Study To Look At Emergent Vegetation In Malheur Lake

September 2020
By Lauren Brown

Tules and cattails were abundant in Malheur Lake before the flooding in the 1980s.

The infestation of carp, the turbidity of the water and the lack of vegetation are all issues that have risen to the forefront, as the Harney Basin Wetlands Collaborative, a collaborative of the High Desert Partnership, examines how to restore Malheur Lake to a healthier state.

Dominic Bachman, the aquatic coordinator for the High Desert Partnership, said Malheur Lake is the centerpiece of the Harney Basin. “It’s where everything ends. It’s like this pumping heart with all the arteries coming into it: the floodplain, the river systems and the whole watershed,” he said. “This pumping heart is now weakened and has all kinds of issues between carp and water quality and this fluctuation of water, drought and high-water years. It has changed the quality of the marsh for birds.”

While the proliferation of carp has received much attention over the years, a new two-year study will look at the lack of emergent vegetation and try to determine the best way to foster the growth of bulrushes, cattails and other vegetation with the end goal being clearer water that is more attractive to birds and other wildlife.

Emergent vegetation is anything that grows above the level of the water. Bachman said that emergent vegetation can provide a windbreak, which creates a microclimate that is less windy in the cold and provides shade when it is hot. The plants host insects, which birds and wildlife feed on. Spiders, mosquitoes and midges use the vegetation as do aquatic invertebrates. Birds will eat not only the green vegetation, but also the insect eggs and invertebrates that may be hiding in the plants.

Dr. James Pearson, a fish biologist at the Malheur National Wildlife Refuge, said that while the carp problem started in the 1950s, the lack of emergent vegetation was not an issue until the floods of the 1980s. At that time, the lake expanded and was deeper and much larger than usual. “For nearly a decade it was very large, and once the lake contracted back down to its more normal size, the emergent vegetation was gone,” Pearson said. The bulrushes (also called tules) and cattails had been submerged for so long, they died out. With no emergent vegetation, the wind can whip across the water creating waves and suspending sediment in the water. “It’s thought that there is potentially

a correlation between the degraded state of Malheur Lake and how turbid the water is," Pearson explained. The turbid water in turn prevents submergent vegetation, such as sago pondweed, from growing.

Pictured above: Fish Biologist, Dr. James Pearson transporting emergent vegetation starts for planting in Malheur Lake.

Currently, the emergent vegetation surrounds the outside of the lake, and there are a few remnant patches within the lake. According to Pearson, carp should not have an affect on the growth of emergent vegetation. While the way carp root for food in the lake bottom can affect the growth of submergent vegetation, the emergent vegetation is not affected in the same way. "We were wondering what happened to the emergent vegetation," Pearson said. "We know it looks like it died out during the 1980s floods, but why hasn't it expanded back into the lake in the areas it historically was established in?"

The Harney Basin Wetlands Initiative is taking a three-pronged approach to the restoration of Malheur Lake. This includes, suppressing the carp population, increasing the clarity of the water and increasing the emergent vegetation. This new two-year study, funded by the Oregon Watershed Enhancement Board (OWEB) and led by members of the Harney Basin Wetlands Initiative, will look at areas where the lake has historically had emergent vegetation and determine if plants can be transplanted to areas where they will prosper. Pearson said the project will focus on the emergent vegetation currently growing in the lake, determine why it is not expanding and look at transplanting emergent vegetation from other areas such as canals where the vegetation is not needed or may even be considered a nuisance.

Bachman has been involved in transplanting projects at other refuges in the past, which has involved loading a dump truck full of tules and moving them to a wetland area for transplantation. "Malheur Lake makes it very difficult for that because you really can only access it from one point from the Blitzen River, and you have to do it from an airboat," Bachman said. In a recent pilot project, he noted that they have taken some 50-pound bulrush clumps and transplanted them in the lake as test cases. "Many of them are doing very successfully and some of them not so much. We learned a lot from that," he said. He anticipates that the project will determine the parameters for the most successful transplantation method, such as the best size clump, the best placement, the best elevation, the best soil, and the best water depth.

Pictured to your left: An emergent vegetation enclosure.

In another small window into what could be going on with emergent vegetation at the lake, Bachman said they have set up some enclosures within the lake in areas where small patches of emergent vegetation have grown. They found alkali bulrush growing on its own in two different enclosures. However, a muskrat dug underneath the exclosures and ate the plants. "It ate every one of those little growths," he said. Bachman noted that while it was not part of a large study, it did hint at what could be happening in the lake. "We now have this little chunk, a little blip in time, of some data that says that is possibly what is happening," he said.

This project will be headed up by a wetland ecologist, likely a master's student, Bachman said. Refuge staff and High Desert Partnership staff will be involved as well, and the Harney Basin Wetlands Initiative will oversee the OWEB funding.

Considering the scope of the venture and the immense size of Malheur Lake, Bachman said this two-year project will likely go longer. “The two years will be how to successfully do this,” he said. What is learned from this project will dovetail with what is being learned from the mesocosm and carp projects already in progress at the lake.

Pearson said that the pilot project conducted last spring offered some promising results, and he believes this project will as well. “Everybody’s looking for the silver bullet on things, and it is rare that you find it. But this could be a very simple thing … just literally surrounding plants to help them grow to help restore portions of Malheur Lake would be very good,” he said.

This article is provided by High Desert Partnership; a Harney County nonprofit convening and supporting six collaboratives including the Harney Basin Wetlands Initiative.

HIGH DESERT Partnership