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NSIS FIELD EXCURSIONS 2025-2026

LEGACY GOLD MINING IN NOVA SCOTIA

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On September 20, 2025, fifteen NSIS members and guests participated in an excursion to Waverley to learn about Legacy Gold Mining in Nova Scotia. Historically, gold mining in NS took place in three main phases between 1860 and 1942. A total of about 1.2 million ounces of gold were recovered, which was substantial. (For comparison, the Yukon yielded about 20 million ounces.)

We learned that Waverley was one of the more productive of about 60 provincial gold-producing areas, with (mainly) underground mines over a wide area, and extensive infrastructure for extracting the gold from the ore. The ore was crushed in stamping mills and the powder or dust passed as a slurry over mercury-covered plates. The resulting Au-Hg amalgam was then heated to drive off the mercury and leave the gold.

The process leaves large amounts of waste – at Waverley this came to about 3 million tons of waste rock or tailings that were deposited in an unregulated manner all over the region, including into bodies of water and wetlands. These tailings also included significant amounts of mercury from the refining process, as well as arsenic which often occurs naturally in gold-bearing rock. In addition, cyanide was sometime used for gold extraction in the later years, so that is found in some of the tailings, too.

We met at the Waverley Heritage Museum (Fig 1, Fig 2), which has a very nice collection of historical artifacts and exhibits, some devoted to the gold-mining era. Our hostess was Pat Clahane, a volunteer at the Museum. She was joined by Bradley Knockwood, a student in Dr. Linda Campbell's group at SMU which is working on remediation issues at these sites.

Bradley started by showing us a newly-created map app which can show many aspects related to Waverley gold mining (Fig 3). The user

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Fig 1 Waverley Heritage Museum.



Fig 2 Inside the museum.



Fig 3 Bradley lecturing.

can call up layers that show the locations of all the gold seams and mines, the buildings, previous maps, the areas of tailings, the hydrology and topology, and much, much more. This was useful in getting us oriented to the location and extent of the activities, in contrast with the tranquil village today.

Then Pat took us into the museum and presented a description of the historical evolution of the mining in Waverley through the three main periods of activity, and well as the social aspects of the periods (Fig 4). She also used some of the exhibits to effectively illustrate the mining and extraction operations (Fig 5).

After a brief break for coffee and snacks, we walked over to Village Green, a public park next to the Shubenacadie Canal. Bradley explained that the park is distinguished by being right on top of a large deposit of mine tailings. (Being so capped the tailings are not a present-day threat.) This position (Fig 6) affords a view of the steep hillside where a very large stamping mill did its work. Remnants of its foundation are still visible. It was powered by electricity generated by a flow of water which came several miles by pipeline from Miller Lake and dropped down to a turbine next to the canal. The foundations of the turbine and exit pipe are still in place at the edge of the park.

We walked back to our cars at the museum and drove to nearby Muddy Pond (Fig 7), which was infilled with tailings to the point where it is now more of a swamp than a pond or lake. Unlike the Village



Fig 4 Pat demonstrating.



Fig 5 Model of the process.

Green, this area is quite contaminated, and access is by permit only. Bradley described aspects of the extensive and multi-year research being conducted in the vicinity. It touches on hydrology, levels of contamination, effects on flora and fauna, and much more.

With respect to present-day mining operations, it seems that things are much better. There are strict regulations and requirements to minimize environmental impact, and the companies seem to be striving to comply. Much has been learned from the mistakes of the past. The processes are cleaner and better controlled, the tailings are cleaned of substances such as arsenic and cyanide, and the tailings are confined under water in sealed impoundments or open pits.

It was a very interesting and educational day, enhanced by lovely weather. Pat and Bradley, our host and guide were excellent, full of enthusiasm, and very good instructors. And Bradley's indigenous roots added a Mi'kmaq perspective to some of the environmental issues involved. Everyone learned a lot on this excursion.



Fig 6 Looking up to the Processing Site.



Fig 7 Viewing the site at Muddy Pond.