

Liberty Lake

Finding Pollution Problems to Solve



One of two newly discovered outfalls to Liberty Lake.

Introduction

The Urban Waters Initiative addresses the special environmental challenges faced by urban water bodies. Pollution sources are more concentrated in urban areas, so the impact on natural waterways can be severe. In the Department of Ecology's (Ecology) Eastern Regional office, the Urban Waters Initiative focuses on finding and stopping stormwater and other urban sources of pollution from reaching the Spokane River and surrounding water bodies. During the startup of the Initiative, a pilot study was conducted around Liberty Lake to test sampling methods and procedures. This pilot study discovered problems that are on their way to being resolved through cooperation between Ecology, the Spokane County Stormwater Department, and the Liberty Lake Neighborhood Council.

Problem

Stormwater pollution causes detrimental impacts to surface water and the life forms it supports. Stormwater carries many contaminants from roads and businesses to its final destination, which in this case is Liberty Lake. During the Urban Waters Initiative Pilot Project study of stormwater around Liberty Lake, Ecology investigators discovered that there were two stormwater discharges to the lake that local officials did not know about. Local officials were aware of one drain, but believed it had been plugged and rendered inoperative. Also, due to a flood in the records room for the city of Liberty Lake, many maps and historical references had been destroyed.

Project goals

In the summer and fall of 2008, Ecology investigated possible discharges to Liberty Lake. A storm drain, in the low point of a cul-de-sac adjacent to a fenced and locked private park, raised our curiosity as we wondered where the water flowed from that point. A pipe within the catch basin of the storm drain was aimed directly at the shore of the lake. Stormwater management personnel for the city of Liberty Lake informed us that this drain had been permanently plugged and no longer conveyed stormwater to the lake. We decided to confirm this statement by dye testing the storm drain.

Ecology contacted the Neighborhood Council to obtain the key for the gate into the park. The key holder was one of Spokane's favorite weathermen, Tom Sherry of KREM 2. The Spokane County Fire Department agreed to supply water to the storm drain in sufficient quantity to fill the system. Dye was introduced to the storm drain and we stood ready to observe the plugged outfall. We immediately noticed a hole had formed in the soil above the outfall. It was not apparent whether this was an animal burrow or something about which we should be concerned. Sure enough, as the pressure of the dye-treated water built up, green water filled the hole and overflowed to the lake. We then observed that the plug in the



Dye test flow exiting one of the outfalls.

outfall resembled a kitchen colander as multiple streams of green water squirted through it. Apparently, over time, the pressure of stormwater events caused the water to find another path, eroding the soils and creating the burrow-like hole in the ground.

The second outfall was a direct discharge from a catch basin that was upgrade on the same street as the one next to the park. It required little investigation beyond a quick dye test. We conveyed our findings to the city of Liberty Lake. Ecology informed the responsible parties that a solution to this problem was necessary.

Milestones and outcomes

Russ Connole of the Spokane County Stormwater Department contacted Ecology in February of 2010 to obtain the data we have from sampling the storm drains in question. Since the outfalls are technically outside of the city of Liberty Lake, they fall under the responsibility of the county stormwater department. The department has been working with the Neighborhood Council to develop a solution to prevent untreated stormwater from getting to Liberty Lake. Mr. Connole indicated that an agreement was reached with the neighborhood homeowners to allow the county to install bio-filtration systems for both outfalls to cleanse the stormwater and increase infiltration to ground before it discharged to the lake.



Dye pooling in the burrow-like hole formed at plugged outfall.

Project highlights

During the pilot study, many homeowners took an interest in our work. They would come up to us as we worked, asking us questions, and generally supporting what we were trying to do. The homeowners' curiosity and the cooperative problem solving between the many interest groups made this project very rewarding for the Ecology investigators. Fixing these kinds of pollution problems is what the Urban Waters Initiative is all about.

Partners

The following people and organizations were instrumental in the final outcome of this story:

Bijay Adams
City of Liberty Lake

Spokane County Fire Department

Tom Sherry
Liberty Lake Neighborhood Council

Arianne Fernandez and Ted H. Hamlin
Washington State Department of Ecology

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Spokane County Stormwater Utility

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