



U.S. Department of the Interior
Bureau of Land Management

Red Devil Mine

April 2017

Red Devil Mine ore processing facility, 1943

This newsletter provides updates on the environmental project at the Red Devil Mine, an abandoned cinnabar mine and mercury production facility on the Kuskokwim River. A link to the complete record of documents for this project, including previous newsletters, is available at <https://www.blm.gov/alaska>

BLM to provide Red Devil Mine project updates

Bureau of Land Management staff will be available to meet with interested Kuskokwim River communities and tribal organizations in coming months to provide an update on the environmental cleanup at the Red Devil Mine in Southwest Alaska.

The BLM has completed a Remedial Investigation of contamination posed by tailings, waste rock, soil, and creek sediments at the Red Devil Mine site. It confirmed that the tailings at the abandoned mine contain high concentrations of mercury, arsenic, and antimony. The BLM took action in 2014 to keep the tailings from migrating into the Kuskokwim River by realigning a portion of Red Devil Creek, moving the largest tailings pile away from the creek, and constructing a retention basin in the creek downstream to catch future eroded tailings.

In February 2016, the BLM finished a Feasibility Study of the tailings, soil and sediment on the mine site. Four different cleanup alternatives were evaluated as part of the Feasibility Study. An investigation of groundwater at the mine site and sediments in the Kuskokwim River is continuing. An important part of the current investigation is evaluating the risk to people and wildlife from exposure to the sediment in the river and from eating fish caught in the river. Once that investigation of groundwater and river sediments is complete, the BLM will conduct a feasibility study in order to evaluate remediation alternatives, just as it did for the tailings and soil. We anticipate that the investigation of the groundwater and river sediment, including the risk assessment, will be completed in 2017.

The BLM's next steps will identify a preferred site-wide remediation alternative for all aspects of the project, including groundwater and the river sediment. The investigation and feasibility assessment results will be summarized in a document called a Proposed Plan. The BLM will present the Proposed Plan to the public and request comment on the preferred alternative. Once those comments have been considered and addressed, the BLM will document the remediation approach in a Record of Decision. The Record of Decision spells out what actions will be taken, cleanup levels, and future monitoring requirements. Once the Record of Decision is complete, the BLM will proceed with remedial action, subject to available funding.

Would you like a Red Devil Mine Update in your community?

Contact Public Affairs specialist Maureen Clark at 907-267-1420 or by email, m1clark@blm.gov to schedule a public meeting or tribal consultation.

Questions? Contact Us

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Study helps further understanding of mercury in Kuskokwim fish

The middle section of the Kuskokwim River, from McGrath to Kalskag, runs through an area with lots of naturally occurring mercury and other metals. This area is often referred to as Alaska's "mercury belt." Fish that live in the river and its tributaries all year, such as pike, lush (burbot), and sheefish are important sources of protein for local people. Many of these resident fish are known to contain high levels of mercury in their tissues and are a source of concern for the people of the region.

In 2010, the Bureau of Land Management began a study of the Kuskokwim River fish, with assistance from the U.S. Fish and Wildlife Service and the Alaska Department of Fish and Game. The study looked at mercury concentrations in fish and where those fish spend their time.

More than 900 fish were sampled in 2010-2011 and analyzed for 13 different metals, including mercury, arsenic, and antimony. The fish were caught in the Kuskokwim River between Aniak and Stony River and from 15 tributaries in that same area.

The sampling results showed that metals concentrations in fish, particularly mercury, are not the same in all types of fish and in all places. Mercury is different from many metals because it tends to accumulate in larger fish over time as they eat small fish that contain mercury. Most of the smaller fish sampled for the study, such as sculpin, Dolly Varden, and Arctic grayling are found in small tributary streams. The small fish with the highest mercury concentrations were found in Red Devil Creek and Cinnabar Creek, next to old mercury mines.

The majority of the larger fish such as pike, lush, and sheefish are found in the Kuskokwim River or in larger tributaries such as the George, Holitna and Takotna. These larger fish had the highest concentrations of methylmercury (the kind of mercury of greatest concern).

The results from 2010-2011 confirmed that resident fish had high levels of mercury but didn't tell us where the fish are being exposed to mercury.

In 2011 through 2013, an additional 210 pike and 63 lush were caught in the Kuskokwim and in the larger tributaries: George, Holitna, Stony River and the Takotna. Tissue samples were collected from the fish for lab analysis. Each fish was also fitted with a transmitter and released. The location of the released

fish was recorded by flying over the river two to three times per year for the next two years.

The fish location results show that the lush and pike have very different habits. Lush move extensively in the Kuskokwim, between the estuary below Bethel and McGrath. Because they move so much, they're exposed to many sources of mercury and it's not possible to identify any specific source that's responsible for their tissue concentrations. The pike, on the other hand, move very little, preferring to stay in the larger tributaries with lots of wetland habitat. Therefore, the fish location results suggest that the pike are exposed to mercury sources in the watershed where they spend their time.



Takotna River pike captured for the telemetry study (note the transmitter antenna extending from the fish's belly.)

It's clear that the mercury concentrations in small fish captured in Red Devil Creek and Cinnabar Creek are the result of exposure to mercury from the nearby mines. Both lush and pike, however, appear to be picking up mercury from sources other than the two mines because these fish spend their time in areas of the river other than near the mines.

Overall, the study shows that:

- Pike caught in the George, Holitna, and Takotna watersheds will likely have greater mercury concentrations than pike caught from other watersheds or the mainstem Kuskokwim.
- Larger pike generally have greater mercury concentrations than smaller pike from the same location.
- Throughout the middle Kuskokwim region, lush have generally lower mercury concentrations than northern pike.