

**Results of a visual survey of the lower Fraser River for the Asian Clam, *Corbicula fluminea* Müller, 1774**  
by George P. Holm

After finding the invasive Asian Clam, *Corbicula fluminea* Müller, 1774, in the Fraser River for the second time in three years, I conducted a visual survey along the shores of the lower portion of the river to look for other locations. I checked at twenty-one locations and found *C. fluminea* present at five of them. From the distribution of these locations, it is established throughout the entire lower portion of the river and it has also entered the large Pitt River tributary.

Much of the Fraser river is occupied by industry, and therefore off-limits to the public. Where the shore is covered with trees and wild vegetation, it becomes too difficult to access the river from land. My survey was therefore limited to places with easy access, such as riverside parks.

When *C. fluminea* was first found in the river in 2011, at McDonald Beach Park in Richmond [1], I surmised that place to be where the species had been introduced into the river. The park is located on the North Arm of the river and clam larvae from there could easily be carried upriver on incoming tides.

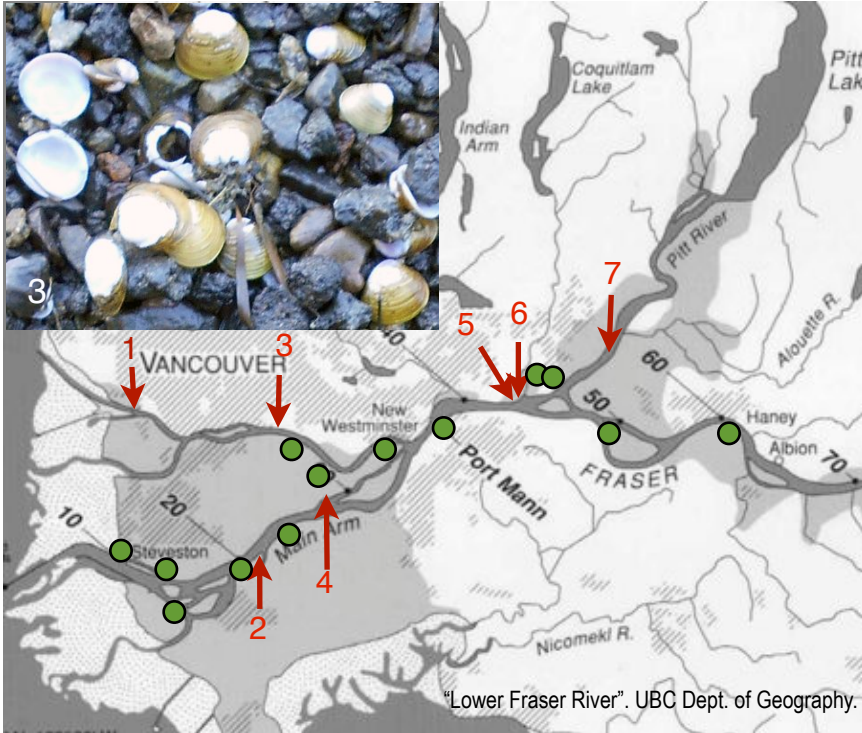
Were the larvae to reach New Westminster, a distance of about 14 kilometers, then receding tides could just as easily transport them to other parts of the delta via the Main Arm of the river.

In June of this year, shells of *C. fluminea* were found on a second beach of the river. This location was also in Richmond, but on the opposite side of the island city from the first find, and on the Main Arm of the river. The new location, west of Nelson Road [4], was the first evidence that tidal dispersal may have occurred. A further search located one more site in Richmond, that one at the North Fraser Storage Park [3], back across the island, on the North Arm of the river. I spoke with a couple who had brought their dog to that beach since 2010, and the husband told me this was the first year that he had noticed clam shells there.

Of the other sites I found, one was in Delta, at Deas Island Park [2], and three more were upriver from New Westminster, in the city of Coquitlam. The first of these was at Maquabeak Park [5], downriver from where the Coquitlam River empties into the Fraser. The second was south of Colony Farm Regional Park at the mouth of the Coquitlam River [6], and the third

was in the Pitt River, north of Dominion Avenue, upriver from where that river joins with the Fraser [7]. Two sites further upriver in the Fraser were also checked, the first at Robert Point on Barnston Island, and the second at Derby Reach Regional Park, both located in the city of Langley, but those did not yield any clams. The Pitt River location is therefore the furthest from the mouth of the Fraser that the species has presently been found. Further spread is inevitable.

The beaches on which I found *C. fluminea* consisted of sand, and where those became muddied, the clams became few or absent. At two locations a barrier across the beach appeared to limit the survivability of the clams. One of these was at North Fraser Storage Park where a barrier of rocks extends from the shore and makes access around it possible only at low tide. *C. fluminea* were



Lower portion of Fraser River. Red arrows indicate where *Corbicula fluminea* were found and green dots are places that were checked but where no clams were observed.



Logs on the shore along Deas Slough - Silt that settles on the downstream side of the logs appears to hinder the survival of the clams.

very numerous on a small section of beach on the upriver side of the barrier, and they ceased to be present on a longer sand and silt shoreline that was downstream from there. The other location where this was observed was at Deas Island Park where a tree had fallen across the beach several years ago and was preventing a free flow of water past it. Clams that were plentiful on one side of the tree became almost absent on the other side.

Shells collected at six of the seven locations ranged in maximum size from 15 to 25 millimeters, however, the shells collected from the Deas Slough, at Deas Island Park, were giants compared to the rest, with the largest specimen from there measuring an unbelievable 40 millimeters. The size of the clams became smaller the further from the mouth of the river they were located and those found in the Pitt River were the smallest of all. My theory of tidal dispersal upriver from McDonald Beach seemed to hold true until I came to the Deas Island location. Now I wonder



Samples from Deas Slough. The sample on left is from the beach in front of the logs and the right sample is from behind the first log.

if that location, judging from the size of the clams found there, might be where the species in the river originated, or might there have been two places of introduction, one at Deas Island and one at McDonald Beach? I am not sure that the question can now be answered.

*C. fluminea* was discovered in Lake Whatcom, the same time and year the clams were also found in the Fraser River. Lake Whatcom is a source of drinking water for the city of Bellingham, and an extensive management program to prevent further spread of the species was initiated there at the time. No similar action was undertaken in British Columbia.

The species is now so firmly established in the Fraser River that any attempt to control it will be futile. Animals and birds may accidentally carry it from the river to other water sources, but it shall be people who pose the greatest threat to its spread, either by accident or deliberately. Greater Vancouver is home to a huge Asian population and the Asian Clam or Golden Clam, as it is also known, is harvested and eaten in their native countries. Some people believe that eating "Golden Clams" will bring good fortune to the diner and there is also a belief that the clams have healing qualities. I also witnessed what might lead to an accidental spread of the species. A mother and her four year old daughter were returning to their car from a day at the river. The daughter had been digging in the sand and was carrying a clear plastic cup in which there were about a dozen live juvenile *C. fluminea*. I asked about them and was told that the girl was bringing them home "to place in her tank". Now if the contents of that tank were to be dumped in a different water source before all the clams have died, then the survivor(s) could possibly start a new population.

*C. fluminea* is a fouling clam, and anyone drawing water from the river for industrial cooling, drinking water or irrigation should be made aware of its presence. I shall continue to track the species and will note any newly discovered locations.



Largest specimens collected at each location shown to scale with numbers corresponding with those on map and in article. [1] McDonald Beach - [2] Deas Island - [3] North Arm Storage Park - [4] West of Nelson Road - [5] Maquabeak Park - [6] Mouth of Coquitlam River - [7] Pitt River

References:

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