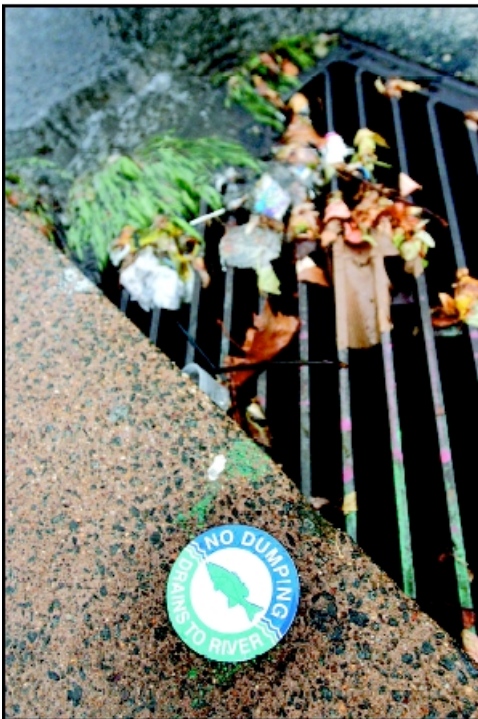


TURNING SCHUYLKILL PUNCH INTO CHAMPAGNE



Network pumps energy into watershed improvements
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John Strickler/The Mercury

As part of its effort to raise awareness of how storm water pollution can pollute drinking water, Pottstown Borough placed these medallions on storm drains to discourage dumping.

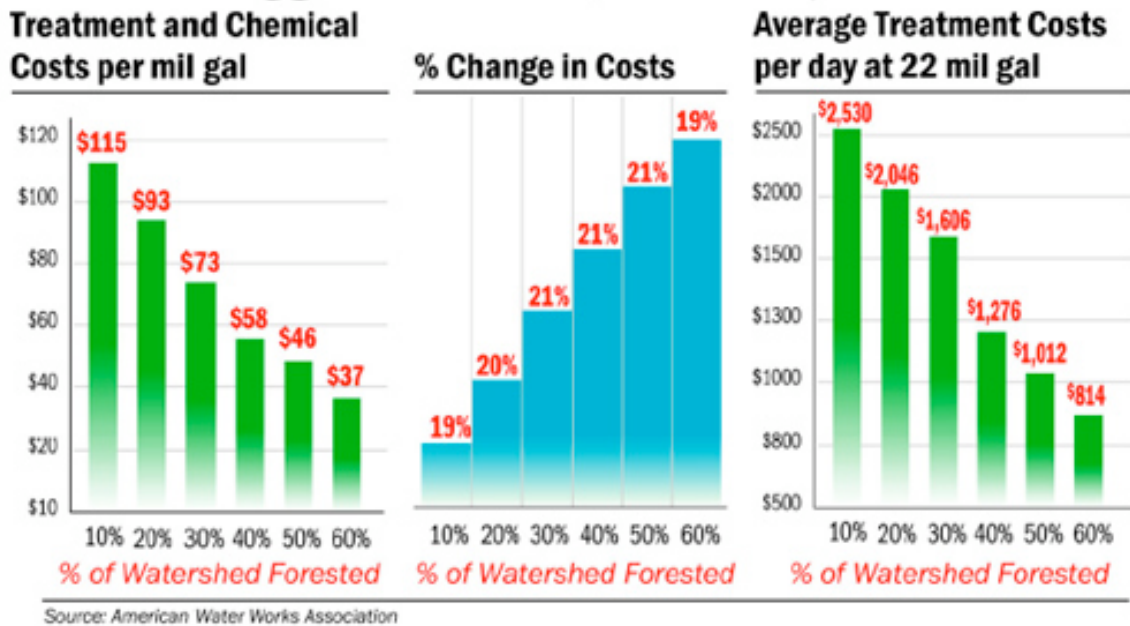
VALLEY FORGE — Counting problems can sometimes be a blessing. In the case of the Schuylkill Watershed, so many water quality problems have been identified that the watershed is viewed as the perfect laboratory for exploring innovative solutions.

“We have acid mine drainage, agriculture, urban and suburban run-off, old industrial contamination and explosive development. It’s a smorgasbord of environmental challenges,” said Christopher Crockett, who manages the Office of Watershed Protection for the Philadelphia Water Department.

The watershed has caught the eye of federal officials, as well, as a testing ground for improving water quality.

“The Schuylkill is the perfect place for us to learn how to do this proactively,” said Don Welsh, who is in charge of U.S. Environmental Protection Agency’s mid-Atlantic region, which includes Pennsylvania, Maryland, Delaware, Virginia and West Virginia.

The bigger the forest, the cheaper the water



“I think the EPA feels that if progress can be made in a watershed like Schuylkill, it’s a good sign progress can be made anywhere,” Crockett said.

Crockett is quick to point out that no one entity caused all these problems faced by the watershed, and no one entity can solve them.

First on that list is the two-year-old Schuylkill Action Network, a conglomerate of people and agencies with a goal of improving water quality in the region. The network includes 260 members from 60 government agencies, grassroots groups and national non-profits.

Cathleen Curran Myers, the state Department of Environmental Protection’s deputy secretary for water management, put the efforts of SAN in perspective, speaking at the network’s second annual meeting last May at the Freedoms Foundation in Valley Forge:

“We need to target our energies where there is a critical mass, where there are partners already

working on the ground, ready to make a commitment,” she said.

A new way of controlling pollution

“The old way of planning for pollution control was top- down and paternalistic,” said Welsh. “We concentrated on the widgets; were certain permits written? When do they need to be renewed? But we’re at a juncture where we needed to get to the next big increment, and a new approach.”

That new approach, exemplified by SAN’s multi-faceted network, caught EPA’s eye.

“We brought together organizations that normally wouldn’t be in the same room, like the EPA and the farm bureau,” said Lyn O’Hare, who works with the Berks County Conservation District and heads up the network’s agricultural work group. “Everyone is looking at the Schuylkill as a big picture,” she said. “It’s extremely innovative,”

The innovation has already won a \$1.1 million grant from EPA this year, the second largest watershed grant in the nation.

Crockett said that grant was leveraged against other funding sources, including \$50,000 from Pennsylvania American Water Co., into \$2.25 million to fund the network’s efforts.

“That money is going to turn into projects on the ground,” he said.



Daniel P. Creighton/The Mercury
Dam removal, like the work done this summer on the Perkiomen Creek, shown above, encourages the return of native shad, a fishery valued at \$3.2 million in the Delaware Watershed. Planting native riparian buffers along streams, like the work done on Century Oak Farm in Chester County, below, is particularly helpful to cold water fish like trout.

Rich in data

Something else that makes the Schuylkill watershed unique is the wealth of accepted scientific data already collected, analyzed and ready to be put to use.

As evidence, Crockett, an engineer and Ph.D. who has conducted his own scientific study of the Schuylkill's pollution and its likely sources, pulls out a book dating back to 1893.

The book, filled with water readings and potential pollution sources, is an example of how far back pollution problems in the Schuylkill go, and how important they were for Philadelphians

“They went by horse, by foot and by boat and they identified every privy, every outhouse,” Crockett said with obvious admiration of the authors. “Thanks to people like that, we have water quality measurements going back to 1902.”

With a base model of the watershed's current health and the history of pollution, measuring improvements going forward becomes easier, said Welsh.

“We have to demonstrate to everyone we can produce real quality-of-life impacts,” said Curran Meyers. “We have to make a real difference, and we have to make it visible and be able to prove it with the data.”

Those measurements — and the involvement of groups ranging from federal agencies like the EPA, state agencies like the DEP, county agencies like the Montgomery County Planning Commission and local, non-profit organizations like the Perkiomen Watershed Conservancy and the Delaware Riverkeeper — makes the effort here a model for the nation, said Welsh.

A local solution to a worldwide problem

What the Schuylkill Action Network is facing is a local solution to a worldwide issue that has almost as many players as problems. The key is to match them.

“It's easy to point out the problems, because we've seen them before,” said Crockett.

“The SAN is trying to do the hard part, so we're breaking it up into bite-sized pieces, so they can get their arms around it,” he said. “That's the only way we'll be able to address it in a comprehensive fashion.”

The pieces are agriculture, abandoned mine drainage, pathogens, data, storm water, watershed land protection, and education and outreach.

Each work-group is allocated a specific amount of the grant money and charged with a task. The data group takes “before” and “after” measurements to demonstrate if improvements are seen from the solutions pursued.

The education group is charged with telling the story of those successes to the world so they can be duplicated and to tell the residents of the watershed so they can understand their responsibility in keeping the water clean and flowing.



Kevin Hoffman/The Mercury

On farms and in forests

With the majority of the watershed's farms located in Berks County, it made sense for O'Hare to be in charge of the effort to reduce the impact agriculture has on the watershed.

"For about a year, we determined and targeted impaired areas and we ended up focusing primarily on the Maiden Creek Watershed," O'Hare said.

"Then we looked for farmers who had a piece of Maiden Creek on their property and we started talking to them about participating and adopting best management practices," she said.

Called "BMPs," best management practices can be applied as easily by farmers, as by sewage plant operators, or developers.

The idea is to allow the activity to continue with the least amount of negative impact on water resources.

When it comes to farmers, the main practices involve stream fencing to keep animals out of streams, except at designated crossings and watering holes; nutrient management plans, which means keeping cow dung and artificial fertilizers out of the streams.

"We have three farmers who are cooperating, and we look at these as demonstration projects so that other farmers may become interested and then we can enjoy a snowball effect," O'Hare said.

The ties that bind

Like so many things in nature, the relationship between trees and streams is reciprocal.

Streams provide a constant and abundant supply of water for the trees, while the trees shade the stream, keeping water temperatures down and more hospitable to temper **and** ature-sensitive fish like trout.

But trees provide less **than** obvious benefits as well, including helping to keep your water bill down.

“Nothing cleans — water like forests,” said John Hoekstra, director watershed advocacy Green Valleys Association in Chester County.

His assertion is bolstered in a study conducted by the American Water Works Association, which has an obvious interest in the cost of water treatment.

The study, performed in partnership with the Trust for Public Land, found that costs for water treatment skyrocket in direct proportion to the diminishment of upstream forests.

It found that for every 10 percent increase in forest cover in a water source area, treatment and chemical costs dropped by 20 percent.

Some have known this for years. Philadelphia originally purchased what became Fairmount Park to protect its drinking water, and New York City has purchased thousands of acres in the Catskills, where its water is collected in reservoirs.

In fact, New York is one of the few major cities that does not need to filter its water, water that regularly wins national taste contests, outstripping expensive bottled water.

Among the network’s many projects is the \$21,500 budgeted to reforest the Perkiomen Creek upstream of the Green Lane reservoir in the fall of 2007.

Both DEP and EPA consider this reservoir, privately owned and the source of drinking water for East Greenville, in need of protection and the project is aimed at demonstrating how reforestation can be a cost-effective way to control pollution.

Trees absorb water to prevent flooding

Of course, preserving forests before they’re cut down makes even more sense — and is even more cost-effective. Trees absorb a lot of water, which means the more trees you have upstream of your house, the less likely it will be flooded out in a heavy rain.

“The water trees retain during a storm is just amazing,” said Crystal Gilchrist, executive director of the Perkiomen Watershed Conservancy.

“If all the trees along the Delaware were removed, each municipality downstream would have to build 150 million gallons of storm water storage,” said Hoekstra.

“The best part is that planting trees and riparian buffers is not terribly expensive and they do a really great job improving stream quality,” said Welsh.

“In fact, we’ve created a bottleneck with some nursery species because when the EPA has a big planting project, sometimes we grab up all the available trees,” he said with a chuckle.

Whether it’s trees, or more innovative methods, the best way to keep storm water out of the basement is to get it into the ground.

That’s exactly what North Coventry requires of new developments.

Working with Green Valleys, the northern Chester County township requires developers “to get a grip on run-off and they need to deal with it on-site,” said Township Manager Kevin Hennessey.

“They have to collect and infiltrate the ground-water instead of holding it for a while and then shooting it off the property,” said Hennessey, who added the township was motivated as much by concerns about groundwater supplies as about flooding.

Those rules, combined with a master plan that is based as much on water resources as traffic jams, is helping control the town’s future growth, said township Supervisor Andy Paravis.

“We want to keep the water table where it is,” Paravis said. “Also, we want to keep it as high quality as possible, so we know where to focus our growth.”

The Schuylkill Action Network is also considering sharing model storm water ordinances for other towns to follow, but Hoekstra has a word of warning.

A DEP model ordinance recently in circulation is “a skeleton with no meat on it and Union Township, in Berks County, was about to adopt it. We said ‘whoa, there’s more you can do,’” Hoekstra said. “There is no one size fits all, no magic bullet.

“The bottom line is, even with our model storm water ordinance, you’ll get no more than 75 percent re-charge,” he said. “Even if you do everything right, you’re still going to add to the run-off.”

Lesson plan

Adopting laws to require proper water management makes a difference, but sometimes, teaching people to do the right thing is even better. That’s why education is an important part of the network’s plan.

“At the conservancy, we’re in no position to make anyone do anything they don’t want to do. All we can do is cajole people,” said Gilchrist.

Gilchrist likes to focus education efforts of her organization on the people who can determine the future.

“It’s easier with kids, their minds are already open to being educated,” she said. “And they’re really our best marketing agents.”

And for kids, nothing beats hands-on experience. That’s how Michele Andre, a 15-year veteran of Pottstown Middle School, teaches life sciences.

In past years, students ventured to Ironstone Creek in Douglass (Berks) to hunt for the water insects that form the foundation of the food chain. “We always find good things there and the kids are really spellbound by what they find,” she said.

Last year, with the help of the Montgomery County Conservation District, Andre’s students tested the water in Sprugel’s Run as it ran through Brookside Country Club. “We made biological tests, chemical tests and did pebble counts, saw what size they were,” she said.

“We test for chemicals and it’s always high,” Andre said. “The phosphates, acidity, nitrogen, were all higher than normal, and the oxygen was low and none of that’s good.

“Until you start doing testing, it looks like a perfectly normal stream,” she said, “but looks can be deceiving.”

The up-side upstream

Those working within the SAN framework have no illusions about the challenges facing them, but they also know that sometimes the picture is brighter than it looks.

“Environmental issues are so controversial, when you see the headlines it’s usually about things getting worse and it’s easy to come to the conclusion that things are getting worse every day,” Welsh said.

“But there are plenty of examples of water quality improvements,” he said.

“I know the Schuylkill has some water quality problems, but when you compare it to what it used to be, it has come far,” said Carol Collier, executive director of the Delaware River Basin Commission.

“And I’m so excited by the interest people are showing in the Schuylkill now,” she added.

“We want to go from ‘Schuylkill punch’ to ‘Schuylkill champagne,’” Welsh added.

“For people in the watershed, we want them to understand that when they do something on their property, they’re doing something that could affect the water supply for two million people,” Welsh said.

Beyond the necessity of clean water, there are economic aspects to cleaning up the watershed.

“Right now, there’s development being built in the tidal Schuylkill,” said Crockett. “If it’s a cesspool, no one will want to build or spend money on it.”

“We just had a major triathlon, and we had 1,250 people swimming in the Schuylkill,” Crockett said in June. “Imagine how many hotel rooms that is.”

And it’s not just Philadelphia.

“Look at Reading, Pottstown, Phoenixville, Conshohocken, Norristown, they’re all coming to the river, the river has become their hope for revitalization,” he said.

Hope floats

For Crockett, hope arrived twice, once in the form of a river otter and again with a red-bellied turtle.

In the fish ladder at the Fairmount Dam, a camera watches and counts the shad that head upstream in the Schuylkill in increasing numbers each spring.

A fleeting glimpse of sleek fur that flicked back and forth in front of the camera turned out to be a river otter playing in the tunnel. Crockett watches the clip on his computer almost daily.

“That might be the first in a century,” he said with obvious satisfaction.

“And at Fort Washington Park, we found a red-bellied turtle youngster, an endangered species living in the Wissahickon Creek,” said Crockett. “That stream is 80 percent impaired.

It’s the most impaired stream in the watershed and probably the state.” It just goes to show you, Crockett said, “Mother Nature is more resilient than we give her credit for.”

This means it’s still not too late. Said Crockett: “We need to protect tomorrow and fix yesterday.”