

Appendix F

FISH AND FISH HABITAT SURVEY

Fish and Fish Habitat Summary for:
One Small Unnamed Watercourse (North east)

And

Malpec Brook (South West)

Associated with the

Heveco Peat Bog (DNR # 524)

at Tabusintac, NB

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On 19 July, R. Currie traveled to Tabusintac to examine two small watercourses on the outer edges of the Heveco peat bog. The purpose of this visit was to conduct a field evaluation of the fish and fish habitat associated with both of these watercourses. Those evaluations are provided in the following report.

Site 1:

The first site we visited was the smaller of the two watercourses. It was located on the north-eastern side of the bog and drained directly into Tabusintac Bay (Figure 1).

Habitat:

The unnamed stream referred to as Site 1 is relatively small. The area we viewed was quite close to the bay and this area of stream was influenced by tidal action. The average width in the area we viewed was approximately 1.5 m, and the average depth was 0.5 to 1 m. The water was stained deep brown due to the bog drainage and it was difficult to see more than 15-20 cm into the water. Probing with a stick determined the stream bottom was composed of deep, soft organic material, which was probably peat particles. The flow was very slow, and the direction of flow probably changed with each tidal cycle. A beaver had piled some sticks and debris in the stream at this location but the accumulated debris did not appear to impede the flow of water.

The stream banks were fully vegetated with bog vegetation and were sufficiently firm to allow us to stand along the edge of the stream. There were no trees growing on the stream banks and aside from the shade provided by the short bog vegetation, the majority of the surface of the stream was unshaded. However, immediately upstream of our initial survey site, the stream narrowed to 1 to 1.5 m and the short vegetation almost completely overtopped the stream, making it very difficult to observe and follow upstream beyond this point. There was no evidence of bank erosion along the surveyed stream section, however, a minor cloudy flow coming out of a side channel (possibly a beaver channel) was thought to be carrying dust from truck traffic from the road. The amount of dust was only noticeable and likely had no effect to the stream or water quality.

A sample of water was collected at this site and measured for temperature and several other basic parameters. The results of those measurements were as follows:

temperature = 20°C at 9 am
pH = 5.68
conductivity = 7 820 µS/cm
salinity = 4.4 ppt

Fish:

The three people involved in the survey made careful observations of the water to note the

presence of fish. When direct observation failed to confirm the presence of fish, the electrofishing gear was assembled and electrofishing was conducted through this stream section. A 50 m section of the watercourse was electrofished for a total of 415 seconds at a power setting of 80 volts. No fish were captured or observed as a result of electrofishing.

Summary:

The small unnamed watercourse designated as Site 1 appears to be only bog drainage. It has a minor flow, colour and chemistry to support this opinion. The stream has an extremely low gradient and is influenced by tidal intrusion along much of its length.

The physical characteristics of this stream represent very poor fish habitat when compared to standard salmonid (salmon and trout) habitat metrics. The water is warm, unshaded, quite acidic and organic fines (peat particles) represent 100 percent of the streambed.

No fish were captured or observed through electrofishing and direct observation. If fish are present, they occur in very low numbers and would likely represent common coarse fish species such as stickleback, shiner, killifish etc. This stream does not represent salmonid habitat and it can be stated with certainty that salmon and trout do not inhabit this stream.

Site 2:

The stream (Malpec Brook on GeoNB map) designated as Site 2 is the larger of the two streams. This stream drains from the south side of the peat bog into Neguac Bay (Figures 2 and 3).

Habitat:

The section of stream on the bog shares many of the physical characteristics of the previously described stream. The water has a brown stain that is typical of bog drainage and the flow velocity is extremely slow. At this point, the stream has an open water width of approximately 2 m and a depth of 0.5 to 1 m. Unlike the first watercourse, the stream banks are very unstable and do not allow an observer to get to the water's edge. The stream banks are fully vegetated with grass and shrub vegetation that is typical of peat bogs, however, a wide zone of vegetation near the stream is flooded with water that ranges from 0.3 to 0.5 m in depth. A water sample was recovered from this location for basic chemical analysis. The unstable stream banks did not permit us to walk along the stream so we retreated into the trees and looped around further upstream to view the stream closer to the two domes that dominate the southern side of the bog. During the process of walking through the trees, we came across the small tributary. This appears as a distinct tributary on the map (Figure 2) but in the field it was confirmed to be only a wet drainage swale and has no permanent channel features and does not represent fish habitat. We viewed the stream in the vicinity of the peat domes and confirmed the stream displayed the same characteristics previously described. The open water channel was narrower (1 to 1.5 m wide) but the stream flooded riparian shrub vegetation. The flow rate was extremely slow and the water was dark and deep.

The next spot we viewed was much further downstream (Figure 3). We walked through the woods to access this location and discovered the stream was much wider and shallower at this location and was flowing at a moderate velocity. The stream was obviously under tidal influence at this location and the streambed contained sand and fines. We then followed the stream upstream to the extent of tidal influence. At this point the stream was narrower and there was more gravel in the streambed. Trees and shrubs occupied the stream banks and the banks appeared stable. A short distance upstream from this point, two beaver dams occurred in the stream. The first was an old structure that was in disrepair, the second dam occurred a short distance further upstream. At this point, the character of the stream changed dramatically. The water became impounded and shrub vegetation typically of what we observed on the bog further upstream fully occupied the stream banks. These conditions appeared to extend from this point all the way upstream to the bog and the headwaters of this stream.

Basic chemical and physical parameters were measured for the water sample that was collected in the upper section of the second stream. The results of those measurements are as follows:

pH = 6.15
conductivity = 123.0 $\mu\text{S}/\text{cm}$
salinity = 0.1 ppt

Fish:

Due to the flooded and unstable nature of the stream banks throughout the upper section of the second stream, it was impossible to approach the open water channel to conduct electrofishing. However, small, larval fish were observed near the surface of the stream at both locations where access was gained. The species of fish could not be determined due to the small, undeveloped state of these fish. Additionally, further downstream in the tidal portion of this watercourse, schools of small fish were observed in the shallows. These fish could not be identified, however, based on the nature of the habitat (small tidal estuary) some of the fish likely represented stickleback, young golden shiner creek chub, or banded killifish since these species are common to similar habitats throughout Miramichi Bay.

Summary:

The observation of fish throughout the length of the second watercourse confirms the fact that this watercourse represents fish habitat. Although the species of fish could not be confirmed through observation, as well as the small size and early development of the individuals, one would expect they could be stickleback, golden shiner, creek chub or banded killifish since these species occur in similar habitats in this area. The watercourse at Site 2 represents a variety of conditions. In the vicinity of the bog it reflects many characteristics of bog drainage and would represent very poor salmonid habitat. As a result, salmon and trout would not be expected to occur at this location. However, closer to the mouth of the stream (downstream of the beaver dams) the stream is free-flowing over gravel, the pH is less acidic in comparison to the other

stream and this section has some of the basic characteristics of salmonid habitat. As a result, low numbers of brook trout might be found at this location when water temperatures are cool.



Scale/Échelle: 1:6,828

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Figure 1: Unnamed watercourse in North-east part of Heveco bog.

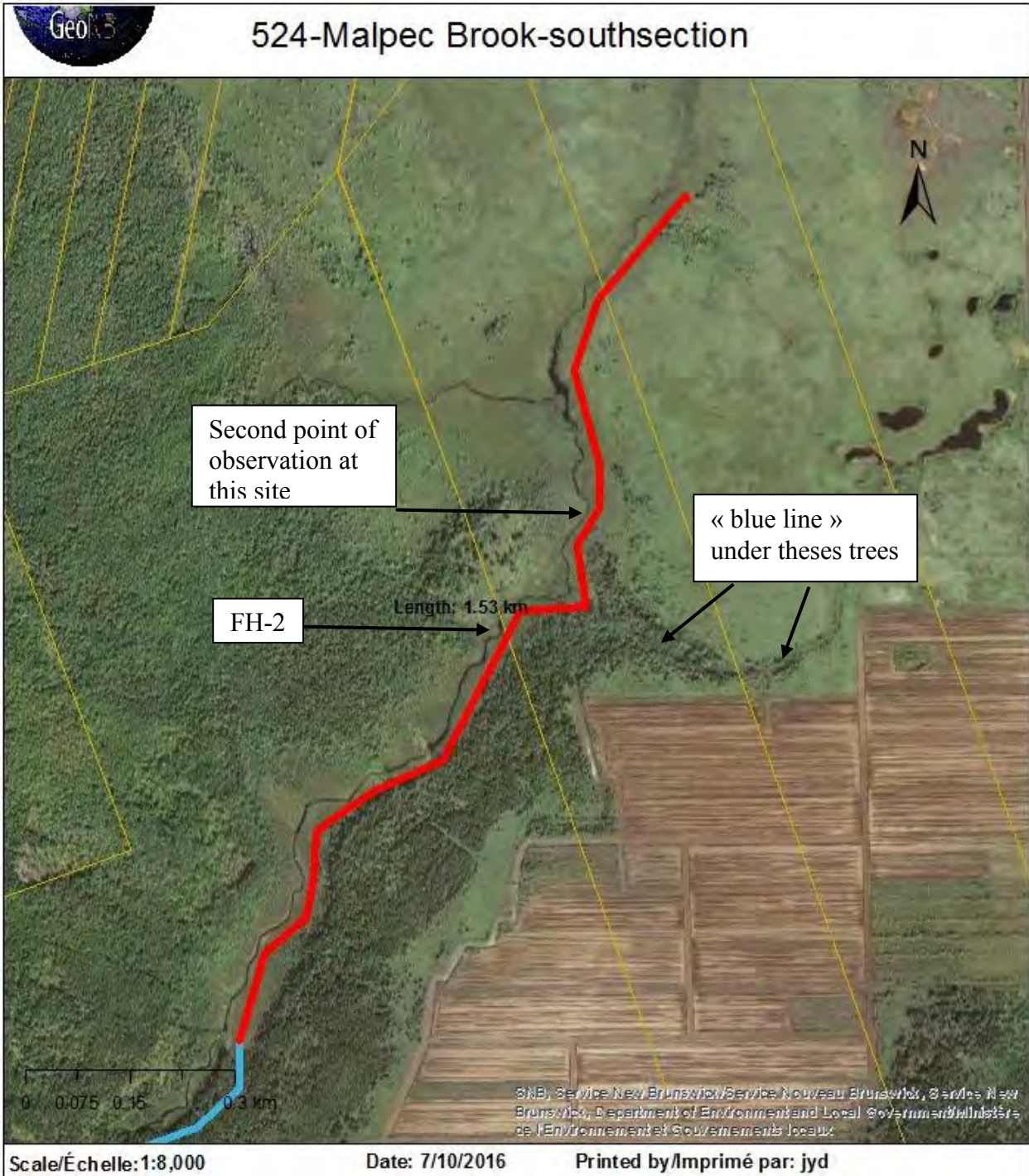


Figure 2: Observations at on-bog portion of Malpec Brook in South-west part of Heveco bog.



Figure 3: Observations at the off-bog portion of Malpec Brook in South-west part of Heveco bog.

