

Regulating coal mine runoff

Environment and Climate Change Canada (ECCC) is developing a federal Regulatory Framework for Coal Mining in Canada. Its first round of stakeholder consultation ended on March 31, 2017.

This regulatory framework, proposed under the *Fisheries Act*, aims to protect fish and fish habitat by limiting the amount of coal mining waste that is released into fish

habitat as an effluent. An effluent is a liquid waste product, formed by mixing water with waste rock, that is released into the environment beyond the mine site through surface runoff, underground seepage, and discharge from settling ponds. If the waste rocks were ground coffee beans, the effluent would be what percolates through the grounds and ends up in your coffee cup. Currently, effluent discharge by coal mines is regulated provincially.

ECCC seeks to set and regulate discharge limits for harmful substances such as selenium, nitrates, and suspended sediments. Selenium builds up in fish tissue and causes toxicity and reproductive failure in fish at relatively low concentrations (two to five parts per billion (ppb)). Nitrates are introduced into waterways through the use of explosives. Since nitrates are usually the limiting factor of plant growth in most ecosystems the introduction of excessive nitrates

into aquatic habitats often causes eutrophication, which can result in algal blooms and massive fish die-offs. Suspended sediments occur naturally in water bodies and, in the correct concentrations, are crucial to ecosystem function. However, ecosystems are adapted to natural levels of sediments and increasing sediment levels above that range can damage both aquatic life and habitat. Therefore, sediment management is focused on maintaining the natural background levels. While suspended, elevated sediment loads can block sunlight from reaching aquatic plants. When deposited at the bottom of a water body, increased sedimentation can suffocate fish spawning beds and invertebrates. AWA advocated against allowing coal mining operations to increase sediment discharge limits during exceptional precipitation and flood events. We argued that structures constructed for use during mine operation should be built to a standard that can accommodate and withstand these types of events.

AWA also advocated for limits on and monitoring of dissolved carbon dioxide and calcite, which can increase concentrations of limestone in streambeds. Additionally, AWA suggested establishing limits on chemicals used for clumping waste particles – called flocculants – in tailings ponds and banning the use of known toxic flocculants.

Once finalized, new and expanded mines will be subject to these new regulations when they come into operation and active mines will likely be required to abide by the standards in short order. To incentivize operators to meet these regulations in as short

a time as possible, AWA suggested increased monitoring and a “polluter pays” tax that increases the longer that operators are in violation of the new regulations.

For mines with “legacy issues” – the very polite phrase used to refer to outdated designs and/or practices – it may not be possible to neatly contain harmful runoff from mines. These types of issues are common with mountain mines where coal is removed by more-or-less taking the top off of a mountain and relocating it into large waste rock piles in valleys and other low points on the site. One issue with mountain top removal is that water also tends to accumulate in these same areas which allows contaminants to travel through the environment. The federal government proposes to monitor the receiving environment, as opposed to monitoring discharged effluents. AWA agrees with this approach and suggested a similar approach for monitoring cumulative effects. This doesn’t eliminate the need to ensure that overall environmental limits are in place. If those limits are exceeded, prompt immediate action must be taken to reduce the release of harmful substances. Given the significant risks these mines pose to environmental and human health and past difficulties in managing them, AWA believes these mines need to be held to daily monitoring schedules.

The regulatory framework proposes depositing mining wastes into water bodies inhabited by fish if there are no other suitable alternatives. AWA believes this should only be a last resort and that, under no circumstance, should designated critical habitat or habitat that contains species at risk be

used for waste disposal. If destruction of fish habitat occurs, the operator must develop a fish habitat compensation plan. A habitat compensation plan outlines how habitat destroyed by a development will be replaced through maintenance or the enhancement of productivity in other habitats.

Fishery habitat compensation plans have so far been a failure in Canada: a study of fish habitat compensation plans in Canada found that 63 percent failed to achieve no net loss of habitat productivity. Inadequate enforcement and monitoring, the time needed to enhance habitat, and ineffectiveness are among the factors responsible for this failure. Another study found that 67 percent of the authorizations issued under the *Fisheries Act* allowed for more fish habitat to be harmfully altered, disrupted, or destroyed than the amount required for compensation. This loss is antithetical to the purpose of the regulatory framework. For a habitat compensation plan to address these issues, it needs to insist on net gains in fish habitat and it needs to insist that the habitat compensation program must be funded and well underway prior to letting mines sacrifice more habitat.

Overall, the regulation appears to be a step in the right direction. It provides increased operator accountability and mitigates some of the environmental issues created by coal mines. AWA will continue to work with ECCC to strengthen the regulation for the purpose of conserving fish habitat.

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