Emerging Markets can Help Secure Water Quality

Environmental markets promote solutions with added benefits

By Alan Horton

If there were two solutions to a problem, a natural one and one that relies on technology, would one be preferable to the other?

If land is moved into conservation, landowners must be compensated.

Summer steelhead benefit from management activities that provide cool water and conserve spawning gravels.

If costs were not an issue and one solution provided additional benefits like clean water, fire-resilient watersheds and more productive salmon habitat, would an alternative approach warrant consideration?

Cities throughout the West are facing unprecedented demands for clean water and new challenges delivering it. Environmental regulations have imposed increasingly stringent water quality standards and many water districts are finding it necessary to upgrade their facilities to comply. Water treatment plants, for instance, can incur stiff penalties if water leaving their facilities exceeds specified temperature or mineral-concentration levels.

Some districts have chosen to invest in cooling towers and sophisticated filtration systems to address water quality concerns. Others are taking a broader view and putting their money in long-term watershed stewardship.

More than compliance

A technology-based solution may provide regulatory compliance, but that is where its benefit ends. Investing in land management practices that restore watersheds and increase the amount of shade along stream banks can help with compliance and provide cooler water upstream, in the headwaters where salmon and steelhead trout find spawning gravels and rearing habitat.

Environmental markets are emerging to help fund new ways to meet water quality standards. In many cases, downstream water users are helping to pay for specific land management practices that provide quantifiable water-quality benefits, often reducing water temperatures, sediments and nutrient levels by stabilizing stream banks and planting more trees along watercourses. Natural solutions compete well economically, and municipalities considering how to invest their compliance dollars often value their appeal.

> "Forest management protects water and cleans the air."

Environmental markets have a long way to go – most transactions to date have been made through one-off agreements. Perhaps the biggest challenge has been quantifying the value of land management actions so investors can see clear value and compare apples to apples with technology-based solutions. How do you translate planting trees to kilocalories? Converting the value of trees deflecting solar heat from streams to U.S. dollars requires in-depth science and accounting procedures.

» Local contractors net fish to prevent them from being harmed by restoration work in the Middle Fork John Day River. Restoration requires active conservation, funding and a long-term commitment.

In Oregon, several early hurdles have been cleared. The science for converting streamside shade into kilocalories per day, for example, has been accepted by Oregon regulators who actively promote market-based, natural solutions for compliance. Lessons learned here should translate to action in other states.

The issue of sustaining water-quality benefits over time also has proved to be difficult, but not insurmountable. Many agricultural landowners have executed lease agreements in the past that specify activities to take place on certain tracts of lands, so adopting agreements that specify conservation has a feeling of some familiarity. Demonstrating long-term, sustainable benefits has been critical to attracting investors.

Funding new practices

There is no doubt that restoring stream banks on agricultural lands can have a positive influence on water quality. Moving cattle further from streams, for instance, creates a physical buffer between livestock and watercourse that minimizes the impacts of grazing and manure. Planting trees adds shade and a cooling element to an ecosystem, plus complex structure around which wildlife habitat can develop.

But changing land management practices to enhance water quality often means private landowners must convert land from production to conservation use, which can impact revenues and create a financial burden with the potential to threaten business viability. If land is going to be moved into conservation, there must be a mechanism to compensate landowners. Environmental markets aim to provide that compensation.

The concept behind market-based solutions for water conservation goes back at least to the 1990s, when New York City was facing staggering water-filtration costs. Rather than rely sole on technology, New York invested in watershed management more than 100 miles upstream in the Catskill Mountains, the primary source of the city's drinking water. By investing in upstream watershed management, New York lowered its filtration costs and to this day, New Yorkers drink some of the best tap water anywhere.

While most watershed investment agreements have involved ranch and farm lands, the relationships forged and lessons learned to date may help create opportunities in forested areas as well. Forestry faces challenges because forestland owners already maintain healthy buffers and riparian zones. But forest management also reduces the threat of high-intensity wildfire, which protects water and cleans the air. Environmental markets have their roots in forested watersheds, and forestry should play a role as markets develop.

Management that provides a tangible, long-term benefit should earn credit in emerging environmental markets. Bringing together landowners and regulated entities in need of demonstrating water-quality performance offers a promising direction for water conservation. ■

Downstream water users pay for land management that provides quantifiable water-quality benefits.

« Planting trees in riparian zones can help lower stream temperatures to improve salmon productivity and is often a component of watershed restoration.