Sebago Lake Watershed Case Study

The forest surrounding Maine's Sebago Lake acts as a huge filter, making the lake one of the cleanest drinking water sources in the northeastern United States. But because so much of that forest is privately owned and subject to development pressure, the Sebago Lake watershed is one of the region's most vulnerable.

"Our watershed is able to provide really good water right now. The challenge is how do we keep it that way," says Paul Hunt, environmental services manager for the Portland Water District, which provides water to nearly 200,000 people in the Portland area, mostly from Sebago Lake.

"We're really trying to emphasize the importance of protecting forests for drinking water supplies," says Martina Barnes, a regional watershed planner for the Forest Service. "Protecting forest land is less expensive than leaving it open to development and then having to clean up or treat the drinking water," she adds.

Forests are critical for providing clean water across the country, not just in Maine. They absorb water from rain and snowmelt, remove dirt and minerals, and then release the water slowly and steadily into streams or underground aquifers. Without forests, the fresh water supply in much of the United States would be threatened.

"When you remove the trees and then introduce things like rooftops and driveways and compacted soils, then you have runoff, and anything in or on those surfaces has the potential of reaching your water supply," says Paul Barten, associate professor of forest resources at the University of Massachusetts in Amherst. "If you start to clear or lose forests in areas that are currently pristine like Sebago, and if you lose the wrong forests in critical areas of the watershed, you'll start to detect a reduced water quality," he says.

Because the water from Sebago Lake has been so clean up to now, the Environmental Protection Agency allows the Portland Water District to provide water to customers without filtering it. If development in the watershed continues, the city may lose this waiver, which would require it to build an expensive filtration facility.

Sebago Lake.

The Portland Water District draws water out of the southern end of Sebago Lake. It owns much of the land around its intake pipes, but just a small fraction of the overall watershed. "We own 2,500 acres, and the watershed encompasses 300,000 acres," Hunt says. "We sit at the bottom of this funnel, and the quality of the water is really a function of how well the forest at the top of the funnel produces water. We've always looked at the upper watershed and said, 'Who's going to preserve all that?'"

There are more than 7,000 different land parcels or tracts within the watershed, each owned and managed by different individuals. Because it would not be possible to work with so many different people to protect the forest, the Portland Water District has identified 50 "priority parcels" to concentrate its efforts. Those critical parcels are located in the forestlands around the Crooked River, which feeds into Sebago Lake (see map). They were chosen because they are next to the river or protected lands, they contain high-quality forests, or they have steep slopes or thin soils.

In addition, the water district is working with the American Forest Foundation to provide financial incentives to landowners to protect the forestlands around the Crooked River. Although the details are still being worked out, such incentives may include direct payments or tax rebates for landowners.

By investing in preserving the Sebago Lake watershed forest now, Portland will be able to keep its filtration waiver and to avoid far more substantial filtration and treatment costs. "We're still raising public awareness that the future of the rivers and lake are linked to the forest," Hunt says.

Sebago Lake Watershed Case Study (cont.)

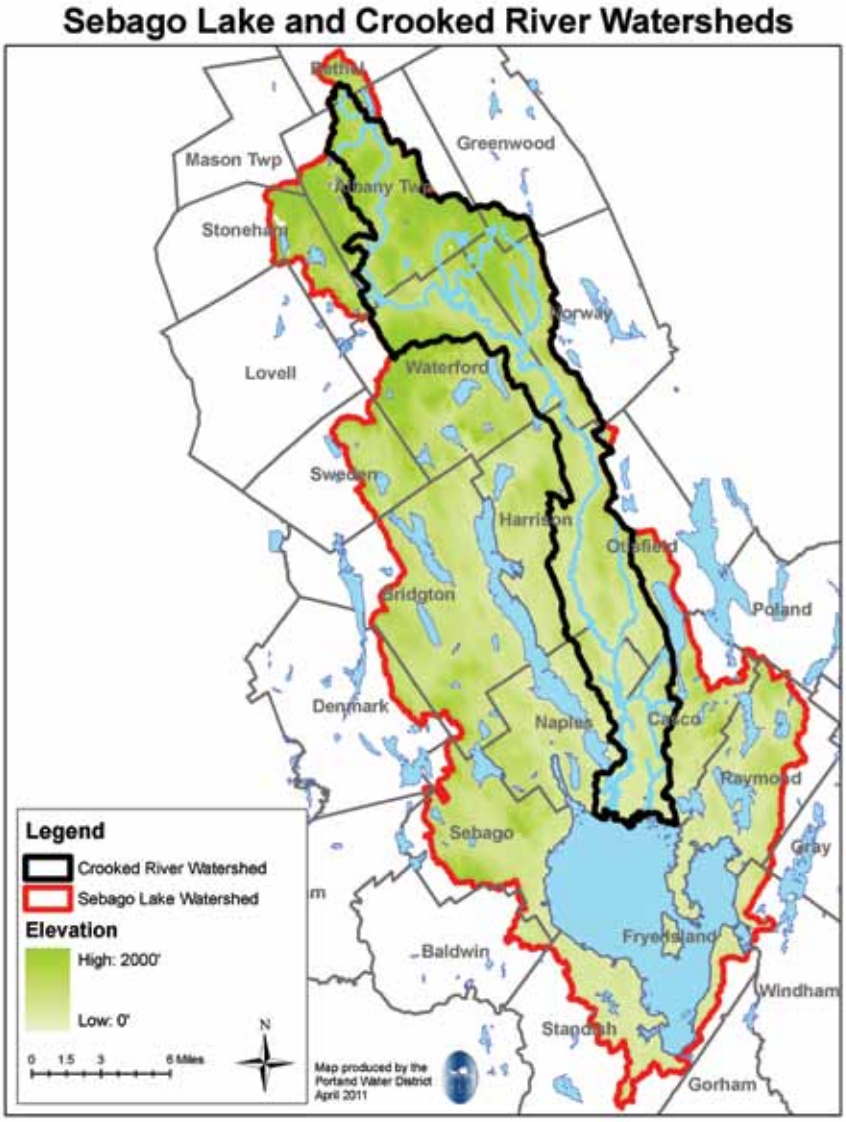
Discussion Questions

1. What are the issues facing the Sebago Lake watershed?

2. What is the relationship between forests and water quality?

3. How do you think that other land use around the lake affects water quality?

4. Why might financial incentives be a good idea for protecting forests? What might be the downsides of financial incentives?



5. What do you think might be the best approach for preserving the integrity of the Sebago Lake watershed?

Sources

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"Ecosystem Market—Water Quality and Quantity." American Forest Foundation. Available at http://www.affoundation.org/.