushamush River | 44.569 | -64.541 | - | - | - | No | - | Connected to Little Mushamush Lake |
| Eden Lake | Pictou | St. Mary's River | St. Marys River | 45.401 | -62.299 | 16.5 | 223.4 | 1975, 2000-2002 | No | Yes | Alexander et al. 1986; Hasselman 2003; Murray 2005; Hasselman et al. 2009 |
| Annis Lake | Queens | Herring Cove/Medway | Medway River | 44.329 | -64.839 | 18 | 80 | - | No | - | Edge 1987; Edge et al. 1991 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Beavertail Basin* | Queens | Herring Cove/Medway | Medway River | 44.329 | -64.803 | 13.3 | - | - | No | - | Part of Molega Lake |
| Beavertail Lake* | Queens | Herring Cove/Medway | Medway River | 44.329 | -64.785 | 3 | - | - | No | - | Part of Molega Lake |
| Cameron / Beartrap lakes* | Queens | Herring Cove/Medway | Medway River | 44.320 | -64.945 | - | - | - | No | - | Connected to Little Ponhook Lake |
| Cobrielle (Coblielle) Lake | Queens | Mersey River | Mersey River | 44.310 | -65.230 | 6.3 | 131.8 | 1971-72 | No | ? | Kerekes 1975; Alexander et al. 1986 |
| Kejimkujik Lake | Queens | Mersey River | Mersey River | 44.383 | -65.250 | 19.2 | 2,435.0 | 1964 | Yes | ? | Veilleux 1964; Alexander et al 1986 |
| Little Ponhook Lake | Queens | Herring Cove/Medway | Medway River | 44.301 | -64.851 | 14.0 | 79.2 | 2001-2004 | No | Yes | Hasselman 2003, Bradford et al. 2004b; Murray 2005; Hasselman et al. 2003 |
| Minard Lake | Queens | Mersey River | Mersey River | 44.425 | -65.168 | 5.8 | 111.9 | 1974 | Yes | ? | Kerekes 1975; Alexander et al. 1986 |
| Mountain Lake | Queens | Mersey River | Mersey River | 44.316 | -65.260 | 14.3 | 136.6 | 1971-72 | No | ? | Kerekes 1975; Alexander et al. 1986 |
| Molega Lake* | Queens | Herring Cove/Medway | Medway River | 44.367 | -64.843 | 15 | 2085 | - | No | - | Connected to Shingle Lake |
| Peskowesk Lake | Queens | Mersey River | Mersey River | 44.316 | -65.283 | 13.0 | 685.0 | 1972 | No | - | Kerekes 1975; Alexander et al. 1986 |
| Ponhook Lake* | Queens | Herring Cove/Medway | Medway River | 44.313 | -64.898 | - | 1729.2 | - | No | - | Connected to Little Ponhook Lake |
| Salters Lake** | Queens | Herring Cove/Medway | Medway River | 44.229 | -64.676 | - | - | ~2000 | No | - | Angler report in Bradford et al. 2004b |
| St. Mary Bay (Ponhook Lake)* | Queens | Herring Cove/ Medway | Medway River | 44.328 | -64.938 | - | - | - | No | - | Connected to Little Ponhook Lake |
| Carleton River | Yarmouth | Tusket River | Tusket River | 44.113 | -65.914 | - | - | ~2003 | No | - | Hasselman 2003 |
| Kempt Back Lake | Yarmouth | Tusket River | Tusket River | 44.064 | -65.844 | 18.0 | 278.5 | 1986, 2002 | No | Yes | Bradford et al 2004b; Hasselman 2003; Murray 2005; Hasselman et al. 2009 |
| Lake George | Yarmouth | Tusket River | Salmon River | 43.995 | -66.044 | - | - | 1982-1983 | No | - | Edge 1987; Edge et al. 1991 |
| Mink Lake | Yarmouth | Tusket River | Tusket River | 44.010 | -65.891 | 16.0 | 145.0 | 1952, 1983, 1999, 2001-2002 | No | Yes | Bradford et al. 2004b; Hasselman 2003; Murray 2005; Hasselman et al. 2009 |
| Ogden Lake | Yarmouth | Tusket River | Tusket River | 44.049 | -65.902 | 19.9 | 297.3 | 2002 | No | - | Bradford et al. 2004b |
| Parr Lake | Yarmouth | Tusket River | Tusket River | 44.089 | -65.900 | 9.4 | 257.8 | 1986 | No | - | Bradford et al. 2004b |
| Petes Lake | Yarmouth | Tusket River | Tusket River | 44.076 | -65.890 | - | - | 2002 | No | - | Bradford et al. 2004b |
| Porcupine Lake | Yarmouth | Tusket River | Annis River | 43.845 | -66.032 | 12.2 | 147.0 | 2002 | No | - | Bradford et al. 2004b |

**Lake Name***Lakes directly connected to water where Lake Whitefish are verified, having a high likelihood of also containing Lake Whitefish
**Lake Name**** Lakes where lake Whitefish have been reported by unverified sources.
**Stocked***Lakes directly connected to waters where Lake Whitefish were stocked.

**Table 6:** Observation of Lake Whitefish (*Coregonus clupeaformis*) in the Province of New Brunswick including lake name, county, primary and secondary watershed, latitude, longitude, depth (m), surface area (ha), year of observation, ancestry (stocked or native) and data source. All water bodies connected to the Saint John River are assumed to have native whitefish populations. It is unknown whether Lake Whitefish population in most lakes persist following their last year of observation.

| lake Name | County | Primary Watershed | Secondary Watershed | latitude | Longitude | Depth (m) | Surface area (ha) | Whitefish observations | Stocked | Native | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Beechwood Dam | Carleton | Saint John River Basin | Muniac Stream Composite | 46.543 | -67.668 | - | - | 1958 | No* | Yes | Smith 1979 |
| Beechwood Headpond | Carleton | Saint John River Basin | Muniac Stream Composite | 46.615 | -67.712 | - | - | 1958 | No* | Yes | NB Power |
| Black's Harbour | Charlotte | West Fundy Composite | Pocologan River Composite | 45.054 | -66.800 | - | - | 1958 | No | - | Edge 1987 |
| Digdeguash Lake | Charlotte | West Fundy Composite | Magaguadavic River | 45.219 | -66.917 | 19.8 | 407.5 | 1993 | No | Yes | Saia 1995 |
| Kerr(s) Lake | Charlotte | West Fundy Composite | Bocabec River Composite | 45.217 | -67.023 | 12.0 | 73.0 | 1945-1950 | No | Yes | Smith 1952, Edge 1987 |
| Darling's Lake | Kings | Saint John River Basin | Kennebecasis River | 45.501 | -65.864 | 5 | 400.0 | 1851 | No* | Yes | Perley 1852 |
| Nerepis River | Kings | Saint John River Basin | Nerepis River | 45.378 | -66.259 | - | - | Pre-1852 | No* | Yes | Perley 1852 |
| Saint John River | Kings | Saint John River Basin | Black Brook Composite | 45.451 | -66.131 | - | - | Pre-1874 | No* | Yes | Lanman 1874 |
| Sherwood Lake | Kings | West Fundy Composite | Musquash River | 45.307 | -66.396 | - | - | 1973, 1998 | No | Yes | Atlantic Canada Conservation Data Center |
| Beau Lake | Madawaska | Saint John River Basin | Riviere Baker-Brook Composite | 47.299 | -69.050 | - | - | Pre-1914, 2024 | No | Yes | Kendall 1914, Author observation |
| First (Green) Lake | Madawaska | Saint John River Basin | Green River | 47.638 | -68.276 | 16.8 | 466.0 | 1972 | No | Yes | Meth 1973 |
| Glazier Lake | Madawaska | Saint John River Basin | Riviere Baker-Brook Composite | 47.233 | -69.011 | 35.9 | 453.2 | Pre-1907 | No | Yes | Evermann & Goldsborough 1907 |
| Green River (Davis Mill) | Madawaska | Saint John River Basin | Green River | 47.350 | -68.136 | - | - | Pre-1969 | No | Yes | Smith 1969 |
| Lac Baker (Baker Lake) | Madawaska | Saint John River Basin | Rivière Baker-Brook Composite | 47.368 | -68.699 | 35.7 | 564.1 | 1942 | No | - | Meth 1973, Edge 1987 |
| Madawaska River | Madawaska | Saint John River Basin | Madawaska River | 47.365 | -68.324 | - | - | Pre-1851 | No | Yes | Perley 1851, Lanman 1874 |
| Second Falls Head Pond (Green River Reservoir) | Madawaska | Saint John River Basin | Green River | 47.467 | -68.231 | - | - | Pre-1969, 1973 | No | Yes | Smith 1969; NBDNRED unpubl. data; Environment Canada 2002 |
| Third (Green) Lake | Madawaska | Saint John River Basin | Green River | 47.772 | -68.373 | 17.7 | 100.0 | 1939, 1983 | No | - | Meth 1973, Edge 1987, NBDNRED unpubl .data |
| Logan Lake | Northumberland | Miramichi River Basin | Northwest Miramichi | 47.093 | -66.706 | - | - | - | No | Yes | NBDNRED unpubl. data |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Serpentine Lake | Northumberland | Saint John River Basin | Tobique River | 47.130 | -66.863 | 24.4 | 495.3 | Pre-1973 | No | - | Meth 1973 |
| Belleisle Bay | Queens | Saint John River Basin | Belleisle Creek | 45.592 | -65.931 | 33.5 | - | Pre-1972 | No* | Yes | Meth 1972 |
| Grand Lake (Saint John River) | Queens | Saint John River Basin | Jemseg River | 45.957 | -66.033 | 30.5 | 18,135.0 | Pre-1851, 2017 | Yes | Yes | Perley 1851; Bernatchez and Dodson 1990, Author observation |
| Maquapit Lake | Queens | Saint John River Basin | Jemseg River | 45.907 | -66.194 | - | - | - | No* | Yes | Atlantic Canada Conservation Data Center |
| Saint John River | Queens | Saint John River Basin | Swan Creek Composite | 45.811 | -66.126 | - | - | Pre-1851 | No* | Yes | Perley 1851, Adams 1873 |
| Salmon River | Queens | Saint John River Basin | Jemseg river | 46.251 | -65.834 | - | - | 1969 | No* | Yes | Smith 1970 |
| Washademoak Lake | Queens | Saint John River Basin | Washademoak Creek | 45.776 | -65.994 | - | - | 1987 | No | Yes | NBDNRED unpubl. data |
| McDougall Lake | Restigouche | Restigouche River Basin | Kedgwick River | 47.907 | -67.726 | - | - | 1969, 2014 | No | - | NBDNRED unpubl. data |
| Saint John River | Saint John | Saint John River Basin | Grand Bay Composite | 45.268 | -66.068 | - | - | Pre-1874 | No* | Yes | Lanman 1874 |
| West Branch Reservoir (Halls Lake)* | Saint John | West Fundy Composite | Musquash River | 45.216 | -66.376 | - | - | - | No | - | Connected to West Branch (Musquash) Reservoir (South) |
| West Branch (Musquash) Reservoir (South) | Saint John | West Fundy Composite | Musquash River | 45.190 | -66.366 | - | - | 1972, 1973 | No | - | NBDNRED unpubl. data |
| Saint John River | Sunbury | Saint John River Basin | Swan Creek Composite | 45.881 | -66.523 | - | - | Pre-1851 | No* | Yes | Perley 1851, Meth 1872 |
| Long Lake | Victoria | Saint John River | Tobique River | 47.031 | -66.895 | 27.4 | 989.0 | 1973 | Yes | - | NBDNRED unpubl. data |
| Tobique River Lakes (undefined) | Carleton | Saint John River Basin | Tobique River | - | - | - | - | Pre-1873 | No* | Yes | Adams 1873 |
| Tobique River Reservoir | Victoria | Saint John River Basin | Tobique River | 46.795 | -67.677 | - | - | 1979 | Yes | Yes | NBDNRED unpubl. data |
| Trousers Lake | Victoria | Saint John River Basin | Tobique River | 47.011 | -66.959 | 18.3 | 1008.5 | 1964, 1972, 1983 | No | Yes | Meth 1973, Edge 1987, NBDNRED unpubl. data |
| East Grand Lake | York | St Croix River Basin | Forest City Stream | 45.737 | -67.798 | 36.6 | 6,503.3 | 1969, 1984, 2010 | No | Yes | Edge 1987; Bernatchez and Dodson 1990; Wood 2016 |
| Mactaquac Dam | York | Saint John River Basin | Indian Brook Composite | 45.955 | -66.865 | - | - | 1969 | No* | Yes | Smith 1970, Murray 2005 |
| Mactaquac Headpond | York | Saint John River Basin | Baker Brook Composite | 45.926 | -67.072 | - | - | Pre-1851, 1977 | No* | Yes | Perley 1851; NBDNRED upubl. data |
| Oromocto Lake | York | Saint John River Basin | Oromocto River | 45.585 | -67.010 | - | - | 1997 | No | Yes | NBDNRED unpubl. data |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oromocto River mouth | York | Saint John River Basin | Oromocto River | 45.851 | -66.481 | - | - | 1971 | No* | Yes | Meth 1972 |
| Palfrey Lake* | York | St Croix River Basin | Spednic Lake | 45.650 | -67.480 | - | - | - | No | Yes | Connected to Spednic Lake |
| Spednic Lake | York | St. Croix River Basin | Spednic Lake | 45.597 | -67.529 | 16.5 | 6,968.3 | 1972, 2007 | No | Yes | NBDNRED unpubl. data, Wood 2016 |
| Wauklahegan Lake | York | St. Croix River Basin | Spednic Lake | 45.606 | -67.369 | - | - | - | No | Yes | Atlantic Canada Conservation Data Center |

**Lake Name***Lakes directly connected to water where Lake Whitefish are verified, having a high likelihood of also containing Lake Whitefish

-Tobique River Lakes are not defined, but likely include Trousers Lake and Long Lake, Victoria County and Serpentine Lake, Northumberland County, but could include other attached basins.
-McDougall Lake and the possible occurrence in Logan Lake (NBDNRED unpubl. data) in the River Basin of the Northwest Miramichi are the only locations to support Lake Whitefish in NB that do not drain to the Atlantic Ocean.

**Table 7:** Lake Whitefish (*Coregonus clupeaformis*) captured in the fish lift of the Beechwood Dam on the Saint John River, New Brunswick. The Beechwood Dam was completed in 1957 following which a small number of Lake Whitefish were reported annually until the year 2000 when catches declined to zero. Catches are listed by month within the operational period of the fish lift each year alongside a catch per unit effort of fish/day and the information source when data is available.

| Year | Start of Operation | May | June | July | Aug | Sept | Oct | Nov | End of Operation | Total Days | Total Whitefish | CPUE | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1957 | 14-Jun | - | 0 | 0 | 0 | 0 | 0 | 0 | 30-Nov | 153 | 0 | 0.00 | Smith 1979 |
| 1958 | 01-Jun | - | 0 | 0 | 0 | 0 | 1 | 0 | 21-Nov | 173 | 1 | 0.01 | Smith 1979 |
| 1959 | 20-May | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 23-Nov | 187 | 2 | 0.01 | Smith 1979 |
| 1960 | 20-May | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 22-Nov | 186 | 3 | 0.02 | Smith 1979, Ingram 1960 |
| 1961 | 12-Jun | - | 0 | 0 | 0 | 0 | 2 | 1 | 21-Nov | 162 | 3 | 0.02 | Smith 1979, Ingram 1961 |
| 1962 | 02-Jun | - | 1 | 0 | 0 | 0 | 10 | 0 | 12-Nov | 163 | 11 | 0.07 | Smith 1979, Ingram 1962 |
| 1963 | 30-May | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 19-Nov | 173 | 4 | 0.02 | Smith 1979, Ingram 1963 |
| 1964 | 21-May | 0 | 3 | 0 | 0 | 8 | 6 | 0 | 25-Nov | 188 | 17 | 0.09 | Smith 1979 |
| 1965 | 17-May | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 17-Nov | 184 | 2 | 0.01 | Smith 1979 |
| 1966 | 26-May | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 14-Nov | 172 | 2 | 0.01 | Smith 1979 |
| 1967 | 02-Jun | - | 0 | 0 | 0 | 0 | 0 | 0 | 20-Nov | 171 | 0 | 0.00 | Smith 1979 |
| 1968 | 15-May | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 18-Nov | 187 | 2 | 0.01 | Smith 1979 |
| 1969 | 05-Jun | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 04-Nov | 152 | 0 | 0.00 | Smith 1979 |
| 1970 | 02-Jun | - | 0 | 0 | 0 | 0 | 0 | 0 | 12-Nov | 163 | 0 | 0.00 | Smith 1979 |
| 1971 | 01-Jun | - | 0 | 0 | 1 | 2 | 0 | 0 | 08-Nov | 160 | 3 | 0.02 | Smith 1979 |
| 1972 | 16-May | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 31-Oct | 168 | 1 | 0.01 | Ingram 1981 |
| 1973 | 16-May | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31-Oct | 168 | 0 | 0.00 | Ingram 1981 |
| 1974 | 16-May | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31-Oct | 168 | 0 | 0.00 | Ingram 1981 |
| 1975 | No Data | | | | | | | | | - | - | - | Ingram 1981 |
| 1976 | 16-May | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 31-Oct | 168 | 4 | 0.02 | Ingram 1981 |
| 1977 | 20-Jun | - | 0 | 0 | 1 | 1 | 0 | 0 | 03-Nov | 136 | 2 | 0.01 | Ingram 1987 |
| 1978 | 12-Jun | - | 0 | 2 | 0 | 2 | 0 | - | 31-Oct | 141 | 5 | 0.04 | Ingram 1987 |
| 1979 | 14-Jun | - | 2 | 1 | 0 | 1 | 0 | 0 | 01-Nov | 140 | 4 | 0.03 | Ingram 1987 |
| 1980 | 10-Jun | - | 1 | 0 | 1 | 1 | 0 | 0 | 04-Nov | 147 | 3 | 0.02 | Ingram 1987 |
| 1981 | 10-Jun | - | 0 | 0 | 0 | 0 | 1 | 0 | 11-Nov | 154 | 1 | 0.01 | Ingram 1987 |
| 1982 | 14-Jun | - | 0 | 0 | 0 | 0 | 3 | 0 | 03-Nov | 142 | 3 | 0.02 | Ingram 1987 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1983 | 30-Jun | | | | | | | | 27-Oct | 119 | - | - | - | |
| 1984 | 03-Jul | | | | | | | | 29-Oct | 118 | - | - | - | |
| 1985 | 25-Jun | | | | | | | | 30-Oct | 127 | - | - | - | |
| 1986 | 30-Jun | | | | No Whitefish Data | | | | 16-Oct | 108 | - | - | - | |
| 1987 | 02-Jun | | | | | | | | 30-Oct | 150 | - | - | - | |
| 1988 | 28-Jun | | | | | | | | 31-Oct | 125 | - | - | - | |
| 1989 | 28-Jun | | | | | | | | 30-Oct | 124 | - | - | - | |
| 1990 | 21-Jun | - | 0 | 0 | 0 | 0 | 0 | - | 09-Oct | 110 | 0 | 0.00 | Beaumaster et al 2020 | |
| 1991 | 24-Jun | - | 0 | 0 | 0 | 0 | 0 | - | 17-Oct | 115 | 0 | 0.00 | Beaumaster et al 2020 | |
| 1992 | 06-Jul | - | - | 0 | 0 | 0 | 0 | - | 07-Oct | 93 | 0 | 0.00 | Beaumaster et al 2020 | |
| 1993 | 12-Jul | - | - | 0 | 0 | 0 | 0 | - | 18-Oct | 98 | 0 | 0.00 | Beaumaster et al 2020 | |
| 1994 | 18-Jul | - | - | 0 | 0 | 0 | 0 | 0 | 10-Nov | 115 | 0 | 0.00 | Beaumaster et al 2020 | |
| 1995 | 26-Jul | - | - | 5 | 0 | 0 | 0 | - | 27-Oct | 93 | 5 | 0.05 | Beaumaster et al 2020 | |
| 1996 | 24-Jul | - | - | 0 | 0 | 0 | 0 | 0 | 05-Nov | 104 | 0 | 0.00 | Beaumaster et al 2020 | |
| 1997 | 24-Jul | - | - | 0 | 0 | 0 | 0 | - | 30-Oct | 98 | 0 | 0.00 | Beaumaster et al 2020 | |
| 1998 | 30-Jun | - | 0 | 0 | 0 | 2 | 0 | - | 30-Oct | 122 | 2 | 0.02 | Beaumaster et al 2020 | |
| 1999 | 22-Jun | - | 0 | 1 | 0 | 0 | 0 | 0 | 03-Nov | 134 | 1 | 0.01 | Beaumaster et al 2020 | |
| 2000 | 15-Jul | - | - | 0 | 0 | 0 | 0 | 0 | 14-Nov | 122 | 0 | 0.00 | Beaumaster et al 2020 | |
| 2001 | 28-Jun | - | 0 | 0 | 0 | 0 | 0 | 0 | 07-Nov | 132 | 0 | 0.00 | Beaumaster et al 2020 | |
| 2002 | 16-Jul | - | - | 0 | 0 | 0 | 0 | 0 | 06-Nov | 113 | 0 | 0.00 | Beaumaster et al 2020 | |
| 2003 | 11-Jul | - | - | 0 | 0 | 0 | 0 | 0 | 13-Nov | 125 | 0 | 0.00 | Beaumaster et al 2020 | |
| 2004 | 30-Jun | - | 0 | 0 | 0 | 0 | 0 | 0 | 10-Nov | 133 | 0 | 0.00 | Beaumaster et al 2020 | |
| 2005 | 08-Jul | - | - | 0 | 0 | 0 | 0 | - | 08-Oct | 92 | 0 | 0.00 | Beaumaster et al 2020 | |
| 2006 | 05-Jul | - | - | 0 | 0 | 0 | 0 | 0 | 06-Nov | 124 | 0 | 0.00 | Beaumaster et al 2020 | |
| 2007 | 05-Jul | - | - | 0 | 0 | 0 | 0 | 0 | 01-Nov | 119 | 0 | 0.00 | Beaumaster et al 2020 | |
| 2008 | 09-Jul | - | - | 0 | 0 | 0 | 0 | - | 27-Oct | 110 | 0 | 0.00 | Beaumaster et al 2020 | |
| 2009 | 23-Jun | - | 0 | 0 | 0 | 0 | 0 | 0 | 06-Nov | 136 | 0 | 0.00 | Beaumaster et al 2020 | |
| 2010 | 23-Sep | - | - | - | - | 0 | 0 | 0 | 03-Nov | 41 | 0 | 0.00 | Beaumaster et al 2020 | |
| 2011 | 13-Jun | - | 0 | 0 | 0 | 0 | 0 | - | 31-Oct | 140 | 0 | 0.00 | Beaumaster et al 2020 | |
| 2012 | 10-Jul | - | - | 0 | 0 | 0 | 0 | 0 | 05-Nov | 118 | 0 | 0.00 | Beaumaster et al 2020 | |
| 2013 | 17-Jul | - | - | 0 | 0 | 0 | 0 | - | 24-Oct | 99 | 0 | 0.00 | Beaumaster et al 2020 | |
| 2014 | 21-Jul | - | - | 0 | 0 | 0 | 0 | - | 30-Oct | 101 | 0 | 0.00 | Beaumaster et al 2020 | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 09-Jul | - | - | 0 | 0 | 0 | 0 | 0 | 15-Nov | 129 | 0 | 0.00 | Beaumaster et al 2020 |
| 2016 | 04-Jul | - | - | 0 | 0 | 0 | 0 | 0 | 15-Nov | 134 | 0 | 0.00 | Beaumaster et al 2020 |
| 2017 | 28-Jun | - | 0 | 0 | 0 | 0 | 0 | 0 | 29-Nov | 154 | 0 | 0.00 | Beaumaster et al 2020 |
| 2018 | 15-Jun | - | 0 | 0 | 0 | 0 | 0 | 0 | 19-Nov | 157 | 0 | 0.00 | Beaumaster et al 2020 |
| 2019 | 09-Jul | - | - | 0 | 0 | 0 | 0 | - | 28-Oct | 111 | 0 | 0.00 | Beaumaster et al 2020 |
| 2020 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2021 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2022 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2023 | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Table 8:** Lake Whitefish (*Coregonus clupeaformis*) recorded in the fish lift of the Mactaquac Dam on the Saint John River, New Brunswick. The Mactaquac Dam was completed in 1968 following which catches of Lake Whitefish that arrived during their upstream spawning migration in October and November rapidly declined. While the arrival of this species was noted in the fish lift, there are no accounts that the captured whitefish were transported upstream of the dam in the fish lift. Spawning tributaries that likely occurred upstream were almost certainly impacted from flooding of the Mactaquac Headpond where the water level was increased by 40 m.

| Year | Start of operation | May | June | July | Aug | Sept | Oct | Nov | End of Operation | Total Days | Total Whitefish | CPUE | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1968 | 14-May | 0 | 0 | 0 | 2 | 16 | 1,264 | 1,158 | 21-Nov | 191 | 2440 | 12.77 | Smith 1979 |
| 1969 | 16-May | 0 | 0 | 0 | 0 | 1 | 319 | 842 | 25-Nov | 193 | 1162 | 6.02 | Smith 1979 |
| 1970 | 20-May | 0 | 0 | 0 | 0 | 0 | 439 | 136 | 18-Nov | 182 | 575 | 3.16 | Smith 1979 |
| 1971 | 22-May | 0 | 0 | 0 | 0 | 0 | 5 | 10 | 16-Nov | 178 | 15 | 0.08 | Smith 1979 |
| 1972 | 21-May | 0 | 0 | 0 | 0 | 0 | 15 | 2 | 17-Nov | 180 | 17 | 0.09 | Ingram 1980 |
| 1973 | 17-May | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 15-Nov | 182 | 3 | 0.02 | Ingram 1980 |
| 1974 | 21-May | 0 | 0 | 0 | 0 | 1 | 44 | 25 | 13-Nov | 176 | 70 | 0.40 | Ingram 1980 |
| 1975 | 20-May | 0 | 0 | 0 | 0 | 0 | 74 | 39 | 14-Nov | 178 | 113 | 0.63 | Ingram 1980 |
| 1976 | 13-May | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 29-Nov | 200 | 5 | 0.03 | Ingram 1980 |
| 1977 | 16-May | 0 | 0 | 0 | 0 | 0 | 18 | - | 31-Oct | 168 | 18 | 0.11 | Ingram 1985 |
| 1978 | 16-May | 0 | 0 | 0 | 0 | 0 | 90 | - | 31-Oct | 168 | 90 | 0.54 | Ingram 1985 |
| 1979 | 16-May | 0 | 0 | 0 | 0 | 0 | 184 | - | 31-Oct | 168 | 184 | 1.10 | Ingram 1985 |
| 1980 | 16-May | 0 | 0 | 0 | 0 | 0 | 17 | - | 31-Oct | 168 | 17 | 0.10 | Ingram 1985 |
| 1981 | 16-May | 0 | 0 | 0 | 0 | 0 | 5 | - | 31-Oct | 168 | 5 | 0.03 | Ingram 1985 |
| 1982 | 16-May | 0 | 0 | 0 | 0 | 0 | 49 | - | 31-Oct | 168 | 49 | 0.29 | Ingram 1985 |
| 1983 | 16-May | 0 | 0 | 0 | 0 | 0 | 0 | - | 30-Oct | 167 | 0 | 0.00 | Ingram 1990 |
| 1984 | 16-May | 0 | 0 | 0 | 0 | 5 | 12 | - | 30-Oct | 167 | 17 | 0.10 | Ingram 1990 |
| 1985 | 16-May | 0 | 0 | 0 | 0 | 0 | 17 | - | 30-Oct | 167 | 17 | 0.10 | Ingram 1990 |
| 1986 | 01-May | 0 | 0 | 0 | 0 | 0 | 67 | - | 30-Oct | 182 | 67 | 0.37 | Ingram 1990 |
| 1987 | 01-May | 0 | 0 | 0 | 0 | 0 | 68 | - | 30-Oct | 182 | 68 | 0.37 | Ingram 1990 |
| 1988 | 01-May | 0 | 0 | 0 | 0 | 0 | 14 | - | 30-Oct | 182 | 14 | 0.08 | Ingram 1990 |
| 1989 | 04-Jun | - | 0 | 0 | 0 | 1 | 6 | - | 18-Oct | 136 | 7 | 0.05 | MGS Fishway unpubl data |
| 1990 | 14-May | 0 | 0 | 0 | 0 | 0 | 3 | - | 25-Oct | 164 | 3 | 0.02 | MGS Fishway unpubl data |
| 1991 | 01-Jun | - | 0 | 0 | 1 | 0 | 16 | - | 28-Oct | 149 | 17 | 0.11 | MGS Fishway unpubl data |
| 1992 | 24-May | 0 | 0 | 0 | 0 | 0 | 64 | - | 26-Oct | 135 | 64 | 0.47 | MGS Fishway unpubl data |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 | 10-May | 0 | 0 | 0 | 0 | 0 | - | - | 29-Sep | 142 | 0 | 0.00 | MGS Fishway unpubl data |
| 1994 | 03-Jun | - | 0 | 0 | 0 | 0 | 613 | - | 25-Oct | 144 | 613 | 4.26 | MGS Fishway unpubl data |
| 1995 | 29-May | 0 | 0 | 0 | 0 | 0 | 16 | - | 26-Oct | 150 | 16 | 0.11 | MGS Fishway unpubl data |
| 1996 | 27-May | 0 | 0 | 0 | 0 | 0 | 1 | - | 11-Oct | 137 | 1 | 0.01 | MGS Fishway unpubl data |
| 1997 | 18-Jun | - | 0 | 0 | 0 | 0 | 0 | - | 23-Oct | 127 | 0 | 0.00 | MGS Fishway unpubl data |
| 1998 | 19-May | 0 | 0 | 0 | 0 | 0 | 2 | - | 26-Oct | 160 | 2 | 0.01 | MGS Fishway unpubl data |
| 1999 | 10-May | 0 | 0 | 0 | 0 | 0 | 14 | - | 25-Oct | 168 | 14 | 0.08 | MGS Fishway unpubl data |
| 2000 | 20-May | 0 | 0 | 0 | 0 | 0 | 12 | - | 26-Oct | 159 | 12 | 0.08 | MGS Fishway unpubl data |
| 2001 | 18-May | 0 | 0 | 0 | 0 | 0 | 3 | - | 31-Oct | 166 | 3 | 0.02 | MGS Fishway unpubl data |
| 2002 | 18-May | 0 | 0 | 0 | 0 | 0 | 5 | - | 31-Oct | 166 | 5 | 0.03 | MGS Fishway unpubl data |
| 2003 | 22-May | 0 | 0 | 0 | 0 | 0 | 0 | - | 20-Oct | 151 | 0 | 0.00 | MGS Fishway unpubl data |
| 2004 | 21-Jun | - | 0 | 0 | 0 | 0 | 1 | - | 21-Oct | 122 | 1 | 0.01 | MGS Fishway unpubl data |
| 2005 | 20-May | 0 | 0 | 0 | 0 | 0 | 0 | - | 13-Oct | 146 | 0 | 0.00 | MGS Fishway unpubl data |
| 2006 | 16-May | 0 | 0 | 0 | 0 | 0 | 0 | - | 26-Oct | 163 | 0 | 0.00 | MGS Fishway unpubl data |
| 2007 | 23-May | 0 | 0 | 0 | 0 | 0 | 0 | - | 19-Oct | 149 | 0 | 0.00 | MGS Fishway unpubl data |
| 2008 | No Data | | | | | | | | | | - | - | MGS Fishway unpubl data |
| 2009 | 16-May | 0 | 0 | 0 | 0 | 0 | 0 | - | 09-Oct | 146 | 0 | 0.00 | MGS Fishway unpubl data |
| 2010 | 04-May | 0 | 0 | 0 | 0 | 0 | 0 | - | 04-Oct | 153 | 0 | 0.00 | MGS Fishway unpubl data |
| 2011 | 25-May | 0 | 0 | 0 | - | - | - | - | 26-Jul | 62 | 0 | 0.00 | MGS Fishway unpubl data |
| 2012 | 14-May | 0 | 0 | 0 | 0 | 0 | 0 | - | 16-Oct | 155 | 0 | 0.00 | MGS Fishway unpubl data |
| 2013 | 10-May | 0 | 0 | 0 | 0 | 0 | 0 | - | 09-Oct | 152 | 0 | 0.00 | MGS Fishway unpubl data |
| 2014 | 17-May | 0 | 0 | 0 | 0 | 0 | 0 | - | 24-Oct | 160 | 0 | 0.00 | MGS Fishway unpubl data |
| 2015 | 11-May | 0 | 0 | 0 | 0 | 0 | 0 | - | 22-Oct | 164 | 0 | 0.00 | MGS Fishway unpubl data |
| 2016 | 13-May | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07-Nov | 178 | 0 | 0.00 | MGS Fishway unpubl data |
| 2017 | 18-May | 0 | 0 | 0 | 0 | 0 | 0 | - | 27-Oct | 162 | 0 | 0.00 | MGS Fishway unpubl data |
| 2018 | 19-May | 0 | 0 | 0 | 0 | 0 | 0 | - | 29-Oct | 163 | 0 | 0.00 | MGS Fishway unpubl data |
| 2019 | 16-May | 0 | 0 | 0 | 0 | 0 | 0 | - | 15-Oct | 152 | 0 | 0.00 | MGS Fishway unpubl data |
| 2020 | 15-May | 0 | 0 | 0 | 0 | 0 | 0 | - | 20-Oct | 158 | 0 | 0.00 | MGS Fishway unpubl data |
| 2021 | 17-May | 0 | 0 | 0 | 0 | 0 | 0 | - | 20-Oct | 156 | 0 | 0.00 | MGS Fishway unpubl data |
| 2022 | 19-May | 0 | 0 | 0 | 0 | 0 | 0 | - | 28-Oct | 162 | 0 | 0.00 | MGS Fishway unpubl data |
| 2023 | 12-May | - | - | - | - | - | - | - | 20-Oct | 161 | 0 | 0.00 | MGS Fishway unpubl data |

**Table 9:** Summary of Brook Trout (*Salvelinus fontinalis*; BT) and Rainbow Trout (*Oncorhynchus mykiss*; RT) stocking in water bodies where Lake Whitefish (*Coregonus clupeaformis*) are confirmed or suspected (*) in the province of Nova Scotia. Suspected lakes are those directly connected to lakes supporting confirmed population of Lake Whitefish. Provincial stocking years extend from 1976 until present as recoded by the Nova Scotia Department of Inland Fisheries and Aquaculture and correspond to when stocking was taken over by the province of Nova Scotia from the Federal Government, though stocking in many locations occurred long prior to this time. Data displayed includes water body name, county, first and last year stocked, number of years stocked, total number stocked and species. The presence of invasive Smallmouth Bass (*Micropterus dolomieu*) and Chain Pickerel (*Esox niger*) in listed lakes is also reported from provincial records.

| Water Body Name | County | First year stocked | Last year stocked | # of years stocked | Total Stocked | Species | Smallmouth Bass | Year reported | Chain Pickerel | Year Reported |
|---|---|---|---|---|---|---|---|---|---|---|
| Boot Lake | Annapolis | 1976 | 2020 | 25 | 53,964 | BT | - | - | - | - |
| Eleven Mile Lake | Annapolis | - | - | - | - | - | - | - | - | - |
| Fisher Lake | Annapolis | 1976 | 1978 | 3 | 3,263 | BT | - | - | - | - |
| Geier Lake* | Annapolis | - | - | - | - | - | - | - | - | - |
| Milford (Pits/Pitts) Lake | Annapolis | 1977 | 2012 | 3 | 2,801 | BT | - | - | - | - |
| Liverpool Head Lake | Annapolis | - | - | - | - | - | - | - | - | - |
| Grand Lake | Cape Breton | 1977 | 2021 | 19 | 50,500 | BT, RT | - | - | - | - |
| MacIntyres Lake | Cape Breton | 1983 | 2018 | 12 | 29,031 | BT | - | - | - | - |
| MacLeods Lake | Cape Breton | 2013 | 2013 | 1 | 900 | BT | - | - | - | - |
| Mira River | Cape Breton | - | - | - | - | - | - | - | - | - |
| Salmon River | Cape Breton | 2009 | 2009 | 1 | 3,840 | BT | - | - | - | - |
| Eight Island Lake* | Guysborough | 2018 | 2018 | 1 | 2,333 | BT | - | - | - | - |
| G Lake | Guysborough | - | - | - | - | - | - | - | - | - |
| Narrow Lake | Guysborough | 1977 | 2021 | 25 | 89,426 | BT | - | - | - | - |
| Pringle Lake | Guysborough | 1976 | 2021 | 11 | 23,941 | BT | - | - | - | - |
| Big Shaw Lake | Halifax | - | - | - | - | - | - | - | - | - |
| Chezzetcook Lake | Halifax | 1981 | 2008 | 6 | 11,672 | BT | Present | 2012 | - | - |
| Conrod Lake | Halifax | 1979 | 2017 | 33 | 146,933 | BT | Present | 2012 | - | - |
| Gibraltar Lake | Halifax | - | - | - | - | - | - | - | - | - |
| Long Bridge Lake | Halifax | 1979 | 2017 | 29 | 101,513 | BT | Present | 2012 | - | - |
| Moose Lake* | Halifax | - | - | - | - | - | - | - | - | - |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Morris Lake* | Halifax | 1987 | 2021 | 18 | 31,491 | BT | Present | 1975 | Present | 2000 |
| Petepeswick Lake* | Halifax | 1981 | 2017 | 26 | 78,855 | BT | Present | 2012 | - | - |
| Paces Lake* | Halifax | 1984 | 2019 | 27 | 103,208 | BT | - | - | - | - |
| Scots (Scott) Lake/ Scotch Pond | Halifax | 1998 | 2019 | 15 | 39,877 | BT | - | - | - | - |
| Thompson Lake * | Halifax | 1993 | 1996 | 3 | 1,483 | BT | - | - | - | - |
| Big Mushamush Lake | Lunenburg | 1976 | 1977 | 2 | 1,199 | BT | Present | 1994 | - | - |
| Caribou Lake | Lunenburg | 1976 | 2013 | 23 | 130,611 | BT | Present | 2005 | - | - |
| Little Mushamush Lake | Lunenburg | 1976 | 2012 | 20 | 83,887 | BT | Present | 1999 | - | - |
| Shingle Lake | Lunenburg | - | - | - | - | - | Present | 1995 | - | - |
| Sucker Lake | Lunenburg | 1990 | 2021 | 31 | 132,528 | BT, RT | Present | 1996 | - | - |
| West Whale Lake* | Lunenburg | - | - | - | - | - | - | - | - | - |
| Whale Lake* | Lunenburg | - | - | - | - | - | - | - | - | - |
| Eden Lake | Pictou | 1976 | 2021 | 42 | 174,672 | BT | - | - | - | - |
| Annis Lake | Queens | 1976 | 2001 | 19 | 82,842 | BT | Present | 2001 | - | - |
| Beavertail Basin* | Queens | 1984 | 1999 | 8 | 43,101 | BT | Present | 2001 | - | - |
| Beavertail Lake* | Queens | 1984 | 1999 | 8 | Beavertail Basin | BT | Present | 2001 | - | - |
| Cameron / Beartrap lakes* | Queens | 1976 | 2021 | 12 | See Ponhook | BT | Present | 1995 | - | - |
| Cobrielle (Cobrielle) Lake | Queens | - | - | - | - | - | - | - | Present | 2023 |
| Kejimkujik Lake | Queens | - | - | - | - | - | - | - | Present | 2018 |
| Little Ponhook Lake | Queens | 1977 | 2016 | 19 | 38,144 | BT | Present | 2001 | - | - |
| Minard Lake | Queens | 1976 | 1977 | 2 | 883 | BT | - | - | - | - |
| Mountain Lake | Queens | - | - | - | - | - | - | - | Present | 2023 |
| Molega Lake* | Queens | 1976 | 2021 | 14 | 75,335 | BT | Yes | 2001 | - | - |
| Peskowesk Lake | Queens | - | - | - | - | - | - | - | Present | 2018 |
| Ponhook Lake * | Queens | 1976 | 2021 | 12 | 20,320 | BT | Yes | 1995 | - | - |
| Salters Lake* | Queens | 1984 | 1984 | 1 | 1,001 | BT | - | - | - | - |
| St. Mary Bay (Ponhook Lake)* | Queens | 1976 | 2021 | 12 | See Ponhook | BT | Yes | 1995 | - | - |
| Carleton River | Yarmouth | - | - | - | - | - | Yes | 1994 | - | - |
| Kempt Back Lake | Yarmouth | 1976 | 1998 | 9 | 49,225 | BT | Yes | 1998 | - | - |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Lake George | Yarmouth | - | - | - | - | - | Yes | 2001 | - | - |
| Mink Lake | Yarmouth | 1976 | 2009 | 22 | 48,993 | BT | Yes | 1994 | - | - |
| Ogden Lake | Yarmouth | 1976 | 1995 | 9 | 9,999 | BT | Yes | 1989 | - | - |
| Parr Lake | Yarmouth | 1976 | 1977 | 2 | 1,853 | BT | Yes | 1989 | - | - |
| Petes Lake | Yarmouth | - | - | - | - | - | Yes | 1989 | - | - |
| Porcupine Lake | Yarmouth | - | - | - | - | - | - | - | Present | 1977 |

MacIntyres Lake: Rainbow Trout stocking constitutes 2,544 of the total number of trout introduced.
Sucker Lake: Rainbow Trout stocking constitutes 117,804 of the total number of trout introduced.

**Table 10:** Summary of Brook Trout (*Salvelinus fontinalis*; BT) stocking in water bodies where Lake Whitefish (*Coregonus clupeaformis*) are confirmed or suspected (*) in the province of New Brunswick. Brook Trout stocking in many locations was initiated by the Department of Marine and Fisheries in the late 1800s, but only stocking conducted by the province from 1976 – 2015 and recoded by the New Brunswick Department of Natural Resources and Energy Development is reported. Displayed data includes water body name, county, first and last year stocked, number of years stocked, total number stocked and species. No Rainbow Trout (*Oncorhynchus mykiss*) were documented to have been stocked in these waterbodies during the listed period, however, escaped Rainbow Trout now occur and reproduce in the Mactaquac and Beechwood headponds. Splake, a hybrid between a Brook Trout and Lake Trout (*Salvelinus namaycush*) and Brook Trout x Arctic Char (*Salvelinus alpinus*) were stocked in Grand Lake, Queens County and both Oromocto Lake and Grand Lake Queens County have also been supplemented with Landlocked Salmon.

| Lake Name | County | First Year Stocked | Last Year Stocked | Number of Years Stocked | Total Stocked | Species | Chain Pickerel | Smallmouth Bass |
|---|---|---|---|---|---|---|---|---|
| Beechwood Dam | Carleton | - | - | - | - | - | Present | Present |
| Beechwood Headpond | Carleton | - | - | - | - | - | Present | Present |
| Black's Harbour | Charlotte | - | - | - | - | - | | |
| Digdeguash Lake | Charlotte | - | - | - | - | - | Present | Present |
| Kerr(s) Lake | Charlotte | - | - | - | - | - | | |
| Darling's Lake | Kings | - | - | - | - | - | Present | Present |
| Nerepis River | Kings | - | - | - | - | - | Present | Present |
| Saint John River | Kings | - | - | - | - | - | Present | Present |
| Sherwood Lake | Kings | - | - | - | - | | | |
| Beau Lake | Madawaska | - | - | - | - | - | | |
| First (Green) Lake | Madawaska | 1976 | 2001 | 15 | 50,648 | Brook Trout | | |
| Glazier Lake | Madawaska | 1987 | 2007 | 4 | 8,850 | Brook Trout | | |
| Green River (Davis Mill) | Madawaska | - | - | - | - | - | | |
| Lac Baker (Baker Lake) | Madawaska | 1979 | 2023 | 28 | 185,500 | Brook Trout | | |
| Madawaska River | Madawaska | - | - | - | - | - | | |
| Second Falls Head Pond (Green River Reservoir) | Madawaska | - | - | - | - | - | | |
| Third (Green) Lake | Madawaska | 1987 | 2003 | 6 | 13,836 | Brook Trout | | |
| Logan Lake | Northumberland | - | - | - | - | | | |
| Serpentine Lake | Northumberland | 1980 | 2015 | 15 | 94,561 | Brook Trout | | |
| Belleisle Bay | Queens | - | - | - | - | - | Present | Present |
| Grand Lake (Saint John River) | Queens | 1977 | 1989 | 4 | 37,113 | Brook Trout | Present | Present |
| Maquapit Lake | Queens | - | - | - | - | | Present | Present |
| Saint John River | Queens | - | - | - | - | - | Present | Present |
| Salmon River | Queens | - | - | - | - | - | Present | Present |
| Washademoak Lake | Queens | - | - | - | - | - | Present | Present |
| McDougall Lake | Restigouche | 2000 | 2023 | 18 | 38,730 | Brook Trout | | |
| Saint John River | Saint John | - | - | - | - | - | Present | Present |
| West Branch Reservoir (Halls Lake)* | Saint John | 1976 | 1980 | 5 | 21,351 | Brook Trout | Present | Present |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| West Branch (Musquash) Reservoir (South) | Saint John | - | - | - | - | - | Present | Present |
| Saint John River | Sunbury | - | - | - | - | - | Present | Present |
| Long Lake | Victoria | - | - | - | - | - | | |
| Tobique River Lakes (undefined) | Carleton | - | - | - | - | - | | |
| Tobique River Reservoir | Victoria | - | - | | - | - | | Present |
| Trousers Lake | Victoria | 1976 | 2000 | 12 | 32,323 | Brook Trout | | |
| East Grand Lake | York | - | - | - | - | - | Present | Present |
| Mactaquac Dam | York | - | - | - | - | - | Present | Present |
| Mactaquac Headpond | York | 1978 | 1990 | 10 | 53,068 | Brook Trout | Present | Present |
| Oromocto Lake | York | 1976 | 1978 | 3 | 24,755 | Brook Trout | Present | Present |
| Oromocto River mouth | York | - | - | - | - | - | Present | Present |
| Palfrey Lake* | York | - | - | - | - | - | Present | Present |
| Spednic Lake | York | - | - | - | - | - | Present | Present |
| Wauklahegan Lake | York | - | - | - | - | | | |

The precise identity of the "Tobique River Lakes" is not defined but likely include Trousers Lake, Long Lake, and Serpentine Lake
**Lake Name***Lakes directly connected to water where Lake Whitefish are verified, having a high likelihood of also containing Lake Whitefish