



"TIMBERING AND TROUT"

by Linda Steiner

More than 130 years ago, Pennsylvanians responded to the loss of fish resources, caused largely by stream siltation from unprecedented large-scale logging, by creating the Pennsylvania Fish Commission. The Commission's primary charge was to encourage and facilitate restoration of the degraded fisheries. Today, many Pennsylvania forests are ripe for timber harvest again, and chain saws and log skidders are at work in valuable hardwood stands across the state. The forest products industry is considered the 4th largest industry in Pennsylvania, a \$5 billion contributor to the state economy.

What does this mean for our trout fisheries, especially the small, environmentally sensitive headwaters where wild trout live? The question put by anglers is whether the same logging damage that occurred to streams a century ago could happen today. What's being done to make sure Pennsylvania can keep its restored trout fisheries, while the new timber crop is taken?

Fortunately, conservation laws are in effect today that did not exist in the late 1800s, when Penn's hills were virtually denuded in a race for timber profits. Even so, no logging-specific laws exist that are aimed at preventing the degradation of waterways. The rules that have been promulgated under the Pennsylvania Clean Streams Law work to prevent or reduce erosion and sedimentation pollution and the effects of stream encroachment by any earth-moving operation. The law doesn't address the issue of thermal pollution of coldwater fisheries (except for designated Special Protection waters), where the overhead leaf canopy is severely reduced or eliminated by tree-cutting and too much sun shines through.

On the positive side, many loggers are becoming more aware and accepting training in how to harvest trees in an environmentally responsible manner, with watershed protection in mind. This voluntary education effort may not be going far enough, though, and at least one conservation group is calling for regulations restricting timbering along stream environs.

Timbering involves not just sawing down a tree—wood, after all, is a resource that will grow back in time. The cut logs must be hauled through the woods, usually by a motorized log skidder, though there lingers and is even a renewed interest in horse-logging. Typically, temporary skid roads are constructed for log-hauling, and one or more large, flat spaces, or log landings, are bulldozed. At this gathering and pick-up point, the logs are loaded onto trucks that head for the sawmill.

The work that is necessary to get timber to market, on its way to becoming fine furniture (Pennsylvania is the world's top supplier of black cherry) or oak paneling, can't help but disturb a certain amount of soil. Timber-harvest sites are not just where business is done, but are part of the larger forest and watershed ecosystem. They experience rain and



Cut hardwoods. Logging is big business in Pennsylvania. Pennsylvania is the world's top supplier of black cherry.

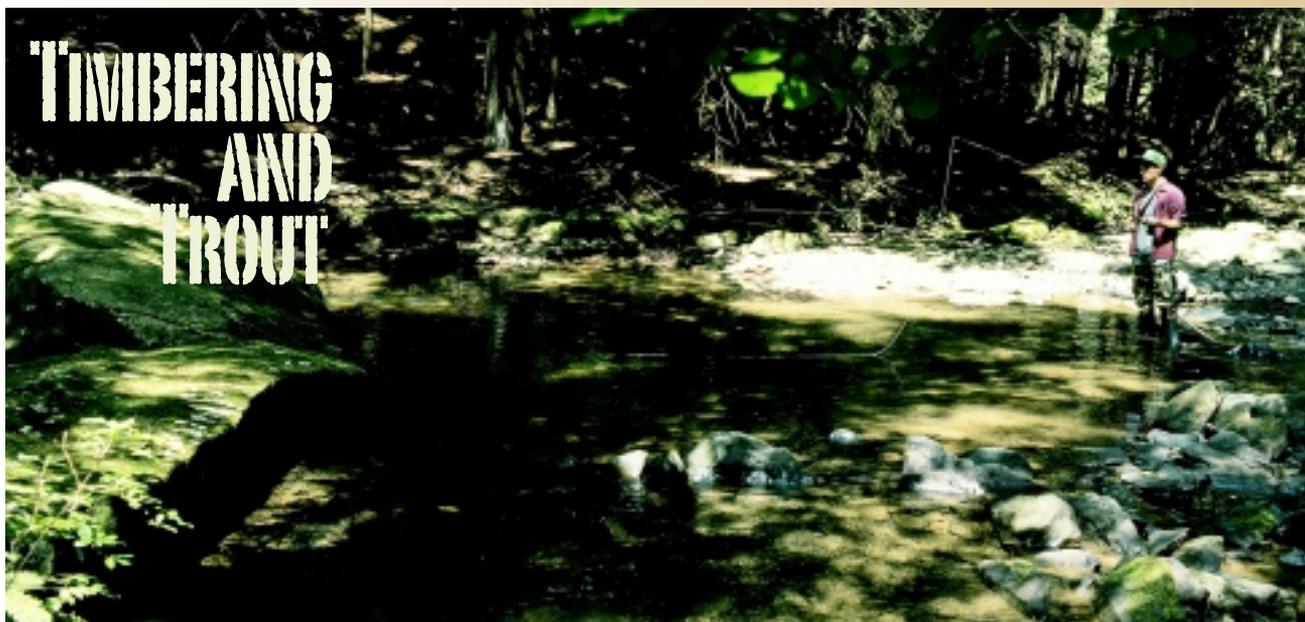
photos: Linda and Bob Striner

water flow, which run inevitably into streams where trout may live.

When timbering is done improperly near a trout stream, excess can enter the waterway. According to John Arway, Commission Environmental Services Division chief, the silt pollution that results from logging is generally short-term, acute but not chronic. This includes incidents such as logs dragged across a stream, heavy downpours on open sites, or skid roads that do not have adequate erosion controls.

When stream siltation occurs, the larger particles drop out quickly, but the finer silt settles into pools and pockets of low-velocity water. The sediments fill in the spaces between rocks where aquatic invertebrates live, says Arway, removing habitat niches. These invertebrates, including insects, are basic to healthy stream ecology. Many are direct food sources for trout.

For timber harvesters, the first step to take to meet environmental law requirements is to contact the county conservation district. In many counties, the Pennsylvania Department of Environmental Protection has delegated the oversight and permitting of earth disturbance operations, like logging, that fall under the Clean Streams Law, to the conservation districts. According to Ron Rohall, a consulting forester and vice president of the Pennsylvania Association of Conservation Districts, these subdivisions of county government can provide information and direction on developing the required E&S plan. The plan will detail the locations of timber access roads and log landings, with an eye toward avoiding severe slopes, springs and surface drainage, and soil types that are highly erodible.



Fishing a forested stream. Shoreline trees shade the stream, support the stream banks and block silt from entering the stream.

Suspended silt abrades gills, and severe stream siltation can suffocate aquatic invertebrates and fish. This is especially true of wild trout in small headwaters, which have nowhere to run. If silt pollution occurs at trout-spawning time, the sediment can cover redds and a whole year-class of trout can be lost. Heavy silt can even prevent trout spawning, if the fish can't find suitable nest sites, and prolonged sedimentation, without flushing, can injure the stream's ability to produce and hold trout in the long term.

When ground-disturbing activities, like logging, and highway and building construction, affect an appreciable amount of earth (5,000 square feet or more), the law requires an Erosion and Sedimentation Control (E&S) plan to be drawn up and followed to minimize accelerated soil erosion into waterways. Permits may be required for stream crossings, depending on the size of the watershed above the crossing, and when working near (encroaching on) designated Special Protection waters.

E&S plan strategies to reduce stream siltation can range from placement of hay bales to filter runoff, to fabric silt fences, to water bars. Water bars are earth piles/ditches that direct runoff onto vegetated areas or leaf matter, which spreads the flow and reduces its velocity and mud-carrying ability. In the E&S plan, ground disturbed on stream banks must be stabilized, commonly by reseeding and mulching with straw. Although the law doesn't mandate reestablishing vegetation on skid roads and log landings, this practice is encouraged, says Rohall.

If the watershed area above where logs need to cross a creek is 100 acres or more, a permit from the conservation district is needed for putting in a temporary bridge or installing a culvert. Permits are also needed for timbering near and encroaching on Special Protection waters, like an "Exceptional Value" wild trout stream. Rohall says the "real benefit" to the requirement for a permit is that it "forces the applicant to look at the stream and look at the situation and

find the best way to do it.” With permitting, the township and the Pennsylvania Fish & Boat Commission are also notified that work is underway that could influence the waterway.

The E&S plan must be at the timbering site and must be followed by the “guy on the bulldozer.” If the plan’s anti-erosion provisions aren’t carried out or required permits weren’t obtained, the loggers, and their boss, could have a visit from Fish & Boat Commission law enforcement officers. The provision in the Fish & Boat Code that concerns waterways conservation officers is Section 2502, “Disturbance of waterways and watersheds.” This reads: “No person shall alter or disturb any stream, stream bed, fish habitat, water or watershed in any manner that might cause damage to, or loss of, fish without the necessary permits.” Running afoul of this law is a misdemeanor of the third degree, carrying a penalty of \$250 to \$5,000 and possible imprisonment. Civil penalties could also be imposed by a judge, if the infraction and damage are severe enough.

Guy Bowersox, Commission Bureau of Law Enforcement Assistant to the Director, says the logging industry is “getting better” at making sure they have and are obeying the E&S plans and permits, but waterways conservation officers are still writing “quite a few settlement agreements.” “Loggers are becoming better educated, but we still have significant problems where loggers do not check with the county conservation district and obtain stream crossing permits, so we have to cite them,” says Bowersox.

Most law enforcement problems seem to be occurring with operators of small logging outfits, says Bowersox, people “who may be trying to maximize profits and don’t take the time to protect the environment.” Scofflaws do exist, but some of the offending timber harvesters may not know what the law requires or which stream-protection conservation measures they could be taking.

Education, as always, is the key. The Pennsylvania Association of Conservation Districts and the Sustainable Forestry Initiative are much involved in providing logger training. According to Ken Manno, Program Manager in Pennsylvania, the Sustainable Forestry Initiative is active in 32 states as a forest-products industry-sponsored project. In cooperation with the county conservation districts, it offers instruction to loggers and foresters, as well as non-industrial private forest landowners.

The eight-hour environmental logging course includes reviewing the regulations that require E&S plans and stream crossing/encroachment permits. Rohall says the class goes over a checklist of what a timber harvester must look at before he cuts, such as using “best management practices” to protect the environment and working with soil surveys and topographic maps to plan the job. That’s followed by a visit to a mock or real logging site. The class prepares a mock E&S plan, including discussing where skid roads, stream crossings and such should be placed correctly to minimize waterway disturbance. Loggers go through another checklist of items to consider after a harvest, such as whether water bars are in place, whether the site and stream banks are stabilized, and more. Loggers receive a certificate that they have

completed the course and can take additional training leading up to certification as a master logger.

Rohall says that “harvesting timber is pretty much non-regulated.” The current laws are aimed at “keeping mud out of the stream, the same regulations that apply to what you do in your backyard,” he explains. Voluntary efforts by loggers to be trained to do a better job environmentally are important, says Rohall.

Educating loggers to be sensitive to waterways and fishery resources is fine, but before the logger there is the landowner. He is the one who owns the trees and has goals for the forestland. Beyond the minimum legal, anti-erosion requirements, how much care is taken of a stream and its ability to produce trout depend on the landowner’s values. The landowner decides, by contract with the logger, which timber will be taken, how it will be taken, how much timber will be taken, and what extra protection will be given a stream.

A landowner who wants maximum timber value can allow trees to be cut directly along a stream bank, completely denuding the waterway of overhead leaf canopy. No law regarding private property prevents that, except in the rare case where a stream is a Special Protection water. Only then does the law mandate retaining a certain amount of shady tree cover to keep the stream from overheating and falling victim to thermal pollution by increased sunlight. Around Special Protection waters, a vegetated buffer zone, to filter sediments from the logging site, must be retained. Timber harvesting on public lands, such as state forests and game lands, already has such stricter requirements, but on the majority of privately owned woodlands, no such protection to the stream exists by law.

“By removing the forest canopy, you can change the whole balance of a stream in terms of ecological characteristics,” says Arway. “Between additional thermal energy input and removing the leaf material, you can change the plant and animal communities.” That can mean injury to wild trout fisheries, as it did more than a century ago, in Pennsylvania’s “bad old days” of free-for-all logging.

To counter damage to forest fisheries, Pennsylvania Trout, the state chapter of Trout Unlimited, recommends that “regulations be promulgated to prevent the harvesting of timber within the riparian zone.” The group also wants to see laws to extend the riparian zone to 100 feet beyond the stream banks. If timber harvesting is done within that streamside area, Pennsylvania Trout recommends not disturbing “noncommercial vegetation” and limiting entry sites for tree removal.

The Fish & Boat Commission’s role in the issue of how timbering affects trout is mainly “reactive, not proactive,” says Arway. Because of its authority under the Fish and Boat Code, the Commission is charged with prosecuting violations. No one in the conservation or logging community prefers that. For this reason, the Commission encourages voluntary timber harvesting practices to protect water and fishery resources beyond the minimum required by law. The future will show if that was enough. ☐