

Updating our knowledge of *Rhamphidonta retifera* on our West Coast

By Bill Merilees¹ and Rick Harbo²

¹ bmerilees@hotmail.com

² rharbo@shaw.ca Research Associate, Royal BC Museum

An established population of bivalves, then identified as *Bornia retifera*, Dall, 1899, was discovered by Dan Quayle in 1959 at Louie Lagoon, at the north end of Nootka Island, British Columbia. Confirmation of this material's identification, to Dall's specimen (a single left valve), was determined by Bernard (1975). Since Quayle's initial discovery this species has been collected regularly at this location including by Cowan, (1961), the authors, 1984 and 2004, and by others.

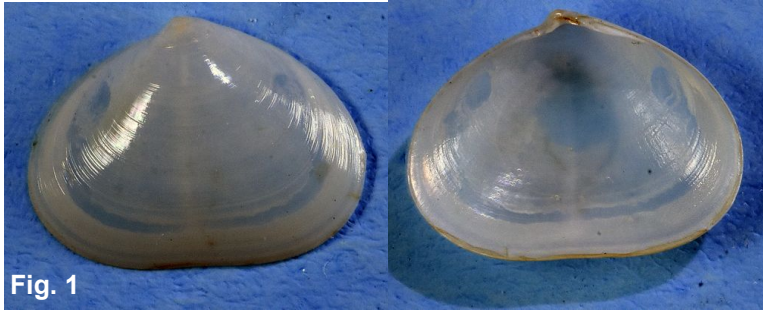


Fig. 1

Rhamphidonta retifera, 7.4 mm Photo by Rick Harbo

Detailed study by Bernard (1975) suggested that hinge morphology of this North American material warranted the erection of a new genus *Rhamphidonta*, separating this species from similar Mediterranean and Indo-Pacific species. Thus *Rhamphidonta retifera* (Dall, 1899), (**Fig. 1**) is now this species accepted name (Coan, et al., 2000). According to Coan, et al., (2000), "this species is extremely localized in its distribution" from Santa Rosa, California (type locality) north to Esperanza Inlet (Louie Lagoon) British Columbia.

Louie Lagoon is essentially a tidal lake, where, at half-tide, sea water floods across a wide sandy bar or sill into the lagoon from Louie Bay. The lagoon is also fed by a freshwater stream from the nearby Genevieve Range. The lake is a deep basin (9 fathoms or 54 ft), approximately 3/4 of mile long and 200 yards wide (Cowan, 1961). On June 29th, 1961, from an hour of digging, Dr. Cowan uncovered about 200 specimens of *Rhamphidonta*.

In 1995, Robert and Tammy Forsyth found *R. retifera* in the Haida Gwaii Archipelago, formerly the Queen Charlotte Islands (Forsyth, 1995; RBCM 2-9-43). These were located by SCUBA at a maximum depth of 50 feet in the vicinity of Baylee Bluffs, Moore Channel, on the south side of Hibben Island. This is the most northerly and only subtidal location known for this species in British Columbia (Forsyth, 1995). This reference is mentioned in Coan, et al., 2000, species account, but the range extension, north to Haida Gwaii, was inadvertently omitted. Heidi Gartner (RBCM) collected *R. retifera* from Barkley Sound, west coast of Vancouver Island, in 1995 (RBCM 15-45-2).

In February of this year (2019), while looking for juvenile *Limecola (Macoma) balthica* at Departure Bay Beach, Nanaimo a specimen of *R. retifera* was found – the fourth location for British Columbia, and the only one for the Salish Sea. There is a wonderful irony in this discovery. This location is only a kilometre from Canada's Federal Pacific Biological Station (P.B.S.) and within eyesight from the offices once occupied by Dan Quayle and Frank Bernard! (**Fig. 2**) Both were very familiar with Departure Bay and its mollusc fauna.

From living specimens brought back to P.B.S. from Louie Lagoon by Dan Quayle, Frank Bernard was able to observe this species' behaviour. He found they burrowed in the sand to about 5 cm. (2") and would emerge and crawl along the surface (similar to a snail) only when it became dark. In daylight they would remain buried below the surface. Bernard (1975), did not find any evidence of commensalism, nor any direct association with the Enteropneusta worm, *Glossobalanus* sp., as has been mentioned by Coan, et al., (2000), and Forsyth (1995).

At Departure Bay *R. retifera* was found in a seepage area just below where the gravel beach changes grade onto the sandy flat beyond. Fresh water seepage along this gradient change is evident. The possible significance of this is speculative. At Louie Lagoon, where out-flowing fresh water would tend to float over denser sea water, the importance of fresh water to *Rhamphidonta* is similarly speculative.



Fig. 2

Pacific Biological Station from collecting site at Departure Bay Beach. Photo by Bill Merilees

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