

Parrot's Feather Mat Assessment
Assessed on August 11th, 2021, by Adam Dewar and Gina Hoar



Figure 1: The leading edge of a parrot's feather mat. Note that the mat beginning right at the shadow's edge.

A brief parrot's feather mat assessment was performed by SMWS staff Gina Hoar and Adam Dewar on August 11th, 2021. Two main areas of concern were chosen for assessment due to the fear of the mats breaking loose during the high flow season, flowing downstream and causing creek blockages and associated flooding and fish passage blocking risks.

Furthermore, the depth of the parrot's feather was also measured to see if the plant creates a true physical barrier to fish passage. The mats that we assessed cover 100% of the creek in the areas in which they are present.

Results

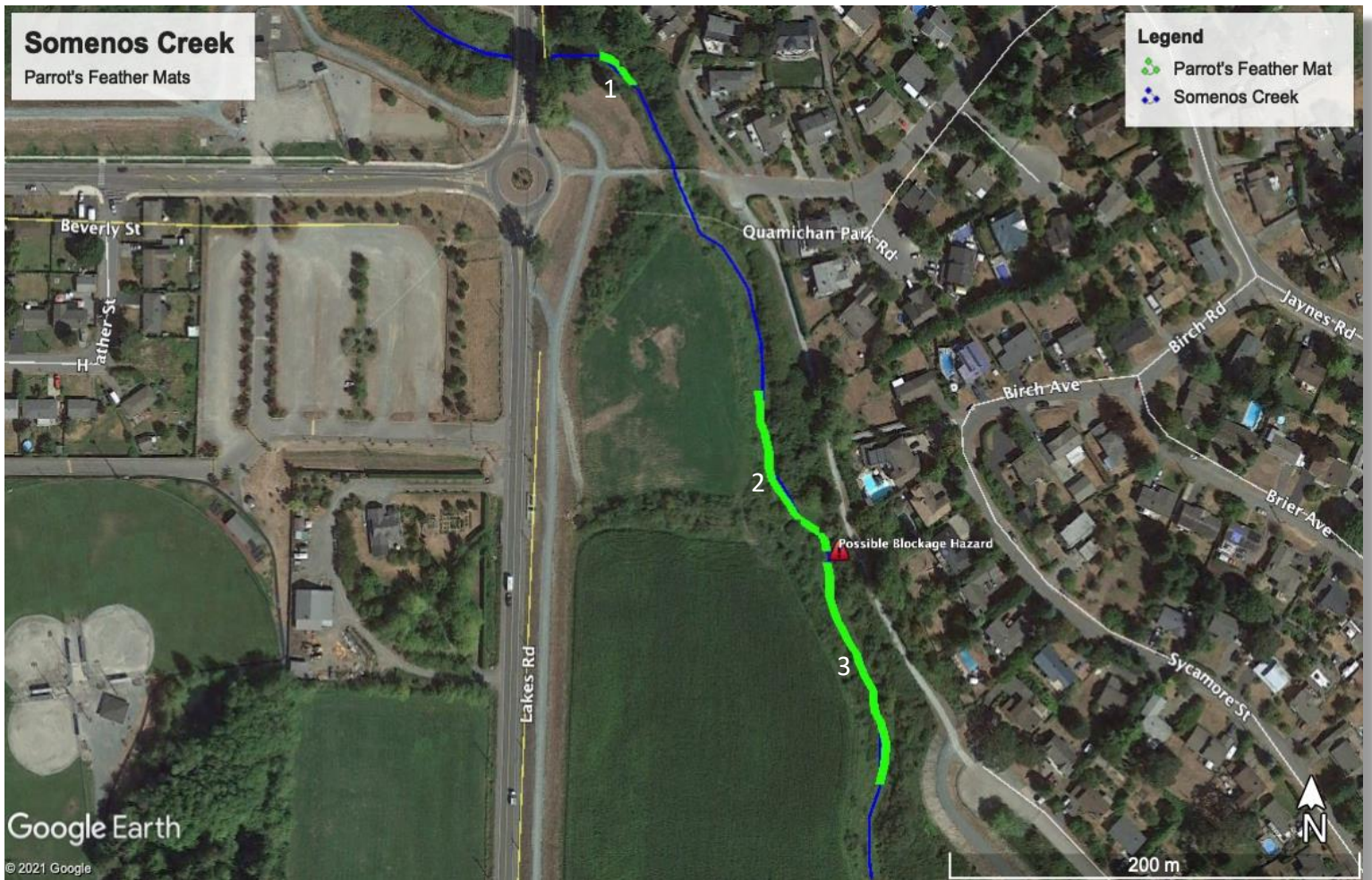


Figure 2: The three problematic mats of parrot's feather present in Somenos Creek between the Lakes Road Bridge and the Tzouhalem Road Bridge.

During this assessment, 3 possibly problematic mats were discovered. The first is a shorter, smaller mat, and the second two cover much more surface area. Mats 2 and 3 are presented here as separate because they do have a little break of open water between them, however that water break is quite small, and they could easily be looked at as a single, giant clump.

Mat 1 covers a length of 22.5m and has an average width of 5.1m as measured on Google Earth Pro. This means that the first mat covers a total area of 114.75m². The leading (upstream) edge of mat 1 had a creek depth of 1.45m, and the mat itself at this point was only about 10cm or 0.1m thick. The trailing (downstream) edge shows very similar characteristics with the creek

depth being 1.5m and the parrot's feather thickness was consistent at 0.1m. We believe that this mat, on its own isn't too much of a clogging risk, however when you couple it with what's downstream, we could see problems in the future. We also determine that this mat is not a physical barrier to fish passage. There is plenty of space between the bottom of the mat and the creek bed for fish to swim through – here the main issue remains the dissolved oxygen concentration, which is quite low the whole creek over.

Mat 2 covers a length of 85m and with an average width of 7.8m it covers a total area of 663m². The leading edge of this mat has similar conditions to mat 1, where the creek has a depth of 1.4m and the thickness of the parrot's feather was also 0.1m. The plant gets thicker through the section, however, and the trailing edge has the same creek depth, but with a parrot's feather thickness of 0.5m. This still seems to have plenty of space (0.9m) for fish passage and is thus not considered a definite physical fish passage barrier.

In the area between the 2nd and 3rd mats there is what could be seen as a potential blockage hazard. A couple of the trees on the far (eastern) streambank have fallen into the creek. While these trees alone would not act as a dam, they could certainly create one in concert with dislodged clumps of parrot's feather during the rainy/high water season. This could lead to early and prolonged inundation of the adjacent fields and possibly delay drainage in the spring. We would recommend that the municipality look at this section of the creek and assess for possible mechanical removal.

Mat 3, a near continuation of mat 2, is slightly larger and covers a length of 110m. When we combine that with an average width of 8.2m, it covers a total area of 925.9m². This mat, combined with the blockage hazard just upstream, is where we start to get a bit nervous about things. Its leading edge has a creek depth of 1.25m and a parrot's feather thickness of 0.5m. Its trailing edge exhibits a parrot's feather thickness of 1.4m in a creek depth of 1.5m. This leaves only 0.1m of space between for fish passage, something that could possibly present a challenge to larger fish.

Conclusions

Currently, it is undetermined whether the presence of parrot's feather presents a physical barrier to the passage of fish during spawning season. The water quality observed in Somenos Creek is simply not good enough to support salmonids. Whether this is directly caused by the presence of parrot's feather is also up for debate; however, it has been observed that the water quality under and around the mats is marginally worse than that in the open sections of the creek. As the parrot's feather expands, thickens, and tightens its grip on the creek the mats will create an ever-increasing hazard for waterway blockage and associated flood risk alongside potentially creating physical barriers to the passage of migrating fish.

Mat 3, along with the fallen tree blockage should be assessed by the Municipality of North Cowichan and considered for removal prior to the rainy season of 2021 in order to mitigate potential flood hazards as well as later season drainage and fish migration issues.