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Unnatural Gas

The East's best trout country is facing slap-dash gas development.

By Ted Williams

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Most of the East's great trout streams drain New York State's Catskills, northern Pennsylvania and the highlands of West Virginia. Superimpose a map of these watersheds on the prime drilling sites in the Marcellus shale region—a 48,000-square-mile layer of sedimentary rock a mile or more below Earth's surface and containing an estimated 363 trillion cubic feet of natural gas—and you get almost an exact geographic match. This probably isn't coincidence because in high country, where remnant populations of wild trout abide in cold headwaters, natural gas tends to be under greater pressure.

Natural gas extraction from this, potentially the largest of some two-dozen gas development areas in the United States, is just starting. No one I consulted in the conservation community opposes exploiting this rich resource. They'd just like it done right; they'd even settle for legally. Instead, New York, West Virginia and, especially, Pennsylvania are in the process of suspending what the energy industry calls "impediments" to gas production and what the rest of the nation calls environmental laws.

Basically, they've embraced the Bush-Cheney "energy policy," hatched in secret with the energy companies themselves: Extract as much gas as possible as fast as possible, at any cost to fish and wildlife and with enormous subsidies to industry at a time of record profit. One might have supposed that these states would have learned something from the recent rape of Wyoming, Colorado and New Mexico, but no.

And, while the Obama administration is relatively sympathetic to fish and wildlife, it can't do a lot because, unlike western gas reserves, the Marcellus formation underlies mostly private and state lands. The current atmosphere approaches that in Alaska back when whooping sourdoughs were slamming gold nuggets onto the bar at the Red Dog Saloon. Suddenly farmers who have spent their adult lives wresting produce from parsimonious dirt are being offered $2,500 per acre just for drilling rights. Texas-based Range Resources has thus far leased 1.4 million acres in the Marcellus region and claims that in Pennsylvania alone gas extraction would create 100,000 jobs and annual revenue of at least $8 billion. Pennsylvania issued 471 drilling permits in 2008 and, as of this writing in early June, 476 in 2009.

So-called clean natural gas fouls everything but your furnace. In a process called "hydraulic fracturing," developed by Halliburton Company, a witches' brew of water, sand, formaldehyde, acids, petroleum compounds and herbicides (highly toxic to fish) that discourage pump-clogging algae in wastewater ponds and tanks, is blasted into the earth at high pressure, fracturing the shale. Dozens of other ingredients are unknown to the EPA and the public because the precise composition of "fracking fluid" is conveniently said by the industry to be a "trade secret." Halliburton vows to pull its affected operations out of Colorado if the state forces it to disclose the recipe for its toxic cocktail.

And the government accountability outfit OMB Watch reports that in 2008 a Colorado nurse almost died just by treating a gas field worker who had been doused in fracking fluid and that although the nurse was suffering heart, lung and liver failure, kidney damage and blurred vision, the drilling company refused to tell her doctors what the "proprietary" chemicals were. When frack fluid is pumped out, the sand remains, propping open the cracks so the gas can flow.

But now the fluid—as much as 4 million gallons per well—has picked up such additional toxins as benzene, ethyl benzene, toluene, xylene, heavy metals, salts and naturally occurring radioactive material (chastely referred to as NORM) and usually consisting of Radium 226 and Radium 228, bone seekers that cause cancer. According to the Los Angeles Times, information on fracking and its dangers to public health was deleted from the White House National Energy Policy, written largely by then Vice President Dick Cheney, previously CEO of Halliburton, which, while he was in office, paid him $150,000 a year until 2005.

At best, treatment of used frack fluid is only partial, and there's no place to dispose of it other than in streams where it can poison aquatic ecosystems or underground where it can poison aquifers. In southwest Pennsylvania and northern West Virginia, the Monongahela River, source of drinking water for 350,000 people and habitat for endangered mussels as well as a rich diversity of warmwater fish including bass, sauger and walleye, got so rank with used frack fluid in 2008 that its water wasn't even fit for industrial use.

U.S. Steel actually had to stop production at its Pittsburg coke plant. Steve Kepler, a biologist with the Pennsylvania Fish and Boat Commission, points out that there aren't anywhere near enough treatment plants to handle used frack fluid and, as a result, it is being trucked halfway across the state, overwhelming municipal sewage treatment plants, and ending up in streams along with the municipal effluent whose treatment it has impeded.

And he says his agency worries about new treatment plants, perhaps as many as 30, that will be popping up along the state's rivers just to handle frack fluid. "A lot of times these plants use the assimilative capacity of a river for dilution," he told me. "Putting that much material in rivers concerns us." Finally, Kepler worries about damage to groundwater, citing a recent case in Centre County in which a gas-drilling operation hit a regional aquifer, thereby polluting Little Sandy Creek, a wild brook trout stream that delivers cold, oxygen-charged water to a trout hatchery cooperatively run by his agency and local sportsmen. Fortunately, the company was able to cap the leak fairly quickly. Still, there was trout mortality. To obtain frack fluid, gas companies divert enormous amounts of water from streams, destroying aquatic and associated terrestrial life in the process.

In the last two years fish, including wild brook trout, have been left rotting in the sun when gas companies pumped dry Pennsylvania streams, including Cross Creek and Sugarcamp Run in Washington County. Amphibians such as hellbenders are especially vulnerable. Trout magazine, the official publication of Trout Unlimited, reports that four gas companies have paid a total of $1.7 million to settle charges of illegal water withdrawals from Pennsylvania trout streams and that these include Chief Oil & Gas, which took 3.5 million gallons from a tributary of Larry's Creek, and Range Resources, which took 2.2 million from Big Sandy Run. Additionally, water withdrawals have damaged Meshoppen, Pine and Sugar Creeks.

At least the Delaware and Susquehanna River Basin Commissions place limits, generous though they are, on water withdrawals. But there are no such restrictions on many streams, including those in the Ohio River system. Some great Pennsylvania trout water is in dire peril of desiccation, including many productive but little-known streams along with such famous ones as Beech Creek, Fishing Creek, Cedar Run and the upper Delaware River. Laurel Hill Creek, a tributary of the Youghiogheny River, already diverted by a water-bottler, golf courses, condo developments and ski-slope snowmaking, is now targeted for frack fluid. As a result it made it to American Rivers' 2009 list of the nation's 10 most endangered rivers.

Then there is the polluted, sediment-laden runoff from well pads, drilling access roads and pipelines. In 2005, under intense lobbying from the energy industry and pushed by the administration, Congress exempted gas and oil operations from the Clean Water Act provisions for sediment and erosion control—provided they are under five acres (as most are for this precise reason). One five-acre pad and its tangle of access roads can wipe out the prime spawning and holding habitat in a fair-sized trout stream; and the five-acre pads can be clustered together. In 2006, the EPA issued a rule that exempted all oil and gas operations, including those over five acres, from sediment and erosions controls. But when the Natural Resources Defense Council mounted a legal challenge, the 9th Circuit found the rule to be unlawful and further stipulated that, even if a well pad under five acres produces runoff that contributes to a water-quality violation, the Clean Water Act applies.

Therefore, in failing to control such pollution, states are violating federal law. I wish the state politicians and bureaucrats in New York, Pennsylvania and West Virginia who have been sitting on their hands for the last several years could have been with me when I was inspecting the consequences of slap-dash gas extraction in Wyoming, New Mexico and Colorado. This and worse is coming their way unless they act soon.

On public land in New Mexico's piece of the San Juan Basin, I checked a few dozen of the 18,000 operating gas wells, finding gross violations at virtually every pad. Required fencing to keep wildlife out of poisonous evaporation ponds was missing or broken. Deer, pronghorns and cattle were dying as a result. Sediments were bleeding into streams. Trout were dying. Required re-plantings to replace the junipers and pinyons that had burned up during gas flaring and that had been killed by dust was inadequate or nonexistent. Recent snowmelt had turned the barren dirt around wellheads and compressors to mud the consistency of mortar. With each step several pounds of it stuck to my shoes, making me feel like I was walking in water-filled chest waders. When I floated and fished the San Juan River I found it stained for miles. At Navajo Dam I encountered one of many watershed gas wells perched atop three acres of sticky mud and cheek by jowl to a malodorous, unfenced wastewater pit easily accessible to waterfowl and other wildlife. In Wyoming's Upper Green River Valley I inspected the 30,000-acre Jonah gas field from a Cessna 172. The clustered well pads looked like shotgun patterns on car windshields. Scum-encrusted wastewater festered in holding ponds, and stretching across each were three orange ribbons, a pathetic, useless gesture to warn away waterfowl and wading birds. A compressor station the size of a large factory moved gas through a pipeline that wandered west under a raw-dirt swath about 15 times wider than the raw-dirt roads.

Groundwater in the valley, contaminated by frack fluid, has been found to contain 1,500 times the amount of benzene considered safe for humans; and it is running into some of the last, best Colorado cutthroat trout habitat. Here, elsewhere in Wyoming and in other states, including Pennsylvania and Ohio (overlaying the Marcellus formation on its eastern flank) there have been more than a thousand incidents of groundwater contamination by frack fluid. Despite the disaster in the West, state environmental laws and regulations are being flung aside so that Marcellus gas extraction can be "streamlined."

For example, on March 18, 2009, the Pennsylvania Department of Environmental Protection issued a proclamation—sans public hearings or even public notice—that, henceforth, the county conservation districts will no longer be vetting gas operations for erosion and sediment control or post-construction stormwater management. Instead, this task will be handled by DEP bureaucrats squatting in distant offices and who have little knowledge of, interest in or commitment to local watersheds. They're not going to know about, say, a wetland feeding a trout stream or, in many cases, even the trout stream itself.

"We believe a fast-track permitting scheme that eliminates technical review of erosion, sediment and stormwater plans is illegal under federal and state environmental laws," declares Matt Royer, staff attorney at the Pennsylvania Office of the Chesapeake Bay Foundation. "The forms have been streamlined. Now the gas company's paid consultant signs the plan and certifies that it's accurate. So DEP doesn't have to review forms for technical merit; it just makes sure they're signed—'administrative completeness,' it's called. DEP isn't even looking at the plans. It has also adopted a model plan, apparently so that the operator can fill in the blanks. But you have to configure your landscape into best management practices to deal with local soil, slope and vegetation. You need custom-made plans." Maya van Rossum, the Delaware Riverkeeper, weighs in with this: "DEP's actions are complete give-aways to the oil and gas industry…. DEP has ignored its own core values of environmental protection and public transparency." Van Rossum's and Royer's groups are two of 36 environmental organizations that co-signed a letter to DEP Acting Secretary John Hanger demanding that he rescind fast-track permitting.

Pennsylvania Governor Ed Rendell has compounded DEP's dereliction by attempting in his proposed budget to seize for the general fund $174 million derived from leasing state lands for gas extraction—money dedicated to conservation, parks, recreation, dam repair and flood control. What's more, there are no protections in place for the parks and state forests on which this money is supposed to be spent, on which the state does not own mineral rights, and through which run the state's wildest and best trout streams. In an effort to get some modest protection for this land and water the Pennsylvania Department of Conservation and Natural Resources had been making gas extractors sign surface-use agreements.

But in May a state court ruling put an end to even this, thereby giving the industry pretty much carte blanche to hack and gouge as its appetites dictate. "We have a pretty good wilderness trout-water designation," remarks Deb Nardone of Pennsylvania Trout. "But it's unprotected. We're concerned that drilling, roads, well pads and pipelines in those watersheds will remove wilderness esthetics and even the designation." Having squandered its chance to purchase and protect buffer zones around its six Catskill reservoirs, New York City is now scrambling to keep gas extractors out of these watersheds, which daily send 1.2 billion gallons of pristine drinking water to 8 million people. It's not going to be easy because the city has monumental budget problems, and the temptation to sell off mineral rights is enormous. Still, New York is one of only five major U.S. cities that has been granted a waiver on federal requirements to filter tap water. Catskill gas extraction would likely require filtration, which, in turn, would make current watershed protections unnecessary. City Councilman and environmental protection committee chair James Gennaro warns that the current "'drill, baby, drill' mentality" could cost the city $20 billion for filtration plants.

Gas drilling has been temporarily suspended in New York State while the Department of Environmental Conservation updates its generic gas and oil extraction Environmental Impact Study for operations in Marcellus shale, which were impossible when the document was released in 1992—before the advents of horizontal drilling and fracking fluid.

Meanwhile, regulations for water withdrawals are thoroughly inadequate there and in the other two major Marcellus states. Further, New York and Pennsylvania are among the very few states with natural-gas resources that don't have a severance tax for gas production. Thirty-nine others, including West Virginia, do.

The word "severance" derives from the severing by a private entity for its own gain earth-bound resources belonging to the public. Severance taxes are designed to mitigate and repair damage caused by public-resource extractors to other public resources—trout streams, for example.

The Marcellus gas rush coincides with a critical lack of funds for preserving and restoring land and water. In Pennsylvania, for example, the $625 million Growing Greener II bond is about to run out. Almost a quarter of that bond was allocated to drinking water and wastewater treatment; and $10 million of it has gone to plug abandoned oil and gas wells. A severance tax to offset costs of such environmental protection and restoration is eminently fair and desperately needed. Yet the gas industry and conservative lawmakers are viciously fighting it.

To his credit, Pennsylvania Governor Rendell is pushing for a severance tax (though at this writing he has not committed to dedicating any of it to land, water, fish and wildlife protection). He figures that just in the first year such a tax would generate $107 million for his destitute state. That sounds like a lot until you consider what the gas industry spends on itself and what taxpayers give it.

According to the resource-advocacy group PennFuture, Chesapeake Energy, the state's largest gas-lease holder, recently gave its CEO, Aubrey McClendon, a $75 million bonus, then paid him $12.1 million for artwork he'd accumulated.

And thanks in part to the Energy Policy Act of 2005, oil and gas companies will receive $33 billion in subsidies over the next five years. The same recession that has tempted the major Marcellus states to fast-track gas extraction has placed operations on temporary hold. In Pennsylvania, one company that won a bid for a $32 million lease has just walked away.

So the good news is that the three states have time to prepare for an onslaught more intense than anything seen in the West. During this brief grace period, lawmakers and regulators would do well to recall and live by the wise “finding statement” the New York Department of Environmental Conservation made 17 years ago after releasing its generic EIS on oil and gas extraction: “It is less expensive to prevent pollution than pay for remediation of environmental problems, health care costs, and lawsuit expenses.”

Ted Williams writes the Conservation column for each issue of FR&R. His latest book is Something’s Fishy; order it online at flyrodreel.com.