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SAGGING STREAMS

Planned earthquakes under America's waterways.

By Ted Williams

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Over the past decade the coal industry has generated copious ink by ripping the tops off American mountain ranges, in the process burying and polluting streams and converting some of the planet's most diverse temperate forests to desert. Meanwhile, beneath the surface, the industry is also ripping apart the earth and destroying streams with a less visible technique called "longwall mining" or "total extraction." Welsh coal miners introduced the practice to the US in 1875, but it didn't really catch on here until about 1980.

Traditional deep miners leave "pillars" of coal along the coal seam so that they and their equipment don't get buried. As a side benefit, the earth doesn't collapse under streams and manmade structures - at least not right away. But with longwalling the entire coal seam, which runs for miles and may be seven feet high and 1,000 feet wide, is removed the way a dentist excavates a root canal.

These days a "shearer" moves back and forth on a track set across the face of the coal seam as if the whole deposit were a stick of salami being abbreviated by a whirling meat slicer. Hydraulic roof supports are inserted and removed as the shearer progresses along the seam. As this happens the earth collapses into the cavity, and fish, wildlife and humans above are treated to what the industry chastely calls "planned subsidence." Buildings crack or fall apart. Wetlands, springs, ponds and streams vanish into the bowels of the earth. Even as they are dewatered, streams lose their riffles, transmogrifying into a series of stagnant pools sealed by dams that mark the edge of the collapsed mine. Sometimes the industry converts traditional deep mines to longwalls by going back in and removing the pillars. Leaving coal in the earth for any purpose is anathema.

Longwalling happens everywhere there are major coal deposits—in Pennsylvania, for instance, in West Virginia, Kentucky, Wyoming, Utah, Ohio, Illinois, Alabama and New Mexico—and it's increasing because it's the cheapest method of getting coal out of the ground. Currently there are 53 longwall mines operating in the US. "Longwall mining, which has revolutionized underground mining operations in the United States over the past 20 years, is one of the main reasons why coal is used today to generate 52 percent of the nation's electricity," reports the industry publication Longwall USA.

IN PENNSYLVANIA, the fourth largest coal producing state after Wyoming, West Virginia and Kentucky, longwalling now accounts for 75 percent of underground soft coal production. There's no reason to suppose that the practice is more hurtful there than in other states; the difference is that there have been witnesses. So Pennsylvania's experience offers the only clear vignette of the national scene. Personnel from the US Fish and Wildlife Service's Pennsylvania field office and the Raymond Proffitt Foundation, a Philadelphia-based NGO specializing in environmental protection, have been watching and collecting data.

State and federal laws prohibit damaging perennial streams by longwalling (or any other means), but when the industry controls the economy, fills the legislatures and appoints its own regulators—often from its own ranks—enforcement tends not to happen. As the Raymond Proffitt Foundation observes in a lengthy report on longwalling, "Pennsylvania wetlands [including streams] are being destroyed by the high-extraction (longwall) mining of bituminous coal underground. Quietly. Inexorably. Without regulation. Pennsylvania protects wetlands from other types of construction activities. Its laws do not exempt longwall mining from wetland regulation. But wetland law enforcement is absent when mining permits are approved."

Because of the "inadequate and unlawful implementation of the regulatory process for permitting new longwall mines," charges the foundation, "streams are dried up or altered to the extent that fish and invertebrate populations are devastated. Entire aquatic ecosystems are permanently changed." According to the foundation,

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the laws apparently are being broken with the tacit approval of the state Dept. of Environmental Protection's Bureau of Mining and Reclamation (BMR): "Examination of the BMR files . . . leads to the inescapable conclusion that BMR seeks deliberately to ignore the requirements protective of wetlands, the same requirements that the Department of Environmental Protection imposes upon other types of industrial and construction activities statewide."

Typical of the examples offered by the foundation is permit 30841316 for the expansion of Consol Energy's Bailey Mine in Washington and Greene counties. DEP approved it on Feb. 24, 2000, thereby adding 11,120 acres to Consol's underground mine permit area and 4,126 acres to its subsidence control plan area. The land overlying the expansion is covered with all manner of wetland types, and by law an applicant must identify water resources that might be compromised by its longwall operations. But despite the fact that the Pennsylvania Game Commission had repeatedly informed BMR that these wetlands were at risk, BMR issued the permit without making Consol identify them.

Streams dammed and dewatered by longwalling usually have few defenders. In Pennsylvania, for instance, coal seams occur in the southwestern part of the state, where coldwater habitat is rare. The smallmouth fishing is fabulous, and while the trout fishing can be good, it's a springtime deal dependent on hatcheries. One can't blame Trout Unlimited for not raising hell because its mission is to protect and restore wild salmonids (although on June 17 the Pennsylvania council passed a motion opposing longwall permitting until proper safeguards are in place). And while one might suppose that some of the bass organizations would come to the defense of the self-sustaining smallmouths, I found no evidence of this in my interviews or literature searches. Yet while sportsmen play Hester Prynne, the US Fish and Wildlife Service for once is speaking up for fish and wildlife. It's nice to see a state field office that's earning its keep and that is neither staffed nor controlled by wimps.

Enlow Fork, separating Washington and Greene counties and wandering through old-growth forests bright with rare wildflowers (including the state-endangered Curtis' goldenrod, found nowhere else in Pennsylvania), is one of the most beautiful smallmouth streams in the East. And it is—or was—one of the most productive, sustaining really large fish. What makes Enlow even more notable is that it's the only longwall-damaged stream in the nation where half-decent before—and after-mining data exists. During the early 1970s the Fish and Wildlife Service led a successful crusade to prevent the old Soil Conservation Service from flooding the valley for "flood-control." As part of the environmental impact study for its proposed dam SCS hired a consultant to survey fish and macroinvertebrates. In 125 feet of stream the consultant found 2,500 fish representing 23 species, mostly base-of-the-food-chain stuff like minnows and darters.

Then in 1998, after an eight-mile stretch of the stream had subsided due to longwalling, Consol Energy, the nation's largest underground coal producer, sought to expand the nation's largest underground mining operation—the Bailey complex, under Enlow Fork. By sheer coincidence the consultant Consol hired to survey Enlow Fork sampled within a few hundred feet of the station checked by SCS's consultant more than two decades earlier, but now that reach had receded about four feet into the earth because of the mining. Despite the fact that the new study area was considerably larger than the original (600 feet) electro-shocking gear turned up only 36 fish representing only 10 species. The excuse offered by Consol was that in the earlier study, SCS's consultant had sampled with rotenone, turning the belly of every last fish in the stretch sunward. When the Fish and Wildlife Service and the Raymond Proffitt Foundation observed that this was plainly and simply an untruth Consol claimed that SCS's consultant had been more thorough in his shocking.

When I asked Consol's manager of environmental permits, Jonathan Pachter, why the company's consultant had found more fish in the unsubsidized sections in 1998 he said it could be coincidence and that "anything's possible when you're dealing with organisms that move all over the place."

Consol's PR staff said they knew why I was calling them. "There's a group of anti-mining organizations that have been contacting media of all types," Sandra Hamm informed me. "My guess would be that someone from the Raymond Proffitt Foundation contacted your magazine." (Actually, I had contacted the foundation.) When I asked her about the increased diversity of fish in unsubsidized sections she said: "This comes up again and again and has been fed to journalists all over the country by the Fish and Wildlife Service. They [service personnel] come and protest at the hearings. They hold little media conferences downtown on their anti-longwall mining studies." But the Fish and Wildlife Service does no such thing.

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Consol's Thomas Hoffman was even more direct. "I know what's happening here," he told me. "Certain groups [which he later narrowed down to the Raymond Proffitt Foundation] are working the media to generate as much publicity for their side of the story as they can. The Fish and Wildlife Service's whole case is based on an old study compared with a sample they think we have that shows this dramatic reduction in species and individuals at Enlow Fork. What they never tell you, because it's not in their interest to do that, is that the baseline study was done in the days when they'd take a long stretch and repeatedly shock until they virtually shocked every critter that was in the stream. . . . Quite frankly, they don't know what they're talking about. They're comparing apples and oranges. We believe they know that that's what they're doing."

LONGWALL MINERS routinely damage perennial streams with impunity. In Pennsylvania all that DEP has required Consol to do on the eight subsided miles of Enlow Fork is make a stab at fixing 600 feet as a "mitigation experiment." According to the Fish and Wildlife Service, the experiment has failed spectacularly. Even the mining itself had been an experiment, permitted by DEP in the guise of a "low-cover study." Basically DEP told Consol, "Go ahead and grab the coal, and let's see if you ruin the stream." It did both. Because Enlow Fork is only about 400 feet above the coal seam DEP had major reservations about issuing the permit, but it just couldn't say no. Now eight miles of pools, riffles and runs have been converted to a series of stagnant impoundments that function as sediment traps. Boulders and cobbles that had provided superb habitat for smallmouth and a diverse community of macroinvertebrates have been smothered with silt. Where wading fishermen used to move with no trace they now leave 50-yard plumes of café au lait.

In a joint silt study the Fish and Wildlife Service and the EPA looked at three sites on Enlow, comparing them to an unsubsidied reference stream with similar watershed characteristics. Only 3.6 percent of the reference stream's bottom composition consisted of silty material of less than two millimeters in diameter. For the two Enlow sites in the subsidized reach, the figures were 30.9 percent and 41.8 percent. At the third Enlow site—downstream from the undermined area—18.2 percent of bottom composition was material of less than two millimeters in diameter, clearly indicating that longwalling affects downstream reaches. But according to Consol, the ponding is good. "The fish like cold, deep pools," says Sandra Hamm. "When the undermining first occurred there was a drought, so it was actually pretty good that there were pools because it gave the fish someplace to hide."

"A complete misrepresentation of data" is how this fish refugia line, oft repeated by Consol and its hirelings, strikes aquatic ecologist Lou Reynolds, who has been contracted by the Raymond Proffitt Foundation to study the effects of longwalling. "I think that when you get into these drought situations the fish pretty much stay where they are, and the habitat shrinks," he says. "It's not like the fish are actually seeking these pools out. On a density level there are fewer fish there than on the unsubsidied reaches. I'm pretty concerned with what I see. Headwater streams are disappearing, and the coal companies know it. These impacts are happening from the headwaters all the way down to the larger streams. The coal companies say give the streams time and they'll correct themselves. Well, I don't think they're qualified to make those kinds of statements. They're not hydrologists."

Both the Raymond Proffitt Foundation and the Fish and Wildlife Service are also collecting other incriminating data. Of the 131 streams in southwest Pennsylvania the service has evaluated, 26 have subsidized sections and 38 others have reduced flows or, in some sections, no flows.

"The Fish and Wildlife Service," charges Consol's Hoffman, "has a point of view; they are in the minority among the agencies. They don't really have a role to play in the regulation of the industry." But the service does have a role; it is required by law to advise DEP and the Army Corps of Engineers on mining permits. Moreover, the service is not in the minority. In issuing the permit to mine under Enlow Fork DEP ignored the advice not just of the service but of the Pennsylvania Fish and Boat Commission and the Pennsylvania Game Commission. In fact, both commissions saw fit to sue DEP and Consol over the permit. As part of the settlement Consol agreed to do what it was already obligated to do - delineate wetlands and riparian zones over the mined areas 400 feet or less above.

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DEP is required by law to send the Fish and Wildlife Service copies of mining permit applications on request. But such a request by the service's Pennsylvania field office sent DEP's Bureau of Mining and Reclamation director J. Scott Roberts into a state of high dudgeon. He fired off a blistering letter to the service's director, Jamie Clark, in Washington, DC, informing her that if her Pennsylvania field office wished to see the applications it could get them itself, then wandering off into a long list of unrelated grievances such as a complaint that field office personnel "subrogate the scientific method" by "develop[ing] conclusions" and then conjuring supporting data.

He further charged that: "In early July [2000] USFWS personnel held a press conference to publicize the preliminary findings. Neither DEP, nor the [federal] Office of Surface Mining, were given the courtesy of prior notice of this event." Apparently, the "press conference" Roberts referred to was a meeting in Waynesburg of the Fish and Boat Commission, Game Commission, US Geological Survey, Natural Resources Conservation Service, Fish and Wildlife Service and concerned citizens who had requested information from these resource agencies. While two members of the press showed up, neither had been invited. The most telling part of Roberts' harangue was this proclamation: "At present, subsidence from longwall mining is the subject of spirited public debate in Pennsylvania. Little is known, either beneficial or adverse, about the 'pooling' impacts."

To this, David Densmore, who directs the Fish and Wildlife Service's Pennsylvania field office, responded to Roberts' boss as follows: "In fact, while there may be a 'spirited debate' about whether longwall mining should be permitted to cause subsidence under highways, buildings, utility lines, etc., there is little debate over whether streams have been impaired or, in some cases, existing uses eliminated, by either 'pooling' or flow reduction. Some streams, such as Laurel Run in southern Greene County, dried up entirely after being undermined."

LAUREL RUN had been a pretty little perennial stream full of crayfish and minnows, a support system for downstream smallmouth water, before RAG Coal Holdings started longwalling the watershed two years ago. Murray and Laurine Williams, who live beside the now-intermittent, fishless stream, have spent 12 years restoring their 150-year-old farmhouse. After they got it listed on the National Register of Historic Places RAG informed the National Park Service that, since it owned the coal under the house, it should have a say in the designation, and that it didn't like the designation. The Park Service rolled over and delisted the house, but with the help of a smart, aggressive attorney named Dick Ehmann the Williamses got it re-listed.

Now the spring that had supplied their water has dried up, and RAG's planned earthquake has badly damaged the house. "Every house on Laurel Run Road is damaged," declares Ehmann. "Walls have cracked. Doors don't open or won't close. On some of the houses you can set a marble on the floor and it will roll to one side. Water supplies have disappeared." Under a settlement forced by Ehmann RAG is restoring the Williams' farmhouse, but it can't do much about the missing spring and brook.

In 1966 the Pennsylvania legislature enacted a law that, reasonably enough, said that longwallers couldn't destroy people's homes. The industry challenged this "Subsidence Act" all the way to the US Supreme Court and lost. Then, in 1996, coal moguls and beneficiaries serving as state legislators slipped through a law, written by the mining companies, that required longwallers to replace water supplies they destroyed but which also stipulated that it was OK for them to destroy property provided they paid to have it fixed later—in the case of water supplies, three years later. Few noticed the second part of the bill, and it sailed through without a single nay. So now King Coal can legally destroy private and public property and, while it's supposed to pick up the tab for repairs, it frequently doesn't. Bob Ging, the attorney who has litigated every longwalling case in Pennsylvania so far, has been trying to get a water supply replaced since 1995. "If government agencies want to destroy your home, they have to compensate you first and then only after they go through eminent domain proceedings," he says. "So coal companies basically have more power than our government." You'd think the property-rights crowd would be screaming like roused guinea fowl, but they've not uttered a peep.

The sad thing is that the damage to private property and the environment isn't necessary. Degrading perennial streams is illegal and wouldn't happen if DEP enforced the law. What's more, if coal companies would "backstow"—i.e., fill the cavities they create in the earth—most of the subsidence could be avoided. They could use their own longwall waste, dredge spoil, "overburden" from their strip mines which they currently dump onto headwater streams, and even the right kind of municipal trash. But backstowing costs money, and because it's

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not required in the US, longwallers don't do it here. European countries are not so permissive. In Germany, where backstowing is mandatory, Consol and RAG—both German firms - have no trouble with it.

America, whose executive branch of government is currently giving the green light to longwallers, has long preached energy self-sufficiency. We decry the purchase of fossil fuel extracted from foreign nations. But we happily purchase it from energy companies based in those foreign nations after they have hacked it out of our own landscape sans environmental safeguards. We pay twice for longwalled coal, and the real costs of getting it out of the earth are borne not by the foreign energy companies but by American property owners, by American fish and wildlife, and by Americans who love fish and wildlife. That's something to remember next time you see an ad proclaiming that coal-fired electricity is cheap.