

Cleaning up storm-water runoff

In pilot program, Star Park is using sponges to help reduce pollution of the Willamette River

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When storm-water runoff in parking lots and construction sites generate river pollution, everyone's health suffers.

But a new type of spongy filter, created for large-scale oil-spill remediation, could be the next technology used to prevent harmful hydrocarbons from seeping into the Willamette River from high-pollution areas.

The filter is being used in the city for the first time at one of Star Park's 39 Portland-area parking lots, in a pilot program that is expected to last the remainder of the year.

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Josh Schlesinger, left, of the Schlesinger Companies, Star Park's Virgil Ovell, center, and Hydrophix's Kris Nelson, pause before installation of the first Smart Sponge at Star Park's Southwest Fourth Avenue parking lot.

Placed under the runoff catch basin at Star Park's Southwest Fourth Avenue parking lot near Portland State University, the sponges filter storm-water runoff and absorb harmful heavy metals and other pollutants.

The city is embracing the program. Rick Bastach, coordinator for the city's River Renaissance, said that more needs to be done to protect the Willamette River from parking lot and construction site pollutants, which cause heavy metal saturation in the water supply.

"It's very encouraging to be at this point in our evolution of cleaning up storm-water runoff," he said. "I think everyone has seen the rainbow pools that accumulate on parking lots, from all the oil."

Local firm Hydrophix is behind the Smart Sponges – spongy balls each about the size of a foam peanut – that can absorb more than three times their own weight in pollutants.

"It's a very special kind of absorbent media," said Kris Nelson, a vice president at Hydrophix. "It's a polymer that has a very amorphous structure, and that's a big difference (from past sponges) because that allows the material to permanently encapsulate the hydrocarbons."

That's significant for two reasons, he added. First, once pollutant material is saturated into a sponge, the city doesn't want it released back into the water. Second, once the Smart Sponges are disposed, the city doesn't want the pollutant material leaching



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into the groundwater under the landfill.

Star Park is owned by real estate firm Schlesinger Companies, which holds the properties as long-term holdings.

"We're trying to be stewards of the environment, and I think this is a good, straightforward solution to making the river a healthier place," said Josh Schlesinger, a vice president at the company.

The Schlesinger Companies will know if its pilot program is a success when the Smart Sponges are weighed at the end of the pilot period. The weight differential between the beginning and ending period will determine how much dreck the sponges filtered out of the runoff.

Schlesinger expects it to be a significant amount, as do others. Parking lots are among the most environmentally deleterious forms of real estate, said Dan Kent, director of Portland-based Salmon Safe, a group that advocates for a cleaner Willamette River. That's because pavement is an impervious surface, preventing storm water from entering

groundwater the natural way: by seeping into the soil.

"It seems like a great first step for now," Kent said. What the industry needs, however, is a great leap, he added.

To wash the hydrocarbon-laden grime off the pavement, parking lots are constructed with storm-water runoff routes that lead to drains intended to quickly channel storm water to bodies of water.

The continual cascade of petroleum-based chemicals into a parking lot's catch basin is what affects the river.

According to a recent U.S. Geological Survey report, parking lot sealants are a major source of carcinogenic pollutants. The report states that a man-made parking lot surface generates between two to six times more runoff than a natural surface.

"Parking lots ... generally have vehicles there for long periods of time, too," Nelson said. "And it's just a darn fact of life that vehicles tend to leak oil and grease. They release these pollutants into our storm water when it rains."

That can be a huge problem in Portland, which gets about 37.5 inches of rain per year, according to Weatherbase. The Web site has tracked the city's weather averages over a 65-year period.

Using sponges with advanced polymers to clean up storm water is only one solution, Kent said. Other methods he envisions for the future include infiltration swales and roofed rain gardens, which could provide on-site water treatment.

There is, of course, one large hurdle to clear before such dramatic sustainability measures will be taken, he said.

"Economic factors, naturally, trump everything else," Kent said. So, for now, it's up to sponges.



Dan Carter/DJC

Kris Nelson, vice president of Hydrophix, places pollutant-absorbing sponges into the parking lot's catch basin.