

Salmon Roulette

Pebble Mine could destroy one of the world's best fisheries

BY KIRK DEETER

A PROPOSED MINE in the heart of Alaska's greatest wild salmon and rainbow trout region is forcing the state to decide if those fish are literally worth their weight in gold and copper.

By most estimates, the Pebble Mine could yield a mother lode of minerals exceeding \$300 billion in value. The richest U.S. mine, the Bingham Canyon Mine in Utah, has grossed approximately \$100 billion to date. Projections show Pebble Mine's copper and gold deposits to be many times greater.

The dilemma is that the Pebble Mine would sit smack in the center of the Bristol Bay watershed, headwaters to the largest wild sockeye salmon fishery in the world. Bristol Bay's commercial salmon harvest accounted for roughly 29 percent of the \$374 million statewide total in 2007. The area is also home to one of the most prolific rainbow trout fisheries in North America, which draws over 65,000 recreational anglers each year, generating more than \$60 million for the Alaskan economy.

Furthermore, Pebble Mine's pollutants might be stored as lakes of toxic waste,

held by giant dams, in an area where earthquakes are common—Bristol Bay lies within the Pacific Ring of Fire. These concerns have galvanized commercial and sport fishing interests into opposing the development of Pebble Mine.

Wealth or Disaster?

MINE ADVOCATES CONTEND that Pebble could be the next Prudhoe Bay, creating jobs in a region relatively untouched by the Alaskan oil boom. They add that vast scientific resources are being poured into the project to ensure the mine coexists with rivers.

"We have no interest in trading one resource for another," says Sean Magee, director of public affairs for the Canadian-based Pebble Partnership, which represents the mining interests that will research and plan, and could ultimately develop, Pebble Mine. He points out that Northern Dynasty, the company that acquired the mineral exploration rights for \$10 million, will have invested another \$80 million in environmental-impact studies to ascertain the best approach for extracting ore before the digging starts. "We do not want a project that would put at risk the fishery of Bristol Bay," he says. "And we understand that we will be held accountable to that standard."

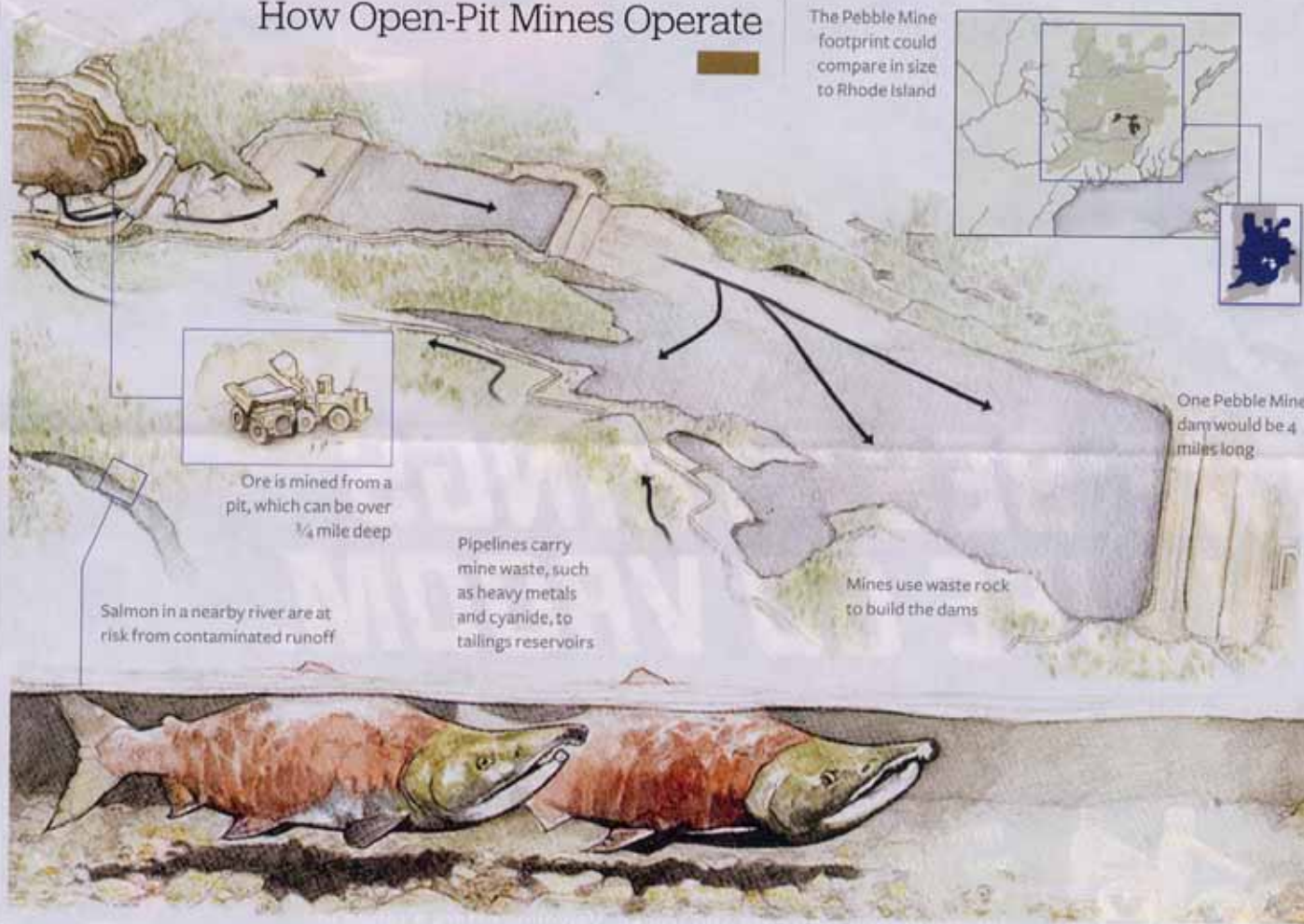
However, opponents such as Trout Unlimited, the

How Open-Pit Mines Operate

The Pebble Mine footprint could compare in size to Rhode Island



One Pebble Mine dam would be 4 miles long.



Ore is mined from a pit, which can be over ¼ mile deep

Pipelines carry mine waste, such as heavy metals and cyanide, to tailings reservoirs

Salmon in a nearby river are at risk from contaminated runoff

Mines use waste rock to build the dams

Sportsman's Alliance for Alaska, native tribes and villages, and over 50 outfitters and commercial fishing operators say the mine would be a hazard that could destroy the fisheries. The mining industry's record of water quality compliance is poor at best, they say, and Northern Dynasty's expensive studies don't change that.

"For the mine, it's a simple risk-reward equation," says Scott Hed, director of the Sportsman's Alliance for Alaska. "But it's nothing but risk for everyone else."

A Shaky Proposition

IN ONE SCENARIO, Pebble Mine would include a massive open pit where chemicals like cyanide would be used to extract minerals, and earthen dams would hold the toxic mine tailings. One of the dams would be over 4 miles long and 740 feet high, and another would be nearly 3 miles long and 700 feet high—both larger than Hoover Dam, and tasked with containing toxic crud that, if freed into the water system, would spell doom for the fishery.

"The mine will spend big money on experts who will say they can contain the toxic mess," says Tim Bristol, director of Trout Unlimited's Alaska program. "But the fishery will still be at serious risk." He notes, for example, that the mine would sit in one of Earth's most seismically active regions. According to the U.S. Geological Survey, since 1900 three of the world's top 10 earthquakes by magnitude have been in Alaska, including the second largest, a 9.2 shaker in Prince William Sound in 1964.

But it might not take an earthshaking disaster for the mine to hurt the fishery. Carol Ann Woody, PhD, an independent fisheries researcher and consultant based in Anchorage, explains that recent studies suggest copper residue (and copper will be a focus of mining efforts) in quantities as minute as two to 10 parts per billion above natural levels in rivers may substantially inhibit a wild salmon's ability to smell.

"Salmon use smell to identify predators, prey, kin, and mates, and to migrate," says Woody. "Copper pollution could have an especially devastating impact if it shuts down the migration and spawning. This is one of the most complex groundwater systems in the world. And this copper effect is not being factored [into] current mine standards."

As for those standards, Earthworks, a mine-watchdog organization, recently released a report that concluded 92 percent of the mines it studied exceeded the limits of their permits relative to water pollution. According to the U.S. Environmental Protection Agency, hard-rock mining leads the United States in toxic releases, and more than 70 percent of mines in the nation have exceeded standards they promised to keep.

Understandably, the Pebble Mine debate has reverberated beyond this remote Alaska region to grab worldwide media attention. Videographers Travis Rummel and Ben Knight, who produced the acclaimed flyfishing videos *The Hatch* and *Running Down the Man*, dedicated the summer of 2007 to creating *Red Gold*, a documentary on the Bristol Bay fishery and the Pebble Mine proposal.

"You couldn't find a worse place to put this mine, relative to salmon and trout," says Knight. "The mine might try to minimize its footprint, but the fact remains that the richest ore deposits are located where the waters that support the Bristol Bay fishery begin."

"When you live among the natives who have depended on those salmon runs for years," adds Rummel, "and you understand their connection to these fish, you cannot help but wonder if the risk is well justified."

The fishery is only part of the equation. Scott Hed notes that caribou, moose, and bears also stand to be affected. "Helicopter traffic [used in exploration] has already changed caribou migration, driving herds from certain areas," he explains. "The infrastructure needed for the mine will create roads and cities in areas previously unspoiled."

The Pebble Partnership dismisses much of the environmental doomsday talk, pointing to established cases (in British Columbia, for example) where mines and vibrant

RIVERS AT RISK

TROUT UNLIMITED'S TOP 5 ENDANGERED U.S. WATERS

TRAPPER CREEK, NORTHWEST COLORADO Rare pure Colorado River cutthroats here are being threatened by drilling and industrial development.

JEFFERSON RIVER, SOUTHWEST MONTANA Since 2000, irrigation and drought have caused the decline of more than half the river's brown trout.

SNAKE RIVER, IDAHO Four dams on the Snake (pictured) block the passage of migrating salmon and steelhead, including several threatened and endangered species.

GREEN RIVER, SOUTHWEST WYOMING Oil and gas drilling is encroaching upon this trout stream, famous for its cutthroats, rainbows, and browns.

SOUTHERN APPALACHIAN MOUNTAIN STREAMS Scientists estimate that climate change will cause the disappearance of over half the brook trout in this region.



salmonid fisheries have coexisted peacefully for years.

"There have been high-profile examples where mining and fishing have not succeeded together, but there have also been cases where they have worked but haven't garnered attention," says Magee.

Imminent Horizons

THE MOMENTUM FOR mine development appears to be gaining steam. In December, the Bureau of Land Management lifted the ban on mine exploration in another million acres of the Bristol Bay region. And the Alaska Department of Natural Resources estimates that Northern Dynasty will finish planning for Pebble Mine and apply for development permits in 2009.

The permitting processes, involving both federal and state agencies, will probably span several years, according to Tom Crafford, the large-mine coordinator with the Alaska DNR. During that time the public will have chances to comment on the agencies' findings and conclusions. "The best thing for people to do, regardless of their stance," says Crafford, "is pay attention. There's a healthy dialogue going on right now."

Tim Bristol has a greater sense of urgency. "I fear we're entering a situation where we're going to allow the dominoes to fall and we won't be able to stand them back up again," he says. "People who enjoy fishing and hunting must make a stand—the gold and copper isn't going away. We need to see this as a thousand-year scenario."

By most accounts, the life span of the Pebble Mine would range up to 80 years. "The real fear," says Brian Kraft, owner of the Alaska Sportsman's Lodge, "is that somebody 50 or 100 years from now looks at the situation and asks, 'How did we let this happen?'"

The state of Alaska will ultimately decide if Bristol Bay's salmon and trout are worth gambling for the gold and copper in the ground. To voice an opinion, contact Alaska Gov. Sarah Palin via her website: gov.state.ak.us/govmail.php.

fieldand
stream.com
/redgold



See video footage of Bristol Bay, interviews of area residents, and more in the trailer for *Red Gold*.