

THE “WASTING” RESOURCE:

The History of Mine Tailings Disposal in British Columbia, 1892–1982

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THE CATASTROPHIC COLLAPSE of the tailings dam at Mount Polley in 2014 is routinely referred to as a “disaster,” a “failure,” or an “accident” – an unanticipated, if perhaps avoidable, outcome of normal and accepted mine waste storage practices. “That wasn’t supposed to be able to happen,” one engineer reputedly commented.¹ Of course, many commentators and studies since have suggested that these failures are, in fact, predictable outcomes of ever-growing volumes of tailings waste, improper dam siting and design, and/or lax regulations and infrequent inspections.² Conventionally framed as a more or less technical and managerial problem, the task of making tailings safe again is returned to the purview of the industry consultants, professional engineers, and government regulators.³

Underlying these debates, however, lurks the deeper question of what *ought* to be done with ever-growing volumes of mine waste. The industry has long taken for granted that, as part of its access to valuable ore deposits, mines will also be permitted to produce, transport, and store the vast byproducts associated with mineral extraction. Sociologists Sebastian Ureta and Patricio Flores trace the “logic of residualism” in modern mineral extraction, which entails an intense technical and logistical focus on “the production and management of colossal amounts

¹ W. Cornwall, “A Big Dam Problem,” *Science*, 20 August 2020, <https://www.science.org/content/article/catastrophic-failures-raise-alarm-about-dams-containing-muddy-mine-wastes>.

² Auditor General of British Columbia, *An Audit of Compliance and Enforcement of the Mining Sector* (Victoria: Government of British Columbia, May 2016); C. Roche, K. Thygesen, E. Baker, eds., *Mine Tailings Storage: Safety Is No Accident* (Nairobi and Arendal: United Nations Environment Programme and GRID-Arendal, 2017); B. Parsons, “Mount Polley: The Aftermath,” *Canadian Consulting Engineer*, June–July 2016, <https://www.canadianconsultingengineer.com/features/mount-polley-aftermath/>.

³ An approach embodied in the Global Industry Standard on Tailings Management, launched in 2020 after an expert panel convened in the wake of the Brumadinho and Mount Polley disasters by the International Council of Mining and Minerals and the United Nations Environment Program. See <https://globaltailingsreview.org/>.

of mining residues, mostly tailings.⁴ A key aspect of the environmental assessment and permitting process for mines includes identifying lands (and often waters) suitable for waste deposition, along with strategies for their containment and/or treatment.⁵ In many cases, the presence and impact of these wastes in and on the environment long outlasts mining activities and the associated land-use permits and leases. In other words, access (with whatever terms and conditions) to public air, lands, and waters for waste disposal is *integral* to the mineral development process; without it, mining simply cannot proceed.

In British Columbia, this presumed, even privileged access to resources, territory, and environment has its roots in the province's mining history and its long-standing practices of (lightly regulated) waste disposal. From its earliest phases during the Fraser River gold rush, miners and governments understood and incorporated land and, particularly, waterways as part of the infrastructure of mineral production. Miners' access to land for exploration, staking, and development also presumed its use for the deposit and storage of residuals, including overburden and tailings. Similarly, water supplies were crucial to both the mineral extraction process – from “washing” placer deposits for gold to various ore transport and processing functions for hard rock mines – as well as for the efficient and convenient transport and/or absorption of wastes such as slag and tailings.

However, mine waste and tailings have also long been a source of conflict and controversy, and the history of these conflicts reveals the deeper logics of wasting, containment, and pollution underlying tailings management. This article argues that historical debates in British Columbia around whether and how to manage mine waste were rooted in a fundamentally settler colonial conception of land (and water) as a “resource” for metaphorical and literal accumulation.⁶ This “resourcist” ideology manifested in shifting, yet interrelated, “waste regimes” that shaped historical (and arguably, contemporary) industry and state

⁴ S. Ureta and P. Flores, *Worlds of Gray and Green: Mineral Extraction as Ecological Process* (Berkeley: University of California Press, 2022), 26. The historian Timothy LeCain describes this form of mineral production as “mass destruction.” See T.J. LeCain, *Mass Destruction: The Men and Giant Mines That Wired America and Scarred the Planet* (New Brunswick, NJ: Rutgers University Press, 2009).

⁵ D. Hoogeveen, “Fish-Hood: Environmental Assessment, Critical Indigenous Studies, and Posthumanism at Fish Lake (Teztan Biny), Tsilhqot'in Territory,” *Environment and Planning D: Society and Space* 34, no. 2 (2016): 355–70.

⁶ M. Liboiron, *Pollution Is Colonialism* (Chapel Hill, NC: Duke University Press, 2021); A. Cohen and A. Biro, *Organizing Resources: Turning Canada's Ecosystems into Resources* (Toronto: University of Toronto Press, 2023).

approaches to tailings management.⁷ The earliest such approach, starting with early provincial water law, reflected what Voyles, in her study of uranium mining in Diné (Navajo) country, calls "wastelanding," a conceptual and rhetorical process whereby colonized lands and bodies are rendered "marginal, worthless, and pollutable."⁸ Simultaneously, she demonstrates, these (Indigenous) lands were also constructed as more or less empty "resource frontiers" amenable to appropriation for extraction and capital accumulation. In this extractivist ideology, wasting and valuation are two sides of the same coin, with dispossession of Indigenous lands and livelihoods the result.⁹ Similarly, in his study of mining pollution in the Bolivian altiplano, Perreault identifies interconnected processes of Indigenous dispossession through "accumulation of toxic sediments in formerly fertile floodplains; accumulation of water and water rights through intensive withdrawals for mining activity; and accumulation of land as the spatial 'footprint' of mining activity grows over time."¹⁰ These modes of "accumulation" echo Coulthard's argument that, even where resource development does not require "the explicit dispossession of Indigenous communities and their entire resource base, it does demand that both remain open for exploitation and capitalist resource development."¹¹ In British Columbia, mining's contribution to the economy was virtually unquestioned: to the extent that pollution was contested, it remained framed in terms of disputes over the abrogation of (settler) use rights or damage to other resources (i.e., usable water, fish) rather than to questions of environmental harm per se. In this conception, Indigenous rights, presence, and impacts were almost completely occluded.

⁷ The concept of waste regimes is developed by Zsuzsa Gille (drawing from the notion of resource regimes) to describe the historical and shifting social institutions, modes of governance, and flows or distributions of waste, drawing particular attention to "the economic, social, and cultural origins of specific wastes as well as the logic of their generation." See Z. Gille, "Actor Networks, Modes of Production, and Waste Regimes: Reassembling the Macro-Social," *Environment and Planning A* 42, no. 5 (2010): 1056.

⁸ T.B. Voyles, *Wastelanding: Legacies of Uranium Mining in Navajo County* (Minneapolis: University of Minnesota Press, 2015), 9.

⁹ S. Sörlin, "The Extractivist Paradigm: Arctic Resources and the Planetary Mine," in *Resource Extraction and Arctic Communities*, ed. S. Sörlin (Cambridge: Cambridge University Press, 2023), 3–32; A. Willow, "Indigenous ExtrACTIVISM in Boreal Canada: Colonial Legacies, Contemporary Struggles and Sovereign Futures," *Humanities* 5, no. 3 (2016): 55.

¹⁰ T. Perreault, "Dispossession by Accumulation? Mining, Water and the Nature of Enclosure on the Bolivian Altiplano," *Antipode* 45, no. 5 (2013): 1052.

¹¹ G. Coulthard, "From Wards of the State to Subjects of Recognition? Marx, Indigenous Peoples, and the Politics of Dispossession in Denendeh," in *Theorizing Native Studies*, ed. A. Simpson and A. Smith (Durham, NC: Duke University Press, 2014), 85.

The rapid postwar expansion of mining in the province collided with rising environmental consciousness through a series of controversies in the 1960s that resulted in a technoscientific rationalization, rather than outright restriction, of the industry's use of waterways for waste disposal. Guided by scientific principles of waste dilution and "assimilative capacity," provincial officials focused efforts on regulating the volume and quality of tailings and effluent discharges to natural receiving waters at specific sites. Rooted in mid-century conservation thought, this approach sought the rational management rather than the outright restriction of mining wastes. Much as the modernizing state materially and discursively reconfigured geologies, forests, water, and other elements of non-human nature as resources, in tackling pollution the province sought to "render technical" and calculable the ability of the province's natural systems to absorb the wastes generated by resource development, including mining.¹²

By the 1970s, the ongoing failures of this rationalized yet ultimately permissive regime, as well as the growing material scale and complexity of mining wastes themselves, resulted in intensifying controversies. In response, the provincial Pollution Control Board deployed emerging processes of environmental assessment and monitoring to address *ecological* concerns related to tailings disposal, to develop new objective-based approaches to pollution and, politically, to neutralize environmentalist critics. As Fabiana Li notes in her study of mine waste governance in Peru, through quantitative processes of environmental baselining, objective setting, and defining "impacts" of waste, "the changes produced

¹² The phrase and concept of "rendering technical" comes from T.M. Li, "Rendering Society Technical: Government through Community and the Ethnographic Turn at the World Bank in Indonesia," in *Adventures in Aidland: The Anthropology of Professionals in International Development*, ed. D. Mosse (New York: Berghahn Books, 2011), 57–80; and T.M. Li, "Beyond 'the State' and Failed Schemes," *American Anthropologist* 107, no. 3 (2005): 383–94. We also draw here from the large literature on modernist conservation and resource management ideologies, including J.C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven: Yale University Press, 1998); G. Bridge, "Material Worlds: Natural Resources, Resource Geography and the Material Economy," *Geography Compass* 3, no. 3 (2009): 1217–44; and, with particular relevance to British Columbia, B. Braun, "Producing Vertical Territory: Geology and Governmentality in Late Victorian Canada," *Ecumene* 7, no. 1 (2000): 7–46; D. Rossiter, "Producing Provincial Space: Crown Forests, the State and Territorial Control in British Columbia," *Space and Polity* 12, no. 2 (2008): 215–30; and D. Hoogeveen, "Sovereign Intentions: Gold Law and Mineral Staking in British Columbia," *BC Studies* 198 (2018): 81–102. The construction of nature as a "sink" for waste is well explored in the literature on waste and discard studies. See M. Liboiron and J. Lepawsky, *Discard Studies: Wasting, Systems, and Power* (Cambridge, MA: MIT Press, 2022), 65. See also J. Gabrys, "Sink: The Dirt of Systems," *Environment and Planning D: Society and Space* 27, no. 4 (2009): 666–81.

by mining activity are not considered 'pollution,' but *manageable risks*.¹³ As a strategy for what Cohen and Biro call "organizing nature," this managerial approach aimed to project state impartiality and authority while circumscribing or excluding "non-technical" actors and issues from consideration.¹⁴ While these efforts appeared to bring tailings into a more structured regulatory system, this emerging neoliberal waste regime remained fundamentally concerned with maintaining access to land and water for the accumulation of waste – and thus value.¹⁵ In so doing, waste governance continued to define tailings disposal in such ways as to exclude environmental and Indigenous values – a strategy that met with growing resistance, notably by Indigenous groups themselves.

Drawing on archival and published sources relating to tailings disposal and pollution controversies in British Columbia,¹⁶ this article highlights how these issues were implicated in both the appropriation of Indigenous lands and the (re)production of the settler colonial state. As Rossiter shows in relation to British Columbia's forest management practices, resource administration practices reveal "the state's role in ordering natural space in the context of a young settler society marked by a resource extraction economy."¹⁷ Similarly, the evolving mine waste management regime both presumed and facilitated access to (Indigenous) lands and waters as a kind of resource for waste disposal – in part by invisibilizing Indigenous presence and resource use. In deploying this conception of pollution as resource, Liboiron notes, "settlers do not have to set foot on the Land, own the Land, or even use the Land as a resource so long as

¹³ F. Li, *Unearthing Conflict: Corporate Mining, Activism, and Expertise in Peru* (Chapel Hill, NC: Duke University Press, 2015), 194 (emphasis in original).

¹⁴ Cohen and Biro, *Organizing Resources*.

¹⁵ M.J. Hird, "Waste, Environmental Politics and Dis/Engaged Publics," *Theory, Culture and Society* 34, nos. 2–3 (2017): 187–209; J.M.L. Laforge and S.M. McLachlan, "Environmentality on the Canadian Prairies: Settler-Farmer Subjectivities and Agri-Environmental Objects," *Antipode* 50, no. 2 (2018): 359–83.

¹⁶ Much of the case study material in this article draws from A.M. Keeling, "The Effluent Society: Water Pollution and Environmental Politics in British Columbia" (PhD diss., University of British Columbia, 2004), with additional research contributed by Nolan Foster. Specifically, we draw from files in the British Columbia Archives (hereafter BCA), particularly the Fish and Wildlife Branch, the Parks Branch, the Mines Branch, and the Pollution Control Board (Environmental Appeal Board), as well as federal Fisheries Branch (Pacific Region) files from Library and Archives Canada (hereafter LAC) related to incidents of tailings pollution in British Columbia. These sources are supplemented with contemporary news accounts as well as published scientific reports related to these cases, which aided in reconstructing the public controversies surrounding some of the incidents.

¹⁷ Rossiter, "Producing Provincial Space," 216. See also D.A. Rossiter, "Lessons in Possession: Colonial Resource Geographies in Practice on Vancouver Island, 1859–1865," *Journal of Historical Geography* 33, no. 4 (2007): 770–90.

the Land is available for settler futures.”¹⁸ By configuring the problem of mine waste as one of use rights or resource conflicts, the settler state reinforced its claims to territory and resources – including the use of the environment as a sink for waste. Here, we can see the continuity with the more recent Mount Polley disaster itself: as Neil Nunn argues, “the inability of governments to respond to these disruptions in any meaningful way is not a sign of state failure but, instead, a form of state formation.”¹⁹ In this sense, the apparent “absence” of Indigenous people and interests in many historical debates and episodes around mining pollution actually underscores the thoroughgoing coloniality of the provincial resource management and pollution control regime.

MINING AND THE LEGAL CONTEXT OF POLLUTION CONTROL IN BRITISH COLUMBIA

For much of British Columbia’s history, provincial governments fostered legal and policy regimes that favoured maximum exploitation of resources with minimal concern for environmental impacts (or Indigenous occupancy). The first British Columbia *Gold Fields Act*, proclaimed by Governor James Douglas in 1859, granted “free entry to mine lands considered ‘waste’ – that is, unoccupied and unused (related to the notion of terra nullius).”²⁰ It also allowed Free Miners to record, or claim, a specific amount of water for the working of mining claims, setting out provisions for the timely utilization of water privileges, proscriptions against wasting water, and conditions for the sale of water rights.²¹ Gold commissioners and stipendiary magistrates were charged with issuing water licences and mediating conflicts between users.²² Notably, water records were measured in “miner’s inches,” reflecting the priority given mining in water resource development.

By contrast, preserving water quality was not a priority. The 1892 *Water Privileges Act* explicitly vested ownership of water in the Crown and created a licensing system for its use, effectively curtailing riparian rights

¹⁸ Liboiron, *Pollution Is Colonialism*, 66.

¹⁹ N. Nunn, “The 2014 Mount Polley Mine Disaster: Environmental Injustice, Antirelativity, and Dreams of Unconstrained Futures” (PhD diss., University of Toronto, 2022), 111.

²⁰ Hoogeveen, “Sovereign Intentions,” 88. See also R.E. Cail, *Land, Man, and the Law: The Disposal of Crown Lands in British Columbia, 1871–1913* (Vancouver: UBC Press, 1974); K. Matsui, *Native Peoples and Water Rights: Irrigation, Dams, and the Law in Western Canada* (Montreal and Kingston: McGill-Queen’s University Press, 2009), chap. 3.

²¹ Files 1, 3, 7, box 3, Water Rights Branch, GR-1006, BCA, contain notes and copies of this early legislation. See also M.B. Clark, “Water, Private Rights and the Rise of Regulation: Riparian Rights of Use in British Columbia, 1892–1939,” *Advocate* 48 (1990): 253–62.

²² Cail, *Land, Man, and the Law*, chap. 4.

to clean water. An 1897 act to consolidate the province's various water laws described this action as protecting the "public interest" in water.²³ In spite of a provision in the 1914 *Water Act* proscribing the fouling of watercourses, licensees were not guaranteed the quality of water they recorded. In any case, the section of the act dealing with pollution was rarely, if ever, invoked.²⁴ Indeed, water allocations explicitly included the use of natural waters for waste disposal as part of its recorded "use" by miners.²⁵ For the mining industry and its government supporters, provincial waters were both a natural sink for waste and a key settler colonial infrastructure for resource extraction.²⁶

Before the mid-twentieth century, the most effective statutory pollution-control powers (outside of provincial health acts, mainly used to control sewage disposal) rested in the federal *Fisheries Act*. The first *Fisheries Act* of 1867–68 prohibited persons from throwing "offal" and other "deleterious substances" into fish-bearing waters. But the act also allowed the minister of fisheries to exempt from this prohibition "streams in which he considers that its enforcement is not requisite for the public interest."²⁷ The major 1932 revision of the act maintained this anti-pollution section and the small fines it provided for upon conviction. As one observer has noted, under the act, "protection of fish ... became the surrogate in Canada for federal protection of the environment."²⁸ Federal and provincial agencies shared administration of the act, although arrangements differed across the country. In British Columbia, federal officials policed anadromous and commercial fisheries; in the late 1930s, their provincial counterparts took full administrative control over inland waters and sport fisheries (although these remained under the legislative purview of the federal government). Since mine tailings were frequently discharged and/or spilled into fish-bearing waters, whether inland or

²³ Clark, "Water, Private Rights and the Rise of Regulation."

²⁴ P. Good, "Anti-Pollution Legislation and Its Enforcement: An Empirical Study," *UBC Law Review* 6, no. 1 (1971): 274.

²⁵ A.R. Lucas, "Water Pollution Control Law in British Columbia," *UBC Law Review* 4 (1969): 86.

²⁶ We're referring to pollution as "infrastructure" in the sense discussed by R. Shadaan and M. Murphy, "Endocrine-Disrupting Chemicals (EDCs) as Industrial and Settler Colonial Structures: Towards a Decolonial Feminist Approach," *Catalyst* 6, no. 1 (2020): 10; Liboiron, *Pollution Is Colonialism*, 16.

²⁷ K. Webb, "Industrial Water Pollution Control and the Environmental Protection Service," Law Reform Commission of Canada, May 1983, 64–67.

²⁸ A.R. Thompson, cited in Webb, "Industrial Water Pollution," 32. See also A. Keeling, "Charting Marine Pollution Science: Oceanography on Canada's Pacific Coast, 1938–1970," *Journal of Historical Geography* 33, no. 2 (2007): 403–28.

coastal, federal fisheries inspectors and provincial game wardens often investigated the environmental impacts.

For example, wastes from hard-rock mining and milling operations in the Kootenay and Boundary regions provoked regular complaints to fisheries officials. The Boundary district experienced a major mining boom based around the Greenwood and Hedley mining camps near the turn of the twentieth century. The Hedley camp included several mines along the Similkameen River; gold claims were staked on Nickel Plate Mountain in 1894, and a mine-mill complex emerged at the town of Hedley. Between 1905 and 1929, the Nickel Plate Mine and reduction plant was one of Canada's biggest gold producers.²⁹ At the Daly Reduction Co. mill, finely ground ore, or "slimes," were processed in cyanide solutions, which precipitated gold concentrate. The plant sluiced tailings from its stamp mill and cyanidation plant into the Similkameen River via Twenty-Mile Creek.³⁰

Downstream, agriculturalists near Keremeos complained in 1911 that cyanide-laced wastes from the plant were destroying the river as a water supply and affecting local sport fisheries. The ranchers sent a petition to their federal Member of Parliament demanding an investigation. After two inspections, federal fisheries overseers dismissed the effects on fish life, noting the Similkameen was not a salmon stream and therefore did not support a commercial fishery.³¹ Still, they encouraged the company to install filter tanks to allow tailings to settle out before discharging into the river. In spite of this arrangement, more complaints arose in 1916 and 1918 about the company's practice of washing tank slimes into the river. Yet fishery investigator A.P. Halladay warned superiors that the company provided an important local payroll: even if any harm to fish were to be detected, "It of course then would be a question as to which is of the most value, the interests of the mines, or the interests of the small portion of land that will be affected by its operations."³² No further action was contemplated against the mill.

²⁹ This description of the mine location is derived from C. Camsell, *The Geology and Ore Deposits of Hedley Mining District, British Columbia* (Ottawa: Department of Mines, 1910). See also D. Cox, *Mines of the Eagle Country: Nickel Plate and Mascot* (Penticton, BC: Skookum Publications, 1997).

³⁰ Camsell, *Geology and Ore Deposits of Hedley*, 15–18, 182–84.

³¹ The Similkameen pollution dispute is documented in Department of Fisheries, Pacific Region records, PR vol. 2239, file 34, parts 1 and 2, RG 23, LAC; PR vol. 2240, file 34, part 3.

³² Report by A.P. Halladay, Inspector of Fisheries, to F.H. Cunningham, Chief Inspector of Fisheries, 16 September 1918, Department of Fisheries, Pacific Region records, file 9-S6-S19, PR-2237, RG 23, LAC.

Fisheries officers were also reluctant to intervene when a large copper-reduction plant was proposed at Copper Mountain, upstream from Hedley. In 1916, the BC Copper Company proposed to dump some 4,000 tons (3,629 tonnes) per day of tailings directly into the Similkameen, which the local fisheries inspector feared would cloud the river with silt for up to forty miles (sixty-four kilometres) downstream. F.H. Cunningham, chief fisheries inspector for British Columbia, expressed his department's ambivalence: "Whilst the Department is anxious to protect the fish it cannot be done at the expense of such an undertaking. At the same time the developing of both the Lumber and Mining industries, together with the conservation of the Fisheries, must be worked out and arranged for on the best basis possible, having in view the interests of all concerned."³³ Cunningham essentially washed the department's hands of the issue, offering to "rescind" (essentially, disregard) the section of the *Fisheries Act* proscribing water pollution. Meanwhile his provincial counterpart, J.B. Babcock, also indicated to the company that his department would not pursue the matter. For its part, the company argued its tailings discharges should remain unregulated since they consisted of harmless mud.³⁴ Pollution from both these operations continued for decades – even provoking complaints from Washington State, dozens of kilometres downstream – but the pattern of official tolerance for tailings discharge never wavered.

As lode gold mining expanded across southern British Columbia, fisheries officials, reluctant to disrupt economic activity and divided in their jurisdiction, shied away from confrontations with mine operators, relying instead on a combination of negotiation and supplication to secure cooperation. Where public health was not threatened, industry found it easy to deny or rationalize stream degradation in the name of progress and development. As one mining engineer later expressed it, "If civilization is to go forward and improve, the great rivers and lakes must continue to be the cleansing agents of the land."³⁵ Reflecting the prevalent "wastelanding" discourse, provincial mountain territories

³³ F.H. Cunningham to H. Shotton, 24 October 1916, Department of Fisheries, Pacific Region records, PR vol. 2239, file 34-1, part 2, RG 23, LAC.

³⁴ W.A. Found to F.H. Cunningham, 14 November 1916, and O. Lachmund, General Manager, BC Copper Co., to J. Babcock, BC Department of Fisheries, 27 December 1916, Department of Fisheries, Pacific Region records, PR vol. 2240, file 34, part 3, RG 23, LAC. The "harmless mud" or silt claim was one frequently invoked by miners to justify tailings disposal; it was just as frequently untrue as tailings contain residual heavy metals, process chemicals, and other contaminants.

³⁵ *Transactions of Seventeenth British Columbia Natural Resources Conference* (Victoria: BCNRC, 1967), 75.

and waterways – themselves understood as “wastes” largely unsuitable for agricultural settlement – were reconfigured as resource frontiers primarily suited to extraction and associated waste disposal. This provided a crucial waste infrastructure for mining operations, to which access was presumed as part of the permitting and promotion of mineral resource development. It was only in rare instances where competing (settler) resource interests like fish or agriculture could be invoked that even modest resistance to the free disposal of mining waste, including poisonous chemicals, could be mounted.

In the decades around the Second World War, the rise of mass outdoor recreation and provincial game management produced just such a challenge. The clash of expanding industrial development and growing recreational interests prompted BC Game Commission officials to respond to the effects of mining on the aquatic environment.³⁶ Provincial fish and game officials regularly consulted with mine developers on the location and construction of tailings impoundments or other methods of disposal to avoid damage to fish streams. But they often met with resistance from mining companies until the Game Commission threatened prosecution under the *Fisheries Act*. Sometimes, the company either ceased operations or (reluctantly) installed tailings-impoundment facilities. In other cases, companies simply refused to impound tailings, citing the difficulty and expense of doing so in mountainous, remote terrain. As one inspector lamented in 1947, “The situation in this part of the country at present has come to the point where [the Game Commission] must decide whether or not the Dominion Fisheries Act has any teeth in it, that is, can mining companies willfully disregard the Fisheries Act and the recreational rights of a large proportion of the people under the plea that their costs would rise if an attempt were made to impound their tailings.”³⁷

In the 1950s, provincial fisheries officials got an opportunity to test the enforcement potential of the *Fisheries Act* in defence of recreational waters.³⁸ In 1954, the Sheep Creek Gold Mines company opened the Mineral King mine-mill complex, a low-grade silver-lead-zinc property on Toby Creek, a medium-sized tributary of the Columbia River near Invermere popular with local recreational fishers. The branch, concerned

³⁶ The Fish and Wildlife Branch was referred to as the province’s “environmental policeman” in C.S. Crook, *Environment and Land Use Policies and Practices of the Province of British Columbia*, 2 vols. (Victoria: BC Institute for Economic Policy Analysis, 1975), 86–87.

³⁷ C.F. Kearns, Inspector, to F.R. Butler, Game Commissioner, 9 December 1947, Fish and Wildlife Branch, memo, game fish culture – pollutions, file 1, box 13, GR-1109, BCA.

³⁸ The following account is based on correspondence and reports found in Fish and Wildlife Branch, files 9–10, box 125, GR-1027, BCA.

about tailings entering the creek, consulted with the company about the location of its impoundment. When this first impoundment proved too small to accommodate the accumulating tailings, provincial staff actually undertook efforts on behalf of the company to secure nearby land for a new impoundment and apply for rights-of-way for tailings flumes. Tailings pollution complaints reached the Fish and Game Branch, and a report by fisheries biologist F.P. Maher at the end of 1957 recounted the frustrating delays and obstructive attitude of the company. The company contended that "they were only really keeping the mine operating to keep the men employed" – a dubious claim, given its profitability.³⁹ Maher argued that prosecution, while distasteful, might be warranted since the company's blunt refusal to control pollution was undermining the branch's authority. While this suggestion was well received inside the branch, Minister of Recreation and Conservation Earle Westwood warned Game Commissioner F.R. Butler away from overzealous prosecutions.⁴⁰

Even as Westwood did so, the mine's small tailings impoundment collapsed on 24 May 1958, almost killing a worker and sluicing about 90,000 tonnes of tailings into Toby Creek. Butler immediately laid a charge against the company under the *Fisheries Act*. After visiting the site and confronting the devastation, Westwood and Mines Minister Ken Kiernan allowed the prosecution to proceed. As Fisheries Inspector C.E. Estlin wrote to Butler, the case was closely watched by all sides: "Fish and Game clubs, as well as Mining interests are keenly aware of this pending Court case and I feel it is of the utmost importance that a conviction be registered."⁴¹ Despite the importance of the case, Estlin was instructed to conduct the prosecution himself, without legal assistance. At a hearing in Kimberley, the judge upheld the indictment and the company was forced to pay the statutory penalty of a \$29 fine, plus \$9 court costs. Branch officials hoped that the paltry penalty would cause "eyebrows to be raised" about the seeming impunity with which companies committed their offences, even when caught and convicted. Instead, the mining industry reacted with outrage. An editorial titled "Conservation of Payrolls" in the industry periodical *Western Miner and*

³⁹ F.P. Maher, "Report on the Pollution of Toby Creek, Near Invermere, by Operations of the Mineral King Mine," 18 December 1957, Fish and Wildlife Branch, file 10, box 125, GR-1027, BCA. The gross value of production at Mineral King mine to May 1959 was over \$5 million. See "The Sheep Creek Story," *Western Miner and Oil Review* 31, no. 9 (1959): 25–27.

⁴⁰ E. Westwood to F. R. Butler, 30 May 1958, Fish and Wildlife Branch, file 10, box 125, GR-1027, BCA.

⁴¹ C.E. Estlin to F.R. Butler, 16 June 1958, Game Department memo, file 9, box 125, GR-1027, BCA.

Oil Review excoriated the decision and the Fish and Game Branch, wrote that “the game fish conservationists [must] recognize that an overly zealous harassment of the mining industry is a poor substitute for co-operation and appreciation of the industry’s problems.” Citing the extenuating circumstances of difficult terrain, operational costs, and the need to protect jobs, the editorial dismissed the need for protecting the “inconsequential stream.”⁴² When a second case against the company five years later failed, frustrated branch officials undertook no further pollution prosecutions until the end of the 1960s.

For its part, the industry’s “conservation-of-payrolls” mentality discounted environmental impacts as transitory and ephemeral, and rejected government interference in waste management. This permissive attitude to pollution was, as one mining engineer noted, “the natural reaction to pioneer operations in a wilderness area.”⁴³ Large companies such as the Consolidated Mining and Smelting Co.’s Kimberley and Trail operations were allowed to dump thousands of tonnes per day of tailings and smelter slag into the Columbia and St. Mary Rivers without sanction, setting a poor precedent for smaller companies and undercutting enforcement efforts.⁴⁴ The wasting practices of mining companies were tacitly, and sometimes openly, supported by government mines department officials and politicians eager to exploit mineral resources at almost any environmental cost.

RATIONALIZING TAILINGS DISPOSAL AND “ASSIMILATIVE CAPACITY”

The resourcist philosophy of mining waste and pollution gained its fullest expression in the regulatory approach of the British Columbia Pollution Control Board (PCB) in the 1960s. Created in 1956, the board initially dealt mainly with sewage disposal issues in the Lower Fraser region, though it also presided over industrial discharges originating from sources within municipal boundaries. In 1965, the PCB was transferred from the Department of Municipal Affairs to the Water Resources Branch. This meant that, while it began to regulate all industrial discharges, it

⁴² “Conservation of Payrolls,” *Western Miner and Oil Review* 31, no. 7 (1958): 8.

⁴³ L.F. Wright, “Control of Mineral Processing with Respect to Pollution,” *Western Miner and Oil Review* 34, no. 9 (1961): 34.

⁴⁴ Federal and provincial fisheries files indicate the massive (and hugely profitable) Cominco Trail smelter complex and Kimberley concentrator and fertilizer plant were treated with kid gloves, in spite of their tremendous waste discharges. See part 1, file 34-1, PR vol. 2239, RG 23, LAC-Pacific Region for reports from the 1910s. See reports from the 1940s in file 1, box 13, Fish and Game Branch, GR-1109, BCA.

did so from within the development-oriented Ministry of Lands, Forests, and Water Resources. Under the *Pollution Control Act*, the board was empowered "to determine what qualities and properties of water shall constitute a polluted condition," yet it initially evaluated permit applications without reference to published water-quality standards and based entirely on effluent data provided by the applicant.⁴⁵ The board's small staff (consisting mostly of engineers) undertook virtually no monitoring and enforcement, and restricted its efforts to permit issuance and limited planning.⁴⁶

The board's regulatory approach was rooted in the sanitary engineering concept of "assimilative capacity," or the *managed* ability of natural waters to absorb waste flows without impairment of other functions.⁴⁷ According to leading mid-century engineers and sanitarians, the assimilative capacity approach enabled planners to envision the aquatic environment as a set of quantifiable characteristics, uses, and benefits, from recreation and fisheries to domestic uses and waste disposal, which could be measured, controlled, and distributed among users for public benefit. Conservation ideology posited the maximum beneficial use of resources; this extended to the controlled, planned use of waterways for waste disposal. Mining advocates embraced this framing as it validated their exploitation of land and water as a waste sink under a regulatory regime that ensured their access to both mineral resources and land or water for waste disposal.⁴⁸

The board's first foray into mining waste regulation came amid the dispute over an open-pit mine inside Strathcona Park on Vancouver Island. Citing the "multiple use" principle, Ken Kiernan, minister of recreation and conservation, approved a controversial copper-lead-zinc mine at Myra Creek inside the provincial park over the fierce opposition of parks advocates in 1965.⁴⁹ But outcry redoubled when Western

⁴⁵ *Pollution-control Act*, 1956, Revised Statutes of British Columbia 1960, chapter 289, section 4(a).

⁴⁶ The procedures of the PCB from 1956 to 1965 are gleaned from the board's minutes in Environmental Appeal Board, accession no. 88-0408, files 1 and 2, box 79-01, BCA.

⁴⁷ On the PCB's origins and approach to both domestic and industrial pollution, see A. Keeling, "Urban Waste Sinks as a Natural Resource: The Case of the Fraser River," *Urban History Review/Revue d'histoire urbaine* 34, no. 1 (2005): 58-70; and Keeling, "Charting Marine Pollution Science." Liboiron provides an important critical reappraisal of the concept of "assimilative capacity" in *Pollution Is Colonialism*, chap. 1.

⁴⁸ J.D. Little, "Resource Conflict Problems Affecting Mine Development," *Western Miner and Oil Review* 34, no. 9 (1961): 24-33.

⁴⁹ This controversy is reviewed in detail in A. Keeling and G. Wynn, "'The Park ... Is a Mess': Development and Degradation in British Columbia's First Provincial Park," *BC Studies* 170 (2011): 119-50.

Mines Limited announced plans to dump mine tailings directly into nearby Buttle Lake, the park's recreational jewel. The practice of engineered "subaqueous" disposal of tailings had previously found favour with mining companies and mines branch officials seeking economic solutions to challenging terrain. For instance, the Consolidated Mining and Smelting Limited Bluebell Mine had been dumping tailings into Kootenay Lake since 1950 (as had other mines before it).⁵⁰ Fish and game officials, though less sanguine about this practice, concluded that, given existing and historic tailings discharges to the Kootenay Lake system, Bluebell's were not especially problematic. Advocates of lake dumping at Myra Creek cited Bluebell as an example of a workable, indeed rational, solution to mine waste disposal.⁵¹

Western Mines proposed to discharge tailings from a pipeline eighty to one hundred feet (twenty-four to thirty metres) below the surface of Buttle Lake, where they would settle on the lakebed and avoid contaminating the water column. Initially, provincial water and wildlife officials approved the plan, concluding that the underwater disposal of tailings would not adversely affect water quality or fisheries. As controversy mounted, after a review the PCB hastily licensed the lake dumping plan, over hundreds of objections. The decision prompted public protests and even a court challenge by the Campbell River Water District, which feared the drinking water might be contaminated by trace chemicals or heavy metals.⁵² In spite of the political reaction, the Lynx Mine (as it was called) began to discharge tailings in the spring of 1967. As part of a compromise negotiated with the Water District, an independent consultant was appointed to study their effects, and, in January 1969, Ontario mining engineer G.B. Langford concluded that the plan "conformed to acceptable health and engineering standards" and that the impact on aquatic life would be minimal.⁵³ Buttle Lake, it

⁵⁰ Bluebell Mine, file 13, box 11, GR1109, BCA.

⁵¹ W.K. Kiernan, "Buttle Lake – Western Mines Ltd.," February 1967, file 7, box 80, Roderick Haig-Brown Fonds, University of British Columbia Special Collections and University Archives (hereafter UBCA).

⁵² "Government Gets 'Buttled' Water," *Vancouver Sun*, 21 March 1967, cited in file 11, box 31, Fisheries Association of BC Fonds, UBCA. Public activism against the tailings disposal plan is also considered in C. Gamey, *Mining Conflicts* (Victoria: Political Science, B.C. Project, University of Victoria, 1983).

⁵³ Summary Record, 10 May 1968, file 10, box 79-02, accession no. 88-0408, Environmental Appeal Board, BCA; L. Foubister, "Buttle Lake Water Quality: History of Western Mines with Respect to Pollution Control Act," reprinted in M.J.R. Clark, *Impact of Westmin Resources Ltd. Mining Operation on Buttle Lake and the Campbell River Watershed* (Victoria: Ministry of Environment, 1982). Langford's final report appeared in 1969: see "Monthly Reports Due on Buttle Lead Count," *Victoria Times*, 28 February 1969, BC Legislative sessional clipping books (microform), UBCA.

was determined, could safely absorb the mine's wastes, and the threat of contaminated drinking water supplies was largely dismissed as water quality remained above Canadian standards.

By the 1970s, however, growing environmental consciousness resulted in increasing disputes over industrial pollution, from both pulp mills and mineral developments. New "mega-mine" developments, including strip and open-pit mines, threatened to generate ever-greater volumes of waste rock and tailings, drawing the ire of environmentalists, Indigenous communities, and the general public.⁵⁴ Increasingly, critics framed their concerns around ecological impacts and threats to environmental health rather than conflict with recreational use or other resources. Nowhere was this clash of views more evident than in the Island Copper Mine controversy. The American mining giant Utah Mining and Construction Company proposed a massive open-pit mine on Rupert Inlet, part of Quatsino Sound on Vancouver Island, for the extraction and processing of some 254 million tonnes of low-grade copper-molybdenum ore.⁵⁵ The mine's tidewater location, combined with the potential for seismic activity, created problems for land-based tailings disposal.⁵⁶ Given these constraints, Utah proposed to dispose concentrator wastes through a deep-water pipeline extending 2,400 feet (731 metres) from shore and discharging at more than 150 feet (46 metres) below the surface of the inlet. The waste stream would include an unknown quantity of residual minerals as well as traces of chemical reagents from the flotation process used to recover minerals. These wastes would be diluted using seawater and treated with a flocculant, a type of electrolyte that aids in the coagulation of fine particles. Thus, while the 9.3 million gallons (over 42 million litres) per day of effluent would contain some 29,000 tonnes of finely ground tailings, it was predicted that the tailings would settle quickly – and stay – on the inlet floor and remain chemically inert.⁵⁷ Concerned about the potential impacts on fisheries and fuelled by a widespread distrust of government pollution-control policy, envi-

⁵⁴ The origin and development of mega-mining techniques is traced in LeCain, *Mass Destruction*.

⁵⁵ C. Aspinall, *The Story of Island Copper* (Vancouver: BHP Minerals Canada, 1995), 9. Ultimately, the ore body included nearly 400 million dry short tons of ore, and the operation removed nearly a billion tons of material between 1971 and 1995, when the mine closed.

⁵⁶ B.R. Martin, "The Causes of Scientific Disputes in Impact Assessment and Management: The Utah Mines Case" (MA thesis, University of British Columbia, 1985), 37–38. These concerns were raised by both the company and the federal Department of Fisheries, which initially supported the inlet dumping plan.

⁵⁷ Transcript of Pollution Control Branch public hearing (2 vols.), 2 December 1970, vol. 1, 20–27, file 00-069, sec. 4.10.5, box 13, Island Copper Mine Fonds (hereafter ICM Fonds), accession no. 2000-069, University of Victoria Archives. This transcript contains all briefs to the hearing as well as the proceedings. These data are from the Utah brief.

ronmental groups raised the alarm about the mine's potential impacts. In doing so, they challenged the philosophy of assimilative capacity that guided the rationalized exploitation of water for waste disposal.

With the Island Copper Mine already under construction in fall 1969, the Pollution Control Board began reviewing the waste discharge proposal. After requesting an independent study from the BC Research Council, the PCB attempted to limit public debate by hosting a public hearing in Port Hardy in December 1970 with only four recognized objectors. Undeterred, increasingly well-organized and vocal environmental groups and fisheries advocates submitted briefs and collaborated to challenge the plan on technical grounds. Particularly damaging was the brief presented at the public hearing by Patrick Moore on behalf of the Pacific Salmon Society. At the time, Moore (who went on to become a high-profile Greenpeace activist) was a PhD student in ecology at the University of British Columbia and an environmental activist who combined the radical politics and lifestyle of the period with a keen and careful scientific eye. Moore shredded the cursory scientific studies underlying the Utah proposal, providing his own oceanographic investigations that suggested turbulence at lower depths could result in the transport of tailings and turbidity within the inlet. He also exposed the lack of ecological studies done in advance of the proposal, raising the spectre of accumulation of toxic materials in the sediment and the bioaccumulation of heavy metals in the marine biota. Further, Moore criticized both company and BC Research Council reviews, arguing they were tainted by pro-industry bias.⁵⁸

Although the PCB eventually issued a discharge permit to the company in January 1971, environmentalist pressure resulted in the imposition of unprecedented conditions. The PCB required the construction of an emergency tailings impoundment on land for use in the event that environmental problems arose. Exemplifying the emerging technocratic governance approach to waste management, the board also ordered the company to create and fund an independent group to carry

⁵⁸ Transcript of Pollution Control Branch public hearing, vol. 2. The BC Research Council had prepared a pre-hearing report, essentially a literature review on the effects of underwater tailings disposal that featured no field investigations at Rupert Inlet: "The Disposal of Mining and Milling Wastes with Particular Reference to Underwater Disposal," April 1970, BC Research, box 12, ICM Fonds. Moore's completed PhD dissertation featured his scientific studies at Rupert Inlet as well as long sections describing the hearings and criticizing the Pollution Control Board. See P.A. Moore, "The Administration of Pollution Control in British Columbia: A Focus on the Mining Industry" (PhD diss., University of British Columbia, 1973). See also A.R. Lucas and P.A. Moore, "The Utah Controversy: A Case Study of Public Participation in Pollution Control," *Natural Resources Journal* 13, no. 1 (1973): 36–75.

out an environmental monitoring program in the inlet. Throughout ICM's operation, a panel of scientists evaluated data on turbidity, seabed covering, water contamination, fisheries impacts, habitat and ecosystem changes, effects on biological productivity, biological contamination, and other land and freshwater impacts.⁵⁹ Media reports touted these detailed conditions as the most restrictive ever applied to a Canadian resource development, though the project was still regarded by some as a gigantic "experiment" in the environmental effects of subaqueous tailings disposal – one that remained controversial through the 1970s.⁶⁰ As D.V. Ellis, a marine biologist at the University of Victoria and scientific panel member subsequently noted, the Island Copper Mine became a test case not only for tailings disposal but also for impact assessment and monitoring procedures that became standard for similar developments worldwide.⁶¹

In the wake of growing regional and national concern over industrial pollution in the 1970s, governments undertook further efforts to refine both federal and provincial anti-pollution regulations. Changes to federal legislation and the creation of provincial pollution control "objectives" nevertheless enshrined assimilative capacity as a core principle of waste governance. *Fisheries Act* revisions in 1970 removed the blanket prohibition on dumping "deleterious substances" into fish-bearing waters in favour of "more precise measurements of what can be thrown into water and still keep it clear, clean and useful to fisheries."⁶² Still, it took until 1977 for the federal Environmental Protection Service (part of the new Ministry of Environment) to issue Metal Mining Liquid Effluent Regulations, which essentially created "site-specific," negotiated regulations for new mines and exempted existing operations, making them subject to "objectives" for improving environmental performance. The hope, from a federal perspective, was to limit the need to enforce

⁵⁹ Section 4.10.1, box 1, ICM Fonds contains the "pre-operational report" of the panel as well as the Summary Reports for the first few years of monitoring. See also M. Waldichuk and R.J. Buchanan, *Significance of Environmental Changes Due to Mine Waste Disposal into Rupert Inlet* (Victoria: Fisheries and Oceans Canada, BC Ministry of Environment, 1980).

⁶⁰ "Utah Wins Permit – with Safeguards," *Victoria Colonist*, 21 January 1971, 1; L. Taylor, "Utah: A \$74 Million Anti-Pollution Test Tube," *Vancouver Province*, 25 January 1971, 4. Concerns resurfaced occasionally in the 1970s. See, for instance, H. Davy, "Too Bad. They Are Ruining This Inlet. Man's Crazy," *Victoria Times*, 31 May 1975, 17; and "Sludge from Copper Mine 'Destroying' Life in 2 Inlets," *Vancouver Sun*, 20 January, 1978, B1.

⁶¹ D. Ellis, "Mining – Island Copper (Canada)," in *Environments at Risk: Case Histories of Impact Assessment* (Berlin: Springer-Verlag, 1989), 75–76. See also his preface to D.V. Ellis, ed., *Marine Tailings Disposal* (Ann Arbor, MI: Ann Arbor Science, 1982).

⁶² Federal fisheries minister Jack Davis, quoted in Webb, "Industrial Water Pollution," 69.

the *Fisheries Act* in favour of standards worked out collaboratively with operators.⁶³

For its part, the provincial Pollution Control Board also sought to codify pollution control “objectives” to limit discharges that “significantly alter or impair the usefulness of the land, water or air.”⁶⁴ Stung by criticisms of its lack of transparency, the board held public hearings on these objectives for different sectors, including the mining industry in 1972 and again in 1978. These hearings generated controversy from all sides as environmentalists attacked industry practices, and mining defenders like the Mining Association of BC decried encroaching regulation. Although the resulting objectives provided only unenforceable “guidelines” for pollution control, one board member issued a dissent attacking water quality objectives on the basis that they failed to account for local assimilative capacity and resource uses.⁶⁵ Overall, many environmental advocates regarded the hearings as inaccessible, highly technical exercises in legitimization of the province’s permissive pollution regime.⁶⁶ Revised after a second inquiry in 1978, these guidelines remained firmly rooted in the exploitation of assimilative capacity for the absorption of mine wastes, overseen by a neoliberal strategy of collaborative, rather than disciplinary, governance.

If pollution control guidelines meant to neutralize environmental opposition, they failed to forestall another major ocean-dumping controversy at the end of the 1970s: the Climax molybdenum mine. This case reflected yet further shifts in pollution politics in British Columbia as resource conflicts and ecological concerns around tailings disposal were linked with human health and the Indigenous rights of the Nisga’a Nation, on whose territory the mine was constructed. In 1974, the AMAX Corporation sought to reopen and massively expand a former molybdenum mine at remote Kitsault, north of Prince Rupert. Drawing on the Island Copper example, the company proposed to use subaqueous tailings disposal into Alice Arm in lieu of land-based impoundment, citing the latter’s difficulty, potential hazard, and cost. But new federal regulations forbade ocean dumping, and both the volume (over 9,071

⁶³ Webb, “Industrial Water Pollution,” 141–45.

⁶⁴ *British Columbia Pollution Control Act, 1967*, cited in A.R. Lucas, “Water Pollution Control in British Columbia,” *UBC Law Review* 4, no. 1 (1969): 56–86.

⁶⁵ The inquiries are given a strongly reactionary gloss in the memoir of the former Pollution Control Board head C. Keenan in *Environmental Anarchy: The Insidious Destruction of Social Order: A Legacy of the Sixties* (Victoria: Capps Press, 1984), 107–12.

⁶⁶ M. McPhee, “Public Involvement in Setting and Enforcing Pollution Control Standards in British Columbia,” in *Water Problems and Policies*, ed. W.R.D. Sewell and M.L. Barker (Victoria: University of Victoria Department of Geography, 1980), 167.

tonnes per day) and characteristics of the tailings (including dissolved arsenic, heavy metals, and radium-226) sparked internal concerns and a technical review by federal regulators.⁶⁷ After quiet negotiations with the company over its outfall design, in early 1979 the province approved a discharge permit and the federal cabinet – amid a federal election campaign – issued an Order-in-Council creating special regulations to permit tailings disposal into Alice Arm, essentially exempting the mine from the new Metal Mine Liquid Effluent Regulations.

AMAX proceeded with development of the mine and construction of a townsite at Kitsault, until the very public intervention of the Nisga'a Nation early in 1980. Nisga'a opposition highlighted the potential environmental damage and impacts on both commercial and Indigenous fisheries. "The mining company has offered us a share in the mine – death to our people," Nisga'a president James Gosnell told the *Vancouver Sun*.⁶⁸ Gosnell and Nisga'a lawyers pointed to the potential health and ecological impacts of heavy metals accumulation in the inlet, arguing Indigenous interests and resources had been ignored. Nisga'a concerns pushed the secretive discharge approval process into the limelight, sparking opposition from environmentalists and fisheries workers

Through 1981, Nisga'a leaders and their allies continued to challenge the technical assessment of tailings disposal on the marine life of the inlet. But they also linked the issue to the resolution of Nisga'a land claims and the inadequate consideration of Indigenous fishing rights in previous technical reviews.⁶⁹ In so doing, the Nisga'a challenged the colonial premise at the heart of the tailings management regime: the nearly unquestioned right of industry to exploit the lands and waters of the province as a sink for mine waste. Backed by environmentalists and the United Fishermen and Allied Workers' Union, Nisga'a advocacy forced federal fisheries minister Romeo Leblanc into the hasty assembly of a scientific review panel – even as the mine began operation in April 1981. Nisga'a leaders dismissed the panel, calling for a full public inquiry and engaging their own technical experts. The issue generated sustained media attention, including allegations that the company lobbied federal

⁶⁷ T.F. Pedersen, D.V. Ellis, G.W. Poling, and C. Pelletier, "Effects of Changing Environmental Rules: Kitsault Molybdenum Mine, Canada," *Marine Georesources and Geotechnology* 13, nos. 1–2 (1995): 119–33.

⁶⁸ M. Farrow, "Share in Mine Is Death to Band, Nishgas Say," *Vancouver Sun*, 28 June 1980, 1.

⁶⁹ I. Mulgrew, "The Tussle for Alice Arm," *Globe and Mail*, 18 July 1981, 10. A critical review of the AMAX proposal and Nisga'a resistance can be found in D. Raunet, *Without Surrender, without Consent: A History of the Nishga Land Claims* (Vancouver: Douglas and McIntyre, 1984), chap. 13.

officials and even had a hand in drafting its special exemption from pollution regulations.⁷⁰

The subsequent scientific review report essentially validated the inlet dumping plan and dismissed contamination concerns, though it recommended additional environmental monitoring (which the panel itself was retained to undertake). Yet, by October 1982, the AMAX mine was in shutdown due to the global collapse of the molybdenum market, never to reopen. The rapid curtailing of tailings discharge offered an opportunity for scientists to study the predicted tailings dispersal pattern and the recolonization of benthic communities after closure. There was little indication, however, of what the potential long-term effects the continued operation of the mine might have had on crab, clam, or other fisheries, or the long-term effects of heavy metal bioaccumulation in the inlet.⁷¹

For some retrospective observers, the brief but fiery AMAX episode encapsulated the challenge of conducting “impartial” scientific assessments amid not only the growing complexity and uncertainty of environmental impacts but also the presence of “social concerns.” Biologist Derek Ellis, a participant in both the Island Copper and AMAX environmental reviews, lamented that in the latter “site-specific and broader issues were thoroughly intermixed,” challenging the ability of scientists to determine and communicate expert technical knowledge.⁷² This view, in addition to mistaking expertise for impartiality, also obscures the more fundamental issues surrounding tailings dumping controversies that were highlighted most effectively by Nisga’a opposition. Their demand that land claims be resolved ahead of mineral development enacted a toxic politics that questioned the authority of settler governments and the system of allocating assimilative capacity for waste disposal.⁷³ In place of the “governmentality” of environmental assessment, monitoring, and management, Nisga’a demanded an affirmation of Indigenous territorial (and aquatic) rights – ironically, even

⁷⁰ K. Boggild, “The AMAX Controversy,” *Alternatives: Perspectives on Society, Technology, and Environment* 10, nos. 2 and 3 (1982): 40–46; S. Berry, “Nishga Hail ‘Major, Moral Victory,’” *Vancouver Province*, 8 May 1981, 4.

⁷¹ Pedersen et al., “Effects of Changing Environmental Rules.”

⁷² D. Ellis, “Kitsault, BC – Technical Communication in a Non-Technical World,” *Marine Pollution Bulletin* 13, no. 3 (1982): 80. See also A.H.J. Dorsey and B.R. Martin, “Reaching Agreement in Impact Management: A Case Study of the Utah and AMAX Mines,” in *Audit and Evaluation in Environmental Assessment and Management: Canadian and International Experience*, ed. B. Sadler (Ottawa: Environment Canada, 1987), 1:259–300.

⁷³ M. Liboiron, M. Tironi, and N. Calvillo, “Toxic Politics: Acting in a Permanently Polluted World,” *Social Studies of Science* 48, no. 3 (2018): 331–49.

eliciting a statement of support for Nisga’a land claims from AMAX (shortly before the mine closed).⁷⁴

CONCLUSION

In 1982, British Columbia’s beleaguered *Pollution Control Act* was replaced by the new *Waste Management Act*, which appeared to signal a more comprehensive approach to environmental protection. Yet the long-standing practice of using land and water for the disposal of mine tailings remained firmly entrenched. Although subsequent decades would see the proliferation of environmental assessment, waste management, and contaminated sites legislation – as well as lightly revised mining legislation – at root, the main focus of these laws remained authorizing tailings discharges, mitigating their ecological impact, and ensuring some form of post-mining reclamation.⁷⁵ In that sense, this regime entrenched the “right” to accumulate and/or discharge tailings (or runoff) that paralleled the basic “right to mine” once a mineral lease was established. As Allard and Curran note, “environmental assessment is largely concerned with under what conditions it is acceptable to operate a mine in the proposed location” – not whether or not to allow the mine and its residuals.⁷⁶

In this dynamic, we can see the continuity between the “normal” exploitation of the environment as a sink for wastes and the problem of tailings “spills” and failures, of which Mount Polley provided an extreme example. The technopolitical “logic of residualism” central to modern mining entails the production, handling, and disposal of massive amounts of waste. As Liboiron and Lepawsky argue (drawing on work by Balayannis), the categorization of some waste (such as tailings) as “permitted discharge” versus “contamination” is fundamental to the managerial approach to waste: “business as usual is able to proceed by

⁷⁴ R. Rose, “AMAX Refuses Public Inquiry on Mill,” *Vancouver Sun*, 15 April 1982, 21.

⁷⁵ For a useful overview of these legislative developments post-1980, see P. Houlihan and J. Titerle, *External Review of Mine Reclamation and Environmental Protection Under the Mines Act and Waste Management Act* (Victoria: Province of British Columbia, 2001), retrieved from www.llbc.leg.bc.ca/public/pubdocs/bcdocs/350795/externalreview_minereclamation.pdf; B.R. Collison, P.A. Reid, H. Dvorski, M.J. Lopez, A.R. Westwood, and N. Skuce, “Undermining Environmental Assessment Laws: Post-Assessment Amendments for Mines in British Columbia, Canada, and Potential Impacts on Water Resources,” *FACETS* 7 (2022): 611–38; and “Digging Up a Legislative History: A Timeline of Mining Law and Contamination Events in British Columbia,” UVic Environmental Law Club (2018), retrieved from <https://elc.uvic.ca/publications/digging-up-a-legislative-history/>.

⁷⁶ C. Allard and D. Curran, “Indigenous Influence and Engagement in Mining Permitting in British Columbia, Canada: Lessons for Sweden and Norway?” *Environmental Management* 72, no. 1 (2023): 9.

leveraging existing dominant modes of categorization, understanding, and circulation. The pollution ‘disappears.’”⁷⁷

The emergence of British Columbia’s rationalized, objectives-based “waste regime” in the second half of the twentieth century reflected this philosophy of environmental and health risk assessment. Similar to the production of knowledge about resources, the effort to render waste disposal and assimilation capacity calculable and manageable reinforced the “governability” of nature and, in so doing, the legitimacy of the settler state as manager.⁷⁸ This approach aimed to depoliticize pollution control decisions while preserving the basic practice of exploiting assimilative capacity. As Fabiana Li describes it, in this dynamic environmental assessment effectively becomes a “self-regulatory regime that contributes to state legitimacy while limiting the regulatory responsibility of its institutions.”⁷⁹ The “failure” of this approach to prevent routine pollution, to avert tailings disasters like Mount Polley, or to mitigate the long-term environmental legacies of tailings disposal (including and especially at the many abandoned mines across the province) is, in this sense, less a failure than a predictable consequence of a system created to license large-scale extraction and its residuals.

That Indigenous impacts and interests were largely invisible in these debates until the late twentieth century is indicative of the thoroughgoing coloniality of this waste regime. As Nunn suggests, the Mount Polley tailings disaster must be understood “within a broader historical context of systematic disruption throughout BC’s colonial history.”⁸⁰ In this article, we explore in detail how the construction of British Columbia’s mining frontier as “empty” and “wastes” discursively prepared the ground for the extractive industry’s “wastelanding” of Indigenous land and waters, without reference to First Nations occupancy and rights. This invisibilization continued in the era of assimilative capacity, which

⁷⁷ Liboiron and Lepawsky, *Discard Studies*, 87, quoting investigations by A. Balayannis, “Toxic Sights: The Spectacle of Hazardous Waste Removal,” *Environment and Planning D: Society and Space* 38, no. 4 (2020): 772–90, <https://doi.org/10.1177/0263775819900197>. For instance, the revised *Waste Management Act* defined spills as “the intentional or unintentional introduction of a substance into the environment *other than as authorized by the WMA*.” Cited in Houlihan and Titerle, *External Review of Mine Reclamation and Environmental Protection*, 25 (emphasis added).

⁷⁸ Rutherford, “Green Governmentality”; S. Boudia, “Managing Scientific and Political Uncertainty: Environmental Risk Assessment in a Historical Perspective,” in *Powerless Science? Science and Politics in a Toxic World*, ed. N. Jas and S. Boudia (New York: Berghan Books, 2014), 95–112.

⁷⁹ Li, *Unearthing Conflict*, 198.

⁸⁰ N. Nunn, “Repair and the 2014 Mount Polley Mine Disaster: Antirelationality, Constraint, and Legacies of Socio-Ecological Disruption in Settler Colonial British Columbia,” *Environment and Planning D: Society and Space* 41, no. 5 (2023): 888–909.

reconfigured pollution in resource management terms, with Indigenous Peoples (where acknowledged) as simply one among many potential resource interests. Significantly, beginning with the Kitsault controversy in 1980–81, concerns about environmental degradation from mining have become increasingly linked with assertions of Indigenous land claims and sovereignty.⁸¹ In this episode, as in the decades since, both Indigenous mobilization against, and engagement with, pollution regulation has challenged the settler state's mineral development and environmental assessment regimes.⁸²

⁸¹ Hoogeveen, "Fish-Hood"; D.C. Baker and J.N. McLelland, "Evaluating the Effectiveness of British Columbia's Environmental Assessment Process for First Nations' Participation in Mining Development," *Environmental Impact Assessment Review* 23, no. 5 (2003): 581–603; T.-L. Aldred, C. Alderfer-Mumma, S. de Leeuw, M. Farales, M. Greenwood, D. Hoogeveen, R. O'Toole, M.W. Parkes, and V. Sloan Morgan, "Mining Sick: Creatively Unsettling Normative Narratives about Industry, Environment, Extraction, and the Health Geographies of Rural, Remote, Northern, and Indigenous Communities in British Columbia," *Canadian Geographer* 65, no. 1 (2021): 82–96.

⁸² S. Thériault, S. Bourgeois, and Z. Boirin-Fargues, "Indigenous Peoples' Agency within and beyond Rights in the Mining Context: The Case of the Schefferville Region," *Extractive Industries and Society* 12, no. 4 (2022): 100979; L.S. Horowitz, A. Keeling, F. Lévesque, T. Rodon, S. Schott, S. Thériault, "Indigenous Peoples' Relationships to Large-Scale Mining in Post/Colonial Contexts: Toward Multidisciplinary Comparative Perspectives," *Extractive Industries and Society* 5, no. 3 (2018): 404–14.