

Will we adopt by chaos or by plan?

Green forum addresses threats to the Delaware

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The future of the Delaware is in our hands. Increased flooding, decreased water quality and impoverished wildlife habitat threaten the region's treasured waterway.

People have put the Delaware River's health in jeopardy. But people – working together – can prevent catastrophe.

The Delaware River Greenway Partnership's public forum at Prallsville Mills in Stockton, N.J., on May 18, was "Health of the Delaware: Facing the Threats." The biannual forum brings together communities along the Wild and Scenic Lower Delaware, from the Delaware Water Gap to Washington Crossing.

Speakers focused on natural gas drilling, climate change, and invasive species. The impact from these threats is already beginning. The time to act, the speakers agreed, is now.

"To protect the river, protect the mountains." Citing ancient wisdom, Carol Collier, executive director of the Delaware River Basin Commission, warned that drilling in the river's forested headwaters is endangering water quality and supply, and increasing the risk of catastrophic flooding.

Natural gas a mile below the surface in the Marcellus Shale formation, which underlies about 36 percent of the Delaware Basin, has high value, but extracting it raises numerous concerns, Collier said.

Fracking – the process of fracturing the shale to enable horizontal drilling – uses 3-5 million gallons of groundwater, which is combined with chemicals and injected into the rock. Withdrawal of groundwater



"I'm doing this for Cody." Andrew Pitz, of Natural Lands Trust, addresses the Delaware River Greenway Partnership forum, illustrating his presentation on climate change with a photo of his son.

may affect the flow of streams and aquifers.

About 80 percent of the fracking liquid is returned to the surface. The remainder stays in the shale, raising concerns about aquifer contamination.

The liquid dissolves salt in the shale. When the salty liquid returns to the surface it cannot be disposed of in normal wastewater treatment plants, so is trucked far distances. There is now too much for those plants to handle.

Drilling also fragments and degrades forests. Extraction companies cut well access roads and clear about 5 acres around every well-head.

DRBC is considering regulation to address the issues.

Collier said corridors critical to water quality need to be mapped, and clearing restricted. DRBC needs funding, said Collier, to do mapping and to assess the impacts

of clearing. She asked the public to call their legislators to press for funding and support appropriate regulation.

"Drilling must be done smartly," said Collier. "To do it smartly, we've got to slow down."

Climate change will exacerbate the impacts of drilling. Collier and Andrew Pitz (vice president, Natural Lands Trust), warned that if action is not taken quickly, climate change will dramatically alter the lower Delaware watershed.

Climate change is already causing extreme weather patterns, warmer winters, reduced snow pack, higher precipitation and increased storm intensity in the watershed. It is contributing to sea level rise that, according to a 2008 study, will be 6 feet by 2100.

Pitz pointed out that it is only in the last 10,000 years that Earth's climate has stabilized, creating the very limited range of conditions

that have enabled the development of human civilization – conditions that are rapidly changing.

Citing the work of NASA's James Hansen, he advocated two solutions that on a global scale could prevent catastrophic change. First, stop using coal to generate electricity. Second, sequester carbon through agricultural and forestry practices. If coal usage is eliminated, land conservation and management can reduce CO2 concentrations, slowing climate change and giving us time to adapt.

Creating connected "green corridors" is critical: preserving and connecting natural areas (woods, wetlands, waterways) into a continuous network. Priority natural areas should be protected from development and where necessary restored. Preservation should anticipate that sea level rise will inundate coastlines, wildlife will alter their ranges to survive, and the species of plants in a region will change.

Planting forested buffers along waterways is now a generally accepted guideline, but the risk of increased flooding means that the standard 100-foot buffer is not enough, Pitz said.

Pitz also called on conservation organizations to explore emerging carbon trading markets.

Betsy Lyman (Delaware Water Gap office, National Park Service) addressed the immediate impacts to the Lower Delaware ecosystem from invasive plants, a "serious threat to biodiversity." Invasive plants (non-native plants that have been introduced through human actions) out-compete natives and replace them widely, reducing diversity.

A diverse plant population sup-

ports a diverse wildlife population. Unless the native insects and animals can adapt to invasives, they will die off. A diverse wildlife population supports a healthy human environment (for example, Lyme disease flourishes in places with low biodiversity.) Additionally, a diverse riparian plant habitat, with roots that hold the banks, prevents erosion – mitigating flooding and reducing pollution.

To address the invasive species threat, people need to control and remove invasives, and restore natives.

For many invasive plants, control has been impossible. Researchers are beginning to identify "biocontrols": non-native insects or diseases that (it is hoped) attack only those plants. But there are already new invasives on the horizon; some sold by nurseries, such as butterfly bush. And didymo, an invasive diatom (one-celled animal), is appearing with alarming frequency in the region's waterways – spread by fishing gear and boats.

The most immediate advice? "Replace your lawns with native plants." Instead of creating green deserts – completely useless to native insects and animals – plant a diverse groundcover, with wildflowers, trees and shrubs.

The threats to the Delaware are significant. But they can be addressed by people doing what comes naturally.

"We will adapt to change. The question is will it be by chaos or by plan?" Carol Collier said. "We need to work together."

Check state.nj.us/drbc; pewclimate.org; invasive.org/eastern/midatlantic.