

# Archaeological Records of the Extinct Sea Mink, *Mustela macrodon* (Carnivora: Mustelidae), from Canada

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The extinct Sea Mink, *Mustela macrodon*, is reported from bones found in prehistoric archaeological sites in southern New Brunswick. The former range of this species, based on historical records and archaeological remains, is considered to have included coastal Maine, coastal New England as far south as Massachusetts, the southern coasts of the Maritime Provinces, and possibly Newfoundland. The association of some Sea Mink bones reported here with flaked lithic materials from geological sources in Maine suggests the bones were brought to New Brunswick by Native people, rather than representing a population of Sea Mink living on the New Brunswick coast in the past.

Key Words: Sea Mink, *Mustela macrodon*, Quoddy region, Weir site, New Brunswick, Late Woodland period, Native exchange systems.

Prentiss (1903) based the first description of the Sea Mink, *Mustela macrodon*, on bones from an archaeological site at Brooklin, Maine, and archaeological remains continue to be the main source of information about this enigmatic and controversial species (see Figure 1 for locations of places referred to in the text). A. E. Spiess (1996: personal communication) and colleagues are currently preparing a detailed analysis of the species based on bones from sites in Maine. As Youngman (1989) pointed out in response to Campbell (1988), a decade ago there were no verified Canadian records of the Sea Mink. Here we report the first Sea Mink bones found at Canadian archaeological sites and consider their implications.

The Sea Mink bones reported here, from the Weir site (BgDq6), were collected during an archaeological project (Black 1987, 1992) studying the prehistoric and historic human ecology of the Quoddy region. Black recovered the bones during excavations in 1993. Reading analyzed the faunal remains from these excavations under Savage's supervision; Savage and Reading identified the bones as those of *Mustela macrodon* in 1994 (Illingworth-Cooper 1994; Reading 1994\*). In addition, we refer to the only other Sea Mink bone reported from a Canadian archaeological site: a calcined fragment of a left mandible recovered from the Mud Lake Stream site (BkDw5) by M. Deal (1985: 50), and identified by A. E. Spiess as *M. macrodon* in 1990 (Deal, Morton and Foulkes 1991: 183).

\*see Documents Cited between Acknowledgments and Literature Cited.

## The Sea Mink

The Sea Mink has been reported as having become extinct as long ago as 1860 (Hardy 1903) and as recently as 1920 (Dilworth 1984: 182). A mink reported to have been caught on Campobello Island, New Brunswick, in 1894 (Wright 1962) and preserved as a mounted specimen (Norton 1930), has been both accepted (Banfield 1974: 332; Campbell 1988) and rejected (Manville 1966: 7; Youngman 1989) as an example of the Sea Mink. Most mammalogists (Peterson 1966: 250; Banfield 1974: 332; Hall 1981: 1004) accept the validity of *Mustela macrodon* (Prentiss) as a distinct species. However, Squires (1968: 41) considered it was "probably only a variety of common mink [*Mustela vison*]" and Manville (1966: 10) concluded it was a subspecies of Mink, designating it *Mustela vison macrodon*.

The size of the Sea Mink has been estimated as double that of the Mink (*Mustela vison* Schreber) by Banfield (1974: 332) and 20-25% larger than the Mink by Loomis (1911: 227). The Sea Mink is known to have inhabited rocky coasts and offshore islands, but virtually nothing is known of its habits and reproductive behaviour (Banfield 1974: 332). Most Sea Mink specimens come from archaeological sites along the central and southern coasts of Maine (Prentiss 1903; Loomis 1911; Moorehead 1922; Manville 1942; Waters and Ray 1961). Although tradition and anecdotal evidence (Seton 1921: 168; Wright 1962; Squires 1968: 41; Campbell 1988) have associated the Sea Mink with the New Brunswick and Nova Scotia shores of the Bay of Fundy, and even with Newfoundland, in Maine no Sea Mink remains have been found north

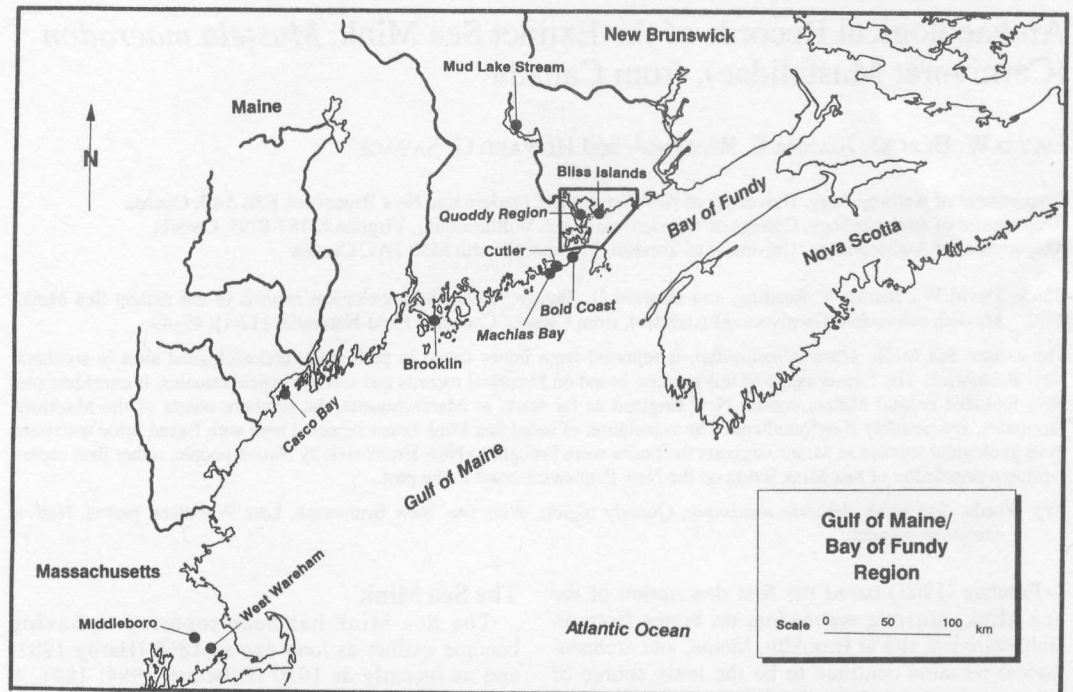


FIGURE 1. Map of the Gulf of Maine/Bay of Fundy region showing the locations of places referred to in the text.

and east of Cutler, on the eastern edge of Machias Bay (A. E. Spiess 1996: personal communication).

Archaeological evidence has been used to extend the range of the Sea Mink south to Massachusetts (Manville 1966: 3-4). A right femur and left radius were found during the excavation of the Wapanucket #6 site in Middleboro, Massachusetts, an Archaic village site radiocarbon dated to about 4300 years ago (Robbins 1959); these bones may date from as recently as the historic period to as long ago as the Late Archaic period (Waters and Ray 1961). A right ulna was recovered from a Woodland period shell midden and ceremonial site at West Wareham, Massachusetts (Waters and Mack 1962). No Sea Mink have been reported between Casco Bay, Maine, and southeastern Massachusetts (Manville 1966: 4).

#### Sea Mink bones from the Weir site

The Weir site is located on the Bliss Islands, 1 km offshore from Blacks Harbour, New Brunswick. Native people, presumably ancestors of the Passamaquoddy people who lived in the Quoddy region at European contact, inhabited the site periodically from about 2500 years ago to about 1000 years ago. The site, about 800 m<sup>2</sup> in area and 50-100 cm in depth, consists of a series of soil layers, gravel living floors and shell middens resting on a bedrock outcrop and covered by a 5-30 cm thick layer of peat

soil. The site is virtually undisturbed by historic activity and bone preservation is excellent because the marine shells have neutralized the natural acidity of the soil. The Sea Mink bones were found in the most recent cultural layers, radiocarbon dated at 1300 to 1000 years ago (the Late Woodland period).

The bones include a complete right mandible (with C<sub>1</sub>, P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub> and M<sub>1</sub> in situ), a left cranial portion (including part of the orbit), a right radius, a right 4th metatarsal, a proximal phalanx, a portion of the left fibula, a caudal vertebra, and possible portions of a femur and the first and second cervical vertebrae. These remains could be accounted for by a single Sea Mink skeleton; however, the spatial distribution, and size differences among the bones, suggest they may belong to two or more individuals. The size and robustness of the mandible, cranium and radius suggest these bones represent adult male Sea Mink. The distal end of the radius bears a transverse cut mark consistent with marks made by stone tools during skinning or dismemberment.

Unfortunately, because intact maxillae were not recovered, the most common criterion used to distinguish *M. macrodon* from *M. vison* in biological keys (Peterson 1966: 250; Hall 1981: 1004; Dilworth 1984: 182), maxillary molar-premolar tooth-row length greater than 20 mm, cannot be applied in this case. Table 1 compares the Weir site Sea Mink mandible and radius with those of 15 adult Mink cap-

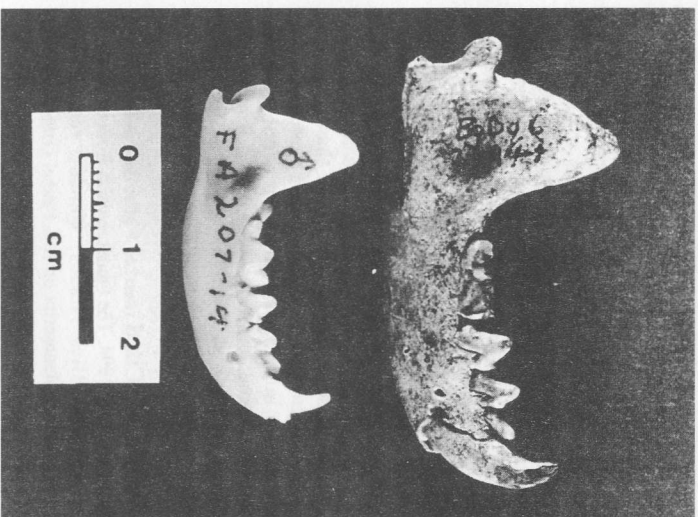


FIGURE 2. The right mandible of Sea Mink (*M. macrodon*) from the Weir site compared with the right mandible of an adult male Mink (*M. vison*). Above: *M. macrodon* (BgDq6;2794-1) collections of the Department of Anthropology, University of New Brunswick. Below: *M. vison* (FA207-14); collections of the Faunal Osteo-archaeology Laboratory, Department of Anthropology, University of Toronto.

tured in southern New Brunswick from 1981 to 1983. The Sea Mink bones are 23.6% to 34.2% larger than those of male Mink and 37.3% to 54.9% larger than those of female Mink. Figure 2 shows the Weir site mandible compared to that of an adult male Mink.

### Sea Mink and prehistoric exchange systems

Archaeological Sea Mink crania are typically fragmented and many mandibles and extremity bones exhibit cut marks (Loomis 1911). Native people are assumed to have trapped these animals as food, and to have used the pelts for clothing. However, it is possible they also used Sea Mink for exchange and ceremonial purposes (see, for example, Waters and Mack 1962: 430).

In both areas where Sea Mink bones were found at the Weir site, they are associated with stone tools and tool-making debris of a distinctive lithic material commonly called Kineo felsite or Kineo rhyolite, but more technically known as Kineo-Traveller Mountain porphyry (Doyle 1995: 304). This stone,

TABLE 1. Osteometric comparison of Weir site Sea Mink with Mink from southern New Brunswick.

| Measurement  | <i>Mustela vison</i><br>male<br>n = 8 |           | <i>Mustela vison</i><br>female<br>n = 7 |           | Weir site<br><i>Mustela macrodon</i><br>n = 1<br>(cm) | Weir site<br><i>M. macrodon</i><br>% larger than male<br><i>M. vison</i> | Weir site<br><i>M. macrodon</i><br>% larger than female<br><i>M. vison</i> |
|--|---------------------------------------|-----------|---|-----------|---|--|--|
|  | range (cm)                            | mean (cm) | range (cm)                              | mean (cm) |   |  |  |
| 1 length of radius                                 | 2.87-3.11                             | 3.00      | 2.49-2.97                               | 2.63      | 3.71  | 23.78  | 41.18  |
| 2 width of distal radius                           | 0.55-0.65                             | 0.59      | 0.46-0.60                               | 0.51      | 0.79  | 34.21  | 54.93  |
| 3 length of mandible                               | 3.53-3.89                             | 3.72      | 3.16-3.38                               | 3.34      | 4.80  | 29.08  | 43.80  |
| 4 height of ascending ramus<br>of mandible         | 1.58-1.82                             | 1.70      | 1.36-1.60                               | 1.46      | 2.24  | 31.42  | 53.48  |
| 5 length of mandibular<br>molar-premolar tooth-row | 1.83-1.99                             | 1.90      | 1.66-1.82                               | 1.72      | 2.36  | 23.65  | 37.29  |

Note: All *M. vison* specimens are curated in the collections of the Natural Sciences Division, New Brunswick Museum.

composed of a glassy, green groundmass interspersed with weathered, rectangular feldspar crystals and small round beads of clear quartz, was among the materials preferred by Native people in Maine for making flaked stone tools. It outcrops in northern central Maine in the Mount Kineo/Traveller Mountain area and is available from bedrock sources and from glacial boulder trains extending from the mountains to the central Maine coast.

It is very unlikely that Kineo-Traveller Mountain porphyry was transported glacially to the Quoddy region, and no float cobbles of this material have been identified in the region. Rather, Native people probably brought the stone to the Weir site from sources in central Maine. The Late Woodland period radiocarbon dates from the most recent layers at the Weir site reinforce this interpretation: this is a period when there is considerable archaeological evidence for exchange relationships among Native groups living in the Maine/Maritimes area (Bourque 1994: 34-35). The association of Sea Mink bones with lithic material from Maine suggests that Sea Mink were brought to the Weir site from Maine, either directly through a movement of Native people, or indirectly through person to person exchange relationships connecting Native groups. The bones may have been transported in carcasses preserved as foodstuffs, as part of Sea Mink pelts, as clothing or personal adornment items, or as ceremonial items.

That Sea Mink bones have not been identified previously in the Quoddy region, despite a long history of archaeological research and extensive excavations (Black 1992: 10-20), supports the interpretation that populations of Sea Mink were not present in the region in the past. The Bold Coast between Machias Bay and the Quoddy region, 30 km of rugged high-gradient shoreline unbroken by estuaries, may have served as a barrier limiting the northeastern distribution of the Sea Mink.

The Sea Mink bone from the Mud Lake Stream site, located in the St. Croix drainage, 100 km upstream from the Quoddy region, presents an interesting parallel to the Sea Mink bones found in Massachusetts: the Wapanucket #6 site is about 12 miles (19.2 km), and the West Wareham site about 2 miles (3.2 km) from the nearest salt water. Finds of a few Sea Mink bones on interior sites at the extremes of their distribution support the argument that these bones were transported as part of Native exchange systems, rather than resulting from Native people trapping local Sea Mink in Massachusetts and New Brunswick.

In light of the evidence from New Brunswick, it would be instructive to re-evaluate the archaeological contexts of the Sea Mink remains from Massachusetts to determine, first, if they were associated with lithic materials known to have functioned as exchange goods, and second, whether the Sea

Mink bones from the Wapanucket #6 site suggest that Sea Mink served as exchange items during the Late Archaic period, as well as during the Late Woodland period. The identifications and cultural contexts of all archaeological mink remains in the Northeast should be carefully scrutinized, since they contain the information that can be used to challenge or confirm the historical and anecdotal accounts of Sea Mink beyond coastal Maine.

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