Restoration Planning for Malheur Lake and Harney Basin Flood Irrigated Wet Meadows

Stakeholders join together in collaborative effort

March 2022, by Amy Morfas

The Harney Basin Wetlands Collaborative (HBWC) recently completed an updated strategic plan with goals of restoring Malheur Lake back to a clear-water state and improving the conditions of Harney Basin flood irrigated wet meadows so waterfowl can continue to thrive, while sustaining a vibrant rural economy for Harney County. HBWC, was formed in 2011 as a High Desert Partnership collaborative to develop strategies to improve the aquatic health and sustainability of Malheur Lake and the wild flood-irrigated wet meadows across the Harney Basin. This effort includes a diverse group of stakeholders, including local ranchers, conservation organizations, the Sovereign Nation of the Burns Paiute Tribe, government agencies, technical experts, scientists, area residents, and nonprofit partners.

The group has invested significant resources to bring together the various stakeholders and develop a plan with common ground that all could agree on. “It was critical that local residents and their economic interests were heard [by the collaborative],” said Ken Bierly, consultant and volunteer with High Desert Partnership. “With everyone having a seat at the table, the plan shows that people’s livelihoods and conservation of waterbird habitat can coexist.”

Malheur Lake and adjacent wetlands are located on the Pacific Flyway migration path, which stretches from Alaska to Patagonia, and serves as a much-needed oasis for both migratory and resident bird species. Loss of this critical habitat could have significant consequences for local bird populations along the entire flyway. It is estimated that Malheur Lake and the surrounding Malheur National Wildlife Refuge see hundreds of thousands of birds pass through during migratory seasons, attracting members of the birding community. The stop is essential to the many birds on their long journey to have a place to rest, recover, refuel, and gain strength.

Pictured: Historical image of flood irrigated wet meadows of the Harney Basin provided by the Harney County Library Western History Room.

Since the 1980's, fluctuating extreme high and low water levels, coupled with the invasion of carp species, a decline in essential vegetation, and uncertain snowpack runoff due to a changing climate have all conspired to make Malheur Lake a turbid, unattractive, and unsustainable body of water.

On the local economy side, ranching has been in the Harney Valley for 150 years. Water plays a vast and essential role in the success of the local ranching community and forage production. The focus of the HBWC is to understand and reverse the declining quality of this critical marsh system to ensure future bird habitat in the Harney Basin. The HBWC strategic action plan is targeted to achieve: restoration of Malheur Lake to a clear-water stable state and conservation and maintenance of flood irrigated wet meadows. "As snowpack becomes less predictable, developing new strategies to adapt to changing availability and timing will be essential to sustain the region's livelihood for both people and birds," shares Esther Lev, wetland consultant and HBWC partner.

Pictured: Malheur Lake by Jeremy Hill.

Malheur Lake Restoration

The framework of the plan for the Malheur Lake is based on research to study complex ecosystems and changing conditions. It has taken time to understand, inform, educate, and agree on what keeps the lake in its current degraded condition. This shared science has helped to refocus strategies for Malheur Lake that consists of six main components:

1. Review the ecology of Malheur Lake and its watershed to incorporate new information coming from groundwater studies, carp population studies, water chemistry studies, lake physical processes, and streamflow information from the Donner und Blitzen River (herein Blitzen) and Silvies River. This review will be used to evaluate success of potential restoration alternatives and to identify crucial uncertainties associated with management opportunities of Malheur Lake.
2. Begin altering the structure of the lakebed to recreate islands and peninsulas to act as natural wind/wave barriers to model the natural topography of the lake, which no longer exists. The exploration will identify the optimal number of islands, distance between the islands, and expected water change results.
3. Plant native emergent vegetation such as sago pondweed and bulrush.
4. Improve water quality. Working to reduce turbidity is essential for plant survival and expansion. Among other methods, this will include obtaining clear water from the Blitzen River.
5. Control carp biomass. Carp are now part of the Malheur Lake ecosystem and eradication is not an option. Carp populations will be controlled at the entrance of the Blitzen and electric barriers are to be established in the river, preventing carp from continuing downstream to the lake.
6. Monitoring and adaptive management. As understanding increases on the evolving status of Malheur Lake, information will be gathered into models to help shape future decisions and adjust strategies as needed. Restoration actions will be adjusted depending on water quality, plant responses, and climate models.

Flood Irrigated Wet Meadows

For flood irrigated wet meadows, the plan goal is conservation and maintenance of flood irrigated wet meadows through improved infrastructure and management.Targeted conservation efforts of flood-irrigated wet meadows will ensure that the area continues to serve as migratory bird habitat. Management and distribution of water across the floodplain and effects on the plant communities are essential to providing habitats that will sustain the Pacific Flyway.

Pictured: Wet meadow by Jeremy Hill.

The Harney Basin is characterized by extremely high year-to-year weather variation. Vegetation managers have always adapted to this variability, but climate change is adding additional variables and challenges. Along with reviewing snowpack for the past 30-50 years to help make assumptions on future needs, landowners and managers will be asked about their management changes in response to low snowpack years and what type of information will help them plan for future management decisions as a result of a changing climate.

The data collected in parallel with land manager experience and desired new information and tools will help ensure individual ranches' and Harney County economic viability while maintaining and conserving their flood irrigated wet meadow ecosystems. "Bringing together the human experience and science is essential to the success of the plan," said Tony Svejcar, retired rangeland scientist and Harney County resident since 1990. "Concerns and input from local ranchers, birders, and conservationists were all considered to build support for the plan's process.

Finding common ground

For more than 15 years, High Desert Partnership and its collaboratives have been working together to find common ground. This new strategic plan put forth by the HBWC embraces finding common ground solutions for the complex problems and opportunities that Malheur Lake restoration and conservation and maintenance of flood irrigated wet meadows involves. Much more about this work can be found at highdesertpartnership.org.

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

HIGH DESERT Partnership