



BC Crown Contaminated Sites Program Site Summary



Britannia

Location: 49° 36' 40" N, 123° 08' 28" W

Status: Remediation

The former Britannia Mine site, located 45 km north of Vancouver, BC next to Howe Sound, was considered one of the largest point sources of metal pollution discharging to surface water in North America. Prior to remediation, the majority of the contaminated discharge at Britannia originated when surface water (in the form of precipitation and melting snow) flowed through the mine and reacted with mineralized rock in the mine workings. The reaction between exposed ore, air and water creates acid rock drainage (ARD), which contains elevated levels of heavy metals including copper,

zinc and cadmium and is highly acidic. Tremendous progress has been made at the Britannia Mine site since its closure in 1974 and the improvement of the local ecosystem is a direct result of the remediation work completed to date.

Key Milestones at Britannia

Work at Britannia has been ongoing since 2001. Key milestones from 2001 to 2017 are profiled in the CCSP 2018 Biennial Report. The following summarizes progress made at Britannia in 2018 and 2019:

2018 - Completed a detailed quantitative risk assessment for the Britannia Creek Watershed, including the 2200 Level. This work involved key studies including aquatic and terrestrial habitat assessments, ecological community surveys/sampling, tissue sampling and sediment and surface water sampling.

- Ongoing development of a fan area stormwater management and engineering plan. Stormwater continues to be a source of metal loadings to Howe Sound and requires management to meet remediation targets.
- Decommissioned and remediated the historical copper launders in the Britannia Beach fan area. Removal of the launders eliminated an ongoing source of metal loadings to Howe Sound via stormwater and groundwater.
- Ongoing shoreline monitoring of Howe Sound, including a detailed intertidal community assessment. These surveys help to inform critical decisions and reflect the remediation efforts undertaken at the mine.

2019 - Initiated the development of a preferred remedial option for the Britannia Creek Watershed, based on the results of the detailed site investigation and detailed quantitative risk assessment. Remediation at the 2200L is planned for 2021.

- Upgraded the Beta Portal ARD diversion system and ongoing post-remediation monitoring of Furry Creek. Since construction, this diversion system has successfully prevented 100% of the historical flow from Beta Portal from entering Furry Creek.
- Identified preferred fan area stormwater management options and the detailed development of the preferred options, including costing and detailed designs.
- Iron scaling was identified to be accumulating in the piping of the Groundwater Management System. The CCSP developed a plan to clean out the piping and adopted preventative operational measures to be implemented in the future.



Summary of Remediation Efforts

Since the mine's closure, the success of the remediation work at Britannia is clearly visible, both in the creeks and along the shoreline. In recent years, trout have returned to Britannia Creek and nearby Thistle Creek and pink salmon have been observed in the lower reaches of Britannia Creek. The historically impacted ecological communities continue to rebound, as the abundance and diversity of shoreline organisms improves. The Britannia Beach community is also enjoying an economic resurgence from a recent increase in residential and commercial developments.

The CCSP is committed to the ongoing investigation and remediation of the site, in accordance with the Overall Closure Plan, and continues to work towards a risk-managed closure of the Britannia Mine.

If you have questions or would like more information, please contact the Crown Contaminated Sites Program by emailing contaminated.sites@gov.bc.ca or visit our website <https://www2.gov.bc.ca/gov/content/environment/air-land-water/site-remediation/contaminated-sites/crown-contaminated-sites-program>.