



## Trade in precious fish for precious metals? Fish tunnel **will not work** for fish!



My colleagues and I have worked in the Stibnite area for decades. We are fish biologists. We have experience with water diversions and their effects to steelhead, Chinook salmon, and bull trout, all of which are listed as threatened, and are protected under the Endangered Species Act (ESA). We have written, approved, and directed many ESA consultations for project effects to these amazing fish, in the East Fork South Fork Salmon River (East Fork) watershed and elsewhere. We are abundantly aware of the importance of these fish to the South Fork Salmon River and its tributaries (South Fork), where the historic Stibnite mining district is located.

We believe that death and significant impact to these fish from the Midas Gold/Barrick (Midas) fish tunnel cannot be avoided. This proposed tunnel, as part of the Stibnite mine, was described in last week's Star News.

The mile-long tunnel is untested and has never been implemented, proven, or scientifically cited as effective for trout and salmon. Anywhere on the planet. Midas openly admits that fish may not use the tunnel as expected. The effects of the tunnel pose a plethora of uncertainties for water and our imperiled fish.

The tunnel will essentially be a mile-long, engineered, five-foot diameter culvert. Culverts concentrate water flow. This results in much higher water velocities than would occur in a mile of natural stream, with various overflow channels, pools, boulders, widths, and curves. These natural features enable salmon and trout to ascend waterfalls and other obstacles. This is why the Forest Service is now constructing arched structures under roads, with open-bottomed stream simulation.

In a culvert-like tunnel, high water velocities can prevent and impair passage of fish. Although the proposed tunnel claims to provide "ideal water depths and velocities for fish passage over a wide range of flows", no description is provided for how this flow is to be managed.

The concrete weirs inside the tunnel are meant to simulate fish ladders, which get migrating salmon around dams and upstream. At dams, velocities through fish ladders are lessened by discharging excess water over or through the dams. In the East Fork, the tunnel would need to manage high flows similarly to assure upstream fish passage. The tunnel would need an inlet facility, one with a bypass to shunt water away from the tunnel at higher flows. No such facility is proposed, because the mine pit fills the entire valley. The proposed "maintenance road" adjacent to the tunnel will supposedly act as an overflow corridor, but no mention is made of how the water will be managed to get into the "road". Without the capability to manage flows, the tunnel will likely block upstream passage of steelhead which are moving upstream to spawn during high spring flows, and possibly block other fish as well.

Fatigue, stress-related physiological impacts, energy loss, injury, inability to spawn, susceptibility to predation, and direct death are all potential effects to adult fish trying to navigate upstream during impossibly high flows in a culvert-like tunnel. Young fish, only a few inches long, move downstream to rearing or overwintering habitats in the East Fork. They may have a nice "ride" through the tunnel at certain lower flows. But at high flows, they will potentially shoot uncontrollably through the tunnel, as if in a turbulent fire hose, banging back and forth off of the narrow walls, and grinding

across the concrete weirs. Young fish careening downstream through the tunnel at high flows will also experience the effects listed above for adult fish.

Moving the East Fork into a tunnel would cause a direct loss of spawning habitat for Chinook salmon, especially on the alluvial fan at the head of the Yellow Pine Pit. Removing water from the pit would strand and kill ESA-listed fish in the channel and the pit, and eliminate winter habitat for bull trout. A fish salvage effort could attempt to save as many fish as possible, but such an operation would itself result in killing some fish. If "Plan B" is implemented - manual transport of fish to and from each end of the tunnel - similar mortality would be expected. .

Midas/Barrick is using an untried, untested, and unproven scheme to divert the river and the fish through a tunnel so that they can mine the river's natural channel. Absent any evidence whatsoever, Midas is hoping the fish will like the culvert, and that the regulatory agencies will like it. Based on our education and experience, we are almost certain this plan will not work for the fish. If this is the best that Midas/Barrick has to offer, then the fish are in real trouble.

- Mary Faurot

