Floating Wetlands AT BRIGHTWATER

INNOVATING to improve water quality

King County Wastewater Treatment Division is using bold, new approaches to improve water quality on the grounds of the Brightwater Treatment Plant. The County installed two sets of floating wetlands, one in the Lower (Otter) Pond and another in a pond on treatment plant grounds.

King County restored Brightwater's natural area and helped water sources like creeks become part of this natural area for use by people and wildlife. A former fish-rearing pond became Otter Pond.

The natural area is cherished by trail users and wildlife watchers, and serves as an outdoor classroom for the Brightwater Education Center.

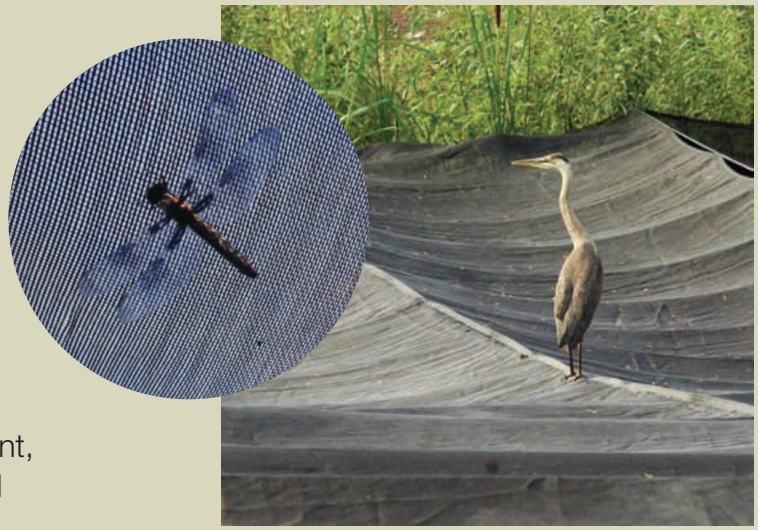
But Otter Pond wasn't meeting water quality permit requirements. High water temperatures and low levels of oxygen in the water posed problems for fish and other wildlife. Then, toxic algae appeared in the summer of 2015, requiring closure of the pond to protect people and pets. Something new and different needed to be done.

Otter Pond was closed in 2015 due to toxic algae growth.

King County
Department of Natural Resources and Parks
Wastewater Treatment Division

FINDING A SOLUTION THAT FITS *the natural area*

King County's project team needed to keep the pond cooler and reduce nutrients in the water. Creating shade keeps water from heating up. Plants around waterways are the most natural, effective, low-cost way to shade water. But it would be years before plantings around the Otter Pond provided enough shade to make a difference.



Traditional methods for blocking sun, such as shade cloth, just didn't fit in with the natural setting. Besides putting plastic in the environment, it meant a lot of maintenance, and wildlife would not be able to access the water.

Instead, King County's team proposed creating floating wetlands to help improve water quality. Floating wetlands are like little floating rafts with plants and trees: engineered structures planted to create shade and take up nutrients that could cause low water quality.

For Otter Pond, the team used willow trees in the floating rafts to mimic the effect of trees overhanging the water. Overhanging trees provide shade favored by native fish, and support insects that fish eat.

Floating wetlands have a track record in our area. King County successfully used floating wetlands outfitted with grasses and sedges to slow water and sediment flow in a pond within the treatment plant grounds. Willow rafts had been successfully piloted at Lower Stensland Pond in Redmond.

EVALUATING RESULTS *and next steps*

Despite careful design and construction, the willow rafts did not thrive in Brightwater's Otter Pond. Without a lush growth, the rafts did not provide enough shade to keep water temperatures in check. Toxic algae has not caused the pond area to be closed again. But the willow rafts were not working well enough.

King County's team re-evaluated the approach with the continued goal to find a solution that fit the Brightwater natural area.

The King County team gathered a range of experts in wetland science, ecology and landscape architecture for a brainstorming workshop to come up with better solutions. Experts provided a range of ideas, including use of some of the current willow rafts to create a more natural shoreline in the Otter Pond which should help water quality and wildlife.

King County's team works with experts to evaluate ideas.

CONTINUING TO *work toward a solution*

King County looks for creative ways to solve problems and share what we learn. The Floating Wetlands team has shared their project results with local and state agencies. Ecology and habitat experts are helping the team to find creative ways to help Otter Pond become the best natural environment it can be.

The floating wetlands on the pond within the treatment plant grounds are flourishing.

BRIGHTWATER FLOATING WETLANDS *timeline*

STAY *in the loop*

As King County's team continues work on this innovative project, you can keep up on our progress, discovery what we learn and find opportunities to attend events.

Visit **www.kingcounty.gov/bw-otter-pond**

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Alternative formats available. Please call 206-477-5371 or TTY: 711.

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